PP&L Pennsylvania Power & Light Company
Two North Ninth Street • Allentown, PA 18101 • 215 / 770-5151

Norman W. Curtis
Vice President-Engineering & Construction-Nuclear
215 / 770-5381

February 4, 1983

Mr. R. C. Haynes
Director, Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

SUSQUEHANNA STEAM ELECTRIC STATION
FINAL REPORT OF A DEFICIENCY INVOLVING
PIPE FRICTION CLAMP ANCHORS
ER 100508 FILE 821-10
PLA-1509

Reference: PLA-1271, August 31, 1982

Dear Mr. Haynes,

This letter serves to provide the Commission with a final report of a deficiency relating to inadequate restraint provided by pipe friction clamp anchors on Unit II. The deficiency was originally reported by telephone to Mr. E. C. McCabe of NRC Region I by Mr. A. R. Sabol of PP&L on July 23, 1982. The reference PLA-1271 provided the Commission with an interim report on the subject deficiency.

The attachment to this letter contains a description of the deficiency, its cause, safety implications, and the corrective actions taken and planned. This information is being provided persuant to the provisions of 10CFR50.55(e).

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

We trust the Commission will find this report to be satisfactory.

Very truly yours,

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

JS:pvm

Attachment

IE27

cc: 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. Gary Rhoads
U.S. Nuclear Regulatory Commission
P.O. Box 52
Shickshinny, PA 18655

FINAL REPORT

1.0 SUBJECT

Failure of friction clamps to perform designed function.

2.0 DESCRIPTION OF DEFICIENCY

Large and small pipe friction clamps designed by Bechtel and supplied by ITT Grinnell were manufactured to Detail 600 of Drawing SP-2013, Sheet 1. This drawing called for a gap of 1/8" on either side of the clamp when used with the appropriate pipe sizes. Due to allowable manufacturing tolerances on the pipe and the clamps, the friction clamp assembly in some cases did not provide any gap when installed resulting in a lack of friction and failure to perform the designed function. Also, the bolt thread length specified for certain pipe sizes restricted adequate tightening of the clamp.

3.0 CAUSE OF DEFICIENCY

The friction clamp anchor did not perform its intended function for these basic reasons:

1) They were not fabricated as designed, i.e., "B" dimension per Detail 600 was not maintained.

2) There was a lack of specific fabrication and installation details.

3) There lack of proper bolt length in certain friction clamp sizes on the design detail.

4.0 ANALYSIS OF SAFETY IMPLICATION

Friction clamps are used extensively throughout the plant on Seismic Category I safety related piping systems. Failure of the friction clamp to perform its designed function (i.e., as a pipe anchor) could result in overstressing of the pipe. Since this could affect the ability to safely shutdown the plant, this nonconformance is considered reportable under 10CFR50.55(e).

5.0 CORRECTIVE ACTION

The following drawings have been revised to show maximum allowable loads, bolt torque values, required bolt lengths, and installation instructions delineating required contact area and shimming as necessary. Also, an installation tolerance for the gap between clamps (dimension 2B) has been added.

(1) Detail 600, sheets 1 and 2, Rev. 3
(2) SPA-600, sheets 1 and 2, Rev. 1
(3) SPA-1312, sheets 1 through 3, Rev. 3

Unit 2 friction clamps previously accepted by Q.C. will be reinspected and reworked per Addendum 2 of Bechtel Specification 8856-M-213, Rev. 11. The reinspection and rework of these friction clamps will be tracked by Bechtel QAR-936.

To prevent recurrence of this problem, Detail 600 will not be used in Unit 2 and individual hanger sketches are now issued for each small pipe friction type anchor. However, SPA-600 & SPA-1312 are available for reference in Unit 2. Individual hanger details for Unit 2 will show all required installation and inspection criteria.

Addendum 2 to Specification 8856-M-213, REv. 11, dated 10/13/82 has been issued to cover Field Engineering and QC verification of friction clamp (anchor) clearances.

Implementation of the above will assure consistency of installed friction clamps with the design intent.