

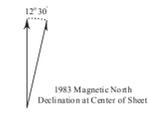


Lignite Reserves

Grassy Butte 100K Sheet, North Dakota

Sidney	Watford City	Parshall
Glendive		Killdeer
Wibaux	Beufield	Dickinson

Adjoining 100K Maps



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The Grassy Butte 100K sheet contains approximately 1.4 billion tons of mineable lignite. Most of this reserve is south of Fairfield and northeast of Trotters. Slightly more than half of this tonnage is present in the Green River deposit (771 million tons) in T141N, Rs 98&99 (Murphy, 2006). There are four other deposits in this map sheet that exceed 100 million tons; the Poker Jim Creek deposit contains 184 million tons (T146N, Rs 101-103), the Prairie Dog Creek deposit contains 178 million tons (T145N, Rs 103&104), the Ash Coulee deposit contains 103 million tons (T141&142N, Rs 100&101) and the Beach deposit contains 177 million tons (T141N, R105W). Most of the mineable coals in this area are approximately ten feet thick, with a combined mineable thickness of up to 21 feet in several of the deposits.

Only seven coal mines are listed in the records of the North Dakota Public Service Commission as having operated at one time or another in this area. Six of these mines operated in Golden Valley County north of Beach and the seventh was located in the extreme northeast corner of the map. Little to no information is available for these mines. Several were operating in 1925 and all appear to have been small with a relatively short life. Surprisingly, no mines are listed for those portions of southern McKenzie County or northern Billings County that are included in this map sheet. Undoubtedly, there were a number of small wagon mines that operated in the badlands topography in this area where numerous coals are exposed at the surface.

References
Murphy, E.C., 2006, The lignite reserves of North Dakota: North Dakota Geological Survey Report of Investigation no. 104, 141 p.

UNIT DESCRIPTIONS

- Geology Undifferentiated**
- Economic Coal Deposits**

Economic coal deposits are those that meet the minimum criteria established by coal companies operating surface mines in North Dakota. These economic criteria include a minimum cumulative coal thickness of ten feet-typically occurring in less than two beds, a minimum individual bed thickness of at least 2.5 feet, a ratio of overburden to coal thickness of not more than 10:1, a minimum of 25 feet of overburden, and a maximum depth to coal of approximately 150 feet.

Geologic Symbols

- Extent of Local Lignite Reserves
- Data Points
Includes coal exploration NDGS/USGS drill holes, sub-surface mineral drill holes, oil & gas wells, and NDSWC drill holes.
- Abandoned coal mine plotted from the records of the records of the Abandoned Mine Land Division of the North Dakota Public Service Commission.

Other Features

- Water
- Water - Intermittent
- River/Stream - Perennial
- River/Stream - Intermittent
- Section Corners
- Paved Road
- Unpaved Road
- County Boundary
- Interstate Highway
- US Highway
- State Highway

Scale 1:100,000



Mercator Projection 1927 North American Datum
Standard parallel 47° 00' Central meridian 103° 30'
USGS NED Shaded Relief - Vertical Exaggeration 9x

The North Dakota Geological Survey can publish on demand 1:24,000 scale quadrangle maps (24k - c series) of the mineable coal deposits in the Grassy Butte 100K sheet. These maps would include information on mineable coal thicknesses.

Note: This map was expanded beyond the normal Grassy Butte 100K Sheet to include an additional width of two miles to the Montana border.

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