

APRIL 18, 1989
NARRATIVE FOR
DOUGLAS, HUTCHINSON, TURNER AND LINCOLN COUNTIES, SOUTH
DAKOTA
OIL AND GAS DEVELOPMENT POTENTIAL MAP

INTRODUCTION:

These four counties are located in the southeast corner of the state and east of the Missouri River. The topography is open grasslands and small rolling hills.

Pre-Cambrian granite underlies all four counties at a shallow depth in the southern part of the counties (less than 1000 feet) and deepens in a northward direction. The subcrop of the Sioux Quartzite is mapped in the northeast corner of Hutchinson County, and extends eastward through the northern part of Turner and Lincoln Counties. This Pre-Cambrian quartzite overlies the granite and is mantled by Miocene-Pleistocene gravel up to 400 feet thick (Hedges, 1975). Overlying granite in the southern part of the counties are Cretaceous age rocks with a thickness of up to 1700 feet. The regional dip of these rocks is southern, based on the structure of the Pre-Cambrian basement rock (Steece, 1961). These Cretaceous rocks are also mantled by Miocene-Pleistocene gravel.

Douglas County has the only oil and gas exploration well drilled for the four county area. This well was drilled in 1953 and was plugged after drilling to the Pre-Cambrian at a drilling depth of 1306 feet and reporting no shows. Currently, there is no established production in the four county area.

There are no Indian lands within the four county area.

OCCURRENCE POTENTIAL:

All of Douglas County is classified as low occurrence potential. This is based on a sedimentary package of less than 2,000 feet in thickness (Mallory, 1972), and the lack of established production.

Hutchinson, Turner, and Lincoln Counties have both low and very low to unknown occurrence potential areas. All townships outside the subcrop of the Sioux Quartzite are classified as low occurrence potential. This is based on a thin sedimentary package of less than 2,000 feet (Mallory, 1972), and the lack of established production. Townships within the subcrop of the Sioux Quartzite are classified as very low to unknown occurrence potential. This is based on the lack of a sedimentary package that contains source rocks, and established production.

There is no type log for this four county area.

DEVELOPMENT POTENTIAL:

All of Douglas County is classified as low development potential. This is based on the presence of a thin sedimentary package of less than 2,000 feet in thickness and the lack of drilling data.

Hutchinson, Turner, and Lincoln Counties have both low and very low to unknown development potential areas. All townships outside the subcrop of the Sioux Quartzite are classified as low development potential. This is based on the presence of a thin sedimentary package of less than 2,000 feet and the lack of drilling data. Townships within the subcrop of the Sioux Quartzite are classified as very low to unknown development potential. This is based on the lack of a sedimentary package that contains source rocks, and drilling data.

Based on the geologic setting, it is expected that this four county area will have a low level of surface disturbance due to oil and gas exploration in the next 15 years.

REFERENCE CITED

Hedges, L. S., 1975, Geology and water resources of Charles Mix and Douglas Counties, South Dakota, Part I: Department of Natural Resource Development-Geological Survey, South Dakota Geological Survey, 43p.

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