

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No. 50-245/79-29
50-336/79-30
Docket No. 50-245
50-336
License No. DPR-21 Priority - Category C
DPR-65
Licensee: Northeast Nuclear Energy Company
P. O. Box 270
Hartford, CT 06101

Facility Name: Millstone Nuclear Power Station, Units 1 & 2

Inspection at: Waterford, Connecticut 06385

Inspection conducted: December 1-31, 1979

Inspectors: *R. Keimig for* 2-29-80
J. T. Shedlosky, Senior Resident Inspector date signed
R. Keimig for 2-29-80
R. P. Zimmerman, Resident Inspector date signed
_____ date signed
Approved by: *R. Keimig* 2-29-80
B. R. Keimig, Chief, Reactor Projects date signed
Section No. 1, RONS Branch

Inspection Summary:

Inspection on December 1-31, 1979, (Combined Report
Nos. 50-245/79-29 and 50-336/79-30)

Areas Inspected: Routine, onsite regular and backshift inspection by two resident inspectors (60.5 hours, Unit 1; 40.5 hours, Unit 2). Areas inspected included the control rooms and the accessible portions of the Unit 1 primary containment, reactor, turbine, radioactive waste, gas turbine generator, and intake buildings; the Unit 2 enclosure, auxiliary, turbine and intake buildings; the condensate polishing facility; radiation protection; physical security; fire protection; plant operating records; surveillance testing; calibration; maintenance; core power distribution limits; and NRC reporting requirements.

Results: No items of noncompliance were identified.

DETAILS

1. Persons Contacted

The below listed technical and supervisory level personnel were among those contacted:

J. M. Black, Superintendent, Unit 3
P. Callaghan, Unit 1 Maintenance Supervisor
F. Dacimo, Quality Services Supervisor
E. C. Farrell, Superintendent, Unit 2
J. Bangasser, Station Security Supervisor
H. Haynes, Unit 2 Instrumentation and Control Supervisor
R. Herbert, Superintendent, Unit 1
J. Kelly, Unit 2 Operations Supervisor
E. J. Mroczka, Superintendent, Plant Services
J. F. Opeka, Station Superintendent
R. Place, Unit 2 Maintenance Supervisor
P. Przekop, Unit 1 Engineering Supervisor
W. Romberg, Unit 1 Operations Supervisor
S. Scace, Unit 2 Engineering Supervisor
F. Teeple, Unit 1 Instrumentation and Control Supervisor
K. Thomas, Engineer

2. Review of Plant Operations - Plant Inspections

The inspector reviewed plant operations through direct inspection and observation during routine power operation of Units 1 and 2, and outages at Unit 1 following a plant trip due to loss of excitation to the main generator, and at Unit 2 for 'C' and 'D' reactor coolant pump seal replacements.

During this inspection, activities in progress at Unit 1 included routine power operations, generator voltage regulator repairs, isolation condenser system walkdown and inspection following water hammer in that system (paragraph 4), and acoustic monitor installation on relief valve piping. Unit 2 activities included routine power operations, repair of failed power supplies to the control room annunciators (paragraph 5) and feed pump seal replacement.

a. Instrumentation

Control room process instruments were observed for correlation between channels and for conformance with Technical Specification requirements. No unacceptable conditions were identified.

b. Annunciator Alarms

The inspector observed various alarm conditions which had been received and acknowledged. These conditions were discussed with shift personnel who were knowledgeable of the alarms and actions required. During plant inspections, the inspector observed the condition of equipment associated with various alarms. No unacceptable conditions were identified.

c. Shift Manning

The operating shifts were observed to be staffed to meet the operating requirements of Technical Specifications, Section 6, both to the number and type of licenses. Control room and shift manning were observed to be in conformance with Technical Specifications and site administrative procedures.

d. Radiation Protection Controls

Radiation protection control areas were inspected. Radiation Work Permits in use were reviewed, and compliance with those documents, as to protective clothing and required monitoring instruments, was inspected. There were no unacceptable conditions identified.

e. Plant Housekeeping Controls

Storage of material and components was observed with respect to prevention of fire and safety hazards. Plant housekeeping was evaluated with respect to controlling the spread of surface and airborne contamination. There were no unacceptable conditions identified.

f. Fire Protection/Prevention

The inspector examined the condition of selected pieces of fire fighting equipment. Combustible materials were being controlled and were not found near vital areas. Selected cable penetrations were examined and fire barriers were found intact. Cable trays were clear of debris.

g. Control of Equipment

During plant inspections, selected equipment under safety tag control was examined. Equipment conditions were consistent with information in plant control logs.

h. Instrument Channels

Instrument channel checks were reviewed on routine logs. An independent comparison was made of selected instruments. No unacceptable conditions were identified.

i. Equipment Lineups

The inspector examined the breaker position on all switchgear and motor control centers in accessible portions of the plant. Equipment conditions were found in conformance with Technical Specifications and operating procedure requirements.

