



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

February 10, 2014

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
05000336/2013005 AND 05000423/2013005**

Dear Mr. Heacock:

On December 31, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Millstone Power Station, Units 2 and 3 (Millstone). The enclosed inspection report documents the inspection results, which were discussed on January 30, 2014, with Mr. Stephen E. Scace, Site Vice President, and other members of your staff.

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

One NRC-identified finding and one NRC-identified violation of very low safety significance (Green) were identified during this inspection. These findings were determined to involve violations of NRC requirements. Additionally, two licensee-identified violations, which were determined to be of very low safety significance, are listed in this report. The NRC is treating these violations as non-cited violations (NCVs), consistent with Section 2.3.2 of the Enforcement Policy. If you contest the violations or significance of these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Millstone. If you disagree with the cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region I, and the NRC Resident Inspector at Millstone.

As a result of the Safety Culture Common Language Initiative, the terminology and coding of cross-cutting aspects were revised beginning in calendar year (CY) 2014. New cross-cutting aspects identified in CY 2014 will be coded under the latest revision to Inspection Manual Chapter (IMC) 0310. Cross-cutting aspects identified in the last six months of 2013 using the previous terminology will be converted to the latest revision in accordance with the cross-reference in IMC 0310. The revised cross-cutting aspects will be evaluated for cross-cutting

themes and potential substantive cross-cutting issues in accordance with IMC 0305 starting with the CY 2014 mid-cycle assessment review.

In accordance with Title 10 *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "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 System (PARS) component of NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site 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 05000336/2013005 and 05000423/2013005
w/Attachment: Supplementary Information

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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: 05000336/2013005 and 05000423/2013005

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, 2013 through December 31, 2013

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

Enclosure

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SUMMARY

IR 05000336/2013005, 05000423/2013005; 10/01/2013 - 12/31/2013; Millstone Power Station Units 2 and 3; Operability Determinations and Functional Assessments and Other Activities.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. Inspectors identified one non-cited violation (NCV) and one finding of very low safety significance (Green). 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 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Components Within Cross-Cutting Areas," dated October 28, 2011. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated 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 4.

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green Finding (FIN) for the failure to follow Dominion Procedure OP-AA-102, "Operability Determinations," and establish adequate compensatory measures to restore reliability to the Unit 3 Turbine Driven Auxiliary Feedwater (TDAFW) Pump following overspeed trips on November 4 and December 18, 2013. The inspectors determined that the performance deficiency was within Dominion's ability to foresee and correct. Dominion entered this issue into their corrective action program (CAP) (CR531536, CR532536 and CR535411), established additional compensatory measures to address degraded pump reliability, and scheduled additional maintenance activities to more thoroughly investigate the cause of the overspeed trips.

The inspectors determined the performance deficiency was more than minor because it affected the equipment performance attribute of the mitigating systems cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Failure to adequately establish effective compensatory measures resulted in a decrease in the reliability of the auxiliary feedwater (AFW) system to mitigate events. The inspectors determined that, after further compensatory measures were established, the TDAFW pump maintained its operability, the AFW system maintained all safety functions, and the finding was of very low safety significance (Green). This finding has a cross-cutting aspect in the area of human performance, in that Dominion did not use conservative assumptions in decision making and did not adopt a requirement to demonstrate that the proposed action is safe in order to proceed rather than a requirement to demonstrate that it is unsafe in order to disapprove the action (H.1.b). (Section 1R15)

- Green. The inspectors identified an NCV of Millstone Unit 2 Operating License Condition 2.C. (3) for failure to implement and maintain all aspects of the approved Fire Protection Program (FPP). Specifically, Dominion had not adequately implemented an alternative shutdown procedure, as required by 10 CFR 50, Appendix R, Section III.L.3 and the approved FPP. The procedure for a Unit 2 fire, which could lead to control room abandonment, did not ensure the electrical distribution system was correctly configured prior to re-energizing alternating current (AC) buses. As a result, an over-current condition could occur and trip the 4 kilovolt (kV) supply breaker complicating safe shutdown operations and delaying AC bus recovery. In response to this issue, Dominion promptly revised their fire

safe shutdown operating procedure prior to the end of the inspection to correct this deficiency.

This finding was more than minor because it was associated with the protection against external factors (e.g., fire) attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the finding in accordance with IMC 0609, Appendix F, "Fire Protection SDP." This finding affected the post-fire safe shutdown category and was determined to have a high degradation rating because the alternative shutdown procedure lacked adequate instructions to ensure correct equipment alignment. A Phase 3 SDP analysis determined that this finding was of very low safety significance (Green) because the best estimate of core damage frequency (Δ CDF) was in the mid E-7 per year range. This finding did not have a cross-cutting aspect because it was considered to not be indicative of current licensee performance. (Section 4OA5.1)

Other Findings

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

REPORT DETAILS

Summary of Plant Status

Millstone Unit 2 and 3 began the inspection period operating at 100 percent power. On November 9, Unit 2 tripped following a turbine trip. The turbine trip resulted from a loss of condenser vacuum when the 'C' circulating water pump inadvertently ramped down during backwash of the 'D' waterbox. Unit 2 returned to 100 percent power on November 13.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 2 samples)

Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors performed a review of Dominion's readiness for the onset of seasonal cold temperatures at Unit 2 and Unit 3. The review focused protection for the safety-related equipment including condensate storage tanks, refueling water storage tanks, Unit 2 reactor building closed cooling water (RBCCW) system, Unit 3 reactor plant closed cooling water system, and emergency diesel generators (EDGs), as well as heating for the buildings. The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR), technical specifications (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.

1R04 Equipment Alignment

.1 Partial System Walkdowns (71111.04 – 4 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

Unit 2

- 'B' Low Pressure Safety Injection (LPSI) following surveillance testing on October 17
- 'A' Motor Driven Auxiliary Feedwater (MDAFW) Pump following surveillance testing on October 23

Unit 3

- 'B' EDG when the 'A' EDG was in overhaul on October 25
- TDAFW pump when the 'A' MDAFW pump was out of service (OOS) on December 26

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

b. Findings

No findings were identified.

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

a. Inspection Scope

On October 31 and November 1, the inspectors performed a complete system walkdown of accessible portions of the Unit 3 'A' EDG following return to service after an extended overhaul to verify the existing equipment lineup was correct. The inspectors reviewed operating procedures, surveillance tests, drawings, equipment line-up check-off lists, and the UFSAR to verify the system was aligned to perform its required safety functions. The inspectors also reviewed electrical power availability, component lubrication and equipment cooling, hangar and support functionality, and operability of support systems. The inspectors performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The

inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. Additionally, the inspectors reviewed a sample of related CR and work orders to ensure Dominion appropriately evaluated and resolved any deficiencies.

b. Findings

No findings were identified.

1R05 Fire Protection

Resident Inspector Quarterly Walkdowns (71111.05Q –6 samples)

a. Inspection Scope

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

Unit 2

- Spent Fuel Pool, Enclosure Building Filtration System Equipment Area, and Cask Washdown Area, Fire Area A-14 on October 4
- Turbine Building, Fire Area T-1 on October 11
- Direct Current (DC) Equipment Room B, Fire Area A-21 on October 18
- Turbine Building Steam Driven Auxiliary Feed Pump Pit, Fire Area T-4 on October 18

Unit 3

- Spent Fuel Building, Fire Areas FB1 and FB2 on October 11
- Main Steam Valve Enclosure, Fire Area MSV-1 on November 29

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed the Unit 2 'B' RBCCW heat exchanger to determine its readiness and availability to perform its safety functions on October 10. The inspectors reviewed the design basis for the component and verified Dominion's commitments to NRC Generic Letter 89-13. The inspectors observed inspection of the 'B' RBCCW heat exchanger. The inspectors discussed the results of the most recent inspection with

engineering staff. The inspectors verified that Dominion initiated appropriate corrective actions for identified deficiencies. The inspectors also verified that the number of tubes plugged within the heat exchanger did not exceed the maximum amount allowed.

b. Findings

No findings were identified.

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

.1 Quarterly Review of Licensed Operator Regualification Testing and Training

a. Inspection Scope

The inspectors observed Unit 3 licensed operator simulator training on October 16, which included a loss of shutdown cooling when in mode 5, a loss of spent fuel pool cooling, and a spill of radioactive liquid. Additionally, the inspectors observed Unit 2 licensed operator simulator training on November 20, which included a simulated loss of coolant accident with concurrent excess steam demand event. The inspectors evaluated operator performance during the simulated event and verified completion of risk significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classification made by the shift manager and the TS action statements entered by the shift technical advisor. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors observed Unit 2 power ascension activities, including placing the second feed pump on line and turbine control valve testing, on November 12 and 13. The inspectors also observed routine control room activities and surveillance testing in the Unit 3 control room on December 23. The inspectors observed the test or evolution briefings, pre-shift briefings, and reactivity control briefings to verify that the briefings met the criteria specified in Dominion's Operations Standards and Expectations Handbook. Additionally, the inspectors observed test performance to verify that procedure use, crew communications, and coordination of activities between work groups similarly met established expectations and standards.

b. Findings

No findings were identified.

.3 Licensed Operator Requalification (71111.11B)

a. Inspection Scope

The following inspection activities were performed using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1, Inspection Procedure 71111, Attachment 71111.11B, "Licensed Operator Requalification Program," Appendix A, "Checklist for Evaluating Facility Testing Material," and Appendix B, "Suggested Interview Topics."

For Unit 3, a review was conducted of recent operating history documentation found in inspection reports, licensee event reports (LERs), and Dominion's CAP. The inspectors reviewed Dominion's CAP for specific events which indicated possible training deficiencies, to verify that they had been appropriately addressed. The senior resident inspector was also consulted for insights regarding licensed operators' performance. The inspectors noted two events that were indicative of possible training deficiencies; these were discussed with Dominion.

For Unit 2, a review was conducted of annual operating examination results.

Examination Results

The Unit 3 operating tests for the week of October 21, 2013, were reviewed for quality and performance.

On December 5, 2013, the results of the annual operating tests for year 2013 for both units were reviewed to determine if pass/fail rates were consistent with the guidance of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1, and NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance SDP." The review verified the following:

- Crew pass rates were greater than 80 percent. (Pass rates were 100 percent for both units)
- Individual pass rates on the job performance measures (JPMs) of the operating examination were greater than 80 percent. (Pass rates were 97.5 percent for Unit 3, 96 percent for Unit 2)
- More than 80 percent of the individuals passed all portions of the examination. (Pass rates were 97.5 percent for Unit 3, 96 percent for Unit 2)
- Individual pass rates on the dynamic simulator test were greater than 80 percent. (Pass rates were 100 percent for both units)

At the time of this report, two individuals had not taken examinations due to medical issues.

