ENCLOSURE

HARTSVILLE AND PHIPPS BEND NUCLEAR PLANTS - ALL UNITS

DEFECTIVE GE SB-12 AUXILIARY SWITCHES IN SAFETY-

RELATED SWITCHGEAR

10CFR50.55(e) REPORT NO. 1 (FINAL)

NCR-2-1

On July 18, 1979, TVA informed NRC-OIE Region II, Inspector W. B. Swan, that TVA had been notified by General Electric (GE) that they discovered a potential problem with auxiliary switches (SB-12) used in metal clad switchgear.

TVA also indicated to Mr. Swan that Vince Thomas of the NRC-OIE Washington, D.C., office had been informed of this problem by GE at the same time that TVA was notified. This is the final report on the subject reportable deficiency.

Description of Deficiency

During factory tests at GE Switchboard Division (SBD), Philadelphia, Pennsylvania, of circuit breakers used in metal clad switchgear, some of the type SB-12 auxiliary switches on the breakers were found to have intermittent continuity through the "a" contacts in the trip coil circuit. GE indicated to TVA in their initial notification of this problem, "If your switchgear is energized with the breaker in the closed position, the red indicating light on the front panel of the equipment should be illuminated in which case the breaker will perform its function when it receives a trip signal. This does not, however, assure that the switch will continue to function correctly." A review by GE of the history of these components indicates that switches shipped in the time period of August 1, 1978, to July 1, 1979, could have this problem.

Suspect SB-12 auxiliary switches have been identified by GE in switchgear for the essential service water system (ESW) being provided to the Hartsville Nuclear Plant. A total of 32 breakers (20 Magne-Blast and 12 Powervac each containing one SB-12 auxiliary switch) for ESW switchgear had been shipped to the Hartsville Nuclear Plant before the deficiency was discovered. No ESW breakers have been shipped to the Phipps Bend Nuclear Plant at this time. A hold was placed on the remainder of the ESW equipment which had not been shipped from GE-SBD until corrective actions could be accomplished.

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TVA also identified 16 suspect SB-12 auxiliary switches in eight breakers and eight breaker compartments (one each) for the high pressure core spray (HPCS) system supplied by GE and fabricated by the Morrison-Knudson Company for use at the Phipps Bend Nuclear Plant. Similar HPCS equipment received at Hartsville Nuclear Plant does not contain the suspect switches because it was received before August 1, 1978.

Cause of Deficiency

Investigation by GE-SBD disclosed that a die used to form a hole in the contact arms of the SB-12 auxiliary switches had worn, resulting in elongated holes. This condition could permit the contact bridge member to move laterally relative to the contact arm, occasionally resulting in improper contact wipe.

Safety Implications

The SB-12 auxiliary switches which have the deficiency described above in the ESW or the HPCS switchgear would have the potential of jeopardizing the operation of the ESW or HPCS switchgear during performance of its safety function.

Corrective Actions

GE-SBD corrected the worn die so that all SB-12 auxiliary switches made on or after July 1, 1979, do not contain this defect. The ESW switchgear which was shipped to the Hartsville Nuclear Plant and the HPCS switchgear shipped to the Phipps Bend Nuclear Plant before July 1, 1979, will be reequipped with the replacement SB-12 auxiliary switches to be supplied by GE-SBD. These replacement switches will be installed by February 29, 1980. Other shipments of switchgear to Hartsville and Phipps Bend Nuclear Plants will have the replacement switches installed at GE-SBD before shipment.

TVA investigations have found no switchgear other than that described above provided for use in TVA nuclear plant safety-related systems during the August 1, 1978, to July 1, 1979, time period identified by GE.

Action Taken to Prevent Recurrence

GE has committed to increased surveillance of the manufacturing process of the SB-12 auxiliary switches and increased testing of the finished product to prevent recurrence of this problem in the future.