65 YEARS OF COAL MINED-OUT AREAS IN ILLINOIS - EVOLUTION OF COAL MINED-OUT AREA MAPS AT THE ILLINOIS STATE GEOLOGICAL SURVEY (ISGS)

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ILLINOIS

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GEOLOGICAL SURVEY
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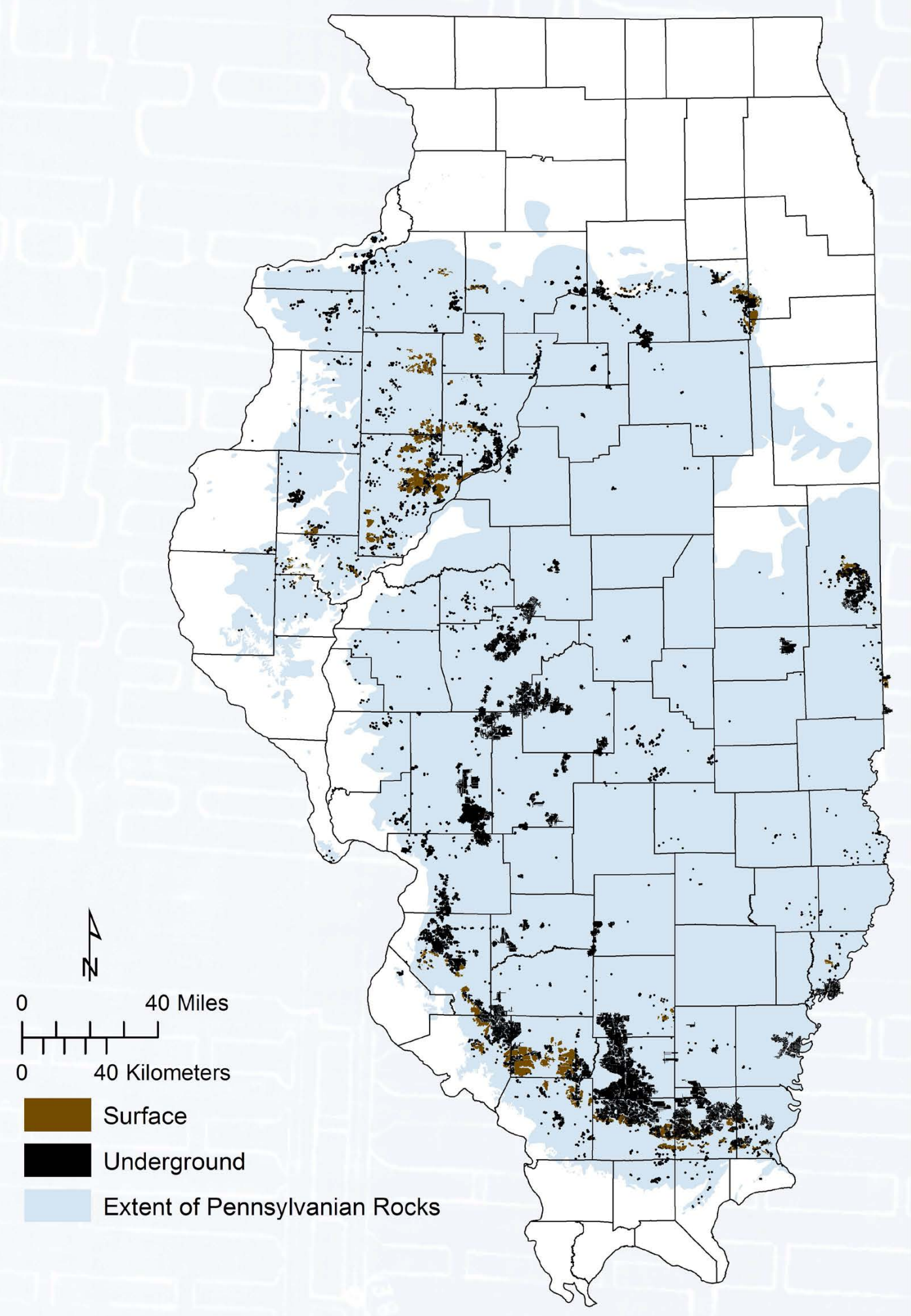
Introduction

Since the 1800s, there have been approximately 7,400 coal mines in Illinois, spread over 76 counties and totaling in areal extent close to 1,000,000 acres. Mined-out areas potentially impact industry, housing, roads, railroads, schools, infrastructure and development.



A comprehensive mapping of historical and active coal mines is necessary to address:

- Ground sinking, or subsidence, over underground workings
- Engineering planning for roads and bridges, as well as buildings
- Safely locating new mines away from abandoned underground workings that could be water-filled

To support these and other efforts, the ISGS has created mined-out area maps for use by the public, industry and government for 65 years.

The mined-out area mapping process has been continually refined since the 1950s, when hand-drawn areas were plotted on base maps. Over time, both the locational accuracy and degree of recorded detail have increased, and additional cross-checking and documentation have been incorporated. Our current coal mined-out area digital mapping effort represents a thorough research and discovery of all known coal mine maps and correlated historical information.

An overview of ISGS' mined-out area mapping history is shown in the panels and timeline to the right.

1950

Coal resources were the subject of many Coal Section publications, and by the 1950s, many estimates were rendered obsolete by new data and development of rules that limited resources (such as seam thickness or roof type). Realizing that mining had significantly impacted several counties, compilation maps were needed to remove the mined areas from resource calculations. The standard mapping scale at that time was 1:62,500. By using an area of eight (15-minute) topographic quadrangles (two quadrangles high and four quadrangles wide), the state was divided into 33 divisions. These maps were called O'Neill plan maps and were used for years in the construction of resource studies as well as mined-out area mapping.

The maps were large, about three feet high by six feet wide, and they were hand-drawn and lettered. As such, they were not available to the public as there was, at that time, no method for copying such large maps.

1959

Coal companies and the public wanted copies of the mined-out area maps for their own work, and ISGS personnel needed working copies to update the mine outlines or to use as a base for other projects. The mine data were transferred to a translucent base so that blueline copies could be made. Corrections were made on bluelines by Coal Section personnel when updates were needed. The translucent base map could then be corrected and updated.

