

September 10, 2001

Mr. J. Alan Price, Vice President -
Nuclear Technical Services - Millstone
c/o Mr. D. A. Smith, Process Owner - Regulatory Affairs
Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Rope Ferry Road
Waterford, Connecticut 06385

SUBJECT: MILLSTONE UNITS 2 AND 3 - NRC INSPECTION REPORTS 50-336/01-06
AND 50-423/01-06

Dear Mr. Price:

On August 11, 2001, the NRC completed inspections at your Millstone Units 2 & 3 reactor facilities. The enclosed reports document the inspection findings which were discussed on September 4, 2001, with Mr. R. Necci and other members of your staff.

These inspections 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.

No findings of significance were identified.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system

Mr. J. Alan Price

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Sincerely,

/RA/

Curtis J. Cowgill, Chief
Projects Branch 6
Division of Reactor Projects

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

Enclosures:

- (1) NRC Inspection Report 50-336/01-06
Attachment 1: Supplemental Information
- (2) NRC Inspection Report 50-423/01-06
Attachment 1: Supplemental Information

cc w/encl: D. A. Christian, Senior Vice President -Nuclear Operations
and Chief Nuclear Officer
W. R. Matthews, Vice President and Senior Nuclear Executive - Millstone
R. P. Necci, Vice President - Nuclear Operations - Millstone
J. A. Price, Vice President - Nuclear Technical Services - Millstone
G. D. Hicks, Master Process Owner - Training
C. J. Schwarz, Master Process Owner - Operate the Asset
P. J. Parulis, Process Owner - Oversight
D. A. Smith, Process Owner - Regulatory Affairs
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First Selectmen, Town of Waterford
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T. Concannon, Co-Chair, NEAC
R. Bassilakis, CAN
J. M. Block, Attorney, CAN
J. Besade, Fish Unlimited
G. Winslow, Citizens Regulatory Commission (CRC)
E. Woollacott, Co-Chair, NEAC
R. Shadis, New England Coalition Staff

Mr. J. Alan Price

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ENCLOSURE 1

**U.S. NUCLEAR REGULATORY COMMISSION
REGION I**

Docket No.: 50-336

License No.: DPR-65

Report No.: 50-336/01-06

Licensee: Dominion Nuclear Connecticut, Inc.

Facility: Millstone Nuclear Power Station, Unit 2

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

Dates: July 1, 2001 - August 11, 2001

Inspectors: P. C. Cataldo, Acting Senior Resident Inspector, Unit 2
G. C. Smith, Sr. Physical Security Inspector, Division of Reactor Safety

Approved by: Curtis J. Cowgill, Chief
Projects Branch 6
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000336-01-06; on 07/01-08/11/01; Dominion Nuclear Connecticut, Inc., Millstone Nuclear Power Station; Unit 2; Resident Inspection.

The inspection was conducted by resident and regional inspectors. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609 "Significance Determination Process" (SDP). The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at <http://www.nrc.gov/NRR/OVERSIGHT/index.html>. Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violation.

A. Inspector Identified Findings

No findings of significance were identified.

B. Licensee Identified Findings

A finding of very low safety significance, which was identified by the licensee, has been reviewed by the inspector. Appropriate corrective actions have been implemented by the licensee. This finding is described in Section 1R05 of this report.

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Report Details

SUMMARY OF UNIT 2 STATUS

The plant operated at essentially 100 percent power throughout the inspection period, with the exception of the following time periods:

- | | |
|-------------------|---|
| July 11-13, 2001 | Power reduction to approximately 95 - 98 percent power to facilitate maintenance and cleaning of the "A" circulating water pump. |
| July 14/27, 2001 | Power reductions to 80 percent power and 70 percent power respectively, to support backwashing of main condenser water boxes due to tube fouling. |
| August 6-11, 2001 | Control of reactor power between approximately 88 percent power and 98 percent power due to degraded vacuum conditions in the main condensers caused by tube fouling. |

1. REACTOR SAFETY (Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity)

1R04 Equipment Alignment

Partial System Alignment Checks

a. Inspection Scope

The inspector performed the following partial system alignment checks:

- During maintenance work and surveillance testing on the "A" auxiliary feedwater (AFW) pump, the inspector verified that the "B" AFW pump was correctly aligned for operation in accordance with Surveillance Procedure (SP) 2610C-002, "Auxiliary Feedwater System Lineup Verification," and system piping and instrumentation diagram 25203-26005.
- During maintenance work and surveillance testing on the "B" emergency diesel generator (EDG), the inspector verified that the "A" EDG was correctly aligned for emergency operation in accordance with SP 2613A-1, "DG Valve Alignment Checklist, Facility 1," and system piping and instrumentation drawings 25203-26008, 25203-26010, and 25203-26018.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspector reviewed the Millstone Unit 2 Fire Hazard Analysis and Appendix R Compliance Report for the following plant areas: (1) East DC Switchgear Room, Fire Area A-20; (2) West DC Switchgear Room, Fire Area A-21; (3) East Battery Room, Fire Area A-22; (4) West Battery Room, Fire Area A-23; and (5) Upper 6.9 and 4.16 kV Switchgear Room, Fire Area T-10. The inspector toured these areas to verify the functionality of installed fire detection and suppression devices, where applicable; the consistency of the actual fire barrier configuration with the credited configuration of the fire barriers; the availability of specified manual fire fighting equipment in these and adjacent areas; and the adequate control of transient combustible materials located in these areas.

