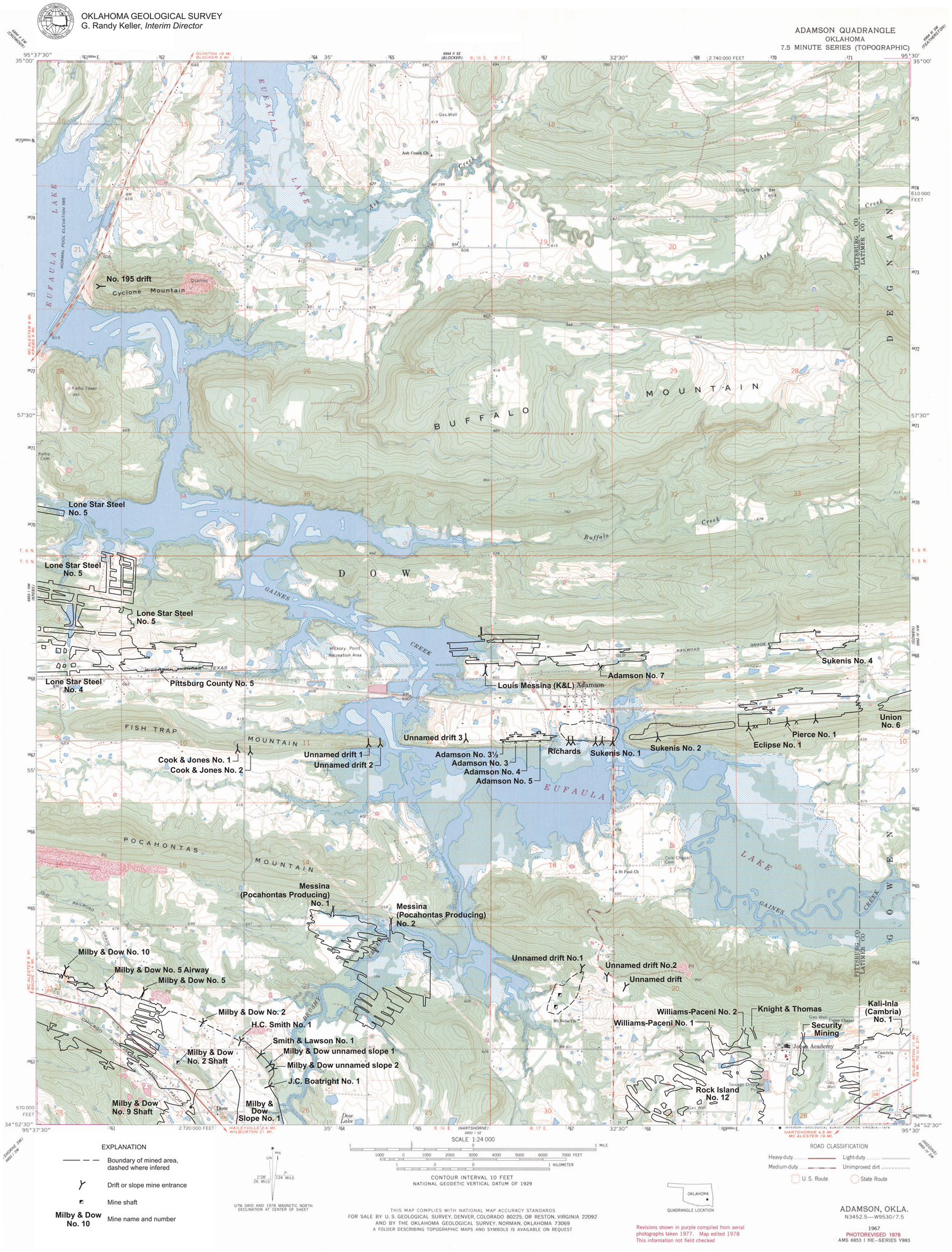
OKLAHOMA GEOLOGICAL SURVEY
G. Randy Keller, *Interim Director*






