

PP&L

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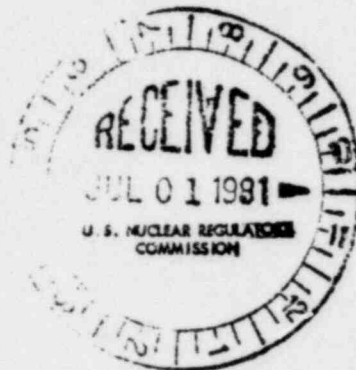
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ST 458-000
Part 21

June 17, 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 DEFICIENCY RELATING TO
ROSEMOUNT MODEL 1151 AND 1152 PRESSURE TRANSMITTERS
ERs 100450/100508 FILES 821-10/900-10
PLA-844

Dear Mr. Grier:

This letter serves to provide the Commission with an interim report of a deficiency involving the failure of Zener diodes in the referenced Rosemount pressure transmitters. The deficiency was originally reported by telephone to NRC Region I Reactor Inspector, Mr. L. Narrow, in a telephone conversation with Mr. A. Sabol of PP&L on April 10, 1981. Mr. Narrow was advised that the condition was being evaluated for reportability under the provisions of 10 CFR 50.55(e).

The deficiency involves the failure of the diodes which could result in erroneous outputs from the pressure transmitters. A description of the problem, its cause, safety implications and the corrective action planned is attached as an interim report pursuant to the requirements of 10 CFR 50.55(e).

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 for reporting in compliance thereto.

We expect to issue a final report on the deficiency prior to November, 1981. We trust the Commission will find this report to be satisfactory.

Very truly yours,

N. W. Curtis

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

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PENNSYLVANIA POWER & LIGHT COMPANY

IE19

Mr. Boyce H. Grier

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June 17, 1981

FLW:sab

Attachment

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
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Mr. Gary Rhoads
U. S. Nuclear Regulatory Commission
P.O. Box 52
Shickshinny, PA 18655

DESCRIPTION OF THE PROBLEM

Rosemount has identified a potential diode failure on the amplifier board of pressure transmitter Models 1151 and 1152 with output codes A and D. The Zener diodes (1N2620) are noted to become unstable between production and the end of the normal product life. At low output signals this instability will appear as noise with a magnitude of up to 4% of the signal value.

CAUSE

Rosemount has determined that moisture trapped in the diode during manufacturing is the probable cause of this instability. The water trapped in the diode creates a condition conducive to gold migration which may result in internal shorting. This failure of the diode would result in a fixed 12 to 14 mA transmitter output.

SAFETY IMPACT

Bechtel Engineering has identified 40 safety related transmitters of SSES which may contain the defective diodes. Four of these transmitters are used to monitor the pressure in the supply lines of containment instrument gas to the ADS (Automatic Depressurization System) steam relief valves. The normal line pressure is 150 psig. The transmitters transmit a 4-20 mA signal corresponding to a 0-250 psig to their respective pressure switches. The switches will actuate on a low pressure signal of 147 psig which opens the solenoid valves. These solenoid valves release the compressed nitrogen from the instrument gas bottles to maintain the 150 psig line pressure. When the diode fails, the fixed output of the transmitter will have the possibility of masking the low pressure signal to the pressure switch. The solenoid valve will not open automatically on low instrument gas pressure to maintain the line pressure to operate the ADS steam relief valves. A failure of the Zener diode in these transmitters thus impairs the intended safety functions of the Containment Instrument Gas System. Therefore the condition is considered reportable under the provisions of 10 CFR 50.55(e).

CORRECTIVE ACTION PLANNED

Since Rosemount pressure transmitters have been provided under both the General Electric and Bechtel scope of supply, appropriate corrective action for the defective transmitters is planned as follows:

1. Bechtel will request that General Electric take action to insure that defective Rosemount pressure transmitters provided under the GE scope of supply will be replaced or repaired.
2. Bechtel will either replace or repair the defective pressure transmitters provided under their scope of supply.

Bechtel NCR7565 currently identifies and controls the defective Rosemount pressure transmitters. A final report will be issued prior to November, 1981 detailing the specific corrective actions taken.