Vitro
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August 19, 1983

Mr. Richard C. DeYoung
Director of Office of Inspections
U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Washington, D. C. 20555

Dear Mr. DeYoung:

It has been reported by Mississippi Power and Light Company that the Load Shedding and Sequencing Panels manufactured by Vitro Laboratories and delivered to Bechtel Power Corporation/Gaithersburg for use in the Grand Gulf Nuclear Station exhibited incorrect operation with the automatic test feature on-line. Auto test was provided in this equipment as an option. The incorrect operation was not present when auto test was off. The incorrect operation was detected as a result of panel tests preparatory to low power operation of Unit 1, and subsequently verified by Vitro engineers at the Grand Gulf Nuclear Station.

It has been determined that the design of the auto test circuitry does not under all circumstances permit proper panel output in response to LOCA events. Specifically, one reset function was omitted from the input LOCA time delay. The result is that LOCA events occurring during the portion of the auto test cycle (approximately 10% of the time) utilizing an extremely high sequencing rate, will not cause actuation of the load shed or sequencer output relays. Inasmuch as the Load Shedding and Sequencing Panel contributes to orderly control of plant safety functions in the event of a LOCA, it is Vitro Laboratories' evaluation that the above deficiency is properly classified as a defect as defined by 10 CFR 21 and, therefore, should be promptly reported to the NRC.

Vitro has initiated corrective action for the Load Shedding and Sequencing Panels in Grand Gulf Nuclear Station by providing a design modification to the auto test circuitry. This design modification has been installed in the Unit 1 panels as a field change. The Unit 2 panels will be modified at a later date in accordance with schedules to be determined by Mississippi Power and Light.

A detailed analysis of the sequencing panel problem has been completed by Vitro, including all of the equipments delivered to nuclear power plants in the United States which use the auto test feature. Based upon this detailed design review, we have determined that in addition to the Grand

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Gulf Nuclear Station Load Shedding and Sequencing Panels, the Virgil C. Summer Nuclear Station Emergency Safety Features Loading Sequence Control Panels, the Comanche Peak Steam Electric Station Solid-State Safeguard Sequencers, the Millstone Nuclear Power Station - Unit 3 Emergency Generator Load Sequencers, and the William H. Zimmer Nuclear Power Station Essential Relay Panels have similar design deficiencies in the auto test circuitry.

An analysis of the circuitry of the Emergency Safety Features Loading Sequence Control Panels supplied for the Virgil C. Summer Nuclear Station reveals that there is a design deficiency in that a reset function was omitted from the input SIS time delay. The result is that SIS events occurring during the portion of the auto test signal (approximately 10% of the time) utilizing an extremely high sequencing rate, may cause premature timeout of the SIS sequence. Inasmuch as the Emergency Safety Features Loading Sequence Control Panels contribute to orderly control of plant safety functions in the event of an SIS, it is Vitro Laboratories' evaluation that the above deficiency is properly classified as a defect as defined by 10 CFR 21 and, therefore, should be promptly reported to the NRC. South Carolina Electric and Gas Company has been notified, and it has been recommended that they not use the auto test feature. An 8-hour test interval has been recommended until the equipment can be corrected. Design changes and documentation will be completed by August 22, 1983, after which the equipment will be modified when available.

Texas Utilities Generating Company, Northeast Utilities, and Cincinnati Gas and Electric Company will be notified of the deviation in the equipments for Comanche Peak Steam Electric Station, Millstone Nuclear Power Station - Unit 3, and William H. Zimmer Nuclear Power Station, respectively.

Based on the above, we believe that the reported defect has been thoroughly evaluated and the appropriate corrective actions initiated. Any questions or requests for additional information may be referred to Mr. J. G. Dougherty, Jr., Quality Assurance Manager at (301) 871-4030.

Sincerely yours,

W. Stevenson, Jr. V.P.

for E. T. Vilas
Executive Vice President
Operations

CES:fm
Cpys to:
Mississippi Power & Light
South Carolina Electric & Gas