

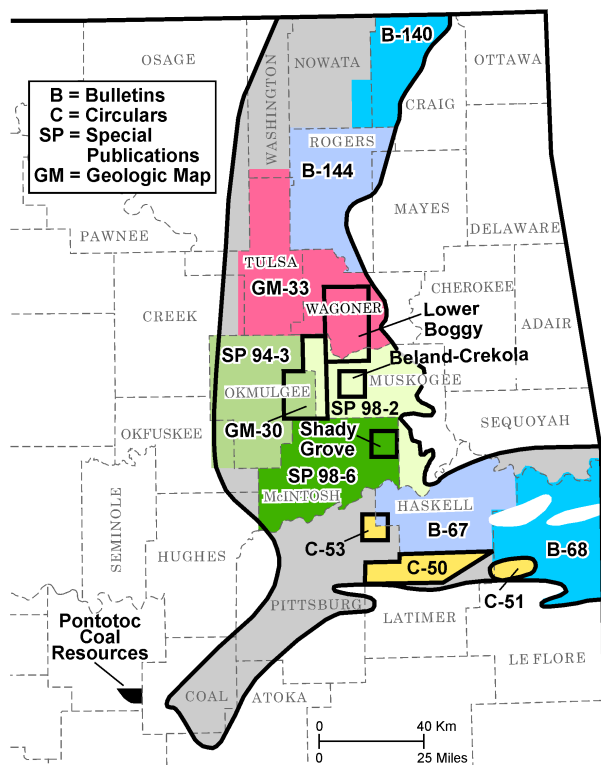


AVAILABLE COAL REPORTS AND MAPS

May 2019

Purpose

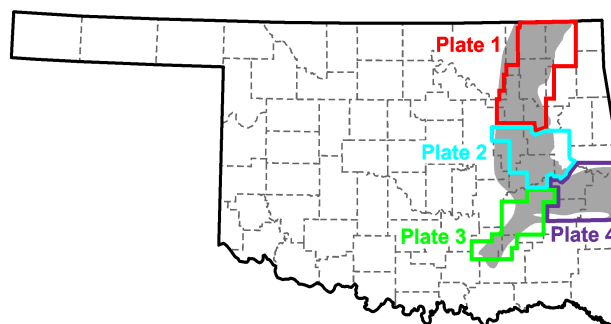
This informal flyer is intended to assist the public in selecting published Oklahoma coal information, especially maps. Recently, topics in greatest demand are coal resources, coal structure, coal-bed methane, and abandoned mine maps. Other topics are coal stratigraphy, coal rank (maturity), coal petrography, chemical analyses of coal, water chemistry of coal-mine ponds, and bibliography of abandoned coal-mine lands. This is not a bibliography of everything on coal that was ever published. Very old maps and reports by the U.S. Geological Survey, although out-of print, may be available in the Youngblood Library on the second floor of Sarkeys Energy Center. Refer to the bibliographies on Oklahoma coal on the OGS website (www.ou.edu/content/ogs/research/energy/coal.html)



Map of eastern Oklahoma showing areas included in the publications list.

Introduction to the Coalfield

Identified coal resources are present in an area of approximately 8,000 square miles in 20 counties in eastern Oklahoma. The area is within the southern part of the Western Region of the Interior Coal Province of the United States. The coal beds are of Middle and Late Pennsylvanian age, 0.8-10 ft thick, 0.4-6.5% in sulfur content, coking or non-coking, contain 11,400-15,000 Btu/lb, and are low (2-7%) in inherent moisture. Oklahoma contains the most significant deposits of bituminous coal between the Mississippi River and the Rocky Mountains. Although the McClellan-Kerr Arkansas River Navigation System is available for barging coal to international ports, most coal production is shipped by truck or rail. As of January 1, 1994, 8.1 billion short tons of remaining coal resources have been identified; 76% are in the Arkoma Basin and 24% are in the northeast Oklahoma shelf area. About 41% of the State's coal resources are low- and medium-volatile bituminous in rank and are present in the Arkoma Basin. Four mining companies produced 639,543 short tons of Oklahoma coal at five mines in four counties in 2018. About 0.4 million short tons of Oklahoma bituminous coal was used by one non-utility electric power plant in Oklahoma. The coal also was used in lime and cement kilns in the State during 2018.



Map of Oklahoma showing location of coalfield and the four plates of Geologic Map GM-23.

