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MEMORANDUM FOR: Robert E. Jackson, Chief, Geoscience Branch, DSE

FROM: Charles E. Murphy, Chief, Reactor Construction and Engineering
Support Branch, RII

SUBJECT: GEOLOGIC FAULTING IN THE ESSENTIAL SERVICE WATER
SPRAY POND NUMBER ONE

This memorandum documents an inspection of geologic faulting in the Unit 1 spray pond made on May 16, 1980, by J. R. Harris, Civil Engineer/Geologist at the request of NRR.

The Unit 1 spray pond is excavated into folded Middle Ordovician shales and siltstone of the Sevier Formation (450 + million years old). Bedding strikes generally north 48 to 55 degrees northeast and dips sixty to 75 degrees south-east. Overburden consists of Quarternary terrace deposits with a thin marker bed adjacent to the weathered bedrock contact. Faults examined by the inspector were fault number 19 and zone 20. Fault 19 lies in the southeast quadrant of the spray pond. The fault strikes transverse to bedding in a north 42 degrees west direction and dips vertically. Faulting is shown by eight inches of right lateral offset. The fault terminates to the north at a vertical joint. Toward the south the fault was traced to the overburden contact where no deformation was visible in the gravel bed adjacent to the contact.

Zone 20 lies in the northeast quadrant of the spray pond. Faulting consists of three reverse faults striking north 39 to 48 degrees east in the direction of bedding and dipping 65 to 90 degrees southeast with bedding. Numerous minor faults splay off the three reverse faults in diverse directions. Cleanup and mapping on zone 20 is incomplete, but examination of the excavation showed that at least one of the reverse faults extends across the southwest quadrant. Tracing of zone 20 to the north showed no deformation in the Quarternary overburden contact. Final geologic mapping and a geologic report on fault number 19 and zone 20 will be submitted to NRR for review. Observations and discussion with A. Avel, Project Geologist, indicated work was being done in accordance with NRC requirements and that the geology is as reported in the PSAR.

Following examination of faulting, J. R. Harris, RII:IE, discussed his observations with R. McMullen, NRR, by telephone from the site. In a subsequent conference call between J. R. Harris, R. McMullen and responsible TVA construction and

CONTACT: J. R. Harris
242-5583

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licensing personnel, it was agreed that IVA could proceed with fill concrete operations on zone 20 and fault number 19. Any additional faulting encountered in the spray ponds is to be reported in accordance with NRC commitments.



Charles E. Murphy, Chief
Reactor Construction and Engineering
Support Branch

cc: G. Wayne Reinmuth, IE