

PP&L

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50-387/388

July 14, 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 OVERSIZED LUGS IN ITE BREAKERS  
ERS 100450/100508 FILE 821-10  
PLA-872

Dear Mr. Grier:

This letter serves to provide the Commission with a final report of a deficiency relating to the use of oversized lugs in internal wiring on ITE circuit breakers. The deficiency was the subject of NRC IE Information Notice #81-06 dated March 11, 1981. NRC Region I (Mr. L. Narrow) was advised by Mr. A. Sabol of PP&L that the subject deficiency was considered potentially reportable under 10 CFR 50.55(e) in a telephone conversation on June 2, 1981. The information contained in this report is submitted pursuant to the provisions of 10 CFR 50.55(e).

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

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

Very truly yours,

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

FLW:sab

Attachment

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PDR

PENNSYLVANIA POWER & LIGHT COMPANY

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Mr. Boyce H. Grier

- 2 -

July 14, 1981

cc: Mr. Victor Stello (15 copies)  
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  
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Subject

Oversized termination lugs in ITE Model K-600 load center breakers

Description of Problem

Wires in ITE 480V load center breakers have been terminated using terminal lugs designed for larger size wires. An improper crimp on such terminal lugs can result in the wires coming loose and slipping out of the terminal lugs. This problem was described in IE Information Notice #81-06.

Cause

The oversized terminal lugs were installed on the load center breaker wiring during manufacturing by ITE. ITE has verbally indicated that the cause was due to operator error in lug sized selection.

Analysis of Safety Implications

Some of the ITE load center breakers with oversized terminal lugs on internal wiring are used to supply 480V safety related loads. They may also be used in an isolation scheme to minimize degrading effects on the class 1E system from electrical faults in the non-class 1E system, where non-class 1E loads are connected to the class 1E power system.

The use of oversized lugs may lead to degraded electrical connections and an inability of the breaker to trip and isolate fault conditions when required. In a class 1E system, such a breaker anomaly jeopardizes the design function which is to minimize the effects of faults within the class 1E system. In an isolation scheme, such a breaker anomaly may allow non-class 1E system faults to degrade the class 1E system, thus providing a potential common mode failure mechanism to redundant class 1E power systems. The common mode failure could occur from multiple non-class 1E faults degrading the redundant power supplies through failures of the isolation system.

The condition constitutes a significant deficiency in Construction and PP&L Project Engineering has determined that, if the conditions described had gone uncorrected, it could have adversely affected the safe operation of the plant, and therefore, is reportable under the requirements of 10 CFR 50.55(e).

Corrective Action

An inspection of all safety related load center breakers on Unit 1 and 2 will be performed. All oversized lugs will be replaced with the proper size lugs.

PP&L electrical maintenance will be responsible for the inspection of all Unit 1 and common equipment. By direction of Nuclear Plant Engineering, this work will be tracked under Plant Staff work authorizations. Bechtel will be requested to perform the inspection on the Unit 2 equipment, and to track this work under Bechtel NCR 7513.

PP&L has requested that Brown Boveri Electric, Inc., suppliers of the ITE breakers, provide a response identifying the corrective action taken to preclude similar occurrences.

Conclusion

Upon completion of the inspection and repair program, all oversized lugs will be replaced thus assuring proper operation of the circuit breakers.