



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

August 6, 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  
05000336/2013003 AND 05000423/2013003**

Dear Mr. Heacock:

On June 30, 2013, 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 July 16, 2013, with Mr. Scace, Site Vice President, and other members of your staff.

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

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

Fred L. Bower III, Acting Chief  
Reactor Projects Branch 5  
Division of Reactor Projects

Docket Nos. 50-336 and 50-423  
License Nos. DPR-65 and NPF-49

Enclosure: Inspection Report 05000336/2013003 and 05000423/2013003  
w/Attachment: Supplementary Information

cc w/encl: Distribution via ListServ

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos: 50-336 and 50-423

License Nos: DPR-65 and NPF-49

Report No: 05000336/2013003 and 05000423/2013003

Licensee: Dominion Nuclear Connecticut, Inc.

Facility: Millstone Power Station, Units 2 and 3

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

Dates: April 1, 2013 through June 30, 2013

Inspectors: J. Ambrosini, Senior Resident Inspector, Division of Reactor Projects (DRP)  
J. Krafty, Resident Inspector, DRP  
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Approved By: Fred L. Bower III, Acting Chief  
Reactor Projects Branch 5  
Division of Reactor Projects

Enclosure

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## SUMMARY

IR 05000336/2013003, 05000423/2013003; 04/01/2013 - 06/30/2013; Millstone Power Station Units 2 and 3; Refueling and Other Outage Activities; Follow-Up of Events and Notices of Enforcement Discretion; Maintenance Risk Assessments and Emergent Work Control.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. Two Green findings and one Severity Level IV violation, all of which were non-cited violations (NCVs), were identified. The significance of inspection findings are indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process (SDP)," dated June 2, 2011. Cross-cutting aspects are 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's Enforcement Policy, dated January 28, 2013. 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: Emergency Preparedness

- Severity Level IV. The inspectors identified a Severity Level IV NCV of 10 CFR 50.72(b)(3)(xiii) for the failure to make the required initial notification to the NRC within eight hours of a major loss of monitoring capability. On April 16, Dominion declared the main station stack radiation monitor inoperable but did not report this to the NRC until the inspectors questioned the control room operators on April 18. Dominion evaluated the condition and made the required notification (NRC event report number 48941) on April 18, 2013, and entered the issue into their corrective action program (CAP) as CR512007.

The inspectors determined that Dominion did not notify the NRC of a major loss of emergency assessment capabilities event in the time required by 10 CFR 50.72. The inspectors determined the finding was subject to traditional enforcement because Dominion's failure to make a required report could potentially impact the NRC's regulatory function. This finding is similar to the one described in NRC Enforcement Policy, Section 6.9.d(9), "A licensee fails to make a report required by 10 CFR 50.72 or 10 CFR 50.73," which corresponds to Severity Level IV. In accordance with guidance contained in IMC 0612, "Power Reactor Inspection Reports", Section 07.03, cross-cutting aspects are not assigned to traditional enforcement violations. (Section 4OA3)

### Cornerstone: Initiating Events

- Green. The inspectors noted a self-revealing Green NCV of 10 CFR 50, Criterion III, "Design Control," when Dominion's did not adequately implement established measures for the identification and control of design interfaces and for coordinating among participating design organizations. Specifically, Dominion failed to properly require a temporary modification for a work activity that met the design requirements of CM-AA-TCC-204, "Temporary Configuration Changes," when workers installed an air line jumper that caused an AOV to open and led to an uncontrolled loss of RCS inventory. Dominion entered the issue into their CAP as CR511856.

The finding is more than minor because it is associated with the design control attribute of the Initiating Events cornerstone and affected the cornerstone objective to limit the likelihood

of events that upset plant stability and challenge critical safety functions during shutdown operations. Specifically, Dominion failed to properly implement a temporary modification which ultimately led to the uncontrolled loss of RCS inventory. The finding was of very low safety significance (Green) because the charging system had sufficient capacity to maintain pressurizer level, the leakage would not have caused the loss of the running residual heat removal (RHR) pump for a substantial period of time, and at least one steam generator (SG) remained available. The finding had a cross-cutting aspect in Human Performance, Work Practices, because Dominion failed to ensure supervisory and management oversight of work activities such that nuclear safety is supported. Specifically, the station did not maintain control of activities in accordance with plant procedures [H.4(c)]. (Section 1R20)

### **Cornerstone: Mitigating Systems**

- Green. The inspectors identified an NCV of Technical Specification (TS) 6.8.1, "Procedures and Programs," for failing to implement Annunciator Response Procedure (ARP) OP-3353VP1B1-4 (BATT ROOM 1, 3, 5, EXHAUST FAN FLOW LOW) and stop the equalizing battery charge that was occurring on three batteries to prevent the buildup of hydrogen gas in the Unit 3 east switchgear room when room ventilation was stopped. After a period of two hours, Dominion stopped the equalizing charge and entered the issue into their CAP as CR511856 and CR519744.

The performance deficiency is more than minor because it affected the protection against external factors attribute of the mitigating systems cornerstone and affected the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events, such as fire, to prevent undesirable consequences (i.e. core damage). Specifically, Dominion failed to properly implement the ARP which allowed the potential build-up of hydrogen gas to occur in the east switchgear room. A hydrogen fire in the east switchgear room would have disabled numerous safety-related systems and potentially injured personnel during a time when the plant was in a yellow shutdown risk state based on RCS decay heat removal and power availability. The inspectors determined this finding to be of very low safety significance (Green) because train 'B' was protected and RHR loop 'B' was in operation providing core cooling. Train 'B' components and systems were physically isolated in the west switchgear room. The finding has a cross-cutting aspect in the area of Human Performance, Work Practices, because Dominion did not effectively communicate expectations regarding personnel following procedures [H.4(b)]. (Section 1R13)

### **Other Findings**

Two violations of very low safety significance identified by Dominion were reviewed by the NRC. Corrective actions taken or planned by Dominion have been entered into Dominion's CAP. These violations and corrective action tracking numbers are listed in Section 4OA7 of this report.

## REPORT DETAILS

### Summary of Plant Status

Millstone Unit 2 operated at or near 100 percent power for the entire inspection period.

Millstone Unit 3 began the inspection period operating at 100 percent power. On April 14, Unit 3 was shutdown to begin refueling outage (RFO) 3R15. Unit 3 returned to 100 percent power on May 23, and remained at or near 100 percent power for the remainder of the inspection period.

### 1. REACTOR SAFETY

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

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

##### Summer Readiness of Offsite and Alternate Alternating Current (AC) Power Systems

##### a. Inspection Scope

The inspectors performed a review of plant features and procedures for the operation and continued availability of the offsite and alternate alternating current (AC) power system to evaluate readiness of the systems prior to seasonal high grid loading. The inspectors reviewed Dominion's procedures affecting these areas and the communications protocols between the transmission system operator and Dominion. This review focused on changes to the established program and material condition of the offsite and alternate AC power equipment. The inspectors assessed whether Dominion established and implemented appropriate procedures and protocols to monitor and maintain availability and reliability of both the offsite AC power system and the onsite alternate AC power system. The inspectors evaluated the material condition of the associated equipment by interviewing the responsible system engineer, reviewing system health reports, condition reports (CR), and open work orders, and walking down portions of the offsite and AC power systems including the 345 kilovolt switchyards. Documents reviewed for each section of this inspection report are listed in the Attachment.

##### b. Findings

No findings were identified.

#### 1R04 Equipment Alignment

##### .1 Partial System Walkdowns (71111.04 – 4 samples)

##### a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

## Unit 2

- 'B' motor driven auxiliary feedwater (MDAFW) pump and turbine driven auxiliary feedwater (TDAFW) pump while a surveillance test was being conducted on the 'A' MDAFW pump on May 7
- 'B' boric acid pump while the 'A' boric acid pump was being overhauled on June 25

## Unit 3

- Spent fuel pool cooling with recent core offload in the spent fuel pool on April 23
- 'B' train high pressure safety injection (HPSI) while it was credited as an injection path for RCS inventory control on May 9

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable operating procedures, system diagrams, the updated final safety analysis report (UFSAR), TS, work orders, CRs, 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.

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

### a. Inspection Scope

From April 15 through April 22, the inspectors performed a complete system walkdown of accessible portions of the Unit 3 RHR system to verify the existing equipment lineup was correct. The inspectors reviewed drawings and equipment line-up check-off lists to verify the system was aligned to perform its required safety functions. The inspectors also reviewed electrical power availability, hangar and support functionality, and operability of support systems. The inspectors performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. Additionally, the inspectors reviewed system health reports, a sample of related CRs and work orders, and interviewed the system engineer to ensure Dominion appropriately evaluated and resolved any deficiencies.

### b. Findings

No findings were identified.

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

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

Unit 2

- Boric acid batch tank, sample room, and boronmeter room, fire area A-12 on May 10
- Diesel generator room B, fire area A-16 on May 31
- Fire pumphouse, fire area FP-2 on May 31
- Turbine building 6.9 and 4.16 kV switchgear room, fire area T-10 on June 28

Unit 3

- Containment structure, fire area RC-1 on April 16
- East MCC and rod control area air conditioning unit room, fire area AB-8 on May 10

b. Findings

No findings were identified.

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

The inspectors reviewed the UFSAR, the site flooding analysis, and plant procedures to assess susceptibilities involving internal flooding. The inspectors also reviewed the CAP to determine if Dominion identified and corrected flooding problems and whether operator actions for coping with flooding were adequate. The inspectors also focused on engineered safety features (ESF) building areas ESF-3, ESF-4, and ESF-5 to verify the adequacy of equipment seals located below the flood line, floor and water penetration seals, common drain lines and sumps, sump pumps, level alarms, and control circuits.

b. Findings

No findings were identified.

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

The inspectors reviewed the 'A' reactor building component cooling water (RBCCW) heat exchanger in Unit 2 to determine its readiness and availability to perform its safety functions on April 9. The inspectors reviewed the design basis for the component and verified Dominion's commitments to NRC Generic Letter 89-13. The inspectors observed the inspection of the heat exchanger and reviewed inspection reports. The inspectors verified that Dominion initiated appropriate corrective actions for identified deficiencies. The inspectors also verified that the number of tubes plugged within the heat exchanger did not exceed the maximum amount allowed.

b. Findings

No findings were identified.

1R08 In-service Inspection (71111.08 – 1 sample)a. Inspection Scope

From April 22 through May 2, the inspectors conducted an inspection of Dominion's in-service inspection (ISI) activities during the Millstone Unit 3 RFO (3R15). Inspection samples were chosen based on the procedure objectives and where degradation would result in a significant increase in the risk of core damage. The inspectors observed in-process non-destructive examinations (NDE), reviewed documentation, and interviewed Dominion personnel to verify that the nondestructive examination activities were conducted in accordance with the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section XI.

Non-Destructive Examination and Welding Activities (IMC Section 02.01)

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

ASME Code Required Examinations

- The inspectors conducted an independent inspection of the reactor metallic containment liner coatings
- Remote observation of a sample of automated ultrasonic test (UT), volumetric examinations of four 29-inch diameter RCS hot leg reactor vessel outlet nozzle to safe-end dissimilar metal (DM) welds (302-121-A, 302-121-B, 302-121-C, 302-121-D) and four 27.5-inch diameter RCS cold leg reactor vessel inlet safe-end to nozzle DM welds (301-121-A, 301-121-B, 301-121-C, and 301-121-D) and documentation review of all UT examination data records
- Remote observation of the bare metal visual inspection and volumetric examination of reactor vessel upper closure head control rod drive mechanism (CRDM) penetration nozzles and reactor vessel upper closure head vent, A600 pipe-to-stainless steel socket coupling weld (FW-1) and reviewed visual examination data records

- Record review of radiographic film and inspection report of 16-inch diameter main and auxiliary feedwater (FW) nozzle 3321A to pipe weld (FWS-21-FW-50) on the 'B' SG
- Record review of magnetic particle test (MT) examination report, SG 'A' FW nozzle to shell weld (03-053-SW-R)
- Record review of liquid penetrant test (PT) examination report of safety injection system integral attachment welds (component ID 3-SIL-1-PSSP420)

The inspectors reviewed certifications of the NDE technicians performing the examinations to verify the examinations were performed by qualified individuals in accordance with approved procedures and the results reviewed and evaluated by certified Level III NDE personnel.

