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# Coal Resources of the Lower Elkhorn Coal Bed in Eastern Kentucky

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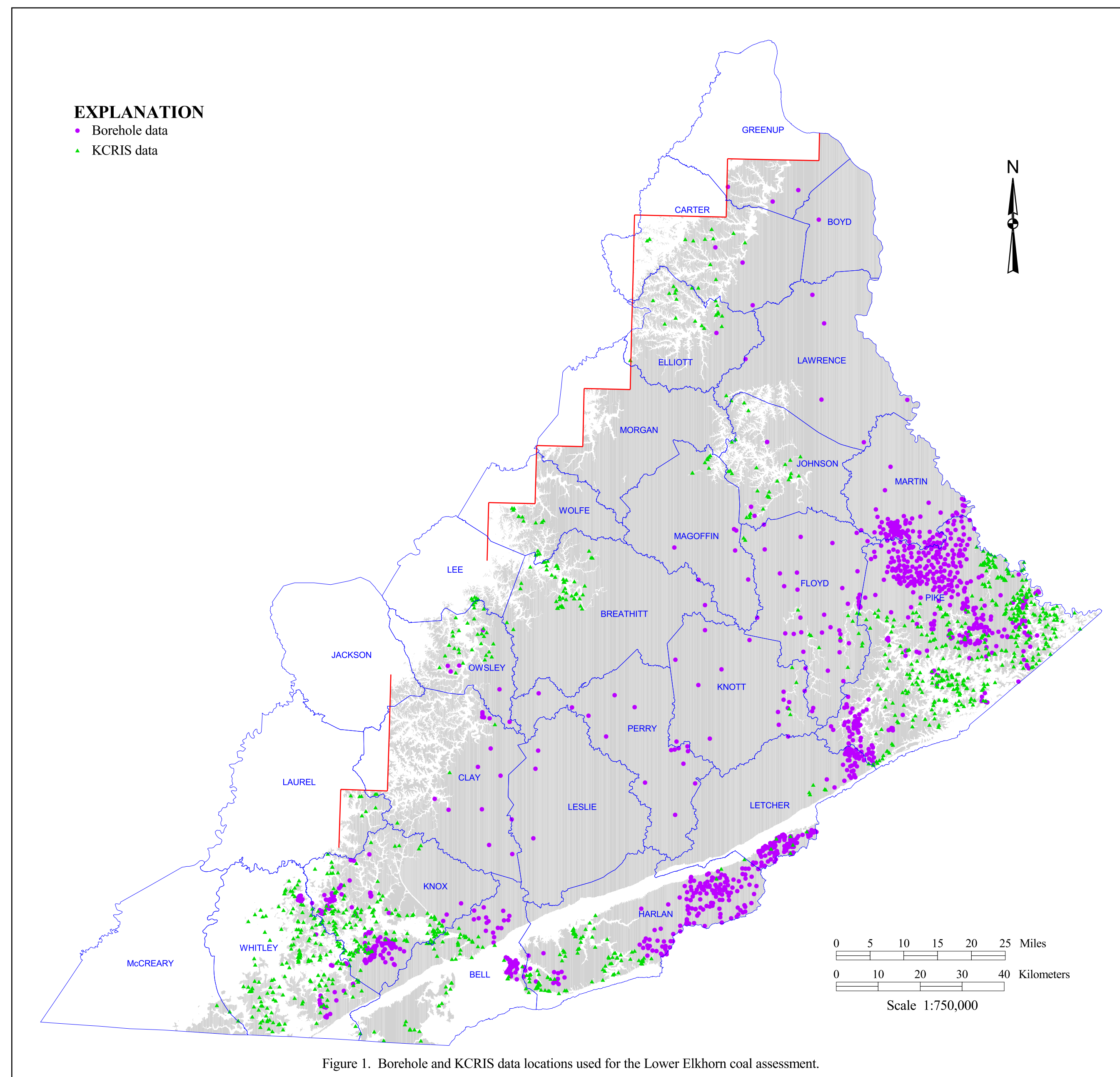


Figure 1. Borehole and KCRIS data locations used for the Lower Elkhorn coal assessment.