Observations were made of the dynamic simulator examinations and JPMs administered during the week of October 21, 2013. These observations included facility evaluations of crew and individual performance during the dynamic simulator examinations and individual performance of five JPMs.

Remedial Training and Re-Examinations

The remediation plan and re-examination for one written failure were reviewed to assess the effectiveness of the remedial training.

Simulator Performance

Simulator performance and fidelity were reviewed for conformance to the reference plant control room.

A sample of records for requalification training attendance, program feedback, reporting, and medical examinations were reviewed for compliance with license conditions, including NRC regulations.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 1 sample)

a. Inspection Scope

The inspectors reviewed the Unit 2 120 Volt AC distribution on October 25 to assess the effectiveness of maintenance activities on structure, system or component (SSC) performance and reliability. The inspectors reviewed system health reports, CAP documents, maintenance work orders, and maintenance rule basis documents to ensure that Dominion was identifying and properly evaluating performance problems within the scope of the maintenance rule. The inspectors verified that the SSC was properly scoped into the maintenance rule in accordance with Title 10 *Code of Federal Regulations* (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.

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 2 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

- Removal of the South electrical bus and switchyard maintenance on October 1

Unit 3

- Emergent Work and Troubleshooting for 3VPA-PNL1A power supply failure on October 13

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 4 samples)

a. Inspection Scope

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

Unit 2

- CR529393, EPRI MOV PPM required thrust calculation for 2-MS-201 and 2-MS-202 unpredictable on October 24

Unit 3

- OD000561 Revision 4, TDAFW Pump failed surveillance test on November 7
- OD000564, 'B' EDG start relay fault on November 14
- OD000561, Revision 5, TDAFW Pump failed surveillance test on December 18

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 Finding (FIN) for the failure to follow Dominion Procedure OP-AA-102, "Operability Determinations," and establish adequate compensatory measures to restore reliability to the Unit 3 TDAFW following an overspeed trip on November 4, 2013. Subsequently, the TDAFW pump tripped again on overspeed during surveillance testing on December 18, 2013.

Discussion. The TDAFW pump tripped on overspeed on November 4, 2013 and December 18, 2013, during scheduled surveillance testing. Dominion attributed the initial test failure to condensate in the steam lines without fully evaluating other potential causes that could contribute to the failure to start. As a result, the reliability of the TDAFW to respond to a start signal was reduced. Compensatory measures established following the November 4 test failure and subsequent revisions to the prompt operability determination were inadequate and did not prevent the December 18 failure. Additional compensatory measures were subsequently added.

In August 2013, Dominion adjusted the governor compensator on the TDAFW pump such that the speed sensitivity of governor was reduced in order to prevent spontaneous oscillations from occurring at low flow rates. Subsequently, on November 4, 2013, the TDAFW pump tripped on overspeed during the start sequence during a quarterly surveillance test. A prompt operability determination (OD000561, Revision 0) assessed the cause of the trip as being due to a buildup of condensate in the steam supply lines to the TDAFW pump. Compensatory measures were established to eliminate the source of the condensate by ensuring the steam traps were adequately draining the steam supply lines. The operability determination attributed the probable cause of the overspeed trip as being caused by the failure to properly operate and maintain the steam traps in the steam lines such that condensate accumulated in the steam lines and caused the throttle valve to fail to close due to hydraulic drag. On November 5, the 'D' steam line isolation valve to the TDAFW pump was closed. The 'D' steam supply line remained isolated until December 18, 2013.

Dominion Engineering considered several other potential causes in the analysis in OD000561, Revision 0, but determined that they were likely not involved in the overspeed trip that occurred on November 4. Subsequent revisions to the initial operability determination (Revisions 1 and 2) provided further rationale to justify why governor and throttle valve potential failure modes did not require compensatory measures to restore reliability. As a result, Dominion did not conduct any further testing of the governor, the governor linkage and the throttle valve, 3MSS*HCV5, nor did they establish compensatory measures that would have addressed these other potential causes. On December 5, CR534403 identified that "there was a discreet (vs. smooth) change in the acceleration rate" of the TDAFW pump during pump startup that had not been observed prior to the maintenance on the governor in August. A timely recommendation by the root cause team to test the throttle valve and governor for binding prior to the next scheduled surveillance test was not implemented prior to the second overspeed test failure on December 18.

OD000561 (Revisions 0, 1, and 2) was narrowly focused on the malfunctioning of the steam traps as the source of the condensate building up in the steam lines. On December 18, Dominion unisolated the 'D' steam supply line and another overspeed trip

subsequently occurred during the surveillance test. The root cause evaluation was still in progress and the causal assessment had not been fully completed when operations restored the 'D' steam line to service in preparation for the surveillance test.

Dominion focused on the malfunctioning steam traps upstream of the steam admission valves as the primary cause of the test failures requiring compensatory measures. The other potential causes of the problem were not fully investigated. They did not use conservative assumptions in the decision making process and did not demonstrate that the other potential causes were not valid when formulating compensatory measures to restore reliability. Dominion did not fully investigate nor recognize that condensate was trapped in the steam line between 3MSS*AOV31D and 3MSS*MOV17D (downstream of the steam admission valve) which may have caused or contributed to the turbine overspeed condition. They also did not further investigate possible degradation of the governor, linkage, nor throttle valve binding as potential causes.

Analysis. Failure to establish adequate compensatory actions to restore sufficient reliability to the TDAFW pump to restore operability is contrary to Dominion's procedure OP-AA-102, "Operability Determination." The inspectors determined that the failure to adequately evaluate pump operability was a performance deficiency that was reasonably within Dominion's ability to foresee and correct. Traditional enforcement does not apply because the issue did not have any actual safety consequences or potential for impacting the NRC's regulatory function, and was not the result of any willful violation of NRC requirements.

The inspectors determined the performance deficiency was more than minor because it affected the equipment performance attribute of the Mitigating Systems cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Failure to adequately assess operability resulted in a decrease in the reliability of the AFW system to mitigate events. Specifically, the assumption that the buildup of condensate in the steam supply lines was the sole cause of the overspeed trip on November 4 without adequately assessing and addressing other potential degraded conditions demonstrated a narrowly focused approach to establishing compensatory actions. This degraded condition was not adequately assessed as required by OP-AA-102 using the operability determination process.

The inspectors performed a Phase 1 SDP screening in accordance with IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power." The inspectors determined that the AFW system maintained all safety functions because the redundant components, the MDAFW pumps, were operable. The inspectors concluded that the finding was of very low safety significance (Green) using Exhibit 2.

This finding has a cross-cutting aspect in the area of human performance, in that Dominion did not use conservative assumptions in decision making and did not adopt a requirement to demonstrate that the proposed action is safe in order to proceed rather than a requirement to demonstrate that it is unsafe in order to disapprove the action. Specifically, Dominion did not adequately assess the potential causes of the overspeed trip and made assumptions regarding the operability of the TDAFW pump that were later shown to be narrowly focused and incomplete (H.1.b).

Enforcement. This finding does not involve enforcement action because no regulatory requirement violation was identified. Dominion entered this issue into their CAP as CR531536, CR532536 and CR535411. OD000561 was revised and additional compensatory measures were required to restore operability to the TDAFW pump, including isolating the 'D' steam supply line, weekly surveillance testing, and scheduling an investigation into potential throttle valve binding and governor adjustment. Because this finding does not involve a violation of regulatory requirements and has very low safety significance, it is identified as a finding. **(FIN 05000423/2013-005-01), Inadequate Operability Determination for the TDAFW Pump following an Overspeed Trip)**

1R18 Plant Modifications (71111.18 – 1 sample)

Temporary Modifications

a. Inspection Scope

The inspectors reviewed the temporary modifications on the Unit 3 TCC-MP-2013-036, Installation of Actuator Stem Clamp Gag for Terry Turbine Steam Supply Globe Valve, M33MSS*AOV31D on November 18 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.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 3 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 3

- 'A' EDG Performance Maintenance Test (PMT) following extended overhaul on October 27
- TDAFW Pump PMT following failed operational test on November 6
- 'B' EDG PMT following extended overhaul on December 12

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 4 samples)a. Inspection Scope

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

Unit 2

- SP 2604D, LPSI Pump and Min-Recirc Check Valve In-Service Test, Facility 2, Revision 0112-01 on October 15
- SP 2606B, Containment Spray Pump Operability and In-Service Test, Facility 2, Revision 013-05 on October 16
- SP 2402M, Functional Test of Steam Generator Level and Auto-AFW Initiation Logic, Revision 010-03 on November 1

Unit 3

- SP 3622.3, TDAFW Pump Operational Test on November 4

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness1EP2 Alert and Notification System Evaluation (71114.02 - 1 sample)a. Inspection Scope

An onsite review was conducted to assess the maintenance and testing of the Millstone alert and notification system (ANS). During this inspection, the inspectors conducted a review of the ANS testing and maintenance programs, and reviewed the associated ANS procedures and the Federal Emergency Management Agency approved ANS Design Report to ensure compliance with design report commitments for system maintenance and testing. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 2. 10 CFR 50.47(b)(5) and the related requirements of 10 CFR Part 50, Appendix E, were used as reference criteria.

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Staffing and Augmentation System
(71114.03 -1 sample)

a. Inspection Scope

The inspectors conducted a review of the Unit 2 and Unit 3 Emergency Response Organization (ERO) augmentation staffing requirements and the process for notifying and augmenting the ERO. The review was performed to verify the readiness of key Dominion staff to respond to an emergency event and to verify Dominion's ability to activate their emergency response facilities (ERFs) in a timely manner. The inspectors reviewed: the Millstone Power Station Emergency Plan for ERF activation and ERO staffing requirements; the ERO duty rosters; applicable station procedures; augmentation test reports; the most recent drive-in drill reports; and corrective action reports related to this inspection area. The inspectors also reviewed a sample of Unit 2 and Unit 3 ERO responder training records to verify training and qualifications were up to date. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 3. 10 CFR 50.47(b)(2) and related requirements of 10 CFR Part 50, Appendix E, were used as reference criteria.

b. Findings

No findings were identified

1EP5 Maintaining Emergency Preparedness (71114.05 -1 sample)

a. Inspection Scope

The inspectors reviewed a number of activities to evaluate the efficacy of Dominion's efforts to maintain the Millstone Power Station emergency preparedness program. For both Unit 2 and Unit 3, the inspectors reviewed: letters of agreement with offsite agencies; the 10 CFR 50.54(q) Emergency Plan change process and practice; Dominion's maintenance of equipment important to emergency preparedness; records of evacuation time estimate population evaluation; and provisions for, and implementation of, primary, backup, and alternate ERF maintenance. The inspectors also verified Dominion's compliance at Millstone with new NRC emergency preparedness regulations regarding: emergency action levels for hostile action events; protective actions for on-site personnel during events; emergency declaration timeliness; ERO augmentation and alternate facility capability; evacuation time estimate updates; on-shift ERO staffing analysis; and, ANS back-up means.