The map contained labels with the mine name (at right), which made updates to the translucent base map labor-intensive (requiring a draftsman). This was a period of increased company activity and/or turnover. A mine could change hands several times through a decade, and one needed to know the previous owner(s) in order to find the mine of interest.

Updates were made in 1969 by non-geologists, and errors were introduced (some mines were put in the wrong section or township, and some were mislabeled).

Some of those errors weren't found until the 1980s although the majority were corrected in the 1970s.

1980s

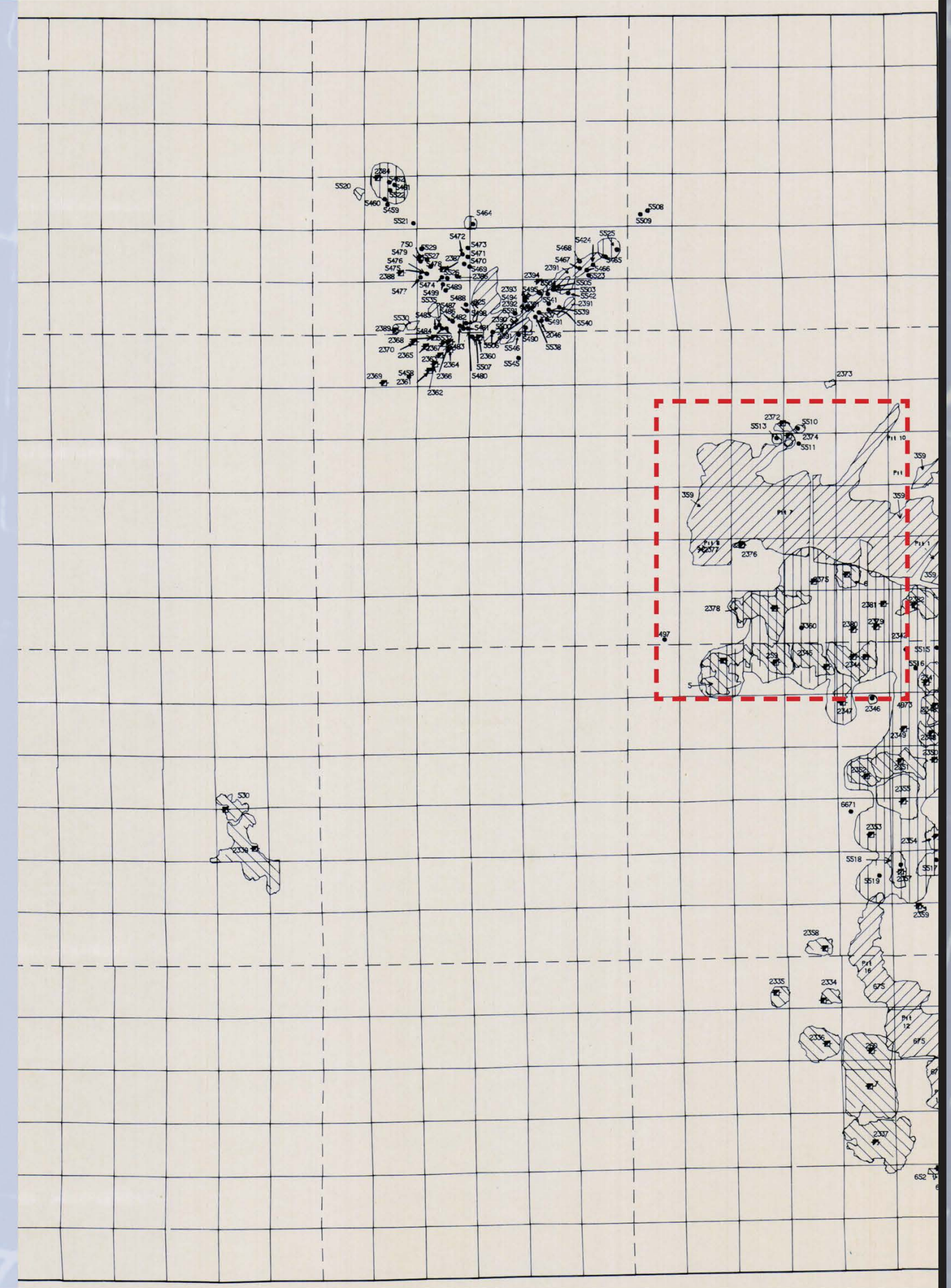
1980-1982:
The old translucent base maps were getting fragile, and corrections sometimes damaged the map.

The mine outlines and points were digitized at 1:62,500. The base map remained the large, ungainly O'Neill plan, and only the mine index number was displayed to identify each mine. The mine data (ownership, years of operation, seam, mine type) were listed in a separate directory which accompanied the map. This made the product easier to reproduce and update.

To locate a site on the map, one had to know the section, township and range.

1989:
With the purchase of ESRI's Arc-Info software in 1984, the mined-out area map product became county-based at a scale of 1:100,000. This allowed the mined-out area maps to be overlain onto separate paper planimetric maps of the county, which contained current road and stream information. The outdated O'Neill plan basemap only had railroads and town boundaries. Individuals could purchase the mined-out area map as a mylar overlay with a separate paper county map or as a blueline map, as before, with only mines and index numbers.

Prior to the use of computer mapping software, mined-out area updates were done by re-scaling the source map onto the paper base maps by hand with various tools, which increased the chances for distortion or other errors. Now mined-out area corrections and updates could be digitized directly from the original source maps, some at 1:200 scale -- resulting in mine outlines that were both more detailed and more accurate.



