



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION I  
2100 RENAISSANCE BLVD., SUITE 100  
KING OF PRUSSIA, PA 19406-2713

February 10, 2015

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  
05000336/2014005 AND 05000423/2014005

Dear Mr. Heacock:

On December 31, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Millstone Power Station (Millstone), Units 2 and 3. The enclosed inspection report documents the inspection results, which were discussed on January 20, 2015, with Mr. John Daugherty, 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 five findings, all of which were of very low safety significance (Green). Four of these findings were determined to involve violations of NRC requirements. Additionally, a licensee-identified violation, which was determined to be of very low safety significance, is listed in this report. However, because of the very low safety significance, and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations, consistent with Section 2.3.2.a of the NRC Enforcement Policy.

If you contest the non-cited violations 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. In addition, if you disagree with the cross-cutting aspect assigned to any finding, or a finding not associated with a regulatory requirement 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.

D. Heacock

2

In accordance with Title 10 of the *Code of Federal Regulations* (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 and 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/*

Raymond R. McKinley, 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 05000336/2014005 and 05000423/2014005  
w/Attachment: Supplementary Information

cc w/encl: Distribution via ListServ

D. Heacock

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D. Dorman, RA  
D. Lew, DRA  
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S. Shaffer, DRP

J. DeBoer, DRP  
J. Ambrosini, DRP, SRI  
B. Haagensen, DRP, RI  
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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 Nos. 05000336/2014005 and 05000423/2014005

Licensee: Dominion Nuclear Connecticut, Inc. (Dominion)

Facility: Millstone Power Station, Units 2 and 3

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

Dates: October 1, 2014 to December 31, 2014

Inspectors: J. Ambrosini, Sr. Resident Inspector, Division of Reactor Projects (DRP)  
B. Haagenen, Resident Inspector, DRP  
L. McKown, Resident Inspector, DRP  
H. Anagnostopoulos, Health Physicist, Division of Reactor Safety (DRS)  
H. Gray, Senior Materials Inspector, DRS  
N. Floyd, Reactor Engineer, DRS  
B. Fuller, Sr. Operations Engineer  
J. D'Antonio, Sr. Operations Engineer  
E. Burket, Emergency Preparedness Inspector

Approved By: Raymond R. McKinley, Chief  
Reactor Projects Branch 5  
Division of Reactor Projects

Enclosure

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## SUMMARY

IR 05000336/2014005, 05000423/2014005; 10/01/2014 – 12/31/2014; Millstone Power Station (Millstone), Units 2 and 3; Maintenance Effectiveness, Maintenance Risk Assessments and Emergent Work Control, Operability Determinations and Functionality Assessments, Occupational ALARA Planning and Controls, and Problem Identification and Resolution.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. Inspectors identified five findings of very low safety significance (Green), four of which were non-cited violations (NCVs). The significance of most findings is 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 19, 2012. Cross-cutting aspects are determined using IMC 0310, "Aspects Within the Cross-Cutting Areas," dated December, 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated July 9, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

### Cornerstone: Initiating Events

- Green. The inspectors identified a Green NCV of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.65 (a)(4) for the failure to properly assess and manage the risk of work in the switchyard during the Unit 3 refueling outage. On October 19, the 345 kilovolt (kV) south bus tripped during U3 reserve station service transformer (RSST) leakage reactance testing. Dominion determined the direct cause for the loss of the 345 kV south bus was an incorrectly wired B RSST Y winding ground differential current transformer, which caused the RSST 6.9 kV side ground differential protective relay to actuate and the south bus to trip. This testing was performed in response to updated industry guidance on transformer maintenance and uncovered the latent error in the windings which has existed since initial installation of the current transformer. Dominion performed an extent of condition review and verified correct windings in the B RSST X winding circuit and A RSST X and Y winding circuits to ensure the proper protection schemes still existed for the transformer. In response to the unplanned loss of the south bus, Dominion stopped all work in the switchyard, took other compensatory actions to protect the remaining offsite power to the station, and entered the issue into the corrective action program (CAP) as condition report (CR)562570 and CR562580. The inspectors determined that Dominion risk mitigation plans inadequately assessed the possible consequences of the maintenance activity. Because Dominion neither considered the potential for the 15T breaker to open during the RSST leakage reactance testing nor established any mitigating actions in the case of this event, they incorrectly classified the evolution as Yellow risk instead of Orange.

The inspectors determined that the failure to properly assess and manage risk is a performance deficiency which is more than minor because it would affect the protection against external factors attribute of the Initiating Events cornerstone. The underlying issue is that Dominion did not take adequate mitigating actions to reduce risk associated with the reliability of offsite power to the station. In addition, it is similar to Example 7.e from IMC 0612, Appendix E, "Examples of Minor Issues," which states that the failure to perform an adequate risk assessment when required to do so is more than minor if the overall elevated plant risk would put the plant into a higher licensee-established risk category. An adequate risk assessment would have assessed the plant risk as Orange, not Yellow. The inspectors evaluated the significance of the finding using IMC 0609, Appendix K, "Maintenance Risk

Assessment and Risk Management Significance Determination Process.” There is a note in this appendix which directs review of the issue if the licensee only uses qualitative analyses of plant configuration risk due to maintenance activities. The inspectors followed the guidance of this note and determined the issue was of very low safety significance (Green) in consultation with NRC management. The duration of the unplanned south bus outage was short (13 hours), and the station took additional risk mitigation actions after the event, including suspending all work in the switchyard and transformers and the control room briefed emergency operating procedure (EOP) 3501, “Loss of All AC Power.” The inspectors determined this issue had a cross-cutting aspect in the area of Human Performance, Change Management, where managers maintain a clear focus on nuclear safety when implementing the change management process to ensure that significant unintended consequences are avoided. Specifically, the RSST testing performed during the outage was the initial performance of this specific test and all failure modes were not fully assessed prior to the test date. [H.3] (Section 1R13)

### Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI associated with Dominion’s failure to promptly identify or correct conditions adverse to quality associated with the equipment reliability of the Unit 3 ‘A’ control building chilled water system (HVK) chiller from September 26, 2014 to December 13, 2014. Specifically, the component was placed into service without establishing adequate corrective actions resulting in failures to start on 17 of 20 demands. Further, the component experienced run time failures due to a series of no less than six identified and corrected failure modes within the exposure window. Dominion has entered these concerns into their CAP as CR560039 and CR566762.

This finding was determined to be more than minor in accordance with IMC 0612, “Power Reactor Inspection Reports,” Appendix B, “Issue Screening,” dated September 7, 2012, as it represented a challenge to the equipment performance attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding screened to be of very low safety significance (Green) as there was no loss of system or function due to the functionality of the ‘B’ HVK chiller train. Inspectors identified a cross-cutting aspect in Human Performance, Conservative Bias, due to Dominion’s acceptance of multiple repetitive failures to start and failures to run. [H.14] (Section 1R15)

- Green. The inspectors identified a Green NCV of Technical Specification (TS) 6.8.1, “Procedures,” for the failure to accurately maintain the EOPs and Abnormal Operating Procedures (AOPs) by not including operating restrictions that had been promulgated as a temporary order (Standing Order (SO) 14-04) regarding the limitation of the closure sequence and rate for the Turbine-Driven Auxiliary Feedwater (TDAFW) pump flow control valves (3FWA\*HCV36A, B, C and D). Dominion’s immediate corrective actions included approving a revision to the appropriate AOPs and EOPs to incorporate the throttling restrictions.

This finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, Dominion did not incorporate operating restrictions on the throttling rate of the TDAFW pump flow control valves into the

post-event procedures (AOPs and EOPs). In accordance with IMC 0609.04, "Initial Characterization of Findings," and Appendix A, Exhibit 2, "The Significance Determination Process for Findings at Power," the inspectors determined the finding is of very low safety significance (Green) because the performance deficiency involved a procedural deficiency but did not involve an actual loss of safety function, represent an actual loss of safety function of a single train for greater than TS allowed outage time, did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event, and did not represent an actual loss of function of a non-TS train of equipment designated as high safety significant. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Resolution, in that Dominion did not take effective corrective actions to address issues in a timely manner commensurate with their safety significance. Dominion determined that it was not necessary to incorporate the AFW throttling restrictions into the EOPs or AOPs. [P.3] (Section 4OA2)

### **Cornerstone: Barrier Integrity**

- Green. The inspectors identified a Green NCV of 10 CFR 50.65 (a)(1) for the failure to determine if the goals or corrective actions for the (a)(1) monitoring plan for the supplementary leak collection and release system (SLCRS) should be adjusted following an additional failure of the auxiliary building ventilation system in July 2014. ER-AA-MRL-100, "Implementing Maintenance Rule," states that when a goal is not met, the system engineer shall obtain expert panel review and approval of the goal not met and appropriateness of the new goal. This had not happened at the conclusion of the inspection period. Dominion entered the issue into the CAP as CR528856 and CR554215.

The inspectors determined that not evaluating the SLCRS (a)(1) monitoring plan after the July 2014 failure as required by 10 CFR 50.65 was a performance deficiency which is more than minor because it would affect the Barrier Integrity cornerstone structure, system, and component (SSC) and barrier performance attribute due to the damper failures. Maintenance rule failures of a system in (a)(1) monitoring status need to be evaluated for additional failure mechanisms not covered by the existing monitoring plan. The inspectors evaluated the significance of the finding using IMC 0609, Appendix A, "Significance Determination Process for Findings At-Power," and screened it to Green using Exhibit 3, section B because the finding only represented a potential degradation of the radiological barrier function provided for the auxiliary building. The inspectors determined this issue had a cross-cutting aspect in the area of Problem Identification and Resolution, Resolution, where the organization takes effective corrective actions to address issues in a timely manner commensurate with their safety significance. As stated in NUREG-2165, PI.3, Example 2, "Deferrals of corrective actions are minimized; when required, due dates are extended using an established process that appropriately considers safety significance." PI-AA-200, "Corrective Action," requires an assessment of risk and vulnerabilities associated with extending corrective actions. Dominion did not assess the risk of extending the maintenance rule evaluation (MRE) as it related to the implementation of the maintenance rule and improperly allowed six extensions of the assignment. [P.3] (Section 1R12)

### **Cornerstone: Occupational Radiation Safety**

- Green. A self-revealing finding (FIN) of very low safety significance (Green) was identified due to the accrual of excessive unintended occupational collective radiation exposure during Millstone refueling outage 2R22. This resulted from performance deficiencies in planning and work control while performing scaffolding work, valve maintenance, and a valve



replacement during the Unit 2 refueling outage. No violation of NRC requirements was identified.

The unintended collective radiation exposures were due to work planning and work control deficiencies that were reasonably within Dominion's ability to control and prevent. The finding was more than minor because it was associated with the program and process attribute of the Occupational Radiation Safety cornerstone and adversely affected the cornerstone objective to ensure the adequate protection of the worker from radiation exposure. The performance deficiency is similar to examples in Appendix E of IMC 0612; in that the actual collective dose exceeded 5 person-rem and exceeded the planned, intended dose by more than 50 percent. The finding has a cross-cutting aspect in the area of Human Performance, Work Management, in that the Millstone organization did not implement a process of planning, controlling, and executing work activities such that station-established radiation exposure goals could be met. [H.5] (Section 2RS2)

### **Other Findings**

A violation of very low safety significance that was identified by Dominion was reviewed by the inspectors. Corrective actions taken or planned by Dominion have been entered into Dominion's CAP. This violation and corrective action tracking number are listed in Section 4OA7 of this report.

## REPORT DETAILS

### Summary of Plant Status

Millstone Unit 2 and 3 began the inspection period operating at 100 percent power. On October 12, Unit 3 shut down for refueling outage 3R16. Unit 3 returned to 100 percent power on November 19. Both units operated 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 – 3 samples)

.1 Readiness for Seasonal Extreme Weather Conditions (2 samples)

a. Inspection Scope

The inspectors performed a review of Dominion's readiness for the onset of seasonal cold temperatures at Unit 2 and Unit 3. The review focused on protection for the safety-related equipment including condensate storage tanks, refueling water storage tanks, Unit 2 reactor building closed cooling water system (RBCCW), Unit 3 intake structure and service water system, auxiliary feedwater system, and quench spray system as well as heating for the buildings. The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR), TS, control room logs, and the CAP to determine what temperatures or other seasonal weather could challenge these systems, and to ensure Dominion's personnel had adequately prepared for these challenges. The inspectors reviewed station procedures, including Dominion's seasonal weather preparation procedure and applicable operating procedures. The inspectors performed walkdowns of the selected systems to ensure station personnel identified issues that could challenge the operability of the systems during cold weather conditions. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

.2 Readiness for Impending Adverse Weather Conditions (1 sample)

a. Inspection Scope

The inspectors reviewed Dominion's preparations for a storm expected to bring high winds and rain on December 24. The inspectors reviewed the implementation of adverse weather preparation procedures before the onset of and during this adverse weather condition. The inspectors walked down the emergency diesel generators (EDGs) and the intake structures to ensure system availability and performed a general site walkdown to ensure station personnel had secured any loose objects prior to the storm's arrival. The inspectors verified that operator actions defined in Dominion's adverse weather procedure maintained the readiness of essential systems. The

inspectors discussed readiness and staff availability for adverse weather response with operations and work control personnel.

b. Findings

No findings were identified.

1R04 Equipment Alignment

.1 Partial System Walkdowns (71111.04 – 6 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

Unit 2

- Containment spray system while recirculating the Refueling Water Storage Tank on November 19
- 'B' EDG during 'A' EDG Loss of Load Test on December 17

Unit 3

- Spent Fuel Pool Cooling System before fuel offload on October 21
- 'B' EDG when 'A' EDG was unavailable on October 23
- Low Pressure Safety Injection Accumulators during 3R16 on October 30
- Reactor Plant Component Cooling Water Pumps and Heat Exchangers during demobilization from 'B' Heat Exchanger maintenance on December 18

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

On October 30 and 31, the inspectors performed a full system walkdown of accessible portions of the Unit 3 residual heat removal system. The inspectors reviewed operating procedures, surveillance tests, drawings, equipment line-up check-off lists, and the UFSAR to verify the system was aligned to perform its required safety functions. The inspectors also reviewed electrical power availability, component lubrication and equipment cooling, hangar and support functionality, and operability of support systems. The inspectors performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. Additionally, the inspectors reviewed a sample of related CRs and work orders to ensure Dominion appropriately evaluated and resolved any deficiencies.

b. Findings

No findings were identified.

1R05 Fire Protection

.1 Resident Inspector Quarterly Walkdowns (71111.05Q – 8 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, degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.

Unit 2

- Turbine Building Elevation 54'6", Fire Areas T-1, T-1F, and TS-1 on November 21
- Turbine Building Turbine Lube Oil System, Fire Area T-2 on November 21
- Auxiliary Building 'A' EDG Cubicle, Fire Area A-15 on December 17

Unit 3

- Main Steam Valve Enclosure, Fire Area MSV-1 on October 2
- Containment Structure, Fire Area RC-1 on October 20
- Cable Spreading Room, Fire Area CB-8 on December 19
- Circulating and Service Water Pumphouse East and West Service Water Cubicles, Fire Areas CWS-3 and CWS-4 on November 24

- Auxiliary Building East and West Motor Control Center Rod Control Rooms Elevation 45'-6", Fire Areas AB-5 and AB-6 on November 24

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 2 samples)

.1 Internal Flooding Review

a. Inspection Scope

The inspectors reviewed the UFSAR, the site flooding analysis, and plant procedures to assess susceptibilities involving internal flooding. The inspectors also reviewed the CAP to determine if Dominion identified and corrected flooding problems and whether operator actions for coping with flooding were adequate. The inspectors walked down the Unit 2 EDG enclosures on December 1 and the Unit 3, 4' 6" elevation of the Auxiliary Building on December 22 to verify the adequacy of floor and water penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, control circuits, and temporary or removable flood barriers.

b. Findings

No findings were identified.

1R07 Heat Sink Performance (711111.07A – 1 sample)

a. Inspection Scope

The inspectors reviewed the Unit 3 'B' reactor plant component cooling water heat exchanger to determine its readiness and availability to perform its safety functions. The inspectors reviewed the design basis for the component and verified Dominion's commitments to NRC Generic Letter 89-13. The inspectors discussed the results of the most recent inspection with engineering staff and 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 Activities (71111.08P – 1 sample)

a. Inspection Scope

From October 20 - 30, 2014, the inspectors conducted an inspection and review of Dominion's implementation of in-service inspection (ISI) activities for monitoring degradation of the reactor coolant system (RCS) boundary, risk significant piping and components, steam generator tube integrity, and containment systems during the Unit 3

refueling outage 3R16. The sample selection was based on the inspection procedure objectives and risk priority of those pressure retaining components in systems where degradation would result in a significant increase in risk. The inspectors observed in-process non-destructive examinations (NDE), reviewed documentation, and interviewed Dominion personnel to verify that the NDE activities performed as part of the second refueling outage of the second period of the third interval, Millstone Unit 3, ISI program, were conducted in accordance with the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section XI, 2004 Edition.