The inspectors further evaluated Dominion's ability to maintain their emergency preparedness program through their identification and correction of emergency preparedness weaknesses, by reviewing a sample of drill reports, actual event reports, self-assessments, 10 CFR 50.54(t) reviews, and emergency preparedness-related CRs. The inspectors reviewed a sample of emergency preparedness-related CRs initiated at Millstone Units 2 and 3 from January 2012 through November 2013. The inspection was conducted in accordance with NRC Inspection Procedure 71114.05. 10 CFR 50.47(b)

and the related requirements of 10 CFR Part 50, Appendix E, were used as reference criteria.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Public Radiation Safety and Occupational Radiation Safety

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

During September 30 – October 3, 2013, the inspectors reviewed and assessed Dominion's performance in assessing the radiological hazards and exposure control in the workplace. The inspectors used the requirements in 10 CFR Part 20 and guidance in Regulatory Guide (RG) 8.38, "Control of Access to High and Very High Radiation Areas for Nuclear Plants," TS, and the Dominion procedures required by TS as criteria for determining compliance.

a. Inspection Scope

Risk-Significant High Radiation Area and Very High Radiation Area Controls

The inspectors discussed with the radiation protection manager the controls and procedures for high-risk high radiation area and very high radiation area (VHRA). The inspectors assessed whether any changes to Dominion's relevant procedures substantially reduce the effectiveness and level of worker protection.

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

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

b. Findings

No findings were identified.

2RS2 Occupational ALARA Planning and Controls (71124.02 – 1 sample)

During September 30 – October 3, 2013, the inspectors assessed performance with respect to maintaining occupational individual and collective radiation exposures as low as reasonably achievable (ALARA). The inspectors used the requirements in 10 CFR Part 20, RG 8.8, "Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Plants will be ALARA," RG 8.10, "Operating Philosophy for

Maintaining Occupational Radiation Exposure ALARA,” TS, and Dominion procedures required by TS as criteria for determining compliance.

a. Inspection Scope

Radiological Work Planning

The inspectors compared the actual dose results achieved with the intended dose established in Dominion’s ALARA planning for these work activities. The inspectors compared the person-hour estimates provided by maintenance planning and other groups to the Radiation Protection (RP) group actual person-hours for the work activity, and evaluated the accuracy of these time estimates. The inspectors assessed the reasons for any inconsistencies between intended and actual work activity doses.

The inspectors determined whether post-job reviews were conducted to identify lessons learned. If problems were identified, the inspectors verified that recommendations for improving dose and contamination reduction techniques were entered into Dominion’s CAP.

b. Findings

No findings were identified.

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03 – 1 sample)

During September 30 – October 3, 2013, the inspectors verified in-plant airborne concentrations were being controlled consistent with ALARA principles and the use of respiratory protection devices on-site does not pose an undue risk to the wearer. The inspectors used the requirements in 10 CFR Part 20, the guidance in RG 8.15, “Acceptable Programs for Respiratory Protection,” RG 8.25, “Air Sampling in the Workplace,” NUREG-0041, “Manual of Respiratory Protection Against Airborne Radioactive Material,” TSs, and Dominion procedures required by TS, as criteria for determining compliance.

a. Inspection Scope

Inspection Planning

The inspectors reviewed the respiratory protection program and a description of the types of respiratory protection devices used. The inspectors reviewed the Final Safety Analysis Report, (FSAR), TS, and emergency planning documents to identify the location and quantity of respiratory protection devices stored for emergency use. The inspectors reviewed the procedures for maintenance, inspection, and use of respiratory protection equipment including self-contained breathing apparatus (SCBA), and procedures for air quality maintenance.

The inspectors reviewed reported performance indicators to identify any related to unintended dose resulting from intakes of radioactive material.

Engineering Controls

The inspectors reviewed airborne monitoring protocols by selecting one installed system used to monitor and warn of changing airborne concentrations in the plant. The inspectors evaluated whether the alarms and set points were sufficient to prompt licensee/worker action to ensure that doses are maintained within the limits of 10 CFR Part 20 and ALARA.

Use of Respiratory Protection Devices

The inspectors selected one work activity where respiratory protection devices were used to limit the intake of radioactive materials, and assessed whether Dominion performed an evaluation concluding that further engineering controls were not practical and that the use of respirators is ALARA. The inspectors also evaluated whether Dominion had established means (such as routine bioassay) to determine if the level of protection provided by the respiratory protection devices during use was at least as good as that assumed in Dominion's work controls and dose assessment.

The inspectors assessed whether respiratory protection devices used were certified by the National Institute for Occupational Safety and Mine Safety and Health Administration (NIOSH/MSHA). The inspectors evaluated whether the devices were used consistent with their NIOSH/MSHA certification or NRC approval.

The inspectors reviewed records of air testing for supplied-air devices and SCBA bottles to assess whether the air used in these devices meets or exceeds Grade D quality. The inspectors reviewed plant breathing air supply systems to determine whether they meet the minimum pressure and airflow requirements for the devices in use.

The inspectors selected three individuals qualified to use respiratory protection devices, and assessed whether they were qualified to use the devices by successfully passing an annual medical examination, respirator fit-test, and relevant respiratory protection training.

The inspectors selected three individuals assigned to wear a respiratory protection device and observed them donning, doffing, and functionally checking the device. Through interviews with these individuals, the inspectors evaluated whether they knew how to safely use the device and how to properly respond to any device malfunction or unusual occurrence (e.g., loss of power, loss of air, etc.).

The inspectors chose five respiratory protection devices staged and ready for use in the plant. The inspectors assessed the physical condition of the devices and reviewed records of equipment inspection for each type of equipment. The inspectors selected several of the devices and reviewed records of maintenance on the vital components.

SCBA for Emergency Use

The inspectors reviewed the status and surveillance records of selected SCBAs staged in-plant for use. The inspectors reviewed Dominion's capability for refilling and transporting SCBA air bottles to and from the control room and the operations support center.

The inspectors selected three individuals on control room shift crews and from designated departments currently assigned emergency duties to assess whether control room operators and other emergency response and RP personnel were trained and qualified in the use of SCBA. The inspectors evaluated whether personnel assigned to refill bottles were trained and qualified for that task.

The inspectors determined whether appropriate mask sizes and types were available for use. The inspectors determined whether on-shift operators had no facial hair that would interfere with the sealing of the mask to the face and whether vision correction mask inserts were available, as appropriate.

The inspectors reviewed the past two years of maintenance records for two SCBA units to assess whether any maintenance and repairs on any self-contained breathing apparatus units were performed by an individuals certified by the manufacturer to perform the work. For those self-contained breathing apparatuses that were ready for use, the inspectors verified that the required, periodic air cylinder hydrostatic testing was documented and up to date.

Problem Identification and Resolution

The inspectors evaluated whether problems associated with the control and mitigation of in-plant airborne radioactivity were being identified by Dominion at an appropriate threshold and were properly addressed for resolution in Dominion's CAP. The inspectors assessed whether the corrective actions were appropriate for a selected sample of problems involving airborne radioactivity and were appropriately documented by Dominion.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04 – 1 sample)

During September 30 – October 3, 2013, the inspectors verified that occupational dose is appropriately monitored, assessed and reported by Dominion. The inspectors used the requirements in 10 CFR Part 20, the guidance in RG 8.13, "Instructions Concerning Prenatal Radiation Exposures," RG 8.36, "Radiation Dose to Embryo Fetus," RG 8.40, "Methods for Measuring Effective Dose Equivalent from External Exposure," TSs, and Dominion's procedures required by TSs, as criteria for determining compliance.

a. Inspection Scope

Inspection Planning

The inspectors reviewed the results of Dominion's RP program audits related to internal and external dosimetry.

The inspectors reviewed the most recent National Voluntary Laboratory Accreditation Program (NVLAP) report on the principal dosimetry used to establish personnel dose of legal record.

A review was conducted of Dominion procedures associated with dosimetry operations, including issuance/use of external dosimetry, and assessments of external and internal dose for radiological incidents.

The inspectors evaluated whether Dominion had established procedural requirements for determining when external dosimetry and internal dose assessments are required.

External Dosimetry

The inspectors evaluated whether Dominion's dosimetry vendor is NVLAP accredited and if the approved irradiation test categories for each type of personnel dosimeter used are consistent with the types and energies of the radiation present.

The inspectors evaluated the onsite storage of dosimeters before issuance and before processing/reading. The inspectors also reviewed the guidance provided to radiation workers with respect to care and storage of dosimeters.

The inspectors assessed the use of electronic personal dosimeters (EPDs) to determine if Dominion uses a "correction factor" to address the response of the EPD as compared to the dosimeter of legal record for situations when the EPD is used to assign dose and whether the correction factor is based on sound RP principles.

The inspectors reviewed three dosimetry occurrence reports or CAP documents for adverse trends related to EPDs. The inspectors assessed whether Dominion had identified any adverse trends and implemented appropriate corrective actions.

Routine Bioassay (In Vivo)

The inspectors reviewed procedures used to assess the dose from internally deposited radionuclides using whole body count (WBC) equipment. The inspectors evaluated whether the procedures addressed methods for differentiating between internal and external contamination, the release of contaminated individuals, determining the route of intake and the assignment of dose.

The inspectors reviewed the whole body count process to determine if the frequency of measurements was consistent with the biological half-life of the radionuclides available for intake.

The inspectors reviewed Dominion evaluation for use of its portal radiation monitors as a passive monitoring system. The inspectors assessed if instrument minimum detectable activities were adequate to determine the potential for internally deposited radionuclides sufficient to prompt an investigation.

The inspectors selected one WBC and evaluated whether the counting system used had sufficient counting time/low background to ensure appropriate sensitivity for the potential radionuclides of interest. The inspectors reviewed the radionuclide library used for the count system to determine if it included the gamma-emitting radionuclides that exist at the site. The inspectors evaluated how Dominion accounts for hard-to-detect radionuclides in their internal dose assessments.

Special Bioassay (In Vitro)

There were no internal dose assessments obtained using urinalysis or fecal sample results for the inspectors to review.

The inspectors reviewed the vendor laboratory quality assurance program and assessed whether the laboratory participated in an industry recognized cross-check program including whether out-of-tolerance results were reviewed, evaluated and resolved appropriately.

Internal Dose Assessment – Airborne Monitoring

Dominion had not performed any internal dose assessments using airborne/derived air concentration monitoring during the period reviewed.

