

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

SURFACE  
DATA SOURCES

Refer to Appendix I for point by point  
subsurface data source.

- THOM, W. T., 1935
- KNECHTEL, M. M., 1949
- CRANEY, D. L., 1978

SURFACE  
DATA RELIABILITY

Refer to Appendix I for point by point  
subsurface data reliability

M

M-MEDIUM, detailed mapping prior to  
modern topographic base map.

PANAMA QUADRANGLE  
OKLAHOMA—LE FLORE CO.  
7.5 MINUTE SERIES (TOPOGRAPHIC)

EXPLANATION

- Location or drilling well
- Dry Hole
- Gas Well
- Oil Well
- Oil & Gas Well
- Abandoned Oil Well
- Abandoned Gas Well

WELL SYMBOLS

WELL LOGS - Showing well data in feet. Letters designate either the coal bed name as listed below, or the top of the Hartshorne sandstone formation reference datum. \* Indicates the suite of logs was insufficient to verify coal occurrence. Index number refers to hole on Plate 3 of CRO map. Index number not assigned to wells for which logs of the first 3000 feet (914.4m) interval were not available or logged interval began below the base of the Hartshorne sandstone. Refer to Appendix II for additional information concerning wells not indexed.

- GL 915.0
- R 945.0
- R 100(L)
- R 115.0
- C 12(L)
- C 285.6
- C 7.0(UH)
- R 37.0
- TD 1296

COAL TEST HOLE - Showing drill-hole data in feet. Letters designate name of coal bed as listed below. Index number refers to hole on plate 3 of CRO map.

- NR 1<sup>4</sup>
- NR 4.8(LH)
- NR 1<sup>4</sup>

COMPOSITE MINE SECTION - Abandoned mine, showing rock interval and thickness of coal in feet. Letters and numbers designate name of coal bed as listed below. Index number refers to section on Plate 3 of CRO map.

- Tabulation of Rock Coal intervals shown on Plate 1, Sheet 2
- GL - Ground level elevation
- R - Rock interval (measured)
- C - Coal interval (measured)
- CE - Gross Coal interval (estimated from well log)
- M - Mixed Coal & Rock
- B - Bone Coal
- NR - No record of lithology, thickness estimated
- TD - Total depth

NOTE: Thickness reported to tenths of feet only when reproduction of data permitted.

DRILL HOLE, MEASURED SECTION, AND COMPOSITE MEASURED SECTION DATA SYMBOLS

- L - Local (unnamed) coal bed
- SE - Seccor Coal
- UM - Upper McAlester (Stigler rider) Coal
- ST - Stigler (Lower McAlester) Coal
- UH - Upper Hartshorne Coal
- LH - Lower Hartshorne Coal
- H - Hartshorne Coal

COAL BED SYMBOLS AND NAMES

- 5.5 LH

TRACE OF COAL BED OUTCROP - Showing thickness of coal in feet, measured at triangle. Letters designate name of coal bed as listed above. Arrow points toward the coal bearing area. Index number refers to section on Plate 3 of CRO map. Dotted line indicates outcrop covered by Quaternary Alluvium. Dashed line indicates inferred outcrop. Contacts have been adjusted to reflect topography.

ANTICLINE  
SYNCLINE

Strike and dip:  $\pm 22^\circ$ ; Vertical  $\pm 40^\circ$ ; Horizontal  $\pm 60^\circ$ ; Overturned  $\pm 78^\circ$

FAULT - Dashed where approximately located. Thrust faults have sawteeth on upthrown or overthrust side. Normal faults have bar and ball on downthrown side. Strike-slip faults have arrows showing relative horizontal movement.

- Coal mine active
- Coal mine, inactive or abandoned
- Slope entry, inactive or abandoned
- Prospect pit

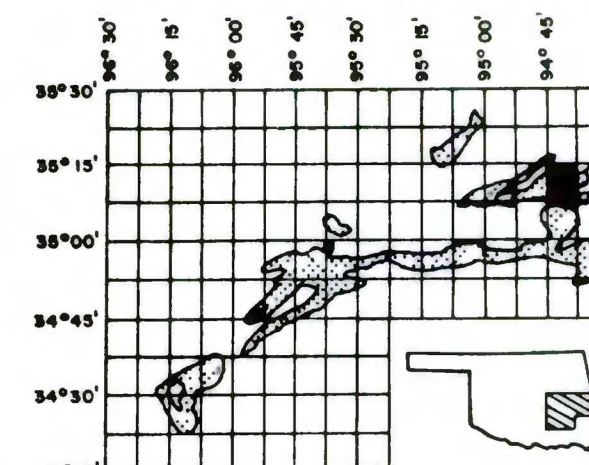
Subsurface coal mine showing name of mine and beds removed, hachures point to named-out-areas. Letters designate names of coal beds as listed above. Boundary is approximately located.

Surface coal mine showing name of mine and beds removed. Letters designate names of coal beds as listed above. Boundary is approximately located.

COAL MINE SYMBOLS

To convert feet to meters, multiply feet by 0.3048.

NOTE: The explanation has been compiled to depict all possible combinations of data and does not intentionally represent any particular data points.



MAP SHOWING LOCATION OF THE 7.5 MINUTE QUADRANGLE (DENSELY STIPPLED) AND THE FEDERAL COAL LANDS (LIGHTLY STIPPLED) IN SOUTHEASTERN OKLAHOMA

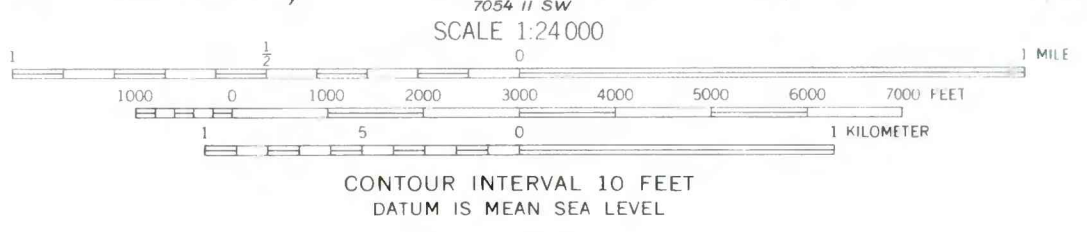
This report has not been edited for conformity with Geological Survey editorial standards or stratigraphic nomenclature.

FEDERAL COAL RESOURCE OCCURRENCE MAP OF THE PANAMA  
7.5-MINUTE QUADRANGLE, LEFLORE COUNTY, OKLAHOMA  
BY GEOLOGICAL SERVICES OF TULSA, INC., B. T. BRADY, USGS, AND J. L. QUERRY, BLM

This report was prepared under contract to the U.S. Geological Survey, and has not been edited for conformity with Geological Survey editorial standards or stratigraphic nomenclature. Opinions expressed herein do not necessarily represent those of the Geological Survey.

COMPILED IN 1980  
This map intended for land-use planning purposes only

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CONTOUR INTERVAL 10 FEET  
DATUM IS MEAN SEA LEVEL