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Mining Geology of the Lower Elkhorn Coal

Stephen F. Greb and Gerald A. Weisenfluh

Introduction

The Lower Elkhorn coal is one of the most important coal beds in eastern Kentucky, US. It is currently the most productive coal bed in the state and one of the most important in the United States. The Lower Elkhorn coal, along with the Upper Elkhorn coal, is one of the most important coal beds in eastern Kentucky. The Lower Elkhorn coal is overlain by laterally extensive, high-volatile A bituminous, generally low sulfur contents (0.4–1.7 percent, mean 0.8 percent), and low ash yields (5.1–16.7 percent, mean 9.6 percent). Higher-sulfur coals, however, are more common in areas where the coal has been affected by subsidence or other geological processes. The dips probably represent abandoned channels cutting through the sandstone, and the coals are often tilted or overturned. The dips are often associated with folds and other geologic structures.

Hard Parting Concentrations

An unusual feature of some Lower Elkhorn mines is the presence of hard partings, which are limestone or calcite concretions that occur as partings within the coal bed. These hard partings are often associated with subterranean karst features and may be the result of solution processes. The partings consist of a variety of minerals, including calcite, dolomite, and quartz. The partings are often concentrated at the base of the coal bed, and they are commonly associated with underlying water tables. The partings are often covered by a layer of coal or other material, and they are often subject to mining damage. The partings are often associated with roof falls and other mining hazards.

Sandstone Cutouts and Rolls

Sandstone cutouts and rolls are common in many Lower Elkhorn mines, especially in areas where riders merge with, or come near to merging with, the main coal bed. These cutouts and rolls are often caused by differential compaction beneath the sandstone, which may cause the coal to be pushed downward to form the dip. The dips are often associated with folds and other geologic structures.

RooF-Back Variation

The roof-back variation in the Lower Elkhorn coal is characterized by a variety of features, including roof falls, slump failures, and other types of roof-and-back movement. These features may be caused by a variety of factors, including differential compaction, subsidence, and other geologic processes. The dips are often associated with folds and other geologic structures.

Acknowledgments

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References Cited


Black shale or shale with fossil remains of marine organisms, especially brachiopods, are common in many Lower Elkhorn mines. These fossils are often associated with bedding structures and may be the result of subsidence or other geological processes. The dips are often associated with folds and other geologic structures.

Shale Roof Failures

The most common roof rock in Lower Elkhorn mines is lower-volatile bituminous, which occurs in areas where the coal has been affected by subsidence or other geological processes. These coals are often associated with the overlying shales and may be the result of solution processes or other geological processes. The dips are often associated with folds and other geologic structures.

Hylbert, C.C., 1984, The dips probably represent abandoned channels cutting through the sandstone. These drainage channels were often caused by solution processes, which may have been triggered by increased rainfall. The dips are often associated with folds and other geologic structures.

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