Book Cliffs Coal Field

Location

The Book Cliffs coal field is located in Emery, Carbon, and Utah Counties in east-central Utah and lies on the northeast-dipping flank of the Uinta Basin. The coal field was historically, and is presently, one of the most important coal fields in Utah. The field extends for about 70 mi in length, extending from a few miles west of Price, Utah, southeastward to the canyon of the Green River. The area contains four mining districts—from west to east, the Castlegate, Soldier Canyon, Sunnyside, and Woodside districts (Doelling, 1972).

Stratigraphy

The coal-bearing unit in the Book Cliffs field is the Blackhawk Formation. The stratigraphy and coal geology were first studied in detail by Clark (1928). The Blackhawk is about 1,500 ft thick in the western part of the field and thins to as little as 450 ft toward the southeastern part of the field (Balsley, 1980; Young, 1955).

Table. Stratigraphy—Book Cliffs coal field.

Stratigraphic units	Depositional environment	Thickness (ft)
Castlegate Sandstone	fluvial	150-500
Blackhawk Formation	coastal plain; major coal	450-1,150
Star Point Sandstone	nearshore marine	0-300

Coal Deposits

The coal geology of the eastern part of the Book Cliffs was studied in detail by Clark (1928). A comprehensive summary of the field was compiled by Doelling (1972) and is further updated by Tabet (in press). The main coal zones are, in ascending order, Spring Canyon (4–10 ft), Castlegate A, B, C, D (4–18 ft), Kennilworth (4–28 ft), Gilson (4–18 ft), Rock Canyon (4–12 ft), and Sunnyside, (4–16 ft) (Tabet, in press).

Coal Quality

A summary of seven beds in the table below is based on more than 900 samples compiled from data of Tabet (in press). Details of the Spring Canyon (Subseam), Castlegate A and B, Kenilworth, Gilson, Rock Canyon, and Lower Sunnyside are available in Tabet (in press).

Table. Coal in Blackhawk Formation.

[Values reported on an as-received basis]

Ash content (percent)	Sulfur content (percent)	Heating value (Btu/lb)
5-8	0.38-0.98	12,512-12,910

Resources

Original in-place resources for the Book Cliffs coal field are about 3.5 billion short tons for beds greater than 4 ft thick beneath less than 3,000 ft of overburden (Tabet, in press, modified from Doelling, 1972, and Anderson, 1983).

Production History

The Book Cliffs coal field has produced coal since the 1870's and, as of 1997, about 270 million short tons of coal were mined from the area (Jahanbani, 1996). More than 50 major mines have operated in the Book Cliffs from 1896 to the present (Doelling, 1972). The Book Cliffs coal field has produced about 2–3 million short tons of coal per year for the last 15 years (Jahanbani, 1996). Three major mines produced 3.15 million short tons in 1996. The opening of the Willow Creek mine will add about 2 million short tons of production to the Book Cliffs in the coming years (Jahanbani, 1996).

References

Anderson, P.B., 1983, Geologic map of the Pine Canyon quadrangle, Carbon County, Utah: Utah Geological and Mineralogical Survey Map 72, 14 p.

Balsley, J.K., 1980, Cretaceous wave-dominated delta systems: Book Cliffs, east central Utah: A Field Guide, Amoco Production Company, 163 p.

Clark, F.R., 1928, Economic geology of the Castlegate, Wellington, and Sunnyside quadrangles, Carbon County, Utah: U.S. Geological Survey Bulletin 793, 165 p.

Doelling, H.H., 1972, Book Cliffs coal field, *in* Doelling, H.H., ed., Central Utah Coal Fields: Utah Geological and Mineralogical Survey Monograph Series No. 3, p. 245–415.

Jahanbani, F.R., 1996, 1995 Annual review and forecast of Utah coal, production and distribution: State of Utah Natural Resources, Office of Energy and Resource Planning, 26 p.

Tabet, D.E, in press, Coal Resources: Carbon-Emery Counties Report.

Young, R.G., 1955, Sedimentary facies and intertonging in the Upper Cretaceous of the Book Cliffs, Utah-Colorado: Geological Society of America Bulletin, v. 66, p. 177–202.