



Pennsylvania Power & Light Company

Two North Ninth Street • Allentown, PA 18101 • 215 / 770-5151

Norman W. Curtis
Vice President-Engineering & Construction-Nuclear
215/770-7501

MAR 07 1984

Dr. Thomas E. Murley
Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

SUSQUEHANNA STEAM ELECTRIC STATION
INTERIM REPORT ON A DEFICIENCY INVOLVING
BASE METAL CRACKING IN ANGLE FITTINGS
ER 100508 FILE 821-10
PLA-2120

Docket No. 50-388

Dear Dr. Murley:

This letter serves to provide the Commission with an interim report on a deficiency involving cracking in the base metal of angle fittings used on Class 1E electrical raceways and HVAC supports. This deficiency was reported under 10CFR50.55(e) as potentially reportable by telephone to Mr. G. Kelly of NRC Region I by Mr. R. M. Harris of PP&L on February 6, 1984.

The attachment to this letter contains a description of the problem, its cause, the safety implications, and the corrective action.

Since the details of this report provide information relevant to the reporting requirements of 10CFR21 for Unit 2, this correspondence is considered to also discharge any formal responsibility PP&L may have for reporting in compliance thereto.

We expect to provide a final report on this deficiency prior to Unit 2 initial criticality. We trust the Commission will find this report to be satisfactory.

Very truly yours,

N. W. Curtis
Vice President-Engineering & Construction-Nuclear

Attachment

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MAR 07 1984

Page 2

SSES PLA-2120
ER 100508 File 821-10
Dr. Thomas E. Murley

Copy to:

Mr. Richard C. DeYoung (15)
Director-Office of Inspection & Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. G. McDonald, Director
Office of Management Information & Program Control
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. R. H. Jacobs
U.S. Nuclear Regulatory Commission
P.O. Box 52
Shickshinny, PA 18655

Records Center
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, GA 30339

INTERIM REPORT

SUBJECT

Base metal cracking of angle fittings used for seismic class 1E raceway supports and seismic category I HVAC duct supports located throughout Susquehanna Steam Electric Station, Units 1 and 2. The fittings were supplied by Unistrut, Powerstrut, B-Line and others.

DESCRIPTION

Bechtel Power Corporation informed PP&L of a base metal cracking problem with angle fittings used on other Bechtel projects. Seven (7) samples were then tested from the warehouse at the jobsite. Non-destructive examination indicated the existence of linear indications in two samples.

The fittings of concern are 1-5/8 inch wide by 1/4 inch thick with legs ranging from 2-1/2 to 5 inches. The angle between the legs is less than 90 degrees. The cracking has occurred at the inside of the bend.

The extent of the problem is unknown. To the best of our knowledge, the above described cracking was not observed during installation at Susquehanna Steam Electric Station.

CAUSE

During fabrication, ASTM A575 flat plate is cold bent to an acute (less than 90 degrees) angle. Although ASTM A575 allows for cold bending, a moderate bend radius is required. The fittings are bent to a sharp radius and in fact the bend may have no radius at all. Therefore, the fittings are subjected to severe cold working causing the unkilned material to become strain age embrittled. If, during installation the angle fittings are subjected to reverse bending by forcing the angle legs apart, the angle bend may crack on the inside radius.

SAFETY IMPLICATIONS

Cracking of the angle fittings may impair their ability to provide the required support under seismic loads. An investigation is in progress to determine:

- (1) The extent of the cracking.
- (2) The impact on the load carrying capability of the fitting angle.

The results of this investigation will be used to determine reportability for Unit 1 under Part 21.

CORRECTIVE ACTION

As indicated above an inspection and testing program is in progress. 75 fittings from Unit 1 and 75 from Unit 2 were chosen at random for inspection. The inspection of the 75 fittings on Unit 2 is complete. 28 of the 75 fittings had indications and these 28 are being fatigue and static tested. Preliminary results of this testing do not indicate a significant reduction in the load carrying capability as a result of the indications.

The inspection of the 75 fittings on Unit 1 will be complete by March 19, 1984.

PP&L expects to issue a final report with the final results of the inspections and testing prior to Unit 2 initial criticality.