

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-423/85-59

Docket No. 50-423

License No. CPPR-113

Licensee: Northeast Nuclear Energy Co

P. O. Box 270

Hartford, Connecticut 06101

Facility Name: Millstone Nuclear Power Station, Unit 3

Inspection At: Waterford, Connecticut

Inspection Conducted: September 30 - October 4, 1985

Inspectors: *A. P. Finkel*
Jim Prell, Reactor Engineer

10-24-85
date

Norman Blumberg
Norman Blumberg, Lead Reactor Engineer

10-24-85
date

A. Finkel
A. Finkel, Lead Reactor Engineer

10-24-85
date

W. Oliveira
W. Oliveira, Reactor Engineer

10/25/85
date

Approved by: *Jon Johnson*
for Jon Johnson, Chief
Operational Programs Section
Operations Branch, DRS

10/25/85
date

Inspection Summary: Routine, unannounced inspection conducted on
September 30 - October 4, 1985, (Report No. 50-423/85-59)

Areas Inspected: Operational Staffing, Operational Staff Training, Maintenance Procedures [including Instrumentation and Control (I&C)] and Licensee Actions on previous Inspection Findings. The inspection involved 131 hours on-site by four region-based inspectors.

Results: No violations were identified.

DETAILS

1.0 Persons Contacted

- * R. Cikatx Quality Control (QC) Engineer - NNECO
- * C. Clement Supervisor, Maintenance - NNECO
- * G. Closius Supervisor, Quality Assurance (QA)/QC - NNECO
- * J. Crockett MP-3 Unit Superintendent - NNECO
- F. Diliberto Engineer - Site
- C. Drane Maintenance Welding Supervisor - NNECO
- R. Enoch Assistant Instrumentation & Control (I&C) Supervisor - NNECO
- R. Fraser Assistant I&C Supervisor - NNECO
- R. Goldsmith MP-3 Senior I&C Instructor - NUSCO
- * K. Gray Jr. Staff Assistant Construction QA - NUSCO
- R. Hamill MP-3 Maintenance Instructor - NUSCO
- * M. Hess In Service Inspection (ISI) Engineer - NNECO
- J. Jensen QA Specialist - NUSCO
- * J. Kelley Station Services Superintendent - NNECO
- * J. Laware Engineering Technologist - NUSCO
- J. Kelly Senior QA Engineer - S&W
- M. Manolakis MP-3 Senior I&C Instructor - NUSCO
- * D. Miller Startup Manager - NUSCO
- * D. Moore MP-3 Operation Assistant - NNECO
- * L. Nadeau Assistant Project Engineer - NUSCO
- K. Naehring Maintenance, Production Maintenance Management
 System (PMMS) Planner - NNECO
- S. Orefice Project Engineer - NUSCO
- W. Potter Operations Staff - Westinghouse
- * V. Papadopoli Supervisor, Construction QA - NUSCO
- P. Privizzini Electrical Assistant Maintenance Supervisor - NNECO
- D. Robinson I&C Engineer - NNECO
- R. Rudis E. A. Program Manager - S&W
- * T. Rogers I&C PMMS Planner - NNECO
- J. Short Assistant Maintenance Supervisor - NNECO
- * R. Stotts MP-3 Training Supervisor - NNECO
- W. Vos Senior Field QC Engineer - S&W
- M. WenMeyer Maintenance Procedure Coordinator - S&W

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- * H. VanKessel Reactor Engineer
- * T. Rebelowski Senior Resident Inspector

* Denotes those present at exit meeting on October 4, 1985

2.0 Licensees Actions On Previous Inspection Findings

(Closed) Construction Deficiency Report (423/85-00-12) - Interconnection cabling between the 24 volt DC power supply system and the 7300 Westinghouse protection rack sets was designed and installed as nonsafety-related cable within the safety-related cable tray. The 24 volt DC system is used as an auctioneered back-up power supply for the 26 volt DC power supply. The cabling should therefore have been safety-related and installed in accordance with Millstone Unit No. 3 cable separation criteria of specification E-350. Engineering and Design Coordination Report (E&DCR) T-E-03940 identified the cables which had to be replaced and those affected documents that required revisions. The inspector verified that the following cables were replaced, tested and inspected per the criteria listed in E&DCR TE-03940. The cable pull tickets listed below were used by the inspector when verifying that the replacement cables were installed. System drawings EE-3HA, EE-3HB, EE-3HG, EE-3HD, EE-3HK and EE-3HL were used during the verification inspection.

