

EXPLANATION OF RESOURCE POTENTIAL
(Entire study area has low mineral resource potential for (1) all metallic minerals, with certainty level B, and (2) bentonite, with certainty level D. Entire study area has low energy resource potential for geothermal energy, with certainty level B. Overlapping patterns indicate areas having more than one potential)

H/D Geologic terrane having demonstrated autogenic resources of coal—in Z, Y lower, and Y upper coal beds of Tullock Member of Fort Union Formation, where coal beds are thicker than 2.5 ft, in segment A.

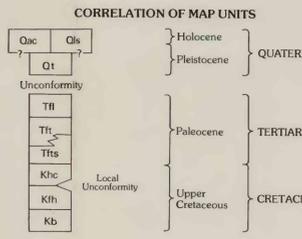
M/D Geologic terrane having moderate mineral resource potential for kaolinite, with certainty level D—in Fox Hills Sandstone.

M/C1 Geologic terrane having moderate energy resource potential for coal, with certainty level C—in Judith River Formation, all segment A and northern part of segment B.

M/C2 Geologic terrane having moderate energy resource potential for oil and gas, with certainty level C—Applies to entire study area.

L/D1 Area having low mineral resource potential for montmorillonite, with certainty level D—Coincides with M/D.

L/D2 Area having low mineral resource potential for sand, gravel, and placer gold, with certainty level D—Areas underlain by alluvium and colluvium (Qac) along Seven Blackfoot Creek and its tributaries.



- LIST OF MAP UNITS**
- Qac Alluvium and colluvium (Quaternary)
 - Qls Landslide deposits (Quaternary)
 - Qc Glacial till (Quaternary)
 - Tff Fort Union Formation (Paleocene)
 - Tffs Lebo Shale Member
 - Tff Tullock Member, upper unit
 - Tff Tullock Member, lower unit
 - Khc Hell Creek Formation (Upper Cretaceous)
 - Kfh Fox Hills Sandstone (Upper Cretaceous)—Includes Colgate Member
 - Kb Bearpaw Shale (Upper Cretaceous)

Contact—Approximately located. For those contacts located in close proximity to coal zones, a combination contact and coal zone/bed line is used.

Coal zone/bed—Approximately located; dotted line used when coal zone/bed is not present.

---Z--- Drawn at base of Z coal zone, between Hell Creek and Fort Union Formations.

--- Drawn on top of coal zone/bed indicated by letter, between upper and lower units of Tullock Member of Fort Union Formation; Y, Y coal zone, YL, lower Y coal bed, Yu, upper Y coal bed.

X X coal zone

L Local coal zone in segment A

L Local coal zone in segment B

--- Drawn at base of U coal zone, between Tullock and Lebo Shale Members of Fort Union Formations—Upper and lower contacts connected by diagonal lines show approximate thickness of outcrops.

Measured stratigraphic section and reference number used on plates 1 and 2

6 Section greater than 20 ft thick

4 Section less than 20 ft thick

+ Oil and gas drill hole

LEVEL OF RESOURCE POTENTIAL	U/A	H/B	H/C	H/D
	POTENTIAL	MODERATE POTENTIAL	MODERATE POTENTIAL	MODERATE POTENTIAL
		LOW POTENTIAL	LOW POTENTIAL	LOW POTENTIAL
		NO POTENTIAL	NO POTENTIAL	NO POTENTIAL
	A	B	C	D
	LEVEL OF CERTAINTY →			

LEVELS OF RESOURCE POTENTIAL

H High mineral resource potential

M Moderate mineral resource potential

L Low mineral resource potential

U Unknown mineral resource potential

N No known mineral resource potential

LEVELS OF CERTAINTY

A Available data not adequate

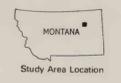
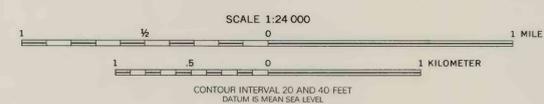
B Data indicate geologic environment and suggest level of resource potential

C Data indicate geologic environment, give good indication of level of resource potential, but do not establish activity of resource-forming processes

D Data clearly define geologic environment and level of resource potential and indicate activity of resource-forming processes in all or part of the area

Diagram showing relationships between levels of mineral resource potential and levels of certainty. Shading shows levels that apply to this study area.

Base from U.S. Geological Survey
Pine Grove School, 1965; Chalk Butte,
Sawmill Creek, 1971



MAP SHOWING MINERAL AND ENERGY RESOURCE POTENTIAL AND GEOLOGY OF THE SEVEN BLACKFOOT WILDERNESS STUDY AREA AND VICINITY, GARFIELD COUNTY, MONTANA