#### Re-examination of an Indication Previously Accepted For Service after Analysis

There were no samples available for review during this inspection that involved examinations with recordable indications that have been accepted for continued service following the previous Unit 3 outage.

#### Modification/Repair/Replacements Consisting of Welding on Pressure Boundary Risk Significant Systems

Millstone Unit 3 repair/replacement activity associated with the repair of a through-wall leak discovered in a top head seam weld on volume control tank (MP3 3CHS\*TK2). The inspectors reviewed the ASME Section XI Repair/Replacement Program procedure, work order, welding procedure, weld data record, welding program weld map, welding technique sheet, weld material control form serial number 305400, base metal/weld metal repair disposition form, PT examination report and radiographic inspection report of the repair to seam weld (W1). The inspectors reviewed the repair activity to verify the welding and applicable NDE activities were performed in accordance with ASME Section XI Code, 2004 Edition requirements.

#### Pressurized Water Reactor Vessel Upper Head Penetration Inspection Activities (IMC Section 02.02)

The inspectors verified that the reactor vessel upper head penetration (RVUHP) 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," to ensure the structural integrity of the reactor vessel head pressure boundary. The inspectors directly observed portions of the remote bare metal visual examination of the exterior surface of the RVUHP to confirm appropriate inspection coverage was achieved and to verify that no boric acid leakage or wastage had been observed. The inspectors also remotely observed a sample of the automated ultrasonic examinations of RVUHP CRDM penetration nozzle welds made of Alloy 600/82/182 material and reviewed the examination reports.

#### Reactor Vessel Lower Head Penetration Nozzle Inspection Activities

The inspectors reviewed the bare metal visual examination data records and photographs of the reactor vessel lower head in-core instrument nozzle penetration

welds. The inspectors assessed the acceptability of the as-found conditions to ensure the integrity of the reactor coolant pressure boundary.

#### Boric Acid Corrosion Control (BACC) Inspection Activities

The inspectors discussed the BACC program with the BACC program owner. The inspectors also sampled photographic inspections of boric acid found on safety significant piping and components inside containment during the Mode 3 walkdowns conducted by Dominion personnel on April 14. Selected walkdowns were directly observed by the resident inspectors, to verify that the visual inspections were performed in accordance with the Millstone BACC Program inspection procedure and checklists. The BACC inspection program emphasized the areas and locations where boric acid leaks could cause degradation of safety significant components and required that deficient conditions were identified and documented in Dominion's CAP.

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

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

The inspectors reviewed the Millstone Unit 3 SG eddy current testing (ECT) tube examinations and the applicable procedures for monitoring degradation of the SG tubes. The inspectors verified that the SG examination activities were performed in accordance with the rules and regulations of the Dominion SG Program, Unit 3 Eddy Current Data Analysis Reference Manual U3-24-SIP-REF01, NRC Generic Letters, Code of Federal Regulations 10CFR50, TS for Millstone Unit 3, Nuclear Energy Institute 97-06 SG Program Guidelines, Electric Power Research Institute (EPRI) PWR SG Examination Guidelines, and the ASME Boiler and Pressure Vessel Code Sections V and XI. The inspectors reviewed the Millstone Unit 3 SG inspection plan, Millstone Unit 3 SG integrity degradation assessment (R15) and Millstone Unit 3 SG condition monitoring and operational assessment refueling outage 3R14. The SG inspection plan included ECT of all in-service tubes in SG 'B' and 'D' during this outage.

The inspectors observed a sample of ECT of the tubes in the 'B' and 'D' SGs, reviewed ECT data of various tubes, and observed data analysis and resolution activities. Several of the tubes selected for review were tubes that exhibited tube support plate wear. A total of five tubes were removed from service in each of the SGs inspected using tube stabilizer rolled plugs. During the previous operating cycle no tube leakage was reported and during inspections this outage no tubes required in-situ pressure testing.

The inspectors verified that the inspections satisfied the Millstone Unit 3 TS and the EPRI PWR SG Examination Guidelines by directly observing in-process SG tube examination activity and discussing the eddy current inspection data and results with the Dominion technical specialist responsible for the SG inspections.

#### Identification and Resolution of Problems (IMC Section 02.05)

The inspectors reviewed a sample of Millstone Unit 3 CRs, which identified flaws and other nonconforming conditions since the previous outage and during the current

outage. The inspectors verified that nonconforming conditions were properly identified, characterized, evaluated, corrective actions identified and appropriately entered and dispositioned in Dominion's CAP.

b. Findings

No findings were identified.

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

.1 Quarterly Review of Licensed Operator Regualification Testing and Training

a. Inspection Scope

The inspectors observed licensed operator simulator training for Unit 2 on June 18 which included a SG tube rupture followed by a faulted SG. The inspectors also observed Unit 3 simulator exam 83 on June 18 which included a degraded reactor coolant pump (RCP) seal and small break loss of coolant accident inside containment. The inspectors evaluated operator performance during the simulated event and verified completion of risk significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classification made by the shift manager and the TS action statements entered by the shift technical advisor. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors observed the plant downpower of Unit 3 from 50 percent power to 2 percent power and the reactor shutdown conducted on April 13 in preparation for RFO 3R15. The inspectors observed the infrequently conducted complex evolution briefing, the pre-shift briefing, and the reactivity control briefings to verify that the briefings met the criteria specified in Dominion's Operations Section Expectations Handbook and Dominion's Administrative Procedure OP-AA-106, "Infrequently Conducted or Complex Evolutions," Revision 5. Additionally, the inspectors observed test performance to verify that procedure use, crew communications, and coordination of activities between work groups similarly met established expectations and standards.

The inspectors observed routine Unit 2 control room activities on June 17 including planned radiation monitor and reactor protection system testing and operator response to unplanned control room alarms. The inspectors observed the operators to verify that the crew appropriately coordinated and prioritized activities, that they used procedures as expected, and ensured the operators performed required turnover briefings.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 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

- Reactor protection system on April 22

Unit 3

- Engineered safeguards actuation system (sequencer) on June 27

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

- Yellow risk for 'B' train HPSI and 'B' MDAFW pump OOS with compensatory cooling to the west direct current switchgear room on June 17
- Emergent work to replace the 'R' controller on the electro-hydraulic control system for the main turbine on June 26

## Unit 3

- Yellow risk assessment for RCS drain down to decreased inventory for defueling April 19
- Unplanned red risk condition on May 5
- Emergent risk for the loss of battery room ventilation during an equalizing battery charge on May 7
- Yellow risk assessment for RCS drain down to decreased inventory for refueling on May 9

### b. Findings

Introduction. The inspectors identified a Green NCV of TS 6.8.1, "Procedures and Programs," for failing to implement ARP OP-3353VP1B1-4 (BATT ROOM 1, 3, 5, EXHAUST FAN FLOW LOW) and stop the equalizing battery charge that was occurring on station batteries 1, 3, and 5 to prevent the buildup of hydrogen gas in the Unit 3 east switchgear room when room ventilation was stopped for a period of over two hours.

Discussion. On May 7, 2013, during an emergency safeguards features loss of power (LOP) test, the east switchgear room ventilation supply fan, 3HVC\*FN3A, was stopped as part of the surveillance test at 9:05 AM. This action caused three battery room exhaust fans (3HVC\*FN9A/C/E) to stop (on interlock) while batteries 1, 3, and 5 were receiving an equalizing charge. ARP OP-3353VP1B1-4 required the operators to stop the equalizing charge and to process and install a temporary modification to provide ventilation prior to resuming the battery charge. The shift manager elected not to stop the equalizing charge on the three batteries but rather to open the battery room doors and install box fans as a compensatory measure. The battery equalizing charge was continued until 11:29 AM, for a period of time over two hours.

All three battery room exhaust fans are interlocked with the east switchgear room ventilation supply fan such that the exhaust fans will trip if the supply fan is not running. This design feature allows hydrogen gas to build up in the battery rooms where any subsequent explosion would damage the battery and supporting structure but no other safety-related equipment.

The shift manager directed the non-licensed operator to immediately establish temporary ventilation by opening the battery room doors and using box fans to move the air out of the battery rooms into the east switchgear room. By opening the battery room doors and establishing temporary ventilation, the hydrogen gas was allowed to migrate into the switchgear room where the gas could potentially build up to explosive levels in the presence of safety-related switchgear which are also potential ignition sources. However, this action was deemed to be safe at the time because the control room

operators were monitoring hydrogen gas meters, 3HVC-AIT82A/C/E, for the respective battery rooms in the control room. The shift manager stated that he intended to stop the equalizing battery charges for the three batteries if hydrogen was noted to be increasing to dangerous levels, no more than 2 percent. The inspector noted that the hydrogen reading in battery room 1 was already reading 0.7 percent but was informed that the meter had indicated this level of concentration prior to starting the battery charge.

The inspector reviewed the work history of the battery room hydrogen meters to determine if they provided an accurate and reliable indication of hydrogen gas concentrations. Numerous (14) CRs dating back to 2008 explicitly stated the hydrogen meters in the control room were not accurate and could not be reliably maintained within calibration tolerances. The battery hydrogen monitors are calibrated every three years under Work Order 53M30610317. The last calibration check was completed in December 2010 when three of the five meters were noted to be outside the  $\pm 1$  percent allowable instrument loop tolerance. No CR was written on this trend. In January 2009, CR320850 had been initiated stating that "historically these instruments required adjustments and/or repair each time a loop calibration check was performed." This CR was closed without action being taken. In 2007, only one out of five monitors were within the  $\pm 1$  percent acceptance criteria. Finally, the periodic calibration check procedure does not check the accuracy of the remote hydrogen meters in the control room. The inspectors concluded that the hydrogen meter did not accurately indicate the hydrogen concentration in the battery room.

Analysis. Failure to properly implement ARP OP-3353VP1B1-4 was a performance deficiency that was within Dominion's ability to foresee and prevent. Traditional enforcement does not apply because the issue did not have actual safety consequences or potential for impacting the NRC's regulatory function, and was not the result of any willful violation of NRC requirements. The inspectors determined the performance deficiency was more than minor because it affected the protection against external factors attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events, such as fire, to prevent undesirable consequences (i.e. core damage). The east switchgear room contains the breakers for the 4160 V AC safety-related pumps for emergency core cooling system (ECCS) Train 'A'. A hydrogen fire in the east switchgear room would have disabled numerous safety-related systems during a time when the plant was in a yellow shutdown risk state based on RCS decay heat removal and power availability. The inspectors determined this finding to be of very low safety significance (Green) in accordance with IMC 0609, Appendix G, "Shutdown Operations Significance Determination Process Phase 1," Attachment 1, "CHECKLIST PWR Refueling Operation: RCS level > 23'OR PWR Shutdown Operation with Time to Boil > 2 hours and Inventory in the Pressurizer." This determination was based on the following: the plant was in Mode 6 with the core loaded in the reactor vessel and the refueling cavity full; Train 'B' was the protected train and RHR loop 'B' was in operation providing core cooling; Train 'B' components, systems, and switchgear were physically isolated outside of the east switchgear room; and time to core boiling was 8 hours and 54 minutes. Specifically, exhausting the battery room gases into the east switchgear room during a battery charge had the potential to increase hydrogen gas concentrations to a flammable level thereby reducing the reliability of the train 'A' ECCS pumps to be available to perform their safety function to maintain reactor level and decay heat removal.