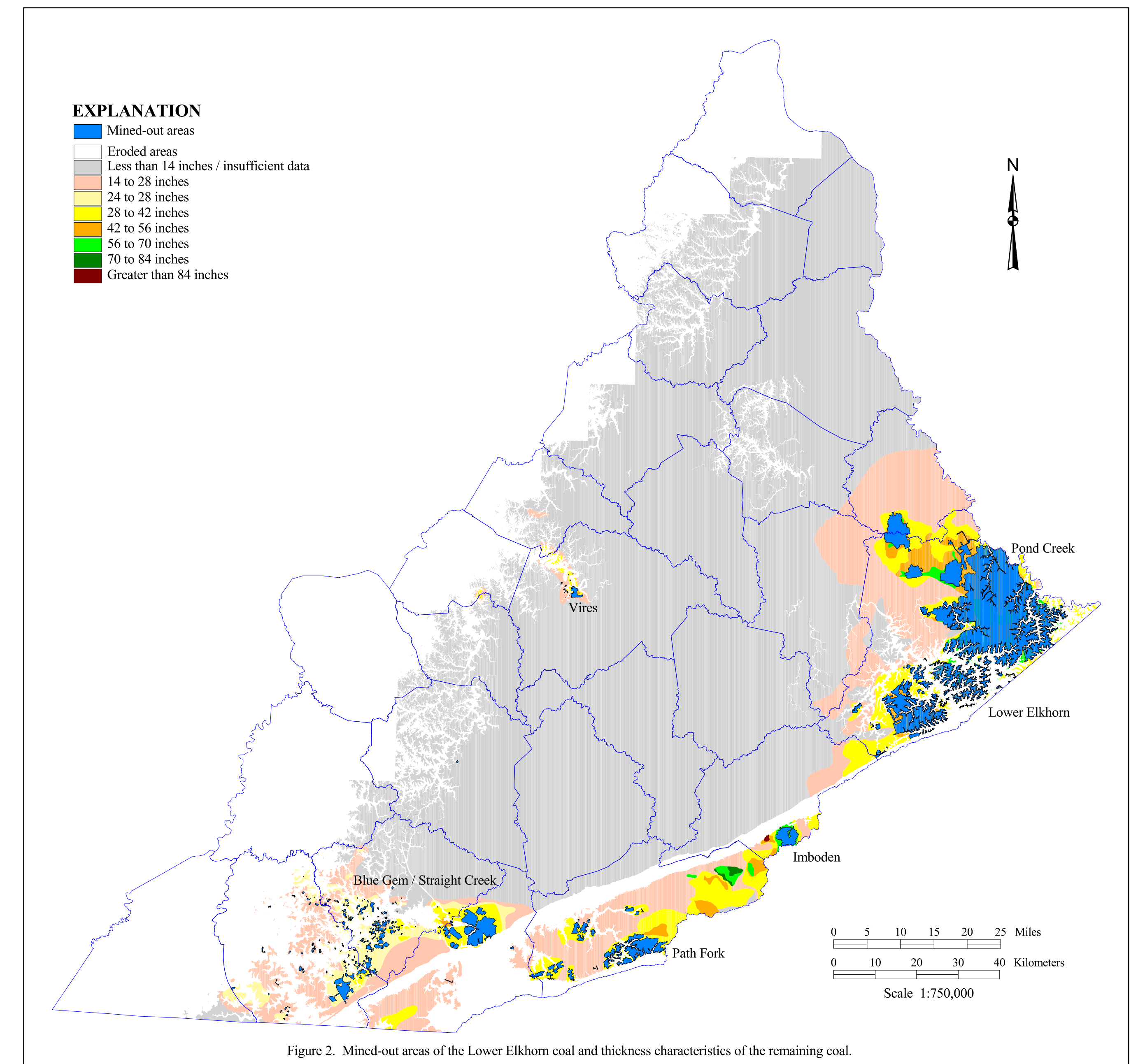


Figure 2. Mined-out areas of the Lower Elkhorn coal and thickness characteristics of the remaining coal.