Internal Dose Assessment – WBC Analyses

The inspectors reviewed one dose assessment performed by Dominion using the results of WBC analyses. The inspectors determined whether affected personnel were properly monitored with calibrated equipment and that internal exposures were assessed consistent with Dominion procedures

Declared Pregnant Workers

The inspectors assessed whether Dominion informs workers, as appropriate, 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 (voluntarily) declaring a pregnancy.

The inspectors reviewed the records for two individuals who had declared pregnancy during the current assessment period and evaluated whether Dominion's radiological monitoring program (internal and external) for declared pregnant workers is technically adequate to assess the dose to the embryo/fetus. The inspectors reviewed exposure results and monitoring controls that were implemented.

Dosimeter Placement and Assessment of Effective Dose Equivalent for External Exposures

The inspectors reviewed Dominion methodology for monitoring external dose in radiation fields where large dose gradients exist. The inspectors evaluated Dominion's criteria for determining when alternate monitoring, such as use of multi-badging, is to be implemented.

Dominion has not documented any occupational dose using multi-badging during this inspection period.

Shallow Dose Equivalent

The inspectors reviewed one dose assessment for shallow dose equivalent for adequacy. The inspectors evaluated Dominion's method for calculating shallow dose equivalent from distributed skin contamination or discrete radioactive particles.

Neutron Dose Assessment

The inspectors evaluated Dominion's neutron dosimetry program, including dosimeter types and/or radiation survey instrumentation.

The inspectors reviewed one neutron exposure occurrence and assessed whether dosimetry and/or instrumentation was appropriate for the expected neutron spectra, there was sufficient sensitivity for low dose and/or dose rate measurement, and neutron dosimetry and/or neutron detection instruments were properly calibrated. The inspectors also assessed whether interference by gamma radiation had been accounted for in the calibration and whether time and motion evaluations were representative of actual neutron exposure events, as applicable.

Assigning Dose of Record

For the special dose evaluations reviewed in this section, the inspectors assessed how Dominion assigns dose of record for total effective dose equivalent, shallow dose equivalent, and lens dose equivalent. This included an assessment of external and internal monitoring results, supplementary information on individual exposures, and radiation surveys when dose assignment was based on these techniques.

Problem Identification and Resolution

The inspectors assessed whether problems associated with occupational dose assessment are being identified by Dominion at an appropriate threshold and are properly addressed for resolution in the CAP. The inspectors assessed the appropriateness of the corrective actions for a selected sample of problems documented by the licensee involving occupational dose assessment.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification (71151)

.1 Occupational Exposure Control Effectiveness (1 sample)

a. Inspection Scope

During September 30 – October 3, 2013, the inspectors sampled Dominion's submittals for the occupational exposure control effectiveness performance indicator (PI) for the period from the 1st quarter 2012 through 4th quarter 2012. The inspectors used PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the PI data reported.

To assess the adequacy of Dominion's PI data collection and analyses, the inspectors discussed with radiation protection staff, the scope and breadth of its data review and the results of those reviews. 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 to determine if there were potentially unrecognized PI occurrences. 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.

.2 Safety System Functional Failures (2 samples)

a. Inspection Scope

The inspectors sampled Dominion's submittals for the Safety System Functional Failures PI for both Unit 2 and Unit 3 for the period of October 1, 2012, through September 30, 2013. To determine the accuracy of the PI data reported during those periods, inspectors used definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 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.

.3 Emergency Preparedness Performance Drills (3 Samples)

a. Inspection Scope

The inspectors reviewed data for the following three Emergency Preparedness PIs: (1) drill and exercise performance; (2) ERO drill participation; and, (3) ANS reliability. The last NRC Emergency Preparedness inspection at Millstone was conducted in the third calendar quarter of 2012. Therefore, the inspectors reviewed supporting documentation from emergency preparedness drills and equipment tests from the third calendar quarter of 2012 through the third calendar quarter of 2013 to verify the accuracy of the reported PI data. The review of the PIs was conducted in accordance with NRC Inspection Procedure 71151. The acceptance criteria documented in NEI 99-02, "Regulatory Assessment Performance Indicator Guidelines," Revision 7, was used as reference criteria.

b. Findings

No findings were identified.

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

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

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

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, PIs, major equipment problem lists, system health reports, maintenance rule assessments, and maintenance or CAP backlogs. The inspectors also reviewed individual issues identified during the NRCs daily CR review (Section 4OA2.1). The inspectors also reviewed the Dominion 2013 Mid-Cycle Assessment Report, SAR002348, and the Nuclear Oversight Department Third Quarter 2013 Report to verify that Dominion's personnel were appropriately evaluating and trending adverse conditions in accordance with applicable procedures and to assess the completion of corrective actions associated with the Millstone Excellence Plan.

b. Findings and Observations

No findings were identified.

The inspectors determined that the Mid-Cycle Assessment report and Nuclear Oversight report were critical of the overall status of the corrective actions of the Millstone Excellence Plan. Specifically, corrective actions intended to remedy organizational and programmatic issues did not always match up with the stated deficiencies. These are not deficiencies of any regulatory requirements or commitments.

The inspectors identified three corrective actions for Apparent Cause Evaluation (ACE) 19194 that were not attached to the subject ACE or CR 480834, the CR associated with the ACE. The corrective actions manager identified that two of the corrective actions were assigned and completed under CA 246752 and CA 246859; however these two assignments were not listed under the ACE or the CR and could not be cross-referenced

when closing the CR. Additionally, no corrective action assignment was found for the third recommended corrective action which was to provide training on ER-AA-PRS-1010, "Preventive Maintenance Task Basis and Maintenance Strategy," and no justification was provided.

In addition, the inspectors noted that due to Dominion's corporate structure, certain departments such as Mechanical Engineering and Electrical/I&C Engineering report directly to Innsbruck Nuclear Design Engineering Services instead of a department head located at Millstone Station. As a result of this organization, these departments do not routinely participate in the department self-evaluation meeting process. Their engineering products are routinely monitored by the site and they are brought into the process as needed. The inspectors observed that this could be a missed opportunity to gain insight and improve overall station performance.

.3 Annual Sample: Corrective Actions for Two Emergency Action Level-Related Non-Cited Violations

a. Inspection Scope

The inspectors conducted a review of the Dominion's corrective actions pertaining to two NCVs that were issued in 2012 that involved the ability of operators to effectively implement the Emergency Action Level (EAL) scheme. Specifically, these two NCVs were: (1) the lack of procedures to take reactor coolant system (RCS) or steam generator samples for determining fission product barrier status and (2) the lack of reliable and timely indication to adequately implement the flooding EAL.

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 these issues and whether the planned or completed corrective actions were appropriate.

b. Findings and Observations

Following the first NCV, Dominion recognized that it had six CRs over an eight-year period which addressed sampling issues. Given these past CRs, Dominion appropriately assessed the cause of the first NCV as a lack of understanding of the significance of sampling as it pertained to the EAL scheme. Dominion's extent of condition review was somewhat narrow in that the focus was on taking samples for fission product barrier assessment instead of performing a wider review to assess if there were any other problematic EALs.

After the second NCV, Dominion did perform a review of the entire EAL schemes for both units to ensure that adequate indications were available for operators to assess the EAL initiating conditions. However, as indicated by the Unresolved Item (URI) below, Dominion's extent of condition review of the entire EAL scheme did not identify that there was a lack of instrumentation to assess two EALs in Mode 6 (refueling) during a loss of residual heat removal (RHR) flow. The inspectors determined that this extent of condition review was conducted by emergency preparedness personnel instead of operations personnel who are more familiar with the plant and the instrumentation that is in service during the various modes of plant operation.

Overall, Dominion's compensatory actions for both NCVs were acceptable as were the prioritization and timeliness of the corrective actions that were taken. However, the missed opportunities to identify and resolve the sampling problem and to conduct the extent of condition review for these NCVs indicated a weakness in Dominion's ability to identify problems.

Introduction. A URI was identified because additional NRC review and evaluation was needed to determine whether Dominion adequately implemented the guidance of NUMARC NESP-007, "Methodology for Development of EALs," to establish initiating conditions for two EALs applicable to Mode 6 operations. This is considered a URI because more information is needed, specifically the clarification and interpretation of existing guidance by the NRC's Office of Nuclear Security and Incident Response (NSIR), in order to determine if the issue constitutes a violation.

During a review of both units' EAL schemes, the NRC identified two EALs applicable in mode 6 during a loss of RHR flow when there was no direct RCS temperature indication (that was representative of core temperatures) available to determine if the initiating conditions had been met for an Unusual Event or an Alert. Upon discovery of this issue, the inspectors discussed it with staff from NSIR. The NSIR staff preliminarily indicated that this issue appeared to be an industry-wide generic issue in that there was a lack of specified instrumentation for assessing core temperature during refueling if there was a loss of RHR flow. Therefore, given the apparent lack of a specified standard to assess the initiating conditions for these EALs, the inspectors delayed pursuing enforcement action pertaining to Dominion's adherence to 10 CFR 50.47(b)(4) and Sections IV.B and IV.C of Appendix E to 10 CFR Part 50.

Description. While assessing the adequacy of Dominion's extent of condition review for two prior NCVs related to the operator's ability to implement the EAL scheme, the inspectors identified two EALs applicable to both units during a loss of cooling flow while in Mode 6. During this condition, there was no direct indication available to determine if the initiating conditions had been met. Specifically, in Mode 6 during a loss of RHR flow there would also be a loss of core temperature indication because the only available instrumentation is in the RCS loops (With the vessel head removed, the core exit thermocouples are no longer available and there is no temperature indication for the refueling cavity). The initiating conditions for an Unusual Event ("Uncontrolled RCS temperature increase > 10°F") and an Alert ("Uncontrolled RCS temperature increase > 10°F that results in RCS temperature > 200°F") cannot be assessed due to the loss of RHR flow through the core causing the instrumentation to become unrepresentative of actual core temperature.

Upon discovery of this issue, the inspectors discussed it with NRC staff from NSIR. The NSIR staff preliminarily concluded that this issue appeared to be an industry-wide generic issue in that there was a lack of specified RCS core temperature indication during refueling if there is a loss of RHR flow. The inspectors will coordinate with NSIR to review the adequacy of Dominion's implementation of the guidance in NEI 99-01. Pending review of this issue, this item is an Unresolved Item (**URI 05000336/2013005-01 and 05000423/2013005-01, Implementation of NEI 99-01 Guidance**)

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 8 samples).1 Plant Eventsa. Inspection Scope

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

Unit 2

- Reactor trip following a loss of the 'C' circulating water pump while backwashing the 'D' waterbox on November 9

Unit 3

- TDAFW pump overspeed event and subsequent unplanned inoperability on December 18

b. Findings

No findings were identified.

