

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

INTRODUCTION:

Haakon County is located in the west central part of the state. The Cheyenne River forms the north county line with Pennington County to the west and Jackson County to the south. Jones and Stanley Counties form the eastern county line. The topography varies from open flat grasslands to small flat-topped hills with steep banked stream bottoms. The major drainage systems flow in a north and south direction because of a central east-west topography high across the county.

Regional geology shows scattered deposits of Pleistocene gravel, and Cretaceous age Pierre Shale and isolated outcrops of Fox Hills on the surface. The Pre-Cambrian basement varies in structural elevation from -200 to -1500 feet below mean sea level. The structural attitude of the Pre-Cambrian rocks has been mapped by Steece (1961) as an anticlinal nose trending in a westerly direction. This basement structure creates various regional dips in the overlying Paleozoic and Cretaceous age rocks.

There have been only 42 wells drilled in the entire county, seven in the last 15 years. Currently there is no oil or gas production in this county.

There are no Indian lands within this county.

OCCURRENCE POTENTIAL:

Haakon County has both high and moderate occurrence potential land. The entire west half of the county is classified as high occurrence potential. This area has a sedimentary package in excess of 5,000 feet that have source and reservoir characteristics that are productive elsewhere in the state. The eastern part of the county is classified as moderate occurrence potential based on a thinner sedimentary package, of 2,000 to 5,000 feet in thickness (Mallory, 1972). This area has the same geologic characteristics as the high occurrence areas, but the potential is reduced because of the thinner sedimentary package.

The type log for this county is the #1 J. W. Danielson, sec. 5, T. 3 N., R. 22 E., Haakon County. The well was drilled in 1952, spudded in the Pierre Shale, and reached maximum depth in the Ordovician Winnipeg Formation. This well was completed as a dry hole.

DEVELOPMENT POTENTIAL:

All of Haakon County is classified as moderate development potential. This is because it has a sedimentary package that is known to have the necessary source and reservoir rocks, that are productive elsewhere in the state, plus a structural setting that is conducive

to oil and gas exploration. But, since there is no established production in this county it is assigned a moderate development potential.

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 seven wells being drilled in this county.

REFERENCE 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, scale: 1 inch = 30 miles.