

December 7, 2000

Mr. R. G. Lizotte, Master Process Owner - Assessment
c/o Mr. D. A. Smith, Process Owner - Regulatory Affairs
Northeast Nuclear Energy Company
P.O. Box 128
Waterford, Connecticut 06385

SUBJECT: NRC's INSPECTION REPORT NOS. 05000336/2000-012
AND 05000423/2000-012

Dear Mr. Lizotte:

On November 11, 2000, the NRC completed inspections at your Millstone Units 2 & 3 reactor facilities. The enclosed reports document the inspection findings which were discussed on November 27, 2000 with Messrs. E. Grecheck and 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.

Based on the results of these inspections, the inspectors identified no findings of significance.

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 (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

James C. Linville, Chief
Projects Branch 6
Division of Reactor Projects

Docket Nos.: 05000336, 05000423
License Nos.: DPR-65, NPF-49

Enclosures:

- (1) NRC Inspection Report 05000336/2000-012
- (2) NRC Inspection Report 05000423/2000-012
- (3) NRC's Revised Reactor Oversight Process

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ENCLOSURE 1

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

Docket No.: 05000336

License No.: DPR-65

Report No.: 05000336/2000-012

Licensee: Northeast Nuclear Energy Company

Facility: Millstone Nuclear Power Station, Unit 2

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

Dates: October 1, 2000 - November 11, 2000

Inspectors: P. C. Cataldo, Resident Inspector, Unit 2
S. R. Jones, Senior Resident Inspector, Unit 2
S. K. Chaudhary, Senior Reactor Engineer, Division of Reactor Safety (DRS)
J. C. Jang, Senior Health Physicist, DRS
T. A. Moslak, Health Physicist, DRS
J. H. Williams, Senior Operations Engineer, DRS

Approved by: James C. Linville, Chief
Projects Branch 6
Division of Reactor Projects
Region I

SUMMARY OF FINDINGS

IR 05000336/2000-012; on 10/01-11/11/00; Millstone Nuclear Power Station; Unit 2.

The inspection was conducted by resident and regional inspectors. The significance of most/all findings is indicated by their color (green, white, yellow, red) using IMC 0609 "Significance Determination Process" (SDP) [see Enclosure 3 for a description of the NRC Revised Reactor Oversight Process]. Findings for which the SDP does not apply are indicated by "no color" or by the severity level of the applicable violation.

There were no significant findings identified during this inspection.

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Report Details

SUMMARY OF UNIT 2 STATUS

The plant operated at essentially 100 percent power throughout the inspection period.

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

1R04 Equipment Alignments

a. Inspection Scope

Inspectors performed the following partial system alignment checks:

1. While the "A" emergency diesel generator (EDG) was out of service for corrective maintenance, the inspector verified that the "B" EDG, including starting air, lubricating oil, jacket water and service water support systems, were correctly aligned for automatic starting in accordance with applicable portions of Operating Procedure 2346A, "Emergency Diesel Generators," and Surveillance Procedure 2613B, "Diesel Generator Operability Test, Facility 2."
2. The inspector verified that the emergency diesel generator (EDG) fuel oil system was correctly aligned to support operation of the "A" and "B" EDGs in accordance with applicable portions of Operating Procedure 2346B, "Diesel Fuel Oil System," Surveillance Procedures 2613A, "Diesel Generator Operability Test, Facility 1," and Surveillance Procedure 2613B, "Diesel Generator Operability Test, Facility 2."

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspector reviewed the licensee's fire hazard analysis for the following plant areas: (1) Diesel Generator Room A, Fire Area A-15; (2) Diesel Generator Room B, Fire Area A-16; (3) Diesel Oil Day Tank Room A, Fire Area A-30; and (4) Diesel Oil Day Tank Room B, Fire Area A-31. The inspector toured these areas to verify the correct operational alignment of the preaction and wet-pipe fire suppression sprinkler systems protecting these areas, the integrity of penetration seals and other fire barriers, and the adequate control of transient combustible materials located in these areas.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

.1 Feedwater Heater Water Level Control System Problems

a. Inspection Scope

The inspector reviewed maintenance rule implementation for the feedwater heater drains system, including the licensee's Maintenance Rule (a) (1) Action Plan, which was approved on August 1, 2000, and Condition Report M2-00-2666, which documented a plant transient initiated by feedwater heater problems on September 29, 2000. The inspector also reviewed corrective actions associated with sluggish response of the 2A feedwater heater level controls that resulted in the isolation of extraction steam, which, in combination with incomplete actions to prevent rapid depressurization of the heater drain tank, led to a temporary loss of heater drain pump flow to the suction of the main feedwater pumps and operator initiation of a power reduction of approximately 20 percent power on September 29, 2000.

b. Findings

No findings of significance were identified.

.2 Charging Pump Problems

a. Inspection Scope

The inspectors reviewed maintenance rule implementation associated with the following condition reports:

M2-00-2034 Broken and Worn Internals of "B" Charging Pump Discharge Check Valve
M2-00-2298 Charging Piping Experienced Water Hammer After Swapping from "B" to
"A" Charging Pump
M2-00-2479 "B" Charging Pump Discharge Relief Valve Lifts Early

The inspector verified that the conditions were correctly classified with respect to maintenance preventable functional failures based on Engineering Department Instruction 30710, "Maintenance Rule Functional Failures," and that appropriate corrective action plans had been developed and implemented to address the conditions.

b. Findings

No findings of significance were identified.