The finding has a cross-cutting aspect in the area of Human Performance, Work Practices component, because Dominion did not effectively communicate expectations regarding personnel following procedures. Specifically, Dominion did not effectively communicate the expectation that the shift manager was required to follow the steps in the ARP and not deviate from these directions. [H.4(b)]

Enforcement. TS 6.8.1, "Procedures and Programs," requires written procedures to be implemented covering the applicable list of procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Regulatory Guide 1.33 recommends implementing procedures for operation of the direct current electrical system including the procedure to respond to alarm conditions, OP-3353VP1. Contrary to this requirement, on May 7, 2013, Dominion did not comply with Step 3.1, which required securing the battery charge, and continued the equalizing battery charge for two hours after receiving the alarm, BATT ROOM 1, 3, 5, EXHAUST FAN FLOW LOW. Subsequently, Dominion stopped the battery charge. Because this violation was of very low safety significance (Green), and Dominion entered this issue into their CAP (CR515154 and 519744), this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. **(NCV 05000423/2013003-01, Failure to Implement Annunciator Response Procedure for a Loss of Ventilation during a Battery Charge)**

1R15 Operability Determinations and Functionality Assessments (71111.15 – 9 samples)

a. Inspection Scope

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

Unit 2

- OD000540, Unit 2 'B' train containment spray discharge piping UT Point 26 found empty on May 29

Unit 3

- RAS000228, Multiple spurious operation of RHR shutdown cooling suction valves on April 1
- OD000529 Revision 1, 3SWP\*V658 enclosure device not sealed on April 5
- CR512687, 3CHS\*MV8468B as-found test exceeded calculated structural limit on May 1
- ETE-MP-2013-1097, Determination of operability for the Unit 3 maintenance truss degradation and lack of installation of storage pins resulting in loss of seismic margin potentially impacting the reactor vessel on May 1
- OD000237, Revision 4, 3FWS\*CTV41 inadequate valve closing capability on May 8
- OD000538, 3SWP\*MOV50B high static torque on May 13
- CR515821, TDAFW pump speed oscillations at low flow conditions on May 16
- ODM000296, Increased RCS unidentified leakage on June 24

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 – 2 samples)

.1 Temporary Modifications

a. Inspection Scope

The inspectors reviewed the temporary modification DCN-13-01032, "Gamma Metrics Nuclear Instrument Detector Replacement," on Unit 3 to determine whether the modifications affected the safety functions of systems that are important to safety on April 16. The inspectors reviewed 10 CFR 50.59 documentation and post-modification testing results and conducted field walkdowns of the modifications to verify that the temporary modification did not degrade the design bases, licensing bases, and performance capability of the affected systems.

b. Findings

No findings were identified.

.2 Permanent Modifications

a. Inspection Scope

The inspectors evaluated a replacement of the reactor head vent system with a new type of vent valve implemented by engineering design change package MP3-12-01028, "Millstone 3 Reactor Vessel Head Vent Valve Replacements," on May 20. 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 environmental qualification documents and the list of procedures, drawings, and calculations to be updated. The inspectors also reviewed post-maintenance testing results to ensure the acceptance criteria was met.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 13 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

- 'B' service water (SW) pump maintenance outage on April 2
- Replacement of the lube oil heat exchanger tube bundle on the 'B' emergency diesel generator (EDG) on May 28

Unit 3

- 'B' EDG zinc replacement on April 2
- Gamma metrics nuclear instrument replacement on April 16
- Main transformer 'C' phase low side bushing replacement on April 22
- Reserve station service transformer insulator bushings (3 high side, 1 low side) replacement on April 29
- 3SWP\*MOV50B, 'B' train SW isolation valve to reactor plant component cooling water on May 4
- Replacement of the 'D' FW regulating valve on May 13
- 'B' SW dealloyed valve replacement on May 14
- 'C' RCP retest following seal replacement on May 14
- 'A' power operated relief valve replacement on May 16
- Digital rod position indication hot rod drop testing following system repairs on May 16
- TDAFW pump retest following replacement of the latching mechanism on May 16

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 3 maintenance and RFO 3R15, which was conducted April 14 through May 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 OOS
- Implementation of clearance activities and confirmation that tags were properly hung and that equipment was appropriately configured to safely support the associated work or testing
- 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
- Tracking of startup prerequisites, walkdown of the primary containment to verify that debris had not been left which could block the emergency core cooling system suction strainers, and startup and ascension to full power operation
- Identification and resolution of problems related to refueling outage activities

b. Findings

Introduction. The inspectors noted a self-revealing Green NCV of 10 CFR 50, Criterion III, "Design Control," when Dominion's did not adequately implement established measures for the identification and control of design interfaces and for coordinating among participating design organizations. Specifically, Dominion failed to properly require a temporary modification for a work activity that met the design requirements of CM-AA-TCC-204, "Temporary Configuration Changes." The workers installed an air line jumper that caused an AOV to open, which led to an uncontrolled loss of RCS inventory.

Description. On April 17, 2013, with Millstone Unit 3 in Mode 5 for their RFO, a reactor operator in the control room noted pressurizer level dropping in an uncontrolled manner, and the level in the containment drains test tank (CDTT) rising at approximately 40 gallons per minute (gpm). Unit 3 entered abnormal operating procedure (AOP)-3505, "Loss of Shutdown Cooling and/or RCS Inventory." The reactor operator increased charging flow to maintain RCS inventory and recover pressurizer level. The shift manager noted that the 'B' RCS loop drain valve, 3RCS\*AV8037B, indicated dual indication and dispatched a plant equipment operator to manually close the drain valve inside containment.

Approximately one hour after the event began, CDTT level stabilized, and the total volume lost from the RCS was estimated at 1,650 gallons. Pressurizer level was limited to a 2 percent decrease because Dominion used charging to make up the water lost.

The inspectors reviewed Dominion's shutdown safety assessment and determined that all RCS control parameters remained within the normal control bands during the event, and the time to core boil was not affected.

Dominion determined the cause of the event was the failure of a temporary air line jumper installed in order to allow operation of the loop drain valve. The solenoid valve that normally ports air to 3RCS\*AV8037B had previously failed to operate and Dominion decided to install a jumper to assist with draining the B loop. The isolation valve for the temporary jumper line leaked and pressurized the air operator for the 'B' loop drain valve. This air leak caused 3RCS\*AV8037B to open and drained the 'B' RCS loop into the CDTT.

According to CM-AA-TCC-204, "Temporary Configuration Changes", the temporary air line installation met the requirements for a temporary modification. However, the outage control center incorrectly decided to control the evolution using a process known as a temporary alteration in support of maintenance (TAM), and implemented the temporary air line installation under a work order (53102618737). As a result of incorrectly classifying this as a TAM, the control room was not informed of the installation of the temporary jumper and the required reviews to verify design adequacy were not accomplished.

Analysis. The inspectors determined that the failure to implement a temporary modification when required was a performance deficiency that was reasonably within Dominion's ability to foresee and prevent. Specifically, Dominion did not follow the requirements of CM-AA-TCC-204 when the outage control center allowed installation of a temporary jumper outside of the temporary modification process and without knowledge of the shift manager.

The inspectors reviewed IMC 0612, Appendix B, "Issue Screening," and determined the finding was more than minor because it is associated with the design control attribute of the Initiating Events cornerstone and affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown operations. Specifically, Dominion failed to properly implement a temporary modification which ultimately led to the uncontrolled loss of RCS inventory. The inspectors, a Region I senior reactor analyst, and a headquarters risk analyst determined this finding to be of very low safety significance (Green) in accordance with IMC 0609, Appendix G, Attachment 1, CHECKLIST 2, "PWR Cold Shutdown Operation: RCS Closed And SGs Available for DHR Removal (Loops Filled and Inventory in Pressurizer) Time to Boiling Less than 2 Hours." This determination was based on the following: with the 40 gpm leak rate to the coolant drain test tank, the charging system had sufficient capacity to maintain pressurizer level, given normal automatic pressurizer and volume control tank level control systems and water sources. Further, if the charging system failed, the leakage would not have caused the loss of the running RHR pump for a substantial period of time (approximately 24 hours) and at least one SG remained available (in an unisolated RCS loop) and had sufficient secondary side water level, to provide reflux cooling if decay heat removal was not restored.

This finding had a cross-cutting aspect in the Human Performance area, Work Practices component, because Dominion failed to ensure supervisory and management oversight of work activities such that nuclear safety is supported. Specifically, the station did not maintain control of activities in accordance with plant procedures. [H.4(c)]

Enforcement. 10 CFR 50, Appendix B, Criterion III, "Design Control", states, in part, measures shall be established for the identification and control of design interfaces and for coordinating among participating design organizations. Contrary to the above, on April 17, 2013, Dominion did not adequately implement established measures for the identification and control of design interfaces and for coordinating among participating design organizations. Specifically, Dominion failed to properly require a temporary modification for a work activity that met the design requirements of CM-AA-TCC-204, "Temporary Configuration Changes." The workers installed an air line jumper that caused an AOV to open and led to an uncontrolled loss of RCS inventory. Dominion's immediate corrective actions removed the temporary jumper. Because the findings is of very low safety significance (Green) and has been entered into Dominion's CAP (CR511856), this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. **(NCV 05000423/2013003-02, Failure to Establish Measures for the Identification and Control of Design Interfaces and for Coordinating Among Participating Design Organizations)**

1R22 Surveillance Testing (71111.22 – 8 samples)

a. Inspection Scope

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

Unit 2

- SP 2611B-003, 'C' RBCCW comprehensive pump test, Revision 000-01 on April 2 (IST)

Unit 3

- SP 3712G, Main steam code safety valve surveillance testing on April 10
- SP 3621.5, Overlap testing of main FW pump trips on April 13
- SP 3646A.18, Train 'B' ESF/LOP surveillance test on April 16
- SP 3612B.4-145, LLRT for 3SIL\*V012 check valve on April 22 (CIV)
- C SP 760-08, Battery 301B-2 discharge inspection, Revision 002-01 on April 30
- SP 3612B.4-136, LLRT for 3HVU\*V5 containment purge exhaust valve on May 15 (CIV)
- SP 3622.3, Full flow surveillance test for TDAFW pump on May 17 (IST)

b. Findings

No findings were identified.

### **Cornerstone: Emergency Preparedness**

#### 1EP4 Emergency Action Level and Emergency Plan Changes (71114.04 – 1 sample)

##### a. Inspection Scope

The NSIR headquarters staff performed an in-office review of the latest revisions of various Emergency Plan Implementing Procedures and the Emergency Plan located under ADAMS accession number ML13109A056 as listed in the Attachment.

Dominion determined that in accordance with 10 CFR 50.54(q), the changes made in the revisions resulted in no reduction in the effectiveness of the Plan, and that the revised Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The NRC review was not documented in a safety evaluation report and did not constitute approval of Dominion-generated changes; therefore, this revision is subject to future inspection

##### b. Findings

No findings were identified.

#### 1EP6 Drill Evaluation (71114.06 – 1 sample)

##### .1 Training Observations

##### a. Inspection Scope

The inspectors observed a simulator training evolution for Unit 3 licensed operators on June 18 which required emergency plan implementation by an operations crew. Dominion planned for this evolution to be evaluated and included in performance indicator data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that Dominion evaluators noted the same issues and entered them into the corrective action program.

##### b. Findings

No findings were identified.

## 2. RADIATION SAFETY

### Cornerstone: Public and Occupational Safety

#### 2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

During April 29 - May 2, 2013, the inspectors reviewed and evaluated Dominion's performance in assessing the radiological hazards and exposure controls in the workplace.

The inspectors used the requirements in 10 CFR Part 20 and guidance in Regulatory Guide 8.38, "Control of Access to High and Very High Radiation Areas for Nuclear Plants," TS, and the procedures required by TS as criteria for determining compliance.

#### a. Inspection Scope

##### Inspection Planning

The inspectors reviewed the 2012 Occupational Exposure cornerstone performance indicator results for Millstone. The inspectors reviewed the results of radiation protection (RP) program audits. The inspectors reviewed reports of operational occurrences related to occupational radiation safety since the last inspection.

##### Radiological Hazard Assessment

The inspectors determined that any changes to plant operations since the last inspection resulted in a significant new radiological hazard for onsite workers or members of the public. The inspectors evaluated whether Dominion assessed the potential impact of these changes.

The inspectors reviewed recent radiological surveys from the auxiliary building 18' valve corridor, auxiliary building 24' charging pump rooms, and HPSI pump. The inspectors evaluated whether the thoroughness and frequency of the surveys were appropriate for the radiological hazards.

The inspectors conducted walk-downs 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 radiological risk-significant work activities:

- SG Sludge Lance
- Scaffolding Installation and Removal
- Reactor Disassembly and Reassembly

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.

The inspectors observed work in potential airborne radioactivity areas and evaluated whether the air samples from under the reactor head were representative of the breathing air zone and were properly evaluated. The inspectors evaluated whether

continuous air monitors were sufficiently sensitive and located in areas that were representative of actual work areas. The inspectors evaluated the monitoring for levels of loose surface contamination in accessible areas of the plant.

#### Instructions to Workers

The inspectors selected three containers holding non-exempt licensed radioactive materials. The inspectors assessed whether the containers were labeled and controlled in accordance with 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 requirements.