3. Review of Plant Operations - Logs and Records

During the inspection, the inspector reviewed operating logs and records covering the inspection time period against Technical Specifications and administrative procedure requirements. Included in the review were:

Shift Supervisor's Log	-	daily during control room surveillance
Plant Incident Reports	-	12/1 through 12/31/79
Jumper and Lifted Leads Log	-	all active entries

Maintenance Requests and Job Orders	-	all active entries
Safety Tag Log	-	all active entries
Plant Recorder Traces	-	daily during control room surveillance
Plant Process Computer Printed Output	-	daily during control room surveillance
Night Orders	-	daily during control room surveillance

The logs and records were reviewed to verify that: entries were properly made; entries involving abnormal conditions provided sufficient detail to communicate equipment status, deficiencies, corrective action, restoration and testing, and records were being reviewed by management; operating orders did not conflict with the Technical Specifications; logs and incident reports detailed no violations of Technical Specification or reporting requirements; logs and records were maintained in accordance with Technical Specification and Administrative Control Procedure requirements.

Several entries in these logs were the subject of additional review and discussion with licensee personnel. No unacceptable conditions were identified.

4. Unit 1 Isolation Condenser System - Water Hammer Event

At 1604 hours on December 19, 1979, a loss of excitation to the main generator, due to a broken wire in the amplidyne, caused a generator protective trip. A turbine trip and reactor trip ensued, with vessel water level dropping to approximately 40" as a result of void collapse. The RWCU system isolated on low reactor water level. A Group I isolation occurred at 850 psig reactor pressure with the mode switch remaining in run. Vessel level was raised to approximately 60" after the plant trip to minimize cold feedwater nozzle cycles. After bypassing around the MSIVs to equalize pressure prior to reopening, the turbine inlet pressure remained below the turbine bypass electro-mechanical pressure regulator setpoint. When the MSIVs were reopened the turbine inlet pressure increased above the regulator setpoint and the turbine bypass valves opened. The vessel level swell which followed caused the water level to increase above the isolation condenser steamline penetration and water hammering occurred. The isolation condenser was taken out of service at approximately 1635 on December 19 and an inspection of the system was conducted.

A visual inspection of the isolation condenser piping outside the drywell was conducted by the licensee on December 19, 1979. Several anchor bolts on supply line restraints ICAC-E-1-1 and ICAC-E-1-4 were pulled out of the concrete from 1/16 to 3/8 inch maximum. Job Order (JO)-440-79 instituted corrective action consisting of ultrasonic testing to ensure required bolt embedment and torquing of the bolts to 260 foot - pounds. Additionally, a deadweight hanger on the condensate return line was found bent and required repair. The inspector reviewed the results of the bolt inspection and testing.

A visual inspection of the isolation condenser piping inside containment was conducted by the licensee on December 20, with no damage to the piping, valves, supports, or insulation observed.

The licensee is continuing to evaluate the effects of water hammer on the isolation condenser system. The inspector will follow licensee actions surrounding the water hammer event including methods to preclude recurrence.

5. Loss of Unit 2 Control Room Annunciators

On December 29, 1979 at 2320 hours, all control room annunciator windows began to flash and eventually all windows went dark. Control board indicators, recorders and process computer points were monitored by plant personnel during the period the Annunciator System was out of service. All analog signals to the process computer remained available; however, the digital signals which the process computer receives from the Annunciator System were lost. The NRC Duty Officer was notified by telephone at 0009 hours on December 30.

The Annunciator System consists, in part, of twenty-eight (28) Rochester Instrument System (RIS) Model AN-159 power supplies, connected in parallel, to provide the required current and voltage for the logic cards, field contacts and lamps. Upon investigating the failure of the Annunciator System, it was determined that of the twenty-eight (28) power supplies fourteen (14) had failed. This condition resulted in the remaining power supplies becoming sufficiently overloaded to automatically shutdown the supply.

