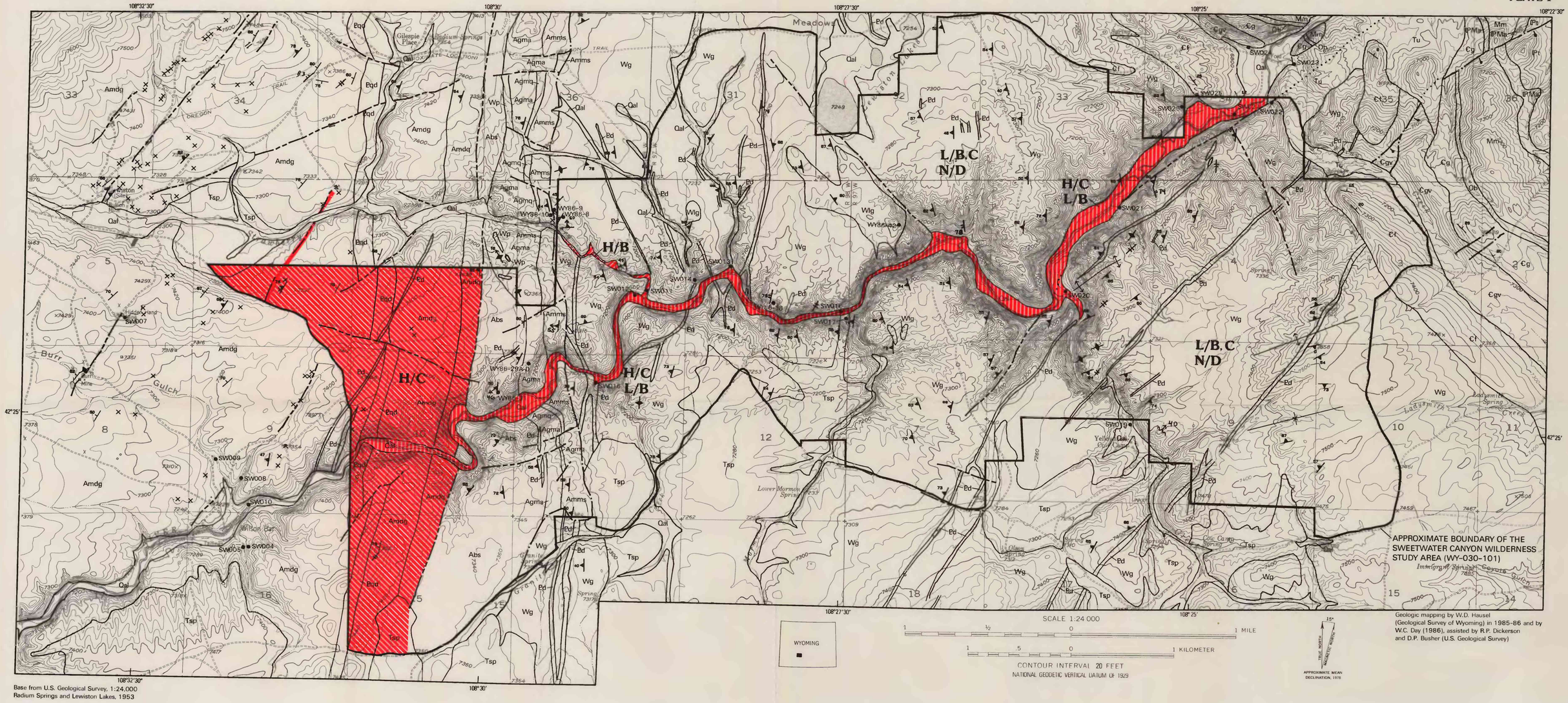
DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

BULLETIN 1757-D
PLATE 1

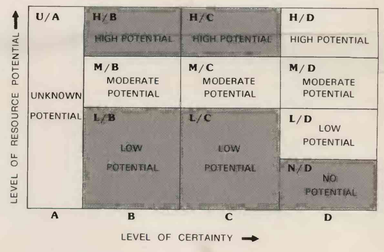


Base from U.S. Geological Survey, 1:24,000
Radium Springs and Lewiston Lakes, 1953

Geologic mapping by W.D. Hausel (Geological Survey of Wyoming) in 1985–86 and by W.C. Day (1986), assisted by R.P. Dickerson and D.P. Busher (U.S. Geological Survey)

EXPLANATION OF MINERAL RESOURCE POTENTIAL

- **H/C** — **Identified lode-gold resource**
- **H/C** — **Geologic terrane having high mineral resource potential for lode gold of Precambrian age, with certainty level C**
- **H/B** — **Geologic terrane having high mineral resource potential for placer gold of Quaternary age, with certainty level B**
- **H/C L/B** — **Geologic terrane having high mineral resource potential for placer gold of Quaternary age, with certainty level C, and low mineral resource potential for placer tin and tungsten of Quaternary age, with certainty level B**
- **L/B,C** — **Geologic terrane having low mineral resource potential for lode tin and tungsten (in Precambrian rocks), with certainty level B, and uranium, with certainty level C—Applies to entire study area**
- **N/D** — **Geologic terrane having no resource potential for oil, gas, or geothermal energy, with certainty level D—Applies to entire study area**



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

CORRELATION OF MAP UNITS

Qal		QUATERNARY
Tsp	Tu	TERTIARY
Disconformity		
IPt		PENNSYLVANIAN
IPMa		
Mm		MISSISSIPPIAN
Disconformity		
Ob		ORDOVICIAN
€g		CAMBRIAN
€gv		
€f		
Unconformity		
Ed		EARLY PROTEROZOIC
Eqd		
Intrusive contact		
Wp		LATE ARCHEAN
Wlg		
Wg		
Intrusive contact		
Amdg		
Amdq		
Fault contact		
Abs		
Agma		
Agmq		
Amms		

