



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

August 7, 1981

Mr. Boyce H. Grier
Director, Region I
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406



SUSQUEHANNA STEAM ELECTRIC STATION
INTERIM REPORT OF A POTENTIAL DEFICIENCY INVOLVING
MISAPPLICATION OF MAROTTA EXCESS FLOW CHECK VALVES
ERs 100450/100508 FILES 821-10/840-4
PLA-901

Dear Mr. Grier:

This letter serves to provide the Commission with an interim report of a potentially reportable deficiency involving the misapplication of Marotta excess flow check valves in primary containment instrument sensing lines. The problem was originally reported by telephone to Mr. L. Narrow of NRC Region I by Mr. A. Sabol of PP&L on July 2, 1981. During that conversation, Mr. Narrow was advised that the condition was considered potentially reportable under the provisions of 10 CFR 50.55(e).

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

Since the details of this report provide information relevant to the reporting requirements of 10 CFR 21, this correspondence is considered to also discharge any formal responsibility PP&L may have in compliance thereto.

We expect to issue a final report on the problem in October 1981. We trust the Commission will find this information acceptable.

Very truly yours,

A. R. Sabol
for N. W. Curtis
Vice President-Engineering & Construction-Nuclear

FLW:sab

Attachment

IE27
5.1.1

8108140430 810807
PDR ADOCK 05000387
S PDR

Mr. Boyce H. Grier

- 2 -

August 7, 1981

cc: Mr. Victor Stello (15)
Director-Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. G. McDonald, Director (1)
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

Subject

Misapplication of Marotta Excess Flow Check Valves

Description of Potential Problem

Instrument sensing lines which penetrate the primary containment are equipped with excess flow check valves. The purpose of these valves is to mitigate the consequences of a line break outside containment. Although some of the valves are used in lines which sense containment atmosphere (nitrogen) and possibly steam, the valves have been designed specifically for water service. Because of the lower densities and viscosities of nitrogen and steam, it is doubtful that the subject valves would close as intended when required to operate to prevent the leakage of containment gases. These valves for Unit 1 are listed in Table I.

Cause

The causes of the deficiency were apparent inadequacies in the valve specification. The body of the specification had a general statement that fluids would be "water and steam." The valves were required to be tested with water only. Some data sheets, which should have listed nitrogen/steam as the fluid, incorrectly listed water. Given these valve specification provisions, Bechtel Engineering approved the vendor drawings, test procedure, and instruction manual for Marotta excess flow check valves which may be suitable for water service only.

Analysis of Safety Implications

Under normal operating conditions the primary containment pressure will range from 0.1 to 1.5 psig. A line break would result in minimal leakage. However, during a LOCA, the containment pressure could reach 43.8 psig. The valves are required to have a resistance to flow equivalent to a .375" diameter sharp edged orifice. As there are a total of sixteen valves in question on Unit 1, each having an equivalent cross sectional area of .11 in², failure of these valves to close could jeopardize containment integrity. The condition is potentially a significant deficiency in final design and therefore reportable under 10 CFR 50.55(e).

Corrective Action

Data is currently being obtained from the valve manufacturer to determine the pressures and flows required to close the valves using nitrogen/steam. On the assumption that the valves may prove to be inadequate for the design requirements, Bechtel has initiated an investigation to determine the feasibility of upgrading the sensing lines to ASME Section III Class 2. This would make the sensing lines extensions of containment and permit the removal of the excess flow check valves. Discussions with Bechtel will be held to assure that appropriate procedural changes have been made to prevent recurrences of this type design problem.

Attachment to PLA-901

Control of the subject Unit 1 valves is provided by PP&L NCR's #81-311, 312 and 313. Unit 2 valves will be controlled under the Bechtel program. Bechtel QA is currently working to identify all nonconforming valves within their jurisdiction and will provide Bechtel QC with information necessary to generate a Bechtel NCR on those valves.

TABLE I

Excess Flow Check Valves Located in Unit 1 Air Sensing Lines

XV-15110A

XV-15110B

XV-15110C

XV-15110D

XV-15516

XV-15775A

XV-15775B

XV-15776

XV-15701A

XV-15701B

XV-15702A

XV-15702B

XV-15703A

XV-15703B

XV-15710A

XV-15710B