## TABLE OF ABANDONED UNDERGROUND COAL MINES

| Coal Company [a] | Mine Name or Number [a,b] | Location [d] Section | T. | R. | County | Name of Coal [e] | Depth to Top of Coal (ft) | Thickness of Coal [g] (ft) | Years Operated [h] | Production Reported [h] (tons) | Reported Miners Killed [h] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| n.a. | No. 195 drift | 21 | 6N | 16E | Pittsburg | Secor | 0-50 | 2.7-3.0 | Before 1931 | n.a. | n.a. |
| Lone Star Steel | Carbon No. 5 [c] | 3, 4 | 5N | 16E | Pittsburg | McAlester | 0-1,600 | 3.2 | 1945-1963 | n.a. | n.a. |
| Lone Star Steel | Carbon No. 5 [c] | 33,34 | 6N | 16E | Pittsburg | McAlester | 0-1,600 | 3 | 1945-1963 | 3,153,846 [j] | 5 |
| Pittsburg County | Slope No. 5 | 3 | 5N | 16E | Pittsburg | McAlester | 0-552 | 2.8-3.4 | 1925-33 | 32,868 | n.a. |
| Carbon (Lone Star Steel) | Slope No. 4 | 3, 4 | 5N | 16E | Pittsburg | McAlester | 0-552 | 3.1-3.3 | 1927-1931 | 2,668 | n.a. |
| Sukenis | Slope No.4 | 4 | 5N | 17E | Pittsburg | McAlester | 0-460 | 2.4-2.8 | 1925-1949 | 8,874 | n.a. |
| Adamson (Mullins) | No. 7 | 5,6 | 5N | 17E | Pittsburg | McAlester | 0-404 | 2.3-3.1 | 1927-1941 | 16,642 | 1 |
| Louis Messina (K&L) | Messina Slope | 6 | 5N | 17E | Pittsburg | McAlester | 0-640 | 2.1-2.9 | 1939-1947 | n.a. | n.a. |
| Louis Messina (K&L) | Messina Slope | 1 | 5N | 16E | Pittsburg | McAlester | 0-640 | 2.1-2.9 | 1939-1947 | n.a. | n.a. |
| Adamson (Union) | Slope No. 3 1/2 | 7 | 5N | 17E | Pittsburg | Lower Hartshorne | 0-50 | 4 | 1907-1934 | Escapeway | n.a. |
| Adamson (Union) | Slope No.3 | 7 | 5N | 17E | Pittsburg | Lower Hartshorne | 0-260 | 4 | 1907-1912 | 51,177 | 1 |
| Adamson (Union) | Slope No.4 | 7 | 5N | 17E | Pittsburg | Lower Hartshorne | 0-200 | 4.8 | 1909-11,1931-34 | 125,918 | 14 |
| Adamson (Union) | Slope No. 5 | 7 | 5N | 17E | Pittsburg | Lower Hartshorne | 0-260 | 4 | Before 1933 | Prospect | n.a. |
| Richards | Slope | 7 | 5N | 17E | Pittsburg | Lower Hartshorne | 0-260 | 4 | Before 1933 | n.a. | n.a. |
| Sukenis | Slope No. 1 | 7,8 | 5N | 17E | Pittsburg | Lower Hartshorne | n.a. | 4 | 1929-31 | 14,753 | n.a. |
| Sukenis (Union) | Slope No. 2 | 8 | 5N | 17E | Pittsburg | Lower Hartshorne | n.a. | 4 | 1930-31 | n.a. | n.a. |
| Eclipse | Slope No.1 | 9 | 5N | 17E | Pittsburg | Lower Hartshorne | 0-370 | 4.0-4.5 | Before 1910 | 17,290 | n.a. |
| Pierce | Slope No.1 [j] | 9, 10 | 5N | 17E | Pittsburg | Lower Hartshorne | 0-944 | 3.2-5.1 | Before 1910-31 | 109,328 | 1 |
| Union | Slope No. 6 [k] | 10 | 5N | 17E | Latimer | Lower Hartshorne | 0-462 | 3.5 | Before 1910-30 | n.a. | n.a. |
| n.a. | Unnamed drift1 [m] | 19 | 5N | 17E | Pittsburg | Lower Hartshorne | 0-192 | 4 | Before 1933 | n.a. | n.a. |
| n.a. | Unnamed drift 2 | 19 | 5N | 17E | Pittsburg | Lower Hartshorne | n.a. | 3 | Before 1933 | n.a. | n.a. |
| n.a. | Unnamed drift | 20 | 5N | 17E | Pittsburg | Lower Hartshone | n.a. | 3 | Before 1933 | n.a. | n.a. |
| Rock Island | No. 12 [k] | 20, 28, 29 | 5N | 17E | Pittsburg | Lower Hartshorne | 0-400 | 3.8 | Before 1929-31 | 410,071 | 2 |
