



Pennsylvania Power & Light Company

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

December 27, 1983

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
FINAL REPORT OF A DEFICIENCY INVOLVING
CAPSTAN SPRINGS IN PACIFIC SCIENTIFIC SNUBBERS
ER 100508 FILE 821-10
PLA-1991

Dear Dr. Murley:

This letter serves to provide the Commission with a final report on a deficiency involving potential cracking of capstan springs in Pacific Scientific PSA-1 and PSA-3 snubbers.

This deficiency was originally reported by telephone on November 28, 1983 to Mr. W. Cook of NRC Region I as potentially reportable by Mr. Jason Saranga of PP&L under the requirements of 10CFR50.55(e) for SSES Unit 2.

The attachment to this letter contains a description of the deficiency, its cause, an analysis of safety implications and the corrective action taken and planned. This information is furnished for SSES Unit 2 pursuant to the provisions of 10CFR50.55(e).

This deficiency has been identified on PP&L NCR #83-1354 for Unit 1. In conjunction with the processing of this NCR, Plant Staff has assessed that the deficiency has no immediate impact on operability nor is it reportable for Unit 1.

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 in compliance thereto.

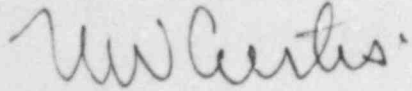
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Dr. Thomas E. Murley

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

Very truly yours,

A handwritten signature in cursive script, appearing to read "N. W. Curtis".

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

JS:sab js/ltl35a

Attachment

December 27, 1983

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SSES
ER 100508

PLA-1991
File 821-10

Copy to:

Mr. Richard C. DeYoung (15)
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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. Loren Plisko
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

FINAL REPORT

1.0 Subject

Cracks in Pacific Scientific PSA-1 and PSA-3 snubber capstan springs.

2.0 Description of Deficiency

Certain serial numbers on Pacific Scientific PSA-1 and PSA-3 snubbers have the potential of having cracks in their capstan springs. At Susquehanna 138 snubbers in this serial number range are installed in Unit #2 and an additional 77 are in stock.

3.0 Cause of Deficiency

Metallurgical analyses performed for Pacific Scientific indicated that the cracks in the capstan springs were caused by improper spring forming. Although the spring outer surface is brittle, the core is still ductile and the springs have substantial life. Tests performed by Pacific Scientific on cracked springs confirmed the fact that the snubbers will remain functional for a significant number of full load cycles.

These tests were performed on five (5) springs which represented "worst case" samples as determined by non-destructive magnetic particle inspection. Of these five springs, two (2) survived the entire test (5940 full load cycles); two (2) survived 1800 and 1850 full load cycles respectively before failure of one tang; one survived 533 full load cycles before failure of both tangs.

4.0 Analysis of Safety Implications

The capstan spring limits the snubber acceleration to the design value. Failure of this spring would mean acceleration is not limited and therefore the piping system on which the snubber is attached would not be restrained seismically. At worst case, this could result in a pipe rupture during an earthquake. However, based on test results stated in Paragraph 3.0, immediate corrective action is not required.

Since this problem could affect the ability to safely shutdown the plant at some point during its expected lifetime, this nonconformance is considered reportable under 10CFR50.55(e).

3.0 Corrective Action

Unit 2 Snubbers which fall into the serial number group with potential cracks have been identified on PP&L NCR #83-1355. This NCR will be dispositioned to require one of the following corrective actions for each snubber:

- (1) replace entire snubber.
- (2) disassemble snubber and examine the spring for cracks, then replace springs as necessary.
- (3) disassemble snubber and replace spring (no examination)
- (4) return snubber to Pacific Scientific for rework/repair.

All affected Unit 2 snubbers will be corrected prior to completion of its first refueling outage.