STATE OF ILLINOIS
DEPARTMENT OF REGISTRATION AND EDUCATION

STRIPPABLE COAL RESERVES OF ILLINOIS

Part 5B—Mercer, Rock Island, Warren, and parts of Henderson and Henry Counties

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ABSTRACT

This report, Part 5B, is one of a series in which strippable coal reserves, defined as coal 18 inches or more thick and with overburden not exceeding 150 feet, in Illinois have been described and evaluated. Reserves in Mercer, Rock Island, Warren, and parts of Henderson and Henry Counties, included in this study, are confined to the Rock Island (No. 1) Coal. Areas of reserves of the Colchester (No. 2) Coal Member within these counties are included in Parts 4 and 5A of the report series.

A map showing the boundary of Pennsylvanian strata, outcrop of the Rock Island (No. 1) Coal Member, outcrop of the No. 2 Coal, coal thicknesses, overburden limit of 150 feet, and mined-out areas has been prepared on a scale of one-half inch to the mile. The stratigraphic relations of coal deposits in the area are shown on a series of north-south and east-west cross sections.

Tonnage estimates, based on average coal thickness, have been made for each of the counties in the report where sufficient data are available. A total of approximately 200 million tons of strippable coal reserves in the ground, as defined in this study, are estimated. Several other local occurrences of coal of minable thickness are described, but no estimate of strippable reserves has been made for them because of the known and inferred limited areal extent of these coals.

INTRODUCTION

The present report is Part 5B of a series of reports prepared to summarize strippable coal reserves in Illinois. For convenience, Illinois was originally

subdivided into eight parts for this series, as shown in figure 1. Because of the large size and because coals of minable thickness differ markedly in character within area 5, it has been subdivided into Parts 5A (Smith and Berggren, 1963) and 5B. This report (Part 5B) includes all of Mercer, Rock Island, and Warren Counties and portions of Henderson and Henry Counties.

The Colchester (No. 2) Coal Member in Henry, eastern Mercer, and eastern Warren Counties is included in Part 5A (Smith and Berggren, 1963) and that in southern Henderson and southern Warren Counties is included in Part 4 (Reinertsen, 1964). Although several coals occur stratigraphically above and below the Rock Island (No. 1) Coal Member, none of these, other than the No. 2 Coal, were found to be of sufficient thickness and lateral persistence to warrant reserve estimates based on available data. All available coal data, however, are shown on the map and in the Appendix tables as a guide to future exploration.

Previous Investigations

Reports by Green (1870a, b), Shaw (1873), and Worthen and Shaw (1873) were the first to describe the coal resources of northwestern Illinois. Subsequently, a series of quadrangle studies (Savage, 1921; Savage and Nebel, 1921; Savage and Udden, 1921; and Wanless, 1927) added greatly to the understanding of key areas. Poor (1935) compiled data on the Galesburg Quadrangle, which is unpublished. Culver (1924) presented data on correlation of Pennsylvanian strata in this area.

A preliminary report on coal stripping possibilities in Illinois by Culver (1925a) included Warren County. Culver (1925b) discussed the geology and coal resources of all the counties in the area of this report. Cady (1937) described areas of potential strippable coal in western Illinois. In a later report (Cady et al., 1952), total coal reserves for the area of this report were presented. However, strippable coal reserves were not differentiated from total reserves in this study.

In an unpublished study of the No. 1 Coal in the area of this report, Moody (1959) discussed the general geology and economic aspects of the coal but made no reserve estimates.

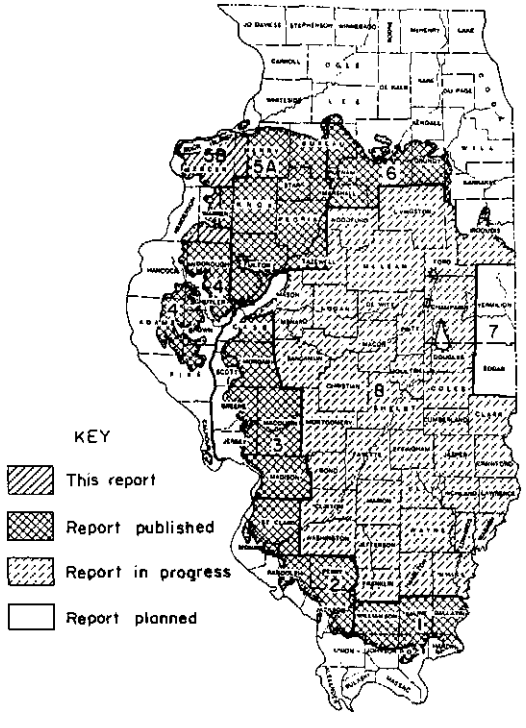

Figure 1 - Index map showing boundary of the Pennsylvanian strata of Illinois, location of area of this report, published reports, reports in progress, and reports planned to complete the mapping of strippable coal reserves of the state.

Acknowledgments

The authors are indebted to the mining companies that have furnished

data in the area, without which the interpretation of Pennsylvanian rocks in several locations would have been extremely difficult. The authors are indebted particularly to the Peabody Coal Company for permission to use some data developed by Midland Electric Coal Company included in cross section D-D' in central Warren County. D. A. Olmstead assisted in field work during the summers of 1964 and 1965, and he and other members of the Illinois State Geological Survey Coal Section assisted in the compilation of the maps and cross sections.

METHOD OF PREPARING RESERVE ESTIMATE

Sources of Information

Because coal test drilling in this part of the state was limited and mostly concentrated in local areas of mining, field study of outcrops in the area was made in order to improve correlation of the less well known sequence occurring largely below the Colchester (No. 2) Coal, which was the principal part of the geologic section of concern. Published reports on portions of each county supplied valuable information. Unpublished field notes, maps, and drill-hole records from the Geological Survey files supplied additional information. Drill records supplied by the Midland Electric Coal Company proved of great value in interpreting the geology of several areas.

Contour maps of the bedrock surface of each county, based on those by Horberg (1950), were used in establishing the limit of Pennsylvanian strata and in projecting the extent of the horizon of the No. 1 Coal beneath areas concealed by glacial drift.

Mined-out areas were obtained from maps prepared by Cady et al. (1952), which were later revised to include mining through June 1959.

Definition of Strippable Coal

As in the previous reports in this series (Smith, 1957, 1958, 1961, 1968; Smith and Berggren, 1963; and Reinertsen, 1964), strippable coal reserve estimates are based on coal 18 inches or more thick and covered by overburden not more than 150 feet thick.

Some deposits underlie towns, cities, highways, or similar features and, thus, will not be recoverable. It was not practical, however, to exclude such areas from the reserve estimates.

Tonnage estimates of coal reserves in Illinois have been based on an assumption of 1800 tons of coal per acre foot, the figure used by the U.S. Geological Survey for high-volatile bituminous coal. This figure is used in this report, although 1770 tons per acre foot is probably more representative of coals in Illinois. The estimates are based on the total quantity of coal remaining in the ground.

Mapping of Coal Outcrops

The term outcrop is used on a geologic map to show an area directly underlain by a specific rock unit. The rock unit need not be exposed, provided it is covered by unconsolidated surficial deposits and not by indurated rocks. As used herein, outcrop is synonymous with the eroded edge of a coal or other rock stratum, either exposed at the surface or covered by unconsolidated material.

Glacial drift and wind-blown silt deposits of varying thicknesses cover the bedrock of most of this area. The accuracy with which the outcrops of coal seams can be established, therefore, depends upon the number and distribution of surface exposures, the number and accuracy of mine and drill-hole records, the surface topography, and the thickness of surficial deposits. Faults, folds, and erosional cutouts also complicate precise location of outcrop lines. The mapping of a coal such as the No. 1 Coal is complicated further by its lack of lateral persistence, due to environmental conditions during deposition.

Plate 1 (in pocket) illustrates the provisional outcrop line of the No. 1 Coal or its horizon, based on contours of coal structure compared with surface topography and the topography of the bedrock surface. Although additional drilling would supply data that would alter the outcrops shown, this line delineates the areas believed to be underlain by the No. 1 Coal or its horizon and serves as an aid in prospecting. A provisional line depicting the outcrop of the base of the Pennsylvanian System is also shown on the map (pl. 1).

Overburden Categories

Overburden has been divided into categories of 0 to 50, 50 to 100, and 100 to 150 feet in previous reports on strippable coal reserves (Smith, 1957, 1958, 1961, 1968; Smith and Berggren, 1963; and Reinertsen, 1964). Coal reserves described in this report could only be estimated for small areas because of the characteristic of No. 1 Coal to thin and thicken abruptly. These mapped reserve areas occur adjacent to surface exposures or abandoned mines, and, therefore, overburden thicknesses are generally less than 100 feet. The size and scattered nature of the deposits makes the compilation of tables based on overburden categories impractical.

A line depicting overburden thickness of 150 feet, the maximum limit in previous reports in this series, is shown on the map (pl. 1), although the maximum depth at which coal has been recovered by strip mining in Illinois to date is generally about 100 feet. The 150-foot overburden thickness line was drawn by comparison of contours of coal structure with surface topography. Surface elevations were obtained from U. S. Geological Survey topographic maps, published on a scale of 1:62,500.

STRIPPABLE COAL RESERVES

Classification of Reserves

In previous reports in this series, strippable coal reserves were classified on the maps and tabulated in the reports, based on various categories of overburden thickness, coal thickness, and availability of data. However, in this report area, the data are insufficient over large parts of the mapped area to permit classification of the coal as to thickness or depth. Therefore, it has been necessary to make an over-all gross estimate of reserves.

Past mining and exploration in the area have more or less demonstrated the extreme variability in thickness and lack of lateral persistence of the coals, and

because of this it was necessary to modify the procedures for estimating strippable coal reserves in the present study.