- 3130308 Secondary Side SG Work: Sludge Lancing and Upper Bundle Flush Activities
- 3130309 SG Secondary (Steam) Side Entry for Inspections and Repairs
- 3130331 Staging Work
- 3130310 Reactor Head O-Ring Replacement

For these RWPs, the inspectors assessed whether permissible dose under each RWP was clearly identified. The inspectors evaluated whether electronic personal dosimeter (EPD) alarm set-points were in conformance with survey indications and procedural requirements.

The inspectors reviewed two occurrences where a worker's EPD noticeably malfunctioned or alarmed. The inspectors evaluated whether workers responded appropriately and whether the issue was included in the CAP.

For work activities that could suddenly increase radiological conditions, the inspectors assessed Dominion's means to inform and control worker access due to these changes.

#### Contamination and Radioactive Material Control

The inspectors observed one location where Dominion monitors potentially contaminated material leaving the radiological control area and inspected the methods used for control, survey, and release of these materials from this area. The inspectors observed the performance of personnel surveying and releasing material for unrestricted use and evaluated whether the work was performed in accordance with 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 Dominion's criteria 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 procedures and records to verify that the radiation detection instrumentation was used at its appropriate detection sensitivity.

The inspectors selected two sealed sources from Dominion's inventory records and assessed whether the sources were accounted for, and were tested for loose surface contamination.

The inspectors evaluated whether any recent transactions involving nationally tracked sources were reported in accordance with requirements.

#### Radiological Hazards Control and Work Coverage

The inspectors evaluated ambient radiological conditions and performed independent radiation measurements during walk-downs 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 LHRA.

The inspectors assessed whether radiation monitoring devices were placed on the individual's body consistent with procedures. The inspectors assessed whether the dosimeter was placed in the location of highest expected dose or that Dominion properly implemented a NRC-approved method of determining effective dose equivalent. The inspectors reviewed the application of dosimetry to effectively monitor exposure to personnel in high-radiation work areas with significant dose rate gradients.

The inspectors reviewed the following RWPs for work within airborne radioactivity areas with the potential for individual worker internal exposures:

- 3130310 Reactor Head O-Ring Replacement

For this RWP, the inspectors evaluated airborne radioactive controls and monitoring, including potential for significant airborne levels. The inspectors assessed applicable containment barrier integrity and the operation of temporary high-efficiency particulate air ventilation systems.

The inspectors examined the controls for securing highly activated or contaminated materials stored within the spent fuel pools.

The inspectors examined the posting and physical controls for selected HRAs, LHRAs and very high radiation areas to verify conformance with requirements.

#### 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 two radiological problem reports since the last inspection that attributed the cause of the event to 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 CAP 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 two radiological problem reports since the last inspection that attributed the cause of the event to 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 CAP 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 CAPs that involve radiation monitoring and exposure controls. The inspectors assessed Dominion's process for applying operating experience to their plant.

#### b. Findings

No findings were identified.

### 2RS2 Occupational ALARA Planning and Controls (71124.02)

During April 29 - May 2, 2013, the inspectors assessed performance with respect to maintaining occupational individual and collective radiation exposures as low as reasonably achievable (ALARA). The inspectors used the requirements in 10 CFR Part 20, Regulatory Guide 8.8, "Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Plants will be ALARA," Regulatory Guide 8.10, "Operating Philosophy for Maintaining Occupational Radiation Exposure ALARA," TS, and Dominion procedures required by TS as criteria for determining compliance.

#### a. Inspection Scope

##### Source Term Reduction and Control

The inspectors used Dominion records to determine the historical trends and current status of plant source term. The inspectors assessed whether Dominion had developed contingency plans for expected changes in the source term as the result of changes in plant fuel performance issues or changes in plant primary chemistry.

#### b. Findings

No findings were identified.

2RS7 Radiological Environmental Monitoring Program (71124.07 - 1 sample)

During May 20 - 24, 2013, the inspectors verified that the radiological environmental monitoring program (REMP) quantifies the impact of radioactive effluent releases to the environment. The inspectors used the requirements in 10 CFR Part 20; 10 CFR Part 50, Appendix A, Criterion 60, "Control of Release of Radioactivity to the Environment;" 10 CFR 50, Appendix I, "Numerical Guides for Design Objectives and Limiting Conditions for Operations to Meet the Criterion ALARA for Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents;" 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operations;" 40 CFR Part 141, "Maximum Contaminant Levels for Radionuclides;" the guidance in Regulatory Guide 1.23, "Meteorological Measurements Program for Nuclear Power Plants;" Regulatory Guide 4.1, "Radiological Environmental Monitoring Programs for Nuclear Power Plants;" Regulatory Guide 4.15, "Quality Assurance for Radiological Monitoring Programs;" NUREG 1301, "Offsite Dose Calculation Manual (ODCM) Guidance: Standard Radiological Effluent Controls;" applicable industry standards; and Dominion procedures as criteria for determining compliance.

a. Inspection Scope

Inspection Planning

The inspectors reviewed the Millstone Annual Radiological Environmental Operating Reports for 2011 and 2012, and the results of Dominion assessments since the last inspection to verify that the REMP was implemented and reported in accordance with requirements. This review included changes to the ODCM with respect to environmental monitoring, sampling locations, monitoring and measurement frequencies, land use census, inter-laboratory comparison program, and analysis of data.

The inspectors reviewed the Dominion ODCM to identify locations of environmental monitoring stations.

The inspectors reviewed the Dominion Final Safety Analysis Report for information regarding the environmental monitoring program and meteorological monitoring instrumentation.

The inspectors reviewed quality assurance audits and technical evaluations performed on the vendor analytical laboratory program.

The inspectors reviewed the Dominion Annual Radioactive Effluent Release Reports for 2011 and 2012 and the most recent waste stream analysis results, to determine if Dominion is sampling and analyzing for the predominant radionuclides likely to be released in effluents.

Site/Environmental Inspection

The inspectors walked down four air sampling stations and four thermoluminescent dosimeter (TLD) monitoring stations.

For the air samplers and TLD stations selected, the inspectors reviewed their calibration and maintenance records. Additionally, the inspectors reviewed the calibration and maintenance records of two composite water samplers.

The inspectors verified the performance of compensatory sampling upon loss of a required sampling station.

The inspectors observed the simulated collection and preparation of two environmental samples from vegetation and soil, to verify that environmental sampling is representative of the release pathways as specified in the ODCM and that sampling techniques are in accordance with procedures.

Based on direct observation and review of records, the inspectors assessed whether the meteorological instruments were operable, calibrated, and maintained in accordance with procedures and that readout values were commensurate with the control room.

The inspectors evaluated whether missed and/or anomalous environmental samples were identified and reported in the Annual Radiological Environmental Operating Reports. The inspectors selected three events that involved a missed sample, inoperable sampler, lost TLD, or anomalous measurement to verify that Dominion has identified the cause and has implemented corrective actions. The inspectors reviewed the assessment of any sample results detected above the lower limits of detection and reviewed Dominion's evaluation of associated radioactive effluent release data.

The inspectors selected three structures, systems, or components where there is a credible mechanism for radioactive material to reach ground water. The inspectors assessed whether Dominion has implemented a sampling and monitoring program sufficient to provide early detection of leakage from these structures, systems.

The inspectors evaluated whether decommissioning records of leaks, spills, and environmental remediation are retained in the 10 CFR 50.75(g) decommissioning file.

The inspectors reviewed any significant changes made to the ODCM as the result of changes to the land census, long-term meteorological conditions, or modifications to the sampler stations since the last inspection. The inspectors reviewed technical justifications for any changed sampling locations to verify that the changes did not affect the ability to monitor the impact of radioactive effluent releases on the environment.

The inspectors assessed whether the detection sensitivities for environmental samples were below the lower limits of detection specified in the ODCM. The inspectors reviewed quality control charts for laboratory radiation measurement instrument and actions taken for degrading detector performance.

The inspectors reviewed the results of the inter-laboratory and intra-laboratory comparison program to verify the quality of environmental sample analyses performed by Dominion.

#### Identification and Resolution of Problems

The inspectors assessed whether problems associated with the REMP are being identified by Dominion at an appropriate threshold and appropriate CAPs are assigned for resolution in Dominion's CAP.

b. Findings

No findings were identified.

#### 4. OTHER ACTIVITIES

##### 4OA1 Performance Indicator Verification (71151 – 6 samples)

##### .1 Unplanned Scrams, Unplanned Power Changes, and Unplanned Scrams with Complications

##### a. Inspection Scope

The inspectors reviewed Dominion's submittals for the following Initiating Events Cornerstone performance indicators for the period April 1, 2012 through March 30, 2013:

##### Unit 2

- Unplanned Scrams per 7000 Critical Hours
- Unplanned Scrams with Complications
- Unplanned Transients per 7000 Critical Hours

##### Unit 3

- Unplanned Scrams per 7000 Critical Hours
- Unplanned Scrams with Complications
- Unplanned Transients per 7000 Critical Hours

To determine the accuracy of the performance indicator data reported during those periods, inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed Dominion's operator narrative logs, maintenance planning schedules, CR's, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals.

##### 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 Annual Sample: Review of the Operator Workaround Program

a. Inspection Scope

The inspectors performed separate reviews of the cumulative effects of the existing operator workarounds, operator burdens, existing operator aids and disabled alarms, and open main control room deficiencies for Unit 2 and Unit 3 to identify any effect on emergency operating procedure operator actions, and any impact on possible initiating events and mitigating systems. The inspectors evaluated whether station personnel had identified, assessed, and reviewed operator workarounds as specified in OP-AA-1700, "Operations Aggregate Impact."

The inspectors reviewed Dominion process to identify, prioritize, and resolve main control room distractions to minimize operator burdens. The inspectors reviewed the system used to track these operator workarounds (OPSTAT database) and recent Dominion self assessments of the program. The inspectors also toured the control room and reviewed corrective action program documents to ensure the items were being addressed on a schedule consistent with their relative safety significance.

b. Findings and Observations

No findings were identified.

The inspectors determined that the issues reviewed did not adversely affect the capability of the operators to implement abnormal or emergency operating procedures. The inspectors also verified that Dominion entered operator workarounds and burdens into the corrective action program at an appropriate threshold and planned or implemented corrective actions commensurate with their safety significance.

.3 Annual Sample: Review of Time Critical Operator Actions

a. Inspection Scope

The inspectors performed an in-depth review of Dominion's Time Critical Operator Action (TCOA) program. This program includes manual time critical actions performed by operations personnel at the controls and/or manipulating equipment in the plant in order to assure that the plant complies with the regulatory commitments and assumptions related to the Safety Analysis and other licensing basis events.

To determine whether Dominion was appropriately identifying, characterizing, and correcting problems associated with TCOAs, the inspectors assessed Dominion's problem identification threshold, integration of internally generated assessments, and the prioritization, timeliness, and adequacy of corrective actions.

The inspectors reviewed Dominion's corporate and station specific procedures associated with TCOAs, interviewed operations and engineering personnel, conducted a review of CRs generated addressing TCOAs, conducted a review of the site's process

for validating and verifying TCOAs, and reviewed a recent Millstone Nuclear Oversight assessment of the TCOA program.

b. Findings and Observations

No findings were identified.

Dominion Fleet procedure CM-AA-TCA-101, "Time Critical Operator Actions," was issued in December 2009 and became effective at Millstone in July 2010. Millstone subsequently issued a site specific procedure, C OP 200.18, "Time Critical Action Validation and Verification," in July 2010 to comply with the requirements of CM-AA-TCA-101. These procedures were developed to ensure that TCOAs are properly identified, can be accomplished by plant personnel, that periodic validation of credited TCOAs are documented, and that changes to the plant, supporting analysis, or procedures are considered for their impact on TCOAs.

The inspectors determined that, in general, Millstone's overall implementation of the TCOA program was commensurate with its safety significance, was timely, and included appropriate compensatory actions.

However, the inspector's review of selected CAP records related to TCOAs identified insufficient corrective actions in two separate instances. Specifically, the inspectors identified:

- A plant modification was installed in May 2010, eliminating the need for a TCOA in the event of a fire in a high energy switchgear or motor control center room (opening and removal of fuses of CHS\*LCV 112D & E, RWST suction valves to the charging pumps). To date, the associated emergency operating procedure (EOP 3509, "Fire Emergency") and TCOA procedure (C OP 200.18, "Time Critical Action Validation and Verification") have not been revised to reflect the elimination of this TCOA requirement. This issue was determined to be minor because it was related to design control and there was no impact on the operability of the system or component and would not lead to worse errors if uncorrected.
- A TCOA issue was identified by Dominion in December 2012 concerning the inability of Dominion to meet certain security posting requirements in the event of a fire in specific Appendix R areas. An operations department standing order was implemented as an interim measure pending the completion of a permanent procedural change. The CR tracking the change (CR500627) was subsequently closed with no permanent solution identified or implemented. There is currently no formal tracking of the implementation of a permanent solution. This issue was determined to be minor because it was related to licensee administrative requirements and had no safety impact under the given situation.