At 0542 hours on December 30, 1979, the system was returned to service following replacement of the fourteen (14) failed supplies. To date, there has been no surveillance or preventive maintenance program in effect for the power supply portion of the Annunciator System. It is therefore not possible to determine the chronological sequence for when the power supply failures actually occurred. Short term corrective action planned to prevent recurrence consists of developing a surveillance procedure to verify the operability of the power supplies.

The inspector will continue to follow licensee actions including the development of a surveillance procedure and review of test data.

6. Licensee Event Reports (LERs)

The inspector reviewed the following LERs to verify that the details of the event were clearly reported, including the accuracy of the description of cause and adequacy of corrective action. The inspector determined whether further information was required, and whether generic implications were involved. The inspector also verified that the reporting requirements of Technical Specifications and Station Administrative and operating procedures had been met, that appropriate corrective action had been taken, that the event was reviewed by the Plant Operations Review Committee, and that the continued operation of the facility was conducted within the Technical Specification limits.

Unit 1

79-32, Setpoint drift of two Reactor Protection System drywell pressure switches outside the Technical Specification allowable band. The remaining two switches were within specification and would have initiated the protection logic at the required design value.

79-33, Setpoint drift of one of the sixteen main steam line ΔP switches outside the Technical Specification allowable band. Failure of the one switch did not impair the system's ability to perform its function.

79-34, Low Pressure Coolant Injection (LPCI) System inoperable. While performing routine surveillance, an electrical fault in the motor controller for the LPCI Inboard Isolation Stop Valve (1-LP-10B) resulted in the inability to inject low pressure cooling in the "B" recirculation loop. While cycling 1-LP-10B, the motor contactor faulted and fused in the "close" direction. The motor controller was electrically repaired, tested, and returned to service. A design change is planned to upgrade the motor controller contactor to the next larger size.

79-35, Repeated event; one of the four main steam line low pressure switches responsible for initiation of Group I isolation was found outside the Technical Specification allowable band, due to setpoint drift. The other three low pressure switches were within specification.

Unit 2

79-37, Repeated event; through wall chloride stress corrosion cracking of boric acid evaporator "B" concentrates pump discharge line. Cracking was in a 1-1/2 inch type 304, schedule 10S stainless steel pipe. A repair was made. The cause of the cracking is the presence of chloride from salt water leakage in the aerated radwaste system.

79-38, Leakage discovered on an aerated radwaste drain line. Through wall pitting or cracking in a four inch type 304, schedule 10S stainless steel pipe on a normally isolated connection with the clean liquid radwaste system. The failure mechanism is different from previous radwaste pipe failures in that the subject piping was not heat traced.

79-39, Maintenance performed on primary sampling valves without first performing a local leak rate test as required by Technical Specifications (licensee identified). Subsequent to the maintenance, local leak rate testing was performed with satisfactory results.

The inspector had no further questions in this area.

7. Review of Periodic and Special Reports

Upon receipt, periodic and special reports submitted by the licensee pursuant to Technical Specification 6.9.1 and 6.9.2 were reviewed by the inspector. This review included the following considerations: the report includes the information required to be reported by NRC requirements; test results and/or supporting information are consistent with design predictions and performance specifications; planned corrective action is adequate for resolution of identified problems; determination whether any information in the report should be classified as an abnormal occurrence; and the validity of reported information. Within the scope of the above, the following periodic report was reviewed by the inspector:

Monthly Operating Report - November, 1979

No inadequacies were identified.

8. Plant Maintenance

During the inspection period the inspector frequently observed various maintenance and problem investigation activities. The inspector reviewed these activities to verify compliance with regulatory requirements, including those stated in the Technical Specifications; compliance with the administrative and maintenance procedures; compliance with applicable codes and standards; required QA/QC involvement; proper use of safety tags; proper equipment alignment and use of jumpers; personnel qualifications; radiological controls for worker protection; fire protection; retest requirements and reportability as required by Technical Specifications. The following activities were included during this review:

Unit 1:

- water hammer in isolation condenser system
- failure of fire detection sensor

Unit 2

- dropped CEA #39

- #1 Safety Injection Tank low level
- (A) SGFP excessive seal leakage
- CEA switch position indication failure

No unacceptable conditions were identified.

9. Exit Interview

At periodic intervals during the course of the inspection, meetings were held with senior facility management to discuss the inspection scope and findings.