

**KANSAS GEOLOGICAL SURVEY
OPEN-FILE REPORT 2004-14**

FIELD GEOLOGY MAPS
CRAWFORD COUNTY, KANSAS
Preliminary Field Geology Maps for
Ashbury, Kirkwood, Mindenmines, Pittsburg
1:24,000-scale quadrangles

By

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FIELD GEOLOGY MAPS

CRAWFORD COUNTY, KANSAS

Preliminary Field Geology Maps for

**ASBURY
KIRKWOOD
MINDENMINES
PITTSBURG**

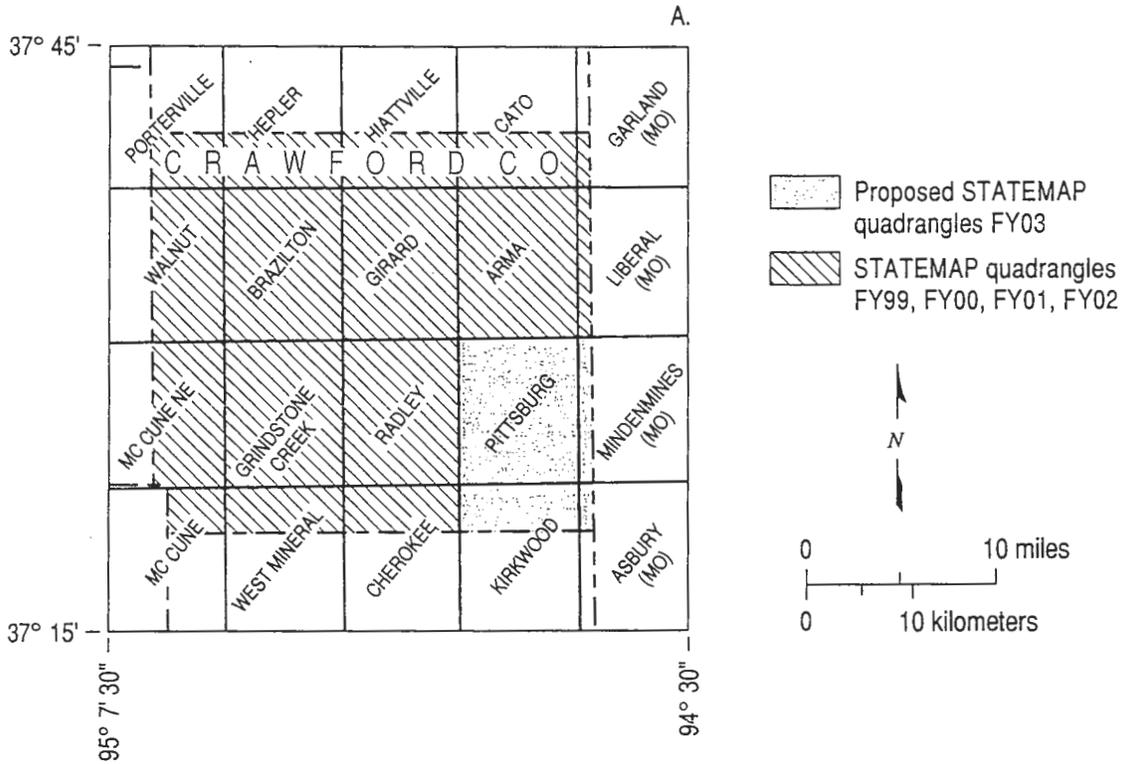
1:24,000-Scale Quadrangles

Ronald R. West and Robert S. Sawin

**Kansas Geological Survey
Open-file Report 2004-14**

CRAWFORD COUNTY, KANSAS

INDEX TO 1:24,000-SCALE MAPS



Copies of the field maps are open-filed at the Kansas Geological Survey, Lawrence, Kansas.

LEGEND

IT IS IMPORTANT TO NOTE THAT THESE MAPS INDICATE LITHOSTRATIGRAPHIC UNITS ONLY. NO TEMPORAL, GENETIC, OR RELATED DEPOSITIONAL ASPECTS ARE MEANT OR IMPLIED.

The stratigraphic sequence in this report is restricted to the Cabaniss Formation (Cherokee Group). Overlying these Pennsylvanian rocks are Quaternary alluvium and terrace deposits.