1991- (Current)

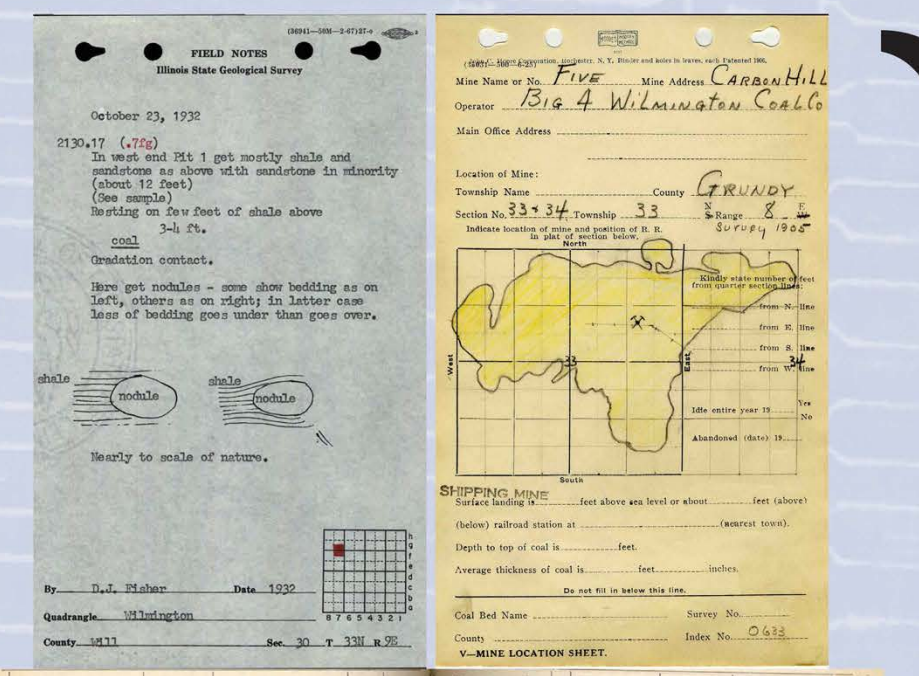
A pilot project was created in 1991 with mine outlines displayed at 1:24,000 scale, but funding was lacking to continue the project at a regular pace until 1999.

Additional information was shown on the map with line codes indicating the source map's relation to the years of operation (final, not final, incomplete, secondary source, or undated) and shading that indicated the type of mining (room-and-pillar panel, modified room-and-pillar, longwall, surface, etc.). On the map, the company and mine name and years of operation were displayed.

The accompanying directory gave more complete information about each mine, including geologic problems (roof problems, thickness variation issues, faults), coal depth and thickness, production, and a bibliography listing the data sources as compiled from field notes, mine notes, Coal Reports, and map sources. Known underground industrial minerals mines were also included. These include fluorite, shale or clay, limestone, and lead mines.

As of this date, 261 quadrangles have been completed out of 387 quadrangles that contain coal mining.

Field Notes & Mine Notes



FIELD NOTES
Illinois State Geological Survey

October 23, 1932

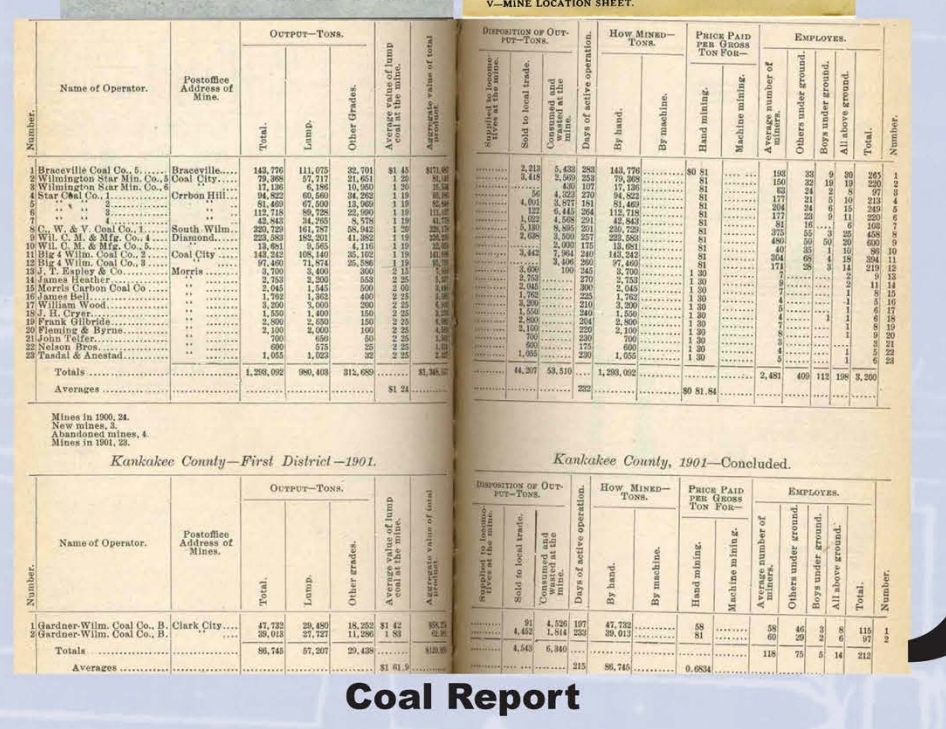
2130.17 (.7fg)
In west end Pit 1 get mostly shale and sandstone as above with sandstone in minority (about 12 feet) (See sample)
Resting on few feet of shale above 3-4 ft. coal
Gradation contact.

Here get nodules - some show bedding as on left, others as on right; in latter case less of bedding goes under than goes over.