Selected Publications

Coal Resources

- Special Publication 74-2.-An investigation of the coal reserves in the Ozarks section of Oklahoma and their potential uses**, by S. A. Friedman. Final report to the Ozarks Regional Commission: distributed by permission of the Commission. 117 pages, 24 figures, 77 tables. 1974.
- Bulletin 67.-Geology and mineral resources of Haskell County, Oklahoma**, by M. C. Oakes and M. M. Knechtel. 134 pages, 8 figures, 6 plates. 1948.
- Bulletin 68.-Geology and coal and natural gas resources of northern Le Flore County, Oklahoma**, by M. M. Knechtel. 76 pages, 1 figure, 7 plates, 3 tables. 1949.
- Bulletin 140.-Coal geology of Craig County and eastern Nowata County, Oklahoma**, by LeRoy A. Hemish. 131 pages, 17 figures, 8 plates, 2 tables. 1986.
- Bulletin 144.-Coal geology of Rogers County and western Mayes County, Oklahoma**, by LeRoy A. Hemish. 118 pages, 12 figures, 8 plates, 2 tables. 1989.
- Map GM-33.-Coal geology of Tulsa, Wagoner, Creek, and Washington Counties, Oklahoma**, by LeRoy A. Hemish. 3 sheets (plates 1-5), scale 1:63,360 (shows mined areas in gray), accompanying text. 1990.
- Special Publication 94-3.-Coal geology of Okmulgee County and eastern Okfuskee County, Oklahoma**, by LeRoy A. Hemish (with an underground coal mine map by Samuel A. Friedman). 86 pages, 9 figures, 8 plates, 2 tables. 1994.
- Special Publication 98-2.-Coal geology of Muskogee County, Oklahoma**, by LeRoy A. Hemish. 111 pages, 7 figures, 3 plates, 2 tables. 1998.
- Special Publication 98-6.-Coal geology of McIntosh County, Oklahoma**, by LeRoy A. Hemish. 74 pages, 8 figures, 2 color plates, 2 tables. 1998.
- Map GM-23.-Map showing potentially strippable coal beds in eastern Oklahoma**, by Samuel A. Friedman. 4 color sheets (plates 1-4), scale 1:125,000 (shows mined areas in gray). Prepared in cooperation with Oklahoma Department of Mines. 1982.
- Map GM-24.-Map of eastern Oklahoma showing locations of active coal mines, 1977-79**, compiled by Samuel A. Friedman. Includes tabulation of coal mines and coal data. Scale 1:500,000. 1982.
- Coal resources in southeastern Pontotoc County, Oklahoma**, by LeRoy A. Hemish. *Oklahoma Geology Notes*, vol. 46, no.1, p. 4-23, 1986.
- Oklahoma, in Coal geology and description of U.S. coal fields**, by Samuel A. Friedman. 2010 Keystone Coal Industry Manual, p. 516-522. Reprinted with permission of Mining Media, Jacksonville, FL.
- Available from:* Oklahoma Geological Survey.

Coalbed Methane Resources

- Special Publication 82-3.-Determination of reserves of methane from coal beds for use in rural communities in eastern Oklahoma**, by Samuel A. Friedman. 32 pages, 7 figures, 2 tables. 1982.
- Special Publication 98-7.-The Hartshorne play in southeastern Oklahoma: regional and detailed sandstone reservoir analysis and coalbed-methane resources**, by Richard D. Andrews, Brian J. Cardott, and Taylor Storm. 90 pages, 53 figures, 6 color plates, 14 tables. 1998.
- Special Publication 2002-2.-Surface to subsurface correlation of methane-producing coal beds, northeast Oklahoma shelf**, by LeRoy A. Hemish. 22 pages, 20 figures, 6 plates. 2002.

- Open-File Report 6-99.-Oklahoma coalbed-methane-workshop**, compiled by Brian J. Cardott. 115 pages. 1999.
- Open-File Report 2-2000.-Oklahoma coalbed-methane workshop**, compiled by Brian J. Cardott (supplement to OF 6-99). 81 pages. 2000.
- Open-File Report 2-2001.-Oklahoma coalbed-methane workshop 2001**, compiled by Brian J. Cardott. 151 pages. 2001.
- Open-File Report 9-2002.-Fourth annual Oklahoma-coalbed-methane workshop**, compiled by Brian J. Cardott. 170 pages. 2002.
- Coalbed-methane activity in Oklahoma, 2004 update**, by Brian J. Cardott, in B. J. Cardott (ed.), *Unconventional energy resources in the Southern Mid-Continent*, 2004 symposium: Oklahoma Geological Survey Circular 110, p. 69-81. 2005.
- Issues related to Oklahoma coalbed-methane activity, 1988-2008**, by Brian J. Cardott. *Oklahoma Geology Notes*, vol. 70, p. 4-14, 2010.
- Open-File Report 1-2010.-Coal-bed methane potential of the Mineral coal bed (Senora Formation, Des Moines Series) Okmulgee County, Oklahoma**, by Samuel A. Friedman. 19 pages. 2010.

