



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

JUN 29 1979

Docket Nos: 50-327/328  
50-390/391  
50-438/439

APPLICANT: TVA  
FACILITY: Watts Bar, Sequoyah, Bellefonte  
SUBJECT: SUMMARY OF MEETING ON THE SOUTHERN APPALACHIAN TECTONIC STUDY

A meeting was held on 14 June, 1979 among representatives from the Tennessee Valley authority, the U.S. Geological Survey and the Nuclear Regulatory Commission. A list of the attendance is attached. The purpose of the meeting was to allow TVA the opportunity to present a basis which it believes justifies restricting the 1897 Intensity VIII Giles County earthquake to an east-west zone that crosses the northern part of the Southern Appalachian province. Prior to the meeting the staff and USGS had been provided with an abstract of the report describing the study. During the meeting we were given informal copies of the report, the title of which is "Southern Appalachian Tectonic Study".

The TVA presentation made by W. Seay, consisted of three parts:

1. Summary of the history of the tectonic province concept as it has related to the Southern Appalachians province;
2. Methodology of the investigation program; and
3. TVA's interpretation of the data.

The study was initiated in October, 1977, and was accelerated when TVA received the 27 December, 1977 letter from NRC expressing concern about the seismic designs of the Sequoyah, Watts Bar and Bellefonte nuclear plants which are in the Southern Appalachian province.

Data utilized in the program included existing aeromagnetic, gravity, LANDSAT and SKYLAB photoimagery, seismic reflection profiles, deep well data, and records of historic seismicity. The available aeromagnetic information was supplemented by additional work, including surveys of southeastern Kentucky by TVA, and surveys between Roanoke, Va. and Chattanooga, Tenn. and concentrated coverage in Giles County, Va. and in the area that includes

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the Sequoyah, Watts Bar and Bellefonte Nuclear Plants.

Interpretation of all of these data have led TVA to subdivide the Southern Appalachian region into eight subprovinces and an east-west oriented structural and seismic zone through Giles County, Virginia. The New York-Alabama lineament (King and Zietz, 1978) was recognized in the aeromagnetic and gravity data. It trends northeast, subparallel to the Appalachian structure. Several major northwest trending discontinuities in the basement, that are defined by three or more of the data sets, transect the New York-Alabama lineament. These anomalies are interpreted by TVA as manifestations of structural or petrologic changes in the basement and are used as boundaries to subdivide the Southern Appalachians.

TVA concludes from its investigation that the Giles County earthquake occurred within a distinct east-west structural and seismic zone; and that this zone is separated from the Sequoyah, Watts Bar and Bellefonte sites by several tectonic provinces, or subprovinces, characterized by marked differences in lithology, structure, and seismicity. Therefore, it is not reasonable to assume that an earthquake similar to the Giles County event could occur at these sites.

We informed TVA that due to reorientation of priorities and reorganizations within the NRC, it was uncertain at this time when the necessary manpower could be committed to review this study. A review schedule will be developed when the information is docketed.

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C. R. Stahle, Project Manager  
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Enclosures:  
As Stated

cc: See Next Page

Tennessee Valley Authority

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TVA Geologic Service  
TVA Geologic Service  
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NRC - DPM  
TVA - Civil Engineering Branch  
TVA - OEDC Licensing  
TVA - Power - Reg Staff  
Purdue University  
Pennsylvania State University  
Florida State University  
NRC - GSB  
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MEETING SUMMARY DISTRIBUTION

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Docket File  
NRC PDR  
Local PDR  
TIC  
NRR Reading  
Branch File #4 , Branch File #3  
E. Case  
D. Bunch  
H. Denton  
D. Ross  
D. Vassallo  
W. Gammill  
J. Stolz  
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