

Total Coal Thickness of the Upper Elkhorn No. 3A Coal (Lower Bed) in Eastern Kentucky

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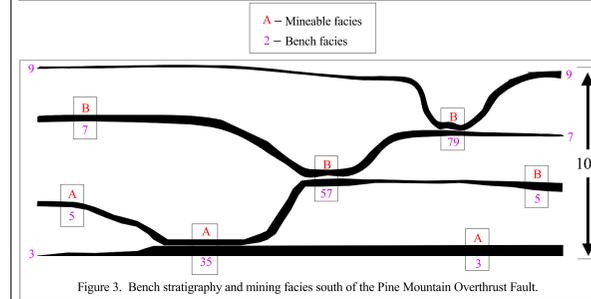
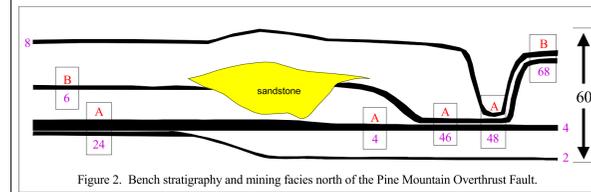
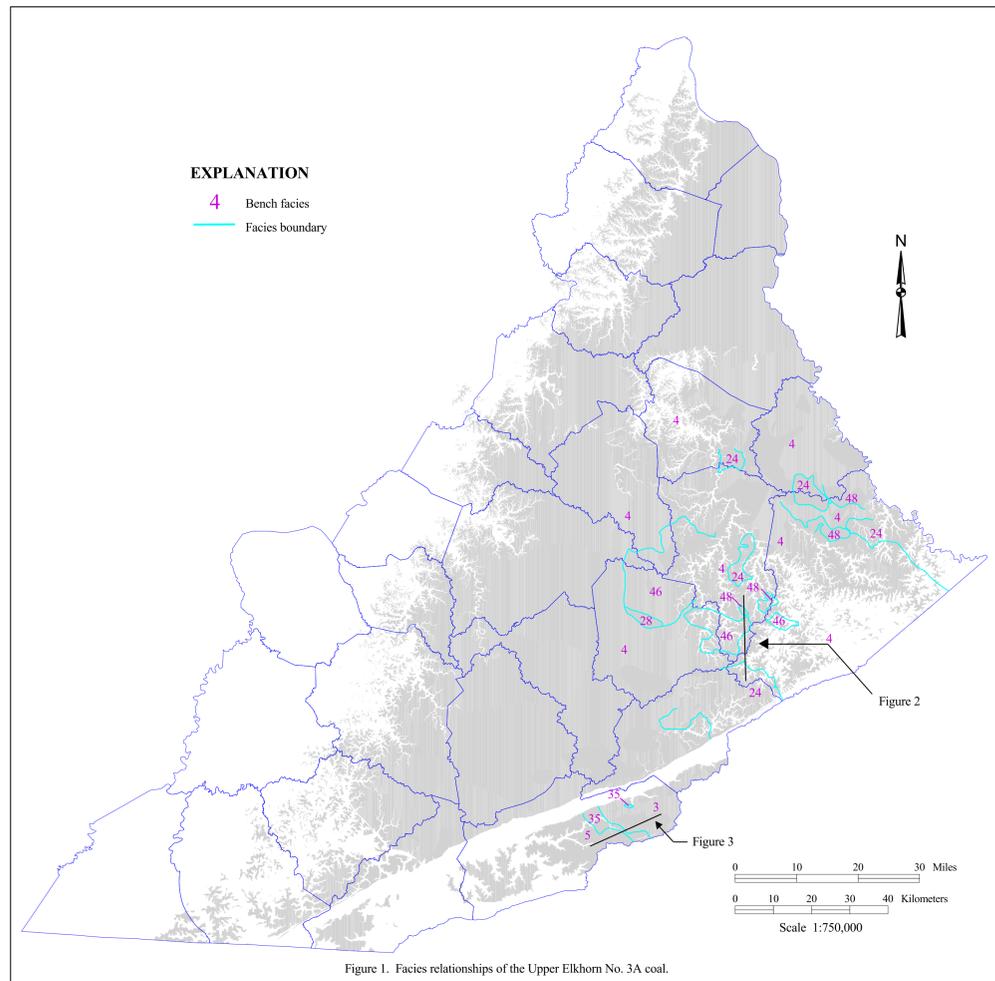