Terminology on the left side of the Composite Lithologic Sequence is that of Zeller (1968), with one exception. The Holdenville Shale has been divided into the Memorial Shale below and the Lost Branch Formation above (Heckel, 1991). On the right side of the graphic column are the units shown on the maps.

The following lithostratigraphic contacts were mapped in the Crawford County quadrangles of this report:

- Top of Verdigris Limestone Member (Cabaniss Formation) = v

Qal = Alluvial and terrace deposits were mapped using the Soil Survey of Crawford County, Kansas (Rott, 1973). Holocene alluvial deposits five feet or greater in thickness were included in this unit. Alluvial deposits include sand, gravel, silt, and clay that was deposited on floodplains by streams, creeks, and rivers.

Pits and quarries:

Ptc = coal strip pit
Ptl = limestone quarry
Ptss = sandstone quarry
Ptcl = clay pit
Ptg - gravel pit

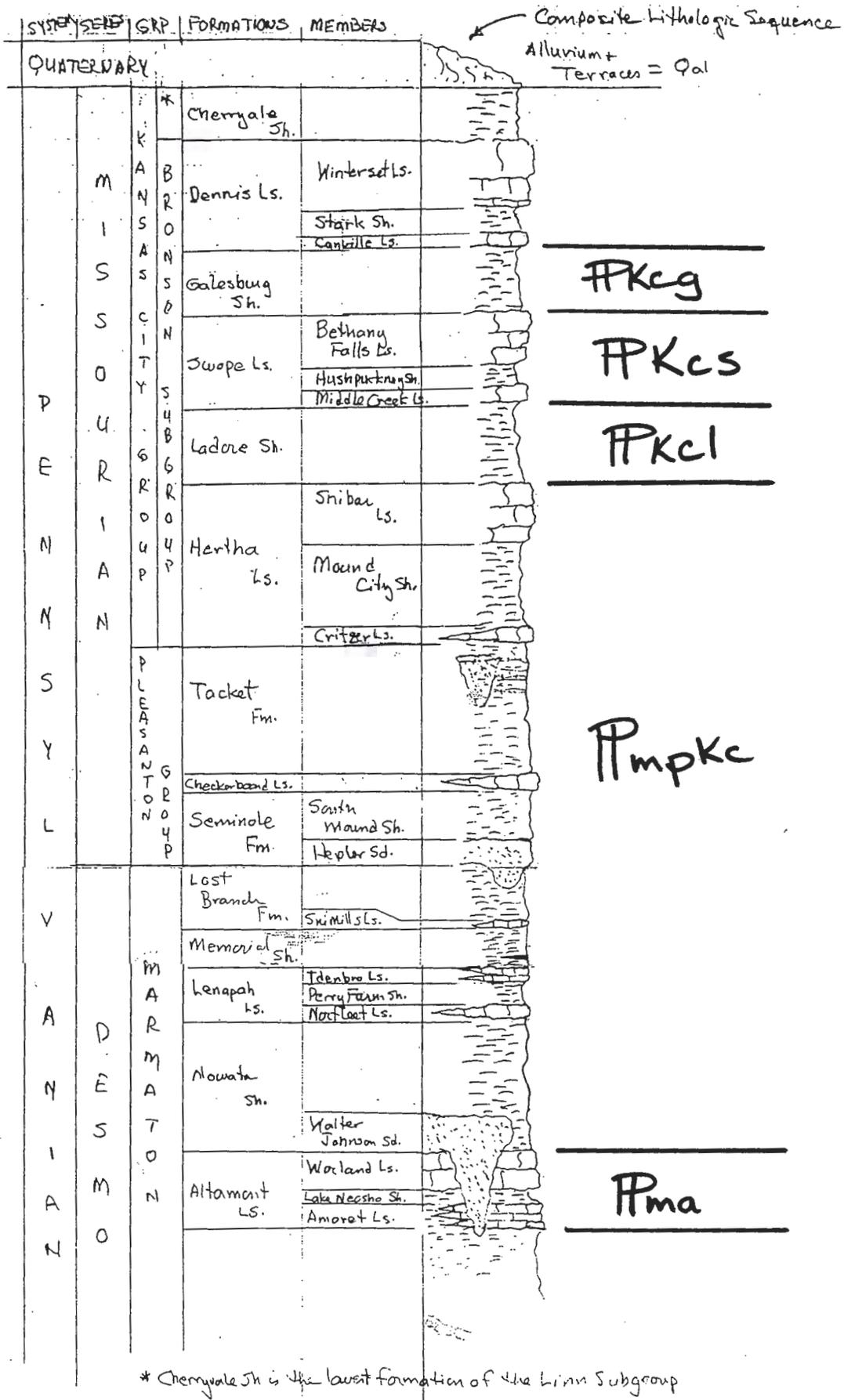
Coals:

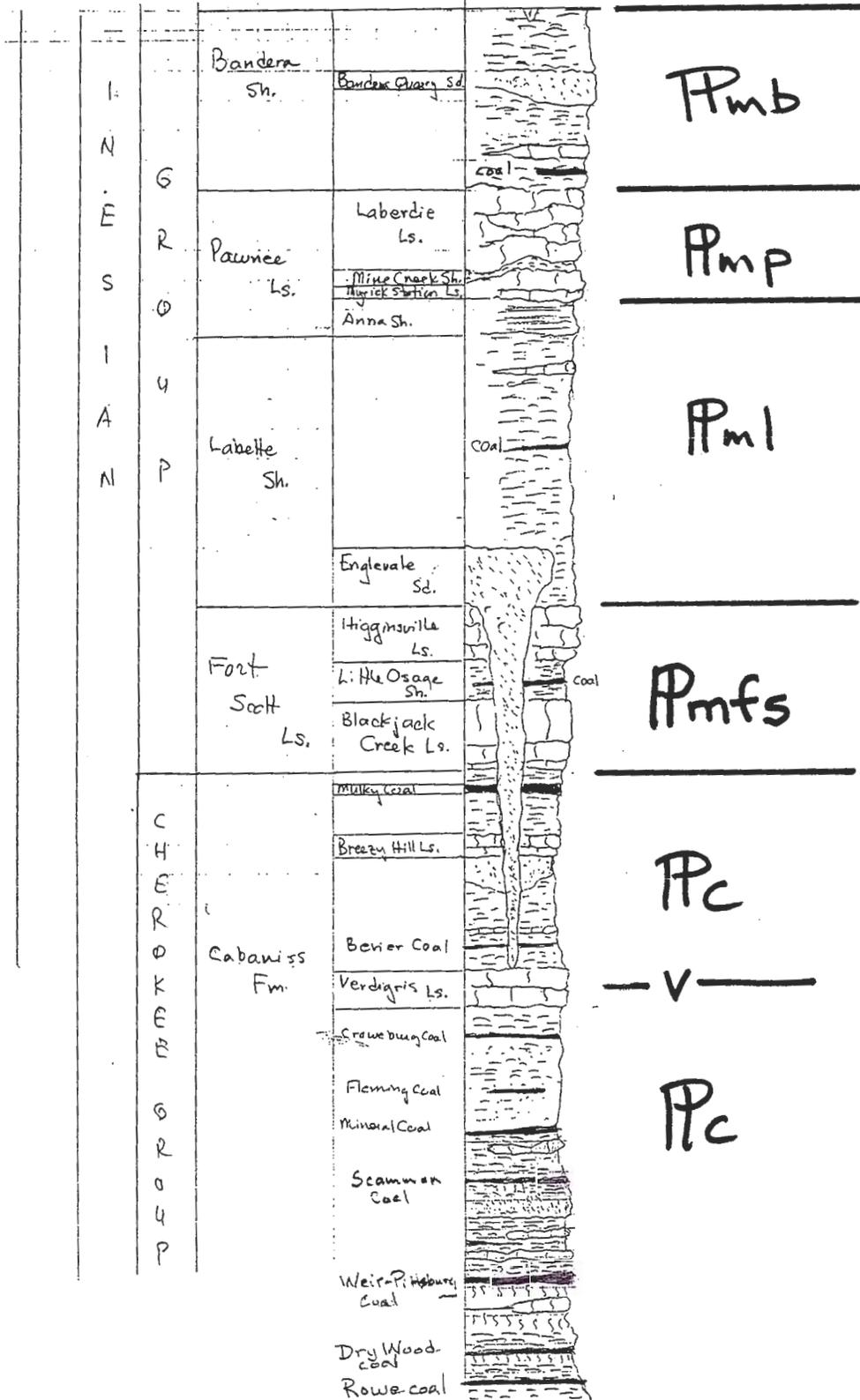
Be = Bevier coal
Mi = Mineral coal
Sc = Scammon coal
WP = Weir-Pittsburg coal
DW = Dry Wood coal
Ro = Rowe coal
UCM = underground coal mine shaft, tailings, etc. (from Abernathy, 1944)

