

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401  
400 Chestnut Street Tower II

September 14, 1981

HTRD-50-518/81-21, -519/81-17  
-520/81-19, -521/81-17  
PBRD-50-553/81-23, -554/81-17

Mr. James P. O'Reilly, Director  
Office of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Region II - Suite 3100  
101 Marietta Street  
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

HARTSVILLE AND PHIPPS BEND NUCLEAR PLANTS - REPORTABLE DEFICIENCY -  
CROSBY SAFETY RELIEF VALVE SOLENOIDS - HTRD-50-518/81-21, -519/81-17,  
-520/81-19, -521/81-17 - PBRD-50-553/81-23, -554/81-17

Initial notification of the subject deficiency was made to NRC-OIE,  
Region II, Inspector P. A. Taylor on August 13, 1981 as NCR PRC 81-28.  
In compliance with paragraph 50.55(e) of 10 CFR Part 50, we are  
enclosing the final report on the subject deficiency. We consider 10 CFR  
Part 21 applicable to this nonconformance. If you have any questions  
regarding this subject, please call Jim Damer at FTS 857-2014.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

*L. M. Mills*

L. M. Mills, Manager  
Nuclear Regulation and Safety



Enclosure

cc: Mr. Victor Stello, Director (Enclosure)  
Office of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

IE27  
S  
1/1

8109220337 810914  
PDR ADOCK 05000518  
S PDR

ENCLOSURE  
HARTSVILLE AND PHIPPS BEND NUCLEAR PLANT  
CROSBY SAFETY RELIEF VALVE (SRV) SOLENOIDS  
10CFR50.55(e) REPORT NO. 1 (FINAL)  
HTRD-50-518/81-21, -519/81-17, -520/81-19, -521/81-17  
PBRD-5-553/81-23, -554/81-17

Description of Deficiency

An environmental qualification test was performed at Wyie Laboratories under GE contract on a Crosby SRV actuator and solenoid assembly to demonstrate compliance with IEEE-323-1974. The test identified that during the simulated 340°F, 105 lb/in<sup>2</sup> steam LOCA condition, the solenoids required 130V dc power to be actuated. A separate Wyie evaluation done for LaSalle showed that at least 125V dc are required to actuate the solenoid valves for ADS application under LaSalle environmental and operating conditions. A review of the applicable GE plant dc power supply specification for Hartsville and Phipps Bend utilizing the Crosby SRV solenoids in question specifies that the system voltage should be between 110V dc and 135V dc normally with an extreme low of 105V dc during peak loading or at the end of discharge during an emergency. Therefore, the minimum voltage available to actuate the solenoid is 105V dc under worst case conditions, not the required 125V dc.

Safety Implications

In the event of a small break LOCA and a subsequent loss of offsite power, serious core degradation could result if the Automatic Depressurization System is unable to perform its function when called upon due to failure of the subject solenoids. This condition would adversely affect the safe operations of the plants.

Corrective Actions

Recent tests performed by General Electric at Crosby Valve and Gage Company have identified the necessary criteria to assure solenoid operation at a 340°F LOCA condition with a 105V dc power supply source applied. All assemblies manufactured and/or in the field will be inspected using a stricter acceptance criteria. Those assemblies which do not meet the acceptance criteria will be replaced. All corrective actions will be completed July 31, 1984.