.3 Unit 2 Maintenance Rule Periodic Assessment

a. Inspection Scope

The inspector reviewed the periodic evaluations required by 10 CFR50.65 (a)(3) to verify that all structures, systems and components (SSCs) were included in the evaluation and balancing of reliability and unavailability was given adequate consideration. The inspector verified that periodic assessments were completed within the two year period. The review also included an assessment of the licensee's corrective action program with respect to identification and resolution of problems associated with maintenance.

For each chosen system, the inspector reviewed: system health reports; (a)(1) corrective action plans; scoping documents that described system functions and performance measures; corrective actions for system problems/issues; and interviewed system engineers and the maintenance rule coordinator.

To verify that goals and performance measures were appropriate, industry operating experience was considered, corrective action plans were effective, and performance was being effectively monitored, the inspector reviewed the following (a)(1) high safety significant systems:

- Reactor Protection System
- Chemical Volume Control System
- Reactor Coolant Pumps
- Reactor Regulating System

To verify that performance was acceptable, the inspector reviewed the following (a)(2) high safety significant systems:

- Auxiliary Feedwater
- Instrument Air
- Emergency Diesel Generators
- Control Element Assemblies

b. Findings

No findings of significance were identified.

.4 Containment Tendon Grease Leakage

a. Inspection Scope

The inspector reviewed maintenance rule implementation associated with identified grease leakage from the east containment tendon gallery. The inspector verified that the containment structure was correctly classified as a maintenance rule system, the performance criterion was acceptable, the grease leakage was correctly classified relative to maintenance rule functional failures, and that appropriate corrective actions were identified to correct the condition.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessment and Emergent Work Evaluation

.1 Emergent Work on the "A" Emergency Diesel Generator

a. Inspection Scope

The inspector reviewed the licensee's control of work activities during emergent work to repair the "A" emergency diesel generator (EDG) following failure of a cylinder indicating valve mounting stud. The inspector verified that the licensee minimized the performance of risk-significant activities while the "A" EDG was out of service, and appropriately minimized potential challenges to the remaining accident mitigation equipment.

b. Findings

No findings of significance were identified.

.2 Troubleshooting of "B" Charging Pump Discharge Relief Valve Lifts

a. Inspection Scope

The inspector reviewed work controls implemented to manage risk when troubleshooting "B" charging pump discharge relief valve lifts under work order M2-00-16283 on October 10 and 11, 2000. The inspector verified that the work order and troubleshooting plan provided adequate limits on scope and intrusiveness of work to ensure required charging system operability throughout the troubleshooting activities.

b. Findings

No findings of significance were identified.

.3 Troubleshooting of Reactor Protection System Variable High Power Trip Reset

a. Inspection Scope

The inspector reviewed work controls implemented to manage risk when troubleshooting the Channel "A" reactor protection system variable high power trip reset circuit under work order M2-00-15087 on November 2, 2000. The inspector verified that the work order and troubleshooting plan provided adequate limits on scope and intrusiveness of work to ensure that the remaining required reactor protection system channels were operable throughout the troubleshooting activities.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Plant Evolutions

Operator Performance during Feedwater Heater Drain Transient

a. Inspection Scope

In response to a significant reduction in reactor power following a feedwater heater drain system transient on September 29, 2000, the inspector performed a detailed review of plant process computer data related to reactor core parameters, reactivity control system operation, and feedwater system parameters. Based on these parameters, the inspector verified that significant operator actions reflected by changes in these parameters were in accordance with abnormal operating procedure (AOP) 2575, "Rapid Downpower."

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

.1 Recurrent Lifting of the "B" Charging Pump Discharge Relief Valve

a. Inspection Scope

The inspector reviewed Operability Determination MP2-031-00, which involved the recurrent lifting of the "B" charging pump discharge relief valve during testing when the "A" and "B" charging pumps were simultaneously started with the "C" charging pump in operation. The inspector verified that the licensee had an adequate basis for continued operability of the "B" charging pump and the charging system in that:

- (1) Troubleshooting activities identified that the pressure at the "B" charging pump discharge during testing exceeded the relief valve setpoint for approximately one-tenth of a second. However, conditions other than testing that would result in the simultaneous start of two charging pumps with one already operating would involve reduced reactor coolant system pressure, which would decrease the peak pressure at the "B" charging pump a corresponding amount to a value below the relief valve setpoint. The licensee implemented administrative controls to preclude simultaneous starting of two charging pumps for testing at full reactor coolant system pressure.
- (2) The peak pressure measured during troubleshooting did not exceed the allowable transient overpressure allowed by the applicable design codes.

b. Findings

No findings of significance were identified.

.2 Audible Noise from "A" Charging Pump Suction Header

a. Inspection Scope

The inspector reviewed Operability Determination MP2-038-00, which involved initial indications of internal suction check valve leakage on the 'A' charging pump. The inspector verified that the licensee had an adequate basis for the continued operability of the "A" charging pump in that:

- (1) The "A" charging pump continued to provide required flow with no evidence of flow degradation.
- (2) The audible flow noise associated with leakage through the pump internal check valves was infrequent.
- (3) Prior experience with this condition in August 2000 demonstrated that the pump operated for an extended period with audible indications of internal suction check valve leakage without a reduction of output flow or internal damage to the pump.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing

.1 Replacement of Alternate Auxiliary Feedwater Supply Valve 2-Fire-34

a. Inspection Scope

The inspector reviewed the post maintenance testing associated with work order M2-00-13752, which involved replacement of 2-FIRE-34, the fire water system supply valve to the auxiliary feedwater pumps. The inspector verified that the post maintenance testing provided adequate assurance that the replacement valve would perform its design function.

b. Findings

No findings of significance were identified.