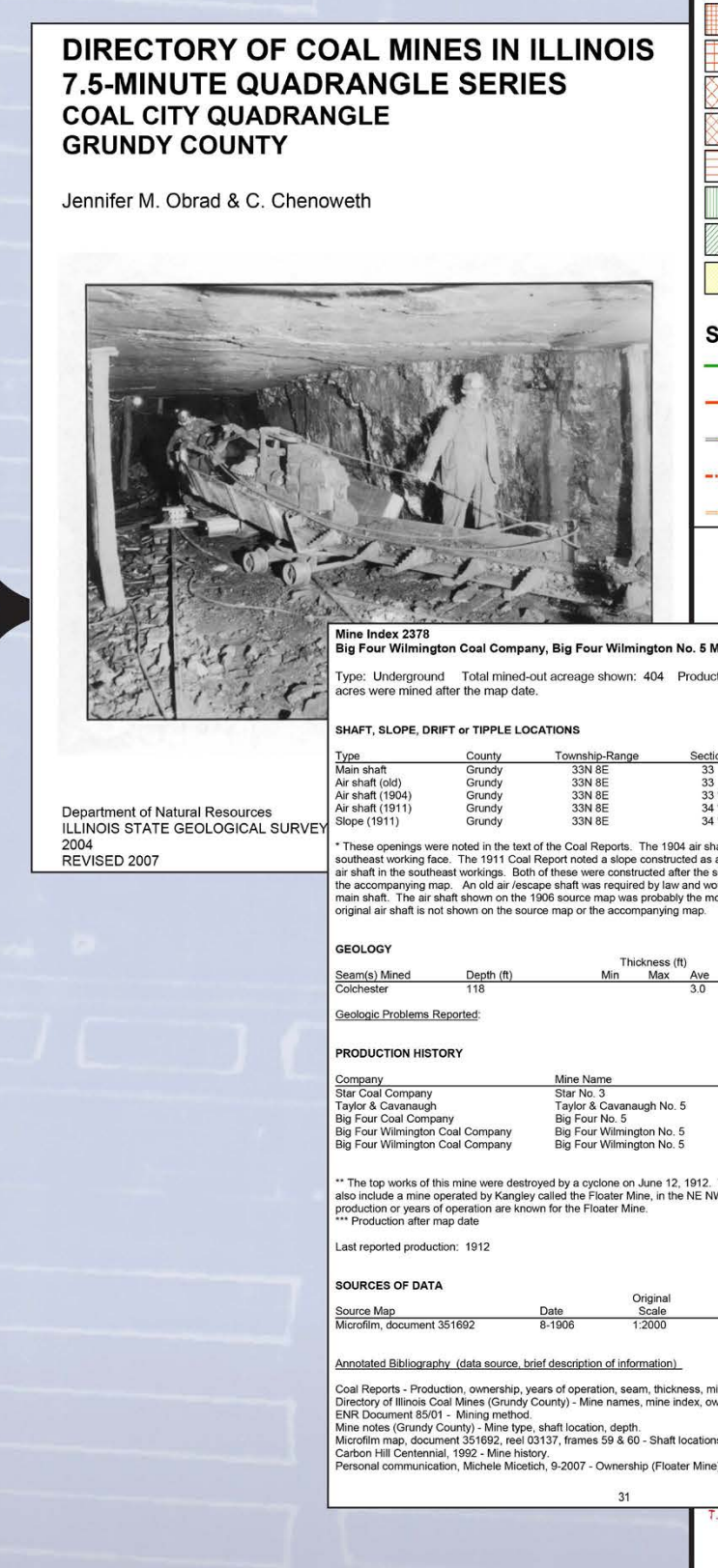
Nearly to scale of nature.

By D.J. Fisher Date 1932
Quadrangle Wilmington
County Will Sec. 30 T 33N R 9E

Mine Name or No. FIVE Mine Address CARBON HILL
Operator BIG 4 WILMINGTON COAL CO
Main Office Address
Location of Mine:
Township Name County GRUNDY
Section No. 33 + 34 Township 33 N Range 8 E
Survey 1905
Indicate location of mine and position of R. R. in plat of section below.
SHIPPING MINE
Surface landing is ... feet above sea level or about ... feet (above) (below) railroad station at ... (nearest town).
Depth to top of coal is ... feet.
Average thickness of coal is ... feet ... inches.
Do not fill in below this line.
Coal Bed Name ... Survey No. ...
County ... Index No. 0633
V—MINE LOCATION SHEET.



Coal Report



DIRECTORY OF COAL MINES IN ILLINOIS
7.5-MINUTE QUADRANGLE SERIES
COAL CITY QUADRANGLE
GRUNDY COUNTY

Jennifer M. Obrad & C. Chenoweth

Department of Natural Resources
ILLINOIS STATE GEOLOGICAL SURVEY
2004
REVISED 2007

Mine Index 2378
Big Four Wilmington Coal Company, Big Four Wilmington No. 5 Mine

Type: Underground Total mined-out acreage shown: 404 Production indicates approximately 140 acres were mined after the map date.

SHAFT, SLOPE, DRIFT or TIPPLE LOCATIONS

Type	County	Township-Range	Section	Quarters-Footage
Main shaft	Grundy	33N 8E	33	NW SE NE
Air shaft (old)	Grundy	33N 8E	33	NE SW NE
Air shaft (1904)	Grundy	33N 8E	33 *	
Air shaft (1911)	Grundy	33N 8E	34 *	
Slope (1911)	Grundy	33N 8E	34 *	

* These openings were noted in the text of the Coal Reports. The 1904 air shaft was new and constructed at the southeast working face. The 1911 Coal Report noted a slope constructed as a passageway for the mules and a new air shaft in the southeast workings. Both of these were constructed after the source map date, and are not shown on the accompanying map. An old air /escape shaft was required by law and would have been constructed near the main shaft. The air shaft shown on the 1906 source map was probably the most recently constructed (1904) and the original air shaft is not shown on the source map or the accompanying map.

GEOLOGY

Seam(s) Mined	Depth (ft)	Thickness (ft) Min	Thickness (ft) Max	Thickness (ft) Ave	Mining Method
Colchester	118			3.0	LW

Geologic Problems Reported:

PRODUCTION HISTORY

Company	Mine Name	Years	Production (tons)
Star Coal Company	Star No. 3	1892-1902	887,213
Taylor & Cavanaugh	Taylor & Cavanaugh No. 5	1902-1904	251,126
Big Four Coal Company	Big Four No. 5	1904-1905	134,014
Big Four Wilmington Coal Company	Big Four Wilmington No. 5	1905-1906	184,945
Big Four Wilmington Coal Company	Big Four Wilmington No. 5	1906-1912 **	549,674 ***
			2,006,972

** The top works of this mine were destroyed by a cyclone on June 12, 1912. The outline shown for this mine may also include a mine operated by Kangley called the Floater Mine, in the NE NW of section 34, T33N R8E. No production or years of operation are known for the Floater Mine.
*** Production after map date

Last reported production: 1912

SOURCES OF DATA

Source Map	Date	Original Scale	Digitized Scale	Map Type
Microfilm, document 351692	8-1906	1:2000	1:4146	Not final

Annotated Bibliography (data source, brief description of information)

Coal Reports - Production, ownership, years of operation, seam, thickness, mining method.
Directory of Illinois Coal Mines (Grundy County) - Mine names, mine index, ownership, years of operation.
ENR Document 85/01 - Mining method.
Mine notes (Grundy County) - Mine type, shaft location, depth.
Microfilm map, document 351692, reel 03137, frames 59 & 60 - Shaft locations, mine outline, mining method.
Carbon Hill Centennial, 1992 - Mine history.
Personal communication, Michele Micetich, 9-2007 - Ownership (Floater Mine).