In accordance with IMC 0612, "Power Reactor Inspection Reports," the above issues constitute violations of minor significance and are not subject to enforcement action in accordance with the Enforcement Policy. Dominion entered the inspector's observations into their corrective action program (CR519624 & CR519625).

#### 4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 3 samples)

##### .1 Plant Events

###### a. Inspection Scope

The inspectors reviewed and/or observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems on the Unit 2 main stack radiation monitor that was inoperable on April 16. The inspectors communicated the plant events to appropriate regional personnel, and compared the event details with criteria contained in IMC 0309, "Reactive Inspection Decision Basis for Reactors," for consideration of potential reactive inspection activities. As applicable, the inspectors verified that Dominion made appropriate emergency classification assessments and properly reported the event in accordance with 10 CFR Parts 50.72 and 50.73. The inspectors reviewed Dominion's follow-up actions related to the events to assure that Dominion implemented appropriate corrective actions commensurate with their safety significance.

###### b. Findings

Introduction. The inspectors identified a Severity Level IV NCV of 10 CFR 50.72(b)(3)(xiii) for the failure to make the required initial notification to the NRC within eight hours of a major loss of monitoring capability. On April 16, Dominion declared the main station stack radiation monitor inoperable but did not report this to the NRC until the inspectors questioned the control room operators on April 18.

Description. On April 16, Dominion performed routine surveillance SP 2815, "Main Station Stack Wide-range Gaseous Radiation Monitor sampling for Iodine and Particulates," and discovered P-187, the bypass pump, not running. This pump is necessary to ensure isokinetic sample flow is maintained to support operability of RM-8169, the main stack radiation monitoring system. RM-8169 is used as the sole criterion for assessment of Unit 2 Emergency Action Levels (EALs) OG1, OS1, OA1, and OU1 for declaration of the general emergency, site area emergency, alert, and notification of unusual event classification levels for offsite releases, respectively. There are no compensatory measures to mitigate the degradation or loss of emergency response function if the monitor is inoperable.

The inspectors questioned whether this failure should be reported to the NRC under 10 CFR 50.72(b)(3)(xiii) because RM-8169 is the only monitor for the Millstone stack and is not considered functional without the bypass pump running. Dominion evaluated the condition and made the required notification (NRC event report number 48941) on April 18, 2013.

Analysis. Dominion did not notify the NRC of a major loss of emergency assessment capabilities event in the time required by 10 CFR 50.72. The inspectors determined the finding was subject to traditional enforcement because Dominion's failure to make a required report could potentially impact the NRC's regulatory function. This finding is similar to the one described in NRC Enforcement Policy, Section 6.9.d(9), "A licensee fails to make a report required by 10 CFR 50.72 or 10 CFR 50.73," which corresponds to Severity Level IV.

In accordance with guidance contained in IMC 0612, "Power Reactor Inspection Reports", Section 07.03, cross-cutting aspects are not assigned to traditional enforcement violations.

Enforcement. 10 CFR 50.72(b)(3)(xiii) states, in part, that the licensee shall notify the NRC as soon as practical and in all cases within eight hours of the occurrence of any event that results in a major loss of emergency assessment capability. Contrary to the above, from April 16 to April 18, 2013, Dominion did not notify the NRC after the discovery that P-187, the bypass pump, and subsequently RM-8169, the stack radiation monitor, was not operable. Dominion notified the NRC approximately two days after the condition was identified.

This violation is being treated as a NCV, consistent with Section 2.3.2 of the Enforcement Policy. Dominion entered the issue into their CAP as CR512007. **(NCV 05000423/2013003-03, Failure to Make a 10 CFR 50.72(b)(3)(v) Report for a Major Loss of Emergency Assessment Capability for the Stack Radiation Monitor)**

.2 (Closed) Licensee Event Report (LER) 05000423/2013-004-00: Failed Surveillance Test of 'A' Train Control Room Emergency Filtration System

On March 19, Dominion received laboratory results for the 'A' train control room emergency filtration system (CREFS) charcoal filter sample on Unit 3 that had been taken on March 13. The results indicated that the methyl iodide penetration for the charcoal sample was 4.46 percent, which exceeded the TS requirement of 2.5 percent. Dominion declared the 'A' train of CREFS inoperable on March 19 and entered TS 3.7.7 action (a) which required Dominion to restore the inoperable CREFS within seven days. Dominion replaced the charcoal filter and declared the system operable on March 21. Because the charcoal sample had been taken on March 13, Dominion determined that the 'A' CREFS had been inoperable from March 13 to March 21, which exceeded the seven day allowed outage time. This condition is reportable under 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by TS and as a result Dominion submitted LER 05000423/2013-004-00 and entered the issue into their CAP as CR 508567.

The inspectors reviewed LER 05000423/2013-004-00 and determined there was no performance deficiency associated with this issue. Specifically, the Millstone TS allows up to 31 days to receive the results of a charcoal sample and Millstone received the results within 6 days. Additionally, Dominion entered TS 3.7.7 immediately upon receiving the failed test results and replaced the charcoal within the seven day allowed outage time. The inspectors reviewed the issue and noted one licensee identified violation of TS 3.7.7. The enforcement aspects of this finding are discussed in Section 40A7. This LER is closed.

.3 (Closed) LER 05000423/2013-001-00: Improperly Secured Enclosure Caused Inoperability of Steam Generator Pressure Transmitter

On February 15, operators discovered that the insulating cover was not properly secured over the 3MSS\*PT526 'B' SG pressure transmitter on Unit 3. At the time, Dominion incorrectly determined that the issue would not impact operability. Based on further input from engineering, Dominion determined that without the insulating cover fully secured the transmitter would not be adequately protected in the case of a high energy line break (HELB). Operators declared the pressure transmitter inoperable on

February 19 and entered TS 3.3.2, "Engineered Safety Features Actuation System Instrumentation." Operators inspected the other eleven SG pressure transmitters to verify all were operable, properly secured the cover to restore full qualification to the 3MSS\*PT526 transmitter, and exited TS 3.3.2.

Dominion determined that the 3MSS\*PT526 pressure transmitter was inoperable from the time of discovery on February 15 until full restoration on February 19. This is longer than the TS allowed outage time of 6 hours, and Dominion entered the issue into their CAP as CR 505990 and submitted LER 05000423/2013-001-00. The inspectors reviewed the issue and noted one licensee identified violation of TS 3.3.2. The enforcement aspects of this finding are discussed in Section 4OA7. This LER is closed.

#### 4OA6 Meetings, Including Exit

On July 16, 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.

#### 4OA7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by Dominion and are violations of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as NCVs.

- On March 19, Dominion received laboratory results for the 'A' train CREFS charcoal filter sample on Unit 3 that had been taken on March 13. The results indicated that the methyl iodide penetration for the charcoal sample was 4.46 percent, which exceeded the TS requirement of 2.5 percent. Dominion determined that the 'A' CREFS had been inoperable from March 13 to March 21, which exceeded the seven day allowed outage time. Because Dominion could not recognize the inoperability of the 'A' CREFS until after the charcoal test results were available they did not take actions contrary to the requirements of TS 3.7.7. Traditional enforcement applies in accordance with IMC 0612, Sections 0612-09 and 0612-13, and Enforcement Policy Section 2.2.4.d, because the inspectors did not identify an associated performance deficiency. The inspectors determined this to be a SLIV violation of TS 3.7.4 in accordance with Enforcement Policy Section 6.1.d. This condition is reportable under 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by TS and as a result Dominion submitted LER 05000423/2013-004-00 and entered the issue into their CAP as CR508567.
- On February 15, operators discovered that the insulating cover on Unit 3 was not properly secured over the 3MSS\*PT526 'B' SG pressure transmitter, but did not declare the system inoperable until February 19 due to a lack of understanding of the equipment qualification needs of the transmitter. TS 3.3.2 allows the pressure transmitter to be inoperable for 6 hours before tripping the channel. Contrary to this, Dominion did not take appropriate action to trip the channel for a period of four days.

This finding impacted the Mitigating Systems cornerstone and screened to Green in accordance with the screening questions from IMC 0609, Appendix A, Exhibit 2. Dominion entered the issue into their CAP as CR505990 and submitted LER 05000423/2013-001-00.

**ATTACHMENT: SUPPLEMENTARY INFORMATION**

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

M. Adams	Plant Manager
L. Armstrong	Manager, Training
R. Arquaro	Unit 3 Shift Manager
G. Auria	Nuclear Chemistry Supervisor
B. Bartron	Supervisor, Licensing
H. Beeman	Supervisor, ISI/NDE
T. Berger	Unit 3 Shift Manager
J. Bergin	Engineering
J. Bookmiller	Unit 3 Supervisor STA/SRO
R. Bonner	Supervisor Nuclear Engineering
E. Brodeur	Unit 3 Shift Manager
J. Burdick	Senior RP Technician
W. Chestnut	Supervisor, Nuclear Shift Operations Unit 2
F. Cietek	Nuclear Engineer, PRA
D. Cleary	Manager Nuclear Engineering
T. Cleary	Licensing Engineer
G. Closius	Licensing Engineer
L. Crone	Supervisor, Nuclear Chemistry
J. Curling	Manager, Protection Services
G. D'Auria	Supervisor Nuclear Chemistry
T. Davis	Supervisor Nuclear Engineering
J. Dorosky	Health Physicist III
M. Finnegan	Supervisor, Health Physics, ISFSI
A. Gharakhanian	Nuclear Engineer III
J. Glaub	Chemistry Technician
T. Gleason	Senior RP Technician
W. Gorman	Supervisor, Instrumentation & Control
J. Grogan	Assistant Operations Manager
W. Hoffner	Nuclear CFAM (Operations)
C. Hollaway	Coordinator Nuclear Procedures
T. Horner	Supervisor Nuclear Engineering
C. Houska	I&C Technician
D. Knopf	Supervisor Nuclear Maintenance
N. Kuzel	Unit 3 Shift Technical Advisor
J. Laine	Manager, Radiation Protection/Chemistry
M. Logan	Nuclear Instrumentation Technician
R. MacManus	Director, Nuclear Station Safety & Licensing
M. Marino	Supervisor Nuclear Engineering
G. Marshall	Manager, Outage and Planning
M. Maxson	Manager, Nuclear Oversight
A. McGuire	Unit 3 Shift Technical Advisor
B. Nichols	Unit 3 Shift Technical Advisor
T. Quinley	Nuclear Technical Specialist III
D. Reed	Unit 3 Shift Manager
D. Regan	Supervisor Health Physics Operations

J. Rigatti	Manager, Nuclear Site Engineering
C. Roberston	Supervisor Instrumentation and Controls
R. Robillard	Unit 3 Reactor Operator
M. Roche	Senior Nuclear Chemistry Technician
D. Rowe	Unit 3 Shift Manager
L. Salyards	Licensing, Nuclear Technology Specialist
S. Scace	Site Vice President
P. Scott	Unit 3 Unit Supervisor
J. Semancik	Engineering Director
A. Smith	Asset Management
D. Smith	Manager, Emergency Preparedness
S. Smith	Manager, Nuclear Operations
M. Stark	Nuclear Technical Specialist, ISI/NDE-SG
J. Stoddard	Supervisor, Nuclear Shift Operations Unit 3
B. Strizzi	Supervisor Nuclear Engineering
S. Turowski	Supervisor, Health Physics Technical Services
C. Vournazos	IT Specialist, Meteorological Data
R. Walsh	Unit 3 Reactor Operator
C. Wooten	OCC Coordinator
M. Wynn	Supervisor Radiological Analysis
P. Wynn	Nuclear Engineer Level III
R. Zieber	Nuclear Technical Specialist, ISI/NDE

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

Opened/Closed

05000423/2013003-01	NCV	Failure to implement Annunciator Response Procedure for a Loss of Ventilation during a Battery Charge (Section 1R13)
05000423/2013003-02	NCV	Failure to Establish Measures for the Identification and Control Design Interfaces and for Coordinating among Participating Design Organizations (Section IR20)
05000423/2013003-03	NCV	Failure to Make a 10 CFR 50.72(b)(3)(v) Report for a Major Loss of Emergency Assessment Capability for Stack Radiation Monitor (Section 4OA3)