| Williams-Paceni | Slope No. 1 | 20 | 5N | 17E | Pittsburg | Lower Hartshone | 0-30 | 5 | 1949-52 | n.a. | n.a. |
| Williams- Paceni | Slope No. 2 | 21 | 5N | 17E | Pittsburg | Lower Hartshorne | 0-30 | 4 | 1949-52 | 9,189 | n.a. |
| Knight & Thomas | Fred Knight Slope | 21 | 5N | 17E | Pittsburg | Lower Hartshorne | 0-30 | 3.8 | 1959-63 | | n.a. |
| Security Mining | Slope | 21, 28 | 5N | 17E | Pittsburg | Lower Hartshorne | 0-200 | 3.7 | n.a.-1940 | n.a. | n.a. |
| Kali-Inla (Cambria) | Slope No. 1 | 22,27 | 5N | 17E | Latimer | Lower Hartshorne | 0-400 | 3.4-4.0 | Before 1907-12 | n.a. | n.a. |
| Kali-Inla (Cambria) | Slope No. 1 | 21, 28 | 5N | 17E | Pittsburg | Lower Hartshorne | 0-400 | 3.4-4.0 | 1930-31;1940-41 | 31,551 | n.a. |
| Cook and Jones | No. 1 drift | 10 | 5N | 16E | Pittsburg | Lower Hartshorne | n.a. | 3 | Before 1933 | n.a. | n.a. |
| Cook and Jones | No. 2 drift | 11 | 5N | 16E | Pittsburg | Lower Hartshorne | n.a. | 3 | Before 1933 | n.a. | n.a. |
| n.a. | Unnamed drift 1 | 12 | 5N | 16E | Pittsburg | Lower Hartshorne | n.a. | 3 | Before 1933 | n.a. | n.a. |
| n.a. | Unnamed drift 2 | 12 | 5N | 16E | Pittsburg | Lower Hartshorne | n.a. | 3 | Before 1933 | n.a. | n.a. |
| n.a. | Unnamed drift 3 | 12 | 5N | 16E | Pittsburg | Lower Hartshorne | n.a. | 4 | Before 1933 | n.a. | n.a. |
| Messina (Pocahontas Producing) | Slope No. 2 | 13, 23, 24 | 5N | 16E | Pittsburg | Lower Hartshorne | 0-793 | 3.9 | 1926-1932 | 65,625 | n.a. |
| Messina (Pocahontas Producing) | Slope No. 1 | 13,14,23,24 | 5N | 16E | Pittsburg | Lower Harshorne | 0-361 | 3.7 | Before 1926 | 36,143 | n.a. |
| Milby & Dow Coal & Mining | Slope No. 10 | 21 | 5N | 16E | Pittsburg | McAlester | 0-531 | 2.9-3.7 | 1929-41 | 5,168 | n.a. |
| Milby & Dow Coal & Mining | Slope No. 5 airway | 21 | 5N | 16E | Pittsburg | McAlester | n.a. | 3 | Before 1907-12 | n.a. | n.a. |
| Milby & Dow Coal & Mining | Slope No. 5 | 22,26,27,28 | 5N | 16E | Pittsburg | McAlester | 0-701 | 2.8 | Before 1907-12 | 86,213 | 4 |
| Milby & Dow Coal & Mining | Slope No. 2 | 22 | 5N | 16E | Pittsburg | McAlester | 0-673 | 3 | Before 1910-12 | n.a. | n.a. |
| H.C. Smith | Slope No. 1 | 22 | 5N | 16E | Pittsburg | McAlester | n.a. | 3 | 1910 | n.a. | n.a. |
| Smith and Lawson | Slope No. 1 | 26 | 5N | 16E | Pittsburg | McAlester | n.a. | 3 | 1910 | n.a. | n.a. |
| Milby & Dow Coal & Mining | unnamed slope 1 | 26 | 5N | 16E | Pittsburg | McAlester | n.a. | 3 | 1910 | n.a. | n.a. |
| Milby & Dow Coal & Mining | unnamed slope 2 | 26 | 5N | 16E | Pittsburg | McAlester | n.a. | 3 | 1910 | n.a. | n.a. |
| J.C. Boatright | Slope No. 1 | 26 | 5N | 16E | Pittsburg | McAlester | n.a. | 3 | 1910-12 | n.a. | n.a. |
| Milby & Dow Coal & Mining | No. 2 shaft | 22, 27 | 5N | 16E | Pittsburg | McAlester | 392 | 3 | 1907-1912 | 171,717 | 3 |
| Milby & Dow Coal & Mining | Slope No. 1 [k] | 26, 27 | 5N | 16E | Pittsburg | McAlester | 0-305 | 3 | Before 1907 | n.a. | n.a. |
| Milby & Dow Coal & Mining | No. 9 shaft [k] | 27 | 5N | 16E | Pittsburg | McAlester | 388 | 3 | Before 1910-12; 1929,idle; 1930-31 | 78,558 | 1 |