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

The inspectors performed direct observations of NDE activities in process, and reviewed work instruction packages and documentation of nondestructive examinations listed below:

#### Observation and Review Scope of ASME Code Required Examinations:

The inspectors observed the condition of the interior containment surfaces at each elevation and the intersection with elastomer at the steel containment to the concrete floor of containment. Additionally, the inspectors reviewed the reports completed in June 2013 of containment boundary VT-3 visual inspections completed to satisfy the scope requirements of the ASME Code Section XI, IWE.

The inspectors observed the examination performance and reviewed the work package instructions, procedure, and summary report M3.R1.11\_0972 for the ultrasonic testing (UT) examination of the RCS elbow to pipe weld 3-CHS-14-FW-19.

For liquid penetrant (PT) surface examinations of the residual heat removal system, component RHS-501-PSSP403/404 integral support lugs, the inspectors reviewed the summary report M3.B10.20\_6406 to confirm the adequacy of the examination documentation and that the inspection procedure and the examiner were qualified in accordance with the requirements of ASME Section XI.

For UT of the reactor coolant pump flywheel 2S-86P761 on summary report M3.RG 1.14\_0169, the inspectors reviewed the work package, UT procedure ER-AA-NDE-UT-714, Revision 1, and observed the preparations for performance of the examination by the UT examiner.

Observation of UT and record review of the work packages, drawings, and procedure for the manual volumetric UT of the RCS-504C-FW-4, 8 inch diameter pipe to valve V6, weld per work order 5310267104 as documented in summary M3.R1.11\_5793 were in the inspection scope.

The inspectors observed the preparations and performance of magnetic particle (MT) surface examinations of the feedwater system 3-FWS-1-PSSH023 integral support lugs. The observations included review of the work package instructions, MT procedure, and report M3.C3.20\_1323 to confirm the inspection procedure use and the examiner qualification were in accordance with the requirements of ASME Section XI.

An additional observation of the MT examination process was made on its application to the 2 inch thick to 30 inch diameter head to header weld MSS 35-FW-1-GM shown on drawing 25215-20977.

The inspectors sampled qualification certificates of the NDE examiners performing the nondestructive testing. The inspectors verified that examinations were performed in accordance with ASME Section XI procedures and the results were reviewed and evaluated by certified ASME Level III personnel.

#### Other Augmented or Industry Initiative Examinations

The inspectors determined the scope of the flow accelerated corrosion (FAC) examinations planned for completion during the Millstone 3R16 and reviewed the ultrasonic thickness measurements sets and the data analysis process for several components. Additionally, the inspectors reviewed the 3R15 FAC results summary and confirmed how previous measurement results were factored into replacement and re-measurement decisions. The FAC program activities were discussed with the program leads and compared to the FAC program procedures and to the Electric Power Research Institute (EPRI) FAC program and NRC guidance.

#### Review of Previous Indications

There were no previously identified ASME Section XI NDE indications that required examination during this refuel outage.

#### Repair/Replacement Consisting of Welding Activities

In the area of weld repairs, the inspectors reviewed the work package, weld planning, welding procedure, and controls on welding for replacements in high pressure safety injection system 3308 and the service water system 3326. The radiographs and radiography report dated 9/17/2014 on Weld ID W-1 of system 3308 were reviewed for consistency to the ASME Code Sections V and III and the radiographic procedure ER-AA-NDE-RT-400, Revision 0.

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

The inspectors verified that the reactor vessel upper head penetration J-groove weld examinations were performed in the prior 3R15 outage in accordance with requirements of 10 CFR 50.55a and ASME Code Case N-729-1, "Alternative Examination Requirements for Pressurized Water Reactor Vessel Upper Heads," to ensure the structural integrity of the reactor vessel head pressure boundary. The inspection included a review of the computer based UT examination results of a sample of the control rod drive mechanism UT data reports and the overall prior examination conclusions. The inspectors observed the photographic result of bare metal visual examination done during 3R16 of the exterior surface of the reactor vessel upper head and discussed observations with plant staff to verify that no boric acid leakage or wastage was present, noting that there was not a requirement to perform NDE of the reactor pressure vessel head to control rod drive mechanism welds during the 3R16 outage.

### Boric Acid Corrosion Control (BACC) Inspection Activities (IMC Section 02.03)

During the plant shutdown process, the NRC resident inspectors observed the boric acid leakage identification process. The inspectors observed the condition of components in the plant that contain borated water, and reviewed the BACC program, which is based on EPRI and industry guidelines and performed in accordance with Dominion BACC procedures. The inspectors discussed the program requirements and plant BACC activities with the boric acid program owner. Photographic inspection records of a sample of identified boric acid leakage locations were reviewed with attention to the mitigation and evaluation plans. The inspectors reviewed a sample of CRs for evaluation and disposition within the CAP. Samples selected were based on component function, significance of leakage, and location where direct leakage or impingement on adjacent locations could cause degradation of safety system function.

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

The inspectors reviewed a sample of the SG eddy current tube examination results, which consisted of full length bobbin examination of all active tubes of SGs 'A' and 'C', 100 percent of the hot leg tube sheet tube expansion to first tube support region, and Array or Rotating Probe examination of selected tubes including special interest indications, tube support wear and anti-vibration bar wear locations, and rotating pancake coil examination of low radius U bend tubes in the bend area. The inspectors compared the scope of the eddy current test activities with the potential degradation mechanisms documented in the Millstone Unit 3 Steam Generator Integrity Degradation Assessment Report for 3R16.

The inspectors verified that the SG eddy current tube examinations were performed in accordance with Unit 3 TS, Nuclear Energy Institute (NEI) 97-06, EPRI SG Examination Guidelines, and the plant SG Program. The inspectors reviewed the SG tube eddy current test results to verify that no in-situ pressure testing was required, and no primary-to-secondary leakage had occurred over the operating cycle. The inspectors verified that the SG tube examination screening criteria was in accordance with the EPRI SG Guidelines, Revision 7, and flaw sizing was in accordance with the EPRI guidelines.

In addition, the inspectors reviewed foreign object search and retrieval results on the secondary side of one SG and reviewed corrective actions to remove a short wire sized foreign object that was in contact with tube outside surfaces.

While eddy current examination of tubes was conducted on the two SGs 'A' and 'C', all four SGs were chemically cleaned on the secondary side of the SG tubes. The inspectors observed the chemical cleaning equipment, reviewed portions of the procedures and process controls, and noted the effectiveness of the process.

The inspectors participated in the scheduled October 27, 2014, SG Outage Conference Call between the Millstone plant staff and the NRC Headquarters' Branch responsible for SG integrity. No issues requiring follow-up were identified during this conference call.

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

The inspectors verified that ISI related problems and nonconforming conditions were properly identified, characterized and evaluated for disposition within the 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 just in time training for Unit 3 licensed operators prior to reactor startup and low power physics testing following the 3R16 refueling outage on November 5. The inspectors evaluated operator performance during the infrequently performed evolution and verified appropriate use of operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to expected and unexpected alarms, and the oversight and direction provided by the control room supervisor. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

The inspectors observed Unit 2 licensed operator simulator training on December 2, which included fouling of the intake traveling screens, loss of a service water pump, loss of charging and letdown, and a loss of offsite power with three control element assemblies stuck out of the core, resulting in entry into EOP 2540, "Functional Recovery," and use of the resource assessment tree for reactivity control. The inspectors evaluated operator performance during the simulated event and verified completion of risk significant operator actions, including the use of AOPs and EOPs. 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 control room activities for a four hour period of time that included infrequently performed test or evolution briefings, pre-shift briefings, and 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 9. 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.

### Unit 2

- Ten percent power reduction followed by turbine control valve testing and return to 100 percent power on November 21

### Unit 3

- Shutdown activities and plant cooldown in the Unit 3 main control room at the entrance into refueling outage 3R16 on October 11 through 12

#### b. Findings

No findings were identified.

### .3 Licensed Operator Requalification (71111.11B – 1 sample)

#### a. Inspection Scope

The following inspection activities were performed using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1, and Inspection Procedure Attachment 71111.11, "Licensed Operator Requalification Program and Licensed Operator Performance."

#### Examination Results

Requalification examination results for year 2014 were reviewed to determine if pass/fail rates were consistent with the guidance of IMC 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)."

The review verified the following:

- Individual pass rate on the dynamic simulator scenarios was greater than 80 percent. (Pass rate was Unit 2: 100 percent; Unit 3: 100 percent)
- Individual pass rate on the job performance measure (JPM) part of the operating examination was greater than 80 percent. (Pass rate was Unit 2: 96.2 percent; Unit 3: 100 percent)
- Individual pass rate on the comprehensive written examination was greater than 80 percent. (Pass rate was Unit 2: 98.1 percent; Unit 3: 96.1 percent)
- More than 80 percent of the individuals passed all portions of the requalification examination. (Pass rate was Unit 2: 94 percent; Unit 3: 98 percent)
- Crew pass rate was greater than 80 percent. (Pass rate was Unit 2: 100 percent; Unit 3: 100 percent)

#### Written Examination Quality

The inspectors reviewed a sample of comprehensive written examinations that facility staff administered to the operators in November and December 2014.

### Operating Test Quality

The inspectors reviewed the operating tests (scenarios and JPMs) associated with the onsite examination week.

### Licensee Administration of Operating Tests

The inspectors observed facility training staff administer dynamic simulator examinations and JPMs during the week of September 15, 2014. These observations included facility evaluations of crew and individual operator performance during the simulator examinations and individual performance of JPMs.

### Exam Security

The inspectors assessed whether facility staff properly safeguarded examination material, and whether test item repetition guidelines were met.

### Conformance with License Conditions

License reactivation and license proficiency records were reviewed to ensure that 10 CFR 55.53 license conditions and applicable program requirements were met. The inspectors also reviewed a sample of records for requalification training attendance, and a sample of medical examinations for compliance with license conditions and NRC regulations.

### Simulator Performance

Scenario-based tests and simulator performance tests were reviewed for conformance and fidelity to the plant control room. A sample of simulator deficiency reports was also reviewed to ensure facility staff addressed any identified modeling problems.

### Problem Identification and Resolution

The inspectors reviewed recent operating history documentation found in inspection reports, licensee event reports (LERs), Dominion's CAP, NRC End-of-Cycle and Mid-Cycle reports, and the most recent NRC plant issues matrix. The inspectors focused on events associated with operator errors that may have occurred due to possible training deficiencies.

#### b. Findings

No findings were identified.

#### 1R12 Maintenance Effectiveness (71111.12Q – 5 samples)

##### a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on 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 October 16
- Plant Process Computer on October 20
- Maintenance Rule a(3) Periodic Self-assessment Report on December 5

## Unit 3

- SLCRS on December 22
- Feedwater Isolation Function / 3FWS\*CTV41 Valves on December 30

## b. Findings

Introduction. The inspectors identified a Green NCV of 10 CFR 50.65 (a)(1) for the failure to determine if the goals or corrective actions for the (a)(1) monitoring plan for the SLCRS system should be adjusted following an additional failure of the auxiliary building ventilation system in July 2014.

Description. On June 20, 2013, ventilation damper 3HVR\*AOD35A did not fully close while swapping auxiliary building ventilation during a SLCRS surveillance test. This failure exceeded the performance criteria of less than three maintenance preventable functional failures for the SLCRS system in a 24 month period and the maintenance rule expert panel approved the (a)(1) evaluation on October 30, 2013. The projected return to (a)(2) status was March 2015 after completion of corrective actions and a monitoring period where there were no failures of dampers 3HVR\*AOD35A/B or 3HVR\*AOD33A/B to close due to inadequate lubrication once the dampers had been properly cleaned and lubricated.

On July 17, 2014, 3HVR\*AOD35A again failed to stroke fully closed when aligning the system for a SLCRS surveillance. The control room received dual indication on the control board. On the second attempt, the damper fully cycled with proper indication in the control room. Dominion documented this condition in CR554215, with an assignment to evaluate the failure against the (a)(1) action plan (MRE017772). Using PI-AA-200, "Corrective Action," the due date for MRE017772 was extended six times to support engineering evaluation if the event the damper failed to close or if damper failed to indicate closed. ER-AA-MRL-100, "Implementing Maintenance Rule," states that when a goal is not met the system engineer shall obtain expert panel review and approval of the goal not met and appropriateness of any proposed new goal. This issue was eventually brought to the expert panel in January 2015.

Analysis. The inspectors determined that not evaluating the SLCRS (a)(1) monitoring plan after the July 2014 failure as required by 10 CFR 50.65 was a performance deficiency which is more than minor because it adversely affected the Barrier Integrity cornerstone SSC and barrier performance attribute due to the additional damper failure. Maintenance rule failures of a system in (a)(1) monitoring status need to be evaluated for additional failure mechanisms not covered by the existing monitoring plan. The inspectors evaluated the significance of the finding using IMC 0609, Appendix A, "Significance Determination Process for Findings At-Power," and screened it to Green using Exhibit 3, section B because the finding only represented a potential degradation of the radiological barrier function provided by the auxiliary building.

The inspectors determined this issue had a cross-cutting aspect in the area of Problem Identification and Resolution, Resolution, where the organization takes effective corrective actions to address issues in a timely manner commensurate with their safety significance. As stated in NUREG-2165, PI.3, Example 2, "Deferrals of corrective actions are minimized; when required, due dates are extended using an established process that appropriately considers safety significance." PI-AA-200, "Corrective Action," requires an assessment of risk and vulnerabilities associated with extending corrective actions. Dominion did not assess the risk of extending the MRE as it related to the implementation of the maintenance rule and improperly allowed six extensions of the assignment. [P.3]

Enforcement. 10 CFR 50.65 (a)(1), requires, in part, that the licensee monitors system performance against licensee-established goals, in a manner sufficient to provide reasonable assurance that such SSCs are capable of fulfilling their intended functions. When the performance or condition of a SSC does not meet established goals, appropriate corrective action shall be taken. Contrary to the above, Dominion has not determined if the goals or corrective actions for the failure of auxiliary building dampers should be adjusted following the July 2014 failure nor had they brought the issue to the maintenance rule expert panel for review. Because this finding was of very low safety significance and was entered in Dominion's CAP (CR528856 and CR554215), this violation is being treated as an NCV consistent with Section 2.3.2.a of the NRC's Enforcement Policy. **(NCV 05000423/2014005-01, Failure to Review Additional Failures Against the SLCRS (a)(1) Monitoring Plan)**

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 7 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

- Emergent High Risk Work for Repairs on the Moisture Separator Reheater Drain Tank Steam Leak on October 3
- Planned High risk activity for scheduled 371 line outages on December 4 and 12

### Unit 3

- Pre-3R16 shutdown risk schedule review on October 10
- Planned entry into Yellow Risk for RCS Drain Down on October 14
- Emergent Work/Yellow Risk assessment for 3RHS\*MOV8107B failure to stroke on October 15
- Unplanned entry into Orange Risk during RSST testing on October 19
- Planned entry into Red Risk during TDAFW full flow testing on November 15

## b. Findings

Introduction. The inspectors identified a Green NCV of 10 CFR 50.65 (a)(4) for the failure to properly assess and manage the risk of work in the switchyard during the Unit 3 refueling outage.

Description. On October 19, the 345 kV south bus tripped during U3 RSST leakage reactance testing. Dominion determined the direct cause for the loss of the 345 kV south bus was an incorrectly wired B RSST Y winding ground differential current transformer, which caused the RSST 6.9 kV side ground differential protective relay to actuate and the south bus to trip. This testing was performed in response to updated industry guidance on transformer maintenance and uncovered the latent error in the windings which has existed since initial installation of the current transformer. Dominion performed an extent of condition review and verified correct windings in the B RSST X winding circuit and A RSST X and Y winding circuits to ensure the proper protection schemes still existed for the transformer. In response to the unplanned loss of the south bus, Dominion stopped all work in the switchyard and took other compensatory actions to protect the remaining offsite power to the station. This was the first performance of this test, which was added to the preventive maintenance schedule in response to industry operating experience with station transformers.

Dominion controls risk mitigation plans and actions differently during refueling outages compared to when the unit is online. Online risk mitigation is controlled by a computer modeling program which calculates the potential risk of proposed work at the station. Risk mitigation during refueling outages is controlled by implementation of OU-AA-200, "Shutdown Risk Management," and OU-M3-201, "Shutdown Safety Assessment Checklist," which allows the shift technical advisor to assess the equipment available to maintain key safety functions and determine the appropriate risk categories for each day's scheduled work. For the Power Availability key safety function, risk is calculated using a points system that is based on the number of available onsite (A/B EDG and the station blackout EDG) and offsite (normal station service transformer (NSST) and RSST)

power sources, with various penalties assigned for periods of off-site grid reliability risk (such as environmental conditions, switchyard activities, or grid alert conditions).

For the RSST outage on October 19, the Shutdown Safety Assessment Checklist initially listed an Orange risk condition. The available power sources were the 'B' EDG, the station blackout EDG, and the NSST (3 points, equivalent to a Yellow risk) minus the penalty for having the 13T breaker open during RSST work (-1 point = 2 points total, equivalent to Orange risk). OU-AA-200 allows for further assessment to detail mitigating actions that the station will take and having this mitigation plan in place allows the station to prevent planned entry into the Orange condition. Dominion used this option and developed a risk mitigation plan for the RSST outage. This mitigation plan focused on the potential for a fault on the 348 line or misoperation of additional breakers which would result in a loss of offsite power to Unit 3, not on the potential for the loss of the south bus. The RSST risk mitigation plan states that there would be several planned south bus outages during the RSST outage and during these planned outages, the 13T breaker would be closed to power Unit 3 from the north bus via the NSST. Dominion prepared an additional risk mitigation plan to describe actions taken in the planned south bus outage. These actions all assume the 13T breaker is closed.