.2 (Closed) LER 05000423/2013-002-00: Secondary Containment Boundary Breach Could Have Prevented Safety Function

On November 21, 2012, Dominion discovered that a roll-up door in the auxiliary building was not fully closed following a security test. There was approximately 3/8 of an inch of space between the door and the ground. In addition to being a security boundary, this door acts as a secondary containment boundary, specifically a supplemental leak collection release system boundary. Operators assessed the opening and determined there was no loss of safety function, and entered the issue into the CAP. As part of the corrective actions for this issue, engineering performed a maintenance rule assessment on January 28, 2013, and concluded that the partially opened door exceeded the available margin. As a result, from 1:57 AM on November 17, 2012, when security performed its test of the roll-up door, until 12:51 PM on November 21, 2012, when the door was fully closed, there existed a condition that could have prevented the fulfillment of the safety function of a structure needed to control the release of radioactive material. 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.

.3 (Closed) LER 05000423/2013-007-00: Reactor Trip on Low-Low Steam Generator Level

On August 9, Unit 3 experienced a loss of feedwater while at 100 percent power which resulted in an automatic reactor trip. The loss of feedwater was caused by the loss of a non-safety 480 volt load center 32L, which caused all three feedwater recirculation valves to fail open resulting in a feedwater flow diversion from supplying the steam generators. All safety systems operated as designed and the plant was stabilized in mode 3. The LER was reviewed. No findings or violations of NRC requirements were identified. This LER is closed.

.4 (Closed) LER 05000336/2013-004-00: Reactor Trip While Backwashing 'D' Waterbox

On November 9, 2013, Millstone Unit 2 experienced a turbine trip and an automatic reactor trip from 95 percent power due to a loss of vacuum. The 'C' circulating water pump unexpectedly ramped down while backwashing the 'D' waterbox, causing the loss of vacuum. All safety systems operated as designed and the plant was stabilized in mode 3. The cause of the event was a failure of contacts to deenergize on a time-delay relay in the 'C' circulating water pump control circuitry. No findings or violations of NRC requirements were identified. This LER is closed.

.5 (Closed) LER 05000336/2012-001-01: Historical Gaps in High Energy Line Break Barrier

This LER supplement documents that, upon further engineering analysis, when compensatory cooling was used for the safety related 480V switchgear rooms, a loss of safety function could have occurred under certain high energy line break scenarios. The initial LER and enforcement aspects were previously documented in NRC Inspection Report 05000336/2013004 and 05000423/2013004. No additional findings or violations of NRC requirements were identified. This LER is closed.

.6 (Closed) LER 05000336/2012-003-01: Potential for a Loss of Safety Function Due to Postulated Flood Conditions

This LER supplement documents that further engineering analysis determined, upon a design basis flood concurrent with the design basis standing wave in the intake structure, a loss of the high pressure safety injection pumps, AFW pumps, and power operated relief valves could occur for the one hour duration of the standing wave. The initial LER and enforcement aspects were previously documented in NRC Inspection Report 05000336/2013004 and 05000423/2013004. No additional findings or violations of NRC requirements were identified. This LER is closed.

.7 (Closed) LER 05000423/2013-005-00: Loss of Containment Integrity Due to Failed Airlock

On May 15, 2013, it was discovered that the Unit 3 equalizing valve for the outer containment door was leaking by its seat rendering the outer containment door inoperable. The most likely cause of the leaking equalizing valve on the Unit 3 outer containment door was a personnel error in that the equalizing valve was most likely bumped by personnel in transit causing it to be slightly open. 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.

4OA5 Other Activities

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

a. Inspection Scope

The inspectors reviewed Dominion's 2103 Mid-Cycle Assessment Report, SAR002348. The report reviewed the progress and effectiveness of the corrective actions for the area for improvement received during the 2012 INPO Evaluation. The inspectors evaluated these reports to ensure that NRC perspectives of Dominion performance were consistent with any issues identified during the assessments. The inspectors also reviewed these reports to determine whether INPO identified any significant safety issues that required further NRC follow-up.

b. Findings

No findings were identified.

.2 (Closed) TBD AV 05000336/2013010-01, Inadequate Alternative Shutdown Procedure

a. Inspection Scope (71111.05T)

A Region I senior reactor analyst (SRA) and senior reactor inspector completed the Phase 3 SDP analysis for Apparent Violation (AV) 05000336/2013010-01, "Inadequate Alternative Shutdown Procedure," in accordance with IMC 0609, Appendix F, "Fire Protection Significance Determination Process." The significance of this finding was documented as "to be determined (TBD)" in NRC Inspection Report 05000336/2013010 and 05000423/2013010. The Phase 3 analysis was not completed at the time of that inspection report's issuance because additional information was required to develop the fire scenarios that would require the alternative shutdown procedure to be implemented specifically for restoration of AC power during a control room abandonment scenario. The required additional information included fire frequencies in specific plant areas that would result in conditions that would lead to control room abandonment and estimates for the increased probability that AC power would not have been recovered due to procedural error.

The inspectors reviewed Dominion's fire risk assessment, interviewed engineering personnel, and performed independent walkdowns to assess Dominion's methodology and final determinations of fire ignition frequencies and fire damage states for a postulated fire in Unit 2 Appendix R Fire Area R-1.

Based on the results of the Phase 3 SDP analysis, the TBD for AV 05000336/2013010-01 is now closed. The finding description and final risk significance determination for this NCV are documented below.

b. Findings

Inadequate Unit 2 Alternative Shutdown Procedure

Introduction. The inspectors identified a NCV of Millstone Unit 2 Operating License Condition 2.C. (3) for failure to implement and maintain all aspects of the approved FPP. Specifically, Dominion had not adequately implemented an alternative shutdown procedure, as required by 10 CFR 50, Appendix R, Section III.L.3 and the approved FPP. The procedure for a Unit 2 control room fire did not ensure the electrical distribution system was correctly configured prior to re-energizing AC buses. As a result, an over-current condition could occur and trip the 4kV supply breaker complicating safe shutdown operations and delaying AC bus recovery. In response to this issue, Dominion promptly revised their fire safe shutdown operating procedure prior to the end of the fire protection inspection on August 5, 2013, to correct this deficiency.

Description. During a fire protection inspection, conducted from July 22 to August 8, 2013, the inspectors reviewed Dominion's methodology to achieve stable hot shutdown for a postulated fire in Unit 2 Appendix R Fire Area R-1, which included the main control room, cable spreading room, and portions of the auxiliary building. The inspectors determined that in response to a fire in area R-1, Dominion initially would de-energize all 6.9kV and 4kV AC buses in order to prevent fire-induced spurious equipment operation, perform local breaker manipulations, and then recover two AC buses via a cross-tie bus from Unit 3.

The inspectors evaluated the following sequence of procedure steps in abnormal operating procedure (AOP) 2579A:

- Step 2 directed operators to close main steam isolation valves which initiated an automatic reactor trip
- Step 10 directed operators to perform Attachment 2, "Breaker Alignment in DC Switchgear Rooms," which removed DC control power from the AC switchgear, EDGs, and other plant electric loads
- Steps 12 and 13 directed operators to emergency stop and inhibit both EDGs
- Step 14 required operators to direct Connecticut Valley Electric Exchange (CONVEX) to de-energize the Unit 2 reserve station service transformer (RSST), i.e. off-site power and ensure the main generator output breakers are open
- Step 15 directed operators to perform Attachment 6, "Breaker Alignment in 4160 Switchgear Rooms." Attachment 6, Step 1 stated "If CONVEX was unable to de-energize the RSST, OPEN the following breakers"
- Step 20 directed operators to perform Attachment 7, "Supplying Facility 2 Power from Unit 3," and align power to Bus 24D from Unit 3. A Note before Step 20 stated "Step 15, breaker alignment in the 4160 rooms must be completed before continuing"

Based on operator interviews, procedure tabletop demonstrations, and plant walkdowns, the inspectors determined that CONVEX would likely be successful in de-energizing off-site power and that the DC control power would probably be removed from the AC buses prior to the buses being de-energized. This configuration would result in the 4kV busses de-energized, all load and supply breakers closed, and no tripping power to the 4kV breakers. Based on further interviews with plant staff, the inspectors determined that if

CONVEX was successful (which was the expected outcome), then the actual steps in Attachment 6, to locally manually open the 4kV breakers, may not be completed because of the conditional statement "If CONVEX was unable to de energize the RSST, OPEN the following breakers," that existed at the beginning of the attachment. Since Step 15 would have been successfully completed (i.e., perform Attachment 6), operators would proceed with Step 20 to re-energize Buses 24E and 24D from Unit 3. The inspectors further determined that Step 20 did not contain any prerequisites or additional checks to ensure that large loads had been removed from the 4kV buses by verifying that the breakers were open. The inspectors concluded that the Unit 3 cross-tie power source could potentially be over-loaded in this configuration when operators attempted to re-energize the Unit 2 buses.

In response to this issue, Dominion evaluated the sequence and timing of operator actions as directed by AOP 2579A, and concluded operators may attempt to re-energize the Unit 2 buses without first locally manually opening the associated 4kV breakers. In addition, Dominion performed a preliminary Electrical Transient Analysis Program analysis to assess the impact of re-energizing Unit 2 Buses 24D and 24E from the cross-tie line to Unit 3 Bus 34B, without opening the Unit 2 4kV breakers. Based on the analysis, Dominion determined that Unit 3 breaker 34B1-2 (i.e., Unit 3 cross-tie supply to Unit 2) would trip on over-current when the operators locally manually closed the Unit 2 cross-tie breaker A505 on Bus 24E if the previously running loads were not stripped. Dominion's review further determined that the over current condition was within the rating of the associated electrical components, including the various breakers, and concluded no damage or unrecoverable condition was expected. Dominion entered this issue into their CAP as CRs 521824 and 522851, and revised the AOP 2579A prior to the end of the inspection to correct this deficiency. The inspectors reviewed Dominion's preliminary analysis, the revised AOP and concluded the corrective actions were reasonable.

Analysis. The failure to ensure Bus 24D was reliably restored in response to an R-1 fire control room abandonment scenario was a performance deficiency. Specifically, AOP 2579A did not contain adequate instructions to ensure the AC electrical distribution system was correctly configured prior to re-energizing Buses 24D and 24E. In order to prevent fire-induced spurious equipment operation, the AOP contained steps to remove DC control power from the buses and de-energize the buses by removing off-site power in the switchyard and disabling the EDGs. Subsequent steps to re-energize the buses from the Unit 3 cross-tie did not ensure that the Unit 2 bus breakers were open prior to closing the cross-tie breaker to Unit 3. Dominion's preliminary analysis determined that the electrical load on the buses, due to potentially, normally closed breakers would exceed the over-current trip setpoint of the Unit 3 supply breaker 34B1-2, and trip open the breaker, thus complicating and delaying the fire recovery actions. Following the Unit 3 breaker tripping on over-current, the Unit 2 and 3 operators would have the ability to identify the reason for the overload, open the closed breakers and reenergize the Unit 2 loads. Dominion revised the AOP prior to the end of the inspection to correct this deficiency.

