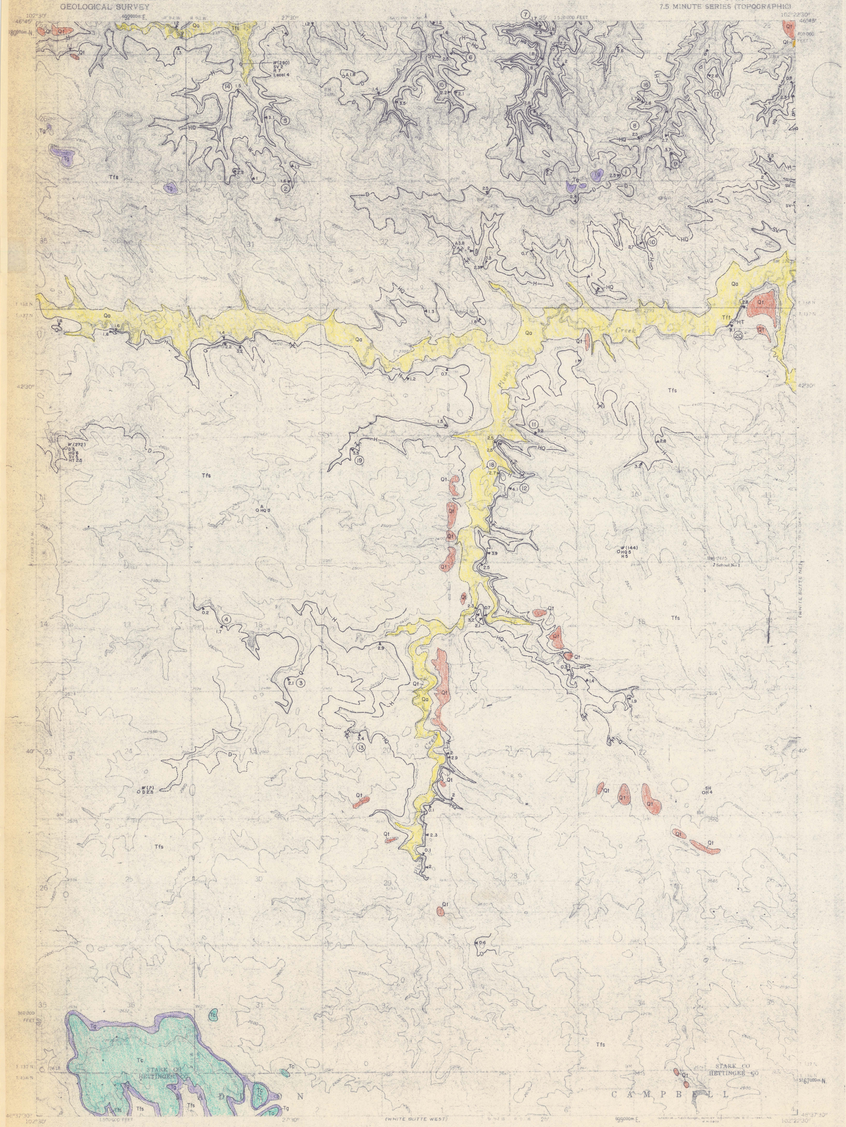
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WHITE BUTTE NW QUADRANGLE
NORTH DAKOTA
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey
Base by U.S. Geological Survey, 1960
Control by USGS and USC&GS
Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1955 - Field check 1960
Polyconic projection. 1927 North American datum
10,000-foot grid based on North Dakota coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks, zone 13, shown in blue
Fine red dashed lines indicate selected fence and field lines where they do not follow property boundaries. These were not surveyed.

Geology mapped in 1967

SCALE 1:24000
1 MILE
1 KILOMETER

ROAD CLASSIFICATION
Light-duty
Unimproved dirt

FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C. 20242 OR THE STATE GEOLOGICAL SURVEY, BISMARCK, NORTH DAKOTA
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

PRELIMINARY
GEOLOGIC MAP OF THE WHITE BUTTE NW QUADRANGLE, STARK AND HETTINGER COUNTIES, NORTH DAKOTA

By Kenneth S. Soward

1972

DESCRIPTION OF MAP UNITS

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

Ql LANDSLIDE DEPOSITS (HOLOCENE)

Qt TERRACE DEPOSITS (PLEISTOCENE)-- Silt and sand and a small amount of gravel. About 75-135 feet above the Heart River and 40-90 feet above Plum Creek and local drainage levels. Terraces correlate with middle terraces along the Heart River in White Butte NE quadrangle (EARLY OR PRE-WISCONSINAN)

Unconformity

Tc 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; basal part, grayish-yellow bentonitic and conglomeratic sandstone, 4-23 feet thick. Fluvial and lacustrine deposits

Unconformity

Tg 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; 0-25 feet thick. Fluvial, lacustrine, and paludal deposits

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

Tfs Sentinel Butte Member-- Upper unit: sandstone, yellowish-gray, very fine grained to medium-grained, massive, friable, crossbedded, clean; 0-60 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; 75-90 feet thick

Tre Tongue River Member-- Siltstone and claystone, medium- to light-gray and light-olive-gray; contains a few beds of yellowish-gray sandstone, brown carbonaceous siltstone and claystone, and lignite; 0-8 feet exposed

③ —Q-2— 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 Baas, Smith, and Horn (1970, p. 6)

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

W (272) 0 SW5 Water well-- Showing depth in feet in parentheses and reported thickness in feet of designated coal bed

S 5M 04 Seismic shot hole-- Showing reported thickness in feet of designated coal bed

H(3) Hand auger hole-- Showing thickness in feet of designated coal bed

Abandoned coal mine

REFERENCE CITED

Baas, H. 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.

