

APRIL 14, 1989  
NARRATIVE FOR  
STANLEY COUNTY, SOUTH DAKOTA  
OIL AND GAS DEVELOPMENT POTENTIAL MAP

INTRODUCTION:

Stanley County is located in the central part of the state. The topography varies from open grasslands to small flat topped hills with steep banked stream bottoms. The major drainage systems flow both north and south because of a central east-west topographic high across the county.

Regional geology shows scattered deposits of Pleistocene gravel, and Cretaceous Pierre Shale exposed at the surface. The Pre-Cambrian basement varies in structural elevation from -500 to -1500 feet below mean sea level. The structural attitude of the Pre-Cambrian rocks has been mapped by Steece (1961) as a anticlinal nose tending in a westerly direction. This basement structure creates various regional dips in the overlying Paleozoic and Cretaceous age rocks.

There have been only 28 wells drilled in the entire county, with ten of those in the last 15 years. Currently there is no oil or gas production in this county.

A portion of the Lower Brule Indian Reservation is located in the extreme southeast corner of the county. These lands were not classified.

OCCURRENCE POTENTIAL:

All of Stanley 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 Stanley 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.) 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

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.