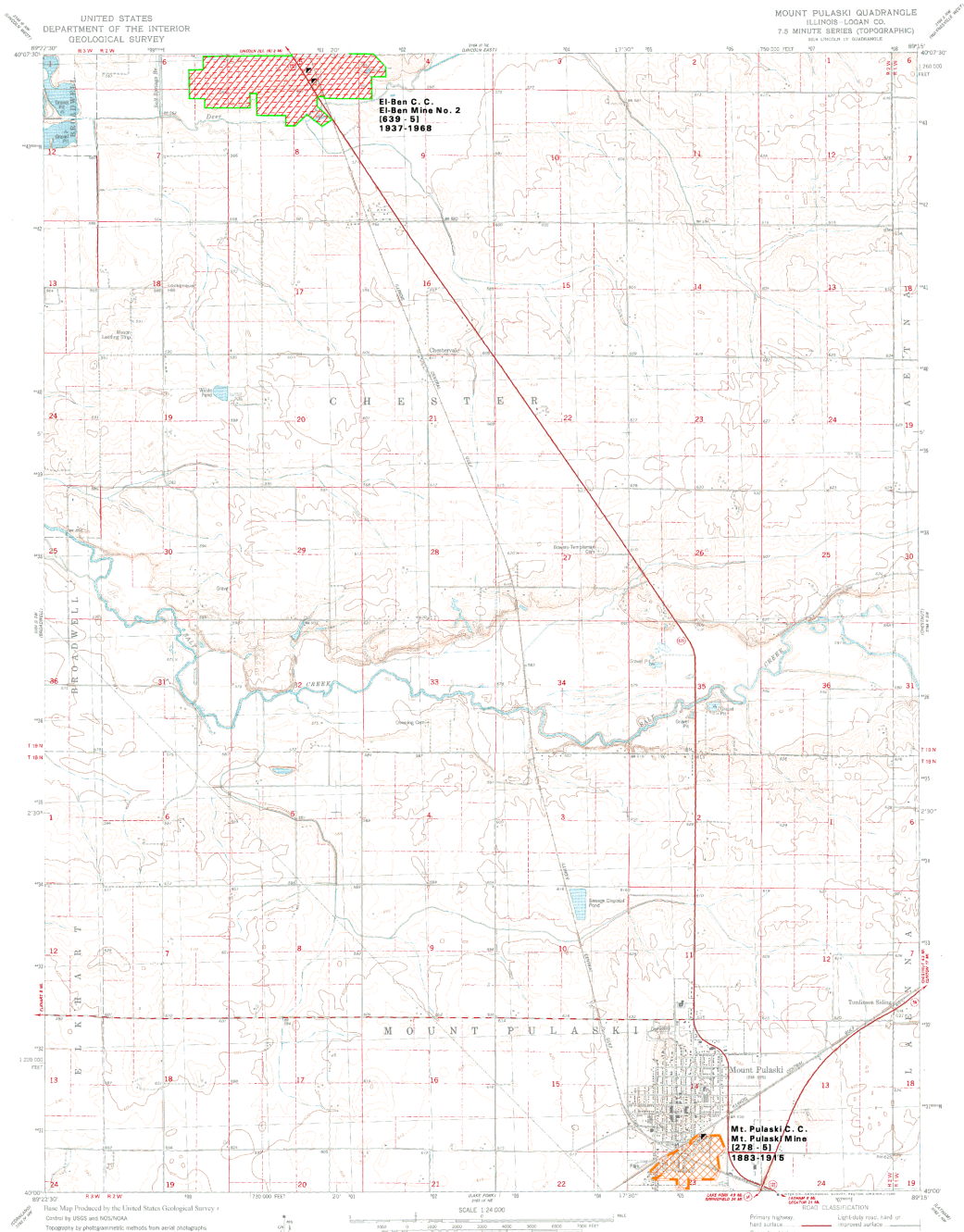

COAL MINES IN ILLINOIS
MT. PULASKI QUADRANGLE
LOGAN COUNTY, ILLINOIS

This map accompanies the Coal Mines Directory for the Mt. Pulaski Quadrangle. Consult the directory for a complete explanation of the information shown on this map.

MINING METHOD

- Room & pillar (RP)
- Room & pillar - basic (RPB)
- Modified room & pillar (MRP)
- Room & pillar panel (RPP)
- Blind room & pillar (BRP)
- Checkerboard room & pillar (CRP)
- High extraction retreat (HER)
- Longwall (LW)
- Underground mine, method unknown
- General area of mining
- Surface mine

SOURCE OF MINE OUTLINES

- Final mine map
- Not a final map
- Undated map
- Incomplete map
- Secondary source map

TIPPLE, SHAFT, SLOPE, DRIFT LOCATIONS

- Strip mine tipple; active - abandoned
- Mine shaft; active - abandoned
- Mine slope; active - abandoned
- Mine drift; active - abandoned
- Air shaft
- Uncertain location
- Uncertain type of opening

MINE ANNOTATION
(space permitting)

Company
Mine Name
ISGS Index No., Years of Operation

LOCATION

DISCLAIMER

These data were compiled and digitized from the best source maps available. Locations of some features may be offset by 500 feet or more due to errors in the original source maps, the compilation process, digitizing, or a combination of these factors. Documentation of the source materials used is contained in the directory that accompanies this map. It is the user's responsibility to read this documentation and understand the limitations of the data. Though efforts have been made to compile these data accurately, the Illinois State Geological Survey does not guarantee the validity or the accuracy of these data.