.2 Corrective Maintenance on the "A" Emergency Diesel Generator

a. Inspection Scope

The inspector reviewed the post maintenance testing associated with work order M2-00-18778, which involved replacement of a failed mounting stud for a cylinder indicator valve on the "A" emergency diesel generator (EDG). The inspector verified that the post maintenance testing associated with work order M2-00-18778, which included a system alignment verification and a functional test, in combination with non-intrusive ultrasonic testing of all indicator valve mounting studs on the "A" and "B" EDGs under work orders M2-00-18796 and M2-00-18797, provided adequate assurance that the replacement valve would perform its design function.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

.1 "B" Low Pressure Safety Injection Pump Testing

a. Inspection Scope

The inspector reviewed the results from a surveillance test conducted on the "B" low pressure safety injection pump (LPSI), performed in accordance with SP 2604D, "LPSI Pump Tests, Facility 2," and recorded on OPS Form 2604D-1, "B" LPSI Pump Operability Test." The inspector verified that test results were in compliance with the applicable technical specification acceptance criteria and equipment design bases, and verified that equipment operability was adequately demonstrated through performance of the test.

b. Findings

No findings of significance were identified.

.2 "B" Containment Spray Pump Testing

a. Inspection Scope

The inspector reviewed the results from a surveillance test conducted on the "B" containment spray pump (CS), performed in accordance with SP 2606B, "Containment Spray Pump Operability and Inservice Testing, Facility 2," and recorded on OPS Form 2606B-1, "Containment Spray Pump Operability Test, Facility 2." The inspector verified that test results were in compliance with the applicable technical specification acceptance criteria and equipment design bases, and verified that equipment operability was adequately demonstrated through performance of the test.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY Occupational Radiation Safety [OS]

2OS2 ALARA Planning and Controls

a. Inspection Scope

During the period October 16-20, 2000, the inspector conducted the following activities to evaluate the effectiveness of various controls to minimize and equalize personnel exposure for tasks conducted during power operations at Units 2 and 3.

The inspector reviewed pertinent information regarding cumulative exposure history, current exposure trends, and ongoing activities in order to assess the licensee's effectiveness in establishing exposure goals and in keeping actual personnel exposure as low as is reasonable achievable.

The inspector reviewed the associated exposure controls specified in ALARA Reviews/Evaluations (AR/AE) for selected jobs conducted at both units including...

for Unit 3:

- Spent fuel pool rack addition (AR3-00-01)
- Painting in the Radiologically Control Area (AR3-00-02)
- Spent Fuel Pool transfer canal equipment modifications (AR3-00-03)
- Repair of reach rod to 3WSS-V957 (AE3-00-1)
- Remove irradiated specimen from spent fuel pool (AE3-00-2)
- Trouble shoot resin transfer system (AE3-00-3)

for Unit 2:

- High dose redundant maintenance evolutions (AR2-00-26)
- Fuel pool cooling modification (AR2-00-27)
- Spent resin tank retention element replacement (AR2-00-28)

Individual exposure records were reviewed for completed tasks and for those currently in progress. Included in this review were the exposure records for divers who performed modifications in the Unit 3 spent fuel pool, declared pregnant workers, maintenance personnel, and radiation protection technicians. Interviews were conducted with an instrumentation and control (I&C) supervisor, a mechanical maintenance supervisor, and a health physics supervisor to assess departmental efforts to minimize and equalize dose for their respective staffs.

Independent radiation surveys were performed in areas of the Unit 2 and 3 auxiliary buildings, fuel handling buildings, and radwaste processing and storage areas to confirm posted survey results and assess the adequacy of radiation work permits and associated controls. Keys to Technical Specification Locked High Radiation Areas were inventoried and these areas were verified to be properly secured and posted during plant tours.

The effectiveness of various management controls were evaluated by reviewing the actions associated with a Self-Assessment (MP-SA-00-041), Radiological Surveys and Control of Radioactive Material, and with recent Nuclear Oversight Department Field Observations and Nuclear Oversight Verification Panel reports.

The inspector reviewed the following Condition Reports relating to the control of personnel exposure and work activities to determine if the issue was identified in a timely manner and that appropriate actions were taken to evaluate and resolve the issue:

M3-00-1811, I&C personnel used the wrong radiation work permit for work
 M3-00-1817, Evaluate use of a diver barrier for work in the spent fuel pool
 M3-00-1688, Self-assessment identified areas for improving ALARA planning and controls
 M3-00-2904, reactor coolant system Cobalt-58 and Zirconium-95 activity changing
 M3-00-2666, Contaminated stainless steel dive barrier cut up without technician coverage

b. Findings

No findings of significance were identified.