Coal Rank (Maturity)

- Special Publication 86-4.-The relationship between coal rank and present geothermal gradient in the Arkoma basin, Oklahoma**, by Brian J. Cardott, LeRoy A. Hemish, Charles R. Johnson, and Kenneth V. Luza. 65 pages, 16 figures, 2 plates, 3 tables. 1986.
- Hartshorne coal rank applied to Arkoma Basin coalbed methane activity, Oklahoma, USA**, by Brian J. Cardott. *International Journal of Coal Geology*, vol. 108, p. 35-46, 2013.

Coal Stratigraphy and Structure

- Circular 24.-Broken Arrow coal and associated strata, western Rogers, Wagoner, and southeastern Tulsa Counties, Oklahoma**, by M. C. Oakes. 40 pages, 2 plates. 1944.
- Circular 50.-Geology of northern Latimer County, Oklahoma**, by D. T. Russell. 57 pages, 12 figures, colored geologic map (scale 1½ in. = 1 mi). 1960.
- Circular 51.-Geology of the Cavanal syncline, Le Flore County, Oklahoma**, by P. K. Webb. 65 pages, 1 figure, colored geologic map (scale 1½ in. = 1 mi). 1960.
- Circular 53.-Geology of the Featherston area, Pittsburg County, Oklahoma**, by R. E. Vanderpool. Includes photocopy text and colored map (scale 1½ in. = 1 mi) showing boundary of Secor coal in Ts. 6-8 N., Rs. 17-18 E., in parts of Haskell, Latimer, and Pittsburg Counties, Oklahoma. 1960.
- Special Publication 88-2.-Report of core-drilling by the Oklahoma Geological Survey in Pennsylvanian rocks of the northeastern Oklahoma coal belt, 1983-86**, by LeRoy A. Hemish. 174 pages, 7 figures. 1988.
- Special Publication 90-2.-Lithostratigraphy and core-drilling, upper Atoka Formation through lower Senora Formation (Pennsylvanian), northeastern Oklahoma shelf area**, by LeRoy A. Hemish. 54 pages, 7 figures, 2 plates, 1 appendix. 1990.
- Special Publication 97-2.-Lithologic descriptions of Pennsylvanian strata north and east of Tulsa, Oklahoma**, by LeRoy A. Hemish. 44 pages, 5 figures, 2 plates. 1997.

Map GM-30.-A stratigraphic and structural study of the Eram coal and associated strata in eastern Okmulgee County and western Muskogee County, Oklahoma, by LeRoy A. Hemish, assisted by Kenneth N. Beyma. 1 sheet, scale 1:31,680, accompanying text. 1989.

Guidebook 30.-Stratigraphy and resources of the Krebs Group (Desmoinesian), south-central Arkoma Basin, Oklahoma, by LeRoy A. Hemish and Neil H. Suneson. 83 pages. 1997.

Open-File Report 3-95.-Stratigraphy and sedimentation of some selected Pennsylvanian (Atokan-Desmoinesian) strata in the southeastern part of the Arkoma basin, Oklahoma, by LeRoy A. Hemish, Neil H. Suneson, and James R. Chaplin. Prepared for the Midcontinent Pennsylvanian Stratigraphic Working Group Field Conference held May 20-21, 1995, in southeastern Oklahoma. 107 pages. 1995.

Open-File Report 4-96.-Geology of the Sans Bois syncline along the proposed route of State Highway 82, Haskell and Latimer Counties, Oklahoma, by LeRoy A. Hemish. 1 sheet; scale 1:24,000. 1996.

Open-File Report 7-96.-Map showing the distribution of underground mines in the Hartshorne and McAlester coals in the Hartshorne 7.5' Quadrangle, Pittsburg and Latimer Counties, Oklahoma, by Samuel A. Friedman. 1 sheet; scale 1:24,000. 1996.

Open-File Report 52-2004.-Map showing locations of underground coal mines in eastern Oklahoma, by Samuel A. Friedman. 1 sheet; scale 1:250,000. 2006.

Open-File Report 1-2008.-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 Samuel A. Friedman. 1 sheet; scale 1:24,000. 2008.

Stratigraphy of the lower part of the Boggy Formation (Desmoinesian) in northwestern Muskogee and southwestern Wagoner Counties, Oklahoma, by LeRoy A. Hemish. *Oklahoma Geology Notes*, vol. 46, no. 5, p. 168-187. 1986.

Coalescence of the Secor and Secor rider coal beds in the Shady Grove Creek area, northeastern McIntosh County, Oklahoma, with interpretations concerning depositional environments, by LeRoy A. Hemish. *Oklahoma Geology Notes*, vol. 48, no. 3, p. 100-119. 1988.

