U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-245/85-20

Docket No. 50-245

License No. DPR-21 Priority -- Category --

Licensee: Northeast Nuclear Energy Company

P.O. Box 270

Hartford, Connecticut 06141-0270

Facility Name: Millstone Nuclear Power Station, Unit 1

Inspection At: Waterford, Connecticut

Inspection Conducted: July 8-12, 1985

Inspectors: Harold L Gregg for
E. H. Gray, Lead Reactor Engineer — 8-14-85 date

Approved by: Harold L Gregg for
J. T. Wiggins, Chief
Materials and Processes Section, DRS — 8-14-85 date

Inspection Summary: Inspection During July 8-12, 1985, (Report No. 50-245/85-12)

Areas Inspected: Routine unannounced inspection by one region based inspector. The inspection included areas of the ISI Program, diesel generator interpolar connecting straps, and licensee actions taken in response to GE SIL No. 402 concerning the potential for cracking of steel components (Torus Vent Header) by Liquid Nitrogen. The inspection included 36 hours on site and three hours of follow-up at the region office.

Results: No violations were identified.

DETAILS

1.0 Persons Contacted

Northeast Nuclear Energy Company (NNECo)

D. Bergstrom, Senior Control Room Operator
G. Closius, QC/QA Manager-MS#1/2
E. Hernandez, Maintenance Department Planner
*J. Leason, MS #1, ISI Coordinator
G. Mathers, ISI Technician
*R. Palmieri, OPS Supervisor
*W. Romberg, Station Superintendent
J. Summa, Assistant Engineering Supervisor (Electrical)
J. Quinn, Assistant Supervisory Engineer
*W. Varney, Maintenance Department Superintendent

Northeast Utilities Service Company (NUSCo)

P. Higgins, Engineer (Inerting System)
*R. West, ISI Coordinator

*Indicates presence at Exit Meeting of July 12, 1985.

2.0 Inservice Inspection (ISI) Program Activities

The present 10 year ISI program started on December 28, 1980. It is in accordance with the ASME Code Section XI, 1980 Edition through the winter 1980 addenda, except that the summer 1975 addenda is applicable to categories BJ, BD,BF,B-G-1 and B-G-2 as stated in the ISI program, Revision 1, dated August 31, 1984. The licensee's Nuclear Engineering and Operations (NEO) procedure NEO 2.07 delineates responsibilities for fulfilling the ISI requirements and is supplemented by procedure QRE 1.10-1. This procedure prescribes the NUSCO ISI Coordinator responsibilities including involvement in planning on-site ISI activities. The present NDE contractor is EBASCo, who works to the Northeast Utilities NDE procedures.

The inspector reviewed the aspects of the ISI program which include tracking of required examinations, availability of records from the 1984 ISI outage, planning for the present 40 month period, preparation for the ISI portion of the fall 1985 outage, status reporting format and processing of Non Destructive Examination (NDE) findings as required by procedure EN 1060G. The overall controls of the ISI program must meet plant technical specification commitment to ASME Code Section XI and augmented examination requirements including NUREG 1061. Millstone Unit.1 is in the first part of the second forty month period of the second 10 year ISI interval. This forty month period includes two planned refuel outages, one in the fall of 1985 and the following in 1987. NUREG-1061, Volume 1

outlines NDE requirements intended to determine the progress of Intergranular Stress Corrosion Cracking (IGSCC) in BWR piping with the NDE scope being dependent on countermeasures taken to prevent or reduce the IGSCC rate of attack. The outage plan for ISI during 1985 was presented to the NRC by the licensee in the IGSCC augmented ISI plan memo dated June 24, 1985. This outage plan included identification of welds to be examined to NUREG 1061 and those examinations applicable to meeting the ASME Code Section XI requirements.

Observations were made of archived shop and field radiographs, the storage area, ultrasonic test blocks, portions of the ISI data base and of previous ISI records and documentation. The steps of review for approval of NDE procedures and personnel certifications were also reviewed.

The inspector concluded that the administration of the ISI program is under adequate control to provide for NDE of the ASME Code Section XI and the augmented ISI program requirements.

No violations were identified.

3.0 Independent Measurement - Diesel Generator Interpolar Connecting Straps

As a result of the diesel generator (Fairbanks Morse) defects that caused interpolar connecting strap failure during overspeed at the Calvert Cliffs Nuclear Plant on May 14, 1985, damage to the stator winding of one diesel resulted. On May 29 and June 3, 1985, the diesel generator manufacturer reported under 10 CFR Part 21 the defects of the specific model and informed licensee's at other nuclear plants supplied the same model. The Millstone Unit #1 diesel generator was not identified as the affected Fairbanks Morse model. However, the inspector performed independent observations to verify that the diesel generator at Millstone Unit No. 1 was indeed a different model.