Figure 2

Figure 3

0 10 20 30 Miles
0 10 20 30 40 Kilometers
Scale 1:750,000

Figure 2

Figure 3

Overview

This map is one of a series that shows the regional characteristics of the Upper Elkhorn No. 3 coal zone. The maps were prepared as part of the U.S. Geological Survey's National Coal Assessment Program, which compiles regional maps and databases that provide a comprehensive assessment of the most important coal beds in the nation. The Upper Elkhorn No. 3 coal zone has been one of the leading producers in the state of Kentucky and, in some areas, contains very high-quality coal. The zone is composed of a number of distinct coal beds that merge in some areas to form mineable coal bodies. This architecture results in complex stratigraphic relationships over the extent of the coal. For the purpose of this assessment, the zone has been divided into two beds, the lower (3A) and upper (3B). This map represents the total coal thickness, minus partings, of the lower or main bed for the eastern Kentucky region. It is not a traditional isopach map, because the mineable bed is not composed of the same benches in all areas (Figs. 1-3). Discontinuities, delineated by facies boundaries on the map, indicate abrupt changes in thickness caused by splitting; discontinuities also occur between areas where entirely different beds in the Upper Elkhorn No. 3 zone are favored for mining. The lower bed (3A) is the main bed north of the Pine Mountain Overthrust Fault, where it is also known as the Van Lear or Tom Cooper coal. South of the Pine Mountain Overthrust Fault the lower bed, also known as the Kellioka or "B" seam, is less well developed compared to the upper bed, known as the Darby or "C" seam.

Point Data

Coal thickness and elevation measurements were derived from two different databases. The Kentucky Coal Resources Information System (KCRIS) contains field descriptions of coal beds that were made at natural outcrops, roadcuts, and surface and underground mines. Data collected at these localities were total coal thickness, bottom elevation, and, in some cases, total parting thickness. The second database contains records of borehole information obtained from coal companies and government agencies. This database also contains measurements of rock strata above and below the target coal bed. Data from 990 localities cited in the KCRIS database and 2,250 boreholes were used to prepare this map.