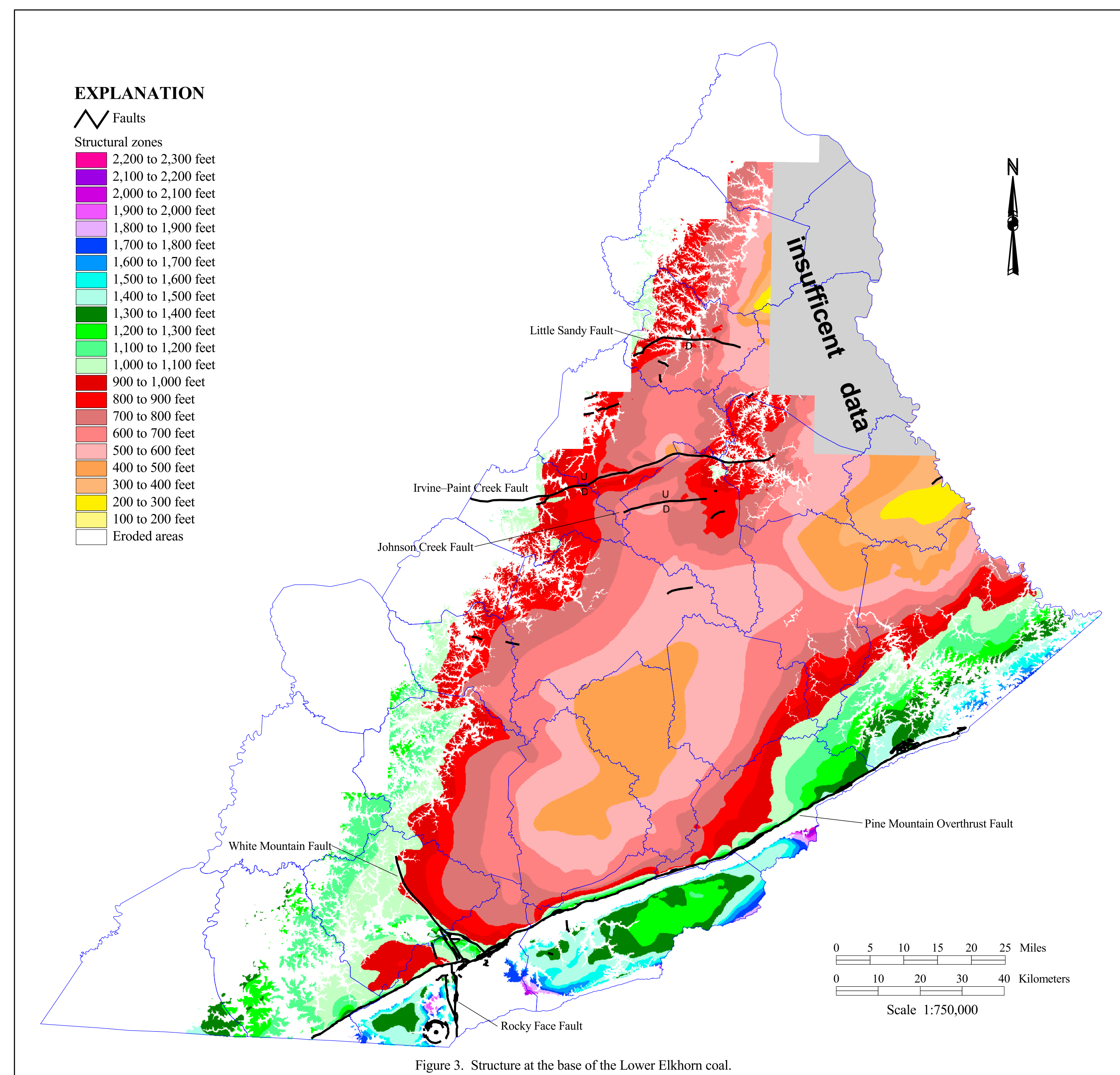
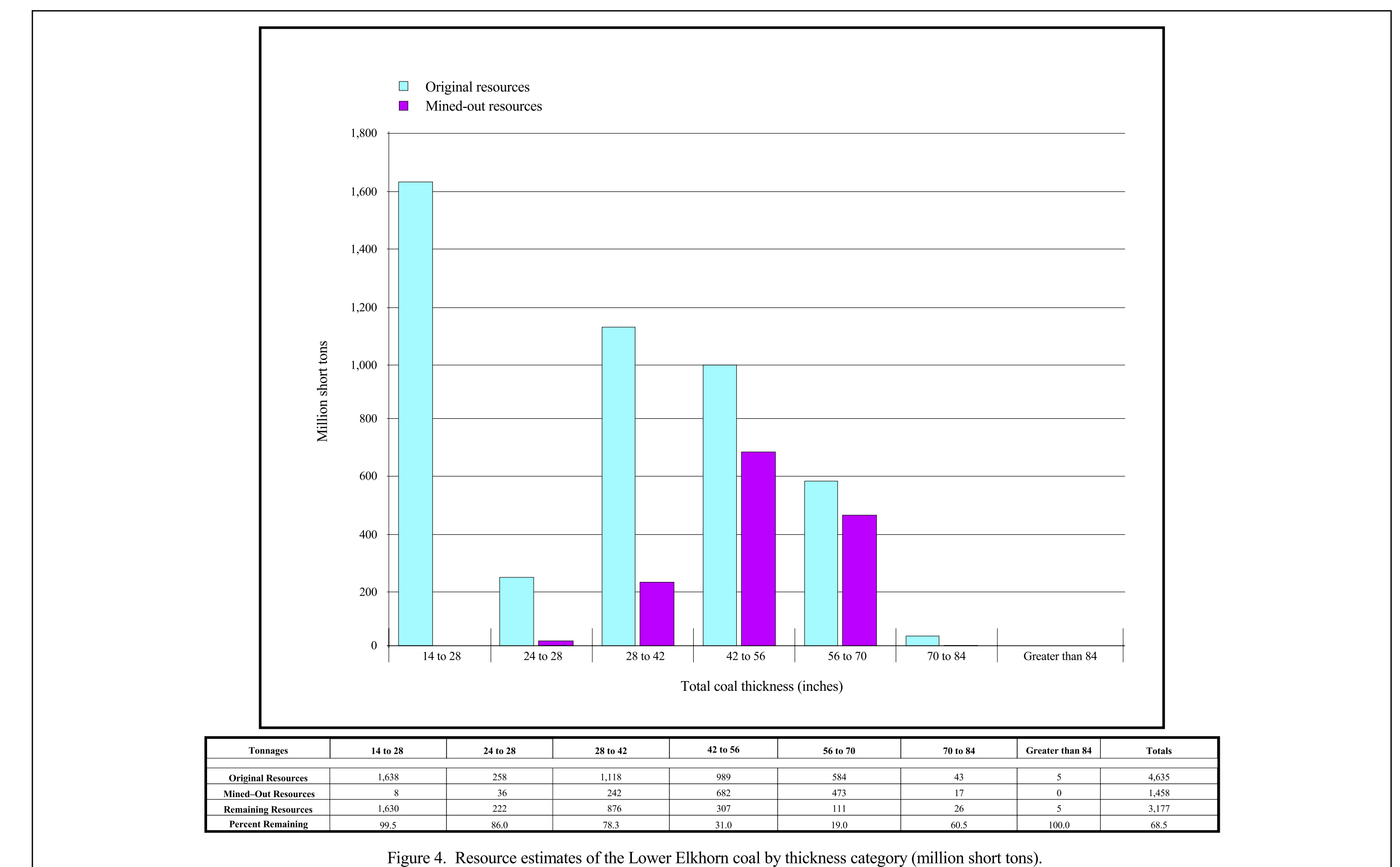