Additionally, during the evening hours on July 30, 2001, the inspector observed the conduct of an unannounced fire drill involving a fire brigade response to a simulated electrical fire in the Unit 2 upper 4160V switchgear room.

b. Findings

The licensee's on-site fire brigade team received a failing grade following an unannounced fire drill at Unit 2. While this failure involved degradation of a fire protection defense-in-depth feature, i.e., manual fire suppression, the issue was considered of very low safety significance (Green) since the fire brigade eventually extinguished the simulated fire that would not have challenged the integrity of the passive fire barrier surrounding the switchgear room.

The inspector reviewed the drill scenario and objectives, attended the drill pre-brief, witnessed the drill from various locations in the plant, and attended the post-drill critique. Due to the failing grade of the drill, the fire brigade team has undergone a week of remediation, and subsequently passed an additional, unannounced drill, which was required by the fire protection program. The drill failure was attributed to several issues which included, for example, lack of command and control, ineffective communications, and lack of personnel accountability, and is captured within their corrective action program as Condition Report (CR) 01-07702.

The inspector evaluated the drill failure utilizing the NRC's Significant Determination Process (SDP), as well as the fire protection risk significance screening methodology. The inspector concluded the following regarding the drill failure associated with the on-site fire brigade:

- if left uncorrected, would result in a more significant safety concern regarding the ability to manually suppress fires in other areas of the plant, particularly involving safety-related equipment that are relied upon for the safe shutdown of the unit.
- constituted a degradation of a credited fire protection feature not only for the area involved with the drill, but for other plant areas that rely on credited manual fire suppression activities to mitigate the effect of fires on the plant.

- was mitigated by the presence of a passive fire-rated boundary for protection that was never challenged during the simulated fire.

As a result, the degradation of the fire brigade as evidenced by their performance during the fire drill was considered to be of very low safety significance (Green), and is considered a finding, however, no violations of NRC requirements were identified.
(FIN 50-336/01-06-01)

1R11 Licensed Operator Requalification

a. Inspection Scope

On July 31, 2001, the inspector observed the conduct of a licensed operator requalification simulator training exercise. The inspector observed licensed operator performance in the following areas: effective communications; implementation of normal, abnormal and emergency operating procedures; command and control; and technical specification compliance. The inspector verified that the training evaluators adequately addressed operator performance issues that were identified during the exercise, and that applicable training objectives had been achieved.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspector reviewed the licensee's implementation of the maintenance rule for the chemical and volume control system since January 2001. The inspector verified that scoping tables associated with each system had appropriate performance criteria consistent with the plant configuration, and in accordance with Integrated Maintenance Program, Program Instruction PI-3, "Performance Criteria." The inspector reviewed the following CRs to verify that the identified issues for these systems were correctly evaluated and classified in accordance with Engineering Department Instruction 30710, "Maintenance Rule Functional Failures:"

M2-01-0093	CR-01-05058	CR-01-05229	CR-01-05332	CR-01-05939
CR-01-06120	CR-01-06245	CR-01-06246	CR-01-06848	CR-01-07249

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

.1 "B" Auxiliary Feedwater (AFW) Pump Risk Assessment

a. Inspection Scope

The inspector reviewed the licensee's response following their identification that a risk assessment concerning the "B" AFW pump, had incorrectly calculated the risk factor for the planned activities. The risk assessment was conducted based on guidance contained in procedure MP-20-WM-FAP02.1, "Conduct of On-Line Maintenance", which is used to implement the risk assessment requirements of the Maintenance Rule set forth in 10 CFR 50.65(a)(4). The incorrectly calculated risk factor was caused by the failure to include the specific activity regarding the AFW pump in their risk assessment modeling program, Equipment Out Of Service (EOOS). However, the inspector verified that the licensee managed risk at an acceptably low level since they identified the incorrect risk assessment prior to the actual commencement of the work activity, adjusted the EOOS risk model to include the affected work activities, and re-performed the risk assessment to correctly classify from an integrated risk perspective the work activities on the "B" AFW pump. The inspector verified that the issue was entered into the licensee's corrective action program.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

.1 Reactor Building Closed Cooling Water (RBCCW) Flex Hose Operability

a. Inspection Scope

The inspector evaluated the licensee's actions following the identification that flex hoses installed in the RBCCW system cooling lines for the control element drive mechanisms inside containment were not appropriately qualified to meet procurement and installation requirements. Failure of these flex hoses to maintain system pressure boundary integrity could prevent adequate cooling of safety-related equipment important in the post-accident environment. The inspector reviewed the licensee's operability determination MP2-075-01, and verified that adequate basis existed regarding operability of the flex hoses based on adequate design pressure and temperature ratings of the installed flex hoses in the post-accident containment environment.

b. Findings

No findings of significance were identified.