The inspectors determined that Dominion incorrectly assumed the risk mitigation plans were sufficient to allow them to not have to take the off-site grid risk penalty factor. Because Dominion did not consider the potential for the 15T breaker to open during the RSST leakage reactance testing or determine any mitigating actions to take in case of this possibility, they incorrectly classified the evolution as Yellow risk.

Analysis. The inspectors determined that the failure to properly assess and manage risk is a performance deficiency which is more than minor because it adversely affected the protection against external factors attribute of the Initiating Events cornerstone. Specifically, Dominion did not take adequate mitigating actions to reduce risk associated with the reliability of offsite power to the station prior to commencing testing. In addition, it is similar to Example 7.e from IMC 0612, Appendix E, "Examples of Minor Issues," which states that the failure to perform an adequate risk assessment when required to do so is more than minor if the overall elevated plant risk would put the plant into a higher licensee-established risk category. An adequate risk assessment would have assessed the plant risk as Orange, not Yellow.

The inspectors evaluated the significance of the finding using IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process." There is a note in this appendix which states, "this guidance does not apply to the following situations: (1) those licensees who only perform qualitative analyses of plant configuration risk due to maintenance activities, or (2) performance deficiencies related to maintenance activities affecting SSCs needed for fire or seismic mitigation. When performance deficiencies are identified with either 1 or 2 above, the significance of the deficiencies must be determined by an internal NRC management review using risk insights where possible in accordance with IMC 612, "Power Reactor Inspection Reports."

Dominion does not use Equipment Out Of Service or other risk management software to inform their risk management activities during shutdown, and instead uses the qualitative analysis guided by OU-AA-200 and OU-M3-201. The inspectors determined this meets the intent of the note in Appendix K and determined the issue was of very low safety

significance in consultation with NRC management. The duration of the unplanned south bus outage was short (13 hours). Furthermore, the station took additional risk mitigation actions after the event, including suspending all work in the switchyard and transformers as well as holding a control room brief to EOP 3501, "Loss of All AC Power."

The inspectors determined this issue had a cross-cutting aspect in the area of Human Performance, Change Management, where managers maintain a clear focus on nuclear safety when implementing the change management process to ensure that significant unintended consequences are avoided. Specifically, the RSST testing performed during the outage was the initial performance of this specific test and all failure modes were not fully assessed prior to the test date. [H.3]

**Enforcement.** 10 CFR 50.65 (a)(4), states, in part, that "Before performing maintenance activities (including but not limited to surveillance, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities." Contrary to the above, on October 19, Dominion failed to properly assess the risk of testing and maintenance performed on the Unit 3 RSST. Because this finding was of very low safety significance and was entered in Dominion's CAP (CR562570 and CR562580), this violation is being treated as an NCV consistent with Section 2.3.2.a of the NRC's Enforcement Policy. **(NCV 05000423/2014005-02, Failure to Manage Risk of RSST Testing)**

1R15 Operability Determinations and Functionality Assessments (71111.15 – 8 samples)

a. Inspection Scope

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

Unit 2

- OD000601, 2-RB-8.1A/B actuator oil leaks on October 21
- CR562887, 'A' EDG Failure on October 21

Unit 3

- ETE-MP-2014-1207, Recommendation for Millstone 3 to Address Westinghouse TB-11-8, Pressurizer Heaters on October 29
- CR561668, Shutdown Margin Monitor Channel 2 reading greater than Shutdown Margin Monitor Channel 1 during shutdown into 3R16 on October 12
- CR565905, AFW 'B' Steam Inlet Drain Line Improper Weld Material following TDAFW Steam Inlet Drain Modification on December 1
- CR566507, Service Water Through Wall Leak upstream of Containment Recirculation 'D' Heat Exchanger Inlet Isolation Valve on December 2
- CR560039, HVK 'A' Chiller Failure to Start and CR566762 HVK 'A' Chiller Failure to Run on December 13
- CR567380, Charging Recirculation to Reactor Water Storage Tank Valve Mispositioning on December 15



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

Introduction. The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI associated with Dominion's failure to promptly identify or correct conditions adverse to quality associated with the equipment reliability of the Millstone Unit 3 control room 'A' HVK chiller from September 26, 2014, to December 13, 2014. Specifically, the component was placed into service without establishing adequate corrective actions resulting in failures to start on 17 of 20 demands. Further, the component experienced run time failures due to a series of no less than six identified and corrected failure modes within the exposure window.

Description. Millstone Unit 3 had historically experienced failures of the 'A' HVK Chiller to start when swapping from the 'B' to 'A' train. Upon securing the running 'B' chiller the 'A' chiller should start immediately, however, often the 'A' chiller would fail to start immediately, starting approximately 15 minutes after the demand. Dominion implemented a modification to correct the condition on September 25, 2014. On September 26, 2014, 'A' chiller failed to start on demand, starting approximately 15 minutes after the 'B' chiller was secured. Inspectors identified that from September 26 through December 13, 2014, the 'A' chiller failed to start on demand on 17 of 20 start attempts. In October 2014, when inspectors questioned Dominion as to the design basis functionality requirement of the standby train of HVK to automatically start upon loss of the running train, Dominion management asserted that the conditions associated with the failure were allowable as the chiller did eventually start approximately 15 minutes after the initial start signal on all but one demand and that the design basis lacks an explicit starting time requirement. Further, the cause of the demand start demand failure which was not followed by auto-start 15 minutes after demand was a modification introduced failure which inspectors verified was corrected and did not recur. Follow-on corrective actions prevented the observed failure to start on four of four demands since December 5, 2014.

From November 2 through December 13, 2014, the 'A' HVK chiller intermittently failed (tripped) while in service eight times, six of which were while the train was functional. Following each of the first five events, Dominion performed troubleshooting, identified four different conditions adverse to quality (one repeat), and corrected them restoring the system to functionality. Following the sixth failure on December 4, Dominion performed systematic complex troubleshooting utilizing a monitoring program. This activity resulted in locating an additional two intermittent failure modes at severely degraded internal and external connections to a mechanism designed to prevent catastrophic failure of the

machine due to misalignment of rotating equipment. These connections had been last inspected during a chiller overhaul in January and February of 2014. Inspectors verified restoration of all six identified failure modes.

Analysis. The inspectors determined that failure to identify and correct conditions adverse to quality associated with the equipment performance of the Millstone Unit 3 'A' HVK Chiller was a performance deficiency that was reasonably within Dominion's ability to foresee and correct. This finding was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, as it represented a challenge to the equipment performance attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Reliability of the 'A' HVK chiller was challenged based upon Dominion's failure to take action to prevent failures to start on 17 of 20 demands. Reliability of the 'A' HVK chiller was challenged because of Dominion's failure to identify and correct no less than six failure modes which resulted in the run time failures from November 2, 2014 through December 13, 2014.

In accordance with IMC 0609, "Significance Determination Process," Attachment 4, "Initial Characterization of Findings," and IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," Section A, "Mitigating Systems, Structures, or Components and Functionality," the finding screened to be of very low safety significance (Green) when all screening questions were answered "no." There was no loss of system or function due to the functionality of the 'B' HVK chiller train.

This finding in accordance with IMC 0310, "Aspects within the Cross-Cutting Areas," has a cross-cutting aspect in the Human Performance cross-cutting area associated with Conservative Bias. Specifically, with respect to the failures to start, Dominion management decision making practices were not conservative in that they emphasized that the conditions associated with the failure were allowable as chiller did eventually start 15 minutes after the initial start signal and that the design basis lacks an explicit starting time requirement in spite of the fact that this was contrary to equipment performance expectations. Further, Dominion management accepted a series of six runtime failures of a safety-related component within 33 days prior to implementing complex troubleshooting. [H.14]

Enforcement. 10 CFR 50, Appendix B, Criterion XVI states, in part, "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected." Contrary to the above, from October 6, 2014, to December 13, 2014, Dominion did not promptly identify and correct conditions adverse to quality associated with the equipment reliability of the Millstone Unit 3 'A' HVK chiller which resulted in 17 failures to start and five failures to run while in a functional condition. Because this issue is of very low safety significance (Green) and Dominion has taken corrective action and entered this issue into their CAP (CR560039 and CR566762), this finding is being treated as an NCV consistent with Section 2.3.2 of the NRC's Enforcement Policy. **(NCV 05000423/2014005-03, Failure to Correct Multiple 'A' HVK Start and Runtime Failures)**

1R18 Plant Modifications (71111.18 – 2 samples).1 Temporary Modificationsa. Inspection Scope

The inspectors reviewed the temporary modifications listed below to determine whether the modifications affected the safety functions of systems that are important to safety. 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 modifications did not degrade the design bases, licensing bases, and performance capability of the affected systems.

Unit 3

- MP3-14-01178, TDAFW Pump Overspeed Trip Circuit, Replacement of 1CON Relay on November 7
- TCC-MP-2014-026, Bypass damaged reactor vessel level indication sensor on November 17

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 5 samples)a. Inspection Scope

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

Unit 2

- Reactor Protection System pressurizer pressure trip unit TU6 following replacement and retest on October 30

Unit 3

- Feedwater isolation valves 3FWS\*CTV41A/B/C/D following actuator replacement on October 17
- Reactor Coolant Pump 'A' and 'D' pump seal alarms and indications following replacement with Flowserve style pump seal on November 13

- TDAFW pump augmented surveillance testing following system restoration at the conclusion of 3R16 on November 19
- 'D' Steam Line Inlet Drain to the TDAFW pump following valve maintenance for leakage on December 12

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 refueling outage (3R16), which was conducted October 11 through November 17, 2014. 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 TSs when taking equipment out of service
- 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 TSs 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 TSs
- 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

No findings were identified.

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

- SP2613, 'A' EDG Loss of Load Test on December 17

Unit 3

- SP 3605.2, Fuel Pool Cooling Pump B Operational Readiness Test (IST) on October 7
- SP 3621.1, Main Feedwater Valve Operability Testing (CIV) on November 12
- SP 3622.3, AFW Pump 3FWA\*P2 Operational Readiness Test on November 14
- SP 3623.1 Attachment 006, Turbine Generator Overspeed Test on November 17
- SP 3612B.3-002, Personnel Access Lock Seals Containment Local Leak Rate Test (CIV) on December 2
- SP 3646A.17 Train 'A' Engineered Safety Feature (ESF) With Loss of Power Test on October 14
- Change of the Loss of Offsite Power Test Surveillance Frequency in accordance with the surveillance frequency change program on October 17

b. Findings

No findings were identified.

**Cornerstone: Emergency Preparedness**1EP4 Emergency Action Level and Emergency Plan Changes (71114.04 – 1 sample)a. Inspection Scope

Dominion implemented various changes to the Millstone Emergency Action Levels (EALs), Emergency Plan, and Implementing Procedures. Dominion had determined that, in accordance with 10 CFR 50.54(q)(3), any change made to the EALs, Emergency Plan, and its lower-tier implementing procedures, had not resulted in any reduction in effectiveness of the Emergency Plan, and that the revised Emergency Plan continued to meet the standards in 50.47(b) and the requirements of 10 CFR 50 Appendix E.

The inspectors performed an in-office review of all EAL and Emergency Plan changes submitted by Dominion as required by 10 CFR 50.54(q)(5), including the changes to

lower-tier emergency plan implementing procedures, to evaluate for any potential reductions in effectiveness of the Emergency Plan. This review by the inspectors was not documented in an NRC Safety Evaluation Report and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety. The requirements in 10 CFR 50.54(q) were used as reference criteria.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06 – 2 samples)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine combined Unit 1 and Unit 2 emergency drill on December 4 to identify any weaknesses and deficiencies in the classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the Unit 2 control room, operations support center, and emergency operations facility to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the station drill critique to compare inspector observations with those identified by Dominion staff in order to evaluate Dominion's critique and to verify whether the Dominion staff was properly identifying weaknesses and entering them into the CAP.

b. Findings

No findings were identified.

.2 Training Observations

a. Inspection Scope

The inspectors evaluated the conduct of a Unit 2 simulator training scenario on December 2 to identify any weaknesses and deficiencies in the classification and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator to determine whether the event classification and protective action recommendations were performed in accordance with procedures. The inspectors also attended the scenario performance critique to compare inspector observations with those identified by Dominion staff in order to evaluate Dominion's critique and to verify whether the Dominion staff was properly identifying weaknesses and entering them into the CAP. In addition, the inspectors conducted an inspection of the new, offsite Emergency Operations Facility on December 1 to assess the adequacy of the arrangements for offsite authorities in the areas of communication, technical support, and resources prior to the acceptance drill.

b. Findings

No findings were identified.

**2. RADIATION SAFETY**

**Cornerstone: Public and Occupational Safety**

2RS2 Occupational ALARA Planning and Controls (71124.02)

a. Inspection Scope

During the period of October 20 - 24, 2014, the inspectors reviewed Dominion's performance with respect to maintaining occupational individual and collective radiation exposures as low as is reasonably achievable (ALARA). The inspectors used the requirements in 10 CFR Part 20 and Dominion procedures that are required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors conducted an in-office review of Millstone's collective dose history, current exposure trends, and ongoing or planned activities. The inspectors reviewed the plant's three year rolling average collective exposure.

Radiological Work Planning

The inspectors selected the following 2R22 refueling outage work activities that had the highest exposure significance:

- Outage scaffolding
- Outage valve maintenance
- 2-SI-227 valve replacement
- Radiation Protection (RP) and decontamination outage support

The inspectors reviewed: ALARA work activity evaluations; exposure estimates and exposure reduction requirements; results achieved (dose rate reductions, actual dose); person-hour estimates and results achieved; and determined whether post-job reviews were conducted to identify lessons learned.

Problem Identification and Resolution

The inspectors evaluated whether problems associated with ALARA planning and controls are being identified by Dominion at an appropriate threshold and were properly addressed for resolution in their CAP, and Dominion's process for applying RP operating experience to their plant.

b. Findings

Introduction. A self-revealing finding of very low safety significance (Green) was identified due to Dominion having excessive unintended occupational collective radiation exposure. This was the result of performance deficiencies in planning and work control of three activities during the Unit 2 refueling outage (2R22). The unplanned and unintended collective radiation exposures were due to conditions that were reasonably within Dominion's ability to control and prevent.

Description. The Millstone Unit 2 refueling outage (2R22) was completed on May 18, 2014. On June 30, 2014, Millstone ALARA staff identified that the refueling outage radiation exposure estimate of 75 person-rem was exceeded, with an actual result of 102.225 person-rem (documented in CR552843). ALARA post-job reviews identified three large contributors to the collective exposure overruns that included: outage scaffolding (17.701 person-rem actual versus 11.796 person-rem estimated), outage valve maintenance (10.174 person-rem actual versus 5.475 person-rem estimated), and 2-SI-227 valve replacement (11.607 person-rem actual versus 5.9 person-rem estimated).

Dominion's Condition Review Team directed that a formal self-assessment be conducted on the radiation exposure overrun results from the refueling outage. The formal self-assessment (SAR002926) was completed on August 15, 2014. This assessment identified that the unintended outage radiation exposure was the result of five work planning and work control concerns.

1. Poor sequencing of outage work activities, leading to overlapping work zones in the reactor coolant loop areas of containment. For instance, scaffold built for primary SG eddy current testing interfered with the removal of air-operated valves. This caused the air-operated valve work to exceed its initial estimate by 2.2 person-rem.
2. Poor sequencing of work in relation to water level management/shielding in the primary side of the SGs. For instance, the exposure estimate for much of the scaffolding that was built in the RCS loop areas was based upon expected dose rates with the reactor coolant piping filled with water. Much of the scaffold building occurred during RCS drained conditions when actual dose rates were higher.
3. A dose-estimation process which did not consider and track crew sizes. For instance, a review of ALARA estimates showed that detailed budget analyses frequently do not note the number of workers estimated for work tasks, and that there is no standardized format for the budget analysis. Some interviews also revealed that larger crews were occasionally assigned in order to make-up time from schedule delays.
4. An inability for ALARA staff to track radiation exposure by work order. For instance, radiation exposure tracking did not allow radiation protection staff to monitor the progress of specific jobs and to intervene in a timely manner.
5. Poor involvement by various staff in outage planning and Station ALARA Committee meetings. For instance, in the current Millstone RP Department,



there is a disconnect between the outage focus team and the ALARA group. Individuals who perform planning for RP, attend outage planning meetings, but none of the individuals involved in writing ALARA plans attend outage planning meetings.

Upon completion of the self-assessment, additional ALARA post-job reviews were developed for outage scaffolding, outage valve maintenance, and the 2-SI-227 valve replacement. Dominion indicated, through those reviews, that the five work planning and work control concerns (above) applied to all three outage jobs.

Analysis. Dominion's failure to reasonably achieve the planned ALARA goals for three major 2R22 refueling outage activities is a performance deficiency. Specifically, poor sequencing of work, work size control, inadequate exposure tracking, and poor pre-outage planning results in an excessive unintended occupational collective radiation exposure for three jobs. This performance deficiency was determined to be more than minor because the deficiency adversely affected the Occupational Radiation Safety cornerstone to ensure the adequate protection of the worker from radiation exposure. Additionally, this performance deficiency is similar to examples 6.i & 6.j in IMC 0612, Appendix E, in that the actual collective dose exceeded 5 person-rem and exceeded the estimated/intended dose by more than 50 percent.