In earlier reports in this series, strippable coal reserves were considered in primary and secondary reserve classes to designate the reliability of the estimates. Primary reserves, designated Class I, include the coal in areas in which data are plentiful enough to permit estimation of quantities of coal with reasonable accuracy. Coal up to 2 miles from the last point of reliable information of coal thickness (outcrops, mines, and coal test holes) is included in this class. Secondary reserves, designated Class II, are based on projections of geologic occurrence of coal from primary reserve areas into areas of scattered data.

Because of the localized occurrence of the No. 1 Coal, a large number of records within a small area are necessary for the reliable estimation of coal reserves. In this report, reserve estimates are confined to areas that fall within the primary, or Class I category, as it was not practical to project the No. 1 Coal to as much as 2 miles from datum points. Scattered records of coal outside of classified areas are included in the tabulation of datum points (Appendix Tables A and B) as an aid to future coal prospecting.

Estimate of Strippable Coal Reserves

The No. 1 Coal, in areas where it has been mined and prospected, generally occurs in linear troughlike depressions commonly less than 2 miles wide. The coal often undergoes rapid variations in thickness and thins rapidly near the edge of the localized deposits. Wanless (1965) has interpreted the environment of deposition of the No. 1 Coal in northwestern Illinois to be in estuaries, where the coal formed as sea level was rising and flooding a system of previously formed valleys. There are large areas between and surrounding those previously mined or prospected areas for which data are insufficient to provide a basis for estimating the probable extent of remaining strippable coal reserves, especially in view of the high degree of irregularity in thickness and extent exhibited by the No. 1 and lower coals in the areas of past mining. For these reasons, classification and tabulation of strippable coal reserves, such as has been done in previous reports of this series, has not been deemed practicable for the present study area.

Strippable coal reserves in the area of this report are estimated to be approximately 200 million tons. This total estimate is divided by counties as follows: Henry, 64 million; Mercer, 55 million; Rock Island, 42 million; Warren, 39 million. These figures are based on an evaluation of strippable reserves in previous reports in this series, except that no coal was classified in the Class II, or secondary reserve, category, and overburden depth was considered in only one category with maximum depth to 150 feet. Nearly all of the coal included, however, lies at depths less than 100 feet.

Because most of the available data used in compiling this report was also available at the time the earlier report by Cady et al. (1952) was prepared, the estimates of reserves are in general agreement. Cady et al. (1952) estimated 174,425,000 tons of coal in the areas comparable to the area mapped in this study, in which a total reserve of 200 million tons was estimated.

Thickness of Coal

As in earlier reports in this series, a minimum of 18 inches was used to define minable coal. All coal thickness information from coal test drilling, mines, and outcrops is shown on the maps wherever there is sufficient space. In areas of closely spaced drilling, only the drill-hole locations could be shown. In Appendix Table A, all reliable data relating to coals in the mapped area are shown by location, including those holes not shown on the map because of the closely spaced drilling. In estimating strippable coal reserves, only the Rock Island (No. 1) Coal has been considered. However, on the map and in the Appendix tables, data on all significant coal occurrences, whether or not they are of minable thickness, are included as a guide to future prospecting.

TABLE 1 — ROCK ISLAND (NO. 1) COAL ANALYSES — COUNTY AVERAGES

Samples	Proximate						Heat values			
County (no. of mines)	Condition[a]	Moisture	Volatile matter	Fixed carbon	Ash	Sulfur	Calories	Btu	Rank index	Unit coal index
Henry (4)[b]	1	16.1	36.3	38.4	9.2	4.8	5,887	10,600		
	2		43.3	45.7	11.0	5.7	7,017	12,630		
	3		48.6	51.4		6.5	7,882	14,190		
	4	18.4	38.5	43.1			6,582	11,850	118	
	5		47.2	52.8			8,069	14,530		145
Mercer (6)[c]	1	15.5	38.4	37.1	8.9	4.4	5,961	10,733		
	2		45.6	43.6	10.5	5.3	7,058	12,705		
	3		50.9	49.1		5.9	7,889	14,195		
	4	17.7	40.9	41.4			6,637	11,949	120	
	5		49.7	50.3			7,994	14,676		146
Rock Island (1)[d]	1	16.6	35.7	39.2	8.5	4.8	5,897	10,620		
	2		42.7	47.1	10.2	5.8	7,072	12,730		
	3		47.6	52.4		6.4	7,872	14,170		
	4	18.8	37.5	43.7			6,535	11,760	118	
	5		46.2	53.8			8,052	14,490		145
Warren (3)[c]	1	13.5	39.5	39.0	7.3	5.5	6,270	11,282		
	2		45.6	45.1	9.2	6.3	7,246	13,039		
	3		50.3	49.7		7.0	7,978	14,362		
	4	15.2	41.5	43.3			6,917	12,450	125	
	5		48.9	50.6			8,156	14,678		147

[a]Type of analysis: 1. Sample as received at laboratory; 2. moisture-free; 3. moisture and ash-free; 4. moist mineral-matter-free; 5. dry mineral-matter-free (unit coal).
[b]Data from Cady, 1948.
[c]Data modified from Cady, 1935.
[d]Data from Cady, 1935.

Appendix Table B lists data relating to the depth at which coal occurrences are reported in selected water-well records. The location of these water wells is shown on the map (pl. 1) by open circles. Indications of coal reported in water-well drilling records often can be of considerable value in the preparation of coal maps, such as the one included in this report, and in prospecting for coal. However, the information concerning the presence of coal at stated depths is commonly not reliable, and the indication of thickness shown in the driller's log often can be very misleading. Coal thickness information stated in water-well logs has not been used in compiling the estimate of strippable coal reserves and is not included in Appendix Table B.

Mined-Out Coal

A series of maps showing mined-out coal areas in Illinois was prepared for the report on coal reserves by Cady et al. (1952) and subsequently was revised to include mining through June 1959. The mined-out coal areas shown on plate 1 of this report were taken from these revised compilations. With the exception of two mines that have been in operation in this area since 1959, the mined-out areas are up to date.

In many areas, small local mines have been worked in the past, and where records are available, these mines have been shown on the map (pl. 1). Although the depth of the mines and thickness of the coal may be known, no mined-out area information is available on most of these small mines. In addition to those shown on plate 1, a number of small coal diggings for which we have no record undoubtedly exist in this area.

Quality of the Coal

The coal described in this report is all of high-volatile C rank. The quality of the coal is summarized in table 1, which lists the county average values for the various chemical analyses of the coal. These values have been obtained from reports of analyses of Illinois coals by Cady (1935, 1948) and have been modified by more recent unpublished analyses in Mercer and Warren Counties.

STRATIGRAPHY

The area of this report lies on the northwestern margin of the Eastern Interior Coal Province. The tectonic setting is the shelf area between the Mississippi River Arch and the LaSalle Anticlinal Belt (fig. 2). Pennsylvanian sediments were deposited on a very irregular surface produced by deformation and erosion of underlying Mississippian and Devonian rocks. Therefore, the earliest Pennsylvanian strata vary greatly in lithology, thickness, and age. In Warren and southern Mercer Counties, rocks older than the Rock Island (No. 1) Coal are thin. In northern Mercer and western Rock Island Counties, however, up to 200 feet of strata underlie the No. 1 Coal. An appreciable portion of these strata is assigned to the Caseyville Formation, based on spore content (R. M. Kosanke, personal communication). Irregularities in the pre-Pennsylvanian depositional surface were filled in as sedimentation progressed, and although all units within the