The image of the U.S.G.S. Mt. Pulaski quadrangle used as a basemap was projected from the original UTM to Lambert Conformable Conic.

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

ISGS Illinois State Geological Survey Coal Section

Illinois State Geological Survey
615 E. Peabody Drive
Champaign, IL 61820

Mine outlines compiled by Gayla Coats

February 2, 1993
Revised March 5, 2004

DIRECTORY OF COAL MINES IN ILLINOIS
7.5-MINUTE QUADRANGLE SERIES
MT. PULASKI QUADRANGLE
LOGAN COUNTY

G. K. Coats
M. H. Bargh
C. G. Treworgy

Department of Natural Resources
ILLINOIS STATE GEOLOGICAL SURVEY
1993
REVISED 2003

DIRECTORY OF COAL MINES IN ILLINOIS
7.5-MINUTE QUADRANGLE SERIES
MT. PULASKI QUADRANGLE
LOGAN COUNTY

1993
REVISED 2003

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Champaign, Illinois 61820

Phone 1-217-244-2420
Fax 1-217-333-2830

Cover photo Track-mounted duckbill loading machine at a Peabody Coal Company mine, ca. 1915.

DISCLAIMER: The accuracy and completeness of mine maps and directories vary with the availability of reliable information. Maps and other information used to compile this mine map and directory were obtained from a variety of sources and the accuracy of some of the original information cannot be verified. Consequently, the Illinois State Geological Survey (ISGS) cannot guarantee the mine maps are free of errors and disclaims any responsibility for damages that may result from actions or decisions based on them.

The ISGS updates the maps and directories periodically, and welcomes any new information or corrections. Please contact the Coal Section of the ISGS at the address shown on the title page of this directory, or telephone (217) 244-2420.

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INTRODUCTION

Coal has been mined in 73 counties of Illinois. More than 4,500 coal mines have operated since commercial mining began in Illinois about 1810; fewer than 30 are currently active. To detail the extent and location of coal mining in Illinois, the Illinois State Geological Survey (ISGS) has compiled maps and directories of known coal mines. The ISGS offers maps at a scale of 1:100,000 and accompanying directories for each county in which coal mining is known to have occurred. Maps at a scale of 1:24,000 and accompanying directories such as this are available for selected quadrangles. Contact the ISGS for a list of these quadrangles.

These larger scale maps show the approximate positions of mines in relation to surface features such as roads and water bodies, and indicate the mining method used and the accuracy of the mine boundaries. The maps are useful for locating mine boundaries relative to specific properties and for assessing the potential for subsidence in an area. Mine boundaries compiled from final mine surveys are generally shown within 200 feet of their true position. As a result of poor cartographic quality and inaccuracies in the original mine surveys, boundaries of some older mines may be mislocated on the map by 500 feet or more. Original mine maps should be consulted in situations that require precise delineation of mine boundaries or internal workings of mined areas.

The directory serves as a key to the accompanying mine map and provides basic information on the coal mines. The directory is composed of two parts. Part I explains the symbols and patterns used on the accompanying map and the summary data presented for each mine. Part II numerically lists the mines in the quadrangle and summarizes the geology and production history of each mine.

MINING IN THE MT. PULASKI QUADRANGLE

Mining began in this quadrangle in 1883 in the area west of Mt. Pulaski when a mine was opened by Mr. B. F. Fox. This mine operated under various owners until it was finally closed in 1915. The El-Ben Mine, south of Lincoln, was the only other mine in the quadrangle and was active until closing in 1968. Both of these underground mines mined in the Springfield Coal seam (formerly known as the Number 5 Coal).

The Springfield Coal ranges in average thickness from 5.0 feet in the north to 4.0 feet in the Mt. Pulaski area, and from 270 to 365 feet in depth. Some water problems existed in this area, and clay dikes, or ‘horsebacks’, were common.

PART I EXPLANATION OF MAP AND MINE SUMMARY SHEET

INTERPRETING THE MAP

The map accompanying this directory shows the location of coal mines known to be present in the quadrangle. The map, corresponding to a U.S. Geological Survey (USGS) 7.5-minute quadrangle, covers an area bounded by lines of latitude and longitude 7.5-minutes apart. In Illinois, a quadrangle is approximately 6.5 miles east to west and 8.5 miles north to south, an area of about 56 square miles. The ISGS generally offers one map of mines per quadrangle. In some areas where extensive mining occurred in two or more overlapping seams, separate maps are compiled for mines in each seam to maintain readability of the map.