Using IMC 0609, "Significance Determination Process," Appendix C, "Occupational Radiation Safety Significance Determination Process," the inspectors determined this finding was of very low safety significance (Green) because Millstone's current three year rolling average collective dose is less than the criteria of 135 person-rem per pressurized water reactor.

The finding has a cross-cutting aspect in the area of Human Performance, Work Management, in that the Millstone organization did not successfully implement a process of planning, controlling, and executing work activities such that station-established radiation exposure estimates could be met. [H.5]

Enforcement. This finding does not involve enforcement action because no violation of a regulatory requirement was identified. The ALARA rule (10 CFR Part 20.1101 (b)) "Statements of Consideration," indicate that compliance with the ALARA requirement will be judged on whether the licensee has incorporated measures to track, and if necessary, to reduce exposures, and not whether exposures and doses represent an absolute minimum or whether the licensee has used all possible methods to reduce exposures. The overall exposure performance of a nuclear power plant is used to determine its compliance with the ALARA rule. Since Millstone is below a three year rolling average of 135 person-rem per reactor and Dominion has an established ALARA program to reduce exposure consistent with 10 CFR Part 20.1101, "Statements of Consideration," no violation of 10 CFR Part 20.1101 (b) occurred. Dominion entered this issue into their CAP as CR566137. Because this finding does not involve a violation and has very low safety significance (Green), it is identified as a FIN. **(FIN 05000336/2014005-04, Failure to Maintain Radiation Exposure ALARA During Refueling Outage 2R22 Activities)**

## 2RS4 Occupational Dose Assessment (71124.04)

### a. Inspection Scope

During the period of October 20 - 24, 2014, the inspectors reviewed Dominion's occupational radiation dose monitoring, assessment, and reporting. The inspectors used the requirements in 10 CFR Part 20 and Dominion's procedures that are required by TSs as criteria for determining compliance.

#### External Dosimetry

The inspectors reviewed five dosimetry occurrence reports or CAP documents for adverse trends related to electronic personal dosimeters.

#### Declared Pregnant Workers

The inspectors assessed whether Dominion informs workers of the risks of radiation exposure to the embryo/fetus, the regulatory aspects of declaring a pregnancy, and the specific process to be used for declaring a pregnancy.

#### Problem Identification and Resolution

The inspectors reviewed whether problems associated with occupational dose assessment are being identified by Dominion at an appropriate threshold and are properly addressed for resolution in their CAP.

### b. Findings

No findings were identified.

## 2RS5 Radiation Monitoring Instrumentation (71124.05 – 1 sample)

### a. Inspection Scope

During the period of November 17 – 21, 2014, the inspectors reviewed Dominion's performance in assuring the accuracy and operability of radiation monitoring instruments used for effluent monitoring and analysis. The inspectors used the requirements in 10 CFR 20; 10 CFR 50, Appendix I; TSs; the Offsite Dose Calculation Manual (ODCM); applicable industry standards; and procedures required by TSs as criteria for determining compliance.

During the period of December 15 - 18, 2014, the inspectors reviewed Dominion's performance in assuring the accuracy and operability of radiation monitoring instruments used to protect occupational workers and to protect the public from nuclear power plant operations. The inspectors used the requirements in 10 CFR 20; 10 CFR 50, Appendix I; TSs; applicable industry standards; and procedures required by TSs as criteria for determining compliance.

### Inspection Planning

The inspectors conducted an in-office review of the Millstone 2012 and 2013 annual effluent and environmental reports; the UFSAR; and the ODCM. The inspectors reviewed the TS requirements for post-accident monitoring instrumentation, procedures that govern instrument source checks and calibrations, and area radiation monitor alarm set-point values and bases.

### Walk-downs and Observations

The inspectors reviewed the following:

- Walk-downs of all radioactive effluent monitoring systems
- Assessed whether the effluent/process monitor configurations align with what is described in the ODCM and the UFSAR
- Observed collection of weekly Unit 3 ventilation vent particulate and iodine effluent samples
- Inspection of ten portable survey instruments
- Observation of source checks for personnel contamination monitors, small article monitors, portal monitors, whole body counters, telepoles, RO-20 ion chambers, and BC-4 bench counters
- Walk-down of five area radiation monitors and five continuous air monitors
- Inspection of three personnel contamination monitors, three portal monitors, and three small article monitors

### Calibration and Testing Program

#### Laboratory Instrumentation

The inspectors assessed laboratory analytical instruments to:

- Determine if the frequency of the calibrations is adequate
- Verify that there were no indications of degraded performance
- Assess whether appropriate corrective actions were implemented in response to indications of any degraded performance.

#### Whole Body Counter (WBC)

The inspectors reviewed or assessed:

- Calibration records for the WBC
- The methods and sources used to perform functional checks on the WBC
- Whether calibration and check sources were appropriate and aligned with the plant's radionuclides
- That appropriate calibration phantom(s) were used.

#### Post-Accident Monitoring Instrumentation

The inspectors reviewed calibration documentation for the containment high-range monitors and assessed that electronic calibrations were completed for the complete range of the detectors and included detector calibration using an appropriate radiation

source. The inspectors selected one effluent/process monitor used as a basis for initiating EALs and evaluated the calibration and availability of this instrument. The inspectors reviewed Dominion's capability to collect high-range, post-accident effluent samples.

#### Portal Monitors, Personnel Contamination Monitors, and Small Article Monitors

The inspectors selected one of each type of these instruments and reviewed:

- The alarm set-point values to ensure that radioactive material is not released from the site
- The calibration methods consistent with the manufacturer's recommendations

#### Portable Survey Instruments, Area Radiation Monitors, Electronic Dosimetry, and Air Samplers/Continuous Air Monitors

The inspectors reviewed:

- Calibration documentation for at least one of each type of portable instrument in use
- Detector measurement geometry and calibration methods
- The use of the instrument calibrator

The inspectors selected four portable survey instruments that did not meet acceptance criteria during calibration or source checks and assessed whether the licensee had taken appropriate corrective action for these out of calibration instruments.

#### Instrument Calibrator

The inspectors:

- Assessed whether Dominion periodically verifies the calibrator accuracy over the range of the exposure rates/dose rates
- Assessed whether the measuring devices had been calibrated by a facility using National Institute of Science and Technology traceable sources and the calibration methodology used.

#### Process and Effluent Monitors

The inspectors reviewed the following:

- Selected effluent monitoring instruments (Auxiliary Building, Control Room, Spent Fuel Pool Island, SLCRS, Turbine Building Floor Drains, and Aerated Waste Discharge) and evaluated whether channel calibration and functional tests were performed consistent with station TSs/ODCM.

#### Calibration and Check Sources

The inspectors reviewed Dominion's source term or waste stream characterization per 10 CFR Part 61, to assess whether calibration sources used were representative of radiation encountered in the plant.

### Problem Identification and Resolution

The inspectors evaluated whether problems associated with radiation monitoring instrumentation were being identified at an appropriate threshold and were properly addressed for resolution in Dominion's CAP.

#### b. Findings

No findings were identified.

### 2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06 - 1 sample)

#### a. Inspection Scope

During November 17 – 21, 2014, the inspectors reviewed Dominion's performance in treatment, monitoring, and control of effluent releases including adequacy of public dose calculations and projections. The inspectors used the requirements in 10 CFR Part 20; 10 CFR 50, Appendix I; TSs; ODCM; applicable industry standards; and procedures required by TSs as criteria for determining compliance.

#### Inspection Planning and Program Reviews

The inspectors conducted in-office preparation and review of the Millstone 2012 and 2013 annual effluent and environmental reports, program documents, UFSAR, and the Millstone ODCM.

#### ODCM and UFSAR Reviews

The inspectors reviewed the following:

- UFSAR changes associated with radioactive effluent monitoring and control
- Changes to the ODCM including technical justifications
- Identification of any contaminated non-radioactive system and associated 10 CFR 50.59 evaluations

#### Groundwater Protection Initiative (GPI)

The inspectors reviewed the reported groundwater monitoring results and changes to the written GPI program since the last inspection.

#### Procedures, Special Reports, and Other Documents

The inspectors reviewed LERs related to the radioactive effluent program, radioactive effluent program implementing procedures, and audits of the radioactive effluent monitoring program since the last inspection.

### Walk-downs and Observations

The inspectors reviewed the following:

- Walked down selected components of the gaseous radiation monitoring systems
- Observed potential unmonitored release points, building alterations which could impact airborne, or liquid, and effluent controls, and ventilation system leakage
- Material condition surveillance records
- Changes to radioactive effluent release paths
- Routine processing and discharge of liquid radioactive waste
- 10 CFR 50.59 reviews for changes to radioactive effluent release points

### Sampling and Analyses

The inspectors reviewed the following:

- Radioactive effluent sampling activities with respect to representative sampling requirements
- Radioactive effluent discharges made with inoperable effluent radiation monitoring instrumentation
- Use of compensatory radioactive effluent sampling
- Results of the inter-laboratory and intra-laboratory comparison program to include scaling of hard-to-detect isotopes

### Effluent Flow Measuring Instruments

The inspectors reviewed the methodology used to determine the radioactive effluent stack and vent flow rates to verify that the flow rates are consistent with TS/ODCM and UFSAR values.

### Air Cleaning Systems

The inspectors assessed whether radioactive effluent discharge system surveillance test results met TS acceptance criteria.

### Dose Calculations

The inspectors reviewed the following:

- Changes in reported dose values compared to the previous annual radioactive effluent release reports
- Liquid and gaseous radioactive waste discharge permits
- Methods used to account for hard-to-detect radionuclides in radioactive effluent releases
- Changes in the methodology for offsite dose calculations since the last inspection
- Meteorological dispersion and deposition factor basis and use
- Changes in the latest Land Use Census
- Public dose calculations (monthly, quarterly, annual)
- Records of any abnormal gaseous or liquid radioactive releases

- Discharges made with inoperable radioactive effluent radiation monitors, or unmonitored leakage

#### GPI Implementation

The inspectors reviewed the following:

- Monitoring results of the GPI
- Changes made to the GPI program
- Anomalous results or missed groundwater samples
- Leakage or spill events and entries made into the decommissioning files (10 CFR 50.75(g))
- Onsite contamination events involving contamination of groundwater
- Discharges from onsite surface water bodies, as applicable, that contain or potentially contain radioactivity
- Update to ODCM to include the dose calculation method for any the new release point

#### Problem Identification and Resolution

The inspectors evaluated whether problems associated with the radioactive effluent monitoring and control program were being identified at an appropriate threshold and were properly addressed for resolution in Dominion's CAP.

#### b. Findings

No findings were identified.

### **4. OTHER ACTIVITIES**

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

##### .1 Safety System Functional Failures (2 samples)

#### a. Inspection Scope

The inspectors sampled Dominion's submittals for the Safety System Functional Failures performance indicator for both Unit 2 and Unit 3 for the period of October 1, 2013 through September 30, 2014. To determine the accuracy of the performance indicator data reported during those periods, inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 10 CFR 50.73." The inspectors reviewed Dominion operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, CRs, event reports and NRC integrated inspection reports to validate the accuracy of the submittals.

#### b. Findings

No findings were identified.

.2 Occupational Exposure Control Effectiveness

a. Inspection Scope

During the period of December 15 - 18, 2014, the inspectors sampled Dominion's submittals for the occupational exposure control effectiveness performance indicator for the period of fourth quarter of 2013 through the third quarter of 2014. The inspectors used performance indicator definitions and guidance contained in NEI 99-02, Revision 7, to determine the accuracy of the performance indicator data reported.

The inspectors independently reviewed electronic personal dosimetry accumulated dose alarms, dose reports, and dose assignments for any intakes that occurred during the time period reviewed. The inspectors also conducted walk-downs of numerous locked high and very high radiation area entrances to determine the adequacy of the controls in place for these areas.

b. Findings

No findings were identified.

.3 Radiological Effluent TS/ODCM Radiological Effluent Occurrences

a. Inspection Scope

During the period of December 15 - 18, 2014, the inspectors sampled Dominion's submittals for the radiological effluent TS/ODCM radiological effluent occurrences performance indicators for the period of the fourth quarter of 2013 through the third quarter of 2014. The inspectors used performance indicator definitions and guidance contained in NEI 99-02, Revision 7, to determine the accuracy of the performance indicator data reported.

The inspectors reviewed Dominion's corrective action report database, gaseous and liquid effluent summary data and the results of associated offsite dose calculations for selected dates, and Dominion's methods for quantifying gaseous and liquid effluents and determining effluent dose.

b. Findings

No findings were identified.

40A2 Problem Identification and Resolution (71152 – 3 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.

b. Findings

No findings were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a semi-annual review of site issues, as required by Inspection Procedure 71152, "Problem Identification and Resolution," to identify trends that might indicate the existence of more significant safety issues. In this review, the inspectors included repetitive or closely-related issues that may have been documented by Dominion outside of the CAP, such as trend reports, performance indicators, major equipment problem lists, system health reports, maintenance rule assessments, and maintenance or CAP backlogs. The inspectors also reviewed Dominion's CAP database for the third and fourth quarters of 2014 to assess CRs written in various subject areas (equipment problems, human performance issues, etc.), as well as individual issues identified during the NRCs daily CR review (Section 4OA2.1). This review included the status of all corrective actions for the TDAFW pump assigned during 2014. The inspectors also reviewed the Dominion quarterly trend report for the first quarter of 2014, conducted under PI-AA-200-2001, "Trending," to verify that Dominion's personnel were appropriately evaluating and trending adverse conditions in accordance with applicable procedures.

b. Findings and Observations

Introduction. The inspectors identified a Green NCV of TS 6.8.1, "Procedures and Programs," for the failure to accurately maintain the EOPs and AOPs by not including operating restrictions that had been promulgated as a temporary order (SO 14-04) regarding the limitation of the closure sequence and rate for the TDAFW pump flow control valves (3FWA\*HCV36A, B, C and D). Dominion did not incorporate the throttling restrictions until questioned by the inspectors.

Description. On February 3, 2014, the inspectors questioned the operability of the TDAFW pump after the full-flow surveillance test showed that the pump governor was unable to prevent challenging the discharge relief valve setpoint (3FWA\*RV45) and the overspeed trip setpoint (CR538720). Dominion implemented SO 14-04 on February 4, 2014, as a compensatory action for OD000577, which restricted the manual throttling rate for the TDAFW pump discharge path. The SO directed operators to limit the rate at which they manually closed the TDAFW pump flow control valves such that they did not close these valves simultaneously (i.e. closed them sequentially) and did not exceed a closure rate of 15 seconds on each valve to prevent TDAFW pump speed and pressure spikes that could exceed the discharge relief valve (3FWA\*RV45) lift setpoint. Millstone operating experience had demonstrated that closing these valves too rapidly would cause the TDAFW governor to respond by speeding up such that the discharge relief valve setpoint could be exceeded and the overspeed setpoint could be challenged. If the relief valve lifted and failed to reseat, the resulting flow rate (600 gpm) would cause the TDAFW pump to be in a runout condition and could lead to pump failure. On

February 10, 2014, Dominion directed the incorporation of the SO-14-004 operating restrictions into the applicable plant operating procedures (CA277406).

The specific limitations on the TDAFW pump flow throttling rate were established as a compensatory measure in OD000577 to restore operability for a degraded condition. The TDAFW pump had originally been designed to operate at 4400 rpm. Dominion implemented a design change to increase the pump operating speed to 4500 rpm which significantly reduced the operating margins to the overspeed trip and the discharge relief valve pressure lift setpoints. The governor and linkage had to be adjusted to be sufficiently responsive to load changes but sufficiently damped to prevent the control system from breaking into spontaneous oscillations. The mechanical components that transmitted the governor output force to the control valve had to be carefully aligned and properly adjusted. In order to prevent load changes from causing spikes in speed and discharge pressure, the operators were limited to slowly closing the flow control valves. Initially, this direction was provided by SO 14-004.

Subsequently, on May 25, 2014, the operators responded to a loss of offsite power. During this event, the TDAFW pump ran in parallel with the two motor-driven auxiliary feedwater (MDAFW) pumps as designed to maintain heat removal. When the operators had completed restoring level on the SGs following the reactor trip, they reduced flow by throttling the TDAFW pump control valves. While maintaining SG level on minimum AFW flow, they did not operate these valves as slowly as required by the SO. The discharge pressure spikes exceeded the discharge relief valve setpoint and challenged the overspeed trip setpoint (CR550279). The relief valve, 3FWA\*RV45, was replaced as a result of exceeding the lift setpoint.

On May 31, 2014, Dominion incorporated the SO-14-004 operating restrictions into OP 3322, "Auxiliary Feedwater System," and SP 3622.3, "Auxiliary Feedwater Pump 3FWA\*P2 Operational Readiness Test," (CA280019). Dominion determined that changes to EOPs and AOPs were not needed. At that time, Dominion was planning to implement a design change that would have reduced the speed of the TDAFW pump which would have made these changes unnecessary. However, as of January 1, 2015, plans for implementation were uncertain and the operating restrictions were still not incorporated into the EOPs and AOPs. In December 2014, the inspectors asked Dominion why they had not yet incorporated the SO direction into the EOPs and AOPs. Dominion stated that TDAFW pump operability was not a primary concern when the operators were using the EOPs and AOPs to respond to an event and the operators were expected to recall the directions from the SO.

