



## Pennsylvania Power & Light Company

Two North Ninth Street • Allentown, PA 18101 • 215 / 770-5151

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

August 26, 1983

Mr. Thomas Murley  
Regional Administrator, Region 1  
U.S. Nuclear Regulatory Commission  
631 Park Avenue  
King of Prussia, PA 19406

SUSQUEHANNA STEAM ELECTRIC STATION  
FINAL REPORT OF A DEFICIENCY INVOLVING  
WESTINGHOUSE HYDROGEN RECOMBINERS  
ER 100508 FILE 821-10  
PLA-1807

---

Dear Mr. Murley:

This letter serves to provide the Commission with a final report on a deficiency involving Westinghouse hydrogen recombiners.

This deficiency was originally reported by telephone to Mr. E. C. McCabe of NRC Region I on July 28, 1983 by Mr. J. Saranga 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. This information is furnished pursuant to the provisions of 10CFR50.55(e) for Unit 2.

The Unit 1 hydrogen recombiners are scheduled to be inspected during the Unit 1 - Unit 2 tie-in outage. This commitment is documented by PL NCR #83-487. Plant Staff has analyzed this potential deficiency for Unit 1 and determined that it will have no impact on continued safe operation until the inspection can be performed. The results of this analysis are documented in the disposition of NCR #83-487. Further, earlier sleeving of Unit 1 cables has been accomplished under NCR #83-305.

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.

8309120470 830826  
PDR ADOCK 05000388  
S PDR

IE27  
11

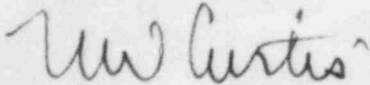
- 2 -

SSES  
ER 100508

PLA-1807  
File 821-10

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

MJP:sd

Attachment

ATTACHMENT TO PLA-1807

SUBJECT

Westinghouse Hydrogen Recombiners

Description of Problem

The design of the Westinghouse hydrogen recombiners purchased by Bechtel for SSES did not provide for bushings to protect the heater power cables which pass from a junction box on the side of the recombiner into the recombiner cabinet. Contact with the rough edges caused fraying of the fabric sheath which surrounds the cable and gouges which exposed bare conductors.

Analysis of Safety Impact

Four hydrogen recombiners are located inside the primary containment. They are arranged in two redundant groups of two. Their function is to maintain the Post LOCA hydrogen level inside containment below combustible levels.

The lack of bushings inside the heater assembly and ambient vibration during operation would render the integrity of the power cable to the heaters questionable prior to LOCA. Vibration associated with a LOCA could then cause short circuits within one or more of the recombiners.

PP&L has concluded that the deficiency is reportable under provisions of 10CFR50.55(e) because the above scenario could result in a common mode failure. This would cause the loss of a system required to maintain the integrity of containment.

Cause of Deficiency

Although there was no specific requirement for bushings in the Bechtel purchase specification for the hydrogen recombiners, standard industry practice and the National Electrical Code (referenced in the Bechtel specification) require abrasion protection for conductors entering cabinets.

This deficiency resulted from the failure of Westinghouse to provide this adequate physical protection for the heater cables.

Corrective Action

Standard bushing materials cannot be used in the recombiner because of high operating temperatures. Stainless steel flex conduit has been installed to protect the cable as it passes from the junction box to the recombiner cabinet. Also, the cable has been wrapped at the terminations with glass cloth tape to prevent fraying and unwrapping of the fabric sheath which surrounds the cable. This work was identified and accomplished by Bechtel NCR-10396, PP&L NCR-83-208, and Work Order #3392.

August 26, 1983

- 4 -

SSES  
ER 100508

PLA-1807  
File 821-10

Copy to:

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

Records Center  
Institute of Nuclear Power Operations  
1100 Circle 75 Parkway, Suite 1500  
Atlanta, GA 30339