Mine Type and Mining Method
The mine type is indicated on the map by pattern color: green represents surface mines; red and yellow represent underground mines. The red patterns are used for areas of underground mining that are documented by a primary or secondary source map. A yellow pattern is used for cases where no map of the mine workings is available, but a general area of mining can be inferred from property maps or production figures. The patterns indicate the main mining methods used in underground mines. The methods are (1) room and pillar and (2) high extraction. The method used gives some indication of the amount and pattern of coal extraction within each mined area, and has some influence on the timing and type of subsidence that can occur over a mine.

The following discussion and illustrations of mining methods are based on Guither et al. (1984).

In room-and-pillar mines, coal is removed from haulage-ways (entries) and selected areas called rooms. Pillars of unmined coal are left between the rooms to support the roof. Depending on the size of rooms and pillars, the amount of coal removed from the production areas will range from 40% to 70%.

Room and Pillar - mining is divided into six categories:
- room-and-pillar basic (RPB, fig. 1A), an early method that did not follow a preset mining plan and therefore resulted in very irregular designs;
- modified room and pillar (MRP, fig. 1B);
- room-and-pillar panel (RPP, fig. 1C);
- blind room and pillar (BRP, fig. 1D);
- checkerboard room and pillar (CRP, fig. 1E);
- room and pillar (RP), a classification used when the specific type of room-and-pillar mining is unknown.

Blind and checkerboard are the most common types of room-and-pillar mining used in Illinois today. The knowledge of room-and-pillar mining methods gives a trained engineer information on the nature of subsidence that may occur. A more extensive discussion of subsidence can be found in Bauer et al. (1993).

High-extraction These mining methods are subdivided into high-extraction retreat (HER, Fig 1F) and longwall (LW, Fig 1G, 1H). In these methods, much of the coal is removed within well defined areas of the mine. Subsidence of the surface above these areas occurs within weeks. Once the subsidence activity ceases, the potential for further movement over these areas is low; however, subsidence may continue for several years after mining.

High-extraction retreat mining is a form of room-and-pillar mining that extracts most of the coal. Rooms and pillars are developed in the panels, and the pillars are then systematically removed (fig. 1F).

In early (pre-1960) longwall mines, mining advanced in multiple directions from a central shaft (fig. 1G). Large pillars of coal were left around the shaft, but all coal was removed beyond these pillars. Miners placed rock and wooden props and cribs in the mined-out areas to support the mine roof. The overlying rock gradually settled onto these supports, thus producing subsidence at the surface. In post-1959 longwall mines, room-and-pillar methods have been used to develop the main entries of the mine and panel areas. Modern longwall methods extract 100 percent of the coal in the panel areas (fig. 1H).

SOURCE MAPS

Mine outlines depicted on the map are, whenever possible, based on maps made from original mine surveys. The process of compiling and digitizing the quadrangle map may produce errors of less than 200 feet in the location of mine boundaries. Larger errors of 500 feet or more are possible for mines that have incomplete or inaccurate source maps.

Because of the extreme complexity of some mine maps, detailed features of mined areas have been omitted. The digitized mine boundary includes the exterior boundary of all rooms or entries that were at least 80 feet wide or protruded 500 feet from the main mining area. Unmined areas between mines are shown if they are at least 80 feet wide; unmined blocks of coal within mines are shown if they are at least 400 feet on each side. Original source maps should be consulted when precise information on mine boundaries or interior features is needed.

The mine summary sheet lists the source maps used to determine each mine outline. The completeness of map sources is indicated on the map by a line symbol at the mine boundary. Source maps are organized in five categories.

Final mine map The mine outline was digitized from an original map made from mine surveys conducted within a few months after production ceased. The date of the map and the last reported production are listed on the summary sheet.

Not a final map The mine is currently active or the mine outline was made from a map based on mine surveys conducted more than few months before production ceased. This implies the actual mined-out area is probably larger than the outline on the map. The mine summary sheet indicated the dates of source maps and the last reported production, as well as the approximate tonnage mined between these two dates (if the mine is abandoned). The summary sheet also lists the approximate acreage mined since the date of the map and, in some cases, indicates the area where additional mining may have taken place. This latter information is determined by locating on the map the active faces relative to probable boundaries of the mine property.

Undated map The source map was undated, so it may or may not be based on a final mine survey. When sufficient data are available, the probable acreage of the mined area is estimated from reported production, average seam thickness and a recovery rate comparable to other mines in the area. This information is listed in the summary sheet for the mine.

Incomplete map The source map did not show the entire mine. The summary sheet indicates the missing part of the mine map and the acreage of the unmapped area, which is estimated from the amount of coal known to have been produced from the mine.

Secondary source map The original mine map was not found so the outline shown was determined from secondary sources (e.g., outlines from small-scale regional maps published in other reports). The summary sheet describes the secondary sources.

POINTS AND LABELS

The locations of all known mine openings (shafts, slopes, and drifts) and surface mine tipples are plotted on the map. Tipples are areas where coal was cleaned, stockpiled, and loaded for shipping.