Public Radiation Safety [PS]

2PS3 Radiological Environmental Monitoring Program

.1 Radiological Environmental Monitoring Program (REMP)

a. Inspection Scope

The inspector reviewed the following documents and performed the following activities to ensure that the licensee met the requirements specified in the Technical Specifications (TS), Radiological Effluent Monitoring Manual (REM), and Offsite Dose Calculation Manual (REMDCM):

- the 1999 Annual Radiological Environmental Monitoring Program (REMP) Report, including public dose assessment results required by 40CFR190;
- the most recent REMDCM (Revision 18, January 3, 2000) and technical justifications for REMDCM changes, including sampling locations;
- the most recent calibration results of the primary and backup meteorological monitoring instruments for wind direction, wind speed, and temperature;
- operability of the meteorological monitoring instruments;
- the most recent calibration results for all TS air samplers (5 samplers);
- the licensee's quality control evaluation of the interlaboratory comparison program and the corrective actions for any deficiencies;
- implementation of the environmental thermoluminescent dosimeters (TLDs) program;
- Condition Reports (CR Nos.: M1-00-0330; M3-00-2675; M3-00-2709; M3-00-2717; and M3-00-2733);

- REMP Self-assessment Report Number ES-SA-00-007, dated August 10-31, 2000;
- the 2000 Quality Assurance Audit (Audit No. MP-00-A14), for the REMP, radioactive gaseous and liquid effluent controls, and the implementation of the REMODCM;
- the Land Use Census procedure and the 1999 results, including identification of the highest D/Q;
- walk-down for determining whether all air samplers, milk farms, composite water sampler, vegetable garden, and 25%TLDs were located as described in the REMODCM and for determining the equipment material condition; and
- associated REMP procedures, including vendor's analytical procedures.

b. Findings

No findings of significance were identified.

.2 Radioactive Material Control Program

a. Inspection Scope

The inspector reviewed the following documents and licensee activities to ensure that the licensee's surveys and controls were adequate to prevent the inadvertent release of licensed material to the public domain:

- the methods used for control, survey, and release from the Radiologically Controlled Area (RCA);
- the most recent calibration results for the radiation monitoring instrumentation (small articles monitor), including the (a) alarm setting, (b) response to the alarm, and (c) sensitivity;
- the licensee's criteria for the survey and release of potentially contaminated material; and
- associated procedures and records to verify the lower limits of detection.

The review was against criteria contained in 10CFR20, NRC Circular 81-07, NRC Information Notice 85-92, NUREG/CR-5569, Health Position Data Base (Positions 221 and 250), and the licensee's procedures.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES [OA]

4OA1 Performance Indicator Verification

.1 Auxiliary Feedwater System Unavailability

a. Inspection Scope

The inspector reviewed shift manager logs, system engineer unavailability data, and various corrective action program records related to the auxiliary feedwater system to determine the accuracy and completeness of the performance indicator (PI) data for the third quarter of calendar year 2000. The inspector verified the licensee's PI data relative to the reported values submitted to the NRC for the third quarter of calendar year 2000.

b. Findings

No findings of significance were identified.

.2 Safety System Functional Failures

a. Inspection Scope

The inspector reviewed Millstone Unit 2 licensee event reports (LERs) issued during calendar year 2000 to identify conditions involving safety system functional failures. The inspector compared identified safety system functional failures to the safety system functional failure PI data submitted to the NRC for the first three quarters of calendar year 2000.

b. Findings

No findings of significance were identified.

The inspector found that, due to inappropriate credit for operator recovery actions, the licensee did not count the common-cause failure of both trains of vital DC switchgear cooling in the reported PI value for safety system functional failures. This condition was reported in LER 50-336/2000-012-00. After reevaluating the guidance, the licensee documented this issue in Condition Report M2-00-3207. The NRC classified this issue as a minor discrepancy because, with the addition of this safety system functional failure, the number of safety system functional failures remained within the licensee response band (Green) for this PI.

.3 RETS/ODCM Radiological Effluent Occurrences

a. Inspection Scope

The inspector reviewed the following documents to ensure the licensee met all requirements of the performance indicator from the third quarter 1999 to the second quarter 2000 (4 quarters):

- monthly projected dose assessment results due to radioactive liquid and gaseous effluent releases;
- quarterly projected dose assessment results due to radioactive liquid and gaseous effluent releases; and
- associated procedures

b. Findings

No findings of significance were identified.

4OA6 Meetings, including Exit

.1 Resident Inspector Exit Meeting

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

LIST OF ACRONYMS USED

EDG	emergency diesel generator
I&C	instrumentation and control
LER	licensee event report
RCA	Radiologically controlled area
REM	Radiological Effluent Monitoring Manual
REMODOCM	Offsite Dose Calculation Manual
REMP	Radiological Environmental Monitoring Program
SSCs	structures, systems and components
TLDs	thermoluminescent dosimeters
TS	technical specifications

ENCLOSURE 2

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

Docket No.: 05000423

License No.: NPF-49

Report No.: 05000423/2000-012

Licensee: Northeast Nuclear Energy Company

Facility: Millstone Nuclear Power Station, Unit 3

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

Dates: October 1, 2000 - November 11, 2000

Inspectors: A. C. Cerne, Senior Resident Inspector, Unit 3
B. E. Siemel, Resident Inspector, Unit 3
S. K. Chaudhary, Senior Reactor Engineer, Division of Reactor Safety (DRS)
J. C. Jang, Senior Health Physicist, DRS
T. A. Moslak, Health Physicist, DRS
J. H. Williams, Senior Operations Engineer, DRS

Approved by: James C. Linville, Chief
Projects Branch 6
Division of Reactor Projects
Region I

SUMMARY OF FINDINGS

IR 05000423/2000-012; on 10/01-11/11/00; Millstone Nuclear Power Station; Unit 3.

The inspection was conducted by resident and regional inspectors. The significance of most/all findings is indicated by their color (green, white, yellow, red) using IMC 0609 "Significance Determination Process" (SDP) [see Enclosure 3 for a description of the NRC Revised Reactor Oversight Process]. Findings for which the SDP does not apply are indicated by "no color" or by the severity level of the applicable violation.