.2 Enclosure Building High Temperature Effects on Equipment

a. Inspection Scope

The inspector evaluated operability determination MP2-077-01, which was initiated following the licensee's identification that high temperatures in the enclosure building due to high outside ambient temperatures, potentially impacted the environmental qualifications of selected components in the area. The effected components included, for example, solenoid valves for air-operated containment isolation valves (CIVs), main feed isolation valves, and main steam isolation valves, as well as limit switches and electrical connectors for CIV position indications required for post-accident analyses. The inspector verified that adequate basis existed for continued operability of the effected components based on the relatively short duration of the high temperatures, and the resultant minimal impact these temperatures had on the qualified service life of the components.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications

Channel "D" Wide Range Logarithmic Nuclear Instrumentation Drawer Replacement

a. Inspection Scope

The inspector reviewed the design, implementation, testing, and document update activities associated with Design Change Record M2-94006. This modification involved the replacement of wide range nuclear instrumentation and associated construction activities in support of the installation. The inspector verified that the licensee had adequately performed risk assessments to determine the relative impact of the testing on plant operations. The inspector observed selected sections of SPROC-ENG01-2-4AD, "Nuclear Instrumentation Wide Range Monitor Channel "D" Drawer Installation and Test." The inspector also verified that selected acceptance criteria were met through performance of the testing, and that these criteria were consistent with the applicable licensing and design bases. The inspector also verified that the licensee had initiated applicable changes to affected operating and surveillance procedures, including:

- SP 2401GD RPS Channel "D" Bistable Trip Test Data Sheet
- SP 2401BC4 Channel "D" Wide Range Monitor Calibration
- OP 2380 RPS and NI Safety Channel Operation

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing

.1 High Pressure Safety Injection (HPSI) Header Injection Valve Testing

a. Inspection Scope

The inspector reviewed post-maintenance test results following breaker testing for HPSI injection valve 2-SI-636. The maintenance work was performed under work order M2-93-04692, and post-maintenance testing was performed utilizing surveillance procedures SP 2604F-3, "HPSI Valve Operability Alignment Check," and SP 2604F-5, "HPSI Valve Stroke and Timing IST, Facility 2." The inspector reviewed the test data and verified the post-maintenance tests adequately demonstrated that 2-SI-636 would continue to perform its required safety function.

b. Findings

No findings of significance were identified.

.2 "B" Auxiliary Feedwater (AFW) Pump Maintenance

a. Inspection Scope

The inspector observed post-maintenance testing, and reviewed test results following maintenance activities associated with the "B" AFW pump. The work was performed under work orders M2-99-11390, M2-00-17096, and M2-01-04466. The post-maintenance testing was performed in accordance with surveillance procedure SP 2610A-2, "Motor Driven AFP Operability Test, Facility 2." The inspector reviewed the test data and verified that the post-maintenance testing was adequate given the scope of the maintenance activities, and provided adequate assurance that the "B" AFW pump would continue to perform its required safety function.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspector reviewed test results for the following surveillances:

- SP 2604C-1 "A" LPSI Pump Operability Test
- SP 2401FA Reactor Protection System Channel A High Power Trip Test
- SP 2401GA RPS Channel A Bistable Trip Test

The inspector verified that test results for the applicable surveillance tests satisfied the technical specification and surveillance procedure acceptance criteria, and that performance of the tests adequately demonstrated equipment operability and the capability to perform their intended safety function.

b. Findings

No findings of significance were identified.

3. SAFEGUARDS

Physical Protection [PP]

3PP1 Access Authorization

a. Inspection Scope

The inspector conducted the following activities to determine the effectiveness of the licensee's behavior observation portion of the personnel screening and fitness-for-duty programs:

- Interviewed five supervisors representing the Security, Radiation Protection, Operations, Engineering and Instrumentation & Control departments on July 11, 2001, regarding their understanding of behavior observation responsibilities and the ability to recognize aberrant behavior traits.
- Reviewed two (2) Access Authorization/ Fitness-for-Duty self-assessments, as well as an audit.
- Reviewed event reports and logged security events for the four previous quarters.
- Reviewed behavior observation training procedures and records.

The inspector also reviewed a CR that was entered into the licensee's corrective action program to address a concern identified during the access authorization portion of this inspection. The CR is identified in the reviewed documents section of Attachment 1.

b. Findings

No findings of significance were identified.

3PP2 Access Control

a. Inspection Scope

The inspector conducted the following activities during the period July 9-13, 2001, to verify that the licensee had effective site access controls and equipment in place that was designed to detect and prevent the introduction of contraband (firearms, explosives, incendiary devices) into the protected area:

- Reviewed a random sample of personnel that were granted unescorted access to the protected and vital areas, to assure that they were properly screened, identified and authorized.

- Observed site access control activities, which included (1) personnel and package processing through the search equipment at the north and south access points during peak ingress periods on July 10-13, 2001, and (2) vehicle searches on July 10, 2001.
- Observed testing of all access control equipment; including metal detectors, explosive material detectors, and X-ray examination equipment, on July 11, 2001.
- Reviewed the licensee's program for controlling and accounting for vital area keys.
- Reviewed the access control event log, an audit, and three (3) maintenance work requests.