Only openings or tipples are plotted for mines without source maps. If the precise locations of these features are unknown, a special symbol is used to indicate the approximate location of the mine.

Each mine on the map is labeled with the names of the mine and operating company, ISGS mine index number, and years of operation (if known) if space permits. A seam designation is given on maps where more than one seam was mined. For a mine that operated under more than one name, only the most recent name is generally given. When a mine changed names or ownership shortly before closing, an earlier name is listed. All company and mine names are listed on the mine summary sheet in the directory, under the production history segment.

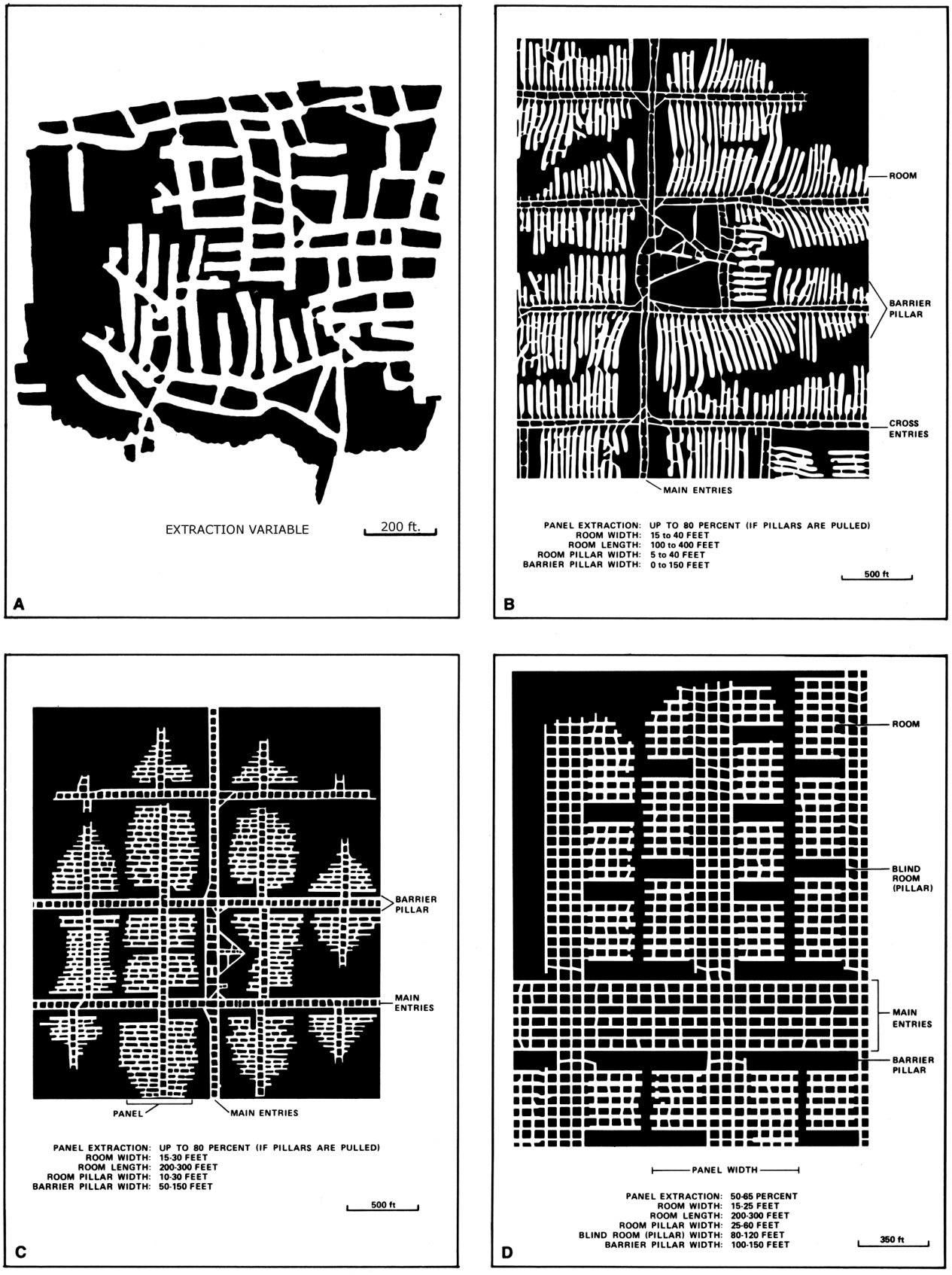
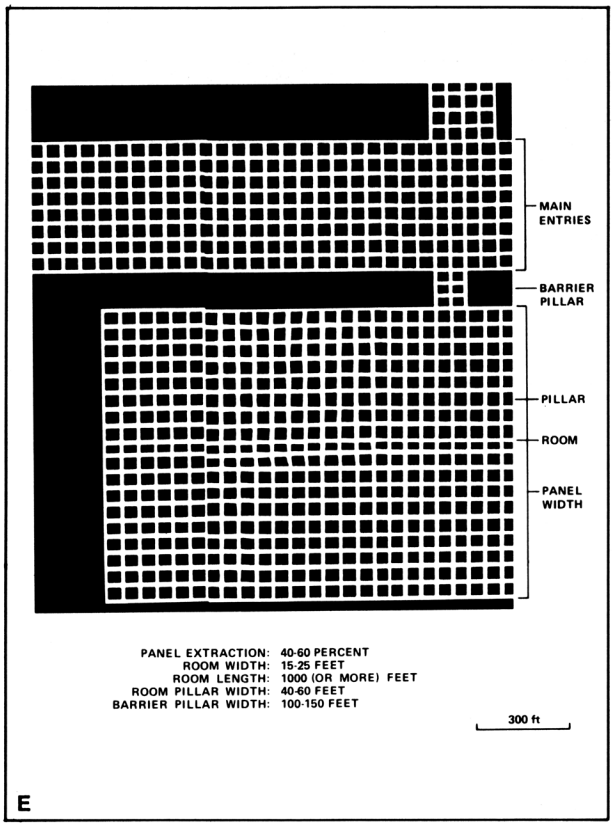
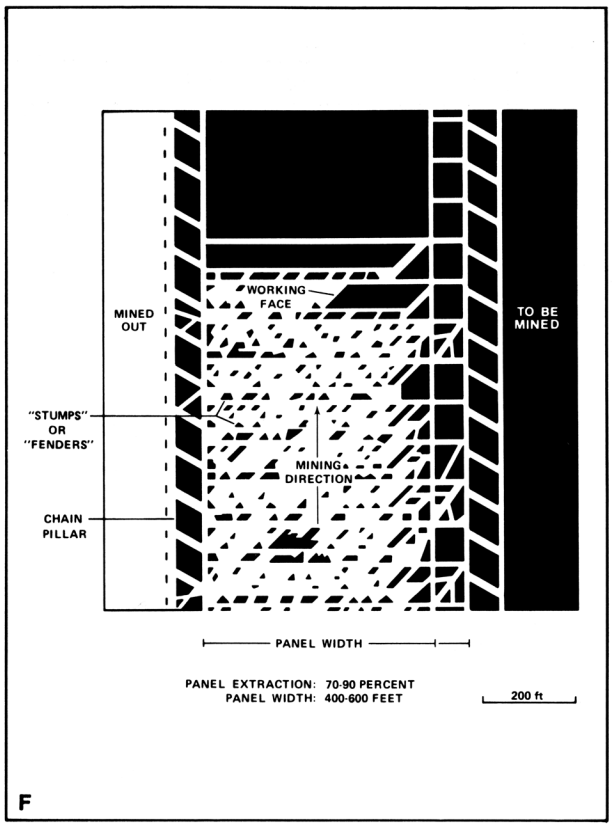
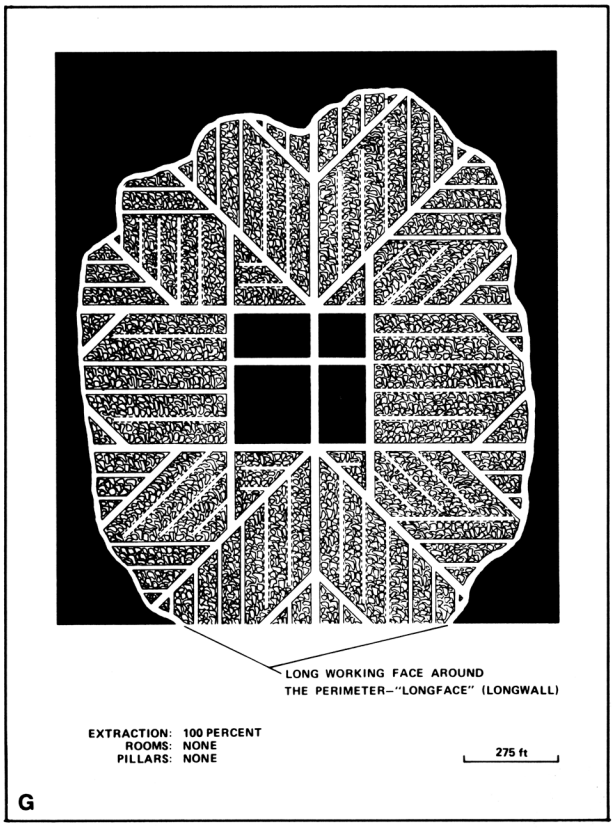


Figure 1 Mining methods: (A) room-and-pillar basic (RPB), (B) modified room and pillar (MRP), (C) room-and-pillar panel (RPP), (D) blind room and pillar (BRP).







