

DESCRIPTION OF MAP UNITS

Qal	ALLUVIUM (QUATERNARY)—Gravel, sand, silt, and clay deposited in stream valleys	Kmm	MANCOS SHALE (UPPER CRETACEOUS) Masuk Member—Shale, medium to dark gray, weathers yellowish gray, sandy in part. Thickness about 250 m
Og	OLDER ALLUVIUM AND TERRACE GRAVEL (QUATERNARY)	Kme	Emery Sandstone Member—Sandstone and silt shale; sandstone, medium to fine grained, grayish-orange. Thickness 150-200 m
Tkn	NORTH HORN FORMATION (PALEOCENE AND UPPER CRETACEOUS)—Shale, variegated with shades of gray, purple, red, and brown; limestone, light to medium gray, sandstone, gray and grayish-orange; conglomerate. Thickness about 400 m; only lower 20 m exposed in quadrangle	Kmb	Blue Gate Shale Member—Shale blue gray. Thickness about 670 m; only upper 75 m exposed in quadrangle
Kpr	PRICE RIVER FORMATION (UPPER CRETACEOUS)—Sandstone, gray to light gray, coarse grained to conglomeratic; some interbedded shale. Thickness about 50 m		
Kc	CASTLEGATE SANDSTONE (UPPER CRETACEOUS)—Sandstone, weathers grayish orange, coarse grained, conglomeratic, massive, cliff forming, some oxidation on surface. Thickness 30-60 m		
Kb	BLACKHAWK FORMATION (UPPER CRETACEOUS)—Sandstone, grayish-orange to medium gray, medium to fine grained, most in lenticular bodies with erosional bases; shale, silty, coal. Base locally intertongues with Star Point Sandstone (Ksp). Thickness 225-245 m		
Ksp	STAR POINT SANDSTONE (UPPER CRETACEOUS)—Sandstone, siltstone, and shale, gray to grayish-orange, cliff forming in upper part; siltstone and silt shale interbeds in lower part; grades downward into Mancos Shale. Thickness 75-95 m		

CONTACTS AND FAULTS

- CONTACT—Chevrons enclose zone of intertonguing
- NORMAL FAULT—Dashed where approximately located; dotted where concealed. U, upthrown side; D, downthrown side
- AREA WHERE COAL HAS BURNED
- PT-3 U.S.G.S. DRILL HOLE
- M45—MEASURED SECTION—Sections preceded by M or F from Marley and Flores, 1977
- S489—MEASURED COAL SECTION—Data from Spieker, 1931
- STRIKE AND DIP OF BEDS
- STRUCTURE CONTOURS—Drawn on base of Blackhawk Formation (Kb). Shown only west of fault zone; contour interval 100 ft
- ABANDONED COAL MINE

COAL RESOURCES

The total identified coal resources in the Emery West quadrangle in beds more than 42 in. (1.07 m) thick as shown in the accompanying table are estimated to be 84.9 million short tons (77.07 million metric tons). This figure is considerably smaller than the 164.9 million short tons (149.7 million metric tons) that Doelling (1972, p. 139) estimated for beds more than 4 ft (1.22 m) thick in the quadrangle. The discrepancy is due in part to different assumptions about the continuity of coal beds in the area, and in part to different resource categories reported. Marley and Flores (1977), Flores and others (1978), and the authors now believe that most of the coal beds are much less continuous than Spieker (1931) and Doelling (1972) suggested. Most beds occur as isolated lenses, except for those of the Hawatha coal zone. For that reason only the resources of the Hawatha coal zone are shown separately in the table; all other beds, most of which are unnamed, are lumped in one category. In addition, the figures in this paper represent identified resources on a coal bed basis as defined by the U.S. Department of the Interior (U.S. Bureau of Mines and U.S. Geological Survey, 1976) whereas much of the coal reported by Doelling would be classified as hypothetical resources. Except for the Hawatha zone we did not calculate resources more than 0.75 mi. (1.2 km) from points of measurement on the outcrop or from drill holes.

The thickest coal beds in the quadrangle are within 83 ft (25 m) of the base of the Blackhawk Formation and offer the greatest potential for development although few beds seem to be laterally persistent. A bed which we correlate with the Hawatha coal zone is more than 10 ft (3 m) thick in several U.S. Geological Survey drill holes in the northwestern part of the quadrangle (Blanchard and others, 1977) and contains a major part of the calculated resources. Despite the occurrence of some thick beds within the Joes Valley Fault Zone in the eastern part of the quadrangle, this area offers little promise for large-scale commercial mining in the near future because of structural complications.

The only important previous mining in the quadrangle has been at the Link Canyon Mine in Link Canyon (sec. 26, T. 21 S., R. 5 E.). Doelling (1972, p. 139) states that about 164,000 short tons (149,000 metric tons) were produced at the mine between 1940 and 1952.