Figure 3. Structure at the base of the Lower Elkhorn coal.



## Overview

This chart is one of a series that shows the regional characteristics of the Lower Elkhorn coal. 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 Lower Elkhorn coal is one of the leading producers in the state of Kentucky and has, in some areas, a reputation as an excellent metallurgical-grade coal. It is known locally as the Pond Creek, Imboden, Path Fork, Blue Gem, Straight Creek, Bruin, or Vires coal bed. This chart describes the distribution of data used for the coal assessment, generalized mined-out areas in relation to coal thickness, geologic structure of the bed, and coal-resource estimates.

## 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 1,134 localities cited in the KCRIS database and 1,255 boreholes were used to prepare these maps. Locations of points for each database are shown on Figure 1.

## Mined-Out Areas

Original mine maps for each coal bed are maintained by the Kentucky Department of Mines and Minerals (KDMM), which compiles them on 1:24,000-scale base maps. The base-map data are current through 1993. Generalized outlines of mined areas were transferred to 1:100,000-scale base maps according to coal-bed designation. Precise boundaries between adjacent mines were not documented. For mines with significant production after 1993, original mine maps were inspected at KDMM and new areas were appended 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 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 (Fig. 2). 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.

## Structure

All appropriate KCRIS and drill-hole elevation data were posted on 1:100,000-scale base maps. For areas with inadequate control points that were next to the outcrop, elevation was estimated from geologic quadrangle maps. For areas with inadequate control points and for which the coal bed was below drainage or not mapped, contours were estimated from the trend of structure contours of other coal beds compared to estimates of interburden thickness. Plotted point data were hand-contoured with an interval of 100 feet. These vectors, as well as those interpolated from overlying beds, were digitized and attributed according to elevation. Figure 3 shows the structure of the Lower Elkhorn coal in relation to known regional structures.

## Resource Assessment

Tonnage estimates for original resources (Fig. 4) were calculated using aggregated areas from the coal-thickness vector map. Estimates of mined-out resources were derived using aggregated areas from a combined map of coal thickness and mined-out areas.

## Acknowledgments

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