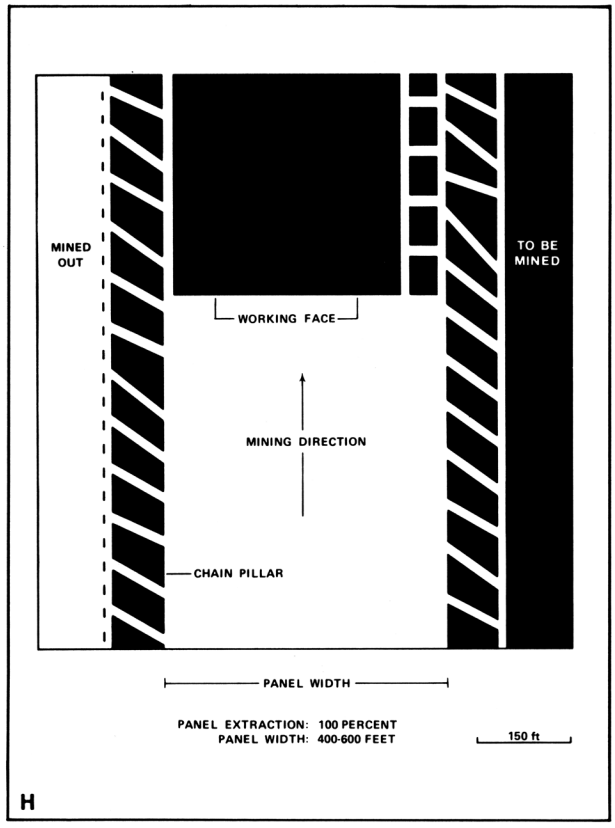


Figure 1 *(cont.)* Mining methods: (E) checkerboard room and pillar (CRP), (F) high extraction retreat (HER), (G) early (pre-1960) longwall, (H) post-1959 longwall

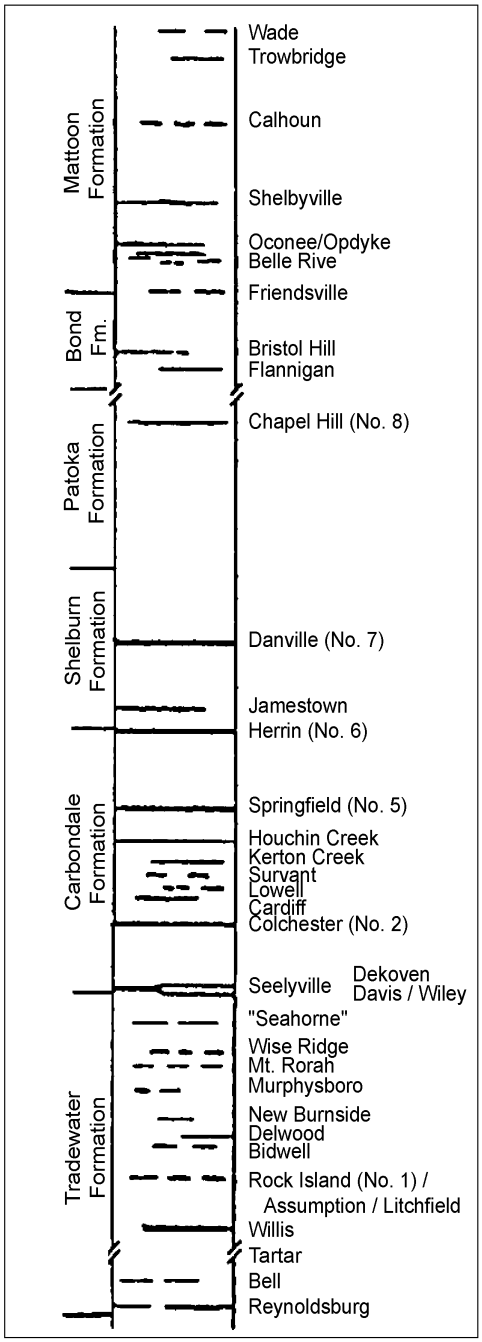


Figure 2 Generalized stratigraphic section, showing approximate vertical relations of coals in Illinois.

INTERPRETING A MINE SUMMARY SHEET

The mine summary sheet is arranged numerically by mine index number. Index numbers are shown on the map and in the mine listing. The mine summary sheet provides the following information (if available).

Company and mine name The last company or owner of the mine is used, unless no production was recorded for the last owner. In that case, the penultimate owner is listed. Mines often have no specific name; in these cases, the company name is also used as the mine name.

Type *Underground* denotes a subsurface mine in which the coal was reached through a shaft, slope, or a drift entry. *Surface* denotes a surface, open pit or strip mine.

Total mined-out acreage shown The total acreage of the mined area mapped, including any acreage mined on adjacent quadrangles, is calculated from the digitized outline of the mine. The acreage of large barrier pillars depicted on the map is excluded from the mined-out acreage. Small pillars not digitized are included in the acreage calculation. If the mine outline is not based on a final mine map, the acreage is followed by an estimate of additional acres that may have been mined. The estimate is determined from reported mine production, approximate thickness of the coal, and recovery rates calculated from nearby mines that used similar mining methods.

