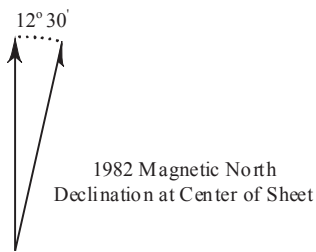


Lignite Reserves

Kenmare 100K Sheet, North Dakota

Crosby		Mohall
Williston	Stanley	Minot
Watford City	Parshall	Garrison
Adjoining 100K Maps		



Edward C. Murphy 2006

The Kenmare 100k sheet contains approximately 676 million tons of economically mineable lignite. The Noonan/Larson deposit contains about 247 million tons of lignite and is the largest single deposit in this map sheet. The Noonan/Larson deposit is situated between the base of the Missouri Coteau and the towns of Noonan, Larson, and Columbus (T162N, Rs93-95W). This deposit consists of two mineable beds of coal, Noonan and Kincaid, which have a combined average mineable thickness of 10 to 14 feet. There are only two other deposits that contain more than 100 million tons of mineable coal; Woburn deposit (Ts161&162N, Rs90&91W) and Beaver Lake (T162N, R92W). No coals are known to exist within this map sheet that are more than 20 feet thick, the thickest known coal is fourteen feet

Most of the surface of the Kenmare 100k map sheet is covered by glacial deposits. The underlying coal-bearing rocks of the Fort Union Group are generally only exposed along drainages such as Short Creek, White Earth River, and the Des Lacs channel as well as a few ravines along the base of the Coteau. According to the records of the North Dakota Public Service Commission, thirty-six mines operated at one time or another in this area. The earliest was the Smith mine north of Kenmare which reportedly began mining in 1898. Kenmare, Noonan (just off the west edge of the map), and Larson were early mining centers. Underground mining began at Noonan in the early 1900s and operated until the mid-1940s. The Noonan surface mine was in operation from 1929 to 1962. The most extensive mining in the area took place at the Larson mine from 1963-1986 and the adjacent Olson mine which operated from 1911-1945.

References
Murphy, E.C., 2006. The Lignite Reserves of North Dakota: North Dakota Geological Survey Report of Investigation No. 104.

UNIT DESCRIPTIONS

Geology Undifferentiated

Area of Mined Coal

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 Abandoned Mine Land Division of the North Dakota Public Service Commission.

Other Features

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

Scale 1:100,000

0 1 2 3 4
Miles

Mercator Projection 1927 North American Datum
Standard parallel 48°30' Central meridian 102°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 Kenmare 100k sheet. These maps would include information on mineable coal thicknesses.

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