REFERENCES

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- Howe, W. B., 1956, Stratigraphy of Pre-Marmaton Desmoinesian (Cherokee) Rocks in Southeastern Kansas: Kansas Geological Survey Bulletin 123, 132 p.
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- Pierce, W. G. and W. H. Courtier, 1937 (1938), Geology and Coal resources of the Southeastern Kansas Coal Field in Crawford, Cherokee, and Labette Counties: Kansas Geological Survey Bulletin 24, 122 p.
- Pierce, W. G. and W. H. Courtier, 1935, Englevale Channel Sandstone of Pennsylvanian Age, Southeastern Kansas: Bulletin of the American Association of Petroleum Geologists, vol. 19, no. 7, p. 1061-1068.
- Roth, S. M., 1991, Regional Stratigraphic Analysis of the Blackjack Creek Limestone (Desmoinesian, Middle Pennsylvanian) in Southeast Kansas and Northeast Oklahoma: unpublished Master's Thesis, Kansas State University; Kansas Geological Survey Open-File Report 91-50, 243 p.
- Rott, D. E., Swanson, D.W., and Jorgensen, G.N., Jr., 1973, Soil Survey of Crawford County, Kansas: U.S. Department of Agriculture, Soil Conservation Service and Kansas Agricultural Experiment Station, 50 p., 48 maps.
- Zeller, D. N., 1968, The Stratigraphic Succession in Kansas: Kansas Geological Survey Bulletin 189, 81 p.





ASBURY QUADRANGLE

EXPLANATION - CONTROL POINTS FOR THE CRAWFORD COUNTY MAP ARE IDENTIFIED AS FOLLOWS:

(1) NUMBERS PRECEDED BY THE LETTER C REFER TO MEASURED SECTIONS IN THE CRAWFORD COUNTY, KANSAS BOOKS IN THE FILES OF THE KANSAS GEOLOGICAL SURVEY, NUMBERING BEGAN AT FIRST SECTION IN THE BOOK AND PRECEDED SEQUENTIALLY TO THE LAST SECTION;

(2) NUMBERS PRECEDED BY THE LETTER L REFER TO SITES FROM WHICH I HAVE COLLECTED GEOLOGICAL SPECIMENS; AND

(3) NUMBERS PRECEDED BY THE LETTERS CR ARE SITES EXAMINED AND EVALUATED SPECIFICALLY FOR THIS MAPPING PROJECT.

OBVIOUSLY, ANY GIVEN SITE MAY BE IDENTIFIED BY ANY ONE, TWO, OR ALL THREE OF THESE DESIGNATIONS.

CR-580 = Sandstone float blocks in drainage South of road; near NE cor. Sec. 12, T.31S., R.25E., Crawford Co., Kansas.

KIRKWOOD QUADRANGLE

EXPLANATION - CONTROL POINTS FOR THE CRAWFORD COUNTY MAP ARE IDENTIFIED AS FOLLOWS:

(1) NUMBERS PRECEDED BY THE LETTER C REFER TO MEASURED SECTIONS IN THE CRAWFORD COUNTY, KANSAS BOOKS IN THE FILES OF THE KANSAS GEOLOGICAL SURVEY, NUMBERING BEGAN AT FIRST SECTION IN THE BOOK AND PRECEDED SEQUENTIALLY TO THE LAST SECTION;

(2) NUMBERS PRECEDED BY THE LETTER L REFER TO SITES FROM WHICH I HAVE COLLECTED GEOLOGICAL SPECIMENS; AND

(3) NUMBERS PRECEDED BY THE LETTERS CR ARE SITES EXAMINED AND EVALUATED SPECIFICALLY FOR THIS MAPPING PROJECT.

OBVIOUSLY, ANY GIVEN SITE MAY BE IDENTIFIED BY ANY ONE, TWO, OR ALL THREE OF THESE DESIGNATIONS.

C-76 = Exposure from Weir-Pittsburg coal through a thick shale and sandstone sequence into a clay bed and soil in an abandoned strip pit; NE1/4, sec. 13, T.31S., R.24E., Crawford Co., Kansas; measured and described by W. Howe 9 November 1948; no longer accessible.

