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

NOV 27 1978

Docket Nos. STN 50-556
STN 50-557

Mrs. A. Webster
308 East 16
Claremore, Oklahoma 74017

Dear Mrs. Webster:

This is in response to your June 26, 1978 letter to Dr. Robert Gilbert concerning Public Service Company of Oklahoma's application for licenses to construct and operate its proposed Black Fox Station. Your letter was referred to this office for response.

We apologize for the delay in responding to your letter, however, considerable time was required to obtain copies of the several documents that you referenced. We have now reviewed these documents and our responses to each of the items of your letter are provided below.

1. Arkoma Basin Earthquakes

The Arkoma Basin and Ouachita geosynclinal mobile belt are Paleozoic features. The faults in the Arkoma basin described by McQuillan are growth faults which formed contemporaneously with rapid subsidence and sedementation during Atokan time (300 million years ago). Contemporaneous movement along these faults continued throughout deposition of the Atokan sediments and appears to have diminished and ceased by Desmoinesian time (280 million years ago). These faults are non-tectonic in origin, are not considered potential earthquake sources, and are not capable within the meaning of Appendix A to 10 CFR Part 100.

2. Trenching

We do not always require trenching. In the case of the proposed Black Fox Station site, the information provided by the applicant was sufficient for us to evaluate the subsurface geology. This information included mapping, borehole data, geophysical surveys, air photo analyses, and the current literature. Further, the applicant has committed to map the floor and walls of the excavation in detail. Any irregularities within the excavation will be immediately reported and evaluated by us.

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3. Possible Fault Mechanism

We believe that you intended to refer to Figure 5 of the Gabelman report instead of Figure 15 as indicated in your letter. Figure 5 is the lithologic configuration of the crust and mantle of a typical mid-ocean ridge. In plate tectonics (the principal process of deformation of the earth's crust), convection currents are one of the proposed mechanisms for plate movement. Deformation occurs principally along the plate boundaries. The eastern United States is an intraplate region which behaves as a rigid unit. There are no active ridges or spreading centers located within the continental United States.

Radon is a decay product of uranium. Almost every rock contains some uranium and, therefore, emits some radon. Theoretically, when a rock is broken, such as by fault movement, additional radon may be released. The Chi-Yu King report attempts to correlate these changes in radon emission to earthquakes. At the present time, there exists no generally accepted method of earthquake predication. The proposed Black Fox Station is, however, designed to accommodate the maximum earthquake ground motion postulated to occur at the site.

4. Potential for Shrink and Swell

The pipelines that will penetrate the foundation structures at the proposed Black Fox Station will be surrounded by sand and gravel. Therefore, there will be no shrink and swell in the surrounding material which could adversely affect the pipelines.

5. Impact of Heat Dissipation Into Ground Rocks

The temperatures of the buried pipelines at the proposed Black Fox Station will not differ significantly from their surroundings. Therefore, relatively little heat will be dissipated into the material surrounding the pipelines. Since the pipelines will be surrounded by sand and gravel, there will be no shrink and swell in the surrounding material which could adversely affect the pipelines. Further, the relatively small

amount of heat that will be dissipated into the material surrounding the pipelines will have no effect whatsoever on unrecovered natural gas accumulations. Finally, the presence of slickensides is of itself no concern. Slickensides can result from minor movement on joints or due to compaction and is, therefore, not necessarily associated with tectonic faulting.

6. Possible Lack of Water Level at Intake Structure

While earthquake damage to Lock and Dam No. 18 could cause the water level at the intake structure to fall, the safety of the plant would not be compromised since the ultimate heat sink for the proposed Black Fox Station is not the Verdigris River but seismic Category I cooling towers and makeup basin.

We hope that we have been responsive to the items of your letter. Our review of the information contained in and referenced in your letter has not revealed anything that would cause us to change our conclusions regarding the suitability of the proposed Black Fox Station site.

Sincerely,

Steven A. Varga, Chief
Light Water Reactors Branch No. 4
Division of Project Management