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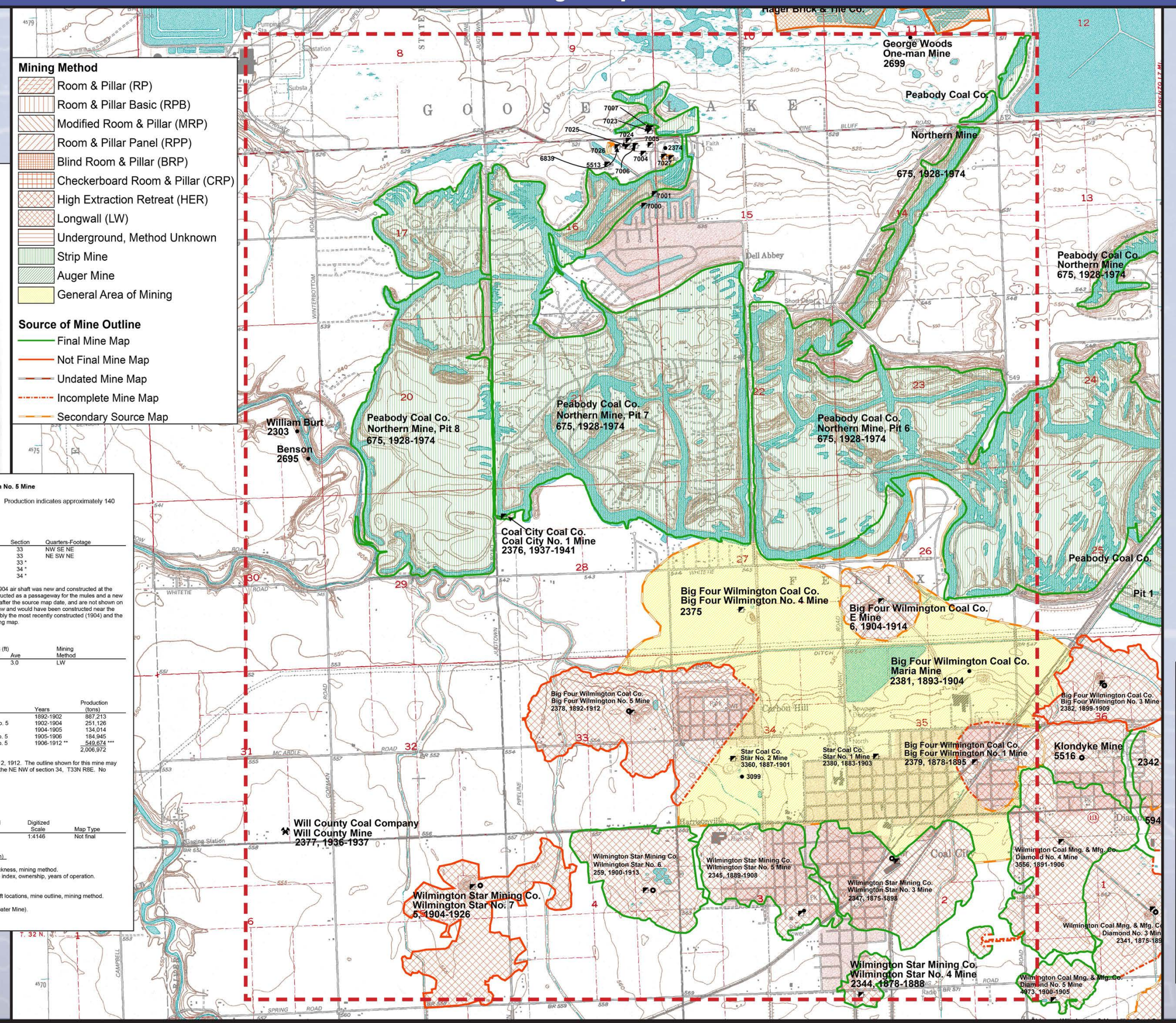
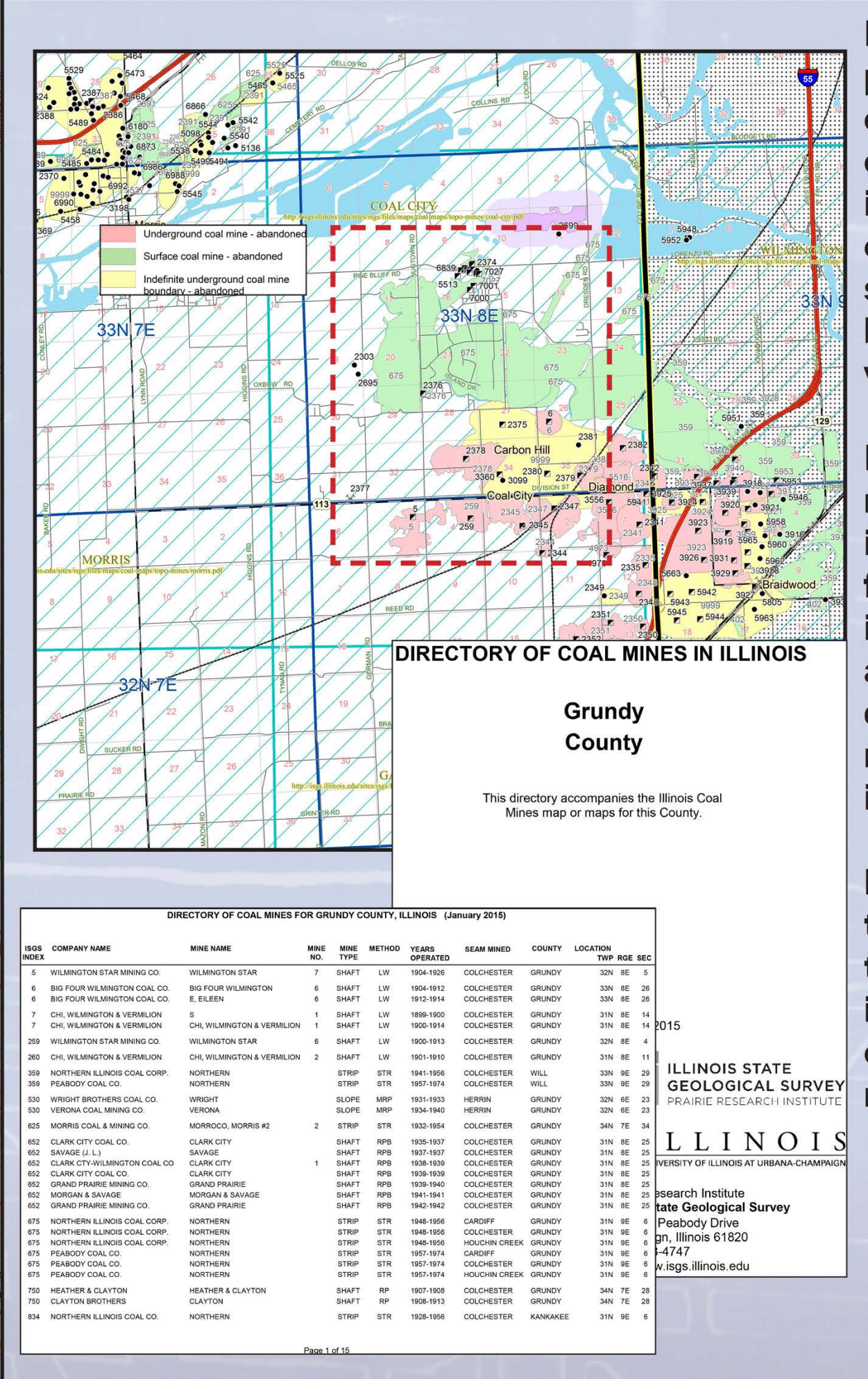
Quadrangle Map Series