C-78 = Exposure of thin coal with underclay and overlying gray mudrock in abandoned strip pit on South side of creek; Center NW1/4, Sec. 15, R.31S., R.25E., Crawford Co., Kansas; measured and described by W. Howe 24 July 1948; no longer accessible.

C-80 = Exposure from Rowe coal to approximately 5 feet of soil in highwall of Clemens #25 mine; SE1/4, SE1/4, Sec. 10, T.31S., R.25E., Crawford Co., Kansas; measured and described by L. Brady; no longer accessible, reclaimed.

CR-582 = Sandstone outcrop in drainage and roadcut on West side of road at an elevation of about 890 feet, probably the Warner Sandstone Member; near Center of East line, NE1/4, NE1/4, SE1/4, Sec. 4, T.31S., R.25E., Crawford Co., Kansas.

MINDENMINES QUADRANGLE

EXPLANATION - CONTROL POINTS FOR THE CRAWFORD COUNTY MAP ARE IDENTIFIED AS FOLLOWS:

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(2) NUMBERS PRECEDED BY THE LETTER L REFER TO SITES FROM WHICH I HAVE COLLECTED GEOLOGICAL SPECIMENS; AND

(3) NUMBERS PRECEDED BY THE LETTERS CR ARE SITES EXAMINED AND EVALUATED SPECIFICALLY FOR THIS MAPPING PROJECT.

OBVIOUSLY, ANY GIVEN SITE MAY BE IDENTIFIED BY ANY ONE, TWO, OR ALL THREE OF THESE DESIGNATIONS.

CR-578 = Exposure in a drainage into an abandoned strip pit along the South side of road of black, fissile shale with hard, dense, black limestone concretions and a thin black, fossiliferous limestone (probably the interval of the Tiawah limestone bed) at an elevation of about 910 feet; near Center NE1/4, NW1/4, NE1/4, Sec. 25, T.30S., R.29E., Crawford Co., Kansas.

PITTSBURG QUADRANGLE

EXPLANATION - CONTROL POINTS FOR THE CRAWFORD COUNTY MAP ARE IDENTIFIED AS FOLLOWS:

(1) NUMBERS PRECEDED BY THE LETTER C REFER TO MEASURED SECTIONS IN THE CRAWFORD COUNTY, KANSAS BOOKS IN THE FILES OF THE KANSAS GEOLOGICAL SURVEY, NUMBERING BEGAN AT FIRST SECTION IN THE BOOK AND PRECEDED SEQUENTIALLY TO THE LAST SECTION;

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(3) NUMBERS PRECEDED BY THE LETTERS CR ARE SITES EXAMINED AND EVALUATED SPECIFICALLY FOR THIS MAPPING PROJECT.

OBVIOUSLY, ANY GIVEN SITE MAY BE IDENTIFIED BY ANY ONE, TWO, OR ALL THREE OF THESE DESIGNATIONS.

- C-44 = Exposure of sequence from the Mineral coal through the Fleming, Croweburg and Bevier coals to the mudrocks above the Bevier in an operating strip pit of the Mackie-Clemens Coal Company; SE1/4, NW1/4, Sec. 28, T.29S., R.25E., Crawford Co., Kansas; measured and described by W. Howe 13 June 1949; no longer accessible.
- C-45 = Same as C-44.
- C-46 = Exposure of sequence from gray mudrock below the Mineral coal through the Mineral, Fleming and Croweburg coals to the mudrock interval above the Verdigris limestone in a strip pit (possibly pit #13) of the Mackie-Clemens Coal Company approximately 2.5 miles North of main junction at Frontenac, Kansas; Center NW1/4, Sec. 28, T.29S., R.25E., Crawford Co., Kansas; measured and described by W. Howe 9 June 1949; no longer accessible.
- C-56 = Exposure of sandstones (probably the Chelsea or other sandstone between Tebo and Weir-Pittsburg coals) in roadcut approximately 0.4 miles North of Chicopee, Kansas; near Center of West line, NW1/4, SW1/4, Sec. 36, T.30S., R.24E., Crawford Co., Kansas; measured and described by W. Howe 11 August 1948; accessible 7 January 2004 along West side of road in Sec. 35, T.30S., R.24E.
- C-65 = Exposure of sequence from Mineral (?) through overlying fossiliferous limestone into a claystone interval above a thin coal (Fleming?) in a strip pit just North of airport; NE1/4, SW1/4, Se. 1, T.30S., R.24E., Crawford Co., Kansas; measured and described by W. Howe 11 June 1948; no longer accessible.
- C-66 = Exposure of the sequence from Rowe coal through the Dry Wood coal to a 6 foot thick sandstone above in a small strip pit in C, SW1/4, Sec. 36, T.30S., R.25E., Crawford Co., Kansas; measured and described by W. Howe 12 June 1948; no longer accessible.
- C-67 = Exposure of sequence from a black, fissile shale through three thin coal beds (possibly the interval of Rowe coal) and associated siliciclastics to a sandstone in an abandoned strip pit; SE1/4, NW1/4, Sec. 35, T.30S., R.25E.,