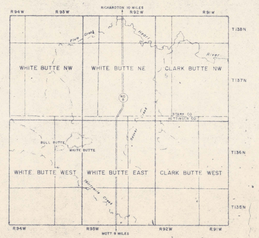
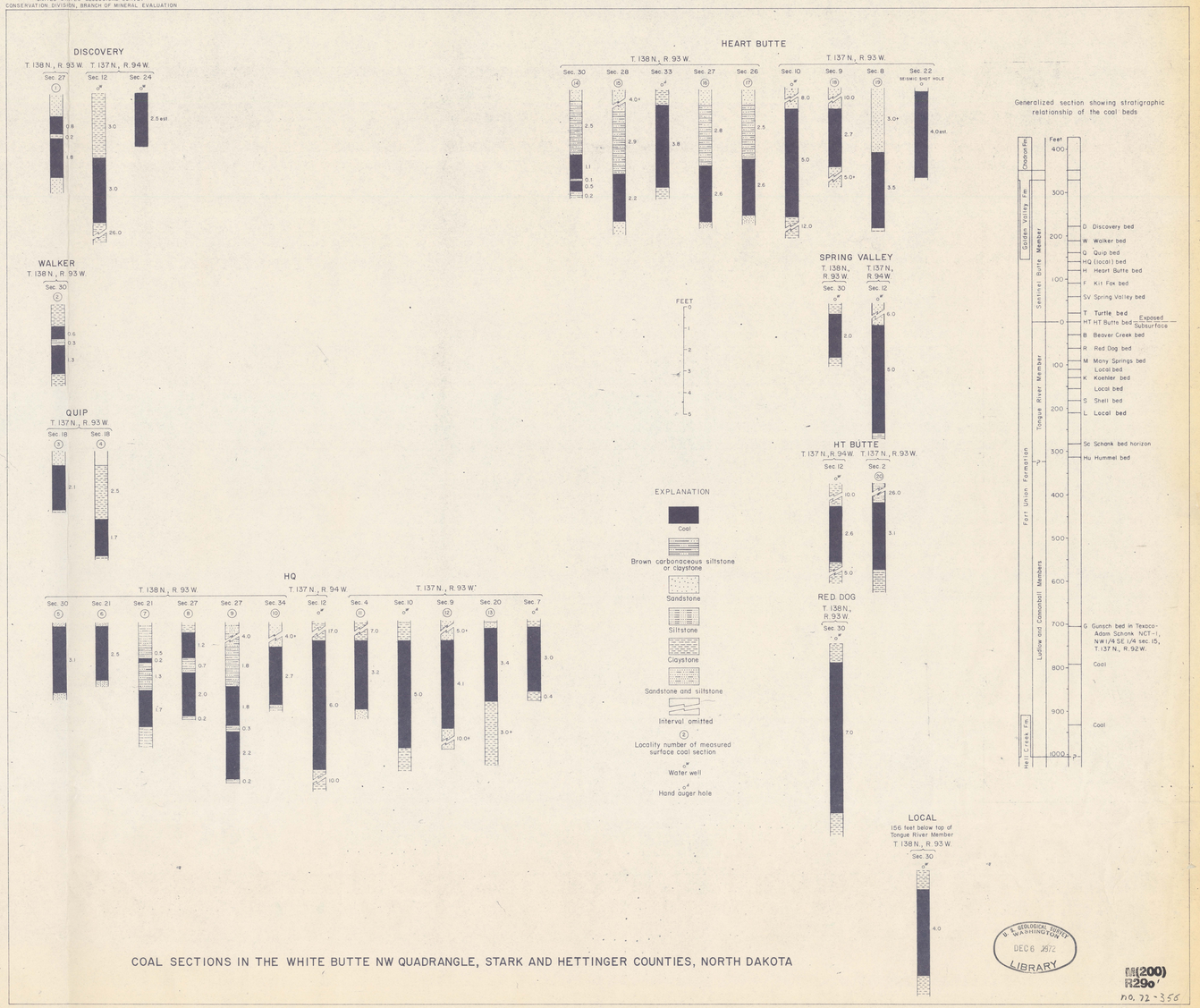


Figure 1.--Index map of the White Butte quadrangles, southwestern North Dakota

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
UNITED STATES GEOLOGICAL SURVEY
CONSERVATION DIVISION, BRANCH OF MINERAL EVALUATION



Generalized section showing stratigraphic relationship of the coal beds

COAL SECTIONS IN THE WHITE BUTTE NW QUADRANGLE, STARK AND HETTINGER COUNTIES, NORTH DAKOTA

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