County Map Series



DIRECTORY OF COAL MINES IN ILLINOIS

Grundy
County

This directory accompanies the Illinois Coal Mines map or maps for this County.

2015

ILLINOIS STATE GEOLOGICAL SURVEY
PRAIRIE RESEARCH INSTITUTE

ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

DIRECTORY OF COAL MINES FOR GRUNDY COUNTY, ILLINOIS (January 2015)

ISGS INDEX	COMPANY NAME	MINE NAME	MINE NO.	MINE TYPE	METHOD	YEARS OPERATED	SEAM MINED	COUNTY	LOCATION TWP	RGE	SEC
5	WILMINGTON STAR MINING CO.	WILMINGTON STAR	7	SHAFT	LW	1904-1926	COLCHESTER	GRUNDY	32N	8E	5
6	BIG FOUR WILMINGTON COAL CO.	BIG FOUR WILMINGTON	6	SHAFT	LW	1904-1912	COLCHESTER	GRUNDY	33N	8E	26
6	BIG FOUR WILMINGTON COAL CO.	E, EILEEN	6	SHAFT	LW	1912-1914	COLCHESTER	GRUNDY	33N	8E	26
7	CHI, WILMINGTON & VERMILION	S	1	SHAFT	LW	1899-1900	COLCHESTER	GRUNDY	31N	8E	14
7	CHI, WILMINGTON & VERMILION	CHI, WILMINGTON & VERMILION	1	SHAFT	LW	1900-1914	COLCHESTER	GRUNDY	31N	8E	14
259	WILMINGTON STAR MINING CO.	WILMINGTON STAR	6	SHAFT	LW	1900-1913	COLCHESTER	GRUNDY	32N	8E	4
260	CHI, WILMINGTON & VERMILION	CHI, WILMINGTON & VERMILION	2	SHAFT	LW	1901-1910	COLCHESTER	GRUNDY	31N	8E	11
359	NORTHERN ILLINOIS COAL CORP.	NORTHERN		STRIP	STR	1941-1956	COLCHESTER	WILL	33N	9E	29
359	PEABODY COAL CO.	NORTHERN		STRIP	STR	1957-1974	COLCHESTER	WILL	33N	9E	29
530	WRIGHT BROTHERS COAL CO.	WRIGHT		SLOPE	MRP	1931-1933	HERRIN	GRUNDY	32N	6E	23
530	VERONA COAL MINING CO.	VERONA		SLOPE	MRP	1934-1940	HERRIN	GRUNDY	32N	6E	23
625	MORRIS COAL & MINING CO.	MORROCO, MORRIS #2	2	STRIP	STR	1932-1954	COLCHESTER	GRUNDY	34N	7E	34
652	CLARK CITY COAL CO.	CLARK CITY		SHAFT	RPB	1935-1937	COLCHESTER	GRUNDY	31N	8E	25
652	SAVAGE (J. L.)	SAVAGE		SHAFT	RPB	1937-1937	COLCHESTER	GRUNDY	31N	8E	25
652	CLARK CTY-WILMINGTON COAL CO	CLARK CITY	1	SHAFT	RPB	1938-1939	COLCHESTER	GRUNDY	31N	8E	25
652	CLARK CITY COAL CO.	CLARK CITY		SHAFT	RPB	1939-1939	COLCHESTER	GRUNDY	31N	8E	25
652	GRAND PRAIRIE MINING CO.	GRAND PRAIRIE		SHAFT	RPB	1939-1940	COLCHESTER	GRUNDY	31N	8E	25
652	MORGAN & SAVAGE	MORGAN & SAVAGE		SHAFT	RPB	1941-1941	COLCHESTER	GRUNDY	31N	8E	25
652	GRAND PRAIRIE MINING CO.	GRAND PRAIRIE		SHAFT	RPB	1942-1942	COLCHESTER	GRUNDY	31N	8E	25
675	NORTHERN ILLINOIS COAL CORP.	NORTHERN		STRIP	STR	1948-1956	CARDIFF	GRUNDY	31N	9E	6
675	NORTHERN ILLINOIS COAL CORP.	NORTHERN		STRIP	STR	1948-1956	COLCHESTER	GRUNDY	31N	9E	6
675	NORTHERN ILLINOIS COAL CORP.	NORTHERN		STRIP	STR	1948-1956	HOUCHIN CREEK	GRUNDY	31N	9E	6
675	PEABODY COAL CO.	NORTHERN		STRIP	STR	1957-1974	CARDIFF	GRUNDY	31N	9E	6
675	PEABODY COAL CO.	NORTHERN		STRIP	STR	1957-1974	COLCHESTER	GRUNDY	31N	9E	6
675	PEABODY COAL CO.	NORTHERN		STRIP	STR	1957-1974	HOUCHIN CREEK	GRUNDY	31N	9E	6
750	HEATHER & CLAYTON	HEATHER & CLAYTON		SHAFT	RP	1907-1908	COLCHESTER	GRUNDY	34N	7E	28
750	CLAYTON BROTHERS	CLAYTON		SHAFT	RP	1908-1913	COLCHESTER	GRUNDY	34N	7E	28
834	NORTHERN ILLINOIS COAL CO.	NORTHERN		STRIP	STR	1928-1956	COLCHESTER	KANKAKEE	31N	9E	6

