Henry Mountains Coal Field

Location

The Henry Mountains coal field is located in south-central Utah in parts of Emery, Garfield, and Wayne Counties. The field is within a structural basin, and the coal is limited to an area of about 450 mi^2. The basin is bounded on the west by the Waterpocket fold where the beds generally dip 20°–30°. The east side of the basin is bounded by numerous laccolithic igneous intrusions that locally alter the coal (Hunt and others, 1953).

Stratigraphy

Coal is present in three units, in ascending order, the Dakota Sandstone, Ferron Sandstone Member of the Mancos Shale, and Masuk Formation (Emery Sandstone Member of the Mancos Shale of Hunt and others, 1953; sometimes referred to as Muley Canyon Sandstone Member of Mancos Shale—see discussion of stratigraphy by Eaton, 1990). Although the older formations have the greatest areal extent, the greatest resource and best quality coal is in the youngest coal-bearing unit—the Masuk Formation (Doelling, 1972). The stratigraphy and unit thickness are from Hunt and others (1953) and Eaton (1990).

Table. Stratigraphy—Henry Mountains coal field.

Stratigraphic units	Depositional environment	Thickness (ft)
Tarantula Mesa Sandstone	continental	270-400
Masuk Formation	coastal plain; major coal	600-750
Muley Canyon Sandstone	nearshore marine	270
Mancos Shale		
Blue Gate Member	marine	1,400
Ferron Sandstone Member	nearshore marine/coastal plain; coal	150-300
Tununk Member	marine	525-650
Dakota Sandstone	alluvial to marginal marine; minor coal	1-75

Coal Deposits

Coals in the Dakota Sandstone are thin and discontinuous. Coals in the Ferron are as much as 9 ft thick, but only over a 5-mi^2 area in the north part of the Henry Mountains coal field (Factory Butte area; Doelling and Smith, 1982). The thickest coal in the Masuk Formation is 13.4 ft, and the maximum cumulative thickness of coal is about 23 ft in three to four beds (Law, 1979, measured section 27; Law, 1980). The most up-to-date report on coal in the Henry Mountains is by Tabet (1999) and Tabet (chap. R, this CD-ROM).

Coal Quality

The Ferron coals have an apparent rank of high-volatile bituminous C, and the Masuk (Emery) coals have a range of apparent rank of subbituminous A to high-volatile bituminous C (Hatch and others, 1980; Doelling and Smith, 1982). Proximate/ultimate analyses for coal of the Henry Mountains are summarized in the tables below from Doelling (1972) for one sample in the Dakota and from Tabet (1999) for four samples in the Ferron and 37 samples in the Masuk (Muley Canyon).

Table. Coal in Masuk Formation.

[Values reported on an as-received basis]

	Ash content (percent)	Sulfur content (percent)	Heating value (Btu/lb)
Mean	11.74	0.9	10,086

Table. Coal in Ferron Sandstone Member.

[Values reported on an as-received basis]

	Ash content (percent)	Sulfur content (percent)	Heating value (Btu/lb)
Mean	14.5	2.5	11,038

Table. Coal in Dakota Sandstone.

[Values reported on an as-received basis]

	Ash content (percent)	Sulfur content (percent)	Heating value (Btu/lb)
Mean	1.7	2.92	13,478

Additional data on chemical analyses from the coal-bearing units are given by Hatch and others (1980), who reported proximate and ultimate analyses for 16 core and abandoned-mine samples in the central part of the Henry Mountains coal field. For the Masuk Formation (Emery), ash content ranges from 7.1 to 27.3 percent and the sulfur content ranges from 0.4 to 1.0 percent.

Resources

The Ferron Sandstone Member and Masuk Formation have significant coal resources in the area. For coal beds greater than 6 ft thick, the Ferron is reported to contain about 219 million short tons of in-place resources; the Masuk (Muley Canyon) is estimated to have at least 1,388 million short tons of in-place resources (Tabet, 1999).

Production History

As of 1982, only about 59,000 short tons of coal were mined from the Henry Mountains Basin (Doelling and Smith, 1982). The majority of the production was from the Ferron in the far northern part of the field (Factory Butte area).

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