The inspector also reviewed two condition reports (CRs) that were entered into the licensee's corrective action program to address concerns identified during the access authorization portion of this inspection. The CRs are identified in the reviewed documents section of Attachment 1.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES [OA]

4OA2 Identification and Resolution of Problems

a. Inspection Scope

The inspector reviewed the licensee's programs for gathering and submitting data for the Fitness-for-Duty, Personnel Screening, and Protected Area Security Equipment Performance Indicators. The review included the licensee's tracking and trending reports, personnel interviews and security event reports for the Performance Indicator data submitted from the 2nd quarter of 2000 through the 1st quarter of 2001.

b. Findings

No findings of significance were identified.

4OA5 Other

.1 Initiating Events Performance Indicators

a. Inspection Scope

The inspector reviewed licensee event reports, monthly operating reports, plant process computer power history information, and NRC inspection reports to identify significant plant power changes and plant scrams that occurred between the 2nd quarter of 2000, and the 2nd quarter of 2001. The inspector compared this information with the licensee's value reported to the NRC for the time period listed above for the following performance indicators:

- Unplanned scrams per 7000 critical hours
- Scrams with loss of normal heat removal
- Unplanned power changes per 7000 hours

b. Findings

No findings of significance were identified.

4OA6 Meetings, including Exit

.1 Safeguards Exit Meeting Summary

The inspector met with licensee representatives at the conclusion of the inspection on July 13, 2001. At that time, the purpose and scope of the inspection were reviewed, and the preliminary findings were presented. The licensee acknowledged the preliminary inspection findings.

.2 Exit Meeting Summary

The inspectors presented the inspection results to the Vice President -Nuclear Operations - Millstone and other members of licensee management at the conclusion of the inspection. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any material examined during this inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT 1**SUPPLEMENTAL INFORMATION**a. List of Items Opened, Closed and DiscussedOpened and Closed During this Inspection

50-336/01-06-01	FIN	Licensee's on-site fire brigade team received a failing grade following an unannounced fire drill due to degradation of a fire protection defense-in-depth feature (1R05)
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b. Partial List of Documents Reviewed

Plant Access Training Manual, Module 11, Awareness Level FFD, Module 12, Substance Recognition
 Oversight Audit MP-00-A13, Physical Security, Suitability Training & Qualification and Safeguards Contingency Plans, September 11-22, 2000
 Oversight Audit MP-00-A06, FFD, Access Authorization and Personnel Access Data System, April 10-20, 2000
 Quarterly Safeguards Event Reports, 2nd Quarter 2000, 1st Quarter 2001
 CR-01-07111, Post-Accident Fitness-for-Duty Testing not clearly defined in Station Training Material
 CR-01-07252, Perform a Self-Assessment on the Access Authorization Termination Process
 CR-01-07253, Perform a Self-Assessment on the Lock and Key Control Program

c. List of Acronyms Used

AFW	Auxiliary Feedwater
CIVs	Containment Isolation Valves
CRs	Condition Reports
EOOS	Equipment Out of Service
EDG	Emergency Diesel Generator
HPSI	High Pressure Safety Injection
RBCCW	Reactor Building Closed Cooling Water
SDP	Significance Determination Process
SP	Surveillance Procedure

ENCLOSURE 2

**U.S. NUCLEAR REGULATORY COMMISSION
REGION I**

Docket No.: 50-423

License No.: NPF-49

Report No.: 50-423/01-06

Licensee: Dominion Nuclear Connecticut, Inc.

Facility: Millstone Nuclear Power Station, Unit 3

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

Dates: July 1, 2001 - August 11, 2001

Inspectors: A. C. Cerne, Senior Resident Inspector, Unit 3
B. E. Siemel, Resident Inspector, Unit 3
G. C. Smith, Sr. Physical Security Inspector, Division of Reactor Safety

Approved by: Curtis J. Cowgill, Chief
Projects Branch 6
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000423-01-06; on 07/01-08/11/01; Dominion Nuclear Connecticut, Inc., Millstone Nuclear Power Station; Unit 3. Personnel Performance During Non-routine Plant Evolutions.

The inspection was conducted by resident and regional inspectors. The inspection identified one green issue, which was a Non-Cited Violation. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609 "Significance Determination Process" (SDP). The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at <http://www.nrc.gov/NRR/OVERSIGHT/index.html>. Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violation.

A. Inspector Identified Findings

No findings of significance were identified.

B. Licensee Identified Violations

A violation of very low safety significance, which was identified by the licensee, has been reviewed by the inspector. Corrective actions taken or planned by the licensee appear reasonable. This violation is described in Section 1R14 of this report.

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Report Details

SUMMARY OF UNIT 3 STATUS

The plant began the inspection period on July 1, 2001, operating at approximately 100 percent power. On July 10, following a containment entry to repair an inoperable inner containment interlock hatch door, the post-maintenance test for the outer containment hatch door failed. With both doors inoperable, operators entered Technical Specification (TS) 3.0.3 and commenced the required reactor down power. Following further repair of the outer door and a successful full volume local leak rate test later that evening, operators exited TS 3.0.3, stopped the power reduction at approximately 38%, and began raising reactor power. Operators restored the reactor to 100 percent power the evening of July 11, where it remained through the end of the inspection period on August 11.