Seven analyses of coal from the Link Canyon Mine were reported by Doelling (1972, p. 91). On the basis of these analyses, as well as analyses of Blackhawk coals from nearby areas, it can be projected that most coal in the quadrangle is high-volatile B or C bituminous and low in sulfur content, 0.47 percent on an as received basis.

REFERENCES

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Marley, W. E., and Flores, R. M., 1977, Descriptions of stratigraphic sections, Upper Cretaceous Blackhawk Formation and Star Point Sandstone in the Emery West and Flagstaff Peak quadrangles, Utah: U.S. Geological Survey Open-File Report 77-833, 257 p.

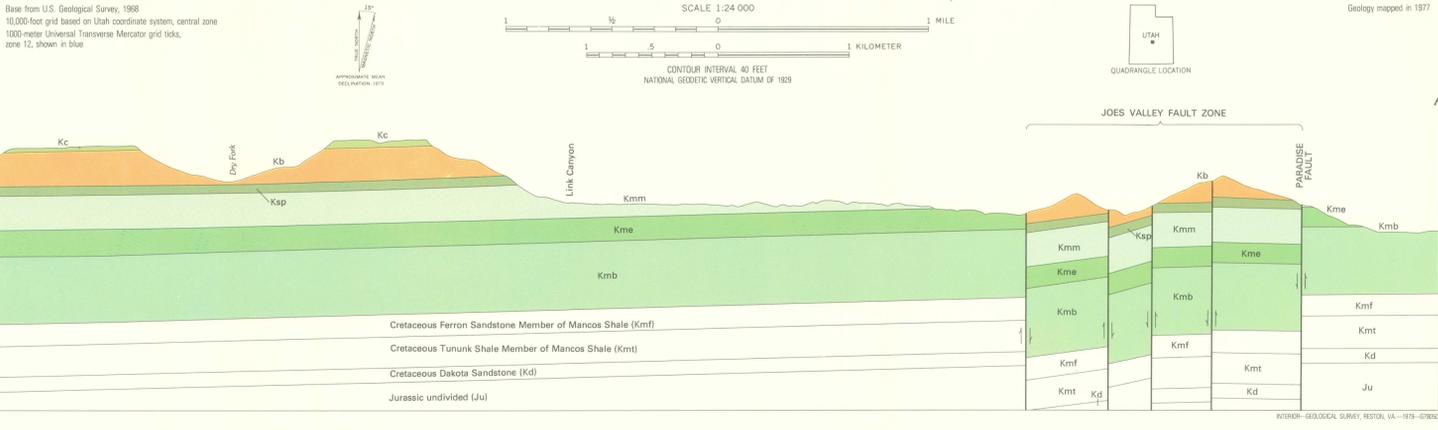
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Table 1.—Identified coal resources in millions of short tons of the Emery West quadrangle, Utah.

(Leaders (—) indicate no coal. To convert to metric, use the following formulas: 1 short ton = 0.9072 metric ton; 1 ft = 0.3048 m; and 1 in. = 2.54 cm)

County	T. S.	R. E.	Coal under less than 1000 ft of overburden						Coal overlain by 1000 to 2000 ft of overburden													
			Demonstrated		Inferred		Demonstrated		Inferred		Demonstrated		Inferred									
			to beds 14-20 in. thick	to beds 20-42 in. thick	to beds 14-20 in. thick	to beds 20-42 in. thick	to beds 14-20 in. thick	to beds 20-42 in. thick	to beds 14-20 in. thick	to beds 20-42 in. thick	to beds 14-20 in. thick	to beds 20-42 in. thick										
Hawatha coal zone																						
Beery	21	6	0.3	0.6	1.5	0.3	0.2	0.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sevier	21	9	0.4	1.8	33.9	0.2	0.3	1.9	0.1	0.4	13.3	0.8	0.2	—	—	—	—	—	—	—	—	—
Wasatch	21	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Wasatch zone totals			1.1	2.2	35.2	0.5	0.5	1.6	0.1	0.4	13.3	0.8	0.2	—	—	—	—	—	—	—	—	—
Other beds																						
Beery	21	5	22.7	6.2	1.9	—	—	—	—	—	15.5	6.1	3.6	—	—	—	—	—	—	—	—	—
Beery	22	5	3.4	1.3	0.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Beery	21	6	4.1	1.9	0.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Beery	22	6	0.4	0.1	0.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other beds totals			40.6	9.5	3.0	—	—	—	—	—	15.5	6.1	3.6	—	—	—	—	—	—	—	—	—
Grand totals			41.7	11.7	38.2	0.5	0.5	1.6	0.1	0.4	15.6	6.8	3.8	0.2	—							



GEOLOGIC MAP AND COAL RESOURCES OF THE EMERY WEST QUADRANGLE, EMERY AND SEVIER COUNTIES, UTAH

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