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January 29, 1981

United States Nuclear
Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

Attention: Mr. Boyce H. Grier
Director

Gentlemen:

SUBJECT: Beaver Valley Power Station Unit NO. 2
Docket No. 50-412
Final Report - Inferior Welds on Cable Tray Fittings
Significant Deficiency Report No. 80-05

Enclosed is a copy of our Final Report - Interior Welds on Cable Tray Fittings. This report is in reference to the potentially reportable deficiency concerning the welds under the provisions of 10CFR50.55 (e) (1)(i), (ii) and (iv) about which you were advised in our interim report forwarded with our letter dated November 14, 1980.

A preliminary inspection of the factory procedures for repairing the fittings was reviewed by Stone & Webster and D.L.Co. Vendor Surveillance Group personnel and the approach was found to be satisfactory.

DUQUESNE LIGHT COMPANY

By: E. J. Woolever
E. J. Woolever
Vice President

Enclosure

cc: Messrs. V. Stello (15)
K. Jabbour

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FINAL REPORT
INFERIOR WELDS ON CABLE TRAY FITTINGS
BEAVER VALLEY POWER STATION - UNIT NO. 2
DUQUESNE LIGHT COMPANY

Summary

Rungs welds of poor quality were found on a number of cable tray "tees" and "crosses" inspected in the field. Field inspection further disclosed that, when performing the rung welding, the vendor (T. J. Cope) did not adhere to his own detail drawings, which were reviewed and approved by S&W. The fittings, some of which were installed, are used in safety-related cable tray systems.

Immediate Action Taken

A "Stop Work" order was issued to hold installation of all remaining safety-related cable tray fittings ("tees" and "crosses" only). No action was taken regarding factory inspection at the time, because all trays ordered had been shipped to the jobsite before the deficiency was discovered.

Deficiency

During a recent site inspection conducted by an NRC inspector, several installed cable tray fittings were noted as having rung welds that appeared to be of poor quality. Subsequent to the NRC inspectors visit, several S&W engineers inspected both installed and uninstalled "tees" and "crosses" and found that a number of welds were deficient for the following reasons:

1. Excessive porosity
2. Discontinuities

It was further determined that the vendor deviated from approved detail drawings when fabricating the fittings. Deviations were noted as follows:

1. Rungs were welded on both sides of back plate instead of the outside only, as shown on the drawings and,
2. The third rung in from each end of the "tee" fittings was welded to the back plate, not swaged as shown on the drawings.

Analysis of Safety Implications

It was determined that a structural failure of one or more rung welds during a seismic event was possible because of the poor quality welds. Should this occur it is possible that safety-related cables routed in the tray may be damaged as a result of the relative movement between the rungs and the side rails which could then occur during the seismic disturbance. Failure of the welds could leave sharp edges on both the rung ends and the side rails that could abrade cable jackets and insulation systems causing circuit grounds and/or short circuits and subsequent failure of safety-related circuits. Since these fittings are used on both safety-related trains, safe operation of the unit could be compromised.

Corective Action to Remedy Deficiency

S&W determined that certification of tray fitting adequacy to sustain a seismic event without rung weld failure, by either test or analysis, was problematic. The randomness of rung weld deficiencies made selection of a representative sample extremely difficult. Consequently, all tray "tees" and "crosses" installed in safety-related areas were removed and will be returned to the vendor, along with the uninstalled fittings, for either repair or replacement to ensure the structural adequacy of the rung welds during a seismic event.

The following steps have been taken to monitor the vendors performance of the repairs/replacement:

1. The specification has been revised to require D.L.Co.'s shop inspector to visually inspect each weld located at the intersection of the rung and the inside face of the side rail, prior to galvanize touch-up, so that an accurate assessment of weld conformance to the specified criteria can be made. All welds at this intersection will be inspected.
2. The vendor has revised his detail drawings to reflect his latest fabrication procedures and resubmitted them to S&W for approval. D.L.Co.'s shop inspector will verify that the fittings conform to the latest drawings which are now approved.

A preliminary inspection of the factory procedures for repairing the fittings was reviewed by S&W and D.L.Co. Vendor Surveillance Group personnel and the approach was found to be satisfactory.

Fitting repair is now proceeding on a production basis and is expected to be completed by April 1, 1981.