This finding was more than minor because it was associated with the protection against external factors (e.g., fire) attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences.

The inspectors and a Region I SRA used IMC 0609, Appendix F, "Fire SDP," Phase 1, 2, and 3 risk assessment tools to determine that this finding was of very low safety significance (Green), with an estimated increase in Δ CDF in the mid E-7 per year range. This finding had an assumed exposure time of one year, affected the post-fire safe shutdown category, and was determined to have a high degradation rating because the alternative shutdown procedure lacked adequate instructions to ensure correct equipment alignment. Therefore, the inspectors concluded that a more appropriate and accurate characterization of the risk significance of this issue would be obtained by performing a Phase 3 SDP analysis because a Phase 2 SDP analysis did not explicitly address alternative safe shutdown fire scenarios.

The Phase 3 best estimate of the Δ CDF in the mid E-7 per year range resulted from the assumption that the operators do not clear the bus loads for control room evacuation fires in the R-1 fire area, leading to the need to recover AC power from Unit 3. The dominant core damage sequence included: successful operation of the TDAFW, failure to recover power from Unit 3 within 3 hours, failure of the three seal stages in all four reactor coolant pumps within 8 hours, successful recovery of power from Unit 3 in 8 hours, and subsequent failure of one of the two charging pumps. The analysis consisted of:

- Dominion probabilistic risk analysis engineering developed a reasonable estimate of the cumulative fire induced control room evacuation frequency, for fires in Appendix R fire area R-1, in the high E-4 per year range, in accordance with expected usage of AOP 2579A. Based on NRC inspectors and SRA review and independent fire modeling walk downs of selected areas, Dominion's methodology was consistent with IMC 0609, Appendix F and provided a conservative estimate.
- An SRA generated a peer reviewed estimate of the increase in conditional core damage probability (Δ CCDP), given the performance deficiency, was in the mid E-4 per fire event range. The SRA used the Millstone Unit 2 SPAR model to develop an event tree to estimate the Δ CCDP, given the potential impact of the performance deficiency during a fire induced control evacuation including: a self-induced station blackout and conservative Combustion Engineering N-9000 reactor coolant pump seal failure probability modeling in accordance with the NRC approved method as outlined in WCAP 16175, "Model for Failure of Reactor Coolant Pump Seals Given Loss of Seal Cooling in CE NSSS Plants," dated March 2007. The modeling included an assumption that DC power to the alternate safe shutdown panel (i.e., panel C10) would be available to support operation of TDAFW for at least 24 hours. This was based on NRC inspectors and SRA review of DC loads, DC load shedding, as performed in accordance with AOP 2579A, and station battery capacity.
- Therefore, for this performance deficiency, the best estimate of the Δ CDF was the Δ CCDP multiplied by the estimated frequency of a fire induced control room evacuation.

This finding did not have a cross-cutting aspect because it was a legacy issue and was considered to not be indicative of current licensee performance.

Enforcement. Unit 2 License Condition 2.C.(3), in part, required Dominion to implement and maintain in effect all provisions of the approved FPP as described in the FSAR, and as approved by the NRC. 25203-SP-M2-SU-1046, "Millstone Unit 2 Appendix R Compliance Report," Section 1.2, stated that Unit 2 complied with 10 CFR 50, Appendix

R, Sections III.G, J, L and O. Appendix R, Section III.L.3, in part, stated that procedures shall be in effect to implement alternative shutdown capability.

Contrary to the above, from about 1999 until August 5, 2013, Dominion had not implemented an adequate alternative shutdown procedure. Specifically, AOP 2579A did not contain adequate instructions to ensure the electrical distribution system was correctly configured prior to re-energizing Buses 24D and 24E. Dominion subsequently determined that the Unit 3 cross-tie breaker 34B1-2 could trip open on over current, thus complicating and delaying the fire recovery actions. Dominion entered this issue into its CAP (CRs 521824 and 522851) and revised AOP 2579A prior to the end of the fire protection inspection, on August 5, 2013, to correct this deficiency. Because this violation was of very low safety significance (Green) and was entered into Dominion's CAP, this violation is being treated as a NCV, consistent with Section 2.3.2.a of the NRC Enforcement Policy. **(NCV 05000336/2013005-02, Inadequate Alternative Shutdown Procedure)**

40A6 Meetings, Including Exit

On January 30, 2014, the inspectors presented the inspection results to Mr. Stephen E. Scace, Site Vice President, and other members of the Millstone staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

40A7 Licensee-Identified Violations

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

- TS 6.8.1, "Procedures," requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in RG 1.33. Contrary to this requirement, on May 15, 2013, Dominion failed to correctly implement procedure OP 3312A, "Containment Personnel Air Lock Operation, 3CS*Hatch1," to ensure that the equalizing valve for the Unit 3 outer access door was maintained in a closed configuration while the inner access hatch was opened. As a result, a loss of containment integrity occurred when the plant was in mode 4. The operators entered TS 3.6.1.1 and verified the equalizing valve had been closed, thereby restoring containment integrity within one hour required as required by TS 3.6.1.1 and 3.6.1.3. The inspectors determined that the finding was of very low safety significance (Green) in accordance with IMC 0609, Appendix A, "The Significance Determination Process for Findings at Power." Dominion entered this issue into their CAP as CR 515704 and subsequently reported the loss of safety function to the NRC in LER-2013-005-00 as required under 10 CFR 50.73(a)(2)(v)(C).
- TS 3.6.6.2, "Secondary Containment," requires secondary containment to be operable. If inoperable, secondary containment shall be restored to operable within 24 hours or the unit shall be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours. Contrary to this requirement, from 1:57 AM on November 17, 2012, when security performed its test of the Unit 3 roll-up door, until 12:51 PM on November 21, 2012, when the door was fully closed (4 days, 9 hours, 12 minutes), secondary containment was inoperable. Because Dominion did not recognize this condition as rendering secondary containment inoperable until

January 28, 2013, they did not take action in accordance with their TS. The inspectors determined that the finding was of very low safety significance (Green) in accordance with IMC 0609, Appendix A, "The Significance Determination Process for Findings at Power." Dominion entered the issue into their CAP as CR 507822 and reported the loss of safety function and condition prohibited by TS as required under 10 CFR 50.73(a)(2)(v)(C) and 10 CFR 50.73(a)(2)(i)(B).

ATTACHMENT: SUPPLEMENTARY INFORMATION

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

R. Acquaro	Unit 3 Shift Manager
M. Adams	Plant Manager
L. Armstrong	Director, Nuclear Station Safety & Licensing
G. Auria	Nuclear Chemistry Supervisor
B. Bartron	Supervisor, Licensing
P. Baumann	Manager, Nuclear Protection Services
J. Barile	Nuclear Systems Engineer III
T. Berger	Unit 3 Shift Manager
E. Brodeur	Unit 3 Shift Manager
J. Burdick	Senior RP Technician
C. Chapman	Unit 3 Shift Manager
W. Chestnut	Supervisor, Nuclear Shift Operations Unit 2
F. Cietek	Nuclear Engineer, PRA
T. Cleary	Licensing Engineer
G. Closius	Licensing Engineer
A. Conat	Maintenance Manager
W. Cote	Senior Instructor
L. Crone	Supervisor, Nuclear Chemistry
J. Curling	Manager, Protection Services
J. Dorosky	Health Physicist III
T. Fecteau	Design Engineer
M. Finnegan	Supervisor, Health Physics, ISFSI
J. Gardner	Nuclear Engineer III
A. Gharakhanian	Nuclear Engineer III
J. Glaub	Chemistry Technician
M. Goolsby	Unit 3 Operations Manager
W. Gorman	Supervisor, Instrumentation & Control
J. Grogan	Assistant Operations Manager
C. Houska	I&C Technician
S. Jackson	Unit 3 Simulator Tester
J. Kunze	Supervisor, Nuclear Operations Support
J. Laine	Manager, Radiation Protection/Chemistry
S. Lambert	Work Control SRO
L. Loomis	Nuclear Engineer II
P. Luddington	Unit 3 Reactor Operator
G. Marshall	Manager, Outage and Planning
M. Maxson	Manager, Nuclear Oversight
D. Mello	Unit 3 Plant Equipment Operator
E. Olszewski	Nuclear Maintenance Supervisor
J. Palmer	Manager, Training
F. Perry	Respiratory Protection Supervisor
B. Pinkowicz	Senior Instructor
P. Reed	Unit 3 Shift Manager
J. Rein	Senior Instructor (Controller)

J. Rigatti	Manager, Nuclear Site Engineering
R. Robillard	Unit 3 Reactor Operator
B. Robinson	Respiratory Protection Supervisor
M. Roche	Senior Nuclear Chemistry Technician
R. Royce	Exam Developer
L. Salyards	Licensing, Nuclear Technology Specialist
M. Sanders	Station Duty Officer
S. Scace	Site Vice President
P. Scott	Unit 3 Shift Manager
W. Saputo	System Engineer
J. Semancik	Director, Nuclear Engineering
M. Sibilia	Unit 3 Reactor Operator
D. Smith	Manager, Emergency Preparedness
S. Smith	Manager, Nuclear Operations
J. Stoddard	Supervisor, Nuclear Shift Operations Unit 3
R. Thompson	Nuclear Maintenance Supervisor / FME Coordinator
S. Turowski	Supervisor, Health Physics Technical Services
R. Van Steenbergen	System Engineer
C. Vournazos	IT Specialist, Meteorological Data
R. Vigneau	Unit 3 Supervisor
K. Underwood	Licensed Operator Requalification Training Program Coordinator
R. Walsh	Unit 3 Reactor Operator
M. Wynn	Supervisor Radiological Analysis

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATEDOpened/Closed

05000423/2013-005-01	FIN	Inadequate Operability Determination for TDAFW Pump Overspeed Trip (Section 1R15)
05000336/2013-005-02	NCV	Inadequate Alternative Shutdown Procedure (Section 4OA5.1)
05000423/2013-005-00	LER	Loss of Containment Integrity Due to Failed Airlock (Section 4OA2)

Opened

05000336/2013-005-01	URI	Implementation of NEI 99-01 Guidance (Section 4OA2)
05000423/2013-005-01	URI	Implementation of NEI 99-01 Guidance (Section 4OA2)

Closed

05000336/2013-010-01	AV	Inadequate Alternative Shutdown Procedure (Section 4OA5.1)
05000423/2013-002-00	LER	Secondary Containment Boundary Breach Could Have Prevented Safety Function (Section 4OA3)
05000423/2013-007-00	LER	Reactor Trip on Low-Low Steam Generator Level (Section 4OA3)
05000336/2012-001-01	LER	Historical Gaps in High Energy Line Break Barrier (Section 4OA3)
05000336/2013-004-00	LER	Reactor Trip While Backwashing D Waterbox (Section 4OA3)
05000336/2012-003-01	LER	Potential for a Loss of Safety Function Due to Postulated Flood Conditions (Section 4OA3)

