

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-341/85045(DRS)

Docket No. 50-341

License No. NPF-33

Licensee: Detroit Edison Company
2000 Second Avenue
Detroit, MI 48224

Facility Name: Enrico Fermi Atomic Power Plant, Unit 2

Inspection At: Enrico Fermi Site, Monroe, MI

Inspection Conducted: October 8 and 9, 1985

Inspectors: *J. Jacobson*
J. Jacobson

10/31/85
Date

James W. Muffett
J. Muffett

10/31/85
Date

Approved By: *D. Danielson*
D. Danielson, Chief
Materials and Processes Section

10/31/85
Date

Inspection Summary

Inspection on October 8 and 9, 1985 (Report No. 50-341/85045(DRS))

Areas Inspected: Special announced safety inspection of the 30" steam bypass line failure; and licensee actions on previous inspection findings. The inspection involved 18 inspector-hours onsite by two NRC inspectors.

Results: No violations or deviations were identified.

DETAILS

1. Persons Contacted

Detroit Edison Company (DECo)

- J. Conen, Licensing Engineer
- J. Mullens, Welding Engineer
- *D. Spiers, Director, Field Engineering
- *S. Noetzel, Assistant Manager
- *M. Williams, Senior Engineer
- *T. O'Keefe, Superintendent, Nuclear Engineering

*Denotes those attending the exit meeting on October 9, 1985

2. Licensee Action on Previous Inspection Findings

- a. (Closed) Violation (341/85038-01(DRS)): Failure to properly qualify a welding procedure in accordance with the AWS D1.1 Code. Procedures used by the electrical contractor, L. K. Comstock (LKC), to weld cable trays and supports did not address fillet size as required by the Code for "prequalified" status.

The licensee initiated DER No. 85-640 to document this deficiency. Per the Detroit Edison Specification 3071-128, the smallest fillet weld attaching structural steel is 3/16 of an inch. In order to evaluate work previously completed by LKC, the licensee conducted weld procedure qualification tests simulating the most severe field conditions with regard to minimum size multi-pass fillet welds. The qualifications are documented in Engineering Research Report No. 83E73-40. These qualifications were performed in accordance with LKC procedure WI-000-03001 in the horizontal, vertical and overhead positions. In order to verify the adequacy of other site contractors with regard to this deficiency, a review of their "prequalified" weld procedures was conducted by the licensee. All documentation was reviewed by the NRC inspector. This qualification testing is considered an acceptable resolution of this item.

- b. (Closed) Open Item (341/85038-02(DRS)): Linear indications on radial box beam 502B. Calculations performed by Sargent and Lundy Engineers (SLS-EF-099, Calc NP-A1 and NS-E2-D23BF) to resolve NCR 84-1839 were reviewed by the NRC inspector and found to be acceptable. Based on the review of this analysis, this item is considered closed.

3. Review of Steam Bypass Line Failure

The 30 inch diameter Steam Bypass Lines have experienced the development of a number of large cracks as well as damage to lugs and pipe restraints. Although this line is not safety-related, due to its relative importance

to safe plant operations, a review of the licensee's actions concerning this problem was performed. Items reviewed during this inspection included:

- Operational history of the Steam Bypass Lines
- Licensee's evaluation of the cause of the cracking
- Results of readings from the instrumentation installed on the pipe
- Techniques used to repair the cracks
- Results of metallurgical tests conducted on a sample removed from an area of the cracked pipe

The NRC inspectors concluded after this review that the Steam Bypass Lines were experiencing very acute fatigue induced failure. This is unusual in that the lines have a very short (approximately 2 months) operational history and that the unit has been limited to 5% of rated power. It appears that the fatigue problem is related to two factors. The first being the large diameter thin wall configuration of the piping (30 inch diameter, 0.375 inch wall). The second being the high frequency acoustic vibrations induced by the steam bypass valves. A permanent modification to address the fatigue problem must consider both of these factors. Additionally, during the NRC inspection the licensee discovered a new crack which had developed since the last repair. The NRC inspectors concluded that further failure of the lines was imminent and that continued operation represented a significant risk to safe operation of the unit. The licensee agreed to shut the unit down and initiate replacement of the damaged piping. No violations or deviations were identified.

The NRC plans to review this matter further. This is an open item (341/85045-01).

4. Exit Interview

The inspectors met with licensee representatives (denoted in Persons Contacted paragraph) at the conclusion of the inspection. The inspector summarized the scope and findings of the inspections noted in this report. The inspector also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. The licensee did not identify any such documents/processes as proprietary.