



Georgia Power

the southern electric system

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United States Nuclear Regulatory Commission
Region II
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Reference: Vogtle Electric Generating Plant - Unit 1; 50-425;
125V DC Station Batteries; Letter GN-955 dated June 19, 1986

Attention: Mr. J. Nelson Grace

In our previous correspondence on this subject, Georgia Power Company described a potentially reportable condition whereby a black substance was observed to be flaking off the positive straps of 125 VDC station batteries supplied by C&D Power Systems. Analysis by the vendor has determined that the flaking was caused by the presence of antimony from the use of lead-antimony burning sticks in the plate-lug-to-strap weld.

Georgia Power Company has concluded that this condition is reportable pursuant to 10 CFR 21 and 10 CFR 50.55(e). Based upon the guidance in NUREG-0302 Revision 1 and other NRC correspondence, Georgia Power Company is reporting this condition per the reporting criteria of 10 CFR 50.55(e). A summary of our evaluation is attached.

This response contains no proprietary information and may be placed in the NRC Public Document Room.

Yours truly,

D. O. Foster

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Attachment

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IE21

EVALUATION OF A POTENTIALLY REPORTABLE CONDITION
125V DC STATION BATTERIES

Initial Report: On May 20, 1986, Mr. R. E. Folker, Vogtle Project Quality Assurance Engineer, informed Mr. E. F. Christnot of the USNRC-Region II of a potentially reportable condition concerning the 125V DC Station Batteries supplied by C&D Power Systems. In subsequent correspondence to the NRC, Georgia Power Company indicated the NRC would be informed of the results of the evaluation of this condition by July 18, 1986.

Background Information: During a monthly inspection of the batteries, a black substance was observed flaking or falling off the positive straps of the Class 1E batteries. The black substance fell across the positive and negative plates in the battery cell jar. It was believed that the potential to short circuit the batteries could exist. This condition was written on Operational Deficiency Report T-1-86-1206. Three (3) battery cells were returned to the vendor for additional tests.

The Class 1E 125 volt-direct current system (125V-DC) has four trains of batteries. The trains are labeled A, B, C, and D. The batteries are basic components and provide safety-related 125V DC power to Class 1E DC loads (circuit breakers) and control circuits. Each Class 1E DC component, including the batteries, provide Class 1E 125V DC power during normal operation, loss of all AC power, hot standby, cold shutdown, refueling, and postulated design basis events for a minimum of 2-3/4 hours. The specification required batteries composed of lead-calcium cells.

Engineering Evaluation: Three battery cells which exhibited flaking of the positive straps were sent to C&D Batteries, the battery supplier, for analysis. C&D Batteries has analyzed the positive strap of the battery cells for alloy content. The positive straps contained an antimony-lead alloy in the plate-lug-to-strap weld area. This condition indicated that lead-antimony burning sticks had been used instead of lead-calcium burning sticks. For the type battery shipped to the Vogtle Electric Generating Plant, lead-calcium burning sticks must be used. The presence of antimony caused the flaking of particles from the positive straps of the batteries. The flakes can fall on top of both the positive and negative plates and present the potential for the short circuiting of the cell.

The condition of flaking positive straps was identified on the following cells:

- ° Train A Battery - Cell Nos. 4, 8, 13, 19, 20, 26, 31, 34, 35, 43, 49,
(Type LCY-37) & 57
- ° Train B Battery - Cell Nos. 3, 8, & 56
(Type LCY-37)
- ° Train C Battery - Cell Nos. 1, 3, 8, 10, 12, 16, 17, 18, 20, 21, 25, 29,
(Type LC-17) 31, 34, 36, 44, 47, 50, 55, 57, 58, & 59

IE21

Page two

If the condition associated with the flaking positive straps of the battery cells remained uncorrected, the 125V DC system may have failed due to the short circuiting of the battery cells.

Review for a Quality Assurance Program Breakdown: A review of the quality assurance program of C&D Batteries was conducted and it was determined that this condition constituted an isolated manufacturing problem and not a significant breakdown in the quality assurance program.

Conclusion: Georgia Power Company has concluded that this condition is reportable per the reporting criteria of Parts 10CFR21 and 10CFR50.55(e). Based upon the guidance in NUREG-0302 Revision 1 and other NRC correspondence, Georgia Power Company is reporting this condition per the reporting criteria of Part 10CFR50.55(e).

Corrective Action: Cell numbers 1, 8, & 50 of the Train C battery have been replaced with new cells prior to the shipping of the old cells to C&D Battery for analysis. The remaining nineteen (19) cells and the twelve (12) cells of the Train A battery and the three (3) cells of the Train B battery, will be replaced with new cells stored by C&D Battery for the Vogtle Electric Generating Plant - Unit 2.

C&D Battery concluded that the presence of antimony may not show up in laboratory tests and recommended the batteries be visually inspected. Periodic visual inspection of the batteries is a requirement of the plant maintenance procedures and will include an examination for flaking.