The Secor coal and associated strata in the Beland-Crekola area, Muskogee County, Oklahoma, by LeRoy A. Hemish. *Oklahoma Geology Notes*, vol. 50, no. 6, p. 196-217. 1990.

Names of coal beds in the northeastern Oklahoma shelf area, by LeRoy A. Hemish. *Oklahoma Geology Notes*, vol. 47, no. 3, p. 96-113. 1987.

Coal geology of the lower Boggy Formation in the shelf to basin transition area, eastern Oklahoma, by LeRoy A. Hemish, in K. S. Johnson (ed.), *Shelf-to-basin geology and resources of Pennsylvanian strata in the Arkoma basin and frontal Ouachita Mountains of Oklahoma*: Oklahoma Geological Survey Guidebook 25, p. 7-19. 1988.

Correlation of the Lower Witteville coal bed in the Arkoma basin, by LeRoy A. Hemish. *Oklahoma Geology Notes*, vol. 54, no. 1, p. 4-28. 1994.

Principal reference section (neostratotype) for the Savanna Formation, Pittsburg County, Oklahoma, by LeRoy A. Hemish. *Oklahoma Geology Notes*, vol. 55, no. 6, p. 204-243. 1995.

Composite-stratotype for the McAlester Formation (Desmoinesian), Pittsburg County, Oklahoma, by LeRoy A. Hemish. *Oklahoma Geology Notes*, vol. 57, no. 6, p. 200-244. 1997.

Guidebook 37.-Desmoinesian coal deposits in part of the Arkoma basin, eastern Oklahoma, by S. A. Friedman. Oklahoma City Geological Society field trip no. 2 of the 1978 annual meeting of the American Association of Petroleum Geologists, April 8-9, 1978. 62 pages, 24 figures, 2 tables.

Coal Geology of the Interior Coal Province, Western Region, by R. B. Finkelman, S. A. Friedman, and J. R. Hatch (eds.), Guidebook prepared for the Geological Society of America Coal Geology Division annual field trip, 1990. 301 pages.

Order from: R. B. Finkelman, 2600 Redding Dr., Plano, Texas, 75093.

Coal Petrography

Field description and characterization of coals sampled by the Oklahoma Geological Survey, 1971-1976, by Samuel A. Friedman, in R. R. Dutcher, ed., *Field description of coal*: American Society for Testing and Materials STP 661, p. 58-63.

A petrographic survey of high-volatile bituminous Oklahoma coal beds, by Brian J. Cardott. *Oklahoma Geology Notes*, vol. 49, no. 4, p. 112-124. 1989.

Petrology of five principal commercial coal beds of Oklahoma, by Brian J. Cardott, in R. B. Finkelman, S. A. Friedman, and J. R. Hatch (eds.), *Coal Geology of the Interior Coal Province, Western Region*. Guidebook prepared for the Geological Society of America Coal Geology Division annual field trip, 1990, p. 185-199.

Chemical Analyses of Coal

Mineral Report 12.-Carbonizing properties of Henryetta bed coal from Atlas No. 2 Mine, Henryetta, Okmulgee County, Oklahoma (preliminary report), by Joseph D. Davis and D. A. Reynolds. 8 pages, 7 tables. 1941.

Mineral Report 15.-Carbonizing properties of McAlester bed coal from Dow No. 10 mine, Dow, Pittsburg County, Okla. (preliminary report), by Joseph D. Davis and D. A. Reynolds. 10 pages, 7 tables, 1 map. 1942.

Bulletin 51.-A chemical study of Oklahoma coals, by J. E. Moose and V. C. Searle. 112 pages, 1 figure, 7 plates. 1929.

Also see under Coal Resources: 2010 Keystone Manual; OGS Bulletins 67, 68, 140, 144; Geologic Maps 24, 33; and Special Publications 94-3, 98-2, 98-6.

Water Chemistry of Coal-Mine Ponds

Special Publication 87-2.-Physical and chemical characteristics of water in coal-mine ponds, eastern Oklahoma, June to November 1977-81, by Larry J. Slack and Stephen P. Blumer. 116 pages, 159 figures, 6 tables. 1987.

Abandoned Coal-Mine Lands

Special Publication 81-2.-Bibliography of abandoned coal-mine lands in Oklahoma, compiled by K. S. Johnson, C. M. Kidd, and R. C. Butler. 84 pages, 1 figure. 1981.

Map GM-17.-Maps and description of disturbed and reclaimed surface-mined coal lands in eastern Oklahoma, by Kenneth S. Johnson. 3 sheets, scale 1:125,000, accompanying text. 1974.

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