### FOOTNOTES

**a** Original name of company is noted first; subsequent and concurrent names of company are in (parentheses).

**b** Mine name or number is from Oklahoma Department of Mines (and predecessors) Annual Reports (1909-1912; 1930-1931), U.S. Geological Survey (USGS) Bulletin 874-A, plate 7 (1937), and blueprint mine maps on file at the Oklahoma Department of Mines (ODOM).

**c** Part of mine is located on an adjacent 7.5-minute quadrangle map, and most of this mine's production was from that quadrangle.

**d** Mine location is from same sources as noted in footnote b (above) and in the Adamson, Oklahoma 7.5-minute topographic quadrangle map of the USGS, 1967, photo-revised 1978.

**e** Name of coal bed as used in Oklahoma Geological Survey Special Publication 74-2 (1974). Coal bed names are those assigned for each mine by the engineer who made the blueprint map for the mining company, by USGS Bulletin 874-A, plate 7, or by the present author if there was a conflict, or if no name was shown on the cited references.

**f** Depth to the top of coal in slope mines is shown in feet from the surface to the maximum depth in the mine, e.g., 0-300. A single depth is listed if the mined coal was brought to the surface through a shaft. The term shaft is reserved for a vertical shaft. Although some depths are taken from the blueprint mine maps or from USGS Bulletin 874-A, plate 7, most were determined for slope mines by the present author applying trigonometric functions, following determination of the dip of the coal bed. All slope mines were driven into the coal bed at the outcrop . Therefore they are drift mines. Most are called slopes on the blueprint maps and on plate 7.

**g** Thickness of coal beds was determined from field measurements, from blueprint mine maps, from USGS Bulletin 874-A, plate 7, or from proprietary records of coal-test boreholes.