There were no significant findings identified during this inspection.

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Report Details

SUMMARY OF UNIT 3 STATUS

The plant began the inspection period on October 1, 2000, operating at approximately 100 percent power. On November 11, the last day of the inspection period, operators reduced power to approximately 90% to complete backflushing the last two of six circulating water bays. Following the backflushing activities operators restored power to 100% later that day.

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

1R01 Adverse Weather

a. Inspection Scope

The purpose of this inspection was to assess the licensee's protection of the safety related service water system (SW) and emergency diesel generators (EDGs) against adverse weather conditions. The inspector performed walkdowns of selected portions of the SW and EDGs to confirm the weather protection - related portions of the systems were as described in the Updated Final Safety Analysis Report (UFSAR) and applicable system piping and instrumentation diagrams (P&IDs). During these inspections applicable portions of abnormal operating procedure (AOP) 3569, Severe Weather Conditions, and SP 3670.5, Cold Weather Protection, were verified to ensure referenced actions could be taken locally and in the control room. In addition, the inspector verified that preventive maintenance was completed on tornado dampers and doors in the EDG buildings, and flood doors in the service water pump cubicles and appropriate corrective actions were initiated and completed where problems were identified. Using the procedures and automated work order instructions which outline the requirements for these activities, the inspector also verified the condition of a sample of these components in the field.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignments

a. Inspection Scope

The inspector performed a walkdown of both trains of the 125 volt dc battery systems, including inspection of all four safety-related batteries and associated dc bus components; the four battery chargers in the "float" mode of normal operation, as well as the two spare safety-related battery chargers (one per train); and the four load centers, two in the control building switchgear rooms and two in the auxiliary building, supplying power to the energized battery chargers. Vital dc power, along with the vital ac power supplied from the safety-related batteries, comprise the system that is the top contributor to the prevention of core damage from a risk perspective at Unit 3.

The inspector reviewed system operating procedure, OP 3345C (Revision 15), to determine the criteria for the normal configuration and operation of the 125 volt dc systems. The hydrogen monitoring system, temperature controls, and ventilation flows for the battery rooms were checked; as were the vital dc bus voltage, the battery charger local annunciator status, and the kirk key interlock controls, to ensure proper battery and bus alignment in accordance with the provisions of OP 3345C. The inspector also examined each of the sixty-cell battery banks for cable and connector integrity, electrolyte maintenance, and overall housekeeping or other signs of degradation. The Millstone 3 UFSAR was also reviewed to determine the scope of supporting system functionality required for the operability of the safety-related dc battery systems.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspector conducted an inspection of the general fire areas within the hydrogen recombiner (HCS) building, including an examination of both floor elevations and the fire protection equipment protecting both trains of HCS components. The design features for fire detection and suppression, as well as fire-rated construction and drainage pathways (e.g., normally closed floor drains), were evaluated in accordance with the criteria delineated in the Millstone Unit 3 Fire Protection Evaluation Report. The inspector also reviewed the Unit 3 UFSAR for the design bases of the HCS system, its environmental design conditions, and the Hazard Evaluation Sheet, assessing the potential effects of spray wetting, flooding, temperature, and humidity upon the HCS components and other safety-related equipment within the building (Fire Area HR-1).

However, during the review of analyzed hazards potentially impacting safety-related equipment in the hydrogen recombiner building, the inspector questioned the corrective action taken in response to a licensee-identified condition report (CR M3-00-1860). This involved a situation where both hydrogen recombiners were declared inoperable at the same time and an entry into technical specification 3.0.3 was required. This event and inspection follow-up of the related licensee event report are documented in Inspection Reports 50-423/2000-009 and 2000-011, respectively.

The inspection follow-up of CR M3-00-1860, while noting corrective action taken to prevent recurrence of the problem as it related to one hydrogen recombiner, identified no measures initiated by the licensee to determine if the other hydrogen recombiner was susceptible to the same problems. As a result of NRC questions, the licensee issued CR M3-00-3073 to review the generic implications of the root cause associated with the failed hydrogen recombiner. The licensee noted that the documentation of the extent of condition was lacking and the potential applicability of corrective action requirements to components in the redundant safety train was not discussed. Through subsequent investigation, the licensee was able to demonstrate that the specific failure mode was not common to both hydrogen recombiners. While no further hardware corrective

measures were necessary, the licensee noted in the evaluation summary of CR M3-00-3073 that the documentation of “extent of condition” details for generic problems required reinforcement.

The inspector also witnessed the conduct of an unannounced, graded fire drill, initiated during swing shift operation on October 2, 2000, which involved simulated actions by the licensed operators on shift to respond to the plant conditions set up in the drill. The fire scenario involved smoke in the auxiliary building and a simulated fire location that could affect both trains of charging pump cooling equipment. Because the general fire area contains not only the high head charging pumps, but also the reactor plant component cooling water pumps, operations personnel were required to enter the Emergency Operating Procedures and consider the loss of redundant trains of multiple safety-related systems, along with the response by other station personnel to locate and extinguish the fire. The Station Emergency Plan (i.e., a simulated “Alert” declaration) was also exercised by the personnel participating in this drill. The inspector noted licensee controllers and evaluators observing player performance during the conduct of the fire drill, and subsequently soliciting player feedback for the drill critique convened later that evening. At the conclusion of the exercise, the inspector discussed specific observations, including issues of Technical Specification applicability, with operations management and other drill personnel.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope

The inspector selected the “A” and “B” service water cubicles in the intake structure and the “A” emergency diesel generator enclosure to evaluate the licensee’s protection of these areas from internal and external flooding conditions. During inspections of these areas in the plant, the inspector confirmed the systems were designed as described in the UFSAR and P&IDs.