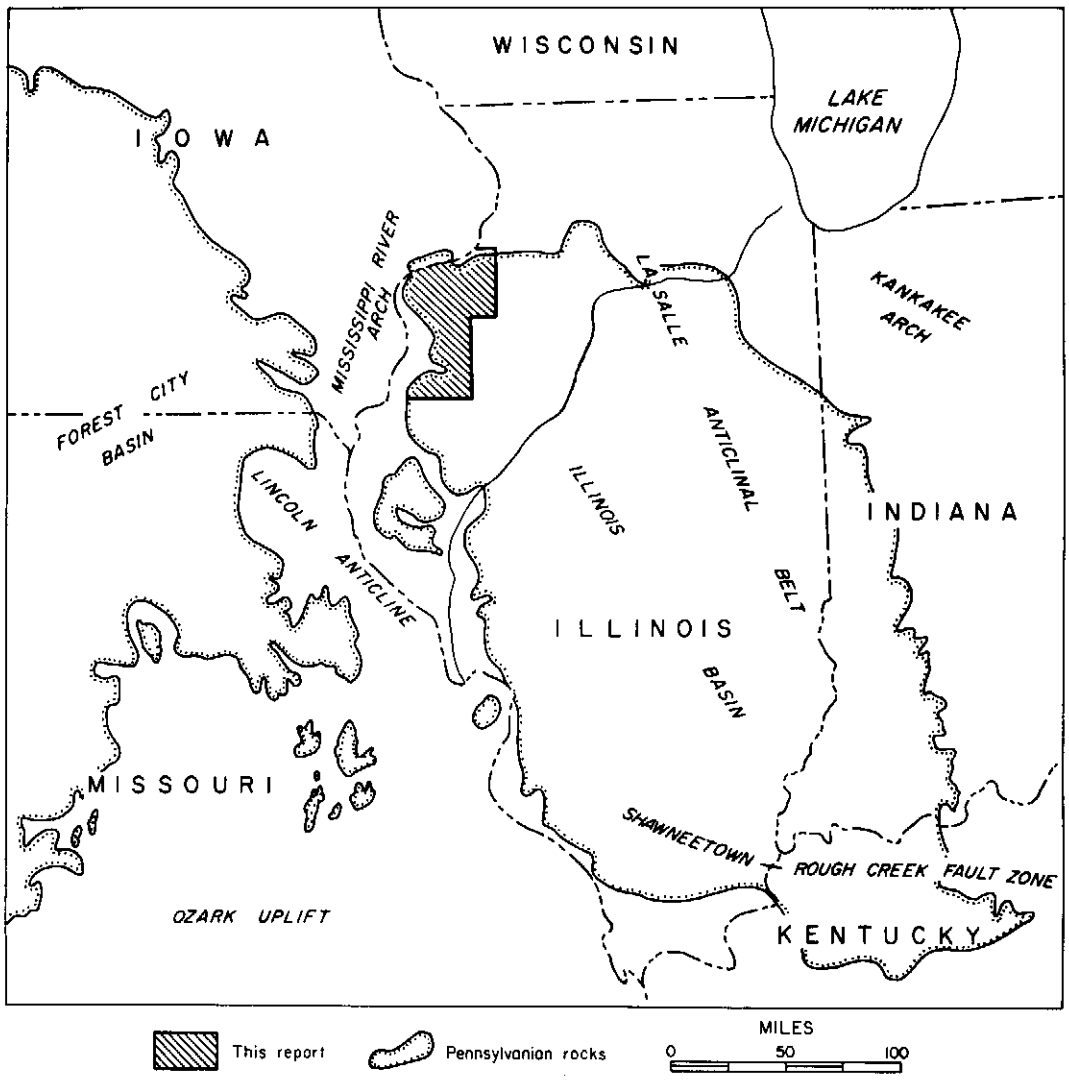

Figure 2 - Tectonic map showing the relation of the report area to regional structural features.

area are variable in thickness, strata in the succession from the Colchester (No. 2) Coal upward in areas to the east and south are relatively uniform in thickness (Smith and Berggren, 1963; Reinertsen, 1964).

Pennsylvanian rocks in Illinois are subdivided into groups and formations on the basis of gross lithology, with key members of widespread occurrence marking boundaries (Kosanke et al., 1960). The stratigraphic succession from the base upward includes the McCormick, Kewanee, and McLeansboro Groups. Figure 3 is a generalized sequence of strata encountered in the area of this report. Rock units in individual sections vary considerably from the generalized sequence due to limited lateral persistence of strata below the No. 2 Coal. Generalized char-

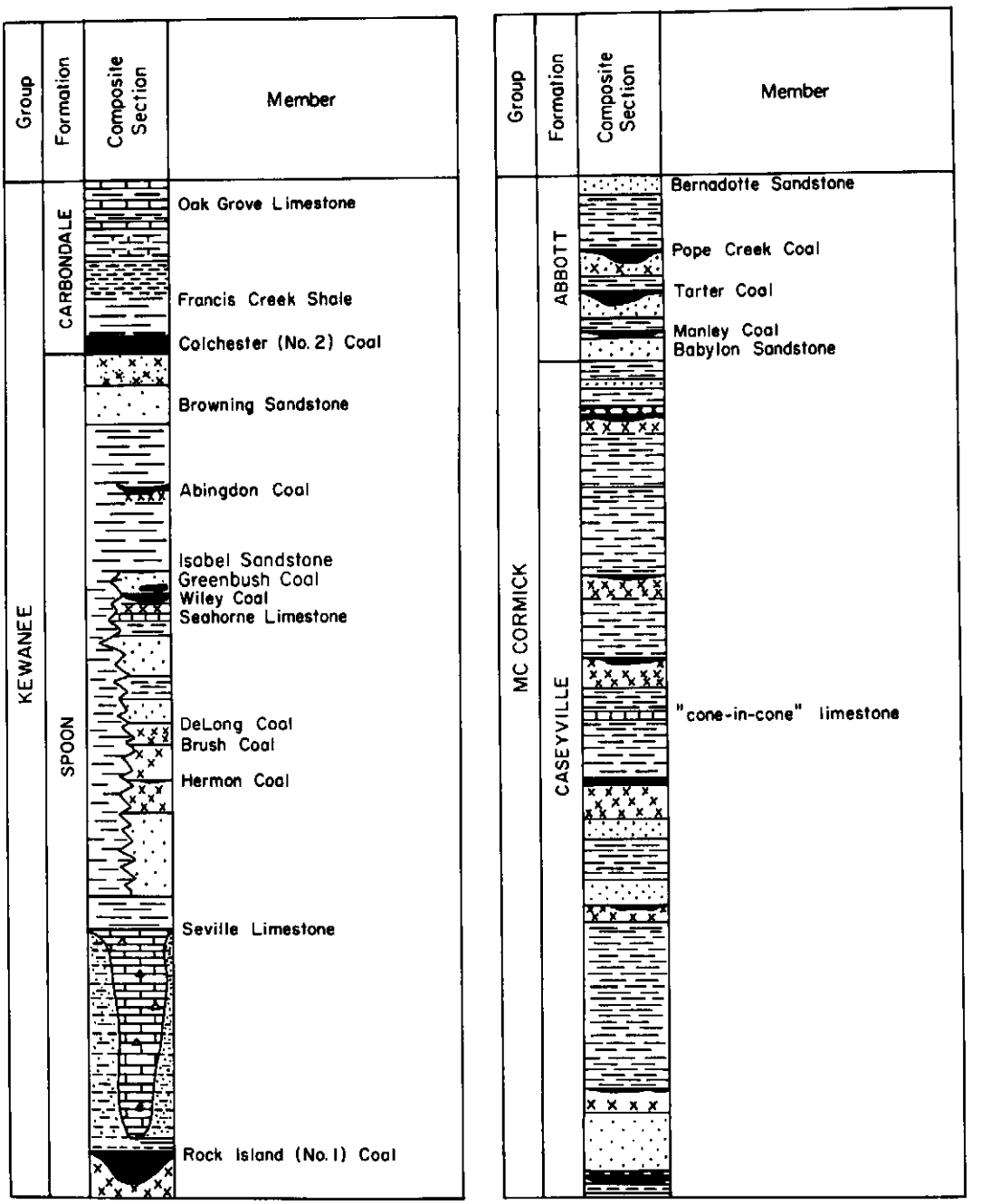

Figure 3 - Composite section of Pennsylvanian System in Area 5B showing named members recognized (no vertical scale).

acteristics of units within the groups, with emphasis on the stratigraphic relations and correlation of coals, are presented in the following paragraphs.

McCormick Group

Rocks referred to the McCormick Group are the oldest strata of the Pennsylvanian System in Illinois and comprise the Caseyville (lowermost) and the Abbott Formations (Kosanke et al., 1960). In northwestern Illinois, the group includes strata from the base of the Pennsylvanian to the top of the Bernadotte Sandstone Member.

Caseyville Formation

The Caseyville Formation includes the deposits between the pre-Pennsylvanian surface and the top of the Pounds Sandstone Member. Strata referred to the Caseyville have not been recognized previously in this part of Illinois. R. M. Kosanke (personal communication) correlated spores from a series of coals that crop out along the road and the northward-flowing tributary of the Mississippi River in Sec. 3, T. 16 N., R. 5 W., with coals in the Caseyville Formation of southern Illinois. Although individual members within the Caseyville have not been identified, rocks referred to the formation underlie northwestern Mercer and western Rock Island Counties. Where well exposed, the formation is made up predominantly of medium gray to dark gray brittle shales interbedded with silty shales, silty underclays, and at least seven impure coals. The upper and lower units of the formation are generally prominent deposits of clean quartzose sandstone. Although the individual coals are generally thin and difficult to trace laterally, seams up to 2 feet in thickness were observed in several outcrops. A zone of dark limestone concretions with well developed cone-in-cone structures occurs in the middle of the Caseyville Formation in this area and provides a useful key marker for correlations. The various lithologic units, which make up the formation, are well exposed along the farm lane and small north-draining stream in the NE$\frac{1}{4}$ SW$\frac{1}{4}$ Sec. 25, T. 17 N., R. 4 W.

A pre-Pennsylvanian troughlike depression existed in the area near Edwards River from T. 14 N., R. 1 E., to T. 14 N., R. 3 W., Mercer County. A thick sequence of sediments, predominantly silty shale and sandstone, underlies the Bernadotte Sandstone Member within this depression. Although this succession does not crop out and cannot be precisely correlated, records of several drillings indicate that at least the lower portion of these rocks are in the Caseyville Formation.

Abbott Formation

Strata of the Abbott Formation are nearly coextensive with the Pennsylvanian System in most of the area of this report. The formation is the upper portion of the McCormick Group and includes strata from the top of the Pounds Sandstone to the top of the Bernadotte Sandstone. The Pounds Sandstone has not been identified in northwestern Illinois, and the base of the Babylon Sandstone Member is regarded as the base of the Abbott Formation in this area.

The Abbott Formation (Kosanke et al., 1960) includes three named coal members. In western Illinois, in ascending order, the coals are the Manley,

Tarter, and Pope Creek. The coals are recognized widely in Mercer, eastern Rock Island, and Warren Counties, but generally are of less than minable thickness, as defined in this study. Locally, however, they thicken to as much as 30 inches. The Pope Creek Coal is 28 inches thick at an outcrop on Edwards River in the SW$\frac{1}{4}$ Sec. 5, T. 14 N., R. 2 W., Mercer County, and 30 inches thick at an outcrop on Pope Creek in the SW$\frac{1}{4}$ Sec. 32, T. 14 N., R. 2 W., Mercer County, the type area of the Pope Creek Coal. The Tarter Coal is 31 inches thick at an outcrop on Edwards River in the NE$\frac{1}{4}$ NE$\frac{1}{4}$ SE$\frac{1}{4}$ Sec. 11, T. 14 N., R. 3 W., Mercer County. The stratigraphic interval of the Abbott Formation is concealed in much of this area, and other local deposits of coal of minable thickness may occur.

