

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-341
License No: NPF-43

Report No: 50-341/96009(DRS)

Licensee: Detroit Edison Company

Facility: Fermi 2 Nuclear Power Station

Location: 6450 N. Dixie Highway
Newport, MI 48166

Dates: October 7-11, 1996

Inspectors: M. S. Holmberg, Reactor Inspector
K. Green-Bates, Reactor Inspector

Approved By: W. Kropp, Chief, Engineering Branch 1
Division of Reactor Safety

Report Details

II. Maintenance

M1 Conduct of Maintenance

M1.1 Observation of Inservice Inspection (ISI) Activities

a. Inspection Scope (73753, 73052, 73755)

Inspectors observed work, reviewed ISI procedures, personnel certifications and reviewed data associated with the following activities:

- General Electric Nuclear Energy (GE) personnel performing magnetic particle (MT) and ultrasonic testing (UT) on main steam loop B pipe welds No. SW-PS-2-B3-TLU, SW-PS-2-B3-TLD-I, SW-PS-2-B3-TLD-O, SW-PS-2-B4-LU-I, SW-PS-2-B4-LU-O, FW-PS-2-B4, SW-PS-2-B4LD.
- GE personnel performing UT on main steam loop D pipe welds No. SW-PS-2-D3LU, FW-PS-2-D3, SW-PS-2-D3LD-O, SW-PS-2-D3-ALU-O, SW-PS-2-D3-A, SW-PS-2-D3-ALD.
- ISI staff performing a demonstration of procedure GE-PDI-UT-2, revision 0, "Procedure for Manual Ultrasonic Examination of Austenitic and Dissimilar Metal Piping Welds."
- GE personnel performing ultrasonic equipment calibration and UT of reactor vessel head weld 5-319.
- GE personnel performing ultrasonic equipment calibration for inspections of recirculation loop A and B IGSCC susceptible welds.

b. Observations and Findings

GE personnel performing UT of weld SW-PS-2-B4-LU-O did not use the skewing technique identified as the recommended scanning method in procedure UT-FER-106V0, revision 0, "Procedure For Manual Ultrasonic Examination of Ferritic Piping Welds." For this weld inspectors estimated the UT scanning speed to be in excess of 3 inches per second recommended by the procedure, but within the maximum allowed speed of 6 inches per second.

Procedure GE-PDI-UT-2, revision 0, "Procedure for Manual Ultrasonic Examination of Austenitic and Dissimilar Metal Piping Welds," was based on a Performance Demonstrated Initiative Procedure. This procedure was demonstrated as a superior inspection technique to the Authorized Nuclear Inservice Inspector (ANII) in accordance with requirements of IWA-2240 of Section XI of the ASME Code. This procedure was subsequently used to perform inspections of recirculation loop piping welds potentially susceptible to IGSCC.

c. Conclusions

The ISI program was implemented in accordance with the licensee's program and ASME Section XI, 1980 Edition, Winter 1981 Addenda, requirements. Non-preferred scanning techniques (speed greater than that recommended by the procedure and lack of skewing) were utilized during a UT examination by contracted nondestructive examination (NDE) personnel, which indicated that opportunities exist for improvement in contract NDE oversight. Inspectors considered the use of a performance demonstrated procedure for welds susceptible to IGSCC to be an element of a quality ISI program.

M3 Maintenance Procedures and Documentation

M3.1 Inservice Inspection

a. Inspection Scope (73052,73755)

The inspector reviewed UT data and corrective actions associated with flaws detected in shroud head bolts during the fourth refueling outage (RFO-4).

b. Observations and Findings

On May 20, 1994, 16 shroud head bolts were identified with ultrasonic indications (documented on Deviation Event Report 94-0210), which were subsequently determined to be caused by IGSCC. The licensee replaced the affected bolts with bolts of improved design and materials resistant to IGSCC. The remaining susceptible bolts were scheduled to be replaced with the improved bolt design during the current outage (RFO-5).

c. Conclusions

The detection of IGSCC in shroud head bolts indicated that implementation of this portion of the ISI program was effective. Corrective actions to replace all IGSCC susceptible shroud head bolts demonstrated good staff safety focus.

III. Engineering

E2 Engineering Support of Facilities and Equipment

E2.1 Inspector Updated Safety Analysis Report (UFSAR) Review

While performing the inspections discussed in this report, the inspectors reviewed the following UFSAR sections:

3.1.2.2.5 Reactor Coolant Pressure Boundary

3.1.2.2.6 Criterion 15 Reactor Coolant System Design

- 3.2 Classification of Structures Components, and Systems
- 3.6 Protection Against Dynamic Effects Associated With Postulated Rupture Of Piping
- 5.2.1.4 Applicable Code Cases
- 5.4 Reactor Pressure Vessel And Appurtenances.

The inspectors did not identify any UFSAR discrepancies as a result of this review.

V. Management Meetings

X1 Exit Meeting Summary

At the conclusion of the inspection on October 11, 1996, the inspector met with licensee representatives identified herein and summarized the scope and findings of the inspection activities. The inspector questioned licensee personnel as to the potential for proprietary information in the likely inspection report material discussed at the exit. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Persons Contacted

Detroit Edison Company (DECo)

- *P. Fenler, Plant Manager
- *R. McKeon, Assistant Vice President Operations
- *W. Ramberg, Assistant Vice President Technical
- *P. Smith, Director Nuclear Licensing
- *N. Peterson, Supervisor Compliance
- *A. Antrassian, Licensing Engineer
- *J. Moyers, Director Nuclear Quality Assurance
- *B. Sheffel, Director Performance Engineering
- *R. Hambleton, ISI Engineer
- M. Brooks, ISI Engineer

U.S. Nuclear Regulatory Commission (NRC)

A. Vogel, Senior Resident Inspector
C. O'Keefe, Resident Inspector

Hartford Steam Boiler Inspection and Insurance Company (HSB)

M. Wilson, ANII

The NRC inspector also contacted and interviewed other licensee and contractor employees.

*Denotes those present during the exit interview on October 11, 1996.

INSPECTION PROCEDURES USED

IP 73753: Inservice Inspection
IP 73755: Inservice Inspection, Data Review and Evaluation
IP 73052: Inservice Inspection, Review of Procedures

LIST OF ACRONYMS USED

ASME	American Society of Mechanical Engineers
BWR	Boiling Water Reactor Plant
GE	General Electric Nuclear Energy
EPRI	Electric Power Research Institute
GL	Generic Letter
IGSCC	Intergranular Stress Corrosion Cracking
IP	Inspection Procedure
IR	Inspection Report
ISI	Inservice Inspection
MT	Magnetic Particle Testing
NRC	Nuclear Regulatory Commission
RFO	Refueling Outage
TS	Technical Specification
UFSAR	Updated Safety Analysis Report
UT	Ultrasonic Testing