1. REACTOR SAFETY (Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity)

1R04 Equipment Alignment

a. Inspection Scope

Following planned testing on the "B" train of the control room emergency filtration system, the inspector verified the correct alignment of the "B" train control room ventilation equipment. The inspector also verified that both trains of the control room pressurization system were correctly aligned. The inspector performed the partial walkdowns by comparing actual equipment alignment to approved licensee piping and instrumentation diagrams and system operating procedures to confirm correct system lineup. The inspector discussed the alignment of a pressurization system valve, tracked by the licensee as an alternate plant configuration, with the system engineer.

The inspector also performed partial system walkdowns of the "A" train emergency diesel generator (EDG) and the "A" train containment recirculation (RSS) system. Both of these systems were part of the "protected" operational train at the time of the inspection and provided functions that are within the top seven contributors to preventing the risk of core damage at Unit 3. On the day of the EDG walkdown, the reserve station service transformers (RSSTs) had been removed from service to perform a nonsafety-related modification to a metering function. This work activity impacted the unit's backup connection to the offsite power grid, thus increasing the risk importance of the EDGs as an emergency power supply. The RSS walkdown represented the first inspection of this system since the completion of the modification to collect and control groundwater intrusion into the "A" train RSS cubicle in the engineered safety features building. The inspector discussed the observations made during both system walkdowns with the cognizant system engineers.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspector performed walkdowns of the “A” and “B” auxiliary building filter banks (Fire Areas AB-10 and AB-9, respectively), the “B” train EDG enclosure (Fire Area EG-4) and the station blackout diesel generator enclosure (Fire Area SBO-1). The inspector confirmed that fire detection and suppression equipment located in the areas were as specified in the Millstone 3 Fire Protection Evaluation Report. For the fire areas inspected, the inspector discussed the design and operation of the fire detection systems, as well as the required fire suppression equipment availability and functionality, with the fire protection engineer. The inspector also examined the system status of some fire protection water (FPW) piping and valve configurations with respect to the design details delineated in the FPW piping and instrumentation drawings. The inspector noted no degraded or out-of-service equipment in these areas, which would have required compensatory measures (e.g., hourly fire roves) in accordance with the Unit 3 Technical Requirements Manual.

During the inspection of Fire Area EG-4, the inspector noted that the normal access (i.e., security key-card door) to the valve charging the sprinkler system for the “B” train EDG had been blocked, with the key-card reader locked out. This condition existed because of maintenance activities in progress and a resulting personnel safety hazard in front of the subject security door. The inspector confirmed that in the event of a fire, the operators with the responsibility for valve operation had the appropriate key/access capability to the locked out area; and that an operations department coordination protocol with security was available to ensure that this fire suppression capability would be available, if required. Subsequently, normal access to the “B” train EDG and the affected FPW equipment was restored.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

The inspector observed a simulator exam conducted as part of licensed operator requalification training (LORT). During the evolution of the event scenario, the inspector noted that the LORT shift crew responded to a rod control urgent failure, a failed main steam bypass header pressure transmitter, and a loss of all AC power, using the unit abnormal and emergency operating procedures (EOP). Shift management referrals to the TS requirements, the emergency preparedness implementing procedure for event classifications, and the EOP transitions were checked for consistency with the expected crew response in performing critical tasks. At the completion of the exam, the inspector discussed specific operator actions with the training personnel. The inspector also observed the critique conducted by the lead instructor and operations department evaluator with the LORT crew shift manager.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspector reviewed licensee actions taken in response to the following condition reports (CRs). Two of these CRs were evaluated by the licensee for their potential impact of placing the 120 Volt AC and control building chilled water (HVK) systems in a maintenance rule a(1) status.

- M3-00-3689 Control room air bank inlet isolation valve yoke nut separated while valve was being closed
- CR-01-04542 120 Volt vital AC distribution system has exceeded its maintenance rule functional failure criteria
- CR-01-05708 "B" HVK Chiller tripped approximately 5 minutes after starting
- CR-01-05829 Loss of control power alarm; indication of loss of auxiliary power for reactor plant component cooling pump, 3CCP*P1C
- CR-01-06534 Suspected design and program document errors for a charging pump discharge isolation valve, 3CHS*MV8438A
- CR-01-07304 Freon leak in the control building chilled water room, resulting from a failed isolation valve during test equipment removal

For each CR identified, the inspector reviewed, as appropriate, the particular system's maintenance rule scoping document, the licensee corrective actions taken in response to the identified equipment problems, and any maintenance rule functional failure determination, if applicable. The inspector confirmed that the licensee evaluated the CRs for maintenance rule indicator applicability and tracked the noted equipment problems/occurrences against the affected systems' performance criteria, both for functional failures and unavailability time, as required.