Map Preparation

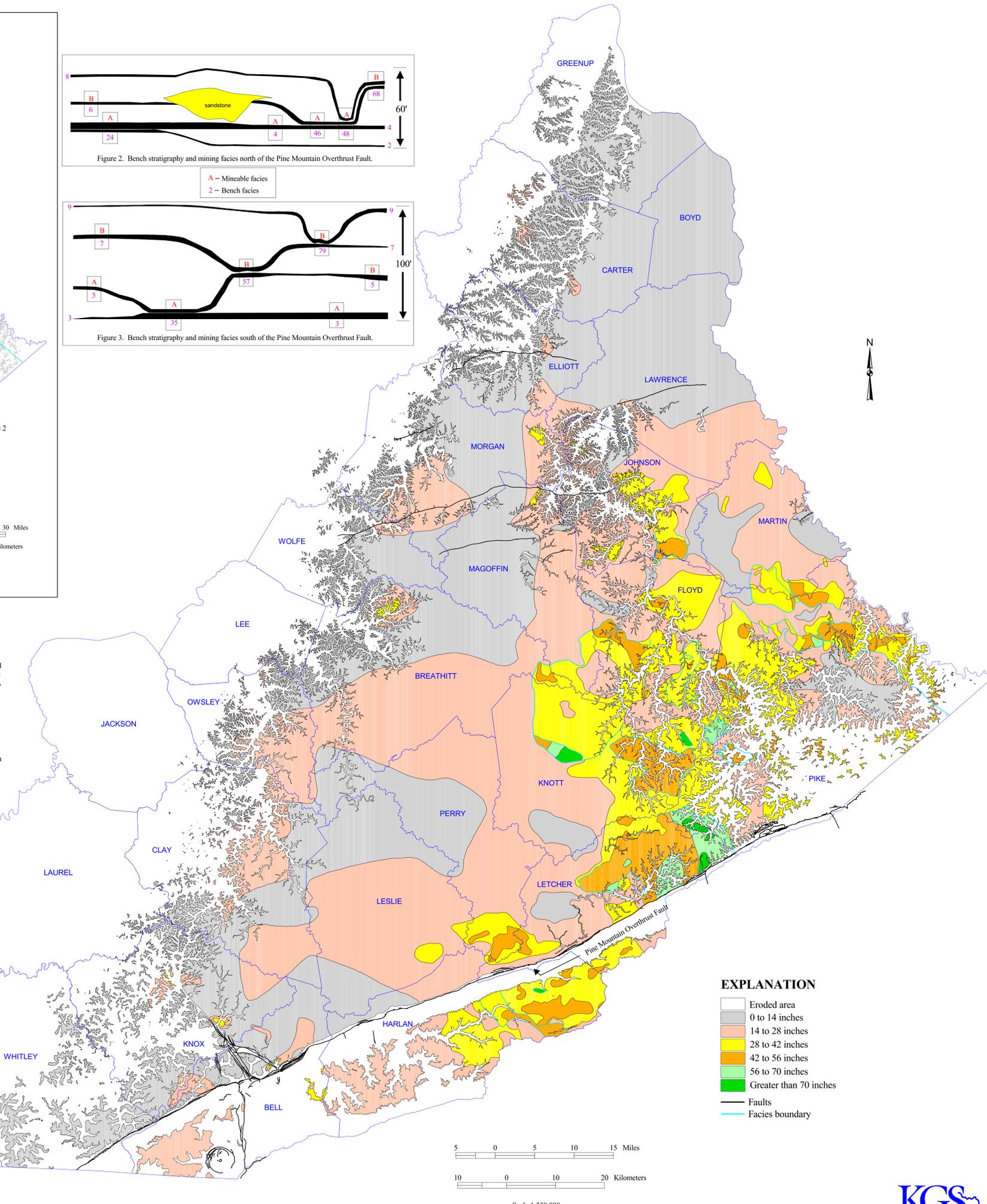
The outcrop area of the Upper Elkhorn No. 3 coal was compiled from individually digitized 7.5-minute geologic quadrangle maps. Personnel of the Kentucky Revenue Cabinet and the Kentucky Geological Survey digitized the maps. For quadrangles where the coal had not been geologically mapped, the position of the coal outcrop was inferred, where possible, based on underlying or overlying beds. Thickness data were plotted on 1:100,000-scale base maps. Standard U.S. Geological Survey 14-inch categories, beginning at 14 inches, were manually drawn and digitized. Contour lines do not cross lines of discontinuity, such as coal-bed split lines. Also, some anomalous data points were not used in order to avoid overly complex contouring. Split lines shown on Figure 1 were determined from analyses of drill-hole data and mine maps. The split boundaries for some adjacent mining facies are not completed because there were insufficient data to determine their location, or the transition between facies was not clearly related to splitting. Numbers on Figure 1 indicate the combination of coal benches that make up the mineable bed, as shown on Figures 2 and 3.

More Information

A list of publications that relate to the Upper Elkhorn No. 3 coal zone can be found on the KGS Web site at www.uky.edu/KGS/ue3references.html.

Acknowledgments

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EXPLANATION

- Eroded area
- 0 to 14 inches
- 14 to 28 inches
- 28 to 42 inches
- 42 to 56 inches
- 56 to 70 inches
- Greater than 70 inches
- Faults
- Facies boundary

0 5 10 15 Miles
0 10 20 Kilometers
Scale 1:350,000