<u>Pull Ticket No.</u>	<u>Cable No.</u>	<u>Title</u>
277	3RPS1NX809	Reactor Protection System
278	3RPS1NX810	Reactor Protection System
279	3RPS1NX811	Reactor Protection System
280	3RPS1NX808	Reactor Protection System
281	3RPS2NX810	Reactor Protection System
282	3RPS2NX811	Reactor Protection System
283	3RPS4NX808	Reactor Protection System
284	3RPS4NX810	Reactor Protection System

This item is closed.

(Closed) Construction Deficiency Report (423/83-00-11) - The main control board has terminations installed by Reliance Electric Company. These terminations had either incomplete or incorrectly crimped lugs or lugs sized for 16-24 AWG wire but used to terminate resistors of 20 AWG wire size. The licensee had 46 samples of various crimped items which were seismically qualified by Farwell and Hendricks, Inc. Laboratory in Milford, Ohio, on June 7, 1984. The method of testing and the test results are documented in (F&H) report No. 10106. A review of test data, test procedures and equipment arrangement as described in F&H qualification report No. 10106 indicates that the 46 samples passed the test criteria of the procedure and are seismically qualified for this site. A review of the test report analysis by Reliance Electric No. SQR-99X2087-A, Revision 1, dated February 28, 1985, identified the recorded anomalies as being within their acceptance range. The inspector verified that the required and actual F&H test parameters were in accordance with the Millstone Unit 3 site criteria and that the anomalies of the report were dispositioned in an acceptable manner by Reliance Electric. This item is closed.

3.0 Operational Staffing and Training

3.1 Requirements/References

- 10CFR55
- Technical Specification Section 6
- FSAR Chapter 13
- Regulatory Guide (RG) 1.8, Personnel Selection and Training, which endorses ANSI N18.1-1971
- RG 1.58, Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel, which endorses ANSI N45.2.6-1978
- Northeast Utilities Quality Assurance Topical Report (NUQAT)
- Northeast Utilities Service Company (NUSCO) Training Manual
- NUSCO Welding Manual

3.2 Program Review

The following procedures were reviewed in accordance with the requirements referenced in paragraph 3.1.

- ACP-QA-8.07, Revision 3, QA Training Program
- ACP-8.02, Revision 8, Fire Fighting Training Program
- ACP-QA-8.08, Revision 4, Millstone Reactor Operator Training
- ACP-8.09, Revision 0, Millstone Licensed Operator Requalification Program
- ACP-QA-8.16, Revision 13, Training Certification and Identification of Qualified Inspection, and Testing Personnel
- OP 3251, Revision 2, Licensed and Nonlicensed Operator Systems Training
- OP 3254, Revision 1, Operation Department Administrative Training
- OP 3256, Revision 0, Fire Brigade Member Header Training Unit-3
- QA-1304, Revision 4, Non-License Training for QA/QC Personnel
- IC 3401, Revision 2, Unit 3 Instrument and Control Department Training
- MP 3708A, Revision 0, Unit 3 Maintenance Training
- EN 31051, Revision 2, Unit 3 Engineering Department Training
- EN 31052, Revision 2, Reactor Engineering Training Program
- EN 31053, Revision 0, Engineering Technician Training
- 3-OPS-8.04, Revision 0, Operations Department Training Requirements
- Millstone Station Chart 6 (Unit 3) dated July 1, 1985
- Millstone Nuclear Power Station Organization Chart dated September 13, 1985
- Cost Code Classification (CCC) Staff List dated August 31, 1985

The review verified that:

- The applicant has committed to ANSI N18.1-1971 per FSAR Chapter 13, in the selection and training of their staff

- The staff organization was in accordance with the FSAR and the organization charts
- Each staff position was filled in accordance with the FSAR, Cost Code Classification (CCC) Staff List and the organization charts
- The staff qualifications for their designated assignments were adequate (see paragraph 3.3)
- The licensee has a trained staff which meets the appropriate regulatory requirements (see paragraph 3.3)
- A continuing program of training was being conducted, including General Employee Training (GET)
- Replacements were receiving the training or were found to have the experience equivalent to that required for the originally selected personnel

3.3 Program Implementation

Implementation of the program was verified by the following:

- The staff positions were filled as shown in the CCC Staff List and the organization charts. Personnel from the various departments were selected for interviews. An examination of their personnel and training folders was made which provided credence to the CCC staff List and organization charts.
- The resumes and qualification records of selected personnel were reviewed to assure that the positions were filled by qualified individuals.
- The Engineering Department organization and mission were reviewed to verify that it was the technical support organization for Unit 3.
- All the Maintenance Department welders' qualification records were reviewed to assure that their qualifications were current.
- Non-Destructive Testing (NDT) support to QA/QC from Corporate QA was found to be adequate.
- The General Employee Training (GET) records for ten personnel were reviewed. It was verified that they had received training in accordance with the FSAR, which exceeds the requirements of ANSI N18.1-1971.
- A review of the on-the-job-training (OJT) program was made. OJT is conducted by the Operations, Instrumentation and Control (I&C), and Quality Assurance/Quality Control (QA/QC) Departments. QA/QC is seeking INPO accreditation by January 1986 for their OJT. The Main-

tenance Department OJT program was being developed. The Engineering Department OJT is keyed to the MP-3 Systems List. Engineers are formally assigned to specific systems and learn by working with the Startup program personnel.

-- The training records of at least two individuals in each of the following job classifications were reviewed:

- Principal staff members
- Reactor operator candidates
- Senior reactor operator candidates
- Maintenance craftsmen
- Instrumentation and Control technicians
- QA/QC technicians

The records contained the information required by the departmental training programs and regulatory requirements. They were accessible, properly filed, legible and current.

-- At least one individual and his supervisor in each of the preceding job classification' was interviewed. The individuals were qualified and had received the training listed in their training records. All individuals interviewed believed that the training program was improving. The supervisors were supportive of the training needs for their personnel and were aware of managements' commitment to ANSI N18.1-1971. The supervisors themselves were satisfied with the supervisory training courses they have received.

-- A new hire was interviewed. He expressed satisfaction with the training program provided to him.

The responsibility for administering the training programs lies with the Training Department Coordinator for Maintenance, I&C, and Operations. The Engineering and QA/QC Departments have their own training coordinators. The respective training coordinators are all members of the Program Control Committee. This committee consists of both craft and supervisory personnel. The committee evaluates new and existing courses, vendor training courses, and future training needs, including training aids and text books. The status of the various departments training programs were examined and found to be as follows.

-- Operation Department: Plant Equipment Operators (PEO) training is scheduled to be completed in November 1985, Cold licensing will be completed in December 1985 and Hot licensing and requalification training will be completed in February 1986.

-- I&C: Initial, on-call and specialty training have been completed. Group qualification was under preparation.

- Maintenance Department: Basic training has been completed on all systems. Fundamental training courses have been drafted and were under review.

3.4 QA and QC Interface

Three NUSCO QA audits involving operational staffing and training were conducted in the past two years. The audits were detailed and the corrective action response was timely and adequate. A review of the following audits was made.

- QA Audit A68002, Startup Test, conducted in April 1983 and issued June 2, 1983. One finding was resolved involving the interpretation of equivalent education.
- QA Audit A68005, Millstone 3 Personnel Training Program, conducted in July 1983 and issued September 14, 1983. The findings were of the administrative type and were resolved.
- QA Audit A40925, Corrective Action, was conducted over several months and issued on April 2, 1985. A finding regarding computerizing training records was referred to Corporate Headquarters for resolution.

3.5 Findings

No violations were identified, however, the qualifications/experience level for some Operations Department shift operators were still undergoing review by NRC Headquarters.

4.0 Maintenance Program

4.1 References/Requirements

1. Northeast Utilities Quality Assurance Program Topical Report, Revision 7
2. 10 CFR 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants
3. Regulatory Guide 1.33, February 1978, Quality Assurance Program Requirements
4. ANSI N18.7-1976, Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants
5. Technical Specification (Draft), Sections 4 and 6

4.2 Program Review

The following administrative, maintenance and I&C procedures were reviewed to determine if the applicant has established a maintenance and I&C program consistent with the requirements and references identified in Section 4.1. [It should be noted that the applicant's program for Measuring and Test Equipment was reviewed during NRC inspection 423/85-49]

