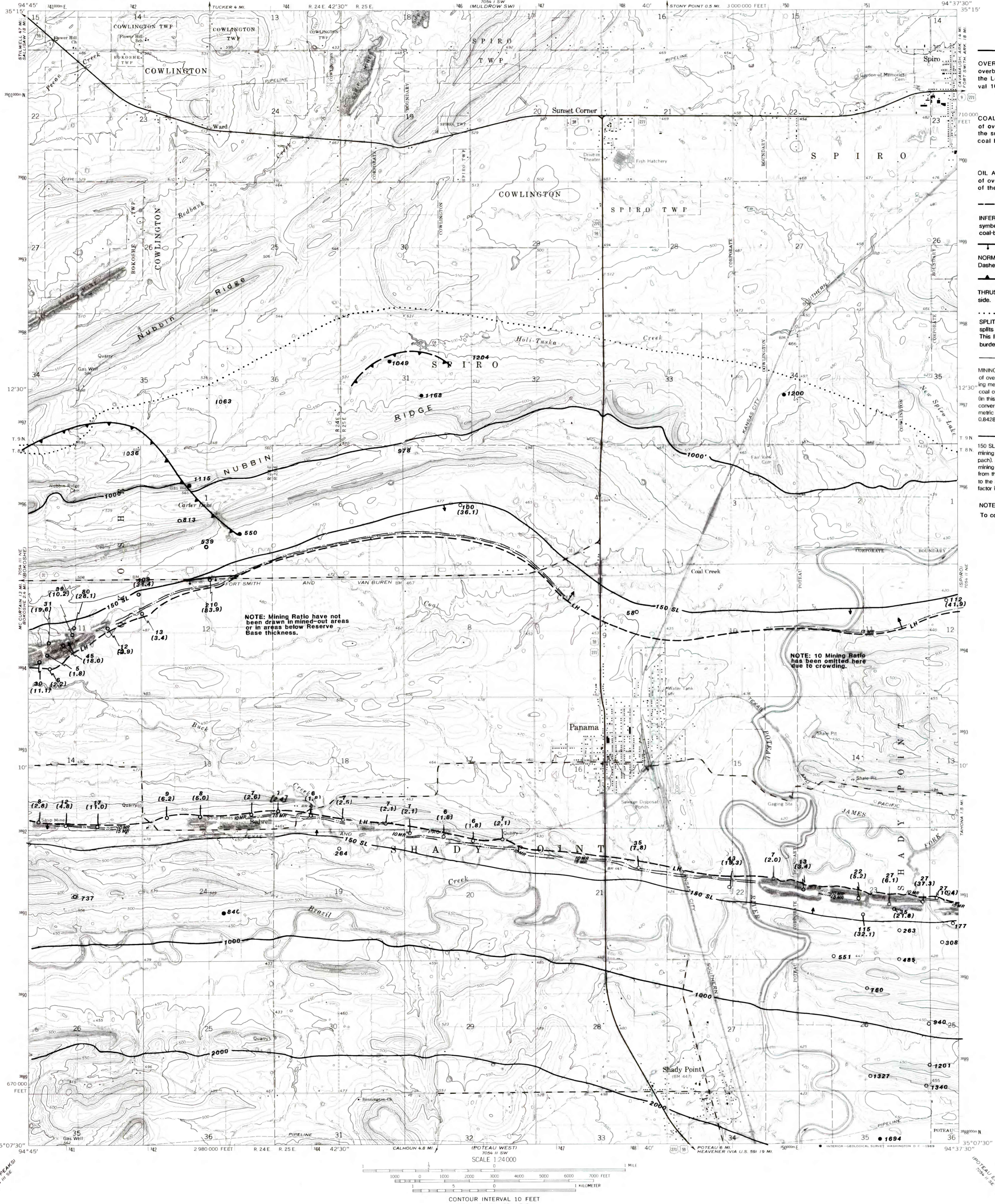


UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

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



EXPLANATION

- 2000**  
OVERBURDEN ISOPACHS--Showing thickness of overburden, in feet, from the surface to top of the Lower Hartshorne coal bed. Isopach interval 1000 feet (305m.)
- 30 (7.8)**  
COAL TEST MEASUREMENT--Showing thickness of overburden, in feet, (upper number) from the surface to the top of the Lower Hartshorne coal bed. Mining ratio in brackets.
- 1164**  
OIL AND GAS TEST HOLE--Showing thickness of overburden, in feet, from the surface to top of the Lower Hartshorne coal bed.
- LH**  
INFERRED TRACE OF COAL BED OUTCROP--Showing symbol of name of coal bed. Arrow points toward coal-bearing area.
- Normal Fault**--Bar and ball on downthrown side. Dashed where approximately located.
- Thrust Fault**--Sawtooth on upthrown or overthrust side. Dashed where approximately located.
- Split Line**--Line along which the Hartshorne coal bed splits into the Upper and Lower Hartshorne coal beds. This line corresponds to the 1 foot (0.305m.) interburden isopach.
- 15MR**  
MINING-RATIO CONTOUR--Number indicates cubic yards of overburden per ton of recoverable coal by surface mining methods. Contours shown only in areas underlain by coal of Reserve Base thickness within the striping limit (in this quadrangle, the 150-foot overburden isopach). To convert mining ratio to cubic meters of overburden per metric ton of recoverable coal, multiply mining ratio by 0.8426.
- 150 SL**  
150 SL STRIPPING-LIMIT LINE--Boundary for surface mining (in this quadrangle, the 150-foot overburden isopach). Arrow points toward the area suitable for surface mining where the recovery factor is 80 percent, and away from the area suitable for subsurface mining (down dip to the 3,000-foot overburden isopach) where the recovery factor is 50 percent.

NOTE: Thickness rounded to nearest foot.  
To convert feet to meters, multiply feet by 0.3048.

NOTE: Mining Ratio have not been drawn in mined-out areas or in areas below Reserve Base thickness.

NOTE: 10 Mining Ratio has been omitted here due to crowding.

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

PLATE 7  
OVERBURDEN ISOPACH AND  
MINING RATIO MAP OF THE  
LOWER SPLIT OF THE  
HARTSHORNE COAL BED

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