SHAFT, SLOPE, DRIFT OR TIPPLE LOCATIONS

Shaft, slope, drift, or tipple locations Locations of all known former entry points to underground mines or the location of coal cleaning, tipple, and shipping equipment used by the mine's facility are listed. The location is described in terms of county, township and range (Twp-Rge), section, and location within the section by quarters. NE SW NW, for instance, would describe the location in the northeast quarter of the southwest quarter of the northwest quarter. When sections are irregular in size, the quarters remain the same size and are oriented (or "registered") from the southeast corner of the section. Approximate footage from the section lines (FEL = from east line, FNL = from north line, for example) is given when that information is known; this indicates a surveyed location and is not derived from maps. Entry points are also plotted on the map and coded for the type of entry or tipple. A mine opening may have had many purposes during the life of the mine. Old hoist shafts are often later used for air and escape shafts; this information is included in the directory when known. The tipple for underground mines was generally located near the main shaft or slope. At surface mines, coal was sometimes hauled to a central tipple several miles from the mine pit.

GEOLOGY

Seam(s) mined The name of the coal seam(s) mined is listed if known. If multiple seams were mined, they are all listed, although the mined-out area for each seam may be shown on separate maps. Figure 2 shows the stratigraphic section for the Illinois coal measures and the vertical relations among the coals.

Depth The depth to the top of the seam in the vicinity of the shaft is listed if known. The depth is determined from notes made by geologists who visited the mine during its operation or from drill hole data in ISGS files. Depth generally varies little over the extent of a mine; however, reported depths for an individual mine may vary. Depth for surface-mined coals varies, and is usually represented as a range.

Thickness The approximate thickness of the mined seam is shown, if known. Thickness also comes from notes of geologists who visited the mine during its operation or from borehole data in ISGS files. Minimum, maximum, and average thicknesses are given when this information is available.

Mining method The principal mining method used at the mine (figs. 1A-H) is listed. See the mining methods section at the beginning of this directory for a discussion of this parameter.

Geologic problems reported Any known geologic problems, such as faults, water seepage, floor heaving, and unstable roof, encountered in the mine are reported. This information is from notes made by ISGS geologists who visited the mine, or from reports by mine inspectors published by the Illinois Department of Mines and Minerals, or from the source map(s). Geologic problems are not reported for active mines.

PRODUCTION HISTORY

Production history Tons of coal produced from the mine by each mine owner are totaled. When the source map used for the mine outline is not a final mine map, the tonnage produced since the date of the map is identified. For mines that extend into adjacent quadrangles, the tonnage reported includes areas mined in adjacent quadrangles.

SOURCE OF DATA

Source map This section lists information about the map(s) used to compile the mine outline and the locations of tipples and mine openings. In some cases more than one source map was used. For example, a map drawn before the mine closed may provide better information on original areas of the mine than a later map. When more than one map was used, the bibliography section explains what information was taken from each source.

Date The date of the most recent mine survey listed on the source map is reported.

Original scale The original scale of the source map is listed. Many maps are photo-reductions and are no longer at their original scale. The original scale gives some indication of the level of detail of the mine outline and the accuracy of the mine boundary relative to surface features. Generally, the larger the scale, the greater the accuracy and detail of the mine map. Mine outlines taken from source maps at scales smaller than 1:24,000 may be highly generalized and may well be inaccurately located with respect to surface features.

Digitized scale The scale of the digitized map is reported. The scale may be different from that of the original source map. In many cases the digitized map was made from a photo-reduction of the original source map, or the source map was not in a condition suitable for digitizing and the mine boundaries were transferred to another base map.

Map type Source maps are classified into five categories to indicate the probable completeness of the map. See discussion of source maps in the previous section.

Annotated bibliography Sources that provide information about the mine are listed, with the data taken from each source. Some commonly used sources are described below. Full bibliographic references are given for all other sources. Unless otherwise noted, all sources are available for public inspection at the ISGS.

Coal Reports Published since 1881, these reports contain tabular data on mine ownership, production, employment, and accidents. Some volumes include short descriptions made by mine inspectors of physical features and conditions in selected mines.

Directory of Illinois Coal Mines This source is a compilation of basic data about Illinois coal mines, originally gathered by ISGS staff in the early 1950s. Sources used for this directory are undocumented, but they are primarily Illinois Department of Mines and Minerals annual reports, ISGS mine notes, and coal company officials.

ENR Document 85/01, Guither, H. D., J. K. Hines, and R. A. Bauer, 1985 The Economic Effect of Underground Mining Upon Land Used for Illinois Agriculture: Illinois Department of Energy and Natural Resources Document 85/01, 185 p.

Microfilm map The U.S. Bureau of Mines maintains a microfilm archive of mine maps. A microfilm file for Illinois is available for public viewing at the ISGS.

Mine notes ISGS geologists have visited mines or contacted mine officials throughout the state since the early 1900s. Notes made during these visits range from brief descriptions of the mine location to long narratives (including sketches) of mining conditions and geology.

