

DESCRIPTION OF MAP UNITS

WHITE BUTTE NE QUADRANGLE

ALLUVIUM (HOLOCENE) -- Silt, sand, and clay and a small amount of pebble gravel

LANDSLIDE DEPOSITS (HOLOCENE AND PLEISTOCENE)

About 30-75 feet above the Heart River

TERRACE DEPOSITS (HOLOCENE AND PLEISTOCENE) -- Silt and sand and a small amount of gravel

About 80-140 feet above the Heart River, 60-90 feet above .Plum Creek, and 30-75 feet above Beaver Creek (EARLY OR PRE-WISCONSINAN)

About 175-220 feet above the Heart River (PRE-WISCONSINAN)

Unconformity

CHADRON FORMATION (OLIGOCENE) -- Upper part, interbedded calcareous claystone and limestone beds, 15-40 feet thick; middle part, light-gray to light-olive-gray sandy claystone, 3-15 feet thick; lower part, grayish-yellow bentonitic and conglomeratic sandstone, 4-23 feet thick. Fluvial and lacustrine deposits

Unconformity

GOLDEN VALLEY FORMATION (EOCENE) -- Siltstone and claystone, light-grayish-orange, grayish-yellow, and grayish-pink to pale-red; some beds are weathered to pale olive and shades of green; 0-10 feet thick. Siltstone and sandstone, light-gray to white, kaolinitic, clayey; orange stain along joints and a few beds; 12-20 feet thick. Fluvial, lacustrine, and paludal deposits

FORT UNION FORMATION (PALEOCENE) -- Fluvial, lacustrine, and paludal deposits

Sentinel Butte Member -- Upper unit: sandstone, yellowish-gray, very fine grained to medium-grained, massive, friable, crossbedded, clean; 0-120 feet thick. Middle unit: sandstone, yellowish-gray, very fine grained to fine-grained, interbedded with thin beds of dark-greenish-gray to medium-dark-gray siltstone and claystone, silicified siltstone and sandstone, and lignite; 185-210 feet thick. Lower unit: dark-gray clayey siltstone interbedded with light-olive-gray and dark-yellowish-orange silty claystone, brown carbonaceous claystone and siltstone, yellowish-gray sandstone, bentonite, and lignite; contains silicified wood and in places silicified lignite; 25-50 feet thick

> Tongue River Member -- Siltstone and claystone, mediumto light-gray and light-olive-gray; contains a few beds of yellowish-gray sandstone, brown carbonaceous siltstone and claystone, and lignite; 0-65 feet

-HT Coal bed -- Dashed where approximately located; short dashed where inferred. Letters denote coal bed named in the generalized stratigraphic section. Circled number refers to plotted coal section measured at triangle. Equivalent thickness of coal, in feet, measured at triangle, calculated by method of Bass, Smith, and Horn (1970, p. 6)

Contact -- Dashed where approximately located; short dashed where indefinite or inferred

((((( Measured stratigraphic section

+ + Glacial erratics -- Ice rafted; in NE% sec. 30, T. 138 N., R. 92 W., NE' sec. 26, T. 138 N., R. 93 W., and NE' sec. 3, T. 137 N., R. 92 W.

Texaco, Inc- Oil well-- Showing name, total depth in feet, and production from bottom hole formation (Red River Formation of Ordovician age)

Texaco, Inc- Dry hole-- Showing name, total depth in feet, and bottom hole formation (Red River Formation of Ordovician age)

3547(1100) Test hole-- Drilled by North Dakota State Water Commission and U.S. Geological Survey. Showing number of hole, depth in feet in parentheses, and reported thickness in feet of designated coal bed

o P27(95) Power auger hole -- Drilled by U.S. Geological Survey. Showing number of hole, and depth in feet in parentheses

3.5 Hand auger hole -- Showing thickness of coal bed in feet

W (200) Water well-- Showing depth in feet in parentheses and reported thickness in feet of designated coal bed

9 D4463A Fossil locality -- U.S. Geological Survey Paleobotany collection number (Denver catalogue)

X Gravel pit

\* Abandoned coal mine

## REFERENCE CITED

Bass, N. W., Smith, H. L., and Horn, G. H., 1970, Standards for the classification of public coal lands: U.S. Geol. Survey Circ. 633, 10 p.