Individual members of the Abbott Formation, like those of the Caseyville Formation, have not been identified within the linear depression along Edwards River, Mercer County. The sandstones and coal, which make up the formation outside the depression, are replaced by sandy shale and sandy mudstone of variable thicknesses. Information is insufficient, however, to determine the exact relation of the units within the depression to those elsewhere.

Kewanee Group

The Kewanee Group, which includes all strata between the top of the Bernadotte Sandstone Member and the top of the Danville (No. 7) Coal Member, contains the youngest Pennsylvanian rocks in the area of this report. The Kewanee Group is subdivided into the Spoon Formation, which includes strata from the top of the Bernadotte Sandstone upward to the base of the Colchester (No. 2) Coal Member, and the Carbondale Formation, which includes the strata from the base of the Colchester (No. 2) Coal Member to the top of the Danville (No. 7) Coal Member.

Spoon Formation

The Spoon Formation crops out over approximately the eastern two-thirds of this report area. Southwest of Viola, where it is uneroded, the formation is approximately 120 feet thick, but over the remainder of the area, it is deeply eroded so that generally less than 50 feet of the lower units remain.

The generalized geologic column in figure 3 and the geologic cross sections (pl. 2, in pocket) illustrate the stratigraphic succession, general thickness, and variations of strata in this area. As in the underlying Abbott and Caseyville Formations, the Spoon Formation differs greatly in lithology within the troughlike depression near Edwards River, Mercer County, from its typical development in surrounding areas. Here, the interval of this formation consists of silty shale, siltstones, and sandstones. Near Shale City, the entire interval between the Seville Limestone Member and the Isabel Sandstone Member is made up of these strata. Exposures are not sufficient to determine whether the strata change facies in the depression or whether the feature is a channel filling. In view of the abnormality of strata below the Spoon Formation in this area, however, facies change seems quite possible. Elsewhere in the area, where erosion has not removed them, named members of the Spoon Formation in ascending order are Rock Island (No. 1) Coal, Seville Limestone, Hermon Coal, Brush Coal, DeLong Coal, Seahorne Limestone, Wiley Coal, Greenbush Coal, Isabel Sandstone, Abingdon Coal, and

Browning Sandstone. None of the coals above the No. 1 Coal was observed to be of minable thickness.

Rock Island (No. 1) Coal Member.—The Rock Island (No. 1) Coal Member is the only coal within the area of this report that has sufficient thickness and known areal distribution to be considered for reserve estimates. The areas of outcrop and thickness of the coal are shown on plate 1. The coal is highly variable in thickness, ranging from a thin streak to as much as 8 feet within short distances. The coal occurs in elongate lenticular bodies, which represent depositional areas that were probably either topographic lows or areas of differential subsidence. Individual coal bodies of minable thickness range in size from a few hundred square feet to a few square miles. The coal thickens commonly from a few inches to 4 feet or more within 100 yards as the center of a coal body is approached and thins within an equally short distance as the other margin is approached. It is noteworthy that strata immediately above and below the coal commonly thicken in the areas of thick coal.

Seville Limestone Member.—The Seville Limestone Member is perhaps the most important stratigraphic marker in the Pennsylvanian section of northwestern Illinois. Where most fully developed, it can be divided into a lower unit of evenly bedded, dark gray limestone and an upper unit of blue-gray to brown shaly limestone with local cherty zones. The member generally thickens from a few inches to as much as 27 feet in the small areas of thick No. 1 Coal and is commonly very thin to absent elsewhere. The Seville is the only marine limestone that has been recognized in extreme northwestern Illinois and, therefore, is the key member in the identification of the No. 1 Coal. However, in some parts of the area, the No. 1 Coal attains thicknesses of 2 to 3 feet with no Seville Limestone overlying it. In these areas, the coal is difficult to distinguish from those above and below.

Carbondale Formation

The Carbondale Formation includes all strata between the base of the Colchester (No. 2) Coal Member and the top of the Danville (No. 7) Coal Member. In the area of this report, strata above the Oak Grove Limestone Member have been removed by erosion. Thus, the thickness of the eroded remnant of the formation has a maximum of 12 to 15 feet. The Colchester (No. 2) Coal Member, a widespread minable coal in western Illinois, underlies only extreme southeastern Mercer County and southern and eastern Warren County. Reserves of No. 2 Coal in southern Warren County are included in Part 4 of this series (Reinertsen, 1964) and those in southeastern Mercer and eastern Warren Counties are included in Part 5A (Smith and Berggren, 1963).

Small erosional remnants of the No. 2 Coal crop out in east-central Mercer County, south and west of Viola. Because the remnants are small and the coal is 17 inches or less in thickness, no estimate of the reserves of these small deposits has been made in this report.

DESCRIPTION OF COAL AND STRIPPABLE RESERVES

Rock Island (No. 1) Coal

The Rock Island (No. 1) Coal is the only coal for which strippable reserve estimates could be made. The Colchester (No. 2) Coal is the only other coal of

sufficient areal extent and thickness to be mapped as a strippable reserve and has been included in previous reports that included counties of the present report (Smith and Berggren, 1963; Reinertsen, 1964). The No. 1 Coal formerly was mined in numerous localities in Henry, Mercer, Rock Island, and Warren Counties (Culver, 1925b; Cady et al., 1952), but only two shaft mines, the Shuler Coal Company mine south of Alpha, Henry County (now abandoned), and the Hazel Dell Coal Company mine south of Windsor, Mercer County, have been active in recent years.

The No. 1 Coal is generally only a few inches thick and attains minable thickness only in local areas. Minable coal generally occurs in lenticular bodies, somewhat elongate in plan view, usually with the longer axis oriented in either an east-west or a northeast-southwest direction. Thick coal deposits are known along present major stream valleys where erosion has exposed numerous outcrops. Mining and associated drill-hole exploration has developed in these areas. Data on the coal have been included in Appendix Table A as an aid in prospecting, but no attempt has been made to estimate the size or shape of these deposits from single isolated datum points. It is probable that other small bodies of coal underlie areas between present stream valleys, where no data are available, but this can be determined only by exploratory drilling.

Reserves of approximately 200 million tons of strippable coal in the ground have been estimated.

Henry County

The principal strippable reserves of the No. 1 Coal in Henry County are in the northwestern corner of the county between Orion and Briar Bluff. The coal formerly has been mined at numerous places by drift mines along the outcrop and by shallow shafts. Data are sufficient to indicate strippable coal reserves of at least 64 million tons in Henry County, principally in the northwestern part of the county in T. 17 N., R. 1 and 2 E. (pl. 1).

In west-central and southwestern Henry County, the No. 1 Coal, in general, occurs at depths greater than 150 feet, except along the Edwards River and other drainageways. The No. 1 Coal reportedly was 56 inches thick where it was mined at a depth of 63 feet at Opheim (Sec. 28, T. 15 N., R. 1 E.) and was underlain by 44 inches of Pope Creek Coal at a depth of 68 feet. Near Alpha, in southwestern Henry County, the coal has been worked at several places by shaft mines. In most of this area, the No. 1 Coal is more than 150 feet deep.

Rock Island County

The old mining district surrounding the village of Coal Valley in the eastern part of Rock Island County contains a number of small deposits of thick No. 1 Coal. Coal as much as 96 inches thick (Appendix Table A) has been reported, and although a considerable tonnage of coal has been removed by mining, reserves of approximately 42 million tons of coal have been estimated (total remaining in the ground).

In much of Rock Island County, south of Rock River, pre-Pleistocene and Pleistocene erosion has removed most of the Pennsylvanian strata, including the No. 1 Coal. Scattered records in the western portion of the county indicate a possible thick deposit of No. 1 Coal in Sec. 31, T. 17 N., R. 3 W., and Sec. 36, T. 17 N., R. 4 W. Other areas west of the longitude of Milan do not appear to be promising.

South of Moline and East Moline and north of the Rock River, mine records, drill holes, and outcrops (Appendix Table A) indicate deposits as much as 48 inches thick in T. 17 N., R. 1 E., and T. 17 N., R. 1 W. Information is insufficient to determine the size and shape of these deposits.

A number of small abandoned mines in T. 18 N., R. 1 E., indicate an outlier of No. 1 Coal north of East Moline and Carbon Cliff (pl. 1). Limited data indicate that this may be an area of significant coal reserves. The data, presented in Appendix Table A and on plate 1, show 42 to 48 inches of coal in the small mines that formerly were worked in this area.

Mercer County

In Mercer County, the largest known deposit of No. 1 Coal occurs in an elongate body along the valley of Edwards River in the northern parts of T. 14 N., R. 2 W., and T. 14 N., R. 3 W., and the southern part of T. 15 N., R. 3 W. Coal up to 67 inches thick has been reported from these areas (Appendix Table A), but much of the area of thicker coal has been depleted by mining. Other deposits are in the valley of North Henderson Creek, in the central part of T. 13 N., R. 2 W.; along Pope Creek, in the southern part of T. 14 N., R. 2 W.; in the area surrounding the village of Cable, near the center of T. 15 N., R. 1 W.; and in the lower drainage of Camp Creek, in the southeastern quarter of T. 15 N., R. 4 W. (pl. 1). Each of these deposits includes coal at least 36 inches thick, and strippable reserves of approximately 55 million tons have been estimated. Data in the remainder of the county are widely scattered and inconclusive. The most promising areas for exploration appear to be near the eastern border of the county in T. 13 N., R. 1 W.; T. 13 N., R. 2 W.; T. 14 N., R. 1 W.; and T. 15 N., R. 1 W. However, overburden becomes very thick on some of the drainage divides in this area.