Dominion's administrative procedure OP-AA-100, "Temporary Orders," states in part; "Neither Shift Orders nor required reading is a substitute for accurate, up-to-date procedures... Periodic reviews of Standing Orders ensure that they are removed in a timely manner (typically within six months)." Relying on SOs for extended periods of time to provide important operating direction in lieu of incorporating this direction into approved procedures is contrary to Dominion's expectations and NRC requirements. The operators should not be expected to recall from memory the directions in the SOs to properly implement the EOPs and AOPs while responding to plant events. Failing to incorporate risk-important operational directions increases the likelihood that an operator will fail to recall the required actions during stressful activities. In this case, throttling the flow control valves too aggressively could lead to the failure of the TDAFW pump, which is a risk-significant safety component.

Analysis. TS 6.8.1, "Procedures and Programs," requires written procedures to be established, implemented, and maintained covering the applicable procedures listed in Regulatory Guide 1.33, Revision 2. Appendix A, Section 6 of this regulatory guide lists procedures for combatting emergencies and other significant events, including loss of electrical power, loss of feedwater, and feedwater system failures. Specifically, Dominion did not incorporate the operating limitations for throttling the TDAFW pump flow control valves into any EOPs and AOPs for over one year. The inspectors determined this was a performance deficiency that was within Dominion's ability to foresee and correct and should have been prevented. The finding is more than minor because it is associated with the procedural quality attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage).

In accordance with IMC 0609.04, "Initial Characterization of Findings," and Appendix A, Exhibit 2, "The Significance Determination Process for Findings at Power," the inspectors determined the finding is of very low (Green) safety significance because the performance deficiency involved a procedural deficiency but did not involve an actual loss of safety function, represent an actual loss of safety function of a single train for greater than TS allowed outage time, did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event, and did not represent an actual loss of function of a non-TS train of equipment designated as high safety significant.

This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Resolution, in that Dominion did not take effective corrective actions to address issues in a timely manner commensurate with their safety significance. Dominion determined that it was not necessary to incorporate the AFW throttling restrictions into the EOPs or AOPs. [P.3]

Enforcement. TS 6.8.1, "Procedures and Programs," requires the procedures listed in Regulatory Guide 1.33, be maintained in an accurate manner, including the EOPs and AOPs needed to respond to events that require the TDAFW for mitigation. Contrary to this requirement, from February 4, 2014, to January 13, 2015, Dominion did not incorporate the operational limitations initially embodied in SO 14-004 restricting the throttle rate for the TDAFW flow control valves into the appropriate EOPs and AOPs. This resulted in the need for operators to recall the throttling limitations from memory which challenged operational response during the loss of offsite power event on May 25, 2014. Some of the valve throttling actions exceeded the restrictions and the relief valve setpoint was exceeded during this event. Dominion's corrective actions included approving a revision to the EOPs and AOPs which incorporated the throttling limits and this change is currently being implemented. Because this finding is of very low safety significance (Green) and was entered into Dominion's CAP (CR569660), this violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy.  
**(NCV 05000423/2014005, Failure to Implement Standing Order Restrictions into the EOPs and AOPs for the Unit 3 TDAFW Pump Flow Control Valves)**

### .3 Annual Sample: Ultimate Heat Sink Temperature Increase

#### a. Inspection Scope

The inspectors performed an in-depth review of Dominion's commitments and corrective actions associated with the license amendments for Millstone Units 2 and 3 (ML14037A408 and ML14178A599) that increased the ultimate heat sink (UHS) temperature limit from 75°F to 80°F. The UHS functions as the source of inventory for cooling water and is the primary means for removing decay heat from plant components and systems. Because the UHS temperature limit is a TS requirement, Millstone was required to submit a license amendment and receive NRC approval prior to plant operation above an UHS temperature of 75°F.

The inspectors reviewed Dominion's license amendment request and design change packages to verify that all associated actions and commitments were completed prior to the final implementation of the UHS temperature increase. The inspectors reviewed CRs generated in conjunction with the implementation process and assessed Dominion's problem identification threshold to determine whether Dominion staff were appropriately identifying, characterizing, and correcting problems associated with this change. The inspectors compared the actions taken to the requirements of Dominion's CAP and 10 CFR 50, Appendix B. In addition, the inspectors interviewed engineering personnel to assess the effectiveness of the implemented commitments on the margin management of select components. The inspectors also performed plant walkdowns of accessible components and systems to assess equipment condition and installation of planned modifications.

#### b. Findings and Observations

Dominion staff conducted a technical review of the impact of increased UHS temperatures on components and systems and the ability to remove the design basis heat loads. As part of the review, Dominion identified multiple components (e.g. heat exchangers) that had reduced margin and required actions to be taken to recover that margin. These actions involved adding the identified components to Millstone's margin management program, increasing the cleaning/inspection frequency for several heat exchangers, altering the cleaning schedule to occur just prior to summer for specified heat exchangers, and a modification to valves 2-SW-8.1A/B/C to increase the service water flow rate to the Unit 2 RBCCW heat exchangers. Most of these required actions were documented as commitments in the license amendment request. The inspectors concluded that Dominion was adequately identifying and tracking issues in the margin management program and that the required actions were completed in accordance with those commitments.

The inspectors reviewed the UHS design change documents and past maintenance records and did not identify any additional issues. The inspectors determined Dominion's overall response to the design change was commensurate with the safety significance and included appropriate corrective actions. The inspectors concluded that Dominion completed regulatory commitments and corrective actions identified as part of the UHS temperature increase.

.4 Annual Sample: Refueling Outage 2R22 Exposure Estimate Was Exceeded

a. Inspection Scope

During October 20 - 24, 2014, the inspectors performed an in-depth review of Dominion's self-assessments and corrective actions associated with CR552843. That CR documents that the 2R22 refueling outage exceeded its 75 person-rem radiation exposure goal by 27.225 person-rem, with an actual radiation exposure of 102.225 person-rem.

The inspectors reviewed seventeen additional CRs that documented the specific outage work activities that exceeded their radiation exposure estimates. In addition, the inspectors reviewed two associated self-assessments, SAR002905 that was conducted by the Dominion's corporate staff, and SAR002926 that was conducted by Dominion's Millstone staff.

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

b. Findings and Observations

No findings were identified.

The inspectors determined that Dominion's response to CR552843 meets the minimum performance attributes of Table 1 in NRC Inspection Procedure 71152, with several potential areas for improvement.

Millstone conducted two self-assessments under CR552843. The first, SAR002905, involved RP personnel from Dominion corporate offices and from other Dominion nuclear sites. This self-assessment examined overall Millstone RP department performance, using Institute of Nuclear Power Operations performance objectives and criteria. Recommendation #1 from this self-assessment paralleled CR552843 and indicated that Millstone RP should:

“Perform a comprehensive focused self-assessment on the 2R22 outage dose to determine lessons learned. Self-assessment should be focused on the following:

- a. Minimizing scheduled maintenance activities in loop rooms with secondary SGs drained.
- b. Scheduling multiple work activities in close proximities that conflict with one another.
- c. Methods for all crafts to reduce crew sizes for all work during future refueling outages.”

The second self-assessment, SAR002926, involved a multi-disciplinary team from Millstone station and included RP staff from two other nuclear plants (one outside of the Dominion system). The stated purpose was:

“To review, identify and understand areas for improving processes that contributed to a difference between the estimated exposure and the actual exposure for the 2R22 outage”.

This self-assessment contained five numbered objectives, each dealing with perceived causes of the poor 2R22 ALARA planning performance. The assessment report details two areas for improvement and each resulted in the generation of a CR. The report also identifies five performance deficiencies and three learning opportunities; all of which were documented as self-assessment action items. Dominion did not conduct a root cause or an apparent cause analysis in response to CR552843; instead, a self-assessment (SAR002926) was conducted. This choice is an option which is allowed by the Millstone corrective action process.

#### Self-assessment SAR002905

This self-assessment appears to be intrusive, detailed, clearly written, and contains analysis and data that support the stated conclusions.

#### Self-assessment SAR002926

This self-assessment exhibits several weaknesses in the areas of: scope, cause evaluation, data analysis, corrective actions, and involvement of the Station ALARA Committee.

#### Scope

Several areas that were previously identified by Dominion as causes of radiation exposure overruns during the 2R22 refueling outage, such as unproductive time spent by large numbers of workers in containment or focus and conduct of the Station ALARA Committee, were not investigated.

#### Cause Evaluation

Self-assessment SAR002926 provides conclusions for each of the five assessment objectives. The conclusions do not clearly state causes for areas identified as performance deficiencies. Examples include:

1. Objective 1 concludes that “work activities compressed into the Mode 0 work time frame during 2R22 created significant congestion in the loop areas.” The causes for compression and/or congestion were not identified, which would be a significant consideration in the selection of recommendations in this area.
2. Objective 2 identifies that rework and added scope to 2R22 contributed significantly to unplanned outage exposure. The causes for rework and added scope are not identified.

3. Objective 5 indicates that "...worker inexperience likely contributed to unplanned dose in the outage. However, extensive ALARA training was provided to 2R22 outage personnel in a variety of formats...." This apparent conflict was not examined, and the causes were not identified.

Self-assessment SAR002926 does not consistently identify causes for deficiencies in each of the five objectives. For those deficiencies without clearly identified causes, the associated corrective actions may not be effective in resolving those deficiencies.

#### Data Analysis

1. The impact of system draining on loop area work is never discussed.
2. The impact of rework/added scope on exposure analysis section does not provide a breakdown of additional dose by new scope vs dose due to rework, and never addresses the causes for rework.
3. The evaluation of the impact of craft crew sizes does not provide data on how much additional outage dose was incurred due to crew size issues.

In several cases, the analysis provided to support conclusions for self-assessment objectives lack depth, detail, and data in terms of 2R22 outage dose.

#### Corrective Actions

Within the five SAR002926 self-assessment objectives, a total of twelve recommendations were provided. Objective 2 concludes that rework and added scope contributed significantly to the unplanned radiation exposure in 2R22. Two recommendations are provided. Neither recommendation addresses the topics of rework or added scope. Objective 3 involves the evaluation of craft crew sizes on radiation exposure during 2R22. Recommendation #1 involves the set-point of electronic personal dosimeters. This recommendation does not address the control of crew sizes.

#### Station ALARA Committee

When completed, the self-assessment was not presented to or approved by the Station ALARA Committee.

#### Conclusion

The concerns identified in SAR002926 are not related to a safety-related SSC. As such, 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," does not apply. As a result, no finding was identified due to the weaknesses with the CAP issues described in this Section. The inspectors determined that the overall actions planned, or taken, are reasonable to resolve the work control issues that resulted in the poor radiation exposure performance during refueling outage 2R22.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 2 samples)

.1 (Closed) LER 05000336/2014-003-00: Loss of Safety Function Due to Inoperable Enclosure Building

On April 5, 2014, Dominion discovered that the Unit 2 Enclosure Building was inoperable due to a maintenance activity performed on the enclosure building boundary. In order to maintain the enclosure building at its required negative pressure, Dominion has two sets of flexible covers (“boots”) on each of the main steam safety valve vent pipes, an upper and a lower set. Dominion planned surveillance testing on the lower boots which required their removal. The procedure required maintenance to inspect the upper boots, but not remove them, but workers removed the upper boots as well as the lower boots, thus rendering the enclosure building inoperable. The enforcement aspects of this issue are discussed in Section 4OA7. The inspectors did not identify any new issues during the review of the LER. This LER is closed.

.2 (Closed) LER 05000336/2014-004-00: Foreign Material Found in a Motor Lead Rendered a Motor-Driven Auxiliary Feedwater Pump Inoperable

On April 10, Dominion identified several ty-wraps and a plastic bag inside the Raychem boot of the ‘A’ phase of the ‘B’ MDAFW pump for Unit 2. The Raychem boot provides environmental qualification and protection of the pump so the system is capable of responding under all design conditions. Specifically, during a high energy line break, the MDAFW system is potentially subjected to elevated temperatures and pressures that could challenge system operation without properly configured environmentally qualified components. At the time of discovery, Unit 2 was shut down for a planned refueling outage and the TSs for AFW did not apply. Dominion performed a historical review and found four instances in the past three years where the potential inoperability of the B MDAFW pump due to the foreign material would have resulted in a situation prohibited by TSs. Dominion performed further analysis to test the as-found condition of the system and determined on October 21 that the system would have been available with the non-standard configuration.

Additionally, at the time of initial discovery, Dominion reviewed the event in accordance with guidance contained in SEC-SY-AA-108, “Investigating Potential Tampering, Vandalism, or Malicious Mischief,” and determined the event was due to poor historical housekeeping practices with no indication of malicious activity.

The inspectors did not identify any new issues during the review of the LER. This LER is closed.

4OA6 Meetings, Including Exit

On January 20, 2015, the inspectors presented the inspection results to Mr. John Daugherty, 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 violation of very low safety significance (Green) was identified by Dominion and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as an NCV.

- TS 6.8.1.a states, in part, that written procedures shall be established, implemented, and maintained for activities covered by Appendix A of Regulatory Guide 1.33, "Quality Assurance Program Requirements." Contrary to the above, from 10:25 AM to 1:00 PM on April 5, 2014, Dominion failed to properly implement a Unit 2 maintenance procedure necessary to support surveillance testing on safety-related equipment. Dominion determined the cause of the issue was due to a human performance error and entered the issue into the CAP as CR543944. The inspectors determined that this finding was of very low safety significance using IMC 0609, Appendix A, because the finding only represented a degradation of the radiological barrier function provided for enclosure building.

**ATTACHMENT: SUPPLEMENTARY INFORMATION**

## SUPPLEMENTARY INFORMATION

### KEY POINTS OF CONTACT

#### Licensee Personnel

M. Adams	Plant Manager
L. Armstrong	Director, Nuclear Station Safety & Licensing
J. Ashburn	Unit 2 Unit Supervisor/Shift Manager
B. Bartron	Supervisor, Licensing
P. Baumann	Manager, Nuclear Protection Services
R. Beal	Unit 2 Shift Manager
J. Bergen	Operations Support Manager
T. Berger	Unit 3 Shift Manager
A. Bonamarte	Unit 2 Control Operator
M. Brehler	Senior NDE Inspector
R. Brumbaugh	Health Physics Technician
C. Chapin	Supervisor Nuclear Training Unit 2
A. Chapman	Unit 2 Control Operator (RO/OATC)
W. Chestnut	Supervisor, Nuclear Shift Operations Unit 2
F. Cietek	Nuclear Engineer, PRA
T. Cleary	Licensing Engineer
J. Claire	Unit 2 Senior Reactor Operator
G. Closius	Licensing Engineer
J. Connors	Senior Engineering Technician
L. Crone	Chemistry Supervisor
M. Cutler	Instruments & Controls Technician
G. D'Auria	Supervisor – Nuclear Chemistry
T. Danyliw	Occupational Health Specialist
J. Daskam	Unit 2 Control Operator (BOP)
C. Debiasi	Nuclear Chemistry Technician
J. Daugherty	Site Vice President
L. Davidson	Unit 2 plant Equipment Operator
T. Dembek	Emergency Preparedness Specialist IV
S. Doboie	Unit 2 Shift Manager
C. Duncan	Unit 2 Plant Equipment Operator
C. Everitt	Nuclear Operations Maintenance Advisor
B. Ferguson	Unit 2 Shift Manager
C. Flory	Nuclear Technical Specialist
M. Furioli	Senior Simulator Instructor
M. Gagnon	Unit 2 Control Operator (UI)
M. Garza	Unit 2 Shift Manager
T. Gleason	Health Physics Technician
M. Goolsbey	Unit 2 Operations Manager
W. Gorman	Supervisor – Instruments & Controls
J. Grogan	Assistant Operations Manager
S. Grondahl	Health Physics Technician
T. Hall	Unit 2 Unit Supervisor
K. Hastings	Supervisor Nuclear Engineering

J. Hoagland	Unit 2 Reactivity SRO
M. Hyde	Health Physics Technician
C. Janus	Maintenance Rule Coordinator
E. Laine	Manager, Radiation Protection/Chemistry
M. Letterich	Unit 2 Control Operator (RO/OATC)
M. Marino	Mechanical Design Engineering Supervisor
G. Marshall	Manager, Outage and Planning
T. Mathis	Emergency Preparedness Specialist IV
M. Maxson	Manager, Nuclear Oversight
W. McCollum	Shift Technical Advisor
J. Mikulka	Unit 2 Control Operator (UI)
W. Miles	Unit 2 Control Operator (BOP)
G. Modzelewski	Nuclear CFAM (Engineering)
C. Montgomery	I&C Technician
M. Morrisette	Unit 2 Control Operator (BOP)
R. Nee	I&C Technician
J. Orf	Site Nurse
J. Palmer	Manager, Training
F. Perry	Supervisor – Exposure Control and Instruments
E. Peterson	Margin Management Program Owner
J. Preston	Radwaste Supervisor
T. Quinley	Nuclear Technical Specialist III
J. Rigatti	Manager, Nuclear Site Engineering
J. Riley	Unit 2 Shift Technical Advisor
P. Russell	Unit 3 Shift Manager
L. Salyards	Licensing, Nuclear Technology Specialist
H. Searle	Unit 2 Control Operator (RO/OATC)
E. Secor	Unit 2 Senior Reactor Operator/Emergency Communicator
J. Shaffer	Lead Chemistry Technician
D. Smith	Manager, Emergency Preparedness
S. Smith	Manager, Nuclear Operations
S. Stanley	Director, Nuclear Engineering
J. Stoddard	Unit 3 Operations Manager
T. Stringfellow	Unit 3 Senior Reactor Operator
D. Tilton	Nuclear Engineering Supervisor
S. Torf	Nuclear Engineer
K. Truesdale	Senior Nuclear Instructor
J. Wasylik	Unit 2 Shift Manager
M. Watson	Unit 2 Plant Equipment Operator
B. Wilkens	Senior Safety Specialist
V. Wessling	Unit 2 Unit Supervisor
W. Woolery	Unit 2 Shift Manager

