

ABSTRACTS

Geology and Quality of Coal Beds in the Cretaceous Corwin Formation in the Northern Foothills of Western Arctic Alaska

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A large area in the Northern Foothills physiographic province of the Arctic Slope of Alaska, between the Utukok and Kololik Rivers, is underlain by moderately deformed coal-bearing rocks of the Lower and Upper Cretaceous Corwin Formation, which is the nonmarine facies of the Nanushuk Group, a thick deltaic wedge.

Exposures of coal beds are very sparse and limited primarily to cutbanks of the major drainages. Shallow subsurface data on coal bed thickness and areal and stratigraphic distribution in upland areas have been obtained through radiation logging (natural gamma and density) of seismic shotholes supplemented by limited exploration with a small power auger.

Coal beds in the area reach a maximum thickness of 13 feet and appear to be uniformly distributed in the stratigraphic column, comprising as much as 2 percent of one 2900-foot sequence. Individual beds are relatively lenticular, and tend to be more continuous in probable paleocurrent direction.

Coal quality and apparent rank have been determined from analyses of channel samples of outcropping coals and drill cuttings from seismic shotholes. Based on comparisons of analyses of cores and drill cuttings from equivalent and adjacent strata to the west, coal cuttings from drilled holes proved to be an accurate indicator of coal rank. Accurate data on ash content have been obtainable only from channel samples of outcropping coals and drill cuttings from coals more than 7 feet thick.

Samples from sufficient depth in shotholes to preclude weathering effects indicate apparent coal ranks ranging from high-volatile A to high-volatile B bituminous. There is some evidence that rank is a function of pre-orogenic depth of burial, a relation that has been demonstrated more conclusively in the Cape Beaufort area to the west in the coastal plain to the north. The sulfur content is low, generally less than 1.0 percent.