Warren County

Strippable reserves of No. 1 Coal in Warren County are located principally in the northeastern part of the county; 39 million tons have been estimated in this study. However, there are extensive areas in the county for which data are insufficient to estimate reserves. Small deposits of coal up to 60 inches thick occur along the drainage of Cedar Creek (T. 9 N., R. 2 W.), along Cedar Creek (T. 11 N., R. 1 and 2 W.), and along Henderson Creek (T. 12 N., R. 1 and 2 W.). Although information is too sparse for accurate delineation of other coal reserve areas, several scattered drill-hole records (Appendix Table A) indicate coal of 48 to 60 inches in thickness. The greatest number of these drill holes are in T. 11 N., R. 1 W., and T. 12 N., R. 1 W., in the northeastern portion of the county.

Henderson County

Pennsylvanian rocks underlie only the southeastern corner of Henderson County. The No. 1 Coal has not been identified positively, but several drill holes in T. 8 N., R. 4 W., penetrate up to 36 inches of coal near the base of the Pennsylvanian. It is probable that coal of this thickness occurs only in local pockets. It has not been practical to estimate reserves in Henderson County.

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APPENDIX

The following table lists all available data relating to coal test drilling, mines, and outcrops. Water wells are listed separately in Appendix Table B. All datum points are shown on the map, except those too closely spaced to be seen. Those not shown on the map are so indicated in the table by a double dagger (‡). Coal thickness is not shown on the map for all datum points listed in the table where space does not permit.

TABLE A – DATA FROM MINES, OUTCROPS, AND COAL TEST DRILLING

Sec.	¼	¼	¼	Type of record	Name or number of coal	Depth (ft)	Elevation (ft)	Thickness (in.)
WARREN COUNTY								
T. 8 N., R. 1 W.								
5	SE	NE	NW	Coal test	1?	40	645	12
13	SE	SW	SE	Outcrop	1		580	3
15	NW	NW	NW	Mine	1?	13	610	13
16	NW	SE	NE	Outcrop	2?		620	12
16	NE	SW	NE	Mine	2?	17	620	
22	NW	SW		Outcrop	2	21	625	27
23	NW	SE		Outcrop	2		630	19
24	NW	SE		Outcrop	2	11	618	24
T. 8 N., R. 2 W.								
9	SW	NW	NE	Outcrop	2			26
10	NW	SW	SE	Outcrop	2		685	13
15	NW	SE		Mine	2			24
16	NE	NE	SE	Outcrop	2			25
17	NW	SW	NW	Mine shaft	2	70	660	30
				Coal test	1	106	624	24
				Coal test	Pops Creek?	110	620	24
T. 9 N., R. 1 W.								
6	NW	NW	NE	Coal test	1		637	
14	NW	NW	SW	Outcrop	1		625	5
14	NW	NW	SE	Outcrop	1		620	11
20	NW	NE	SE	Outcrop	1?		635	6
20	NE	NE	NW	Outcrop	1		640	17
24	SW	NW	SW	Mine	1	10	615	34–38
26	NW	NE	NE	Outcrop	1		620	16
T. 9 N., R. 2 W.								
9	NE	NE	NE	Mine	1		630	36
11	NW	NW	NE	Outcrop	1			4
T. 9 N., R. 3 W.								
27	NE	SW	SW	Coal test	2	32	718	26
					1	80	670	48
T. 10 N., R. 1 W.								
34	SW	SW	SW	Coal test	1		612	
34	NE	SE	SE	Coal test	1		618	
T. 10 N., R. 2 W.								
10	SE	NE	NE	Coal test	1		667	
11	SW	SE	SW	Coal test	1		670	
13	SE	SW	SW	Coal test	1		613	
25	NW	NW	NE	Coal test	1		666	
36	NE	NE	NE	Coal test	1		642	
T. 10 N., R. 3 W.								
33	NW	SE	SW	Mine	1	14	680	36
33	SW	SW	SW	Coal test	1			No coal
33	SE	NE	SE	Coal test	1			No coal
T. 11 N., R. 1 W.								
6	SW	SE	SW	Coal test	2	85	665	24
				Coal test	1	108	640	13
T. 11 N., R. 2 W.								
15	NE	NE	SW	Outcrop	1		670	18
15	NW	NE	SW	Outcrop	1			28
15	NW	SE	NW	Outcrop	1		675	37
15	SW	NW	NW	Outcrop	1		660	18
15	NW	SW	NE	Mine	1		665	32
16	NE	NE	NE	Outcrop	1		660	16–18
31	NE	NE	NW	Coal test	1		675	
33	SW	SW	NW	Coal test	1		677	
33	SW	SE	NW	Mine	2		700	22–24
					1		660	18
34	SW	SW	SW	Coal test	1		673	
T. 11 N., R. 3 W.								
24	NE	NW	NW	Coal test				
T. 12 N., R. 1 W.								
19	NE	SE	SW	Outcrop	2		698	10+
30	SW	NE	NE	Outcrop	2		691	24+
30	SW	SE	NW	Outcrop	2		720	24
T. 12 N., R. 2 W.								
14	SE	NE	SE	Outcrop	1		640	48
20	SW	SW	NW	Mine	1?		661	30
24	SW	SE	NE	Coal test	1	75	642	48
24	center SE NW			Mine	1		635	48
24	NW	SW	NW	Mine	1		647	48
26	NE	SE	NW	Coal test	2	18	652	4
					1	42	618	52
HENDERSON COUNTY								
T. 9 N., R. 4 W.								
26	center NE			Mine	1		660	32
MERCER COUNTY								
T. 13 N., R. 2 W.								
1	NE	NE	SW	Outcrop	2		713	18
20	SE	SE	SE	Outcrop	1		650	5
21	center SW SW			Outcrop	1		680	14
T. 14 N., R. 1 W.								
4	NW	NE	NE	Mine	1		652	28
25	center NE SE			Coal test	In Spoon Fm.	98	718	12
25	center NE SE			Coal test	In Spoon Fm.	186	630	24
25	center NE SE			Coal test	1	210	605	49
26	SW	SE	SE	Mine	1	145	585	54
T. 14 N., R. 2 W.								
2	NW	NW	NW	Coal test	1‡	46	633	45
2	NW	NW	NW	Coal test	1	49	631	48
2	center SW¼			Mine	1	31	684	51
2	SE	SE	SW	Mine	1	33	645	52
2	SE	SW	SE	Outcrop	1		670	20+
3	SE	NW	NE	Coal test	1	32	647	18
3	NW	NE	SE	Coal test	1	23	652	32
3	SE	SE	NE	Coal test	1‡	60	640	21
3	center E½ SW SE			Coal test	1	58	642	6
3	center NE NE			Coal test	1	45	635	44

TABLE A - Continued

Sec.	¼	¼	¼	Type of record	Name or number of coal	Depth (ft)	Elevation (ft)	Thickness (in.)
				MERCER COUNTY				
				T. 14 N., R. 2 W. (Cont.)				
3	SW	NE	NE	Coal test	1‡	42	648	43
3	NW	NE	NE	Coal test	1‡	47	633	16
3	NE	NE	NE	Coal test	1‡	48	622	46
3	NW	NE	NE	Coal test	1‡	46	636	45
3	SW	NW	NE	Coal test	1‡	21	649	No coal
3	SW	NW	NE	Coal test	1‡	32	648	10
3	NE	NW	NE	Coal test	1‡	36	643	52
3	SW	SE	NE	Coal test	1	38	642	30
3	SE	SW	NW	Coal test	1	21	639	60
3	NW	NE	SW	Mine	1			36
3	NW	NE	SW	Outcrop	1‡		660	24
3	SW	SE	NW	Outcrop	1‡		660	36
3	NE	SW	NW	Mine	1‡		635	
3	NW	NW	SE	Outcrop	1		663	36
3	NW	SE	NW	Outcrop	1‡		640	42
3	center of sec.			Outcrop	1‡		660	24
3	SW	SE	NW	Mine	1‡		654	48
3	SE	SW	NW	Mine	1‡	35	650	36
4	SW	NW	SE	Coal test	1	55	625	58
4	SW	NW	NE	Mine	1		655	55
4	SE	SE	SE	Coal test				No coal
4	NW	NW	SE	Outcrop	1		655	48
4	SW	NW	SE	Mine	1‡	15	655	36
4	NW	SE	SE	Coal test				No coal
4	center SW NE			Coal test	1‡	15+	650	48
5	SE	NE	SW	Outcrop	1‡		650	24
5	NE	SW	SE	Mine	1‡	20	660	42
5	center	SW¼		Outcrop	1		640	60
5	SW	NW	SE	Outcrop	1		660	45
5	NW	SW	SE	Mine	1‡	20	650	36
6	SE	SE	SE	Outcrop	1‡		650	26
6	SE	NW	SW	Mine	1		680	48
6	NW	SW	SW	Mine	1‡	9	671	14
6	NE	SW	SW	Mine	1‡		680	50
7	NE	SE	NE	Outcrop	1		670	30
7	center SE NE			Outcrop	1		690	32
8	NW	SW	NW	Outcrop	1‡		710	44–60
8	center NE NE			Outcrop	1‡		700	45
8	SE	NE	SW	Coal test		200		No coal
8	SE	NE	SW	Coal test		136		No coal
8	SW	NW	SE	Coal test		145		No coal
8	NW	NW	NW	Coal test	1	52	648	6
8	NE	NW	NW	Coal test	1‡	46	653	4
8	NW	NE	NW	Coal test	1	92	644	62
8	SE	SW	NW	Coal test	In Abbott or Caseyville Fm.‡	104	596	14
					In Abbott or Caseyville Fm.‡	134	566	8
					In Abbott or Caseyville Fm.‡	159	541	30
8	NW	SW	NW	Coal test	1‡	30	651	53
8	NW	NE	SE	Mine	1	14	628	42
8	NW	SW	NW	Mine	1‡	31	650	66
9	SW	SW	SW	Coal test	1	125	655	32
9	SE	SW	SW	Coal test	1	128	660	51
9	NW	NW	SW	Coal test	1	126	654	48
9	SW	SE	NW	Coal test	1	119	656	56
10	NE	NE	NE	Coal test	1	134	640	44
10	NE	NW	NE	Coal test	1	59	621	2
					In Abbott or Caseyville Fm.	72	608	19
11	NE	SW	NW	Outcrop	1		680	42–48
11	NW	NE	NE	Outcrop	1		670	28
11	NE	NE	NW	Outcrop	1		668	25
11	SW	NW	SW	Mine	1	58–63	650–660	42
11	NE	NW	NW	Mine	1	36–39	640	46
14	SW	NW	NW	Mine	1	33	656	44
16	SE	NE	NE	Coal test	1	101	679	58
16	SE	NE	NE	Coal test	In Abbott or Caseyville Fm.‡	155	625	11
16	center SE SE			Coal test		156		No coal
16	SE	NW	NW	Coal test	1	117	668	44
16	NW	NW	NE	Coal test	1	142	648	44
16	NE	NW	NE	Coal test	1	117	663	36
16	SE	NW	NE	Coal test	1‡	122	658	15
17	SE	NE	SE	Coal test	2	38	742	26
					Abingdon	43	737	24
					1	143	637	50
17	SE	SE	SE	Coal test	1	108	662	17
17	SE	SW	SE	Coal test	1	130	644	42
20	SW	SW	SE	Coal test	1	81	669	12
20	center SW NE	S½		Coal test	1	67	653	20
20	SE	NW	SE	Coal test	1	107	643	34

