

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

Report No. 99900282/79-02

Program No. 51300

Company: ITT Grinnell Corporation
Pipe Hanger Division
621 Dana Avenue
Warren, Ohio 44481

Inspection Conducted: May 10, 1979

Inspector: *D M Hunnicutt* 5/25/79
for L. E. Ellershaw, Principal Inspector, Vendor Date
Inspection Branch

Approved by: *D M Hunnicutt* 5/25/79
D. M. Hunnicutt, Chief, Component Section II, Date
Vendor Inspection Branch

Summary

Special Inspection on May 10, 1979 (99900282/79-02)

Areas Inspected: Follow-up on a 10 CFR 50.55(e) Construction Deficiency Report relative to undersized welds on safety related pipe hangers. The inspection involved eight (8) inspector hours on site by one (1) NRC inspector.

Results: In the one (1) area inspected, no deviations or unresolved items were identified.

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Details Section

A. Persons Contacted

D. M. Sewell, Division Quality Assurance Manager

B. Introduction

Pennsylvania Power & Light Company (PP&L) documented a reportable deficiency under the provisions of 10 CFR 50.55(e), to B. H. Grier, Region I, dated December 1, 1977, regarding undersized fillet welds on safety related pipe hangers, as fabricated by ITT Grinnell Corporation, Pipe Hanger Division (ITT-PHD), Warren, Ohio (PP&L Reference No. PLA-202).

C. Follow-up on 10 CFR 50.55(e) Report1. Objectives

The objectives of this follow-up inspection were to ascertain that an evaluation of the condition had been performed, including making an assessment of generic implications, and that responsibility for effecting corrective action and preventing recurrence had been assigned.

2. Method of Accomplishment

The preceding objectives were accomplished by:

- a. Review of 10 CFR 50.55(e) Report.
- b. Review of QA Manual Section 5, "Welding Quality Assurance."
- c. Review of Bechtel Power Corporation's specification for shop fabrication of hangers, 8856-M-209, revisions 6 and 7.
- d. Review of ITT-PHD specifications 02A009 and 02A006, dealing with dimensional and visual inspection of fillet welds.
- e. Observation and measurement of fillet welds during fabrication.
- f. Discussions with cognizant personnel.

3. Findings

The initial incident precipitating the 10 CFR 50.55(e) Report, was the failure of fillet welds in two (2) pipe supports at the Susquehanna job site. As a result, Bechtel Power Corporation (BPC) initiated a visual spot check, on a random sample basis, of ITT-PHD fabricated

pipe support welds for weld quality. A number of undersized fillet welds were detected. Subsequent meetings between ITT-PHD, PP&L, and BPC were held.

It was determined that BPC specification 8856-M-209, lacked minimum allowable tolerances for fillet welds, whereas ITT-PHD specifications allowed a maximum 1/16" undersize condition for a maximum of 10% of the weld length. As weld size tolerances had not been well defined, ITT-PHD developed their specifications based upon AWS D1.1-1972.

Revisions to the specifications were made as a result of meetings and correspondence between BPC and ITT-PHD changing the minimum weld dimension acceptance criteria so that undersized welds are not allowed. These changes occurred in October, 1977.

The remaining problem then, was to determine the acceptability of those hangers fabricated and shipped to the job site prior to October 18, 1977, with an undersized weld condition. Agreement was reached between BPC and ITT-PHD on the method of analysis for making that determination in a procedure dated January 17, 1978, and incorporating BPC comments. The procedure, "ITT Grinnell Corporation, Pipe Hanger Division, Susquehanna Unit No. 1 and 2, Fillet Weld Acceptance Criteria, Guidelines to Determine Acceptability of Undersized Welds," is based on weld stress requirements of ANSI B31.1 and the stress acceptance criteria of welds.

In conjunction with the development of acceptance criteria, teams from BPC and ITT-PHD were inspecting all Q-listed hangers at the job site (as committed to NRC by PP&L) and numerous non-Q-listed hangers. All discrepancies were noted and tabulated. A total of 1193 hangers were inspected of which 342 were found to have portions of shop welds below the size specified. Of those totals, 560 were Q-listed hangers in which 152 were found with undersized welds. Weld stress calculations were performed using the smallest section of weld found, carried the full length of the weld. The load per linear inch was calculated and compared to the maximum allowable load per linear inch as specified in the aforementioned procedure.

The result of this analysis showed that the 342 hangers with undersized welds met the weld stress requirements of ANSI B31.1 and the stress acceptance criteria for welds. Therefore, it was determined that rework would not be required, as none of the analyzed hangers have shop welds which are overstressed.

D. Exit Interview

The scope and findings of this 10 CFR 50.55(e) follow-up inspection were summarized with D. M. Sewell, Division Quality Assurance Manager, who acknowledged the comments relative to the findings.

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