**h** Years operated, reported production, and number of miners killed represent incomplete records from references cited in footnotes a-f. Data from reports of the ODOM for 1913-1929 were not available for use on this map. These records also were not available for any period that mines were active before Oklahoma became a state in 1907.

**j** Coal pillars have been "pulled" (mined) from a large part of the eastern one-half of this mine as of 1930-31.

**k** The shaft and/or slope to this mine is located on the adjacent 7.5' quadrangle, and most of the production was from this adjacent quadrangle.

**m** This unnamed open drift mine entry was mapped in the field in 1989 by the present author, who observed a stream of water flowing into it.

**n. a.** Data not available.

### DISCUSSION

***Topographic base map***

Areas of and entries to abandoned, underground coal mines have been plotted on the U. S. Geological Survey topographic map of the Adamson 7.5' Quandrangle, because the user can see section, township, and range boundaries, and ground features such as streams (creeks), valleys, hills, county roads, highways, houses, barns and other man-made structures in relation to the location of the mines. This 1967 topographic map was photo revised in 1978 and serves as the base map.

***Terminology and methods***

"Abandoned" is a term commonly used to indicate mines that are not in the business of producing coal, because they have been closed down and sealed or not sealed. "Abandoned" is not meant to imply that a mine's operators just walked away from the mine. A mine may become abandoned because of various engineering, geological, economic, or labor conditions, among others. State or federal mine inspectors may have ordered a mine to be closed down.

At first glance, the reader may think that the entire area within the mine boundaries represents underground voids. But this is not a fact. An examination of the areas within the mine boundaries will reveal small odd-shaped or rectangular-shaped areas; these depict most of the solid coal pillars and barriers large enough to be shown on the base map. Most pillars and barriers are not shown. Most of the mines shown on the map were mined by the room-and-pillar method. A room, say 60 ft long by 40 ft wide, is where coal was removed by pick or machine mining. Some rooms are larger. A pillar is the solid coal bed, forming the ribs or faces of the sides of the rooms; pillars may be smaller than, or similar in size, to the rooms. Rooms are connected to each other so that miners, equipment, and mined coal could move or be moved freely in the mine, up to the land surface. Once a segment of a mine had been mined by this method, fresh air and travel routes commonly were altered by the addition of burlap curtains, brick, wood, or concrete walls thus sealing off groups of rooms. In many areas the "roof" strata have fallen into the rooms. Mining techniques were affected or controlled by geology, e.g., the type of rock overlying the coal bed was called roof rock by the miners, and rock underlying the coal bed, the floor. If the roof rock were non-cohesive, the miners dug smaller rooms, leaving large pillars that helped to support the roof rock and thus leaving more coal in the ground.

Geologists refer to coal reserves remaining in pillars, barriers, or larger areas in underground mines as "lost-in-mining". In areas where these mines are within 60 ft of the land surface, some of these unmined pillars, barriers, and larger areas were mined later by surface methods. In the McAlester mining region commonly only 40% of the coal was removed by mining at any of the underground mines (Trumbull, 1957). Thus 60% of the solid coal bed still is present in most cases within the peripheral boundaries of the coal mines shown on this quadrangle map. The remaining "lost-in-mining" coal is present in the form of standard pillars and barriers, and also in some places that are much larger than these pillars and barriers.

***Map scale and mine symbols***

The fragile old, blueprint mine maps, which are on file at the Oklahoma Department of Mines (ODOM), were reduced from their large scale of one inch equals 100 ft to the present topographic quadrangle map scale of one inch equals 2,000 ft. The peripheral boundary lines of the mines represent the maximum extent of the mined areas. The square shaft symbols indicate vertical shafts; the Y-shaped symbols represent drift (slope) entries. All named slope mines in the quadrangle area were driven into the outcrop of the coal beds and are thus drift mines. Later, as these mines were made deeper, shafts (or additional slopes) were dug from the surface into them to facilitate movement of men, supplies, and coal production. Furthermore state mine inspectors often ordered mine operators to construct additional shafts or slopes in mines that were still active to increase fresh air flow and for access of emergency equipment and men, or for an escapeway for the miners. Thus, you will see multiple drift-entry symbols for most of the mines shown on this map. On the other hand a few drift entries are shown that are separate from any boundaries of underground mines, because evidence is lacking to show the extent of mining.