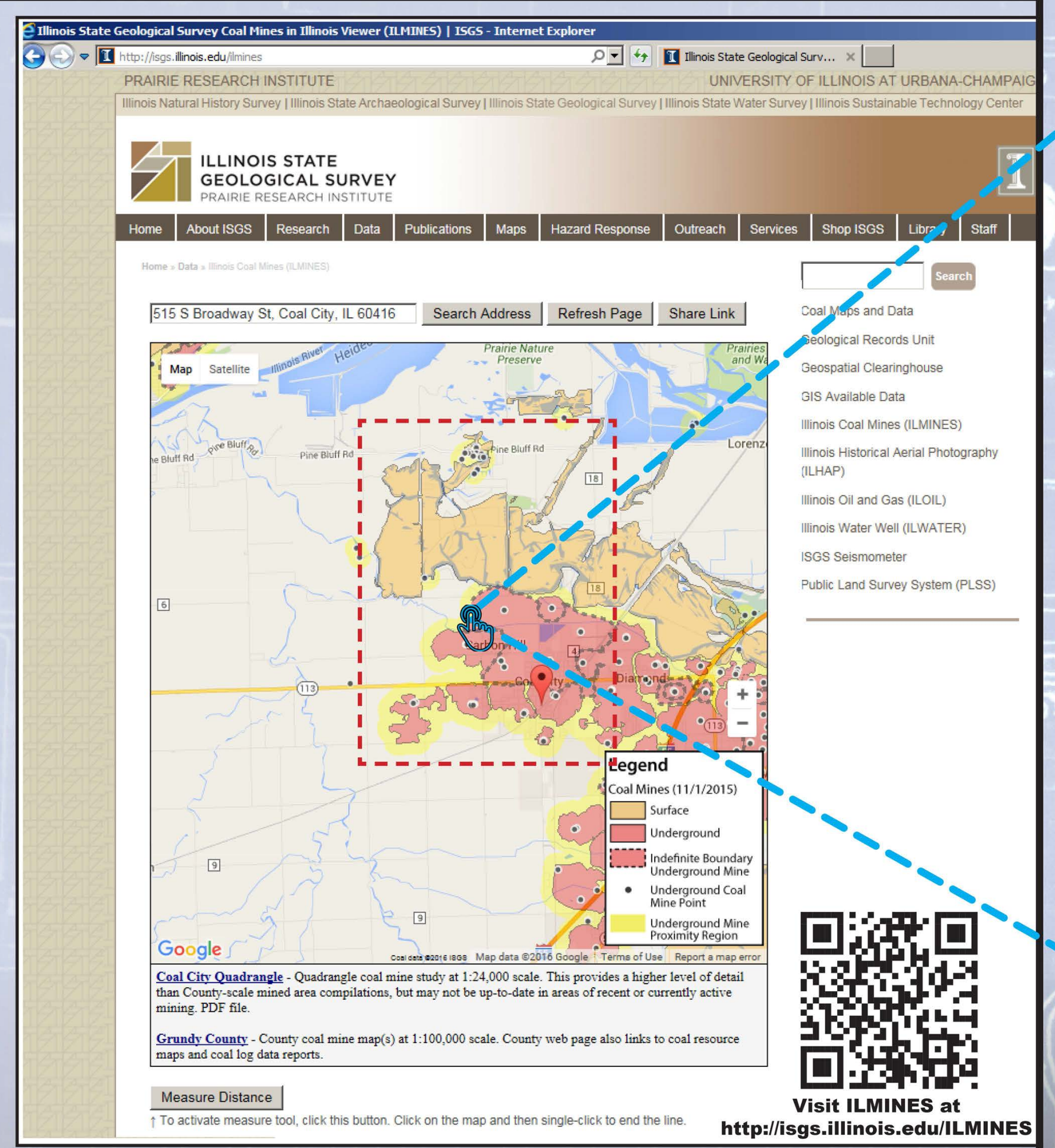
Page 1 of 15

ILMINES

In an effort to reach as many people as possible and best communicate our mapping efforts to the public, industry, and government, an online interactive mapping service called ILMINES has been created on the ISGS website.

ILMINES represents the next generation of coal mine information dispersal, with a familiar Google Maps based interface for rapid searching, as well as links to the quadrangle and county scale maps, for more thorough inquires.

Now anyone can type in their address and see if their location is undermined, instead of requiring map expertise that the average resident may not have.