- Crawford Co., Kansas; measured and described by W. Howe 25 July 1948; no longer accessible.
- C-68 = Exposure of sequence from Weir-Pittsburg coal to a massive sandstone in a roadcut near where old stripping operations crossed the present road; NE1/4, NW1/4, Sec. 31, T.30S., R.25E., Crawford Co., Kansas; measured and described by W. Howe 25 July 1948; no longer accessible.
- C-69 = Exposure of sequence just below and above Drywood coal in road ditch and adjacent abandoned strip pit; near Center of SE1/4, NE1/4, Sec. 27, T.30S., R.25E., Crawford Co., Kansas; measured and described by W. Howe 25 July 1948; no longer accessible.
- C-70 = Exposure of sequence from underclay below the Mineral coal through a dark, laminated shale and a limestone "caprock" and overlying mudrock to a massive sandstone in a fresh road cut; near Center of North 1/2, NW1/4, Sec. 6 T.30S., R.25E., Crawford Co., Kansas; measured and described by W. Howe 25 July 1948.
- CR-576 = Large float blocks of Verdigris limestone in spoil piles along abandoned, unrecalled strip pits along East side of road; near Center of West line of SW1/4, SW1/4, SW1/4, Sec. 21, T.29S., R.25E., Crawford Co., Kansas.
- CR-577 = Large float blocks of Verdigris limestone in spoil piles along abandoned, unrecalled strip pits along both sides of road along the North side of Sec. 21 and South side of Sec. 28 with the possibility that this limestone and associated black, fissile shale with hard, dense limestone concretions, is in place in the road ditch on the South side of the road at an elevation of approx. 950 feet at approx. 0.2 miles East of NW cor. Sec. 28, T.29S., R.25E., Crawford Co., Kansas.
- CR-579 = Exposure of mudrock on North side of road and in drainage North of the road; near Center of South line SW1/4, SW1/4, Sec. 31, T.29S., R.25E., Crawford Co., Kansas; near C-70 and possibly the mudrock described as unit 6 at that locality.
- CR-581 = Large block of massive sandstone used in landscaping along South side of road, possibly the Warner sandstone from nearby abandoned strip pits; along North line of NE1/4, NE1/4, Sec. 2, T.31S., R.25E., Crawford Co., Kansas.
- CR-583 = Sandstone exposed in road; near Center of North line of NW1/4, NE1/4, Sec. 26, T.29S., R.25E., Crawford Co., Kansas.
- CR-583A = Exposure of sandstone, possibly Chelsea, along West side of railroad cut; near Center of South 1/2, SW1/4, SE1/4, Sec. 23, T.29S., R.25E., Crawford Co., Kansas.
- CR-586 = Coal (probably the Mineral) in stream bed in Crawford County State Park No. 1; just North and a bit West of Center, Sec., 32, T.29S., R.25E., Crawford Co., Kansas

CRAWFORD COUNTY QUADRANGLE MAPS

The following four quadrangle maps are photocopies of field maps submitted by the Kansas Geological Survey as part of the STATEMAP Agreement #03HQAG0052 for FY03 (May 1, 2003 to April 30, 2004). The following four quadrangles form **Kansas Geological Survey Open-File Report 2004-14 “Preliminary Geologic Field Maps of portions of Crawford County, Kansas”**. In addition to the field maps, a report is also included in the open-file report and with these deliverables, that includes a general stratigraphic section, and locations of measured stratigraphic sections that were utilized in the mapping of the enclosed quadrangles.