Closed

05000423/2013-001-00	LER	Improperly Secured Enclosure Caused Inoperability of SG Pressure Transmitter (Section 4OA3)
05000423/2013-004-00	LER	Failed Surveillance Test of A Train Control Room Emergency Filtration System (Section 4OA3)

**LIST OF DOCUMENTS REVIEWED**

**Section 1R01: Adverse Weather Protection**

Procedures

C OP 200.8, Response to ISO New England/CONVEX Notifications and Alerts, Revision 004-06  
 ISO New England Master/Local Control Center Procedure No. 1, Revision 12

Miscellaneous

Unit 2 NSST, RSST, and Main Transformer System Health Report, 1<sup>st</sup> Quarter 2013  
 Unit 3 NSST, RSST, Main Transformers, and Iso-Phase System Health Report, 1<sup>st</sup> Quarter 2013

**Section 1R04: Equipment Alignment**

Procedures

EOP 3505, Loss of Shutdown Cooling and/or RCS Inventory, Revision 011  
 OP 2304C-002, Boric Acid Lineup, Revision 000-08  
 OP 2322-001, Auxiliary FW System Lineup, Revision 000-03

OPS Form 3308-1, SIH Control Board Alignment, Revision 4, Change 1  
OP 3308-002, High Pressure Safety Injection Common, Revision 006-01  
OP 3308-004, Train 'B' High Pressure Safety Injection, Revision 004-00  
OP 3308-006, Electrical Checklist for High Pressure Safety Injection, Revision 002  
OP 3310A-001, Residual Heat Removal System (Common), Revision 007-02  
OPS Form 3310A-2, Residual Heat Removal System Train 'A', Revision 8CHG3  
OP 3310A-003, Residual Heat Removal System Train 'B', Revision 009-03  
OP 3305, Fuel Pool Cooling and Purification, Revision 021-07  
OP 3305-001, Fuel Pool Cooling System – Valve Lineup, Revision 005  
OP 3305-002, Fuel Pool Purification System – Valve Lineup, Revision 011  
OP 3305-004, SFC Purification Demineralizer Boration RWST Level Verification, Revision 003  
OP 3305-005, Fuel Pool Cooling System – Instrumentation Lineup, Revision 005  
OP 3305-001, Fuel Pool Cooling and Purification System – Electrical Lineup, Revision 001-01

Miscellaneous

Unit 3 Residual Heat Removal System Health Report, 1<sup>st</sup> Quarter 2012 and 2013  
25212-26912 Sheet 1, Low Pressure Safety Injection, Revision 50  
MRE014379  
MRE014436  
MRE016092  
MRE016186

**Section 1R05: Fire Protection**

Procedures

MNPS Fire Protection Evaluation Report, Revision 17.3  
U2-24-FPP-FHA, Millstone Unit 2 Fire Hazards Analysis, Revision 12  
U2-24-FFS, MP2 Firefighting Strategies, Revision 0

**Section 1R06: Flood Protection Measures**

Miscellaneous

MPS3 Probabilistic Risk Assessment Model Notebook, Part II, Volume IF.2, Revision 5, Internal Flooding – Flood Scenarios Development  
M30602859  
M30714871

**Section 1R07: Heat Sink Performance**

Procedures

MP 2701J-096, SW Cooled Heat Exchangers Subject to GL 89-13, Revision 007-01  
SP 2670-001, 'A' RBCCW HX D/P Determination, Revision 010-03

**Section 1R08: In-service Inspection**

Procedures

CEN 110, Revision 004-01	Post Repair/Replacement Leakage Test
ER-AA-NDE-MT-200, Revision 4	ASME Section XI Magnetic Particle Examination Procedure
ER-AA-NDE-PT-300, Revision 6	ASME Section XI Liquid Penetrant Examination Procedure
ER-AA-NDE-RT-400, Revision 0	Radiographic Examination Procedure

ER-AA-NDE-VT-601, Revision 3	VT-1 Visual Examination Procedure
ER-AA-NDE-VT-602, Revision 3	VT-2 Visual Examination Procedure
ER-AA-NDE-VT-604, Revision 2	Visual Examination (VE) for Leakage of PWR Reactor Head Penetrations
ER-AA-NDE-VT-607, Revision 1	VE Visual Examination of Pressure Retaining Welds in Class 1 Components Fabricated with Alloy 600/82/182 Materials
ER-AA-NDE-UT-705, Revision 0	Ultrasonic Examination Procedure of Vessel Nozzle inside Radius Sections
ER-AA-NDE-PT-300, Revision 6	ASME Section XI Liquid Penetrant Examination Procedure
ER-AA-NDE-PT-301, Revision 5	Balance of Plant Liquid Penetrant Examination Procedure
ER-AA-NDE-800, Revision 3	Appendix VIII Qualified Equipment Tables for PDI Generic Procedures
ER-AA-NDE-UT-801, Revision 3	Ultrasonic Examination of Ferritic Piping Welds in Accordance with ASME Section XI, Appendix VIII
ER-AA-NDE-UT-802, Revision 2	Ultrasonic Examination of Austenitic Piping Welds in Accordance with ASME Section XI, Appendix VIII
ER-AA-NDE-810, Revision 2	Ultrasonic Examination of Dissimilar Metal Welds in Accordance with ASME Section XI, Appendix VIII
ER-AP-BAC-10, Revision 5	Boric Acid Corrosion Control Program
ER-AP-BAC-101, Revision 4	Boric Acid Corrosion Control Program Inspections
ER-AA-RRM-100, Revision 1	ASME Section XI Repair/Replacement Program Fleet Implementation Requirements
VPROC ENG06-004, Revision 1	ID Automated Ultrasonic Examination of Austenitic and Dissimilar Metal Piping Welds for Detection and Length Sizing
VPROC ENG06-017, Revision 2	Automated Ultrasonic Examination of RPV Closure Head Penetrations Containing Thermal Sleeves
VPROC ENG06-018, Revision 2	Automated Ultrasonic Examination of Open Tube RPV Closure Head Penetrations RPV
VPROC ENG06-020, Revision 1	Multi-Frequency Eddy Current Examination of Nozzle Welds and Regions
VPROC ENG06-030, Revision 1	ID Automated Ultrasonic Examination of Austenitic and Dissimilar Metal Piping Welds for Depth Sizing
VPROC ENG06-029, Revision 1	Multi-Frequency Eddy Current Surface Examination of Pressure Retaining Pipe Welds, Nozzle-to-Safe End Welds, and Safe End to Pipe Welds
VPROC ENG10-011, Revision 3	Eddy Current Data Management Guidelines
VPROC ENG10-013, Revision 3	Multi-Frequency Eddy Current Examination of Tubing
U3-24-SIP-REF01, Revision 8	Unit 3 SG Eddy Current Data Analysis Reference Manual
WTS 801, Revision 8	Welding Technique Sheet, Manual Welding Gas Tungsten Arc Welding

#### NDE Records

M3-VT-13-095, Visual Examination System Leakage (VT-2) data record, Reactor vessel lower head (58) in-core instrument nozzle penetration welds, dated April 29, 2013
M3-RT-1192, Radiographic inspection report of SG 1B, 16" inch diameter Main and Auxiliary FW nozzle 3321A to pipe weld FWS-21-FW-50, dated April 29
M3-MT-13-028, Magnetic Particle Test (MT) Examination report, surface examination, SG 'A' FW nozzle to shell weld, 03-053-SW-R, dated April 27

M3-VT-13-111, Visual Examination System Leakage data record, reactor vessel head vent, A600 pipe-to-stainless steel socket coupling weld FW-1, dated April 28, 2013

M3-PT-13-016, PT Examination Report, safety injection low, integral attachment welds, component ID 3-SIL-1-PSSP420, dated April 28, 2013

Radiographic Inspection Report, Job Number 294822, seam weld repair W1, M33CHS\*TK2 Work Order 53102479236, PT Examination Report and Visual Examination For Leakage record (VT-2) of seam weld repair W1 in Volume Control Tank M33CHS\*TK2, dated January 20, 2012

Miscellaneous

Millstone Unit 3 SG Integrity Condition Monitoring and Operational Assessment Refueling Outage 3R15, Revision 0

Millstone Unit 3 SG Integrity Degradation Assessment (R15), Revision 0  
Audit 11-07, In-service Inspection/In-service Testing, September 26, 2011

Condition Reports

504176  
511450  
511503  
511519  
511536  
512632  
512842  
513184  
513089

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

Miscellaneous

ES13301B, Cycle 13-3 Simulator Evaluation, Revision 0  
OP 3204, At Power Operations, Revision 018-10  
OP 3206, Plant Shutdown, Revision 012  
OP 3208, Plant Cooldown, Revision 022-04  
OP-AA-106, Infrequently Conducted or Complex Evolutions, Revision 8  
OP-AA-100, Conduct of Operations, Revision 21  
SP 2402M, Functional test of SG Level Auto Aux FW Initiation Logic, Revision 010-03  
AOP 3575, Rapid Downpower, Revision 18  
AOP 3554, RCP Trip or Stopping a RCP at Power  
TR-AA-750, Conduct of Simulator Training and Evaluation, Revision 0

**Section 1R12: Maintenance Effectiveness**

Condition Reports

513843

Maintenance Rule Evaluations

MRE013822	MRE014002	MRE014043	MRE014153
MRE014610	MRE014913	MRE014914	MRE014974
MRE015193	MRE015249	MRE015461	MRE015475
MRE015949	MRE016000	MRE016101	MRE016203

MRE016236  
MRE016335

MRE013775  
MRE016542

MRE014861

MRE014941

Miscellaneous

ACE 019064, Received 'A' Train Bypass Annunciator for the SEQUENCER  
Unit 2 Reactor Protection System Health Report, 1<sup>st</sup> Quarter 2012 and 2013  
Reactor Protection system Unavailability, May 2011 to April 2013  
Unit 3 Engineered Safeguards Actuation System (Sequencer) Health Report 2<sup>nd</sup> Quarter 2012  
and 2013

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

Procedures

IC 2425BC, Mark Vie Maintenance Procedure, Revision 000  
OU-M3-201, Shutdown Safety Assessment Checklist, Revision 6  
OU-AA-200, Shutdown Risk Management, Revision 7  
OP 3250.12, Establishing Containment Boundary for Movement of Fuel within the Containment  
Building, Revision 005-06  
SP 3613F.3, Containment Boundary during Movement of Fuel within the Containment Building,  
Revision 005-02  
OP 3353.VP1B, Main Ventilation and Air Conditioning Panel VP1B Annunciator Response,  
Revision 003-01  
SP 3646A.18, Train 'B' Loss of Power Test (ICCE), Revision 018-05  
C OP 200.15, RCS Leakage Trending and Investigation, Revision 0010-01

Condition Reports

514468  
515154  
519091

Miscellaneous

Calc SM-04456S3, Calculation Aids for Shutdown Risk Time to Boil Determinations, Revision 0  
June 17 Plan of the Day  
High Risk Contingency Plan for the EHC Controller Replacement dated June 25, 2013  
Shutdown Safety Assessment dated April 19, for RCS at decreased inventory for core defueling  
Shutdown Safety Assessment dated May 7 for SP 3646A.18, Train 'B' Loss of Power Test  
Shutdown Risk Assessment dated May 9 for RCS at decreased inventory for Core Refueling  
53102644642

**Section 1R15: Operability Evaluations**

Procedures

SP 3626.3-027, 3SWP\*MOV50B CCP HX Train 'B' SW Supply Stroke Test, Revision 000-03  
SPROC ENG13-3-004, 3SWP\*MOV50B MOV Dynamic Test, Revision 000-01  
SP 3622.3, Auxiliary Feedwater Pump 3FWA\*P2 Operational Readiness Test, Revision 017-13  
SP 3622.3-001, TDAFW Pump Operational Readiness and Quarterly IST Group 'B' Tests,  
Revision 014-05  
SP 3622.3-002, TDAFW Pump Overspeed Test, Revision 090-04

Condition Reports

450922

507605

512087

512421

512523	513009	513185	513573
513800	508829	509476	512981
513964	516319	516491	516613
516652	516681	516833	514976
514830	514147	513928	

