

U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

Report No. 50-423/84-22

Docket No. 50-423

License No. CPPR-113 Priority -- Category B

Licensee: Northeast Nuclear Energy Company  
P.O. Box 270  
Hartford, Connecticut 06101

Facility Name: Millstone Nuclear Power Station, Unit 3

Inspection At: Waterford, Connecticut

Inspection Conducted: October 15-19, 1984

Inspectors: *J.A. Bettenhausen* *H.H.N.*  
H. H. Nicholas, Lead Reactor Engineer

*12/11/84*  
date

*L.S. Gesalta*  
L. S. Gesalta, IAEA, Observer

*11/23/84*  
date

Approved by: *J.A. Bettenhausen*  
L. H. Bettenhausen, Chief, Test Program  
Section

*12/11/84*  
date

Inspection Summary: Inspection on October 15, 1984 (Report No. 50-423/84-22)

Areas Inspected: Routine unannounced inspection of licensee's action on previous inspection findings; preoperational test program including test program requirements and implementation, test procedure reviews, test witnessing, emergency diesel generator set test verification; and, tours of the facility. The inspection involved 39 hours onsite by one region-based inspector.

Results: No violations were identified.

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## DETAILS

### 1. Persons Contacted

#### Northeast Nuclear Energy Company (NNECO)

J. Crockett, Superintendent Unit 3  
\*J. Harris, Startup Supervisor  
N. Hulme, Startup Engineer  
\*D. Miller, Jr., Manager Startup Services

#### Northeast Utilities Service Company (NUSCO)

\*D. Blumenthal, QA Engineer  
\*K. Gray, Jr., Staff Assistant  
\*R. Lefebvre, Project Staff Engineer  
\*S. Orefice, Project Engineer  
\*A. Silvia, Engineer

#### Stone and Webster Engineering Corporation (SWEC)

\*J. Capozzoli, Jr., Supervisor of Construction Services  
\*J. Carty, Superintendent of Engineering  
... Clifford, Startup Engineer  
\*A. Dasenbrock, Resident Manager  
\*S. Hunt, EA Program Manager  
\*G. Marsh, Assistant Superintendent of Construction  
\*W. Rambow, Lead Advisory Engineer  
\*P. Reilly, Superintendent Site Turnover Engineering Group  
\*W. Vos, Senior Engineer

#### Babcock and Wilcox (B&W)

J. Murray, Field Representative

#### US Nuclear Regulatory Commission (USNRC)

\*L. Gesalta, Observer  
\*T. Rebelowski, Senior Resident Inspector  
\*S. Reynolds, Lead Reactor Engineer

\*denotes those present at exit interview on October 19, 1984.

### 2. Licensee Action On Previous Inspection Findings

(Closed) Unresolved Item (423/84-11-01) Phase two testing procedures for HVAC to be reviewed by licensee for test tolerance values and equipment range.

The inspector's concerns were: listing a lower temperature limit for system cooling capability to be tested; an upper limit for system heating capability to be tested; and, source of outside air temperature to be shown in procedure.

A test procedure change form was initiated by the licensee with appropriate notes added to the procedure addressing the incorporation of these concerns. Other HVAC systems have been reviewed to verify that these items, where appropriate or applicable, have been incorporated into the procedures. The inspector verified that these changes were approved by the JTG, PORC and the unit superintendent. The inspector had no further concerns at this item. This item is closed.

### 3. Preoperational Test Program

#### References

References for preoperational test program are documented in inspection report number 423/84-17.

#### 3.1 Test Program Requirements

##### Scope

Test program requirements were discussed with licensee representatives. The areas explored and discussed during this inspection included Equipment Protection and Cleanliness, such as a formal program for housekeeping activities during preoperational testing has been established, a program for maintaining the appropriate degree of cleanliness of nuclear plant components and piping during preoperational testing has been established and water chemistry controls have been established for fluid systems undergoing preoperation testing; Test and Measurement Equipment, such as reviewing administrative procedures to ensure that controls have been established for special test equipment to include listing of controlled test equipment, calibration requirements, calibration history, controls for storage and issuance, and requirements for recording test equipment identity and calibration dates in test procedures; and, training, such as verifying that training requirements have been established in writing for all personnel involved in the test program areas of test procedure preparation, test procedure approval, test performance and documentation, test results review and approval, and verifying that required training includes administrative controls for testing, QA/QC for testing and technical objectives.

##### Discussion

This concludes reviews and discussions of the nine areas of preoperational test program requirements. These areas are: the test program, the test organization, the test program administration, document control, design

changes and modifications, plant preventive maintenance, equipment protection and cleanliness, test and measurement equipment, and startup personnel training.

#### Findings

No discrepancies were noted in the review of these areas. Implementation of program in all nine areas will be examined in future inspections on a periodic sampling basis.

### 3.2 Test Procedure Reviews

#### Scope

The approved test procedures listed in Attachment A were reviewed for technical and administrative adequacy and for verification that adequate testing is planned to satisfy regulatory guidance and licensee commitments. The criteria used for review are listed in inspection report 423/84-17.