Sec.	¼	¼	¼	Type of record	Name or number of coal	Depth (ft)	Elevation (ft)	Thickness (in.)
				MERCER COUNTY				
				T. 14 N., R. 2 W. (Cont.)				
20	SW	SE	NE	Coal test	1	99	661	51
20	SW	NW	SE	Coal test	1	100	635	51
20	SE	NW	SE	Coal test	1‡	102	643	58
20	NW	SE	NE	Coal test	1	67	663	44
20	SW	NW	SE	Coal test	1‡	83	637	49
20	SW	SE	SW	Coal test	1	47	653	26
20	SW	NE	SE	Coal test	1‡	115	645	44
20	SW	SE	SE	Coal test	‡	117		No coal
20	SE	SE	SE	Coal test		124		No coal
20	SW	SE	SE	Coal test		116		No coal
20	SW	NW	SE	Coal test	1‡	85	645	46
20	NE	NE	NE	Mine	1	130	652	48
21	center SW SW			Coal test	1	114	646	39
23	SW	NW	SW	Outcrop	2		735	15
25	NE	NW	NE	Coal test	1	50	620	36
27	NE	SE	NE	Outcrop	2		745	24
29	NE	SW	NE	Outcrop	1?	106	644	10
29	SW	NE	NE	Outcrop		120		No coal
29	SW	SW	NE	Outcrop		107		No coal
31	SE	NE	SE	Mine	1	20	650	42
32	center NW	N½ SW		Outcrop	1		660	36
32	SW	NE	SW	Mine	1	50	659	45
32	NW	NE	NW	Mine	1	70	659	48
32	SE	SE	SE	Outcrop	1		645	26
33	NW	NW	SE	Outcrop	1		645	22
				T. 14 N., R. 3 W.				
4	SE	SW	NE	Coal test	1	60	620	24
8	SW	SE	SE	Outcrop	1		680	
11	NE	NE	SE	Outcrop	1		670	14
33	NE	SW	NW	Outcrop	1			10
				T. 14 N., R. 4 W.				
4	center NW NW			Outcrop	In Abbott or Caseyville Fm.		670	3½
4	center NW NW			Outcrop	In Abbott or Caseyville Fm.		650	16
4	center NW NW			Outcrop	In Abbott or Caseyville Fm.		640	6
12	NE	SE	SW	Mine	1		590	42
				T. 15 N., R. 1 W.				
4	NW	NW	NW	Coal test	1‡	186	614	50
4	NW	NW	NW	Mine	1‡	210	602	42
4	NW	NW	NW	Mine	1	206	606	44
5	NE	NE	SE	Coal test	1	177	613	39
5	NE	NW	NW	Coal test		196		No coal
6	SE	SW	SE	Coal test	1	218	582	42
8	center NE¼			Coal test	1	126	624	26
16	SW	SW	SE	Mine	1	21	646	42
					Caseyville Fm.?	112	555	30
17	SW	SE	SE	Mine	1	56	606	47
20	NE	SE	NE	Outcrop	1		667	24
20	NW	NE	NE	Mine	1		662	24–36
21	NW	NW	SW	Outcrop	1		680	36+
21	NE	NE	NW	Coal test	1		680	42
21	NE	NE	NW	Coal test	In Abbott or Caseyville Fm.		590	30
32	center NE NE			Mine	1			25–30
34	SW	NW	SE	Outcrop	1		660	
				T. 15 N., R. 2 W.				
22	SE	SW	SW	Coal test	1	135	653	24
22	SE	NE	SE	Coal test	1	162	631	48
22	SW	SE	SE	Coal test	1	103	682	26
22	NE	SW	SE	Coal test	1	192	598	44
22	NW	SW	SE	Coal test	1	210	596	36
23	SE	SW	SW	Coal test	1	128	656	43
23	NE	SE	SW	Coal test	1	95	622	46
23	SW	SW	SW	Coal test	1	124	666	44
23	NE	NW	SW	Coal test	1	166	630	42
23	NW	NW	SW	Coal test	1	147	653	24
23	SW	SE	NW	Coal test	1	187	613	45
23	NE	SW	NW	Coal test	1	176	628	24
23	SE	SE	NW	Coal test		208		No coal
23	NW	SE	NW	Coal test		200		No coal
23	SW	NE	NW	Coal test		194		No coal
23	NE	NW	NW	Coal test		214		No coal
26	NW	NE	SW	Coal test	‡	125		No coal
26	SW	NE	SW	Coal test		130		No coal
26	NE	SE	NW	Coal test	1	81	659	51
26	NE	SW	NW	Coal test	1	86	634	44

TABLE A - Continued

Sec.	¼	¼	¼	Type of record	Name or number of coal	Depth (ft)	Elevation (ft)	Thickness (in.)
				MERCER COUNTY				
				T. 15 N., R. 2 W. (Cont.)				
26	NE	NE	NW	Coal test	1	94	661	39
26	NE	NE	SW	Coal test	1	178	552	51
26	NE	NE	SW	Coal test	1‡	136	604	20
26	NW	NE	SW	Coal test	1	103	627	48
26	SE	SE	SW	Mine	1	35	625	48
26	SW	SE	SW	Outcrop	1	35	615	48
26	NW	NE	NE	Mine	1		600	36
27	NW	NW	SE	Coal test	1	66	654	24
27	NW	NE	SE	Coal test	In Spoon Fm.	67	698	24
					1	101	664	18
27	NW	NE	SE	Coal test	1	75	669	51
27	SE	SE	SW	Coal test	1	43	647	30
27	center SE¼	SL	SW¼	Coal test	1	46	657	24
27	SE	SE	SW	Coal test	1?	96		7
27	NE	SW	SE	Coal test	1	90	605	48
27	SW	SE	SE	Mine	1	65	635	54
27	NE	SW	SE	Mine	1	90	605	48
33	SE	SE	NW	Coal test	1	27		38
33	SE	SE	NW	Coal test	1‡	20		32
33	SE	SE	NW	Coal test	1‡	21	649	34
33	NW	SE	NE	Mine	1	40	660	
34	SW	SE	NE	Coal test	1		600	50
34	SW	NE	NE	Coal test	1		632	56
34	NE	SE	NE	Coal test	1		620	44
34	NW	SW	NE	Coal test	1		595	43
34	NW	NE	SW	Coal test	1		615	32
34	NW	NE	SW	Coal test	1‡		605	28
34	SE	NW	NE	Coal test	1‡		610	44
34	SE	SE	SE	Coal test	1		620	57
34	NE	SE	SE	Coal test	1		625	46
34	NW	SE	SE	Coal test	1‡	26	634	44
34	NW	SE	NE	Coal test	1‡	49	621	50
34	NE	NW	NE	Coal test	2?‡	50	670	16
					1‡	89	625	56
34	NW	SW	NE	Coal test	1‡	86	614	43
34	NW	NE	SW	Coal test	1‡	69	610	32
34	NE	NE	SW	Coal test	1	35	615	28
34	SW	NW	NE	Coal test	In Abbott Fm.‡	75	644	18
					1‡	103	617	44
34	SE	SE	SE	Coal test	1‡	45	625	57
34	NE	SE	SE	Coal test	1‡	16	634	36
34	SE	NW	SW	Coal test		58		No coal
34	SE	SE	SW	Coal test		38		No coal
34	center SE	SE		Coal test	1	26	634	44
34	SE	SE	NW	Mine	1‡	30	630	43
34	NW	SE	NE	Coal test	1‡	33		33
35	SW	NW	SE	Coal test	1	36	630	3
35	NW	SE	SW	Coal test	1‡	34	621	48
35	SW	SE	SW	Coal test	1	35	635	44
35	SW	SE	SW	Coal test	‡	17		No coal
35	SE	SE	SW	Coal test	‡	39	606	2
35	NE	SE	SW	Coal test	‡			No coal
35	SW	SE	SW	Coal test	1‡	37	598	14
35	NW	SE	SW	Coal test	1	34	626	48
35	SW	SE	SW	Coal test	1‡	35	595	44
35	center SE	SW		Coal test	1	35	595	29
35	NE	SE	SW	Mine	1‡	45	606	44
35	NE	SW	NW	Mine	1‡	40	600	
				T. 15 N., R. 3 W.				
19	center WL			Outcrop	1		670	48+
				T. 15 N., R. 4 W.				
23	SE	SW	NE	Outcrop	1?		657	24
23	NW	SE	SE	Mine	1?		652	
24	NW	SE	SW	Outcrop	1		672	30
24	SE	SE	NE	Outcrop	1‡		673	
24	NW	NE	SE	Outcrop	1		673	24
27	NE	NW	SE	Outcrop	1		650	20
					Pope Creek		648	15
28	center SE¼	S½		Mine	1‡		650	20–28
28	NW	SE	SE	Mine	1	60	650	48
34	SW	NW	SW	Outcrop	1?		660	28
				ROCK ISLAND COUNTY				
				T. 16 N., R. 1 W.				
1	NE	SE	SE	Coal test	1	58	657	4
1	SE	NE	SW	Mine	1‡	80	600	44–48
1	NW	NE	SE	Mine	1	140	560	48
1	SE	SW	NE	Coal test	1	95	619	41
1	NW	NW	NW	Coal test	1	137	593	18
1	NW	NW	NW	Coal test	In Abbott Fm.	144	586	19