515 S Broadway St, Coal City, IL 60416

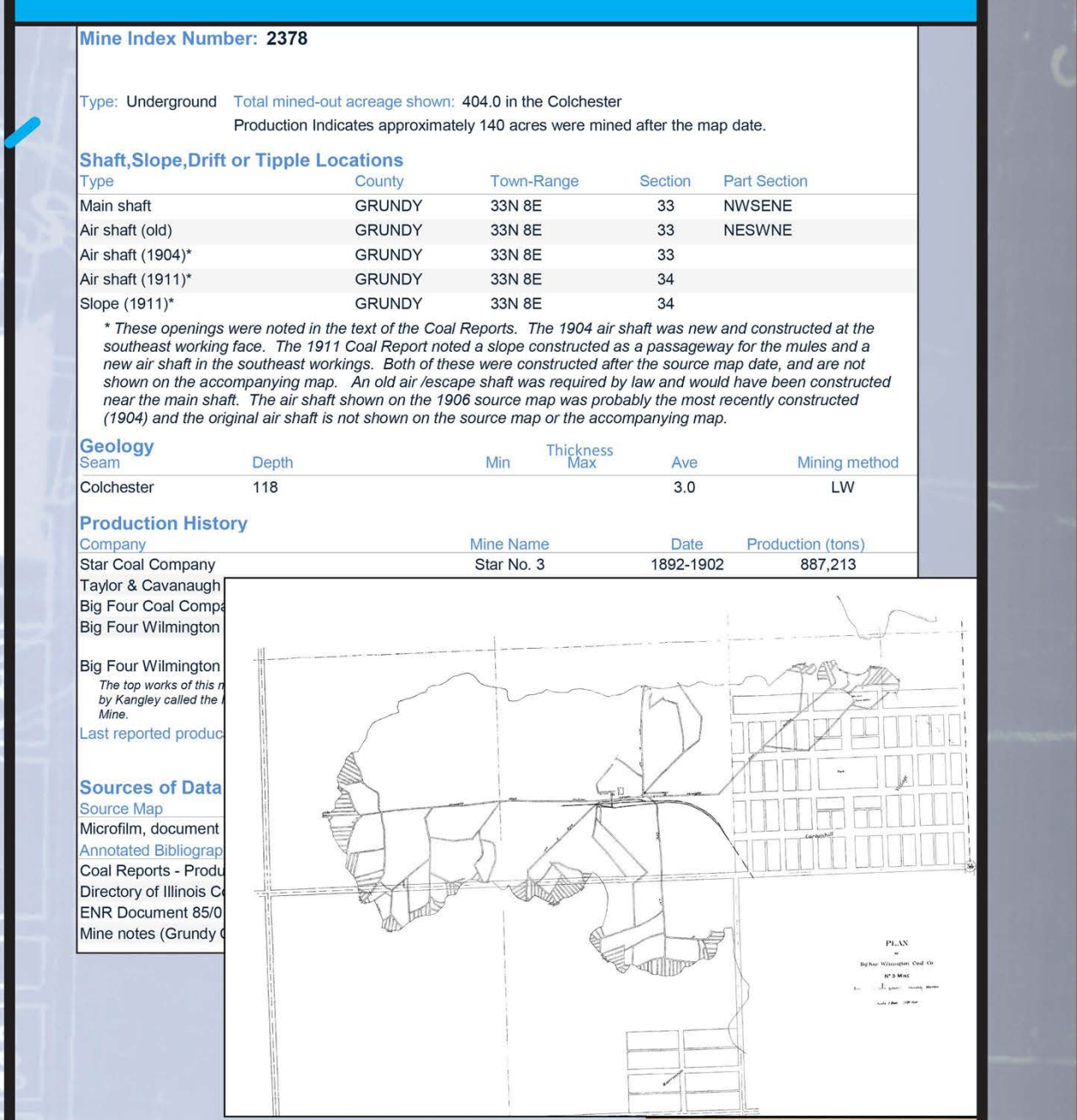
Coal City Quadrangle - Quadrangle coal mine study at 1:24,000 scale. This provides a higher level of detail than County-scale mined area compilations, but may not be up-to-date in areas of recent or currently active mining. PDF file.

Grundy County - County coal mine map(s) at 1:100,000 scale. County web page also links to coal resource maps and coal log data reports.

↑ To activate measure tool, click this button. Click on the map and then single-click to end the line.

Visit ILMINES at
http://isgs.illinois.edu/ILMINES

Future



Mine Index Number: 2378

Type: Underground Total mined-out acreage shown: 404.0 in the Colchester
Production Indicates approximately 140 acres were mined after the map date.

Shaft,Slope,Drift or Tipple Locations

Type	County	Town-Range	Section	Part Section
Main shaft	GRUNDY	33N 8E	33	NWSENE
Air shaft (old)	GRUNDY	33N 8E	33	NESWNE
Air shaft (1904)*	GRUNDY	33N 8E	33	
Air shaft (1911)*	GRUNDY	33N 8E	34	
Slope (1911)*	GRUNDY	33N 8E	34	

** These openings were noted in the text of the Coal Reports. The 1904 air shaft was new and constructed at the southeast working face. The 1911 Coal Report noted a slope constructed as a passageway for the mules and a new air shaft in the southeast workings. Both of these were constructed after the source map date, and are not shown on the accompanying map. An old air /escape shaft was required by law and would have been constructed near the main shaft. The air shaft shown on the 1906 source map was probably the most recently constructed (1904) and the original air shaft is not shown on the source map or the accompanying map.*

Geology

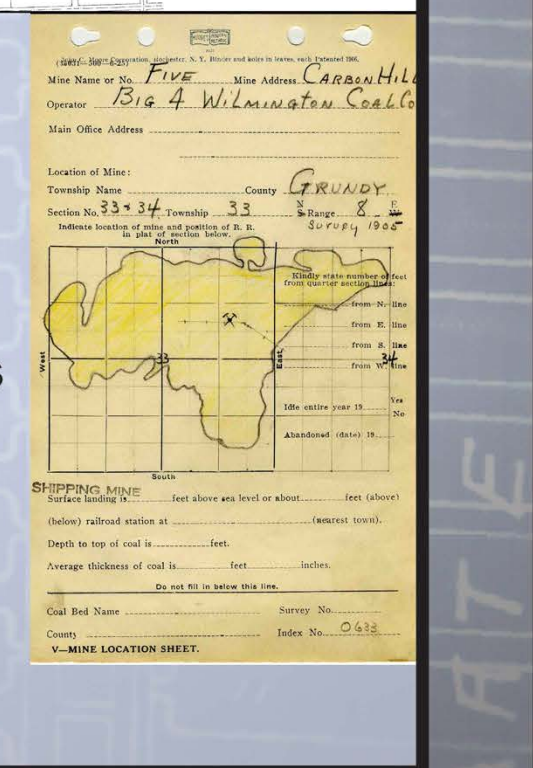
Seam	Depth	Thickness Min	Thickness Max	Ave	Mining method
Colchester	118			3.0	LW

Production History

Company	Mine Name	Date	Production (tons)
Star Coal Company	Star No. 3	1892-1902	887,213

Sources of Data
Source Map

In the future, in addition to a form that includes the information used to compile the current directory page, original source material (such as mine notes, maps, etc.) will be downloadable for each individual mine as available, making the quadrangle maps obsolete.



Mine Name or No. FIVE Mine Address CARBON HILL
Operator BIG 4 WILMINGTON COAL CO
Main Office Address
Location of Mine:
Township Name County GRUNDY
Section No. 33 + 34 Township 33 N Range 8 E
Survey 1905
SHIPPING MINE
Do not fill in below this line.
Coal Bed Name Survey No.
County Index No. 0633
V—MINE LOCATION SHEET.

Acknowledgments: Funding for this work has been provided by the Illinois Department of Transportation and the Illinois Mine Subsidence Insurance Fund. Numerous ISGS staff have contributed to this effort over many years.