Federal Land Bank of St. Louis, Preliminary Reports on Subsidence Investigations Mining engineers working for the Federal Land Bank of St. Louis mapped areas of subsidence due to coal mining in the early 1930s. These reports often include county maps of mine properties with mined-out areas including shaft locations, as well as subsidence areas.

REFERENCES

Bauer, R. A., B. A. Trent, and P. B. Dumontelle, 1993, Mine Subsidence in Illinois: Facts for the Homeowner Considering Insurance: Illinois State Geological Survey, Environmental Geology Note 144, 16p.

Guither, H. D., J. K. Hines, and R. A. Bauer, 1985, The Economic Effects of Underground Mining Upon Land Used for Illinois Agriculture: Illinois Department of Energy and Natural Resources Document 85/01, 185p.

PART II DIRECTORY OF MINES IN THE MT. PULASKI QUADRANGLE

MINE SUMMARY SHEETS

A summary sheet on the geology and production history of each mine in the Mt. Pulaski Quadrangle is provided. The summary is arranged numerically by mine index number, which is shown on the map and in the mine listing. Consult Part I for a complete explanation of the data listed in the summary sheet.

Mine Index 278
Mt. Pulaski Coal Company, Mt. Pulaski Mine

Type: Underground Total mined-out acreage shown: 83

SHAFT, SLOPE, DRIFT or TIPPLE LOCATIONS

Type	County	Township-Range	Section	Quarters-Footage
Shaft	Logan	18N 2W	14	SW SW SE

GEOLOGY

Seam(s) Mined	Depth (ft)	Thickness (ft) Min	Max	Ave	Mining Method
Springfield	365	3.5	4.3	4.0	LW

Geologic Problems Reported: Clay dikes, or 'horsebacks', were present. There were also water problems.

PRODUCTION HISTORY

Company	Mine Name	Years	Production (tons)
B. F. Fox	Fox	1882-1883	unknown *
Mt. Pulaski Coal Company	Mt. Pulaski	1883-1887	100,800
Union Coal Company	Union	1888-1899	181,282
Mt. Pulaski Coal Company	Mt. Pulaski	1900-1902	24,439
Home Coal Company	Home	1903-1906	47,664
Mutual Coal Company	Mutual	1907-1909	41,130
Mt. Pulaski Coal Company	Mt. Pulaski	1910-1915	61,976
			457,291

* Coal production not available

Last reported production: 1915

SOURCES OF DATA

Source Map	Date	Original Scale	Digitized Scale	Map Type
Federal Land Bank Report	11-1934	1:126720	1:6250	Secondary source

Annotated Bibliography (data source, brief description of information)

Coal Reports - Production, ownership, years of operation.
Directory of Illinois Coal Mines (Logan County) - Mine names, mine index, ownership, years of operation.
ENR Document 85/01 - Mining method.
Mine notes (Logan County) - Mine type, shaft location, seam, depth, thickness, geologic problems.
Federal Land Bank Report (Logan County) - Mine outline, shaft location.

Mine Index 639
El-Ben Coal Company, El-Ben No. 2 Mine

Type: Underground Total mined-out acreage shown: 258

SHAFT, SLOPE, DRIFT or TIPPLE LOCATIONS

Type	County	Township-Range	Section	Quarters-Footage
Main shaft	Logan	19N 2W	5	SE SW SE
Air shaft	Logan	20N 2W	30	SE SW SE

GEOLOGY

Seam(s) Mined	Depth (ft)	Thickness (ft) Min	Max	Ave	Mining Method
Springfield	273			5.1	RP

Geologic Problems Reported: There were water problems in this mine. Clay dikes or 'horsebacks' were common.

PRODUCTION HISTORY

Company	Mine Name	Years	Production (tons)
Deer Creek Coal Company	Deer Creek	1937-1947	390,884
Steve Bennis	Deer Creek	1948-1953	266,796
Deer Creek Coal Company	Deer Creek	1954-1956	63,404
Lincoln Coal Mining Company	Lincoln No. 1	1956-1963	157,115
Logan County Coal Company	Logan County	1963-1965	42,589
El-Ben Coal Company	El-Ben No. 2	1965-1968	65,537
			986,325

Last reported production: 1968

SOURCES OF DATA

Source Map	Date	Original Scale	Digitized Scale	Map Type
Microfilm, document 352537	10-04-1968	1:2400	1:3972	Final

Annotated Bibliography (data source, brief description of information)

Coal Reports - Production, ownership, years of operation.
Directory of Illinois Coal Mines (Logan County) - Mine names, mine index, ownership, years of operation.
ENR Document 85/01 - Mining method.
Mine notes (Logan County) - Mine type, shaft location, seam, depth, thickness, geologic problems.
Microfilm map, document 352537, reel 03139, frames 263-264 - Shaft locations, mine outline.

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El-Ben Coal Company, No. 2 Mine 10
Fox (B. F.) 9
Home Coal Company 9
Lincoln Coal Mining Company, No. 1 Mine 10
Logan County Coal Company 10
Mt. Pulaski Coal Company 9
Mutual Coal Company 9
Union Coal Company 9