Sec.	¼	¼	¼	Type of record	Name or number of coal	Depth (ft)	Elevation (ft)	Thickness (in.)
				ROCK ISLAND COUNTY				
				T. 16 N., R. 1 W. (Cont.)				
3	NE	NW	NE	Mine	In Spoon Fm.	30	697	24
3	NE	NW	NE	Mine shaft	In Spoon Fm.	60	667	32
3	NE	NW	NE	Mine shaft	1	96	634	42
4	NW	NE	NE	Outcrop	1		680	36
				T. 16 N., R. 3 W.				
4	NW	NW	SW	Outcrop	1		740	12
				T. 16 N., R. 4 W.				
6	NW	NE	SW	Outcrop	In Caseyville Fm.		605	24
10	NE	NE	NW	Coal test	1	67	705	12
16	center NE	SE		Coal test	In Abbott or Caseyville Fm.	79	589	30
16	NW	NE	SE	Coal test	In Abbott or Caseyville Fm.	126	554	21
					In Abbott or Caseyville Fm.	194	496	22
16	center NE	SE		Coal test	In Abbott or Caseyville Fm.	72	596	20
					In Abbott or Caseyville Fm.	113	557	10
21	NE	NE	SE	Outcrop	1		654	18
21	NE	NW	NW	Coal test	In Abbott or Caseyville Fm.	53	587	18
22	SW	NW	SW	Coal test	1?	67	603	14
					In Abbott or Caseyville Fm.	131	539	24
22	SW	NW	SW	Coal test	1	22	629	12
22	SW	NW	SW	Coal test	In Abbott or Caseyville Fm.	65	566	16
22	SW	NW	SW	Coal test	In Abbott or Caseyville Fm.	137	514	22
27	NW	SW	SW	Coal test	1	44	650	6
					In Abbott or Caseyville Fm.†	63	631	18
					In Abbott or Caseyville Fm.†	168	526	38
					In Abbott or Caseyville Fm.‡	185	509	19
27	SW	SW	SE	Coal test	In Spoon Fm.‡	16	727	18
					1	77	666	9
					In Abbott or Caseyville Fm.‡	201	542	21
27	SW	SW	SW	Coal test	1	102	622	6
					In Abbott or Caseyville Fm.†	121	603	25
					In Caseyville Fm.‡	235	489	18
27	SE	SE	SE	Coal test	1	104	646	6
27	SW	SE	NW	Outcrop	In Spoon Fm.		710	14
28	NW	NW	NE	Coal test	In Spoon Fm.	60	689	18
					1	91	652	8
					In Abbott or Caseyville Fm.†	131	612	5
					In Abbott or Caseyville Fm.	151	592	25
28	NW	NW	SE	Coal test	1	73	655	11
					In Abbott or Caseyville Fm.	83	645	26
					In Caseyville Fm.	179	549	29
28	SE	SW	SE	Coal test	1	90	650	8
					In Caseyville Fm.	171	569	19
29	center SE	NW		Coal test	1	87	620	7
34	SE	NW	NE	Coal test	1	110	646	14
					In Caseyville Fm.	178	578	18
				T. 16 N., R. 5 W.				
3	center E½			Outcrop	In Caseyville Fm.		680	4–10
					In Caseyville Fm.		675	9
					In Caseyville Fm.		610	3
					In Caseyville Fm.		585	11
7	center NL			Outcrop	In Caseyville Fm.		560	24
7	NW	NE	SW	Outcrop	In Caseyville Fm.		590	4½
				T. 17 N., R. 1 W.				
12	SE	SE	NE	Mine	1	54	642	42–48
24	SW	SE	NW	Outcrop	1		620	38
25	NW	NW	SW	Mine	1	89	626	54
25	SW	SW	SW	Mine	1	80	640	72
25	SW	NE	NE	Mine	1	40	610	48
25	E½			Outcrop	1			30
25	NW	SE	NE	Outcrop	1		610	7
28	SE	SE	NW	Mine	1‡	60	600	48
28	NE	SE	NW	Mine	1	56	571	48

TABLE A - Continued

Sec.	¼	¼	¼	Type of record	Name or number of coal	Depth (ft)	Elevation (ft)	Thickness (in.)
ROCK ISLAND COUNTY								
T. 17 N., R. 1 W. (Cont.)								
28	NE	NE	SW	Outcrop	1			30
31	NW	NE	SW	Outcrop	In Caseyville Fm.		610	18
33	SW	NE	NE	Outcrop	1			36
33	SE	NW	NE	Mine	In Spoon Fm.	16	684	48
33	SE	NW	NE	Mine shaft	In Spoon Fm.	20	680	32–36
33	SE	NW	NE	Mine shaft	1	64	630	48
34	SE	SW	SE	Coal test	In Spoon Fm.‡	77	650	28
					1	102	625	52
34	NE	SW	SE	Coal test	In Spoon Fm.‡	62	658	29
					1	81	639	54
34	SW	SW	SE	Coal test	In Spoon Fm.‡	88	640	20
					1	115	615	51
34	SE	SE	SW	Coal test	In Spoon Fm.‡	61	667	20
					1	77	653	52
34	SE	SW	SW	Coal test	In Spoon Fm.‡	38	692	30
					1	55	675	4
34	SW	NE	SW	Coal test	In Spoon Fm.‡	44	656	14
34	SW	NE	SW	Coal test	1‡	69	641	42
34	SE	SE	NE	Mine	1	87	633	44
36	NE	SW	SE	Mine	1	64	656	48
T. 17 N., R. 2 W.								
14	NE	NW	SE	Outcrop	In Caseyville Fm.			12
T. 17 N., R. 3 W.								
28	E side SE¼			Outcrop	In Caseyville Fm.		640	10
				Outcrop	In Caseyville Fm.		630	16
				Outcrop	In Caseyville Fm.		580	6
29	NE	NW	SE	Outcrop	In Caseyville Fm.		680	12
32	NW	SE	SE	Outcrop	In Abbott or Caseyville Fm.			18
33	SE	SE	SE	Mine	In Caseyville Fm.		650	30
T. 17 N., R. 4 W.								
34	NE	NE	SW	Coal test	In Caseyville Fm.		532	4
36	SE	NE	NE	Outcrop	1		660	30
					Pope Creek		625	24
HENRY COUNTY								
T. 14 N., R. 1 E.								
11	center NW SE			Mine	1	157	600	52
30	SE	NE	SW	Coal test	2	98	718	18
					In Spoon Fm.	192	624	12
					1	218	582	61
30	NE	SE	SW	Coal test	2	117	683	20
					In Spoon Fm.	210	606	30
					1	231	569	56
31	SE	SE	NE	Coal test	2	110	680	24
					1	206	584	12
33	SE	NE	NE	Mine	2?	156	646	24
					In Spoon Fm.	235	563	34
					1	260	538	56
T. 15 N., R. 1 E.								
10	NE	SE	SE	Coal test	1	160	580	21
					Pope Creek?	165	575	22
15	SE	NE	NE	Coal test	1?		560	75
28	NE	SE	SE	Mine	1	63	613	56
					Pope Creek?	68	608	44
T. 16 N., R. 1 E.								
2	NW	NE	SW	Coal test	1	129	591	56
2	SW	SE	NW	Coal test	1	128	600	24
2	SW	NW	NW	Coal test	1‡	91	589	52
2	SW	NW	NW	Coal test	1‡	93	607	48
2	SW	SW	NW	Coal test	1‡			49
2	NW	SW	NW	Coal test	1‡	145	575	52
2	NW	SW	NW	Coal test	1‡	128	582	49
2	NE	SW	NW	Coal test	1‡	107	583	55
2	SE	SW	NW	Coal test	1	117	583	55
2	SW	NW	NW	Coal test	1	123	587	47
2	SW	NE	NW	Coal test	1			No coal
2	SE	NW	NW	Coal test	1‡			No coal
2	NE	NW	SW	Coal test	1‡	153	567	48
2	SE	NW	SW	Coal test	1	147	573	47
3	SE	NE	NE	Coal test	1	66	654	44
3	SW	SW	SE	Coal test	1	130	600	36
3	NE	NW	SE	Mine	In Spoon Fm.?	35	705	26
					In Spoon Fm.	94	646	14
					1	154	585	36
6	SW	NW	SW	Coal test	1	113	615	59
6	NW	SE	SW	Mine	1	140	580	56

