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NORMAN W. CURTIS  
Vice President-Engineering & Construction-Nuclear  
770-5381

July 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  
FINAL REPORT OF A DEFICIENCY INVOLVING  
FAILURE OF SOLENOID VALVE SEALS  
ERs 100450/100508 FILE 840-4/821-10  
PLA-866

Reference: PLA-749 (5/4/81)

Dear Mr. Grier:

This letter serves to provide the Commission with a final report of a deficiency involving the failure of Automatic Switch Company (ASCO) solenoid valve ethylene propylene seals. The condition was originally reported in PLA-749 and was the subject of NRC IE Information Notice #80-11.

The attachment to this letter contains a description of the deficiency, its cause, safety impact and significance and the corrective action planned. This information is submitted in compliance with the provisions of 10 CFR 50.55(e).

We trust the Commission will find the information forwarded by this letter to be satisfactory.

Very truly yours,

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

FLW:sab

Attachment

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PENNSYLVANIA POWER & LIGHT COMPANY

Mr. Boyce H. Grier

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July 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

Deficiency relating to Automatic Switch Company (ASCO) solenoid valves.

DESCRIPTION OF DEFICIENCY

The deficiency concerns a generic problem with ASCO solenoid valves, model NP-1, which contain internals that are susceptible to swelling and deterioration when brought into contact with oils (reference NRC IE Information Notice No. 80-11).

This problem became apparent to PP&L when a number of ASCO solenoid valves installed at its Susquehanna Plant failed due to oil contamination of the valve internals. The failures occurred in the Reactor Building Chilled Water System where the solenoid valves are used to control the operation of air - operated containment isolation valves. As a result of the solenoid valves failing, the associated containment isolation valves failed to close.

CAUSE

The cause of the deficiency is due to oil, which is used to lubricate the containment isolation valve actuators, entering the air system during venting of the containment isolation valves. The oil is bleeding back through the air system to the solenoid valves, resulting in the contamination of the solenoid valve ethylene propylene seals which results in subsequent valve failure.

ANALYSIS OF SAFETY IMPLICATION

Based upon a study of possible failure modes, and the actual failure sequences which have occurred, PP&L has determined that failure of the ASCO solenoid valves could result in a failure of the associated containment isolation valves to close upon receipt of a containment isolation signal. Based upon a failure sequence of this nature, the deficiency, had it gone undetected could have adversely affected the safety of plant operation; thus, the deficiency is considered reportable under the provisions of 10 CFR 50.55(e).

CORRECTIVE ACTION

Based on information provided in NCR IE Information Notice No. 80-11, an investigation to identify all ASCO solenoid valves susceptible to an oil environment has been conducted, and the corrective actions recommended in the notice have been initiated.

Twenty eight (28) such valves have been identified in the following safety and non-safety related systems:

Reactor Building Chilled Water  
Standby Gas Treatment  
Liquid Radwaste Collection  
Control Structure Heating and Ventilation

Completion of the corrective action will be accomplished by Bechtel Design Change Packages DCP-337 and DCP-390. PP&L NCR's have been written to identify and control the susceptible valve seals on Unit one valves which are turned over to PP&L.