The EDG building is located above the flood line of the plant and is therefore subject only to internal flooding. Through a plant walkdown and review of P&IDs, the inspector confirmed that there is no communication between the two EDG enclosures above grade. The floor drains for each diesel come together at a common header before draining via a common line to an oil separator. The inspector discussed this design with the responsible system engineer and reviewed applicable flooding calculations to ensure that flooding of one train would not render the other train inoperable.

As the intake structure is located below the natural flood level of the plant, the inspector reviewed the service water cubicles for external as well as internal flooding considerations. The cubicles were examined to ensure that (1) there was no communication between the two trains of service water, which could cause flooding of one train to render the other train inoperable, and (2) the flood doors were operable. As noted in Section 1R06, the AOP for severe weather conditions was walked down to

confirm the directed actions could be taken. These actions include closing the watertight doors and taking the sump pumps out of service in both SW cubicles to prevent external flooding.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

.1 Unit 3 Maintenance Rule Periodic Assessment

a. Inspection Scope

The inspector reviewed the periodic evaluations required by 10 CFR50.65 (a)(3) to verify that all structures, systems and components (SSCs) were included in the evaluation, and balancing of reliability and unavailability was given adequate consideration. The inspector verified that periodic assessments were completed within the two year period. The review also included an assessment of the licensee's corrective action program with respect to identification and resolution of problems associated with maintenance.

For each chosen system, the inspector reviewed system health reports, (a)(1) corrective action plans, scoping documents that described system functions and performance measures and corrective actions for system problems/issues, and interviewed system engineers and the maintenance rule coordinator.

To verify that goals and performance measures were appropriate, industry operating experience was considered, corrective action plans were effective, and performance was being effectively monitored, the inspector reviewed the following (a)(1) high safety significant systems:

- Station Blackout diesel
- Nuclear Instrumentation
- Containment Isolation
- 120 Volt Instrument System

To verify that performance was acceptable, the inspector reviewed the following (a)(2) high safety significant systems:

- Auxiliary Feedwater
- Instrument Air
- Emergency Diesel Generators
- Residual Heat Removal

b. Findings

No findings of significance were identified.

.2 Maintenance Rule Implementation

a. Inspection Scope

The inspector reviewed licensee condition report (CR) M3-00-2713 which documented that in September acoustic test data indicated the apparent failure of one of three steam admission valves to the turbine driven auxiliary feedwater pump turbine to close under static pressure. The inspector reviewed the licensee's actions in response to the condition and the maintenance rule scoping documents for the auxiliary feedwater, main steam, and containment isolation systems; and discussed the reasoning behind not performing a maintenance rule functional failure determination with the Unit 3 maintenance rule coordinator.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessment and Emergent Work Evaluation

a. Inspection Scope

During this period the licensee identified a leaking weld on a vent line located on the common discharge header downstream of the spent fuel pool cooling heat exchangers as documented in CR M3-00-2845. In addition, as previously documented in NRC Inspection Report 50-423/2000-011, Section 1R05, and licensee CR M3-00-2723, during a fire protection self-assessment, the licensee identified the misrouting of a portion of power cable for the "B" charging pump. During this inspection, the licensee elected to reroute this power cable as an emergent work activity. The inspector observed the licensee's control of emergent work performed to investigate and correct these equipment deficiencies.

As part of this review, the inspector discussed the actions planned to resolve the issues with cognizant design and system engineers, and walked down the affected areas of the plant. While the spent fuel pool cooling system was taken out of service, the inspector confirmed through discussions with operations personnel and independent review of plant process computer data that spent fuel pool temperature remained within the design basis temperature throughout the evolution. Also while the "B" charging pump was out of service to reroute the cable, the inspector confirmed that significant maintenance originally scheduled for another charging pump was postponed.

The inspector also reviewed the licensee actions taken in response to a motor problem on one of the three fans (HVU-FN2B) providing ventilation flow for the control rod drive mechanism (CRDM) shroud cooler, on top of the reactor pressure vessel head inside containment. On September 30, 2000, both the breaker feeding this fan and the secondary breaker for the protection of the containment penetration tripped on overcurrent. The inspector discussed this condition, documented in CR M3-00-2730, with the operations shift manager and inspected the racked-out position of both of these circuit breakers on load center 32X in the motor control center located in the Rod Control Area of the auxiliary building. Subsequently, the inspector reviewed the applicability of Technical Specification 3.8.4, for containment penetration conductor overcurrent protective devices, in the racked-out condition of the secondary breaker,

determining that the protective device remained operable, as had been demonstrated during its overcurrent trip.

With HVU-FN2B out of service, the inspector verified that the licensee appropriately implemented the action requirements of the technical requirements manual (TRM) 7.4I within fourteen days (Action 1.b) for fire protection and within thirty days (Action 1.c) for establishing the affected system operability, as is documented in operability determination (OD) MP3-019-00. A review of the piping and instrumentation diagram for the containment structure ventilation (HVU) system (P&ID 153A-27), along with the CRDM ventilation and cooling subsystem description in the Unit 3 UFSAR, details the normal operation of any two of the fans to provide sufficient cooling flow to the CRDM magnetic coils. The unavailability of the 2B CRDM cooling fan continued through the end of this inspection period.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Plant Evolutions

a. Inspection Scope

The inspector assessed the licensee evaluation and implementation of a planned nine-day outage for the Unit 3 station blackout (SBO) diesel generator, as part of the preparatory work for the 4.16 Kv cross-tie project. This project, necessitated by the decommissioning activities at Unit 1, provides for the Unit 3 SBO diesel generator and 10 CFR 50, Appendix A, GDC 17 power supplies acting in the same functional capacity for Unit 2 power needs. As part of this assessment, the inspector reviewed the licensee's Technical Evaluation (M3-EV-00-0054), dated November 2, 2000, documenting the risk impact of the extended duration of the SBO diesel generator outage which concluded that the configuration risk that was incurred was acceptable.

