

APRIL 19, 1989
NARRATIVE FOR
HUGHES COUNTY, SOUTH DAKOTA
OIL AND GAS DEVELOPMENT POTENTIAL MAP

INTRODUCTION:

Hughes County is located in the central part of the state, east of the Missouri River. The topography is open grasslands and rolling hills.

The surface geology is Cretaceous Pierre Shale and isolated deposits of recent to Pleistocene age gravel (Darton, 1951). The Pre-Cambrian basement regionally dips northwest and structurally varies from -500 to -1000 feet below mean sea level across the county. (Steece, 1961). Paleozoic and Cretaceous age rocks overlie the basement crystalline with thickness 2,000 to 5,000 feet (Mallory, 1972). Smaller anticlinal structures have been mapped on top of the Pierre Formation in the southwest portion of the county (Wing, 1938). It is along the flanks of one of these small anticlines that gas was produced from the Cretaceous Dakota Formation, near the town of Pierre in the 1930's.

There have been five wells drilled within the county and only two in the last 15 years.

The Crow Creek Indian Reservation is located in the southeast corner of the county. These lands were not classified in this report.

OCCURRENCE POTENTIAL:

All of Hughes County is classified as moderate occurrence potential. This classification is based on the presence of Paleozoic and Cretaceous age rocks that are estimated to be 2,000 to 5,000 feet in thickness (Mallory, 1972). The rock types that are present in this package are known to contain reservoir and source rocks that are productive elsewhere in the state. Therefore, the thin sedimentary package and lack of established production, classifies this area as being of moderate occurrence potential.

DEVELOPMENT POTENTIAL:

All of Hughes County is classified as moderate development potential. This is because: 1.) It has a sedimentary package with source and reservoir rocks, that are productive elsewhere in the state; 2.) A structural setting that is conducive to oil and gas exploration; 3.) Currently, there is no established production.

Based on the past drilling activity and the geologic setting of this area, it is expected that in the next 15 years this county will experience a moderate level of oil and gas exploration. This could result in one to ten wells being drilled in this county.

REFERENCES CITED

Darton, N. H., 1951, Geologic map of South Dakota: U. S. Geological Survey, scale 1:500,000

Mallory, W. W., (ed.) 1972, Geologic atlas of the Rocky Mountain Region: Rocky Mountain Association of Geologist, p.56.

Steece, F. V., 1961, Pre-Cambrian surface of South Dakota: South Dakota Geological Survey, Mineral Resource Investigation Map, No. 2, scale: 1 inch = 30 miles.

Wing, M. E., 1938, A structural survey of the Pierre Gas Field, South Dakota: South Dakota State Geological Survey, Report of Investigations No. 29, 20p.