In addition, the inspector observed the licensee's maintenance rule expert panel meetings, where the a(1) evaluations for the 120V AC and HVK systems were discussed, to verify that the licensee determinations were consistent with maintenance rule requirements. The inspector reviewed the approved a(1) determination for the 120V AC system and the action plan for the HVK system, to confirm that appropriate goals were set.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspector noted that the licensee had calculated a “yellow” online risk condition for work on one train of the motor-driven auxiliary feedwater (MDAFW) system, while work on the only turbine-driven auxiliary feedwater pump typically results in a “green” online risk condition. The inspector discussed this observation with the online risk reviewer, who explained that the failure history of the two types of pumps are taken into account. Since the motor-driven pumps are typically more reliable than the turbine-driven pumps, when you take a motor-driven train out-of-service it has a greater effect on the core damage frequency.

In August, the inspector noted that the online risk evaluation was “green” during the performance of a slave relay test which would start the “B” MDAFW pump. As previously discussed in this report, unavailability of a MDAFW train is typically a “yellow” risk condition. Through review of the subject surveillance procedure and discussions with the online risk reviewer and work control personnel responsible for coding surveillances for risk, the inspector determined that due to availability of personnel during the surveillance to immediately restore the equipment to operable status, the equipment was properly considered available. The inspector confirmed that the limiting condition for operation (LCO) for the MDAFW system was properly entered and exited during the performance of and restoration from this surveillance. In addition, the time in the 72 hour LCO was kept to a minimum, less than one hour.

The inspector reviewed the work planning activities and priority assignments for two emergent work items documented in condition reports, as follows:

- CR-01-07132 Diesel fuel oil transfer pump discharge strainer (3EGF*STR1B) high differential pressure alarm
- CR-01-07686 Steam Generator Number 3 blowdown sample containment isolation valve (3SSR*CTV19C) lost open position indication

For both issues, the inspector evaluated the impact of the identified component problems on the affected system operability. The cognizant system engineers were interviewed and the applicable EGF and reactor plant sampling (SSR) surveillance procedures (SP 3646B.2 & .4 and SP 3611A.1, respectively), as well as the Unit 3 Final Safety Analysis Report (FSAR) system descriptions, were reviewed to verify appropriate consideration of the CR conditions upon system functionality. Among the issues discussed with the system engineers were the timeliness of the scheduled repairs to the components, the interim licensee actions, and the potential impact upon required system surveillance activities.

The inspector also reviewed a safety evaluation included in a plant design change request (PDCR) MP3-91-196, which addressed the role of subject diesel fuel oil filtration function with respect to FSAR commitments and referenced standards for assuring adequate emergency diesel generator fuel oil quality. For the SSR valve indication problem, the inspector reviewed both an operability determination (OD) MP3-045-01 and

a supporting Technical Evaluation, MP3-EV-00-0034, discussing the operational impact of the loss of open position indication for a containment isolation valve with a fail-closed safety function. The inspector also conducted a field check of portions of the affected systems, assessing the condition, configuration, and status of various components to validate the licensee's assumptions and analyses for system operability.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Plant Evolutions

a. Inspection Scope

On June 13, 2001, high temperature alarms for the lube oil for the "A" train charging pump radial bearing were noted by the control room operators shortly after the train "B" charging pump cooling (CCE) system had been removed from service for scheduled maintenance. During normal operation of the CCE system, the cooling trains are cross-connected such that either CCE pump/heat exchanger provides cooling water to the lube oil coolers of both the operating and standby charging pumps. A problem with the "A" CCE system's capability to remove heat from the running charging pump's lube oil cooler was in evidence and immediate restoration of the cooling capability was hampered by the need to properly clear tagged-out components and boundaries in the "B" CCE system before it could be returned to service.

The inspector observed operator actions in the control room from the time shortly after the alarms were received until cooling was restored to the lube oil for the operating ("A" train) charging pump. In parallel with the activities to restore the "B" CCE system, the licensee conducted troubleshooting and diagnostic efforts on the "A" CCE problems, including verification that adequate flow was circulating through the system. Based upon the questionable functionality of the "A" CCE system, along with the inoperable (i.e., tagged-out) status of the "B" CCE system, the operators entered TS 3.0.3 for no operable charging pumps, requiring the initiation of action within one hour to place the unit in a hot standby (Mode 3) condition within the next six hours. Before plant shutdown activities were required to be implemented, an operable charging pump (i.e., the "B" CCE system, supporting the "A" charging pump in operation) was restored to service and TS 3.0.3 was exited.

In addition to witnessing the operator actions in the control room on June 13, the inspector observed subsequent field engineering and diagnostic testing of the "A" CCE system to determine the cause of the loss-of-cooling function. Using temporary flow instrumentation, the licensee was able to establish the fact that the "A" CCE flow was bypassing the system's heat exchanger due to air binding; thus preventing the transfer of heat to the service water system, which circulates water from the plant's ultimate heat sink. The inspector reviewed the licensee's Root Cause Investigation, referencing condition report CR-01-06186 for this event. The licensee's investigation report identified the root cause of the air binding to be a design deficiency introducing a new failure mode into the equipment performance with the installation of a flow-limiting collar on the "A" CCE temperature control valve, thus eliminating the dynamic capability of the

pump to sweep air out of the heat exchanger. At the conclusion of this inspection period, licensee management review of the root cause investigation report was still in progress.

