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TENNESSEE VALLEY AUTHORITY

400 Chestnut Street Tower II

THIS DOCUMENT CONTAINS POOR QUALITY PAGES

August 22, 1980

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Denton:

In the Matter of the Application of ) Docket Nos. STN 50-553
Tennessee Valey Authority ) STN 50-554

In a May 9 and June 13, 1980, telephone conversation, notification of discovery of additional faults at our Phipps Bend Nuclear Plant was made to the NRC geologist, Dick McMullen and Project Manager, Dino Scaletti. The faults are located in the area of the unit 1 ESW spray pond. Enclosed is a detailed description of these features.

We do not consider this minor fault to be capable within the meaning of Appendix A to 10 CFR Part 100.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Regulation and Safety

Enclosure

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SEND PICTURES to:
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PHIPPS BEND NUCLEAR PLANT

Fault Zone in the Rock Foundation for the
Number 1 Essential Service Water Spray Pond

Final excavation for the number 1 essential service water spray pond has exposed a series of reverse faults in the west quadrants of the pond. Several transverse faults were also located in this area and were geologically mapped.

The main reverse faults are labeled Fault Zone 20, Fault 21, and Fault 22 (see attached photographs). Fault Zone 20 intersects the minor axis of the pond 112 feet north of the major axis and intersects the major axis 85 feet west of the minor axis (see attached map). The fault zone strikes N. 50° E. and dips 66° SE. The zone consists primarily of two faults essentially parallel in both strike and dip, separated by an area of contorted rock which ranges in width from 2 to 10 feet and extends across the entire excavation. Secondary faults of similar strike and dip are present 40 and 75 feet southeast of the northeast half of the main fault. These faults strike parallel to bedding and terminate into bedding planes within the excavation.

Faults 21 and 22 intersect the major axis of the pond 35 and 65 feet west of the main fault of Zone 20. The strike is N. 40° E., and the fault planes dip away from each other. Fault 21 dips 83° SE., and Fault 22 dips 58° NW. Both fault planes are defined by calcite zones, 0.5 to 3.0 inch wide, which show minimal deformation of adjacent beds. A key horizon, described as a 1- to 2-foot-thick bed of limestone nodules which intersects Fault 22 about 125 feet north of the major axis of the

pond, indicates an offset of approximately 10 feet, with the west block upthrown over the east block. Similar evidence (calcite along bedding planes) indicates the same type of movement along Fault 21 but only about 0.5 foot of displacement.

Secondary faulting, primarily transverse, has developed along most of the length of Faults 21 and 22. These secondary transverse faults are essentially vertical and exhibit both right- and left-lateral movement, ranging in offset from a few inches to 1 foot. Secondary faults whose extents are limited to the mapped area terminate into near-vertical joints.

Fault Zone 20, Fault 21, and Fault 22 were traced to their intersections with the overlying Quaternary terrace deposits, which showed no evidence of deformation.

This type of faulting has also been described in a report on Faults 7, 8, and 9, located in the CCW pumping station (April 30, 1979).

These faults were formed by stress relief due to tectonic pressure from the northwest and southeast during formation of the Saltville Fault Family (250 mybp). These faults, having been stable for approximately 250 million years, are not considered to be capable of producing ground offsets or generating earthquakes. Therefore, we do not classify them as capable faults, within the meaning of Appendix A to 10 CFR part 100.