

EXPLANATION OF MINERAL RESOURCE POTENTIAL

[Entire wilderness study area has moderate potential for oil and gas at certainty level B. Gold in Archean metamorphic rocks, and nickel and platinum in Archean ultramafic metamorphic rocks, where concealed beneath Mesozoic and (or) Paleozoic strata, are rated as unknown potential, at certainty level A(U/A)]

M/C Area of identified barite resources
Geologic terrane having moderate resource potential for barite, silver, gold, copper, lead, and zinc—Pattern shows the part of the terrane that is concealed by alluvium

L/C Geologic terrane having low resource potential for: Uranium, low-temperature (<90°C) geothermal water, and quartzite as road metal—For entire area
Silver, barite, copper, lead, zinc, and gold—Except as shown above
Gold, nickel, and platinum—In exposed Archean metamorphic rocks

CORRELATION OF MAP UNITS

| | | |
|--------------|--------------------------|---------------------------------|
| Qls | Holocene | QUATERNARY |
| Unconformity | | |
| Qal | Holocene and Pleistocene | TERTIARY |
| Unconformity | | |
| Tcr | Oligocene | CRETACEOUS |
| Tj | Epoch unknown | |
| Ti | Eocene | |
| Unconformity | | TRIASSIC |
| Kb | | |
| Unconformity | | PERMIAN |
| Td | | |
| Unconformity | | PENNSYLVANIAN AND MISSISSIPPIAN |
| PMq | | |
| Unconformity | | MISSISSIPPIAN AND DEVONIAN |
| Mu | | |
| Unconformity | | CAMBRIAN |
| Mm | | |
| Unconformity | | ARCHEAN |
| MDu | | |
| Unconformity | | |
| Eu | | |
| Unconformity | | |
| Agn | | |

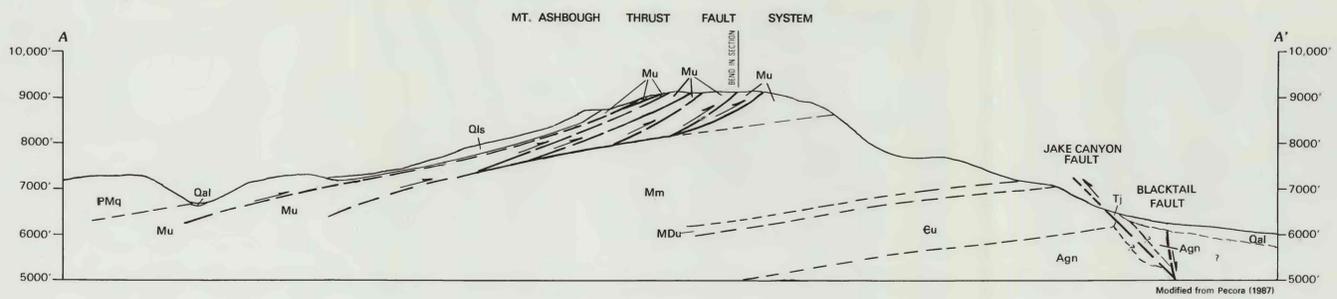
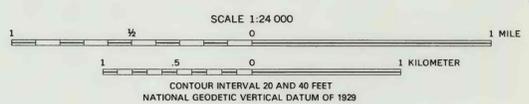
LIST OF MAP UNITS

| | |
|-----|---|
| Qls | Landslide deposits (Holocene) |
| Qal | Sediments, undivided (Quaternary) |
| Tcr | Volcanic rocks (Oligocene) |
| Tj | Jasperoid (Tertiary) |
| Ti | Intrusive rocks (Eocene) |
| Kb | Beaverhead Group (Cretaceous) |
| Td | Dinwoody Formation (Triassic) |
| Pp | Phosphoria Formation (Permian) |
| PMq | Quadrant Sandstone (Early Pennsylvanian and Late Mississippian) |
| Mu | Snowcrest Range Group (Late Mississippian) |
| Mm | Madison Group (Late and Early Mississippian) |
| MDu | Sedimentary rocks, undivided (Mississippian and Devonian) |
| Eu | Sedimentary rocks, undivided (Cambrian) |
| Agn | Gneiss, undivided (Archean) |

- Approximate contact
- U, D Concealed fault—U, upthrown side; D, downthrown side
- Reverse fault that later may have undergone normal-fault movement—Sawtooth on upthrown side of reverse movement; dotted where concealed
- Thrust fault—Sawtooth on upper plate; dashed where approximately located; dotted where concealed; queried where doubtful
- Anticline—Showing trace of axial plane and direction of plunge of axis
- Syncline—Showing trace of axial plane and direction of plunge of axis
- Strike and dip of beds
 - Inclined
 - Vertical
- Strike and dip of foliation
 - Inclined
 - Vertical
- Mines and prospects—Numbers refer to table 1
 - Adit
 - Prospect
- Geochemical sample locality
 - Stream-sediment and (or) heavy-mineral concentrate—Numbers refer to tables 2 and 3
 - Rock—Numbers refer to table 4

Base from U.S. Geological Survey
Ashbough Canyon, 1961,
Gallagher Mountain, 1963,
Beech Creek and Monument Hill, 1965

Geology modified from Pecora (1981, 1987),
and new mapping by Tysdal (1984-85)
along northeast flank of mountains



| LEVEL OF RESOURCE POTENTIAL | U/A | H/B | H/C | H/D | |
|-----------------------------|-------------------|------------------------|------------------------|------------------------|---|
| | UNKNOWN POTENTIAL | HIGH POTENTIAL | HIGH POTENTIAL | HIGH POTENTIAL | |
| POTENTIAL | | M/B MODERATE POTENTIAL | M/C MODERATE POTENTIAL | M/D MODERATE POTENTIAL | |
| | | L/B LOW POTENTIAL | L/C LOW POTENTIAL | L/D LOW POTENTIAL | |
| N/D NO POTENTIAL | | | | | |
| | | | | | |
| | | LEVEL OF CERTAINTY | | | |
| | | A | B | C | D |

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

MINERAL RESOURCE POTENTIAL AND GEOLOGIC MAP OF THE BLACKTAIL MOUNTAINS WILDERNESS STUDY AREA, BEAVERHEAD COUNTY, MONTANA