The inspector discussed the events of June 13 with the cognizant operations personnel, system engineers, and some of the individuals involved in the licensee's root cause investigation. The question of whether the charging pumps would remain operable with CCE flow, but without the transfer of heat to the service water system, was provided by the licensee to the Westinghouse Electric Company (W), the nuclear steam system supplier, for further review. Supported by (W) letter NEU-01-537, dated August 9, 2001, along with calculation note number CN-SEE-01-91, the licensee determined on August 13, 2001, that the "A" charging pump had remained operable during the June 13 event because of the ability of the CCE flow to transfer heat from the charging pump's lube oil cooler to the ambient air. The NRC review of this licensee position, including the (W) supporting calculations and documentation, was conducted as part of the NRC Safety System Design Inspection for Millstone Unit 3. The results of this review are documented in Inspection Report 50-423/2001-011.

b. Findings

NRC inspection of this event identified no questions or concerns regarding either the initial response by the operators to the alarmed conditions on June 13, 2001, or the ultimate determination by the licensee and (W) that the "A" charging pump remained operable throughout this event. The inspector noted that the licensee's root cause investigation had adequately considered why the "B" CCE heat exchanger had not been similarly air bound; but also noted that the licensee had identified inadequate post-maintenance and surveillance tests as contributing causes to this event. Neither the post-maintenance, nor surveillance test procedures verified that each CCE system train would independently be capable of performing its safety function. This is particularly significant because even though the CCE trains are cross-connected during routine plant operation, upon receipt of safety injection or loss-of-offsite-power signals, the trains are automatically isolated to establish independence for the emergency core cooling system functions provided by the charging pumps.

The inspector determined that the failure to perform adequate post-maintenance and surveillance testing of the independent CCE trains constituted a violation of 10 CFR 50, Appendix B, Criterion XI for "Test Control". However, because it was subsequently determined that the charging pumps would remain operable, given the assumed conditions of the loss of service water cooling for the CCE system, as occurred on June 13, the inspector evaluated this condition using Phase 1 of the NRC's Significance Determination Process and concluded that the licensee performance errors contributing to this event and the noted violation were of very low safety significance (Green). Also, since the licensee corrective action plans relating to each performance problem, including those involving test inadequacies, were appropriately documented by the licensee in response to CR-01-06186, this violation is being treated as a licensee identified Non-Cited Violation (**NCV 50-423/01-06-01**) consistent with Section VI.A of the NRC Enforcement Policy, NUREG-1600.

1R15 Operability Evaluations

a. Inspection Scope

The following ODs were reviewed. The inspector verified that the engineering justification for operability was sound, compensatory actions where required had been implemented, and licensee corrective measures and operational considerations had appropriately addressed all applicable technical specifications and technical requirements manual provisions. The inspector also conducted field inspection-tours of the areas housing the systems in which the equipment discrepancies had been identified, to determine if the field conditions were consistent with the licensee bases for continued operability that was documented in each OD.

- MP3-052-01 Inadequate electronic isolation between nonsafety-related speed indication circuitry and the turbine driven auxiliary feedwater pump Class 1E overspeed shutdown circuit
- MP3-060-01 Wall thinning identified at separate locations in the service water (SWP) return piping from the charging pumps cooling system

The inspector also reviewed the condition reports (CRs 01-05931 & 01-06825, respectively) associated with the ODs, checking the status of the corrective action assignments and verifying adequate consideration of the extent of condition of the identified discrepancies. The cognizant system engineers were interviewed regarding licensee plans for the implementation of corrective actions. The inspector confirmed that the repair of SWP piping defects was completed before the end of this inspection period.

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds

a. Inspection Scope

The inspector reviewed the Unit 3 Operator Work-around Management Summary to assess the cumulative effects of the six open work-arounds on mitigating system reliability, availability, and potential for mis-operation of the system. The inspector discussed the work-arounds with the assistant process owner for operations to determine how the work-arounds would affect operators' ability to respond to events and transients.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspector reviewed licensee activities associated with post-maintenance testing (PMT) and restoration of systems and equipment to an operable status after planned maintenance, either preventive or corrective. The inspector specifically evaluated the PMT that was performed with respect to work authorized by the following automated work orders (AWOs):

- M3-00-03329 Addition of unloader line from station blackout (SBO) diesel air receivers to air compressor
- M3-00-21717 Heat exchanger fouling determination and other preventive maintenance activities associated with the "A" train safety injection pump cooling (CCI) system
- M3-01-07555 Containment personnel air lock contingency o-ring inspection and repositioning, as needed
- M3-01-08649 Removal and replacement of the accumulator relief valve assembly for the "C" steam generator feedwater isolation valve, 3FWS*CTV41C

For the SBO diesel and containment air lock, the inspector reviewed the completed AWO documentation to ensure that the PMT planned and performed were appropriate to restore the operability of the systems. Design change notice (DCN) DM3-00-0005-00, implemented by the above SBO AWO, was reviewed to ensure the AWO accurately characterized the work to be performed.