Maintenance Orders/Work Orders

53102345395

Miscellaneous

ETE-CME-2013-0001, Overthrust Evaluation Associated with Actuator 3CHS\*MV8468B, Revision 0

ETE-MP-2013-1097, Determination of Operability for the Unit 3 Maintenance Truss and Kin Pin Assembly, Revision

ETE-MP-2013-1160, As-Left Seating Torque of 3SWP\*MOV50B Exceeds its Static Seating Limit, Revision 0

ETE-CME-2013-1005, Structural Integrity Evaluation for MPS3 Dealloyed Aluminum Bronze Valves, Revision 1

LTR000702, Licensing LTR – Polar Crane Maintenance Truss Discovered to have been Unpinned during Operation

M2-EV-08-0027, Generic Letter 2008-01 Response Millstone Unit 2, Revision 0

M2-EV-09-0015, Basis of GL 2008-01 ECCS, DHR, & CS Gas Accumulation Surveillance Program, Revision 0

94103-C-35, Weak Link Seismic Assessment MOV(s): 3CHS\*MV8468 A & B, Revision 1

97-ENG-01798M2, Containment Spray Header Fill Time, Revision 0

OD000237 Revision 4

ETE-MP-2013-1110, Evaluation of SW to CCP HX Isolation Valve 3SWP\*50B Ability to Perform its Design Basis Function Post Galling Repair, Revision 0

ETE-MP-2013-1141, Methodology for Testing Main FW Pump Trip Circuits, Revision 0

89-094-01029ES, MP3 Target Thrust/Torque Calculation for 3SWP\*MOV50A and 3SWP\*MOV50B, Revision 7

97-MOV-01012MG, OD for 3SWP\*MOV50B, Revision 4

SWS-MOV-01380M3, SWS System and Design Basis Review for Motor Operated Valves, Revision 0

SP 3621.5, Overlap Testing of Main FW Pump Trips, Revision 000

SP 3621.5-001, Overlap Testing of Main FW Pump Trips, Revision 000

SP 3445D01, Overlap Testing of Main FW Pump Trips, Revision 001-06

SP 3646A.8, Slave Relay Testing Train 'A', Revision 24

OD000237, Revision 3

OD000237, Revision 4

ODM000296, Revision 0

OD000529, Revision 1

OD000532, Revision 0

TCC-MP-2013-010 Revision 1

Alternate Request IR-3-17 to ASME Section XI for Repair / Replacement of Class 3 Service Water System Valves

Drawings

25212-32001, SH1.OHM, Annunciator Input List, MB5 Systems FWL, FWP, FWS, Revision 4

25212-32001, SH7HC, TDAFW PMP 'B' Trip and Motor, Revision 12

25212-32001 SH5AA, MTR DRVN SGFW PMP [3FWS-P1], Revision 16

25212-32001 SH5AA01, Elementary Diagram 6900V Motor Driven SG FW and Auxiliary Circuits, Revision 10  
 25215-32001, SH7GZ, TDFWP 3FWS-P2A, Revision 12  
 25212-32001, SH7RZ, STM GEN Level AUX CKTS: MN TURB TRIP, Revision 7  
 25212-32001, SH11J, Elementary Diagram Reactor Trip BKR AUX CKTS, Revision 2  
 25212-28210, SH2, Logic Diagram, Motor Driven SG FW Pump and Discharge Valve, Revision 10  
 25212-28210, SH3, Logic Diagram, Motor Driven SG FW Pump and Discharge Valve, Revision 8  
 25212-28575, SH4, Logic Diagram, TDFWP Trips, Revision 7  
 25212-28575, SH5, Logic Diagram, TDFWP Trips, Revision 6  
 25212-39001, SH4014, FW Control and Isolation, Revision K  
 1083H88 Sheet 21, Solid State Protection System Schematic Diagram, Revision K  
 25212-31831, SH2, Wiring Diagram, SSPS Output CAB 1 Train 'A', Revision 5  
 25212-31831, SH4, Wiring Diagram, SSPS Output CAB 1 Train 'A', Revision 10  
 25212-31835, SH8, Wiring Diagram, AUX REK PL-3RPS\*RAKOTXA, Revision 9  
 25212-31896, SH1, WD-ISOL CAB 3CES\*PNLBS30, CA Spreading Room, Revision 13  
 25212-31896, SH2, WD-ISOL CAB 3CES\*PNLBS30, CA Spreading Room, Revision 13  
 25212-31847, SH1, Wiring Diagram, INT WIR 3RPS\*RAKOTXA, Revision 9  
 25212-31514, SH1, Wiring Diagram, 6.9KV Switchgear C, Revision 13  
 25212-31676, SH3, Wiring Diagram, MISC WIRING COMPUTER, Revision 5  
 25212-31602, SH18, Wiring Diagram, INFO Handling CMPTR PNL 3IHC-PNL09, Revision 13  
 25212-31848, SH1, Wiring Diagram, INT WIR 3RPS\*RAKOTXB, Revision 8  
 25212-39010, SH268, 6.9KV SWGR 3NOS-SWG-C Bus 35C1, 2\*3 – INTERCON, Revision F  
 25212-31803, SH29, Wiring Diagram MN CONT BD5 TERM CAB 3CES-TB-MB5N, Revision 7

### **Section 1R18: Plant Modifications**

#### Procedures

SP 3601B.2-001, Train 'A' Reactor Head Vent Path Operability, Revision 006-05  
 SP 3601B.2-005, Train 'B' Reactor Head Vent Path Operability, Revision 000-02  
 SP 3602F.5-005, RCS Valve Stroke Testing – Train A, Revision 007-07  
 SP 3602F.5-006, RCS Valve Stroke Testing – Train B, Revision 000-02  
 SP 3673.4-001, Train 'A' Auxiliary Shutdown Panel Operability Test (Remote Shutdown Components), Revision 008-01  
 MP-13-01032, Design Change to Allow the Use of Qualified J Box Cover with Test Fitting, dated March 15, 2013  
 IC 3468U01, NIS Detector Cable Resistance Testing with Detector Removal and Installation, Revision 003-04

#### Condition Reports

511339  
 515488  
 508009  
 511699  
 512060  
 512344

#### Maintenance Orders/Work Orders

53102197306  
 53102509490

53102456424

53M30501948, M33NME\*DET1, EEQ, 28A – Detector Assembly Replacement, Revision 03

53M30501949, M33NME\*DET2, EEQ, 28A – Detector Assembly Replacement, Revision 01

53102479368, Detector Cable and Testing

#### Miscellaneous

IST Valve Reference Value Evaluation for 3RCS\*SV8095A

IST Valve Reference Value Evaluation for 3RCS\*SV8095B

MP3-12-01028, Millstone Unit 3 Reactor Vessel Head Vent Valve Replacements, Revision 1

Target Rock Design and Seismic Report No. 9080, Design and Seismic Report for ASME Class 1 Solenoid Operated Target Rock Valve Model 12E-001 and Spool Assembly 12E-001-Spool

Target Rock Environmental Qualification Report No. 9081, Qualification Extension Analysis for the Environmental Qualification of the Target Rock Solenoid Operated Globe Valve Model 12E-001

ACE019420, Missed Surveillance MP3 Tech Spec 3.3.3.6 Channel Cal Neutron Flux

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

##### Procedures

C SP 750-004, Unit 3 – Battery Quarterly Inspection, Revision 001-04

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

SP 2612B-003, 'C' SW Pump and Facility 2 Discharge Check Valve IST, Revision 003-00

SP 2612B-005, 'C' SW Pump Comprehensive Pump Test, Revision 001-00

SP 2612C-002, 2-SW-3.2B, 2-SW-97A, Stroke and Timing IST, Revision 003-02

SP 2612C-006, SW POV Remote Position Indication IST (Facility 1), Revision 001-03

SP 2612D-002, 2-SW-3.2A, 2-SW-97B, Stroke and Timing IST, Revision 002-06

SP 2612D-005, SW POV Remote Position Indication IST (Facility 2), Revision 001-03

SP 2612F-004, 'B' SW Pump IST, Facility 2, Revision 003-00

SP 2670-007, DG 'B' HX D/P Determination, Revision 001-05

SP 3601B.2-002, Train 'A' Pressurizer Steam Space Vent Path and PORV Stroke Time Operability, Revision 008-00

SP 3601F.7-005, RCS Pressurizer and Upper Head Leak Test Checklist, Revision 003-03

SP 3621.1-002, Cold Shutdown Test of FW Regulating Valves

SP 3626.3-008, SW Train 'B' Valve Position Indication Verification Test, Revision 007-03

SP 3626.3-027, 3SWP\*MOV50B CCP HX Train 'B' SW Supply Stroke Test, Revision 000-03

SP 3646A.2, EDG 'B' Operability Test, Revision 019-01

SP 3646A.2-001, EDG 'B' Operability Tests, Revision 020-07

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

MP 3720CB, DG Mechanical PM, Revision 007-03

IC 3468U01, NIS Detector Cable Resistance Testing with Detector Removal and Installation, Revision 003-04

OP 3343, Station Electrical Service 4.16 KV, Revision 014-07

IC 3469N12, Digital Rod Position Test Data Sheet, Revision 001-02

IC 3496N11, Rod Control Dynamic Test, Revision 003-03

SP 3622.3, AFW Pump 3FWA\*P2 Operational Readiness Test, Revision 017-13

SP 3622.3-001, TDAFW Pump Operational Readiness and Quarterly IST Group B Tests, Revision 014-05

SP 3622.3-002, TDAFW Pump Overspeed Test, Revision 090-04

Condition Reports

509198	511151	511208	512460
512467	512948	513404	514559
514686	514714	512669	507605
506519	506524	512523	516428
516508	516600	516605	516691
516692	516707	416799	508009
508011	511699	512060	512344
513871	514101	514526	515160
513220	513484	513680	513684
513690	513794	513848	513855
508621	513454	513755	514835
515418	513860	514534	514551
515460	515461	515605	515767
515823	514976	514830	514147
513928			

Maintenance Orders/Work Orders

53102205136	53102218326	53102328718	53102344774
53102345395	53102358932	53102388703	53102431605
53102472940	53102493381	53102469592	52102543051
53102554535	53102572449	53102601746	53102601735
53102601747	53102601737	53102618164	53102626260
53102636122	53102636207	53102636872	53M20704529
53M20700916	53M20706464	53M20708522	53M30407003
53M30503401	53M30501948	53M30501949	53102479368
53102456424	53102262000	53102634098	
53102456499, M33RDI-3409			
53102482906, M33SUR-3451N22			
53102482936, M33TST-3469N11			
53102482193, M33TST-3469N12			
53102483009, M33RDI-3409			

Miscellaneous

MP3-13-01068, Replace Litton Veam Connector on MP3 PORV M33RCS\*PCV455A with EGS Quick Disconnect Connectors

ETE-MP3-2013-1019, Replacement of SW Valves 3SWP\*V662, \*V663, \*V664, and \*V665

ETE-MP3-13-01028, Replacement of the 'A' & 'B' MCC and Rod Control Cooling Unit SW 3" Ball Valves Subjected to Dealloying

ETE-MP-2013-1160, As-Left Seating Torque of 3SWP\*MOV50B Exceeds its Static Seating Limit

ACE019420, Missed Surveillance MP3 Tech Spec 3.3.3.6 Channel Cal Neutron Flux

ETE-MP-2013-1139, Disposition of MP3 RSST (15G-23SA) Internal Broken Plastic Bolt Used to Secure Ebonite High Side Lead Structure, Revision 0

MPR Report 0282-0119-03, Reactor Coolant Pump Seal Leakage Independent Review, Revision 0

Memorandum from S. Scace to D. Stoddard dated May 16, 2013 Subject: Millstone Unit 3 Reactor Trip Breakers Opened on May 16, 2013

AMS Document PIT9501R4

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

Procedures

OP 3204, At Power Operations, Revision 018-10  
 OP 3206, Plant Shutdown, Revision 012  
 OP 3208, Plant Cooldown, Revision 022-04  
 OP 3216, Reactor System Drain (ICCE), Revision 010-02  
 OP 3321, Main FW, Revision 017-11  
 OP 3324A, Main Generator, Revision 010-06  
 SP 3623.1, Turbine Generator Testing, Revision 018-19  
 LI-AA-700, Fatigue and Work Hour Limits for Covered Workers, Revision 9  
 LI-AA-7000 Work Hour Limits for Non-Covered Workers, Revision 2  
 CM-AA-TCC-204, Temporary Configuration Changes, Revision 1  
 AOP 3505, Loss of Shutdown Cooling and/or RCS Inventory