Sec.	¼	¼	¼	Type of record	Name or number of coal	Depth (ft)	Elevation (ft)	Thickness (in.)
HENRY COUNTY								
T. 16 N., R. 1 E. (Cont.)								
6	SW	NW	NW	Coal test	1	89	645	12
6	NW	SE	SE	Coal test	1?	221	511	36
7	NE	NE	NE	Coal test	1	95	625	45
7	NE	NW	SE	Coal test	1	52	640	27
7	SE	SE	NE	Coal test		132	558	No coal
7	NW	NE	SW	Coal test		180	513	No coal
T. 16 N., R. 2 E.								
3	NW	SE	NW	Outcrop	2			22
T. 17 N., R. 1 E.								
4	SE	NW	NW	Mine	1		630	44
8	NW	SE	SW	Mine	1			46
8	SW	SE	NE	Mine	1	70	605	44
9	NE	NE	SW	Outcrop	1			12
9	SE	NW	SW	Outcrop	1		580	21
19	NW	NE	SE	Mine	1	120	560	56
19	SW	SW	NE	Mine	1	30	650	48
19	SE	NW	SE	Mine	1	40	660	42
19	NE	NW	SW	Outcrop	1		640	42
20	NE	SE	NE		1			41
21	NW	SW	NW		1			41
21	NW	NE	NE	Outcrop	1		620	48
21	NW	SE	SW	Mine	1			42
21	SE	NW	NW	Mine	1	81	519	50
22	SE	SW	NW	Outcrop	1		660	36
22	SE	SW	NW	Mine	1		650	
23	SE	NW	NE	Outcrop	1		615	3
24	NE	NE	SE	Outcrop	1		660	42–48
27	NE	SW	SW	Mine	1	33	601	42
30	NE	SW	NW	Outcrop	1?		620	36
30	SE	SW	SE	Outcrop	1			5
30	NW	SW	SE	Outcrop	1			19
32	SE	NW	SE	Mine	1	140	560	54
34	NW	SW	NW	Outcrop	1		630	45
T. 17 N., R. 2 E.								
15	NE	SE	SE	Coal test	1	23	614	35
21	NW	SW	SE	Mine	1	40	640	40
21	SE	SW	SW	Outcrop	1		630	20
22	NE	NE	NE	Coal test	1?	37	616	15
22	SW	NE	NE	Coal test	1	52	593	28
23	SE	SW	NW	Coal test	1	80	580	8
23	NW	NW	NW	Coal test	1	30	620	36
27	NW	SE	SW	Outcrop	2			
28	SW	NW	NE	Mine	1	26	604	48
28	NE	NW	NW	Outcrop	1		630	36
28	SE	NE	SW	Mine	1	40	603	36
28	NE	NE	NW	Mine	1	37	590	48
T. 18 N., R. 1 E.								
15	SW	SE	SW	Mine	1		580–590	42
16	NW	NE	SE	Mine	1			42
16	SW	SW	SW	Mine	1	68	580	48
33	SW	SW	SW	Outcrop	1		610	43
T. 18 N., R. 2 E.								
24	SW	SE	NE	Outcrop	1		600	48

The following table lists coal data as reported in the drillers' logs of selected water wells. Coal thickness information reported in drillers' logs is not included in the table because such reported thicknesses are often unreliable and they have not been used in this study as a basis for estimating coal reserves. In otherwise unexplored areas, data from water wells, relating to depths at which coal was encountered, is useful in suggesting areas where additional coal exploration may be warranted.

TABLE B – DATA FROM SELECTED WATER WELLS

Sec.	¼ ¼ ¼	Elevation of surface (ft)	Total depth (ft)	Depths at which coal was reported by drillers (ft)
		WARREN COUNTY		
		T. 8 N., R. 1 W.		
11	NE SW	645	132	75; 80
14	SE SW NE	600	16	9; 13
14	SW NE NE	635	554	20; 60
33	NW SE SW	688	98	69
		T. 8 N., R. 2 W.		
7	NW NW SE	720		36
27	NE SW NE	712	142	120
31	SW SE	773	240	90
		T. 8 N., R. 3 W.		
11	SE SW	766		68
14	NW NE NW	765		68
30	NE SE SW	783	91	84
34	SW SE SW	782	280	90
		T. 9 N., R. 1 W.		
27	SW SE SW	665		21
		T. 9 N., R. 2 W.		
3	NW NW NE	710	105	63
6	SW SE SE		80	41
10	NE NW SW	720	161	53; 70
16	SW SW SE	708	162	50
23	SE SE SW	672	12	10
24	SW SE SE	720	25	25
30	SE SE SW	745	46	38
31	NE NE NE	720	163	96
		T. 9 N., R. 3 W.		
4	SW NW NW	713	248	29
5	NE SW NE	705	116	80
7	SE SW SE	731	580	38
16	NE NW NW	743	140	20
23	NE SW SW	760	190	41; 80
25	NW NW NW	742		20
30	SE SE NW	744	163	94
		T. 10 N., R. 1 W.		
16	NW NW SW	730	966	133
17	SW NW NW	760	187	107
22	SW NE NW	720	177	126; 150
25	SE SE NE	700	94	90
25	SE SW NE	710	99	97
		T. 10 N., R. 2 W.		
14	SE SE NE	770	230	90
25	NW SW SW	725	160	80
34	SW SE	715	160	55
		T. 10 N., R. 3 W.		
10	NE NE NE	769	230	130
33	NW NW SW	705	96	55
34	SW SW SW	704	65	26
		T. 11 N., R. 1 W.		
2	SW SE SW	765	130	129
14	SE SE	770	200	135
15	SE NW NW	775	210	139
16	NE SW SW	760	222	76; 106
17	NW NE NW	762	110	100
18	SE SE NE	745	125	100; 125

Sec.	¼ ¼ ¼	Elevation of surface (ft)	Total depth (ft)	Depths at which coal was reported by drillers (ft)
		WARREN COUNTY		
		T. 11 N., R. 1 W. (Cont.)		
22	NE NE NE	764	155	84
23	SW SW SW	760	130	127
24	NE NE NW	750	190	130; 189
26	SW SW SW	745	192	190
27	SE NE SE	740	100	99
31	SW SW NE	765	150–160	30; 130
33	NW NW NW	770	198	134; 196
35	SE NE NE	760	189	132; 187
		T. 11 N., R. 2 W.		
12	SE SW SE	745	130	120
23	NE SE SE	755	206	78
26	NW NW NW	745	1,273	63
29	SW SW SW	769	2,445	95
36	SW NW NE	745	143	25
		T. 12 N., R. 1 W.		
10	NE NW NW	735	150	140
17	NW NE SW	715	120	80; 106
20	SW SE SW	705	141	139
21	NW SW	725	120	117
28	SW NW SW	735	102	99
32	NW NW NW	764	95	85
33	SW SW NW	760		114
34	SE SE NW	762	140	136
35	NE NW SE	758	495	150; 190
35	SW SE	771	124	123
		T. 12 N., R. 2 W.		
2	NE NE SE	725	55	30
21	NE NE SE	725	55	30
		MERCER COUNTY		
		T. 13 N., R. 1 W.		
26	SW NW NW	760	710	103; 112; 165 (?)
26	NW NW NW	730	508	140
		T. 14 N., R. 1 W.		
5	SE NE SE	780	101	100
30	SW NW SW	764	173	164
35	NW NE SE	700+	485	179
		T. 14 N., R. 2 W.		
8	NE SE SW	784		97
23	NW NW SW	777	220	140
34	NE SE NE	716	94	90
		T. 14 N., R. 3 W.		
3	NW NW SW	699	38	35
12	SE SE SE	761	390	97
13	NW SW SW	763	130	74; 88; 104
13	NE SW SW	760	128	78; 88; 106
14	SW SE NE	767	912	112
17	SW SW SE	739	3,114	160
		T. 15 N., R. 1 W.		
4	NW NE SW	790	660	167; 178; 193
5	center SE SW	801	491	153
23	NW SE NW	720	232	96
		ROCK ISLAND COUNTY		
		T. 16 N., R. 1 W.		
4	NW SE NW	727	770	35

TABLE B - Continued

Sec.	¼ ¼ ¼	Elevation of surface (ft)	Total depth (ft)	Depths at which coal was reported by drillers (ft)
		ROCK ISLAND COUNTY		
		T. 16 N., R. 1 W. (Cont.)		
6	NE NW SE	627	660	30
11	NE SW NW	741	780	130
		T. 16 N., R. 3 W.		
36	NE SW SE	790	650	165
		T. 16 N., R. 4 W.		
7	SE SW NW	765	164	114
		T. 17 N., R. 1 W.		
3	SE NW SE	700	503	97
36	NW NE NE	722	293	90
		T. 18 N., R. 1 E.		
15	center NW NE	660	402	95; 209
		T. 18 N., R. 2 E.		
8	NE SW SE	640	150	80
		HENRY COUNTY		
		T. 14 N., R. 1 E.		
5	NE NW NW	770?	462	133
9	SE SE NE	786	603	155
17	SE SW NW	790	520	275

Sec.	¼ ¼ ¼	Elevation of surface (ft)	Total depth (ft)	Depths at which coal was reported by drillers (ft)
		HENRY COUNTY		
		T. 14 N., R. 1 E. (Cont.)		
24	NE NW SW	810	267	128; 192
		T. 14 N., R. 2 E.		
32	NW NE NW	800	473	160
		T. 15 N., R. 1 E.		
8	SW NW NE	740	344	158
10	SW NW NE	695	686	165
12	NW NE NW	745	458	182
20	NE NW SW	660?	395	95
		T. 15 N., R. 2 E.		
10	SE SE SW	790	493	141
17	NW NW NW	782	677	178
		T. 16 N., R. 1 E.		
9	NW SW SW	745	230	130
29	SW SE SE	790	388	200; 235(?)
34	SE SE SE	790	508	183
		T. 16 N., R. 2 E.		
7	SE NE SE	742	441	155
25	NE NW NW	780	465	124; 197
35	NW NW NW	760	472	130
		T. 17 N., R. 1 E.		
22	SE SE SE	680	227	75

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Topographic mapping in cooperation with the United States Geological Survey.