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

Opened/Closed

05000423/2014005-01	NCV	Failure to Review Additional Failures Against the SLCRS (a)(1) Monitoring Plan (Section 1R12)
05000423/2014005-02	NCV	Failure to Manage Risk of RSST Testing (Section 1R13)
05000423/2014005-03	NCV	Failure to Correct Multiple 'A' HVK Start and Runtime Failures (Section 1R15)
05000336/2014005-04	FIN	Failure to Maintain Radiation Exposure ALARA During Refueling Outage 2R22 Activities (Section 2RS2)
05000423/2014005-05	NCV	Failure to Implement Standing Order Restrictions into the EOPs and AOPs for the Unit 3 TDAFW Pump Flow Control Valves (Section 4OA2)

Closed

05000336/2014-003-00	LER	Loss of Safety Function Due to Inoperable Enclosure Building (Section 4OA3)
05000336/2014-004-00	LER	Foreign Material Found in a Motor Lead Rendered a Motor Driven Auxiliary Feedwater Pump Inoperable (Section 4OA3)

**LIST OF DOCUMENTS REVIEWED**

**Section 1R01: Adverse Weather Protection**

Procedures

- AOP 3569, Severe Weather Conditions, Revision 020-00
- COP 200.6, Storms and Other Hazardous Phenomena (Preparation and Recovery), Revision 03-01
- AOP 2560, Storms, High Winds, and High Tides, Revision 010-17
- DNES-AA-GN-BAR-1001, Passive Design Features and Barriers, Revision 4
- AOP 3569, Severe Weather Conditions (MPS3), revision 019
- C OP 200.13, Seasonal Weather Operations, Revision 004-04
- C OP 200.13-003, Unit 3 Cold Weather Preparation Checklist, Revision 001-01

Condition Reports

491494	390796	521055	519361	348798
348798	527005	538031	557405	416383
448769	565984	565971	446391	488969

Work Orders

53102686051	53102676416	53102565727	53102423075
53102651518	53102646524	53102597919	53102597881
53102667651	53102698940	53102765564	53102419059
53102473880	53102796750	53102796748	53102467434
53102559574			

**Section 1R04: Equipment Alignment**Procedures

OP 3346A-012, EDG B Electrical Lineup, Revision 011-03  
 OP 3353.EGPB, Emergency Generator Panel B Annunciator Response, Revision 004-10  
 OP 3346A-015, EDG B – Operating Log, Revision 013-01  
 OP 3346A-002, EDG B – Cooling Water Valve Lineup, Revision 007  
 OP 3346A-004, EDG B – Lube Oil Valve Lineup, Revision 006-02  
 OP 3346A-006, EDG B – Starting Air Valve Lineup  
 ER-AA-MRL-100, Implementing Maintenance Rule, Revision 6  
 OP-AA1500, Configuration Control, Revision 11  
 OP 2350, refueling Water Storage Tank Temperature Control, Revision 015-02  
 OP 2305B, Refueling Water Storage Tank Purification, Revision 000-04  
 OP 2346B, Diesel Fuel Oil, Revision 002-06  
 OP 2346B-001, DG Fuel Oil Tank Valve Alignment, Revision 000-01  
 OP 2346B-003, B DG Fuel Oil Valve Alignment, Revision 000-00  
 OP 2346B-004, Diesel Fuel Oil System Breaker/Control Switch Alignment, Revision 000  
 OP 2346C-004, B DG Service Water Valve Alignment, Revision 000-05  
 OP2346C-005, B DG Starting Air valve Alignment, Revision 000-00  
 OP 2346C-006, B DG Jacket Water Valve Alignment, Revision 000-01  
 OP 2346C-007, B DG Lube Oil Valve Alignment, Revision 000-03  
 OP 2346C-008, B DG Breaker/Control Switch Alignment, Revision 000  
 OP 2346C “B” Emergency Diesel Generator  
 OP 2315E, Diesel Generator Ventilation System  
 OP 3305, Fuel Pool Cooling and Purification, Revision 022-01  
 OP 3305-001, Fuel Pool Cooling and Purification Valve Lineup, Revision 005  
 OP 3310B, Accumulator Low Pressure Safety Injection, Revision 015-06  
 OP 3330A-003, Reactor Plant Component Cooling Water Train A, Revision 010-00  
 OP 3330A-016, Reactor Plant Component Cooling Water Train B, Revision 007-00  
 OP 3310A, Residual Heat Removal, Revision 017-08

Condition Reports

554623	559301	540601	565517
565715	566047		

Miscellaneous

Dwg 25203-26015, P&ID L. P. Safety Injection System Sheets 1, 2, 3, Revision 45  
 Dwg 25212-26911, P&ID Fuel Pool Cooling & Purification System, Revision 36

Dwg 25212-26912, P&ID Low Pressure Safety Injection, Sheet 1, Revision 50  
Dwg 25212-26912, P&ID Low Pressure Safety Injection, Sheet 2, Revision 23  
Dwg 25212-26921, P&ID Reactor Plant Component Cooling Water, Sheet 1, Revision 32  
EDG-00-C, Emergency Diesel Generator System, Revision 7, Change 5

**Section 1R05: Fire Protection**

Procedures

U2-24-FFS, Millstone Unit 2 Fire Fighting Strategies, Revision 0  
U3-24-FFS, Millstone Unit 3 Fire Fighting Strategies, Revision 0  
AOP 2579B, Fire Procedure for Hot Standby Appendix R Fire Area R-2, Revision 007-01  
COP 200.17, Fire Watch and Impairment Tracking

Condition Reports

562722  
562729

Miscellaneous

Fire Protection Program Evaluation Report, Revision 17.4

**Section 1R06: Flood Protection Measures**

Condition Reports

520892                      566789                      490486

Procedures

OP 3353.MB1C, Main Board 1C Annunciator Response, Revision 006-06  
OP 3353.MB6B, Main Board 6B Annunciator Response, Revision 005-01  
AOP 3560, Loss of Service Water, Revision 009-00  
C-EN-1041, Condition Monitoring of Structures  
DNES-AA-GN-BAR-1001, Passive Design Features and Boundaries, Revision 4

Maintenance Orders/Work Orders

53102781771  
53102775017

Miscellaneous

Regulatory Guide 1.102, Flood Protection for Nuclear Power Plants  
Drawing 25203-24033, Sheet 1, EDG Floor Drain Backwater Valves  
M2-EV-970072, Emergency Diesel Generator Building Floor Drains Backflow Prevention,  
Revision 0  
Drawing 25203-24028, Area Floor Drains, Aux Bldg, Sheet 1  
M2-EV-04-0021, Evaluation of EDG Flood Door 205-14-11 for Event Described in CR-04-06625

**Section 1R07: Heat Sink Performance**

Procedures

OP 3330A, Reactor Plant Component Cooling Water, Revision 018-06

Miscellaneous

25212-26921, Sheet 1, P&ID Reactor Plant Component Cooling System, Revision 32

25212-26933, Sheet 2, P&ID Service Water, Revision 89  
P(R)-711, Reactor Plant Component Cooling System Surge Tank Sizing

Condition Reports

564533                      563570                      564765

Work Orders

53102790771

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

Condition Reports

417912	557165	561645	561773
561774	562406	562319	562378
562504	562885		

Procedures

ER-AP-BAC-10, Revision 11, Boric Acid Corrosion Control Program  
ER-AP-BAC-101, Revision 11, Fleet Administrative Procedure, Boric Acid Corrosion Control Program Inspections  
ER-AP-BAC-102, Revision 12, Fleet Administrative Procedure, Boric Acid Corrosion Control Program Evaluations  
ER-MP-BAC-101,-1001, Revision 11, Millstone Boric Acid Corrosion Control Planned Inspections  
ER-AA-NDE-UT-705-NPQR, Revision 0, Ultrasonic Examination Procedure of the Vessel Nozzle Inside Radius Sections  
ER-AA-NDE-UT-801-NPQR, Revision 2, Ultrasonic Examination of Ferritic Piping Welds in Accordance with ASME XI, Appendix VIII  
ER-AA-NDE-UT-802-NPQR, Revision 2, Ultrasonic Examination of Austenitic Piping Welds in Accordance with ASME XI, Appendix VIII  
ER-AA-NDE-UT-808-NPQR, Revision 0, Ultrasonic Examination of Weld Overlaid Similar and Dissimilar Metal Welds in Accordance with ASME XI, Appendix VIII  
ER-AA-NDE-MT-201-NPQR, Revision 0, BOP Magnetic Particle Examination Procedure  
ER-AA-NDE-PT-300-NPQR, Revision 3, ASME Section XI Liquid Penetrant Examination Procedure  
ER-AA-NDE-VT-602-NPQR, Revision 0, VT-2 Visual Examination Procedure  
ER-AA-NDE-VT-603-NPQR, Revision 0, VT-3 Visual Examination Procedure  
EPRI Document IR-2011-478 for the Millstone 3 Pressurizer and Steam Generator Nozzle Examinations  
ER-AA-FAC-1003, Revision 3, Flow Accelerated Corrosion (FAC) Operational Experience Reviews  
ER-AA-FAC-10, Revision 6, Flow Accelerated Corrosion Program  
ER-AA-FAC-1001, Revision 4, Flow Accelerated Corrosion Susceptibility Analysis & Modeling  
ER-AA-FAC-1002, Revision 9, Flow Accelerated Corrosion Inspection and Evaluation  
M3 ETSS1 Bobbin 38IPS R0 / M3 ETSS2 Bobbin 201PS R0, Eddy Current Examination Technique Specification Sheet  
CM-AA-NWP-101 Control of Welding  
CM-AA-NWP, Revision 1-102 Control of Welding Materials

Other

Millstone (MS) U3 - Flow Accelerated Corrosion (FAC) Program Refueling Outage 3R15, System Closeout and Outage Summary Report, Dated May 6, 2013  
MS U3 RFO-15 FAC Outage Structural Evaluation Report Summary, Dated 10/01/2013  
Document No.: 51-9204104-000. MS U3 RFO-3R15 Reactor Head Inspection Report, Dated 07/23/2013  
ETE-MP-2014-1170, Revision 0, MS U3 Steam Generator Integrity Degradation Assessment (R16)  
Document No. 51-9207075-000, MS U3 RFO-3R15 Steam Generator Deposit Characterization Secondary Side SG Chemical cleaning and lancing material removal report as of 10/22/2014  
ASME Section XI Repair and Replacement Plan, Work Package and Documentation for a Portion of Line -SWP-010-187-3  
M3-1211, Radiographic Inspection Reports for Welds W-1, 9, 34, 37, 38, 66, and 67, High Pressure Safety Injection System 3308, dated 9/17/2014

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

Procedures

SP 31008, Low Power Physics Testing (ICCE), Revision 006  
OP 3203, Plant Startup, Revision 020-07  
OP 3202, Reactor Startup, Revision 021-07  
SP 2651L, Main Stop Valve Operability Test, Revision 004-01  
SP 2651M, Combined Intermediate valves Operability Test, Revision 004-01  
SP 2651N, Main Control Valve Operability Test, Revision 005-03  
OP2204, Load Changes, Revision 026  
AOP 2512, Loss of All Charging, Revision 001-06  
AOP 2517, Circulating Water Malfunctions, Revision 000-13  
AOP 2565, Loss of Service Water, Revision 004-04  
EOP 2525, Standard Post Trip Actions, Revision 025  
EOP 2540, Functional Recovery, Revision 023-00  
EOP 2540-002, Functional Recovery Resource Assessment Trees, Revision 003  
Simulator Lesson Plan MB 02231, Functional Recovery of Reactivity Control, Segment #S14602 Revision 0  
MP-26-EPI-FAP06, Classification and PARs, Revision 009  
MP-26-EPI-FAP06-002, Millstone Unit 2 Emergency Action Levels, Revision 009  
TR-AA-710 NRC Exam Security Requirements Rev 3  
TR-AA-730 Licensed Operator Biennial & Annual Operating Regualification Process R4  
SA-AA-122 Medical Evaluation R4  
NSEM-4.09 Simulator Operability Testing 9/24/2013  
2014 LORP Sample Plan

Miscellaneous

Self-Assessment Report SAR00097 Medical Process – NRC Licensed Operator Record Review 11/28/12.  
Self-Assessment Report SAR002131 NRC 71111.11 Inspection Readiness Evaluation 9/26/2013

Job Performance Measures

045 063 184 220A 206 063



Comprehensive Written Exams  
2014 Biennial Written #1 and #3

Simulator Scenarios

AOT 29      AOE 08      AOE 25

Simulator Performance Tests

Transient: T1 Manual Reactor Trip 11/16/2012  
 Transient: T2 Simultaneous Trip of All Feedwater Pumps 11/14/2012  
 Transient: T10 Slow RCS Depressurization via Open PORV 11/15/2012  
 Transient: T11 Maximum Load Rejection 11/15/2012  
 Steady State Test 40%/70%/100% Power 12/18/2012 and 12/19/2012  
 Scenario Based Test: AOT#18 2012 MP2 Annual Operating Exam 9/23/2013  
 Scenario Based Test AOE #6 2012 MP2 Annual Operating Exam 10/8/2013  
 Simulator Reactor Core Validation Testing 4/25/2014  
 Normal Evolution: Plant Heatup 11/14/2013  
 Normal Evolution: Main Turbine Startup and Plant Startup 10/17/2012  
 Cycle 23 Core Performance Testing

**Section 1R12: Maintenance Effectiveness**

Procedures

ER-AA-MRL-100, Implementing Maintenance Rule, Revision 6  
 ER-AA-MRL-10, Maintenance Rule Program, Revision 6  
 PI-AA-200, Corrective Action, Revision 23  
 SPROC ENG-13-3-003, testing Feedwater Isolation Valve Hiller Actuators, Revision 000-02  
 SAR0002050 Maintenance Rule A(3) Periodic Assessment, dated February 16, 2013  
 SAR0002681 Maintenance Rule A(3) Periodic Assessment, dated March 20, 2014

Condition Reports

528856	518753	558860	565662
553370	563529	459436	549587
563316	563529	564859	565804
566218	486054	488687	489920
504097	505480	505825	515559
518760	520040	521184	524834
525590	540901	540905	551582
553269	556902	558375	559144
565821	560593	560715	560896
561105	567659	568135	568593
549587	563316	563529	564859
565804	566218		

Work Orders

56102613043	53102592888	53102613041	53102590963
53102590971	53102590972	53102590973	53102590963

Miscellaneous

U2 Reactor Protection System Health Report 2Q 2014  
 U2 Plant Process Computer System Health Report 2Q 2014  
 U3 SLCRS System Health Report 4Q2013

MRULE-14-12, Expert Panel Meeting Minutes for August 26, 2014  
M3-EV-01-0036, Maintenance Rule Performance Criteria for Reactor Protection System  
ODM 000238, MP2 Plant Process Computer  
SAR0002050 Maintenance Rule A(3) Periodic Assessment, dated February 16, 2013  
SAR0002681 Maintenance Rule A(3) Periodic Assessment, dated March 20, 2014  
Memo MRule-13-10, Subject: Expert Panel Meeting Minutes for June 27, 2013  
PHIL Item 3196, MP# - Replace S/G Feedwater Trip Valve Actuators, dated April 1, 2014  
EPRI MOV Performance Prediction Program, Stem Thrust Prediction Method for Anchor/Darling  
Double Disk Gate Valves  
Dominion Nuclear Connecticut letter Serial 113-623, Subj: Reply to Notice of Violation, dated  
December 9, 2014  
NUMARC 93-01 INDUSTRY GUIDELINE FOR MONITORING THE EFFECTIVENESS OF  
MAINTENANCE AT NUCLEAR POWER PLANTS, Revision 4A  
Memo MRule-13-10, Subj: Expert Panel Meeting Minutes for June 27, 2013  
Memo MRule-13-14, Subj: Expert Panel Meeting Minutes for August 28, 2013  
Memo MRule-13-15, Subj: Expert Panel Meeting Minutes for October 4, 2013  
Memo MRule-13-14, Subj: Expert Panel Meeting Minutes for August 28, 2013  
Memo MRule-13-15, Subj: Expert Panel Meeting Minutes for October 4, 2013  
MRE 16944, FWA\*P2 Tripped during Operational Test  
System Health Performance Summary – systems that are A1:  
2315D, Vital Switchgear Emergency Cooling  
2326A, Service Water  
2341A, 2390 A, B, C, Fire Doors, Barriers and Buildings  
2349, Plant Computer  
2406, Reactor Protection  
3330A, Reactor Plant Component Cooling Water  
3322, Auxiliary Feedwater and DWST  
3326, Service Water  
3346C, Station Blackout Diesel Generator  
3404, Radiation Monitoring  
3405, Engineered Safeguards Actuation System  
3410A, B, Core Exit Thermocouples

