

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-423/84-15

Docket No. 50-423

License No. CPPR-113

Priority --

Category A

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: August 28-31, 1984

Inspectors: Robert A. McBrearty
R.A. McBrearty, Reactor Engineer

October 2, 1984
date

Approved by: J.P. Durr
J.P. Durr, Chief, Materials and
Processes Section, EPB, DETP

10/10/84
date

Inspection Summary:

Inspection on August 28-31, 1984 (Report No. 50-423/84-15)

Areas Inspected: Routine, unannounced inspection of Preservice Inspection (PSI) of the reactor pressure vessel including review of program, procedures and records, and observations of work in progress. The inspection involved 25 hours onsite and 5 hours in the office by one regional based inspector.

Results: No violations were identified.

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DETAILS

1. Persons Contacted

Northeast Utilities Service Company (NUSCO)

- * D. Blumenthal, QA Engineer
- * D. Jones, PSI Consultant
- * J. Laware, QA Engineering Technologist
- * D. B. Miller, Jr.
- * S. Orefice, Project Engineer
- * R. W. Pritchard, PSI Project Engineer
- * S. Sikorski, NDE Level III

Stone and Webster Engineering Corporation (SWEC)

- * C. A. Kuhns, Assistant QA Program Administrator
- * P. Reilly, Superintendent
- * W. H. Vos, Senior Engineer FQC

Westinghouse Electric Corporation

- * D. Kurek, Engineer - Inspection Services
- * C. M. Peterson, Site Representative

USNRC

- * T. A. Rebelowski, Senior Resident Inspector

- * denotes those present at the exit meeting

2. Preservice Inspection Program (PSI)

a. Reactor Vessel Examination

The remote, automatic ultrasonic examination of the reactor pressure vessel was in progress during this inspection.

The inspector reviewed the Reactor Vessel Preservice Examination Program, Revision 3, which was prepared by Westinghouse Electric Corporation for examination of the Millstone Unit 3 reactor vessel. The review was done to ascertain that ASME Code and regulatory requirements are met.

The examination program identifies specific welds, weld location, applicable calibration blocks and the extent to which each weld will be examined. Additional information which is provided by the program includes the equipment which will be used, transducer size and frequency, angle and mode of sound transmission and whether automatic, manual or a combination of the two examination techniques will be used. The program is intended to meet requirements found in the ASME

Code, Section XI, 1980 Edition, Winter 1980 Addenda, and the Westinghouse position on NRC Regulatory Guide 1.150.

No violations were identified.

b. Piping Systems Examination

The PSI Program, with the exception of the reactor pressure vessel, was prepared by the licensee. Westinghouse Electric Corporation, who is responsible for performing the vessel examinations, was awarded the contract to perform the examination of the piping systems.

The licensee estimated that approximately 70 percent of the piping PSI is completed. No examinations were in progress during this inspection, and the licensee agreed to notify the inspector when work will resume.

3. Review of Implementing Procedures

The inspector reviewed PSI nondestructive examination procedures to ascertain compliance with ASME Code and regulatory requirements regarding preservice inspection of reactor pressure vessel welds. The following were included in the inspector's review:

- Procedure NSD-ISI-10, Revision 5, "Qualification for Ultrasonic Manual Equipment"
- Procedure OPS-NSD-101, Revision 5, "Preservice and Inservice Inspection Documentation"
- Amendment No. 3 to OPS-NSD-101, Revision 5
- Procedure ISI-154, Revision 2, "Preservice and Inservice Inspection of Reactor Vessels"
- Amendment No. 1 to ISI-154, Revision 2
- Procedure ISI-147, Revision 0, "Manual Ultrasonic Examination of Welds in Vessels"
- Change No. 1 to ISI-147, Revision 0
- Procedure ISI-155, Revision 0, "Manual Ultrasonic Examination of Nozzle Inner Radii"

The reviewed procedures were found to meet the applicable ASME Code and regulatory requirements and are considered technically adequate for their intended use regarding the preservice inspection of the Millstone Unit 3 reactor vessel.

4. Observations of Work in Progress

The inspector observed the ultrasonic examination of the reactor vessel upper shell longitudinal weld number 8 (101-122c) at 330° location. He additionally observed a portion of the video tape record of the ultrasonic examination of the outlet nozzle at 202° to upper shell weld which was done from the nozzle bore. The nozzle weld examination was done prior to this inspection.

The examinations were done by Westinghouse Electric Corporation personnel using the remotely operated Westinghouse inspection tool. Equipment used to control the remote tool and record examination data was located in a trailer adjacent to the containment.

The inspector found that the examinations met the applicable requirements listed in Table 1 of the examination program. These included transducer size and identification, examination frequency, sound beam incident and refracted angle and the required water path. Additional information included identification of the applicable calibration block and the specific reflectors used to calibrate the ultrasonic system. Calibration, which was performed at the Westinghouse Waltz Mill site, was checked at Millstone using an in-vessel target and an electronic block simulator. The examinations were performed using an array of 1½ inch diameter transducers and a frequency of 2.25 MHz at a scan speed of 3 inches per second.

The Sonic Multichannel Time-Amplitude Ultrasonic System sequentially pulses 16 available channels although not all 16 channels are in use at any one time. The frequency at which each transducer is pulsed results in a 60% transducer overlap when a 3 inch scan speed is used. Procedure ISI-154, Rev. 2 permits a maximum scan speed of 5 inches per second which, at the pulsing frequency, will result in a 35% transducer overlap, thereby assuring complete coverage of the examination volume.

The inspector reviewed drawings of calibration blocks used to calibrate the ultrasonic system for reactor vessel examinations. The blocks were sent to the Waltz Mill site for the system calibration and had not been returned to the Millstone site at the time of this inspection. The reflector dimensions and locations, and the block sizes, as represented on the drawings, were found to meet applicable ASME Code requirements.

No violations were identified.

5. Nondestructive Examination (NDE) Personnel Certification Records

Qualification/Certification records of Westinghouse personnel who participated in the reactor vessel examinations, and of the certifying Level III individual were reviewed by the inspector to ascertain that each individual was properly qualified to perform the examinations.

The records were found to be legible and complete, including current visual acuity reports. The inspector found that each individual was qualified to perform his assigned responsibilities.

No violations were identified.

6. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on August 31, 1984. The inspector summarized the purpose and scope of the inspection and the findings. At no time during this inspection was written material provided by the inspector to the licensee.