The inspector also reviewed a licensee-identified condition report (CR M3-00-3064), documenting the fact that an annunciator on the main control board (i.e., "4160 Volt Bus 34D Loss of Control Power"), because of the lack of reflash capability, effectively masks any additional loss of control power problem on Bus 34D. This annunciator was lit because of the work associated with the removal of the SBO diesel generator from service to support the 4.16 Kv cross-tie project. The inspector also noted that CR M3-00-3064 documented a repeat occurrence of this event, in that such problems were previously noted to have occurred with a 34A bus, as documented in CR M3-00-2880.

The inspector discussed this issue with Unit 3 operations and nuclear oversight personnel, specifically questioning the adequacy of the planning for an extended outage of a component with acknowledged risk significance, when a known adverse condition (i.e., the masking annunciator) could have been addressed and corrected before the work commenced. While the licensed operators on shift were cognizant of the concerns for any masked Bus 34D problems and conducted a walkdown each shift to verify bus operability, this situation was acknowledged by the licensee's staff to meet neither the

expectations for work planning, nor the adequacy of corrective actions for a previously identified concern.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The following operability determinations (ODs) were reviewed. The inspector verified that the engineering justification for operability was sound, any compensatory actions required were in place, and all applicable technical specifications (TS) and technical requirements manual actions were met for each OD.

- MP3-071-98 A stuck open steam generator atmospheric bypass valve has a flow rate that exceeds the calculated steam flow isolation capability of the main steam atmospheric relief isolation valves.
- MP3-004-99 The outer mechanical seal O-rings for one recirculation spray system pump (3RSS*P1A) were fabricated from material different than that specified by the vendor drawing.
- MP3-020-00 Contrary to fire shutdown design and licensing basis, charging pump 3CHS*P3B power cable not adequately protected from fire by installed water curtain
- MP3-022-00 Increased engineered safety features building groundwater inleakage rate questions the qualification of air-driven sump pumps 3DAS*P15A/B

The inspector reviewed the technical specification (TS 3.7.1.6) bases for the steam generator atmospheric relief bypass valves and their associated block valves, as well as the Unit 3 UFSAR Chapter 15 accident analyses for both the inadvertent opening of a steam generator relief valve and a steam generator tube failure, in order to evaluate acceptability of the OD MP3-071-98 analysis in accordance with the Unit 3 licensing basis. Also examined were the emergency operating procedure (EOP 35 E-3) for a steam generator tube rupture and certain surveillance procedures for main steam valve operability, to determine if operator actions and valve testing criteria were consistent with the functionality of the subject valves to isolate flow, considering all assumed accident and design basis conditions.

For OD MP3-004-99, the inspector discussed the documented evaluation with the recirculation spray system (RSS) engineer. The inspector noted that Automated Work Order (AWO) M3 99 02837, which documents the instructions for replacement of the subject O-rings with vendor-approved material, has been scheduled for an upcoming RSS system outage. The inspector confirmed plans for an RSS pump operational

readiness test and other post-maintenance testing after completion of the AWO. Completion of this work will effectively close the subject OD.

The inspector also attended the PORC meeting at which OD MP3-020-00 was discussed and approved to verify compensatory actions were appropriate. In addition, the inspector discussed the possible effect of OD MP3-022-00 on the operability of the primary containment building with the associated design engineer to confirm that previous conclusions of containment operability were not challenged by the increased flow rate.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspector reviewed the completed documentation for post maintenance testing (PMT) performed on the "A" emergency diesel generator (EDG) service water inlet expansion joint, worked under automated work order (AWO) M3-95-20820, and the "B" charging pump cooler temperature control valve positioner, worked under AWO M3-00-12391. The inspector reviewed the scope of the work activities and verified that the PMTs planned and performed were appropriate to restore the operability of the components.

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 3604A.3 Charging Pump C Operational Readiness Test
- SP 3616A.1 Main Steam System Valve Operability Tests
- SP 31005A Moderator Temperature Coefficient and Power Coefficient Measurements, Power Exchange Method

The charging pump surveillance was observed in the control room and discussed with responsible reactor operators to confirm performance of the test in accordance with approved procedures. The completed data sheets were reviewed to verify the equipment met procedural acceptance criteria and was operable consistent with technical specification (TS) requirements.

The main steam valve quarterly tests were reviewed to confirm stroke times within the design limits and consistent with the in-service inspection trended range. The inspector verified that the surveillance test criteria included both local and remote valve cycle provisions to validate operator actions required by certain emergency operating procedures.

