

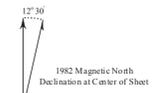


# Lignite Reserves

## Parshall 100K Sheet, North Dakota

Williston	Stanley	Minot
Watford City		Garrison
Grassy Butte	Killdeer	Hazen

Adjoining 100K Maps



**Edward C. Murphy**  
**2006**

The Parshall 100K sheet contains 709 million tons of mineable lignite. Most of this reserve, 628 million tons, occurs within the McKenzie County portion of the map. The Keene deposit (Ts151-152N, Rs95-96W) contains over 300 million tons of lignite and the Blue Buttes deposit (T150N, Rs95-96W) contains approximately 230 million tons (Murphy, 2006). None of the other deposits in the Parshall sheet contain more than 100 million tons of coal. The thickest near-surface coal in this area is about 10 feet thick. Approximately 20 feet of mineable coal is present in two beds in the northern part of the Keene deposit (Murphy, 2006).

The Sentinel Butte Formation is the dominant rock unit at the surface throughout this map sheet. Glacial sediments are present at the surface throughout much of the northern and eastern portions of this map. According to the records of the North Dakota Public Service Commission, approximately 14 coal mines operated at one time or another in this area. Most of these mines began operation in the early 1900s and closed in the 1930s. The Osburn (aka Osborne or Osborn) and Stringer or Superior mines were located east-northeast of New Town. These mines produced 300 to 800 tons of coal per year and ceased operation by 1940.

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.

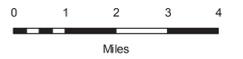
### Geologic Symbols

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

### Other Features

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

Scale 1:100,000



Miles  
Mercator Projection 1927 North American Datum  
Standard parallel 47°45' Central meridian 102°30'  
Shaded Relief - Vertical Exaggeration 9x

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

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