Millstone Unit 1 has one diesel generator, Fairbanks Morse type TGZDJ, FR-V-34 which has a gas turbine unit as a backup. Millstone Unit 2 has two diesel generators, Fairbanks Morse type TGZDK. The unit 2 diesels were observed to not have interpolar connecting straps but does have damper bars and shorting straps. The unit 1 diesel was observed to not have a visible damper bar circuit but does have a bolted design interpolar connecting strap. The interpolar connecting strap is perpendicular to the generator centerline and is not subject to fatigue loading similar to that of the Calvert Cliffs TGZDJ generator.

No evidence of degradation was visible on either the MIllstone Unit #1 or #2 diesel generator interpolar connector areas as visible through the generator screens.

4.0 TI 2500/12 Actions Taken By The Licensee To Prevent Damage To Plant Components By Liquid Nitrogen. - Response To GE SIL No. 402.

The boiling water reactor (BWR) Mark I and II containments operate with a nitrogen drywell atmosphere of less than 4% oxygen. The nitrogen is generally provided by vaporizing liquid nitrogen (LN^2) from a storage tank located outside the reactor building. One of the important aspects of operation of the nitrogen inerting system is to have adequate vaporization and heating of the LN^2 to prevent cooling of carbon steel components including piping and drywell or Torus components to a temperature below that where the material will not behave in a ductile manner. The General Electric Service Information letter (SIL) No. 402 dated February 14, 1984, outlines this problem and provides the recommendations listed below as actions to prevent material damage by the nitrogen inerting system.

1. Evaluate inerting system design
2. Evaluate inerting system operation
3. Test for Drywell/Wetwell bypass leakage
4. Inspect nitrogen injection line
5. Inspect containment

The region based inspector reviewed NRC inspection reports (50-254/84-02 and 50-254/84-11) which discuss previous activity by the licensee in meeting the SIL 402 recommendations. It was noted that the licensee originally modified the nitrogen supply system in 1973 to prevent damage by liquid nitrogen. The inspector reviewed the drawings (25202-29134-7 and 26009), operations procedure (OP) #311 and engineering correspondence (GMB-85-R-066 and 059) as applicable to the Nitrogen System. The inspector also observed the LN^2 system including temperature/pressure interlocks, the steam vaporizer and walked down the nitrogen lines to the points of entry into the drywell and torus. The memo GMB-85-R-066 documents licensee review of the nitrogen inerting system design, potential for injecting low temperature nitrogen into the containment, orientation of the nitrogen discharge port, operating experience of the N^2 inerting system, plant calibration and maintenance schedules, plant operating procedure, by pass leakage test and visual inspection of the vent header and downcommer. Safety features preventing discharge of LN^2 into the carbon steel piping include (1) a pressure switch on the steam vaporizer that prevents LN^2 flow if low steam pressure, (2) temperature switches preventing LN^2 flow if N^2 as vaporized is not above approximately 50°F, (3) a flow switch preventing gaseous N^2 flow if its temperature is below 50°F. On the basis of documents reviewed, discussions with operating and engineering personnel and observations of the N^2 supply system the inspector concluded that the recommendations of GESIL 402 had been addressed such that the licensee response to the is considered to be complete.

System improvement is planned by providing recycling of a portion of the N^2 gas, reducing the amount needed to be vaporized and thereby further reducing the risk of having LN^2 exposed to those carbon steel components susceptible to damage.

No violations were identified during evaluation of the licensee actions pertaining to GESIL 402.

5.0 QA/QC Interactions in Areas Inspected

During inspection of the LN^2 vaporizing system a tag (trouble report number 29MI145946, dated 6/29/85) was noted on 7/9/85 identifying a crack in a copper flange to a 2 inch diameter LN^2 supply tube. To evaluate control of the identified problems and QA/QC involvement in the maintenance process, the inspector reviewed the trouble report (TR) and the administrative control procedure ACP-QA-2.02 C Revision 4. The procedure was found to provide for the designation of a lead department, in this case QC, responsible for activities preceding actual work; however, the procedure and personnel assignments do not provide for advising the lead department of the TR. In this case, the maintenance department PMMS Planner was aware of the TR and had planned to initiate a work order. The priority level required that work of the assigned priority generally be initiated within one week of the date of the TR.

The NRC inspector observed that the procedure (ACP-QA-202-C) permitted a condition where a designated lead department would not be aware of the writing of a TR and would not meet the responsibilities of a lead department as defined in paragraph 5.0 of the procedure. While a regulatory violation was not identified in this area, the licensee agreed to review ACP-QA-2.02C to determine if a revision is required to prevent unnecessary delay between TR writing and initiation of a work order where a designated lead department does not monitor TRs. This item is unresolved (245/85-20-01).

In the area of ISI, the site QA is involved by audit on a preoutage basis, review and signoff of the ISI work order, presence during contractor review by the ISI coordinator and review of NDE procedures and personnel certifications.

No violation was identified.

6.0 Unresolved Itesm

Unresolved Items are matters about which more information is required in order to ascertain if they are violations or deviation. An unresolved item is discussed in paragraph 5.0.

7.0 Exit Interview

The inspector met with licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on July 12, 1985. The purpose, scope and findings of the inspection were summarized and discussed. At no time during this inspection was written material provided to the licensee by the inspector.