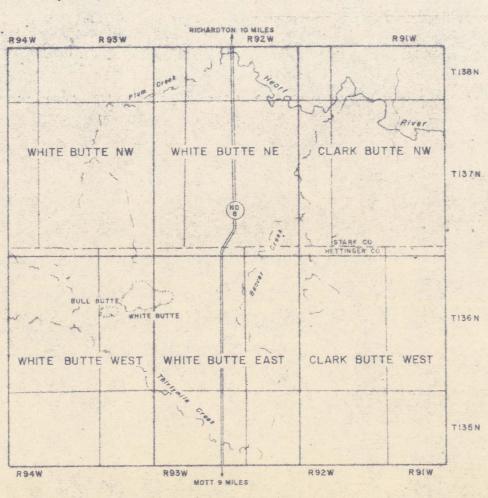


Figure 1. — Index map of the White Butte quadrangles, southwestern North Dakota

This report is preliminary and has not been edited or reviewed for conformity with U.S. Geological Survey standards or nomenclature.

DEPARTMENT OF THE INTERIOR White Butte NE, North Dakota, - Soward UNITED STATES GEOLOGICAL SURVEY CONSERVATION DIVISION, BRANCH OF MINERAL EVALUATION SCHANK BEAVER CREEK HEART BUTTE T. 137 N., R. 92 W. T. 138 N., R. 92 W. T. 137 N., R. 93 W. T. 137 N., R. 92 W. Sec. 15 Sec. 28 Sec. 21 Sec. 8 Sec. 32 Texaco, Inc. - 1 Schank Thickness estimated from Generalized section showing stratigraphic gamma ray-neutron logs relationship of the coat beds HUMMEL RED DOG T. 138 N., R. 92 W. KIT FOX T. 138 N., T. 137 N., Sec. 32 R. 92 W. R. 92 W. T. 137 N., R. 93 W. \_\_\_\_ Sec. 32 Sec. 4 Sec. 12 Sec. 1 Sec. 1 W Walker bed Q Quip bed HQ (local) bed H Heart Butte bed F Kit Fox bed SV Spring Valley bed T Turtle bed O HT HT Butte bed B Beaver Creek bed R Red Dog bed M Many Springs bed Exposed
Subsurface Local bed K Koehler bed MANY SPRINGS S Shell bed T 138 N. R 92 W. T. 137 N., R. 92 W. GUNSCH T. 137 N., R. 92 W. Sec. 15 Sec. 23 Sc Schank bed horizon Texaco, Inc.-1 Schank Texaco, Inc.-2 Schank Hu Hummel bed SPRING VALLEY T. 138 N., R. 92 W. T. 137 N., R. 92 W. Sec. 31 Sec. 4 nickness estimated from gamma ray-neutron logs EXPLANATION KOEHLER 700 - G Gunsch bed in Texaco Inc. - No I Adam T. 138 N., R. 92 W. Locality number of measured Schank NCT-1, NW 1/4 SE 1/4 sec 15 Sec 32 surface coal section T. 137 N., R. 92 W. Oil well Dry hole Oil and gas test wells Brown carbonaceous siltstone or claystone HT BUTTE Test hole Drilled by North Dakota State Water Commission T. 138 N:, R. 92 W. and U.S. Geological Survey Sandstone Sec. 28 Sec. 28 Sec. 35 Water well Siltstone Power auger hole Claystone Bentonite Silicified layer or stump in lignite bed Interval omitted COAL SECTIONS IN THE WHITE BUTTE NE QUADRANGLE, STARK AND HETTINGER COUNTIES, NORTH DAKOTA

M(200) R290 no. 72-355

North Dahota (White Butte NE quad.). Geol. 1.24,000. 1972.