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

Procedures

OU-M3-201, Shutdown Safety Assessment Checklist, Revision 10 and 13  
OU-AA-1000, Outage Management and Execution, Revision 9  
OU-AA-200, Shutdown Risk Management, Revision 9  
ER-AA-MRL-100, Implementing Maintenance Rule, Revision 6  
OP 3222, Auxiliary feed System, Revision 021-29  
OP-AA-1500, Operational Configuration Control, Revision 11  
WM-AA-100, Work Management, Revision 24  
OP-MP- 601, Protected Equipment, Revision 16

Condition Reports

560703	560734	558996	561659
562570	562580		

Miscellaneous

TCC-MP-2014-024, Temporary Leak Seal of Butt Weld through wall defect associated with 12"GBD-44, dated October 5, 2014  
 Pre-3R16 Shutdown Risk Schedule Review Memo  
 Risk Mitigation Plan for Yellow Risk on October 15  
 Risk Mitigation Plan for RSST Outage from October 16 to 26  
 WM-AA-301, High Risk Contingency Plan for entering the Red Risk Condition following TDAFW PUMP full flow testing. Dated November 15, 2014  
 Drawing 25212-26930, Piping and instrumentation Diagram Feedwater System, Sheets 1 and 2, Revision 48  
 Shutdown Safety Assessment Checklist for October 19, 2014  
 Risk Mitigation Plan for South Bus Trip Testing/Maintenance  
 High Risk Contingency Plan for CL&P work on 371 line for December 4 and 12  
 Control Room log entries for December 3-4 on 371 line work

Work Orders

53102773663  
 53102773670

**Section 1R15: Operability Evaluations**

Procedures

IST Program Plan Millstone Power Station Unit 2, Revision 6  
 MO-03-DCC-GDL944, Quality Classification of Systems, Structures, Components and Services, Revision 000  
 SP 2611C-003, RBCCW Valve Stroke Timing IST FAC 1, Revision 002-05  
 SP 2611D-003, RBCCW Valve Stroke Timing IST FAC 2, Revision 003-05  
 SP 3670.4, Quarterly Station Blackout PM, Revision 001-06  
 SP 3441E02, Shutdown Margin Monitor Analog Channel Operational Test, Revision 004-06  
 SP 3441E02-002, Shutdown Margin Monitor Channel 2 Analog Channel Operational Test, Revision 004-04  
 CM-AA-NWP-101, Control of Welding, Revision 1  
 CM-AA-NWP-102, Control of Welding Materials, Revision 1  
 OP 3305A, Charging and Letdown Lineup, Revision 013-07

Condition Reports

CR-06-0887	557858	558930	559122
561036	562887	562891	561668
565905	566507	567380	560039
551853	538994	543256	561544
561897	562016	563780	563784
564174	564272	564835	565086
565157	565217	565386	565481
566762			

Maintenance Orders/Work Orders

53102776093  
 53102754061  
 53102752810

Miscellaneous

Amp-Trap 2000 Fuses Product Guide by Mersen  
 IN 2006-05, NRC Information Notice: Possible Defect in Busmann KWN-R and KTN-R Fuses  
 ETE-MP-2014-1207, Recommendation for Millstone 3 to Address Westinghouse TB-11-8,  
 Pressurizer Heaters  
 Engineering log entries: October 23 at 0152, October 23 at 0450, and October 24 at 0414  
 ETE-CEP-2012-1014, Fleet Approach to Addressing Westinghouse TB-11-8 R1, Pressurizer  
 Heater Structural Failures (Millstone)  
 Millstone Power Station Unit 3 Technical Specification Bases 3/4.3.5 Shutdown Margin Monitor  
 Millstone Power Station Unit 3 Updated Final Safety Analysis Report Chapter 15, Accident  
 Analysis, Revision 26.1  
 Dwg 25212-26945, P&ID Turbine Plant Miscellaneous Systems, Sheet 1, Revision 41  
 ASME Code Case N-513-3, Evaluation Criteria for Temporary Acceptance of Flaws in Moderate  
 Energy Class 2 or 3 Piping Section XI, Division 1  
 Generic Letter 90-05, Guidance for Performing Temporary Repair of ASME Code Class 1, 2,  
 and 3 Piping  
 TCC-MP-2014-032, Temporary Modification to Install Leak Mitigation Device in Service Water  
 piping, Revision 0  
 Dwg 25212-26904, P&ID Chemical and Volume Control, Sheet 4, Revision 30  
 Millstone Power Station Unit 3, Updated Final Safety Analysis Report, Chapter 6 Engineered  
 Safety Systems, Revision 25.2  
 Millstone Power Station Unit 3 Plant Process Computer Data 'HVKCHL1A' and 'HVKCHL1B'  
 September 1, 2014 through December 31, 2014

**Section 1R18: Plant Modifications**

Procedures

CM-AA-TCC-204, Temporary Configuration Changes, Revision 2  
 SP 3622.3, TDAFW Pump Operational Readiness Test and ISI, Revision 017-27

Condition Reports

565026	565604	564840	565655
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Maintenance Orders/Work Orders

53102791446  
 5310278552

Miscellaneous

25212-31918, Wiring Diagram Electrical Penetration 3RCP\*G10P&V  
 TCC-MP-2014-026, Bypass Damaged RVLIS Sensor M33CTS\*HJTCA8, Revision 1  
 25212-32001, Elementary Diagram Turbine Driven Auxiliary Feedwater Pump Motor Speed  
 Changer, Sheet 7RF, Revision 11  
 MP3-14-01178, TDAFW Pump Overspeed Trip Circuit, Replacement of 1CON Relay

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

Procedures

SP 2401D, RPS Matrix Logic and Trip Path Relay Test, Revision 014-03  
 3622.3, Auxiliary Feedwater Pump 3FWA\*P2 Operational Readiness Test, Revision 017-26  
 SP 3636C.1, Main Steam Drain Valve Operability Test, Revision 007-03  
 SP 3636C.1-001, Main Steam Drain Valve Stroke Time Test, Revision 007-04

SPROC ENG13-3-003, Testing Feedwater Isolation Valve Hiller Actuators, Revision 000-00  
 SP 3621.1, Main Feedwater Valve Operability Test, Revision 011-01  
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Condition Reports

555019	560408	561775	561961
561980	559144	563529	563658
563976	564672	564859	564993
565129	565801	567599	559144
562218	562220	563172	563429
563568	563792		

Maintenance Orders/Work Orders

53102651485	53102716188	53102716189	53102765897
53102754343	53102753746	53102765895	53102753747
53102754342	53102753752	53102802000	

Miscellaneous

Drawing 25203-29193 SH1, Millstone Unit 2 Reactor Protective System Functional Diagram, Revision 10  
 Dwg 25215-26902, Millstone Unit 3 Reactor Coolant System, Sheet 1, Revision 23  
 Dwg 25215-26902, Millstone Unit 3 Reactor Coolant System, Sheet 5, Revision 26  
 MP3-13-01055, Unit 3 Reactor Coolant Pump Seal Replacement Modification Design Package  
 Flowserve 11-62281-01, Double Disk Gate Valve, Sheet 1 Revision D, sheet 2 Revision E

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

Procedures

Millstone Power Station D-15 Reports from October 11 to November 18  
 3R16 Millstone Shift Updates from October 11 to November 18  
 OP 3208, Plant Cooldown, Revision 022-08  
 OP 3206, Plant Shutdown, Revision 012-01  
 OP 3207, Reactor Shutdown, Revision 013-10  
 OP 3216, Reactor Coolant System Drain (ICCE), Revision 010-04  
 SP 3646A.17, Train A ESF With LOP Test, Revision 018-01  
 MP 3792AA, Reactor Disassembly and Assembly, Revision 003-05  
 OP 3260A, Conduct of Outages, Revision 017-06  
 OP 3201, Plant Heatup, Revision 022-01  
 OP 3201, Plant Heatup, Revision 022-02  
 SP 31008, Low Power Physics Testing (ICCE), Revision 006-00  
 OU-M3-201, Shutdown Safety Assessment Checklist, Revision 10  
 OP 3202, Reactor Startup, Revision 021-07

Condition Reports

516615	561619	561621	561623
561807	562031	562211	562319
562378	562570	562618	562641
562580	562618	562641	563021
563057	563538	564523	564880
564959	565454	565499	

Work Orders  
53102787312  
53102621995

Other Documents

ETE-MP-2013-1128, ASME Code Case N-566-2 Evaluation for Leakage onto bolting of 3RCS\*AV8037B&C and 3RCS\*MV8003A, C & D, 3RCS\*V026, Revision 0

**Section 1R22: Surveillance Testing**

Procedures

SP 3605.2, Fuel Pool Cooling Pump B Operational Readiness Test, Revision 010-04  
SP 3605.2-001, Fuel Pool Cooling Pump B Operational Readiness Test, Revision 010-04  
SP 3712G, Main Steam Code Safety Relief Valve Surveillance Test, Revision 012  
SP 3712G-001, Main Steam Code Safety Relief Valve Surveillance Test Data Sheet, Revision 009-04  
ER-AA-IST-103, ASME IST Program – Inservice Testing of Pressure Relief Devices, Revision 2  
SP 3622.3, Auxiliary Feedwater Pump 3FWA\*P2, Operational Readiness Test, Revision 017-26  
OP 2346A-004, “A” EDG Data Sheet, Revision 024-02  
SP 2613I-001, “A” Emergency DG Loss of Load Test, Revision 003-01  
SP 2613K, Diesel Generator Slow Start Operability Test, Facility 1, Revision 005-05  
SP 2672A-001, Manual Cycle of 2-FO-11 and 2-FO-79, Revision 000-01  
SP 3621.1, Main feedwater Valve Operability Test, revision 011-01  
SPROC ENG13-3-003, Testing feedwater Isolation Valve Hiller Actuators, Revision 000-00  
SP 3646A.15, Train A Loss of Power Test, Revision 018-01  
SP 3646A.16, Train B Loss of Power Test, Revision 016-01  
SP 3646A.17, Train A ESF With LOP Test, Revision 018-01  
SP 3646A.17-001, Train A ESF With LOP Test Data Sheet, Revision 019  
SP 3646A.18, Train B ESF With LOP Test, Revision 019-01  
SP 3623.1, Turbine Generator Test, Revision 019-00  
SP 3623.1 Attachment 006, Turbine Generator Overspeed Test, Revision 007-09  
SP 3612B.3-002, Personnel Access Lock Seals, Revision 013-04  
SP 3612B.3, Containment Local Leak Rate Test Type B, Revision 014-07

Miscellaneous

CALC 02-AOV-04467M3, System Conditions for Feedwater Isolation Valves 3FWS\*CTV41 A/B/C/D Actuator Operation, Revision 0-0  
Millstone Unit 3 Technical Specifications  
Millstone Power Station Engineering Logs for October, 8 & 9, 2014  
ETE-CME-2014-1026, Evaluation of TDAFW Pump Speed Oscillations during Full Flow Tests Conducted at Mode 3 on November 14 and 15  
CM-M3-STI-101, Millstone Unit 3 Technical Specification Surveillance Test Interval (STI) List  
STI-M3-2014-001, Surveillance Test Interval Evaluation for Millstone Unit 3 LOP Testing  
ETE-MP-2014-1142, License Bases Document Change supporting LOP/ESF with LOP Surveillance Test Frequency Change, Revision 0  
ETE-MP-2014-1174, MP3 TRM Change Supporting LOP/ESF with LOP Surveillance Test Frequency Change  
MPR-4095, Qualitative Analyses for Staggered Integrated Engineered Safety Features and Loss of Offsite Power Test, MPR Associates, Inc., Revision 1

Condition Reports

561410	565389	515999	559144
562218	562220	563172	563429
563568	563792	564593	564605
564653	561924	561897	566561

Maintenance Orders/Work Orders

53102723587	53102616545	53M30603593
531027888934	53102630848	53102635061

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

Miscellaneous

Millstone Power Station Emergency Plan, Revision 48  
 MP-14-020, 50.54(q)(3) Screening, MP-26-EPI-FAP06-003, Revision 009, dated 8/19/14

**Section 1EP6: Drill Evaluation**

Procedures

EOP 2525, Standard Post Trip Actions, Revision 25  
 EOP 2526, Reactor Trip Recovery, Revision 019-00  
 ONP 532, Loss of spent Fuel Pool Cooling, Revision 006-00  
 OP 2272C, Plant Operation in MODE 3 prior to Reactor startup [Ref. 6.1], Revision 001-03  
 MP-26-EPI-FAP01, Control Room Emergency Operations, Revision 005-03  
 MP-26-EPI-FAP06-001, Unit 1 Emergency Action Levels, Revision 001-01  
 MDEC14TD, Millstone Power Station Unit 1 Training Drill, Dated December 4, 2014

Condition Reports

566773

**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 7  
 RP-AA-301, ALARA Goals  
 RP-AA-303, ALARA 5-Year Plan, Revision 0

Documents

3R16 Exposure Estimate and Goals  
 Agenda and data package for Millstone Station ALARA Committee meeting, dated 10/21/14  
 ALARA Plan, 3-14-01  
 ALARA Plan, 3-14-11  
 ALARA Plan, 3-14-13  
 ALARA Plan, 3-14-16  
 ALARA Plan, 3-14-26  
 ALARA Planning Checklist, 3-14-01  
 ALARA Planning Checklist, 3-14-11  
 ALARA Planning Checklist, 3-14-13  
 ALARA Planning Checklist, 3-14-26

ALARA Post-Job Review, AP-2-14-01  
 ALARA Post-Job Review, AP-2-14-13  
 ALARA Post-Job Review, AP-2-14-14  
 CA285268  
 CR546687  
 CR547362  
 CR549695  
 CR550925  
 CR552254  
 Radiation Surveys of U-3 Containment for Initial Entry, dated 10/12/14  
 Radiation Surveys of U-3 Containment following shutdown, dated 10/12/14  
 Radiation Survey of U-3 EPRI Data Points, dated 10/18/14 at 1100  
 Radiation Work Permit 3140301  
 Radiation Work Permit 3140331  
 Radiation Work Permit 3140352  
 Radiation Work Permit 3140400  
 TEDE ALARA Review, 3R16, CET Greylocks  
 TEDE ALARA Review, 3R16, Containment Transfer Canal  
 TEDE ALARA Review, 3R16, Filter Processing  
 TEDE ALARA Review, 3R16, Insulation Work  
 TEDE ALARA Review, 3R16, Reactor Cavity Decontamination and Floor Covering  
 TEDE ALARA Review, 3R16, Reactor Cavity Wall Seismic Restraints  
 TEDE ALARA Review, 3R16, Reactor Head O-Ring Replacement  
 TEDE ALARA Review, 3R16, Reactor Head Set  
 TEDE ALARA Review, 3R16, Reactor Vessel Stud Cleaning  
 TEDE ALARA Review, 3R16, Reactor Vessel Temporary Head Decontamination  
 TEDE ALARA Review, 3R16, Steam Generator Diaphragms  
 TEDE ALARA Review, 3R16, Upper Internals Lift  
 TEDE ALARA Review, 3R16, Vacuum and HEPA Maintenance  
 TEDE ALARA Review, 3R16, Welding, Burning, and Grinding  
 Work In-Progress Reviews for 3R16 (particularly, for AP-2-14-11, AP-2-14-13, and AP-2-14-21, associated with a Green Finding)

**Section 2RS04: Occupational Dose Assessment**

Procedures

RP-AA-105, External Radiation Exposure Control Program, Revision 1  
 RP-AA-138, Declared or Expected Pregnant Woman, Revision 2  
 RP-AA-243, Portable HEPA Ventilation Units, Revision 0  
 RP-AA-244, Vacuum Cleaner Use and Control, Revision 0  
 RP-AA-262, Steam Generator Primary Side Work Controls, Revision 0  
 RP-AA-271, Use of Remote Monitoring, Revision 1  
 RPM 1.3.2, Dosimetry Issue and Return, Revision 017-02  
 RPM 1.6.4, Electronic Dosimetry System, Revision 007

Documents

CA259008	CR510418	CR521911	CR547071
CR547160	CR548631	CR548661	CR549464
CR550631	CR552254	CR552843	CR550631
CR550925	CR554048	CR555198	CR556387
CR558847	CR562003	CR562242	CR562809



Electronic dosimeter alarm reports from 4/5/14 to present  
 MP-HPO-14044, 3R16 Equipment Hatch Air Flow Survey,  
 Personnel contamination logs and reports from 1/1/14 to present  
 Radiation Survey of U-3 Reactor Cavity dated 10/16/14 at 0300  
 Radiological Risk Plan: MIDS Activities, dated 10/2014, with associated VHRA entry checklists,  
 surveys, and key logs  
 Whole Body Count Logs for the period of 3/26/14 to present