#### Findings

As a result of the review of these test procedures, the inspector ascertained that the procedures are consistent with regulatory requirements, guidance and licensee commitments. No discrepancies or unacceptable conditions were identified. The inspector had no further questions on these procedures.

### 3.3 Test Witnessing

#### Scope

During the course of this inspection the inspector witnessed portions of oil flushes of the emergency diesel generator sets A and B, charging pump oil flushes; and, portions of testing of the auxiliary boilers.

#### Discussion

Witnessing of the oil flushes included discussions with startup personnel, revision of procedures and diagrams, and visual examination of filter cloths from oil flushes.

Witnessing testing of auxiliary boilers included discussions with startup personnel and vendor field representatives, review of test procedures and partial witnessing of the preliminary testing of the auxiliary boilers such as setting of dampers and valves, combustion setting, and the sitting and testing of the safety valves.

### Findings

No discrepancies or unacceptable conditions were noted during witnessing of these evolutions.

## 3.4 Emergency Diesel Generator Test Verification

### Scope

The emergency diesel generators are required to meet start and load acceptance qualification tests as outlined in IEE Standard 387, Diesel Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations. According to IEEE 387, a series of tests shall be conducted to establish the capability of the diesel generator unit to start and accept load within the period of time to satisfy the plant design requirement. A total of 300 valid start and loading tests shall be performed with no more than three failures allowed.

### Discussion

The inspector reviewed the Colt Industries, Fairbanks Morse Engine Division, Engineering Report titled, 300 Start and Load Acceptance, Qualification for Engine 206072A, file number 11-206072 approved November 14, 1978. The inspector held discussions with startup personnel regarding the qualification testing of the A emergency diesel generator set. A 300 start and load acceptance qualification test was run on diesel generator set A for Millstone Nuclear Power Station - Unit 3 by Fairbanks Morse Engine Division during September - October of 1978 at Beloit, Wisconsin. A total of 300 start and load acceptance runs were required; 270 from warm standby temperatures and 30 from normal equilibrium temperatures, with no more than three failures allowed.

### Findings

From review of the Engineering Report, the inspector noted that a total of 271 valid start and load acceptance runs were made from warm standby temperatures with two failures to meet the acceptance criteria. Both failures were attributed to oil leaks in lube oil headers, which were later corrected. A total of 33 valid start and load acceptance runs were made from normal operating equilibrium temperatures with no failures to meet the acceptance criteria.

The inspector had no further questions at this time. These areas will be reviewed in detail during future inspections.

No discrepancies were noted in the review of these test results. The inspector noted that the diesel generator set successfully passed the 300 start and load acceptance qualification test.

### 3.5 Quality Assurance and Quality Control

Test program quality assurance and quality control, and action to implement coverage from construction to operating phase were reviewed and discussed with the licensee's representatives. Areas that were discussed included quality assurance organization, quality assurance program, quality control for testing and the transition phase from construction to operation.

### 4. Plant Tours

The inspector made several tours of the facility including the containment, turbine building, auxiliary building, service building, control building, engineered safety features building, emergency diesel generator building, battery rooms, control room, fuel oil storage tank pits, auxiliary boilers area, circulating water and service water pump house, and hydrogen recombiner building.

The inspector observed work in progress witnessed auxiliary boiler testing, flushes of the emergency diesel generator sets and charging pumps, housekeeping and cleanliness controls, and protection of components, piping and systems. While observing work in progress in the emergency diesel generator rooms, the inspector noted that an air gauge was broken on one of the air receiver tanks of the A diesel generator set. This item was brought to the attention of the startup engineer who immediately started corrective action. This system has not been tested as yet. This is an inspector follow item 423/84-22-01 and will be followed on a subsequent inspection.

### 5. Exit Interview

At the conclusion of the site inspection on October 19, 1984, an exit meeting was conducted with the licensee's senior site representatives (denoted in Paragraph 1). The findings were identified and previous inspection items were discussed. At no time during this inspection was written material provided to the licensee by the inspector.

ATTACHMENT A

TEST PROCEDURE REVIEW

- (1) T3314-HP Revision 0, Approved September 12, 1984 Emergency Generator Enclosure Ventilation
- (2) T3313-DP Revision 0, Approved October 2, 1984 Containment Air Filtration System
- (3) T3313-CP Revision 0, Approved September 12, 1984 CRDM Air Cooling System
- (4) T3345-CP0006 Revision 0, Approved August 28, 1984 125 VDC Duty Cycle Testing
- (5) T3321-DA Revision 0, Approved September 19, 1984 Turbine Feed Pump Drive Lube Oil Supply and Trip Mechanism
- (6) 3-INT-2001 Revision 0, Approved September 18, 1984 Computer Programs Test Appendix 3R2 Revision 0 Reasonability Check and Time Average of Incore Thermocouples Test Case
- (7) 3-INT-2001 Revision 0, Approved October 5, 1984 Computer Programs Test Appendix 3T2 Revision 0 Engineered Safeguards System Actuation Without Loss of Power