LIST OF DOCUMENTS REVIEWED**Section 1R01: Adverse Weather Protection**Procedures

C OP 200.13, Cold Weather Preparations, Revision 003-08

C OP 200.13-002, Unit 2 Cold Weather Preparation Checklist, Revision 002
C OP 200.13-003, Unit 3 Cold Weather Preparation Checklist, Revision 001
SP 3670.1-001, Mode 1-4 Daily and Shiftly Control Room Rounds, Revision 027-01
OP 3314D, ESF Building Ventilation and Air Conditioning, Revision 012-06
OP 3352, Heat Tracing, Revision 013-09

Condition Reports

501409
529216
531160
531179
532442

Section 1R04: Equipment Alignment

Procedures

OP 2307-002, LPSI System Valve Alignment Check, Facility 2, Revision 00-04
OP 2307-004, Common ECCS Suction Header Valve Alignment, Facility 2, Revision 00-02
OP 2322-001, Auxiliary Feedwater System Lineup, Revision 000-04
OP 3346B-004, Valve Lineup for 'B' Diesel Fuel System, Revision 004-03
OP 3346B-002, Valve Lineup for 'B' Diesel Fuel Oil Instrumentation, Revision 004-02
OP 3346B-007, 'B' Diesel Fuel Oil Electrical Alignment, Revision 000-01
OP 3346A-002, EDG 'B' Cooling Water Valve Lineup, Revision 007
OP 3346A-004, EDG 'B' Lube Oil Valve Lineup, Revision 006-02
OP 3346A-006, EDG 'B' Starting Air Valve Lineup, Revision 009-05
OP 3346A-008, EDG 'B' Crankcase Vacuum Valve Lineup, Revision 005
OP 3346A-010, EDG 'B' Instrument Valve Lineup, Revision 007-010
OP 3346A, EDG, Revision 025-02
OP 3346B, Diesel Fuel Oil, Revision 010-05
OP 3346B-001, Valve Lineup for 'A' Diesel Fuel System, Revision 004-03
OP 3346B-003, Valve Lineup for 'A' Diesel Fuel Oil Instrumentation, Revision 004-02
OP 3346A-001, EDG 'A' Cooling Water Valve Lineup, Revision 007
OP 3346A-003, EDG 'A' Lube Oil Valve Lineup, Revision 006-02
OP 3346A-005, EDG 'A' Starting Air Valve Lineup, Revision 008-04
OP 3346A-007, EDG 'A' Crankcase Vacuum Valve Lineup, Revision 005
OP 3346A-009, EDG 'A' Instrument Valve Lineup, Revision 006-01
OP 3346B-011, EDG 'A' Electrical Alignment, Revision 009-02
OP 3322, Auxiliary Feedwater, Revision 021-19
OP 3322-001, TDAFW Pump and Components Common to Both Trains, Revision 007-09
OP 3322-004, Auxiliary Feedwater Instrumentation, Revision 004-02
OP 3322-009, Independent Verification after Restoration, Revision 02-11

Condition Reports

529360
530357
531150

Miscellaneous

Condensate Storage Tank and Auxiliary Feedwater System Health Report, 3rd Quarter 2013
LPSI and Shutdown Cooling System Health Report, 3rd Quarter 2013
25212-26920 / EM130D, P&ID Auxiliary Feedwater System, Revision 47

Section 1R05: Fire Protection

Procedures

U2-24-FPP-FHA, Millstone Unit 2 Fire Hazards Analysis, Revision 12

U2-24-FFS, MP2 Firefighting Strategies, Revision 0

MP-PROC-ENG-U3-24-FFS-BAP01, Millstone Unit 3 Fire Fighting Strategy, fire areas MSV-1, FB-1 and FB-2 Fuel Building

Unit 3 FSAR Fire Protection Evaluation Report, Analysis 56 and 57, fire areas MSV-1, FB-1 and FB-2 Fuel Building Floor Area

Miscellaneous

41829-13-FP, Fire Protection Permit for fire area FB-1/FB-2 Fuel Building Floor Area

Section 1R07: Heat Sink Performance

Procedures

SP 2670-002, 'B' RBCCW HX D/P Determination, Revision 001-03

Miscellaneous

CR528570

CR528571

CR528572

CR528647

ER-AA-HTX-1002, Heat Exchange Visual Inspection Form – Tubeside, Revision 1

Heat Exchangers Component Health Report, 2nd Quarter 2013

SW System Health Report, 3rd Quarter 2013

Section 1R11: Licensed Operator Regualification Program

Miscellaneous

Millstone Power Station Unit 3 Training Drill Package MAUG13TD on October 16, 2013

MP-26-EPI-FAP06-003, Unit 3 EALs, Revision 008

MP-26-EPA-REF03, Millstone Unit 3 Emergency Action Level (EAL) Technical Basis Document, Revision 017

EOP 3505, Loss of Shutdown Cooling and/or RCS Inventory, Revision 011

EOP 3505A, Loss of Spent Fuel Pool Cooling, Revision 010

OP 3310A, Residual Heat Removal System, Revision 017-06

MP-26-EPI-FAP07, Notifications and Communications, Revision 017

AOP 3577, Loss of Normal and Offsite Power to a 4.16 kV Emergency Bus, Revision 010

AOP 3561, Loss of Reactor Plant Component Cooling Water, Revision 011-02

OP 2321, Main Feedwater System, Revision 021-08

SP 2651L, Main Stop Valve Operability Test, Revision 004

SP 2651M, Combined Intermediate Valves Operability Test, Revision 004

SP 2651N, Main Control Valve Operability Test, Revision 005-02

MP2 LORT Annual Operating Exam AOE #03

EOP 2540, Functional Recovery, Revision 023-00

AOP 2568, Reactor Coolant System Leak, Revision 007-06

AOP 2575, Rapid Downpower, Revision 004-08

EOP 2525, Standard Post Trip Actions, Revision 025-00

MP-26-EPI-FAP06-002, Unit 2 EALs, Revision 009

MP-26-EPA-REF02, Millstone Unit 2 Emergency Action Level (EAL) Technical Basis Document,
Revision 022
SAR002131: Millstone Operations Training Comprehensive Self Assessment

Procedures

TR-AA-730: Licensed Operator Biennial and Annual Operating Requalification Exam Process,
Revision 4
TR-MP-TPG-0300: Licensed Operator Requalification Program Guide, Revision 2
SP 3646A.8 – Containment Isolation Phase A S917 – Relay K623 Slave Relay Actuation,
Revision 002-02

Simulator Testing

Simulator Reactor Core Testing Cycle 15 BOL
Steady State Operability Test (50%), 14.03.03.01, dated May 21, 2012
Event Testing, Unit 2 Trip on November 7, 2010 Due to 21 Main Transformer Failure, dated
February 14, 2011
2012 Transient Test: T3, Simultaneous Closure of All MSIVs
Scenario Based Test SE07, dated September 10, 2012

Section 1R12: Maintenance Effectiveness

Condition Reports

492034
492661
529388
530095

Maintenance Rule Evaluations

MRE014888	MRE014962	MRE014973	MRE015285
MRE015694	MRE015708	MRE015769	MRE015771
MRE015810			

Miscellaneous

ETE-MP-2011-0104, MP2 Inverter Synchronization, Revision 0
MP2-12-01027, 120 VAC Vital Inverter Synchronizing Limit Setpoint Change, Revision 0
120 Volt AC distribution and Vital Reg Inst AC System Health Report, 3rd Quarter 2013
120V Vital Regulated AC Unavailability, October 2011 – September 2013

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

WM-AA-301 Attachment 4, Managing Medium Risk Significant Maintenance Activities,
Implement Recovery Plan for the loss of power to 3VBA-PNL-1A

Condition Reports

529096

Miscellaneous

Medium Risk Plan for Replacement of 15G-6T-8 Disconnect
AWO53M30302129
12179-EE-1BF, 120 VAC One Line Diagram Vital Bus I & III, Revision 32

12179-EE-1BF, 120 VAC One Line Diagram Misc AC SH 4, Revision 32
 12179-ESK-6BAN, Elementary Diagram, Flow Monitor for PZR Safety Valves (3RCS*8010A, B and C), Revision 5
 12179-ESK-7CR, Elementary Diagram, Reactor Coolant Makeup Control Auxiliary Circuit (3RPS*RAKAUXA), Revision 13
 12179-ESK-7CS, Elementary Diagram, Reactor Coolant Makeup Control Auxiliary Circuit (3RPS*RAKAUXA), Revision 6
 12179-ESK-7CV, Elementary Diagram, Volume Control Tank Level Control Auxiliary Circuit (3RPS*RAKAUXA), Revision 5
 12179-ESK-7JA, Elementary Diagram, Pressurizer Pressure and Level Aux Circuits, Revision 6
 12179-ESK-7TK, Elementary Diagram, Manual Setpoint Stations, Revision 12

Section 1R15: Operability Evaluations

Procedures

OP-AA-102, Operability Determination, Revision 10

Condition Reports

494778	531665	531904	532377	532536	534403
535411					

Maintenance Orders/Work Orders

WO 53102680040

Miscellaneous

OD000561, Revision 0, Revision 4 and Revision 5
 ETE-CME-2013-1026, Water Level for MPS3 Terry Turbine Drain Lines 3-DTM-001-111-2, 117-2 & 265-2, Revision 0
 Permissible 10 CFR 50.59 Screen for Unit 3 SO-13-025
 Standing Order SO-13-025
 EPRI Terry Turbine Maintenance Guide
 OD000564, Revision 0
 FSAR 9.5.6, Unit 3 EDG Starting Air System
 Drawing 12179-ESK-8KF, 125V DC EDG Engine Start Circuits, Revision 14
 RCE001111, Millstone 3 Turbine Driven Auxiliary Feedwater Pump, 3FWA*P2, Trip on November 14, 2013 Interim Report dated December 11, 2013

Section 1R18: Plant Modifications

Procedures

MP 3765A, Steam Trap Maintenance, Revision 005-00
 OP-AA-1500, Operation Configuration Control, Revision 10
 CM-AA-TCC-204, Temporary Configuration Changes, Revision 1

Condition Reports

532699
 532788

Maintenance Orders/Work Orders

WO 53102483656

Miscellaneous

FSAR 10.4.9.1, Unit 3 Auxiliary Feedwater System Design Basis
 Standing Order SO-13-025
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Section 1R19: Post-Maintenance Testing