- Administrative Control Procedure (ACP)-QA-2.01, Revision 6, Quality Assurance Program Boundary
- ACP-QA-2.02A, Revision II, Installation Inspections
- ACP-QA-2.02B, Revision II, Retests
- ACP-QA-2.02C, Revision 4, Work Orders
- ACP-QA-2.06A, Revision 9, Station Tagging
- ACP-QA-2.06B, Revision 6, Station Bypass/Jumper Control
- ACP-QA-2.06C, Revision 1, Station Bypass/Jumper Control for Trouble Shooting, Red Lining, and Calibration
- ACP-QA-2.07, Revision 14, Control of Special Processes
- ACP-QA-2.12, Revision 7, System Valve Alignment Control
- ACP-QA-3.03, Revision 27, Document Control
- ACP-QA-8.16, Revision 13, Training, Certification and Identification of Qualified Inspection and Testing Personnel
- Maintenance Procedure (MP)-3704A, Revision 1, Preventive Maintenance Program
- MP-3710BA, Revision 0, Preventive Maintenance Program Application
- Surveillance Procedure (SP)-3712B, Revision 0, Pressurizer Heater Surveillance Testing
- MP-3720AC, Revision 0, Auxiliary Feed Pump Turbine Overhaul
- MP-3720-CG, Revision 0, PM Procedure Adding Lube Oil to Diesel Generator
- MP-3766AB, Revision 1, Repair of Seal Welded Check Valves

- MP-3782BA, Revision 0, PM Procedure, 480 Volt Motor PM Except Motor Operated Valves
- MP-3782CA, Revision 0, 480 Volt Load Center Breakers
- MP-3782DA, Revision 0, 480 Volt Motor Control Center PM
- MP-3782FA, Revision 0, PM Procedure, 480/120 Volt Lighting Transformers/Distribution Transformers
- MP-3786RA, Revision 0, Preventive Maintenance 24 VDC FPQA Batteries
- MP-3786AD, Revision 0, Regulating Transformers
- Instrumentation and Control Procedure (IC)-3401, Revision 2, Unit 3 Instrument and Control Department Training
- IC 3402, Revision 2, Assembly and Maintenance of Instrument Loop Folders
- IC 3403, Revision 2, Preventive Maintenance (PM) Program
- IC 3403, Revision 2, Unit 3 I&C Department Installation Verification
- IC 3405, Revision 0, EEQ Maintenance
- IC 3408A01, Revision 0, Use of Uncontrolled Documents
- IC 3408A02, Revision 0, Non Technical Special Instruments With Licensing Requirements

Based upon this review it was determined that:

- the index of maintenance and I&C procedures include, as appropriate, those identified in Regulatory Guide 1.33 in the following categories Measuring and Test Equipment procedures, Preventive and Corrective Maintenance procedures and Surveillance procedures.
- a comprehensive preventive maintenance schedule has been established which prescribes the time and type of maintenance required for all vital equipment and instrumentation. This is an automated schedule which is primarily used as a work control system. This automated work control system is called "Production Maintenance Management System" (PMMS) and lists each plant system item, provides an inventory of parts, determines the job classification, prints out the automated work order, and eventually will provide a maintenance history for each item.
- an administrative lockout/tagging program has been established to assure that equipment requiring maintenance is safe to work on. This lockout/tagout system is controlled by the operations group.

- a controlled program exists for assuring that post maintenance testing is performed unless the operations department determines otherwise.
- vendor information has been accurately transposed to the appropriate maintenance procedure or I&C procedure.
- controls exist for assuring that prior to removing equipment from service the operability and availability of redundant equipment has been established.
- maintenance and I&C procedures provide sufficient detail to assure an adequate job.
- the Operations Department has a tag log book for tracking systems tagged out of operation for maintenance activities.

4.3 Program Implementation

The NRC inspector witnessed maintenance work on Work Order Number M385-19527, "Installation of Raychem Sleeving on Battery Jumpers for Battery Bank 301A-2"

A review of the current status of PMMS determined the following;

- 100% of the items to be listed on PMMS have been identified. Approximately ninety five percent of these items have been entered into the data base. This will be completed prior to full load.
- The Engineering Department is reviewing items to verify their proper classification. The licensee is developing a system to review the established classification of items to assure that they have been classified correctly. This review is scheduled to be completed prior to fuel load.
- The PMMS does not provide trending information but this capability was planned for the future.
- Although the preventive maintenance (PM) schedule has been incorporated into PMMS, a clear PM graphic of the schedule does not exist. The applicant was aware of this problem and intends to prepare a graphic PM schedule. The NRC inspector reviewed and verified the existence of the "PM Work Order Report" (PM schedule) for the full year.
- Surveillance Procedures presently have not been incorporated into PMMS. The licensee plans on inserting them into PMMS prior to fuel load.
- The applicant is attempting to list all spare parts of identified items in PMMS, prior to fuel load.