Quadrangles included in the FY03 mapping effort--

Complete Quadrangle

Pittsburg

Partial Quadrangles

Kirkwood

Asbury (MO)

Mindenmines (MO)

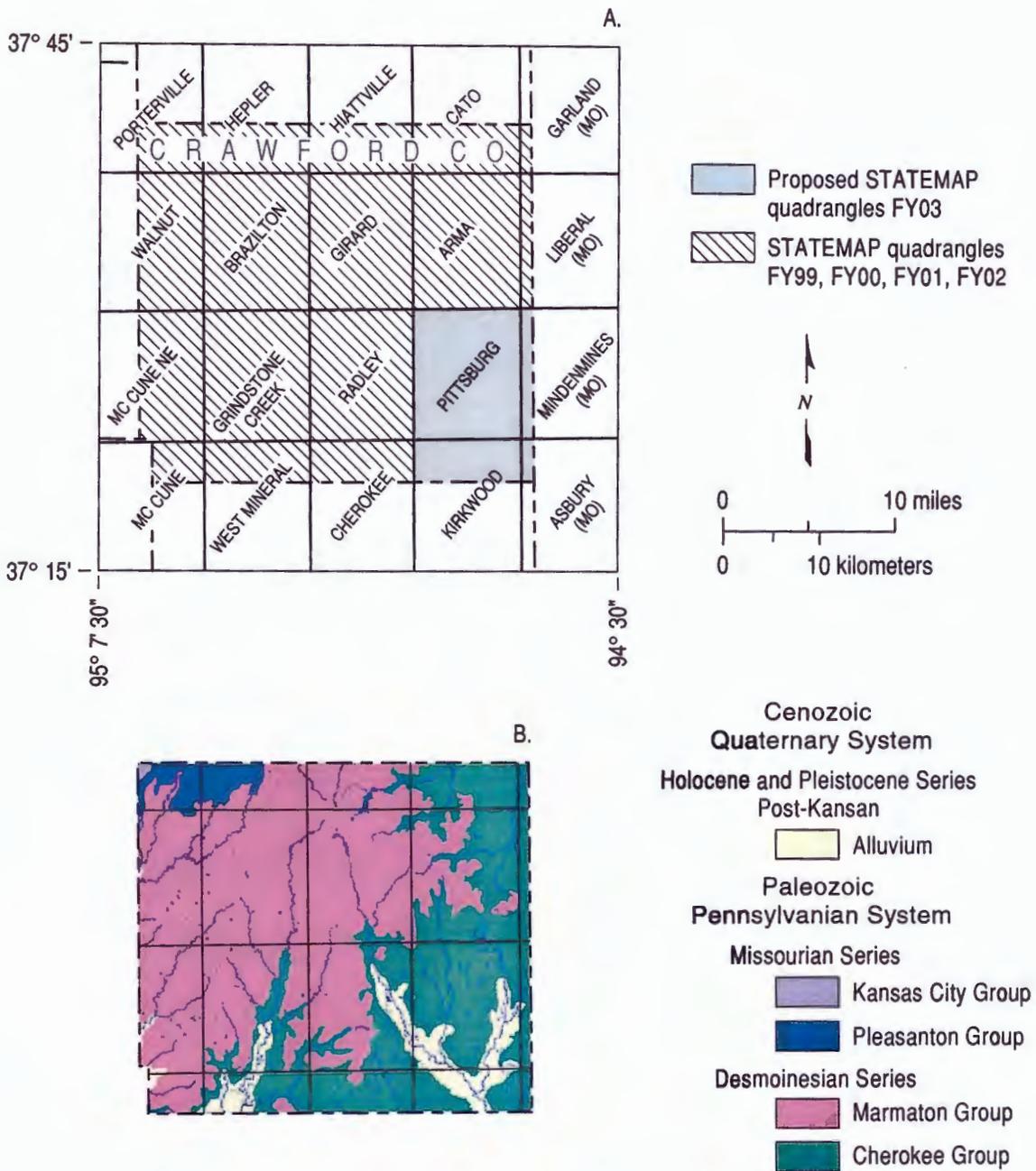


Figure 6—(A) Quadrangle maps covering Crawford County, and quadrangle areas within the county proposed for the FY03 STATEMAP project; and (B) general geology of Crawford County.