## **Section 2RSO5: Radiation Monitoring Instrumentation**

### Procedures

C CP 803.6, Gamma Spectroscopy Counting System Maintenance and Operation,  
 Revision 001-00  
 C CP 803.9, Abacos Plus Whole Body Counting System Maintenance, Revision 000-01  
 EN 31153, Millstone Unit 3 Radiation Monitor High Radiation Setpoints, Revision 005-06  
 IC 3490B10, Calibration and Functional Test for Kaman Science Area Radiation Monitor,  
 Revision 007-00  
 RP-AA-401, Non-Portable Contamination Monitors, Revision 0  
 RPM 4.2.1, 43-2 Alpha Probe Calibration, Revision 006-02  
 RPM 4.2.2, E-140N Count Rate Meter Calibration, Revision 002-02  
 RPM 4.2.3, L-177 Count Rate Meter Calibration, Revision 006-02  
 RPM 4.2.4, RM-14 Count Rate Meter Calibration, Revision 003-01  
 RPM 4.3.6, RO-2, RO-2A, and RO-20 Dose Rate Meter Calibration, Revision 005  
 RPM 4.3.20, MGP Telepole Calibration, Revision 001  
 RPM 4.6.4, Eberline BC-4 Calibration, Revision 003  
 RPM 4.6.24, Small Articles Monitor Calibration, Revision 007-01  
 RPM 4.6.26, Eberline Personnel Monitor Model PM-7 Calibration, Revision 002-01  
 RPM 4.6.29, Canberra Argos-4AB Contamination Monitor Calibration and Quality Assurance,  
 Revision 003-03  
 RPM 4.7.8, Whole Body Counting System Operation and Review, Revision 009  
 RPM 4.8.1, Measuring the Radiation Intensity of the J.L. Shepherd Calibrator, Revision 008-01  
 RPM 4.8.2, Operation of the J.L. Shepherd Calibrator, Revision 003  
 RPM 4.8.9, Source Checking of Health Physics Instruments, Revision 013-01  
 RPM 4.8.11, Response Checking Whole-Body Contamination Monitors, Revision 011-02  
 SP 2849, Surveillance Test for Reactor Coolant PASS, Revision 015-00

### Documents

10 CFR 61 Sample reports for: U-1 DAW, U-2 DAW Composite 2014, U-3 DAW Composite  
 2014, U-2 L13/L16 Filter, U-2 CW Resin, and U-3 LWs Filters  
 Certificate of calibration, factory, 3HVQ-RE49B, dated 11//29/1983  
 Accuscan II Whole Body Counter calibration, Bldg 437, dated 11/21/2013  
 Accuscan II Whole Body Counter calibration, Dosimetry Office, dated 9/22/2014  
 Calibration Report, High Range Monitor Calibrator RT-11, S/N 007, dated 12/2/1981  
 Certificates of Conformance, Fluke Biomedical, Electrometer/Dosimeter #530, dated 12/16/2013  
 Certificate of Calibration, Beta Standard Source, S/N 550-13-1, dated 10/2/1996  
 Certificate No. 211580, Beta Wide Area Reference Source, S/N FD 485, dated 9/5/1996  
 CR523533  
 CR523542  
 CR523531  
 CR510393  
 CR523165

CR556017  
 EN 31153, Millstone Unit 3 Radiation Monitor Setpoint Bases, Revision 005-06  
 Fastscan Whole Body Counter calibration, Dosimetry Office, dated 12/4/2013  
 Fastscan Whole Body Counter calibration, Processing Center, dated 12/3/2013  
 Instrument inventory list, dated 12/8/2014  
 Millstone Three Radiation Monitor Manual  
 MP-HPO-97241, Incorrect Source – J.L. Shepherd Model 89 Calibrator, dated 9/15/1997  
 MP-HPO-010013, Characterization of J.L. Shepherd Calibrator S.N. 9155, dated 2/1/2001  
 MP-HPO-14008, 2014 Annual Validation of J.L. Shepherd SN 9155, dated 2/24/2014  
 RPM 4.2,3-001, L-177 Calibration Certificate, S/N 125506, dated 8/13/2014  
 RPM 4.3.20-001, MGP Telepole Calibration Certificate, S/N 6608-142, dated 9/27/2014  
 RPM 4.8.1-002, J.L. Shepherd validation Certificate, Monthly, S/N 9155, dated 12/1/2014  
 RPM 4.8.14-001, Instrumentation As-Found Log, sheets for CY2014  
 SP2849 results dated 9/25/2014  
 Work Order 53102546630, Ventilation Vent Stack Hi Rng Rad Mon Chan Cal 3HVR-RIY10A  
 Work Order 53102558446, MSL Radiation Monitors RIT-4299A,B,C Calibration  
 Work Order 53102566970, CTMT Hi Range Monitors RIT-8240 & RIT-8241 Calibration  
 Work Order 53102627262, General Atomics Containment Area High Range Channel Calibration  
 Work Order 53102717749, CTMT High Range Monitor RIT-8241 FUNC Test  
 Work Order 53102736494, CTMT High Range Monitor RIT-8241 FUNC Test

## **Section 2RSO6: Radioactive Gaseous and Liquid Effluent Treatment**

### Procedures

C CP 803.26, Open EMS – Effluent Management System Operation, Revision 000-04  
 C CP 806.4, Groundwater Protection Program Sampling, Revision 000-02  
 C OP 200.11, Operation of a Cross Contaminated System, Revision 004-02  
 CP 2806X, Unit 2 Containment Atmosphere Sampling and Discharge, Revision 009-03  
 CP 3809F, Discharge of 3CND-TK10, Revision 008-01  
 MP-22-REC-PRG, Radiological Effluent Control and Groundwater Protection, Revision 001-00  
 MP-22-REC-REF03, REMODCM Technical Information Document, Revision 003-00  
 RP-AA-502, Groundwater Protection Program, Revision 4  
 SP 852, Spent Fuel Pool Chemistry Control, Revision 004-02  
 SP 344J01, ESF Building Gaseous Radiation Monitor Calibration (3HVQ-RIY49),  
 Revision 007-05  
 SP 2404BF, Stack Gas Flow Calibration, Revision 002-03  
 SP 2404BG, Stack Gas Flow Functional Test, Revision 001-12  
 SP 2843A, Main Station Stack Gas Sampling and Counting, Revision 003-02  
 SP 2848, Waste Gas Decay Tanks Sampling and Discharge Permit Preparation,  
 Revision 011-00  
 SP 3449A31, Ventilation Vent Stack (Turbine Building) Flow Rate Channel Operational Test and  
 Calibration, Revision 005-04  
 SP 3449J11, ESF Building Gas Monitor (3HVQ-RIY49) and Ventilation Discharge Flow Switch  
 (3HVQ-FIS55) Channel Op Test, Revision 010-00  
 SP 3876, SLCRS, Normal Vent, ESF Building Gaseous Effluent Iodine and Particulates,  
 Revision 010-02 (observed)

### Miscellaneous

Audit 13-11, Offsite Dose Calculation Manual, REMP, EPP  
 Calculation RERM-01946-3, Revision 1  
 Calculation RERM-02906-R2, Revision 1

Chemistry Results, Unit-1 Spent Fuel Pool, 5/12/2010 to 9/25/2014  
 Groundwater Monitor Results, CP 806.4, 3Q2013 to 4Q2014  
 Log, Unit-2 Control Room Ops, entry for 10/20/2014 "RMS Status"  
 Memorandum, Hydrogeologic Assessment and UFSAR Review Millstone Power Station, dated 11/10/2009  
 Memorandum, MP-CHEM-14-005, 10 CFR 50.75(g) Decommissioning Records, dated 6/2/2014  
 Memorandum, MP-CHEM-14-012, 2014 Radiological Environmental Monitoring Program – Land Use Census Data, dated 8/6/2014  
 Memorandum, MP-CHEM-14-014, Groundwater Protection Program, 3<sup>rd</sup> Quarter 2014, dated 10/1/2014  
 Memorandum, Station radiation monitoring maintenance, resource requirements to restore and maintain the radiation monitor program, dated 7/1/2012  
 Meteorological program system print-outs  
 Release permit G-EFF1-20130101-068-C  
 Release permit G-EFF1-20140724-920-C  
 Release permit G-EFF2-20140909-994-C  
 Release permit L-EFF1-20140717-1119-B  
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 Release permit L-EFF3-20140509-1028-C  
 Surveillance Form: Auxiliary Building Filter System Train A Operability Test, 7/30/14  
 Surveillance Form: Auxiliary Building Filter System Train A Operability Test, 8/27/14  
 Surveillance Form: Auxiliary Building Filter System Train B Operability Test, 6/19/14  
 Surveillance Form: Auxiliary Building Filter System Train B Operability Test, 7/17/14  
 Surveillance Form: Auxiliary Building Filter System Train B Operability Test, 8/15/14  
 Surveillance Form: Control Room Ventilation System Filter Testing, Efficiency – Facility 1, 8/20/13  
 Surveillance Form: Control Room Ventilation System Filter Testing, Efficiency – Facility 2, 8/20/13  
 Surveillance Form: EBFS Filter Testing and D/P – Facility 1, 8/1/13  
 Surveillance Form: EBFS Filter Testing and D/P – Facility 2, 7/24/13  
 Surveillance Form: EBFS Filter Testing Efficiency – Facility 1, 8/20/13  
 Surveillance Form: EBFS Filter Testing Efficiency – Facility 2, 7/21/13  
 Surveillance Forms: SFPI Vent Monitor Source Check, SP 850A, June 2014 to October 2014  
 Surveillance Form: SLCRS Filter Charcoal Analysis – Train A, SP 36141.2, 12/6/13  
 Surveillance Form: SLCRS Filter Charcoal Analysis – Train B, SP 36141.2, 2/10/14  
 Surveillance Form: SLCRS HEPA Filter Bypass Leakage – Train A, 11/23/13  
 Surveillance Form: SLCRS HEPA Filter Bypass Leakage – Train B, 8/13/14  
 Surveillance Form: Turbine Building Floor Drain Rad Monitor Nonfunctional, 11/15/14 and associated analysis results for 9/30/14 to 11/5/14  
 Surveillance Form: Turbine Building Floor Drain Rad Monitor Nonfunctional, 9/16/14 and associated analysis results for 9/3/14 to 9/16/14  
 Surveillance Form: Turbine Building Floor Drain Rad Monitor Nonfunctional, 8/22/14 and associated analysis results for 7/27/14 to 8/22/14  
 Surveillance Work Order 53102693815, Aerated Waste Disch Flow Loop F-9118 Func Test & Cal  
 Surveillance Work Order 53102718359, Aerated Waste Disch Flow Loop F-9118 Func Test & Cal  
 Surveillance Work Order 53102688070, ESF Bldg Gas Monitor 3HVQ-RE49 ACOT  
 Surveillance Work Order 53102710483, ESF Bldg Gas Monitor 3HVQ-RE49 ACOT  
 Surveillance Work Order 53102413946, ESF Bldg Gaseous Rad Monitor Cal 3HVQ-RE49  
 Surveillance Work Order 53102506672, ESF Bldg Gaseous Rad Monitor Cal 3HVQ-RE49

Surveillance Work Order 53102688449, SFPI Vent Exh Air Mon Func Test (RM-SFPI-02)  
 Surveillance Work Order 53102710796, SFPI Vent Exh Air Mon Func Test (RM-SFPI-02)  
 Surveillance Work Order 53102364454, SG Blowdown Liquid Proc Mon RM-4262 Cal  
 Surveillance Work Order 53102488741, SG Blowdown Liquid Proc Mon RM-4262 Cal  
 Surveillance Work Order 53102406091, Stack Gas Flow Calibration  
 Surveillance Work Order 53102526744, Stack Gas Flow Calibration  
 Surveillance Work Order 53102697610, Stack Gas Flow Func Test  
 Surveillance Work Order 53102724405, Stack Gas Flow Func Test  
 Surveillance Work Order 53102682246, Ventilation Vent Flow Rate ACOT  
 Surveillance Work Order 53102703460, Ventilation Vent Flow Rate ACOT  
 Surveillance Work Order 53102234166, Unit-1 SFP Vent Instrumentation Calibration  
 Surveillance Work Order 53102387745, Unit-1 SFP Vent Instrumentation Calibration

Condition Reports

521962	523663	524069	524273
524437	534631	536112	538678
544546	546842	547937	548085
548574	550818	552358	552422
554866	556074	556643	557520
558977	559066	560847	563860
565596			

**Section 4OA1: Performance Indicator Verification**

Procedures

LI-AA-500, NRC/INPO/WANO Performance Indicator and MOR Reporting, Revision 1

Condition Reports

543944	507412	491792	533067
515704	497422	515103	

Miscellaneous

LER 2014-003-00, Loss of Safety Function Due to Inoperable Enclosure Building  
 LER 2013-002-00, TDAFW Pump HELP Door Left Open During Surveillance Testing  
 LER 2012-003-00, Potential for Loss of Safety Function Due to Postulated Flood Condition  
 LER 2013-009-00, Secondary Containment Boundary Breach Could Have Prevented Safety Function  
 LER 2013-005-00, Loss of Containment Integrity Due to Failed Airlock  
 LER 2013-002-00, Secondary Containment Boundary Breach Could Have Prevented Safety Function  
 Daily Individual Dose Report (records of exit transactions > 100 mrem) for 2014  
 RETS/ODCM Radiological Effluent performance indicator report dated 12/16/2014

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

Procedures

CM-AA-5002, Margin Management, Revision 4  
 OP 2326A, Service Water System, Revision 024-09  
 OP 2330A, RBCCW System, Revision 024-05  
 OP 3208, Plant Cooldown, Revision 022-09  
 PI-AA-200, Corrective Action, Revision 23

SP 2670, Saltwater Cooled HX D/P Determination, Revision 012-01  
 SP 2670-001, A RBCCW HX D/P Determination, Revision 011-01  
 PI-AA-200, Corrective Action  
 PI-AA-300-3002, Apparent Cause Evaluation, Revision 6  
 PI-AA-5002, Observation and Coaching, Revision 3

Condition Reports

519328	520638	551137	552468
554597	558692	546439	552843
569660			

Drawings

25203-26008, Piping & Instrumentation Diagram Service Water, Sheet 2, Revision 113

Miscellaneous

Margin Management Process Status Memorandum for 3rd Quarter 2014  
 Millstone Power Station Commitment Letter Log, dated November 19, 2014  
 Millstone Unit 2 - Issuance of Amendment, dated April 18, 2014 [ML14037A408]  
 Millstone Unit 3 - Issuance of Amendment, dated July 11, 2014 [ML14178A599]  
 MP2-12-01205, Millstone Unit 2: Increase in Ultimate Heat Sink Temperature Limit from 75 to 80°F, Revision 002  
 MP2-12-01223, MP2 DC for Temperature Indication Upgrades to Support 80 Degrees UHS, Revision 004  
 MP2-13-01155, Service Water Switchgear Supply and Return Line Pipe Hanger Modifications, Revision 005  
 MP2-13-01163, Service Water TCV 2-SW-8.1A/B/C Deflector Plate Modification, Revision 001  
 MP3-13-01034, Millstone Unit 3: Ultimate Heat Sink Temperature, Limiting Condition of Operation from 75 to 80°F, Revision 001  
 Routine Task Evaluation (RTE) P-MILL-334309  
 RTE P-MILL-334310  
 RTE P-MILL-334871  
 RTE P-MILL-335229  
 RTE P-MILL-335470  
 Apparent Cause Evaluation #019728  
 Self-Assessment #SAR002905, MPS RP Performance Review  
 Self-Assessment #SAR002926, Review of 2R22 Outage Dose Estimate Process

Work Orders

53102689487  
 53102747783

**LIST OF ACRONYMS**

3R16	Unit 3, Refuel Outage number 16
ALARA	as low as reasonably achievable
AOP	abnormal operating procedure
ASME	American Society of Mechanical Engineers
BACC	boric acid corrosion control
CAP	corrective action program

CFR	Code of Federal Regulations
CR	condition reports
Dominion	Dominion Nuclear Connecticut, Inc.
DRP	division of reactor projects
DRS	division of reactor safety
EAL	emergency action level
EDG	emergency diesel generator
EOP	emergency operating procedure
EPRI	Electric Power Research Institute
ESF	engineered safety feature
FAC	flow accelerated corrosion
FIN	finding
GPI	groundwater protection initiative
HVK	control building chilled water system
IMC	inspection manual chapter
ISI	in-service inspection
IST	in-service test
JPM	job performance measure
KV	kilovolt
LER	licensee event report
MDAFW	motor-driven auxiliary feedwater
Millstone	Millstone Power Station
MRE	maintenance rule evaluation
MT	magnetic particle testing
NCV	non-cited violation
NDE	nondestructive examination
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
NSST	normal station service transformer
ODCM	offsite dose calculation manual
PT	liquid penetrant examination
RBCCW	reactor building closed cooling water
RCS	reactor coolant system
RP	radiation protection
RSST	reserve station service transformer
SG	steam generator
SLCRS	supplementary leak collection and release system
SO	standing order
SSC	structure, system, or component
TDAFW	turbine-driven auxiliary feedwater
TS	technical specifications
UFSAR	updated final safety analysis report
UHS	ultimate heat sink
UT	ultrasonic examination
VT	visual examination
WBC	whole body counter