



Pennsylvania Power & Light Company

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October 12, 1982

Mr. R. C. Haynes
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
PUMP MOTOR START TIMES FOR
EMERGENCY SERVICE WATER, CORE SPRAY &
RESIDUAL HEAT REMOVAL SYSTEMS
ERs 100450/100508 FILE 821-10
PLA-1340

Dear Mr. Haynes:

This letter serves to provide the Commission with a final report on a deficiency involving the potential for concurrent starting of ESW, CS, and RHR Pump Motors.

This deficiency was originally reported by telephone to Mr. R. R. Keimig of NRC Region I on September 10, 1982 by Mr. A. R. Sabol of PP&L.

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 pursuant to the provisions of 10CFR50.55(e) for Unit 2. This condition as it relates to Unit 1 was reported to the Commission in PLA-1293 as LER 82-012/01P-0.

Since the details of this report provide information relevant to the reporting requirements of 10CFR21, this correspondence is considered to also discharge any formal responsibility 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

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ERs 100450/ File 821-10
100508
Mr. R. C. Haynes

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

Subject

Potential for concurrent starting of Pump Motors for Emergency Service Water (ESW), Core Spray (CS) and Residual Heat Removal (RHR) systems.

Description of Problem

The ESW pump auto start timer is initiated from the diesel generator start signal. The DG's are started by low water level or high drywell pressure or a LOOP. The RHR and CS systems are initiated by either low water level or both high drywell pressure and low vessel pressure. For a medium size break, high drywell pressure will be sensed very quickly after the break. This will start the DG's and initiate the ESW auto start timer. However, the low water level or low vessel pressure will not occur for some time after the high drywell pressure is sensed. Therefore, the RHR or CS pumps could start coincident with the ESW pumps. This will result in unacceptable voltages during the motor starts and unacceptable motor start times.

Cause

Initially, the RHR & CS pumps were initiated by high drywell pressure or low water level. The low vessel pressure interlock for RHR & CS was added for plants with two or more units to accommodate a simultaneous LOCA and loss of offsite power. With both units operating, a LOCA will cause a high drywell pressure signal (RHR & CS pump initiation) in one unit, and the Loop will cause a high drywell pressure signal (false LOCA signal) due to the loss of drywell cooling, in the other unit. The low reactor pressure interlock for the RHR and CS pump initiation was added to distinguish the LOCA from the false LOCA.

When the RHR & CS pump initiation logic was modified with the addition of the low vessel pressure interlock, the ESW start logic was not modified to prevent the concurrent start of the RHR or CS pumps with the ESW pumps.

Analysis of Safety Implications

The coincident start of the RHR or CS pumps with the ESW pumps will result in unacceptable voltages during the motor starts, and unacceptable motor start times. Due to the increased pump motor start times, the rated flow from the RHR or CS system into the vessel may not be achieved in the required time interval. If this condition had gone uncorrected, it could have adversely affected the safe operation of the plant. PP&L considers this to be a deficiency in the final design, and therefore is reportable under the requirements of 10CFR50.55(e) for Unit 2.

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Mr. R. C. Haynes

Corrective Action

For one unit operation, the deletion of the low vessel pressure interlock from the RHR & CS pump start logic is acceptable. This will allow for a common initiation signal for the RHR, CS, and ESW pumps. This modification has been completed on Unit 1 by DCP 82-487.

To allow two unit operation the changes resulting from DCP 82-487 will be removed and a permanent modification will be made to the ESW start logic. This modification will be accomplished prior to Unit 2 fuel load.