The inspector witnessed the conduct of the moderator temperature coefficient (MTC) testing performed by a swing shift operations crew, under the technical direction of reactor engineering personnel. In accordance with TS 4.1.1.3, this test is normally performed once near the end of the core life cycle to verify that the negative MTC remains within the limits established in the Core Operating Limits Report. It was noted that this same crew of licensed operators had trained at the Unit 3 simulator for performance of this test. The inspector confirmed initial plant conditions in the control room prior to commencement of the test and verified the correct use of operating procedures to effect the power changes required for the test measurements.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY
Occupational Radiation Safety [OS]

2OS2 ALARA Planning and Controls

Refer to NRC Inspection Report 05000336/2000-012, Section 2OS2 for specific details.

Public Radiation Safety [PS]

2PS3 Radiological Environmental Monitoring Program

Refer to NRC Inspection Report 05000336/2000-012, Section 2PS3 for specific details.

4. OTHER ACTIVITIES [OA]

4OA1 Performance Indicator Verification

.1 RETS/ODCM Radiological Effluent Occurrences

Refer to NRC Inspection Report 05000336/2000-012, Section 4OA1.1 for specific details.

.2 Unplanned Power Changes, Unplanned SCRAMS, & SCRAMS with a Loss of Normal Heat Removal

a. Inspection Scope

The purpose of this inspection was to confirm the information presented in the licensee's September 2000 Unplanned Power Changes per 7000 Hours Critical and Unplanned SCRAMS per 7000 Hours Critical performance indicators (PIs) was complete and accurate. The inspector reviewed selected operator logs, plant process computer data, and licensee monthly operating reports for the period from September 1, 1999, through September 30, 2000. Reported plant information was compared against industry guidance provided by NEI 99-02, Regulatory Assessment Performance Indicator Guideline, and discussed with the licensee analyst responsible for both PIs.

The inspector also reviewed the licensee's September 2000 PI for SCRAMS with a Loss of Normal Heat Removal. Previously, two reactor scrams had been counted against this PI. However, after discussion with the licensee analyst for this indicator and review of the guidance provided in NEI 99-02, it was determined that neither scram (a manual trip on November 11, 1998, due to high differential pressure across the circulating water screens, and an automatic trip on December 11, 1998, caused by the closure of one main steam isolation valve during testing) involved an actual loss of the normal plant heat removal pathway. In both cases, the main condenser remained available for heat removal, albeit through three main steam lines, for the automatic trip. Also, since feedwater isolation is normal for reactor trip conditions at or near full power, the automatic actuation of auxiliary feedwater for both events does not constitute abnormal heat removal conditions. Two other manual reactor trips were initiated with the unit at full power during the past 12 quarters, but a review of the licensee event reports associated with these scrams indicated that neither involved a loss of normal heat removal.

b. Findings

No findings of significance were identified.

40A5 Other.1 (Closed) URI 50-423/99-14-09: Adequacy of Performance Measures for High Risk Significant Structures, Systems and Components (SSCs)

This issue was unresolved pending further NRC evaluation of: (1) the licensee's methods for establishing performance measures; (2) failure to place the station blackout (SBO) diesel in (a)(1) following a second functional failure; and (3) the licensee's method of establishing performance measures for the emergency diesel generators and the SBO diesel.

While performing the 1998 maintenance rule periodic assessment, the licensee concluded that performance measures for high risk significant SSCs should be re-evaluated because of "balancing" concerns. Condition Report (CR) M3-98-1976 dated April 15, 1998, was issued to perform the evaluation. The licensee's probabilistic risk assessment (PRA) group performed the evaluation and issued memo NE-98-SAB-127 on August 31, 1998. The document included revised performance measures. The evaluation used a more conservative calculation than originally used and resulted in recommendations for a number of changes to performance measures. In some cases, the system engineers and the maintenance rule coordinator believed the performance measures were unrealistic and unacceptable. CR M3-00-0037 dated January 15, 2000, was issued to resolve this conflict.

After reviewing industry practices, the methods used to determine performance measures were revised again by the PRA group in July 2000 and new performance measures were determined. These revised performance measures were approved by the expert panel on October 19, 2000. No SSC was required to be placed in (a)(1) as a result of these changes.

The licensee's methods for determining performance measures for high risk significant SSCs was found to be in accordance with industry practice and in accordance with NRC requirements.

The SBO diesel reliability performance measure (<3 functional failures) was not exceeded by the second functional failure in April 1998. The system was placed in (a)(1) as a result of a third functional failure in August 2000.

A review of this unresolved item did not identify any violation of NRC requirements and this item is closed.

40A6 Meetings, including Exit.1 Resident Inspector Exit Meeting

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

ITEMS OPENED AND CLOSEDPrevious Items Closed

50-423/99-14-09	URI	Adequacy of Performance Measures for High Risk Significant Structures, Systems and Components (SSCs)(4OA5)
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LIST OF ACRONYMS USED

AOP	abnormal operating procedure
AWO	automated work order
CR	condition report
CRDM	control rod drive mechanism
EDGs	emergency diesel generators
EOP	emergency operating procedure
HCS	hydrogen recombiner
HVA	containment structure ventilation
MTC	moderator temperature coefficient
ODs	operability determinations
P&IDs	pipng and instrumentation diagrams
PIs	performance indicators
PMT	post maintenance testing
PRA	probabilistic risk assessment
RSS	recirculation spray system
SBO	station blackout
SSCs	structures, systems and components
SW	service water system
TRM	technical requirements manual
TS	technical specification(s)
UFSAR	updated final safety analysis report

ENCLOSURE 3

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting safety performance at NRC licensed plants.

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety

- Initiating Events
- Mitigating Systems
- Barrier Integrity
- Emergency Preparedness

Radiation Safety

- Occupational
- Public

Safeguards

- Physical Protection

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.