RIL #2

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SRI-2 SEISMOTECTONIC MAP OF THE EASTERN UNITED STATES

This memo is to transmit safety research information to you for the assistance it may provide in regulatory use. The draft copy of the "Seismotectonic Map of the Eastern United States," with accompanying text, was transmitted to the AEC on May 20, 1974. This represents the results of more than two years of joint effort by the USGS and the former Seismology Division of the NOAA.

The most significant aspect of the map is that it relates the spatial distribution patterns of recent earthquake occurrence to zones of structural deformation of the earth's crust. With the exception of the New Madrid faults, there have been virtually no recorded direct associations of modern earthquakes with individual surface faults in the Eastern U. S. Therefore, the seismotectonic provinces portrayed on this map can be used in the East as a standard reference for purposes of determining the location of the Safe Shutdown Earthquake pursuant to Appendix A, 10 CFR Part 100, "Seismic and Geologic Siting Criteria for Nuclear Power Plants."

Zones of earthquake occurrence which cannot be related to any known geologic structural pattern are also portrayed on the map. Although the Siting Criteria do not specifically require consideration of such zones, the patterns may logically be considered to represent deeply buried and unknown structures.

The seismicity data have been carefully screened to remove questionable reports of events and known non-tectonic events. The reliability of recurrence information is further enhanced by the exclusion of aftershocks, the large number of which

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in the historic record provide a statistical bias, and by the exclusion of events prior to the year 1800 when many earthquakes may have gone unreported because of the low population density. The number of events used in preparation of the map is approximately 4000.

The Division of Reactor Research and Development provided support for this research throughout its course. Programmatic responsibility for the effort was transferred to the Division of Reactor Safety Research during FY-74, along with that for the other USGS research programs in nuclear facility siting. Personnel of the former Seismology Division were transferred from NOAA to the USGS during FY-74, so that the final product will appear as a publication of the USGS.

A draft copy of the map and report was transmitted simultaneously to RSR and the Directorate of Licensing on May 20, 1974. The USGS will open-file the approved versions within the next two months, at which time the information will be available to the public. Because of the anticipated demand for the map, the USGS intends to issue it, probably at a reduced scale, as a Miscellaneous Field Study during FY-75.

Original signed by
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