The NRC inspector also reviewed the Operations Department interface responsibilities with the maintenance and I&C departments. A review of the Jumper, Lifted Lead and Bypass Control Logs, the Valve Check Off List and the Cleared and Open Tag Log Sheets was made to verify conformance to the appropriate requirements.

No violations were identified.

4.4 QA/QC Interface

The QA/QC Department does not approve maintenance or I&C procedures. However QA/QC does review and concur on all Category I work order packages prior to their being released or scheduled. During this review, QA/QC has the opportunity to review the appropriate maintenance or I&C procedure. If they do not feel the procedure(s) adequately addresses QA concerns, QA/QC does not concur on the work order.

Upon completion of the work order, QA/QC again reviews for completeness the work order package prior to sending it to the document control center.

4.5 Findings

In the review of the maintenance procedures against information in the vendors manual, it was noted that one of the procedures, MP3782CA "480 Volt Load Center Breaker", failed to incorporate specific vendor manual safety notes required prior to performing maintenance on the circuit breakers. This is an inspector follow-up item (50-423/85-59-01).

ACP-QA-2.12 paragraphs 5.3.1 and 5.3.2 states the following: "Instrument and Control supervision ensure valve checkoff lists are prepared for safety related instruments ... ensure instrument stop valve checkoffs are performed by qualified personnel at the prescribed frequency." In addition, Paragraphs 6.4.2.1 and 6.4.2.2 state that the I&C Department "... shall ensure that instrument isolation stops that are not on scale normally or during surveillance testing are checked for proper alignment at least quarterly... An instrument isolation stop lineup verification shall be performed prior to start-up if the plant is in cold shutdown for greater than thirty(30) days." Discussions with I&C Department representatives indicate that they were unaware of the above requirements and had not drafted any plans or procedures to implement the requirements of ACP-QA-2.12.

The inspector noted that instrument folders were prepared for each instrument and that these folders contained, among other things, checkoff sheets for the instrument valves. However, these valve checkoff sheets were intended to be used during instrument calibrations. ACP-QA-2.12 applies to overall system valve lineups. Since they both have valve lineup responsibilities, a method is needed to assure that I&C interfaces with the Operations Department for the return to normal valve lineups; i.e. instrument root valves are operated by Operations Department personnel and instrument valves are operated by I&C Department personnel.

This item is unresolved pending licensee action to implement requirements of ACP-QA-2.12 and subsequent NRC:RI review (50-423/85-59-02).

I&C Department Procedure IC 3408A02, "Non Technical Special Instruments With Licensing Requirements", provides a listing of those plant installed instruments used to verify Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Condition During and Following an Accident", 10 CFR 50, Appendix R, "Fire Protection Program for Nuclear Power Facilities...", and Technical Specification surveillance requirements. The inspector, using a random sample of technical specification surveillance requirements, identified several instruments which were not incorporated into IC 3408A02. In addition, calibration responsibility for some plant instrumentation lies with other departments such as the diesel generator kW, Volt, and frequency meters which are calibrated by the Maintenance Department and were not incorporated into IC 3408A02. The above remains unresolved pending licensee action and subsequent NRC:RI review (50-423/85-59-03).

Procedure 3408A02-4 provides a form for environmental equipment qualification (EEQ) temperature monitoring of certain plant instrumentation. As of the dates of this inspection no instruments have been listed on this form. A licensee representative stated that EEQ instruments requiring temperature monitoring would be identified at a later date and entered on the form. This item is open and its completion will be reviewed during a subsequent NRC:RI inspection (50-423/85-59-04).

5.0 Independent Calculations

Surveillance procedure SP-3712B, RO, "Pressurizer Heater Surveillance Testing" requires that each pressurizer heater group have a capacity of 175kW. Maintenance Form 3712B-1 is used for recording the voltage and current to the three phase heaters. This form also gives the following formula for determining the number of kW.

$$KW = E_T + 0.33 \times I_T \times 0.33 \times 1.73 \times 0.0001$$

A review of this formula shows that it is not accurate as the last factor should be 0.001 instead of 0.0001. This was acknowledged by the licensee who has committed to correcting it.

6.0 Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable, deviation or violations. Two unresolved items are discussed in Paragraph 4.6.

7.0 Management Meeting

Licensee management was informed of the scope and purpose of the inspection at an entrance meeting conducted on September 30, 1985. The findings of the inspection were discussed with licensee representatives during the course of the inspection. An exit meeting was conducted on October 4, 1985 at the conclusion of the inspection (see paragraph 1 for attendees) at which time the findings were presented to licensee management.

At no time during this inspection was written material provided to the licensee.