***Land subsidence, a potential geologic hazard***

The thickness of the Lower Hartshorne coal (see Oklahoma Geological Survey SP-74-2, 1974) is 3 to 5 ft, averaging 4 ft in the area where it has been mined in the Adamson Quadrangle. If the roof shale collapsed into a mine room or haulage passageway that was about 50 ft or less below the land surface, a geologic hazard of subsidence of the land surface of up to four ft may exist. No subsidence may occur if the rock strata above the coal bed are sufficiently strong or rigid and/or if the coal bed is deep enough. The deeper the mine, the less the geologic hazard of the overlying land surface to subside due to a roof fall in the mine. Roof support timbers and steel roof supports also were installed in many areas of these mines. Nevertheless, in the professional opinion of the present author, for reasons concerning maximum public safety, certified geologists, or registered architects, or coal-mining engineers should be consulted before any structures are built above abandoned underground mines, especially in places where mines are less than 200 ft deep.

***Sources of data***

The Table of abandoned coal mines lists maximum depths to the top of the coal mined at the bottom of mine shafts, slopes, or drifts. The source of this depth data is varied, but all of it has been modified by the present writer. Some data were taken from geological publications noted in this text and cited in the Selected Bibliography and/or in the Footnotes. Some data are from blueprint mine maps and some from annual reports of the Oklahoma State mine inspectors. Many coal-bed depths have been mathematically calculated by the present author using dip measurements. A few depths were extrapolated from drillers' logs of proprietary boreholes located adjacent to a few of the mines. Depths of many small mines could not be determined and are unknown; therefore they are recorded on the table as n.a. (not available).

### Selected Bibliography

Friedman, S. A., 1974, Investigation of the coal reserves in the Ozarks Section of Oklahoma and their potential uses: Oklahoma Geological Survey Special Publication 74-2, 117 p., 24 figs., 77 tables [Fifth printing, 1981].

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Keenan, C.M., 1963, Historical documentation of major coal-mine disasters in the United States not classified as explosions of gas or dust: 1846-1962: United States Bureau of Mines Bulletin 616, p.42.

Oklahoma Department of Mines, Annual reports of the Chief Mine Inspector 1909-1912, 1929-1964.

Trumbull, J.V.A., 1957, Coal resources of Oklahoma: United States Geological Survey Bulletin 1042-J, p.367.

***DISCLAIMER***

The present author has not shown every "dog hole" dug into a coal outcrop, although many may exist that are filled in or otherwise covered. Some may be an open hazard. He has depicted to the best of his ability and knowledge the boundary of every large, abandoned underground coal mine, shown on blueprint maps that were available from the Oklahoma Department of Mines. Furthermore, the accuracy of the lines and boundaries and other data on the blueprint mine maps depends in part on the accuracy of the surveyor or engineer who had access to the mines and who mapped the extent and location of the coal mines before they were closed, abandoned, or sealed. Although the present author cannot swear to their total accuracy today, he assumed that these maps are accurate enough and worth plotting on the Adamson 7.5' topographic Quadrangle Map to provide the public with valuable information on the depth and distribution of these underground mines.

# MAP SHOWING THE DISTRIBUTION OF UNDERGROUND MINES IN THE LOWER HARTSHORNE AND McALESTER COALS IN THE ADAMSON 7.5' QUADRANGLE, PITTSBURG AND LATIMER COUNTIES, OKLAHOMA

By
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