Procedures

OP 3346A-014, EDG 'A', Operating Log, Revision 012
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 SP 3646A.1, EDG 'A' Operability Test, Revision 019-03
 SP 3646A.1-001, EDG 'A' Operability Tests, Revision 018-07
 MP-20-WP-GDL40, Pre and Post Maintenance Testing, Revision 013-03
 MP 3720CL, EDG Speed Control, Revision 002-04
 MP 3720CD, Slow Speed Start and Run-In of EDG Following Maintenance, Revision 009-05
 MP 3720CO, EDG Engine Cylinder Liner and Water Jacket Inspection and Maintenance, Revision 001-03
 MP 3720CP, 24 Month EDG Mechanical PM, Revision 000-06
 SP 3622.3 Auxiliary Feedwater Pump 3FWA*P2 Operational Readiness Test, Revision 017-13
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Condition Reports

529899	529948	529955	529975
529066	530075	530084	530136
530161	530251	530283	530291
530357	530378	530379	530513
530554	530597	530650	530661
530691	530754	530760	530796
531003	531945	534695	534696
534697	534657	534700	534711
534716	534748	534786	534789
534794	534798	534815	534858
534870	534898	534911	534926
535546			

Maintenance Orders/Work Orders

53102467051
 53102465671
 53102541067
 53M30806451
 53M30804162
 53102674265
 53102312102
 53M30506946

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Procedures

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Condition Reports

528526
531003
531536
531711

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NUTIMS Student Qualification Matrix printouts, dated November 19, 2013
Drill Report MJUL11UA, July 20, 2011, Unannounced/Off-hours Call-In Drill
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MP-26-EPA-FAP01, Management Program for Maintaining Emergency Preparedness,
Revision 11

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MJUN12MS	MJUN12ES	MJUL12TD
MAUG12BE	MDEC12TD	MFEB13TD
MMAY13ES	MJUL13TD	MJUL13MS-1
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Procedures

CCP803.26, Open EMS-Effluent Management System Operation, Revision 000-02
RPM 4.3.6, RO-2, RO-2A, and RO-20 Dose Rate Meter Calibration, Revision 005
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RPM 4.3.20, MGP Telepole Calibration, Revision 000
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Procedures

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RWP 3130305Tasks 1, 2, 3, Cavity Decontamination
ALARA Plan/ALARA Review Evaluation Number: AP-3-13-26 RWP/Task Numbers:
3130201, 3130202, 3130220, 3130305, 3130390, 3130391, 4130301
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RWP 3130301Tasks 1, 2, 3, 4, 5, Rx Disassembly - Phase 1
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Reactor Disassembly and Reassembly – 3R15 AR-3-13-01

RWP 3130331Tasks 1, 2, 3, Staging Work

ALARA Plan / ALARA Review Evaluation Number: AP-3-13-13

RWP Numbers: 3130331 Work In Progress ALARA Review (WIPR): 3-13-13A, 3-13-13B, 3-13-13C, 3-13-13D Post Job Review: Scaffolding - 3R15 AR-3-13-13

RWP 3130308Tasks 1, 2, 3, Secondary Side SG Work

ALARA Plan / ALARA Review Evaluation Number: AP-3-13-03

RWP Numbers: 3130308, 3130309 Tasks 2 and 3

Work In Progress ALARA Review (WIPR): 3-13-03A, 3-13-03B, 3-13-03C

Post Job Review: SG Secondary Side Work – 3R15 AR-3-13-03

RWP 3130327Tasks 1, 2, 3, 4, Valve Repairs

ALARA Plan / ALARA Review Evaluation Number: AP-3-13-11

RWP Numbers: 3130227, 3130327 Work In Progress ALARA Review (WIPR):

3-13-11A, 3-13-11B, 3-13-11C, 3-13-11D, 3-13-11E, 3-13-11F, 3-13-11G, 3-13-11H, 3-13-11I

Post Job Review

Valve Inspections and Repairs – 3R15 AR-3-13-11

RWP 3130321Tasks 1, 2, Mechanical CMs & PMs

ALARA Plan / ALARA Review Evaluation Number: AP-3-13-09

RWP Numbers: 3130321-1&2, 3130306-2, 3130308-3 Work In Progress ALARA Review

(WIPR): 3-13-09A, 3-13-09B, 3-13-09C, 3-13-09D, 3-13-09E, 3-13-09F

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424507	485673	515208	409687
502550	511417	593313	504746
525852			

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Condition Reports

458608
491017
514198

Section 2RS4: Occupational Dose Assessment

Procedures

RP-AA-104, Internal Radiation Exposure Control program, Revision 0
RP-AA-105, External Radiation Exposure Control Program, Revision 1
RP-AA-122, Skin Dose Assessment, Revision 0
RP-AA-123, Effective Dose Equivalent (EDE), Revision 3
RP-AA-124, Dosimetry Discrepancy and ED Alarm, Revision 2
RP-AA-150, TLD Performance Testing, Revision 3
RP-AA-152, Neutron Monitoring Evaluation, Revision 0
RPM 1.3.2, Dosimetry Issue and Return, Revision 017-01
RPM 1.3.3, Dosimetry Recordkeeping and Reporting, Revision 007
RPM 1.3.5, TLD Exchange Process, Revision 001-01
RPM 1.3.6, Contingent Exposure Control, Revision 003
RPM 1.3.7, Lost, Off-Scale or Questionable Dosimetry, Revision 008-01
RPM 1.3.9, Area Monitoring, Revision 005-03
RPM 1.3.10, Determining Estimated Neutron Dose, Revision 006
RPM 1.3.11, Noble Gas Exposure, Revision 001-02
RPM 1.3.13, Bioassay Sampling and Analysis, Revision 010-01
RPM 1.3.14, Personnel Dose Calculations and Assessments, Revision 009
RPM 1.3.16, Personal Internal Dosimeter (PID) Operation, Revision 000
RPM 2.5.8, Multi-Badging for Special Work, Revision 005
RPM 5.1.1, Expected or Declared Pregnant Worker Exposure Control, Revision 002-01
RPM 5.1.4, Annual Occupational Exposure Control and Increased Radiation Exposure Authorization, Revision 010-01
RPM 5.1.5, Planned Special Exposures, Revision 002-01
RPM 5.2.2, Basic Radiation Worker Responsibilities, Revision 016

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477648
514664

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Miscellaneous

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LER 2012-003-00, Unit 2 Potential for a Loss of Safety Function Due to Postulated Flood Conditions
LER 2013-002-00, Unit 3 Secondary Containment Boundary Breach Could Have Prevented Safety Function
LER 2013-004-00, Reactor Trip While Backwashing 'D' Waterbox
LER 2013-005-00, Unit 3 Loss of Containment Integrity Due to Failed Airlock
LER 2013-007-00, Reactor Trip on Low-Low SG Level
EP-AA-103, Emergency Preparedness Performance Indicators, Revisions 2 and 3
ANS Reliability PI data, July 2012 – September 2013

DEP PI data, July 2012 – September 2013
 ERO Drill Participation PI data, July 2012 – September 2013

Section 40A2: Problem Identification and Resolution

Procedures

AOP 2572 Rev 009-08, Loss of Shutdown Cooling
 CP 2802N Revision 001-05, Primary Systems Sampling and Analysis
 EOP 35 GA-30, Revision 000, Aligning RPCCW for RCS and SG Sampling
 EOP 2541, Appendix 46 Revision 000-00, Sampling for EAL Determination
 EOP 3505 Attachment C Revision 011, Loss of Shutdown Cooling And / Or RCS Inventory
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Condition Reports

480825	480830	480834	531050
531051	531055	531056	531057
531109	531111	531115	531648
533880	434935	485651	485931
486207	490864	501482	521475
534421			

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Procedures

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Condition Reports

523009
 480855

Miscellaneous

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Condition Reports

533226

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Tank Room, Revision 0
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NOTEBK-PRA-MPS2-RA.016 Att-3, Fire Area A-33, Control Room HVAC Area, Revision 0
NOTEBK-PRA-MPS2-RA.016 Att-3, Fire Frequency Tables, Revision 0
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NOTEBK-PRA-MPS2-RA.016, AOP 2579A SDP Supporting Analysis, Revision 0

Procedures

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AOP 2579A, Basis Document, Revision 10
AOP 2579A, Fire Procedure for Hot Standby Appendix R Fire Area R-1, Revision 10-1 & 10-2
CM-AA-FPA-100, Fire Protection/Appendix R (Fire Safe Shutdown Program), Revision 7
CM-AA-FPA-102, Fire Protection, Fire Safe Shutdown Review, and Preparation Process and
Design Change Process, Revision 4
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Section 40A7: Licensee Identified Violations

LER 2013-005-00 Loss of Containment Integrity due to Failed Airlock on May 15, 2013
OP 3312A, Containment Personnel Air Lock Operation, 3CS*Hatch1, Revision 015-06
CTM103C, Containment and Containment Leakage, Revision 4 Change 2

Condition Reports

515704
507822

Work Orders

53102633772

LIST OF ACRONYMS

AC	alternating current
ACE	apparent cause evaluation
ADAMS	Agencywide Documents Access and Management System
AFW	auxiliary feedwater
ALARA	as low as reasonably achievable
ANS	alert and notification system
AOP	abnormal operating procedure
AV	apparent violation
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CONVEX	Connecticut Valley Electric Exchange
CR	condition reports
DC	direct current
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
EAL	emergency action level
EDG	emergency diesel generator
EPD	electronic personal dosimeters
ERF	emergency response facility
ERO	Emergency Response Organization
FPP	fire protection program
FSAR	Final Safety Analysis Report
IMC	Inspection Manual Chapter
INPO	Institute of Nuclear Power Operations
JPM	job performance measures
KV	kilovolt
LER	licensee event report
LPSI	low pressure safety injection
MDAFW	motor driven auxiliary system
MSHA	Mine Safety and Health Administration
NCV	non-cited violation
NEI	Nuclear Energy Institute
NIOSH	National Institute for Occupational Safety and Health
NRC	Nuclear Regulatory Commission
NSIR	Office of Nuclear Security and Incident Response
NVLAP	National Voluntary Laboratory Accreditation Program
OOS	out of service
PARS	Publicly Available Records
PI	performance indicator
PMT	performance maintenance test
RBCCW	reactor building closed cooling water system
RCS	reactor coolant system
RG	regulatory guide
RHR	residual heat removal
RP	radiation protection
RSST	reserve station service transformer
SDP	Significance Determination Process
SCBA	self-contained breathing apparatus

SRA	senior reactor analyst
SSC	structure, system, or component
TBD	to be determined
TDAFW	turbine driven auxiliary feedwater
TS	technical specifications
UFSAR	Updated Final Safety Analysis Report
URI	unresolved item
VHRA	very high radiation area
WBC	whole body count