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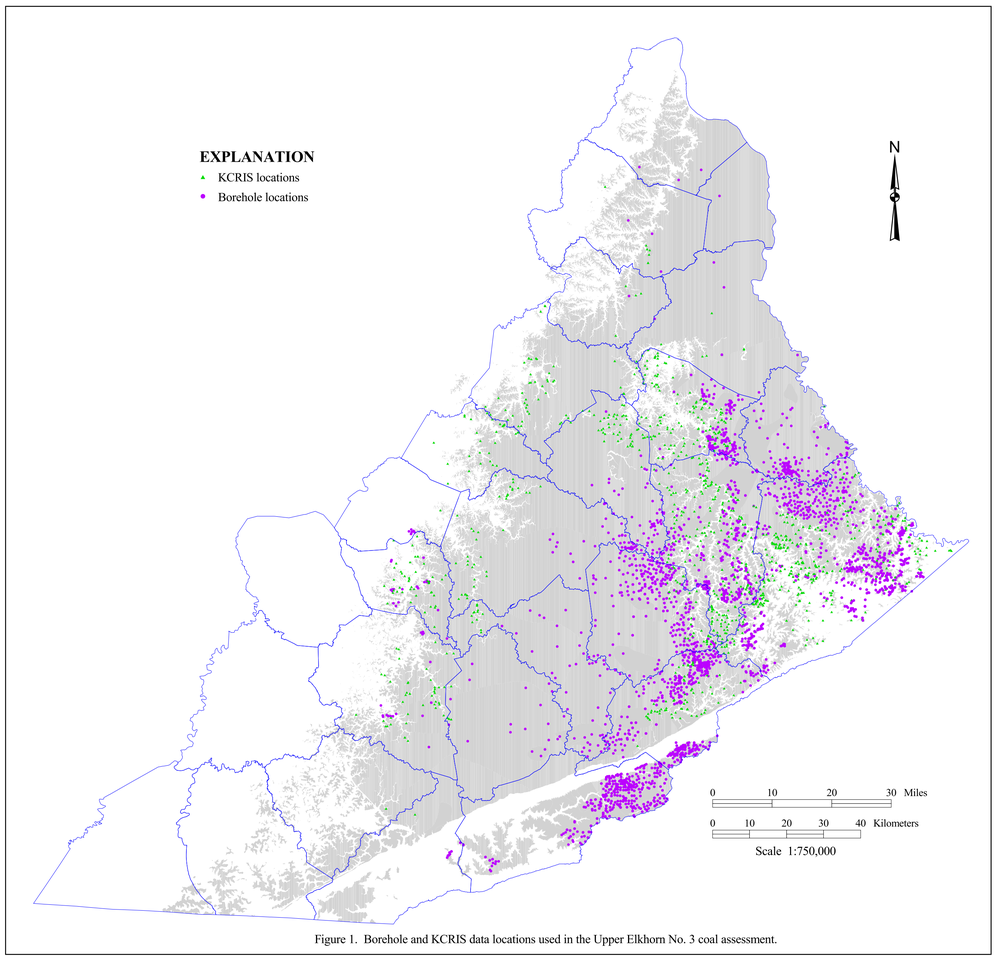

Figure 1. Borehole and KCRIS data locations used in the Upper Elkhorn No. 3 coal assessment.

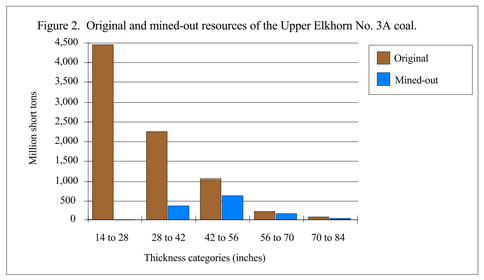

Figure 2. Original and mined-out resources of the Upper Elkhorn No. 3A coal.

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, is of very high quality. Bed stratigraphy within the Upper Elkhorn No. 3 zone and coal thickness of the No. 3A coal are described in KGS Map and Chart Series 7 (series 12). The map shows mined-out areas and thickness characteristics of remaining coal. Figure 1 shows point-data locations, and Figure 2 shows tonnage calculations for the Upper Elkhorn No. 3A coal (also known as the Kellioka or "B" seam south of the Pine Mountain Fault).

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. 3A 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 and 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.

Mined-Out Areas

Maps showing the boundaries of underground mines are maintained by the Kentucky Department of Mines and Minerals; the data are compiled on 1:24,000-scale base maps by coal bed, and cover the period between 1948 and 1993. We transferred generalized outlines of mined areas for the Upper Elkhorn No. 3A coal to 1:100,000-scale base maps according to coal-bed designation. Precise boundaries between adjacent mines were not documented. We then inspected large-scale mine maps for mines with more than 1 million tons of production between 1993 and 1999 and appended newly developed areas to the 1:100,000-scale maps. Seam sections and mine elevations were collected from some mine maps and compared to drill-hole and outcrop data for nearby locations to verify coal-bed correlation. Vector polygons of mined areas were digitized from the 1:100,000-scale base maps and encoded with attributes to identify local coal-bed names. South of the Pine Mountain Overthrust Fault, both the Kellioka (3A) and Darby (3B) beds are commonly mined at the same locality; interburden thickness is as little as 30 feet. For some mines, data were insufficient to determine with confidence which bed was mined. In such cases, bed assignment was based on coal-thickness information and bed names provided by operators.

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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Maps projected in universal transverse Mercator, zone 17: 1927 North American datum