DESCRIPTION OF MAP UNITS

Qal **Alluvium (Quaternary)**—Unconsolidated alluvial conglomerate, gravel, silt, and clay

Tsp **South Pass Formation (middle Pliocene to upper Miocene)**—Varied sequence of unconsolidated conglomerate and interbedded siltstone. Consists locally of pebble- to cobble-sized clasts derived from Precambrian metagraywacke, granite, diabase, amphibolite, and pegmatite. Matrix is buff to tan silt and clay (Denson and Pipiringos, 1974)

Tu **Unconsolidated sediments (Tertiary)**—Undivided

IPt **Tensleep Sandstone (Upper and Middle Pennsylvanian)**—Gray to brown, thick-bedded sandstone (crossbedded), quartzite, and chert. Forms vertical cliffs

IPMa **Amsden Formation (Middle and Lower Pennsylvanian and Upper Mississippian)**—Limestone, shale, and quartzite. Forms slopes

Mm **Madison Limestone (Upper and Lower Mississippian)**—Light-colored limestone, commonly dense, thick bedded and even bedded. Forms vertical cliffs

Ob **Bighorn Dolomite (Upper and Middle Ordovician)**—White, massive, cliff-forming dolomite

€g **Gallatin Formation (Upper Cambrian)**—Limestone, shale, and edgewise conglomerate. Forms cliffs

€gv **Gros Ventre Formation (Upper and Middle Cambrian)**—Shale, sandstone, and minor limestone. Forms brown grass-covered slopes. Poorly exposed

€f **Flathead Sandstone (Middle Cambrian)**—Pink to white sandstone, arkose, and minor conglomerate. Components derived from underlying Precambrian rocks

Ed **Diabase dike (Proterozoic)**—Dark-green to black, medium-grained, nonfoliated diabase. Emplacement age unknown but may correlate with Proterozoic dikes in the Wind River Range dated at 2,060 Ma by the K-Ar method by Condie and others (1969)

Eqd **Quartz diorite dike (Proterozoic)**—Dark-brown, coarse-grained quartz diorite

LATE ARCHEAN GRANITOID ROCKS

Wp **Pegmatite**—White to gray leucocratic pegmatite

Wlg **Leucogranite and tonalite**—White medium-grained granite to tonalite. Forms irregular zones within the main granodiorite body (unit Wg). Contains late-stage minerals (alunite, epidote, and white mica)

Wg **Granodiorite**—Pinkish-white to salmon biotite granodiorite with a hypidiomorphic, medium- to coarse-grained, foliated texture. Foliation defined by elongation of phyllosilicate minerals, feldspar, and recrystallized quartz. As much as 30 percent of unit is made up of inclusions of medium- to dark-gray foliated biotite granodiorite to tonalite. Texture of the unit along the western margin becomes coarse grained and porphyritic to pegmatitic, and granodiorite contains numerous amphibolite blocks that are as much as 500 square feet in area and make up as much as 30 percent of the outcrop. The westernmost margin of the unit north of the Sweetwater River has been mylonitized. Emplacement age unknown but may correlate with the Louis Lake batholith dated at 2,630±20 Ma by Stuckless and others (1985)

ARCHEAN METAMORPHIC ROCKS

Miners Delight Formation (Archean)

Amdg **Graywacke unit**—Light brown, predominantly feldspathic and micaceous immature metagraywacke and mica schist. Rock is bedded and poorly to moderately sorted; graded beds locally preserved. Interbedded andalusite-mica schist present. Grading within basal part of unit suggests that it stratigraphically overlies quartzite unit (unit Amdq)

Amdq **Quartzite unit**—Light-brown, fine- to medium-grained quartzite

Abs **Biotite schist**—Predominantly dark-brown, fine-grained biotite schist with minor interlayers of amphibolite (metabasalt and (or) metagabbro), andalusite schist, and chlorite schist. May correlate with the Roundtop Mountain Greenstone

Goldman Meadows Formation

Agma **Amphibolite unit**—Dark-green to black feldspar-biotite-plagioclase-amphibole schist, medium-grained, well-foliated and lineated, with minor interlayers of biotite and andalusite-mica schist. Protolith was probably gabbro or basalt

Agmq **Quartzite unit**—Light-green to buff-gray fuchsite-bearing quartzite interlayered with minor amounts of amphibolite schist and andalusite-bearing metapelite

Amms **Mixed mafic schist**—Predominantly dark-green to black mafic to ultramafic plagioclase-actinolite amphibolite schist interlayered with subordinate amounts of light-green talc-chlorite and actinolite-talc schist, andalusite-bearing mica schist, and metagabbro. Protolith may have been mafic to ultramafic rocks interlayered with argillic sediment

- Contact
- **Fault and fault zone**—Dashed where approximately located; dotted where concealed; arrows show relative horizontal movement
- **Antiform**—Showing direction of fold axis
- **Synform**—Showing direction of fold axis
- 25 30 **Minor folds**—Showing plunge of axis
- 70 **Strike and dip of beds**
  - **Inclined**—Right side up
- 60 **Inclined**—Top direction unknown
- 35 **Strike and dip of schistosity**
  - **Inclined**
- **Vertical**
- 30 **Strike and dip of cleavage**
  - **Inclined**
- **Vertical**
- →60 **Bearing and plunge of mineral lineation**—May be combined with strike and dip of beds, schistosity, or cleavage
- **Abandoned mine**
- **Abandoned prospect**
- SW007 **Geochemical sample locality and number**

MINERAL RESOURCE POTENTIAL, GEOLOGIC, AND SAMPLE LOCALITY MAP OF THE SWEETWATER CANYON WILDERNESS STUDY AREA, FREMONT COUNTY, WYOMING