Condition Reports

511114	511136	511149	511151
511195	511197	511198	511207
511208	511213	511225	511227
511229	511334	511369	511461
511547	511728	512344	512589
512687	512690	512693	512732
512743	512820	512872	513279
513222	513285	513416	513423
513466	513573	513669	513800
514085	514038	514416	514468
514685	514686	514692	515005
515151	515488		

Maintenance Orders/Work Orders

53102618737

Miscellaneous

3R15 SDR Pre-Outage Review  
 Millstone 3R15 Outage Overview dated March 15, 2013  
 MP #R15 Major Milestones  
 3R15 BACCP Containment Summary  
 Millstone Power Station 3R15 Outage Daily Reports  
 Millstone Station Human Performance Event-Free Day Station Clock Reset Briefing Sheet for CR514468  
 List of Temporary Modifications that will remain in place following 3R15 dated May 2, 2013  
 Operations Aggregate Impact for 3R15 dated May 1, 2013  
 EmpCenter Covered Workers' Work Schedules for Two Shift Managers, One Unit Supervisor, and One Reactor Operator, Unit 3 (outage schedule)  
 EmpCenter Covered Workers' Work Schedules for One Shift Manager, One Unit Supervisor, One Reactor Operator, Unit 2 (non-outage unit)  
 EmpCenter Covered Workers' Work Schedules for One Maintenance Supervisor and One Fire Brigade Leader (outage schedule)  
 Self Declaration for one security guard

**Section 1R22: Surveillance Testing**

Procedures

- SP 3621.5, Overlap Testing of Main FW Pump Trips, Revision 000
- SP 3621.5-001, Overlap Testing of Main FW Pump Trips, Revision 000
- SP 3445D01, Overlap Testing of Main FW Pump Trips, Revision 001-06
- SP 3646A.18, Train 'B' Loss of Power Test (ICCE), Revision 018-05
- SP 3646A.18-001, Train 'B' ESF with LOP Test, Revision 018-05
- SP 3646A.18-002, Train 'B' ESF with LOP Test Failure and Retest Documentation, Revision 006-02
- SP 3612B.4, Containment Local Leak Rate Test Type C Penetration, Revision 014-10
- SP 3612B4-145, Type C LLRT – Penetration No. 98(i) & 94(i) [3SIH\*V26 & 3SIL\*V12], Revision 002-02
- SP 3612B.4-136, Type C LLRT – Penetration No. 86 [3HVU\*V5, 3HVUCTV32A & 3HVU\*CTV33A], Revision 004-04
- SP 3622.3, AFW Pump 3FWA\*P2 Operational Readiness Test, Revision 017-13
- SP 3622.3-001, TDAFW Pump Operational Readiness and Quarterly IST Group B Tests, Revision 014-05
- SP 3622.3-002, TDAFW Pump Overspeed Test, Revision 090-04

Work Orders

- 53102632373
- 53102628665

Condition Reports

511619	511660	514036	514127
512533	513921	514724	514481
514447	514885	515378	515423
511149	514432	514446	514976
514830	514147	513928	

Drawings

- 25212-32001 SH1.OHM, Annunciator Input List, MB5 Systems FWL, FWP, FWS, Revision 4
- 25212-32001 SH7HC, TDAFW PMP 'B' Trip and Motor, Revision 12
- 25212-32001 SH5AA, MTR DRVN SGFW PMP [3FWS-P1], Revision 16
- 25212-32001 SH5AA01, Elementary Diagram 6900V Motor Driven SGFW and Auxiliary Circuits, Revision 10
- 25215-32001 SH7GZ, Turbine Driven Feedwater Pump 3FWS-P2A, Revision 12
- 25212-32001 SH7RZ, STM GEN Level AUX CKTS: MN TURB TRIP, Revision 7
- 25212-32001 SH11J, Elementary Diagram Reactor Trip BKR AUX CKTS, Revision 2
- 25212-28210 SH2, Logic Diagram, Motor Driven SGFW Pump and Discharge Valve, Revision 10
- 25212-28210 SH3, Logic Diagram, Motor Driven SGFW Pump and Discharge Valve, Revision 8
- 25212-28575 SH4, Logic Diagram, Turbine Driven FW Pump Trips, Revision 7
- 25212-28575 SH5, Logic Diagram, Turbine Driven FW Pump Trips, Revision 6
- 25212-39001 SH4014, FW Control and Isolation, Revision K
- 25212-1083H88 Sheet 21, Solid State Protection System Schematic Diagram, Revision K
- 25212-31831 SH2, Wiring Diagram, SSPS Output CAB 1 Train 'A', Revision 5
- 25212-31831 SH4, Wiring Diagram, SSPS Output CAB 1 Train 'A', Revision 10
- 25212-31835 SH8, Wiring Diagram, AUX REK PL-3RPS\*RAKOTXA, Revision 9
- 25212-31896 SH1, WD-ISOL CAB 3CES\*PNLBS30, CA Spreading Room, Revision 13

25212-31896 SH2, WD-ISOL CAB 3CES\*PNLBS30, CA Spreading Room, Revision 13  
 25212-31847 SH1, Wiring Diagram, INT WIR 3RPS\*RAKOTXA, Revision 9  
 25212-31514 SH1, Wiring Diagram, 6.9KV Switchgear C, Revision 13  
 25212-31676 SH3, Wiring Diagram, MISC WIRING COMPUTER, Revision 5  
 25212-31602 SH18, Wiring Diagram, INFO Handling CMPTR PNL 3IHC-PNL09, Revision 13  
 25212-31848 SH1, Wiring Diagram, INT WIR 3RPS\*RAKOTXB, Revision 8  
 25212-39010 SH.268, 6.9KV SWGR 3NOS-SWG-C Bus 35C1,2\*3 – INTERCON, Revision F  
 25212-31803 SH.29, Wiring Diagram MN CONT BD5 TERM CAB 3CES-TB-MB5N, Revision 7  
 25212-26953 SH1, Containment Structure Ventilation, Revision 29

Miscellaneous

OD000237, Revision 3

OD000237, Revision 4

**Section 1EP4: Emergency Action Level and Emergency Plan Changes**

Emergency Plan, Revision 46

**Section 1EP6: Drill Evaluation**

Procedures

AOP 3575, Rapid Downpower, Revision 18

AOP 3554, RCP Trip or Stopping a RCP at Power

TR-AA-750, Conduct of Simulator Training and Evaluation, Revision 0

**Section 2RS01: Radiological Hazard Assessment and Exposure Controls**

Procedures

RP-AA-201, Access Controls for High and Very High Radiation Areas, Revision 7

RP-AA-202, Radiological Postings, Revision 6

RP-AA-225, Unrestricted Release of Material, Revision 4

RPM 2.1.1, Issue and Control of RWPs, Revision 010

RPM 2.10.2, Air Sample Counting and Analysis, Revision 014-01

Corrective Action Documents

480053

487145

488696

490064

490687

493313

502550

Audits, Self-Assessments, and Surveillances

SRA001482, Millstone Alpha Monitoring Program, June 30, 2011

SAR002275, Radioactive Material Control, April 4, 2013

Surveys

Unit	Red Survey Figure	Date	Time
3	16 Auxiliary Building 4'	03/04/2013	0900
3	16 Auxiliary Building 4'	04/07/2013	1200

3	18 Auxiliary Building 24'	03/18/2013	0730
3	18 Auxiliary Building 24'	04/07/2013	1040
3	19 Auxiliary Building 43'	03/07/2013	1400
3	19 Auxiliary Building 43'	04/07/2013	1330

**Section 2RS02: 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 5  
 RP-AA-301, ALARA Goals, Revision 2  
 RP-AA-303, ALARA 5-Year Plan, Revision 0

**Section 2RS07: Radiological Environmental Monitoring Program**

Procedures

SP 400.2, Meteorological Tower Instrument Calibration, Revision 004-04

Audits, Self-Assessments, and Surveillances

09-15, Offsite Dose Calculation Manual/Radiological Environmental Monitoring Program/Environmental Protection Program and Surry Refueling Activities, January 28, 2010  
 11-11, Offsite Dose Calculation Manual, Radiological Environmental Monitoring Program, and Environmental Protection Plan, January 12, 2012  
 No Number GE Global Nuclear Fuel-America, Audit of Teledyne Brown Engineering, July 28 - 29, 2011  
 A 11-03, Toxco Materials Management Center (TMMC), Quality Assurance Audit of Teledyne Brown Engineering, Inc., August 25, 2011

Corrective Action Document

434037  
 440077  
 444231  
 445898  
 487158  
 492512

Other

WO 53102493836, Meteorological Tower Instrument Calibration, February 26, 2013

**Section 4OA1: Performance Indicator Verification**

Miscellaneous

PI submittals 2Q2012-1Q2013  
 NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6

**Section 4OA2: Problem Identification and Resolution**

Procedures

OP-AA-1700, Operations Aggregate Impact, Revision 6

C OP 200.18, Revision 000-02, Time Critical Action Validation and Verification  
 CM-AA-TCA-101, Revision 1, Operator Time Critical Actions  
 EOP 3509, Revision 024-03, Fire Emergency

Condition Reports

518300	518144	496565	504804
503742	458536	461536	487375
489743	489727	493441	504804
507903	419723	500627	509032

Miscellaneous

OPSTAT database records  
 25205-ER-09-0002 Millstone Unit 2 and 3 Fire Protection Time Critical Operator Actions  
 DM3-00-0045-09, Charging Valve Control Circuit Appendix R Modification  
 Nuclear Oversight Assessment No. 12-10-M Time Critical Operator Actions  
 RAS000066, Rev. 1 Potential That Fire Damage to LCV112B/C, VCT Outlet Valves,  
 Could Result In Damage to 'A' CHS PP Credited for Post Fire Shutdown  
 CA 127392,176411, 213194

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

Condition Reports

508567  
 505671  
 505990  
 511559  
 512007

Miscellaneous

SP 3614F.2, Control Room Emergency Ventilation, Revision 008-08  
 ACE 019430  
 ACE 019403  
 EP-AA-303, Equipment Important to Emergency Response, Revisions 4 and 5  
 SP 2815, Main Station Stack WRGM Sampling for Iodine and Particulates, Revision 002-02  
 OP 2383A, Process Radiation Monitoring Systems, Revision 21

**LIST OF ACRONYMS**

AC	alternating current
ADAMS	Agencywide Documents Access and Management System
ALARA	as low as reasonably achievable
AOV	air operated valve
ARP	annunciator response procedure
ASME	American Society of Mechanical Engineers
BACC	boric acid corrosion control
CAP	Corrective Action Program
CDTT	containment drains test tank
CFR	Code of Federal Regulations
CR	condition reports
CREFS	control room emergency filtration system
DM	dissimilar metal
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
ECCS	emergency core cooling system
ECT	eddy current testing
EDG	emergency diesel generator
EPD	electronic personal dosimeter
EPRI	Electric Power Research Institute
ESF	engineered safety features
FW	feedwater
GPM	gallons per minute
HRA	high radiation areas
HPSI	high pressure safety injection
IMC	Inspection Manual Chapter
ISI	in-service inspection
IST	in-service test
LER	licensee event report
LHRA	locked high radiation area
LOP	loss of power
MDAFW	motor driven auxiliary feedwater
MT	magnetic particle test
NCV	non-cited violation
NDE	non-destructive examination
NRC	Nuclear Regulatory Commission
NSIR	Office of Nuclear Security and Incidence Response
OCDM	offsite dose calculation manual
OOS	out of service
PARS	Publicly Available Records
PT	penetrant test
RBCCW	reactor building component cooling water
RCP	reactor coolant pump
RCS	reactor coolant system
REMP	Radiological Environmental Monitoring Program
RHR	residual heat removal system
RP	radiation protection
RVUHP	reactor vessel upper head penetration

RWP	radiation work permit
SDP	Significance Determination Process
SG	steam generator
SSC	structure, system, or component
SW	service water
TAM	temporary alteration in support of maintenance
TCOA	Time Critical Operator Action program
TDAFW	turbine driven auxiliary feedwater
TLD	thermoluminescent dosimeter
TS	technical specifications
UFSAR	Updated Final Safety Analysis Report
UT	ultrasonic test