The inspector also observed the containment entry pre-brief and control of selected work activities in the field for the personnel air lock AWO. This repair work was performed on July 10, 2001, following a June 22 failure of the full volume containment hatch local leak rate test (LLRT) after a containment entry for unrelated work. Based on the results of between-the-seal testing on the inner and outer containment doors and the initial LLRT results in June, the licensee determined that the inner door seal had failed. The licensee properly entered the appropriate TS at that time and locked the outer door closed. Following the observed maintenance in July, the full volume hatch LLRT again failed. Operators, in accordance with the licensee's predetermined plan, entered TS 3.0.3 and commenced a reactor shut down. Following further repair of the outer door and a successful full volume LLRT later that evening, operators exited TS 3.0.3, stopped the power reduction at approximately 38%, and began raising reactor power.

For the CCI and feedwater AWOs, the inspector conducted field inspections of the systems/components upon which the planned work activities were performed. At the completion of the work, systems' restoration was verified, including additional field inspections to confirm the systems' alignment and component configuration in accordance with the expected operable status. PMT data and documentation were reviewed, along with applicable maintenance procedures (MP 3760DA & DB) and surveillance procedures (SP 3626.13 & 3630E.1). The inspector considered supporting

information (e.g., a safety evaluation screen) for the procedural and testing controls in assessing the adequacy of the PMT activities attendant to the identified AWO work.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspector reviewed licensee performance related to the following surveillance tests.

- SP 3446B11 Train A Solid State Protection System Operational Test
- SP 3608.1 Safety Injection Pump A Operational Readiness Test
- SP 3614F.1 Control Room Emergency Filtration System Operability Test
- SP 3670.1 Mode 1 - 4 Daily and Shiftly Control Room Rounds [review of containment and area temperature monitoring]

The surveillances were observed in the control room and in the field, along with a selective spot check of plant computer auto-log files, to confirm performance of the tests in accordance with approved procedures. The inspector independently verified selected test prerequisites, readings during the tests, and equipment restoration alignments following testing completion. The completed data sheets were reviewed for all tests to verify the equipment met procedural acceptance criteria and was operable consistent with technical specification requirements.

For the safety injection (SIH) pump surveillance, the inspector noted that the opposite train check valve is verified closed on quarterly basis by checking no reverse rotation of the "B" train SIH pump. The inspector reviewed a complementing surveillance procedure (SP 3608.6 for the SIH header check valves) to confirm that full stroke testing of these check valves, with forward flow acceptance criteria, is also being performed, at a refueling outage frequency. With respect to SP 3670.1, the inspector reviewed the recorded containment temperatures over a five-day period of high ambient temperature conditions to verify the surveillance requirements for TSs 3/4.6.1.5 and 3/4.7.14. During this review the inspector considered both the containment average temperature requirements, as well as the area temperature monitoring for equipment environmental qualification criteria.

b. Findings

No findings of significance were identified.

3. SAFEGUARDS

Physical Protection [PP]

3PP1 Access Authorization

Refer to NRC Inspection Report 50-423/01-06, Section 3PP1 for specific details.

3PP2 Access Control

Refer to NRC Inspection Report 50-423/01-06, Section 3PP2 for specific details.

4. OTHER ACTIVITIES [OA]

4OA1 Performance Indicator Verification

a. Inspection Scope

The purpose of this inspection was to confirm the information presented in the licensee's June 2001 Unplanned scrams per 7000 Hours Critical and scrams with a Loss of Normal Heat Removal performance indicators was complete and accurate. The inspector reviewed selected operator logs, plant process computer data, and licensee monthly operating reports for the period October 1, 2000, through June 31, 2001. This time frame was selected because the last confirmation of these performance indicators was performed for data through September 30, 2000.

b. Findings

No findings of significance were identified.

4OA6 Meetings, including Exit

.1 Safeguards Exit Meeting Summary

The inspector met with licensee representatives at the conclusion of the inspection on July 13, 2001. At that time, the purpose and scope of the inspection were reviewed, and the preliminary findings were presented. The licensee acknowledged the preliminary inspection findings.

.2 Exit Meeting Summary

The inspectors presented the inspection results to the Vice President -Nuclear Operations - Millstone and other members of licensee management at the conclusion of the inspection. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any material examined during this inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT 1**SUPPLEMENTAL INFORMATION**a. List of Items Opened, Closed and DiscussedOpened and Closed

50-423/01-06-01	NCV	Failure to perform adequate post-maintenance and surveillance testing of the independent CCE trains (1R14)
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b. List of Acronyms Used

AWOs	Automated Work Orders
CCE	Charging Pump Cooling
CCI	Safety Injection Pump Cooling
CRs	Condition Reports
DCN	Design Change Notice
EDG	Emergency Diesel Generator
EOP	Emergency Operating Procedures
FPW	Fire Protection Water
FSAR	Final Safety Analysis Report
HVK	Control Building Chilled Water
LCO	Limiting Condition for Operation
LLRT	Local Leak Rate Test
LORT	Licensed Operator Requalification Training
MDAFW	Motor-Driven Auxiliary Feedwater
NRC	Nuclear Regulatory Commission
OD	Operability Determination
PDCR	Plant Design Change Request
PMT	Post-Maintenance Testing
RSS	Containment Circulation
RSSTs	Reserve Station Service Transformers
SBO	Station Blackout
SIH	Safety Injection
SP	Surveillance Procedure
SSR	Reactor Plant Sampling
SWP	Service Water
TS	Technical Specification