WYOMING STATE GEOLOGICAL SURVEY
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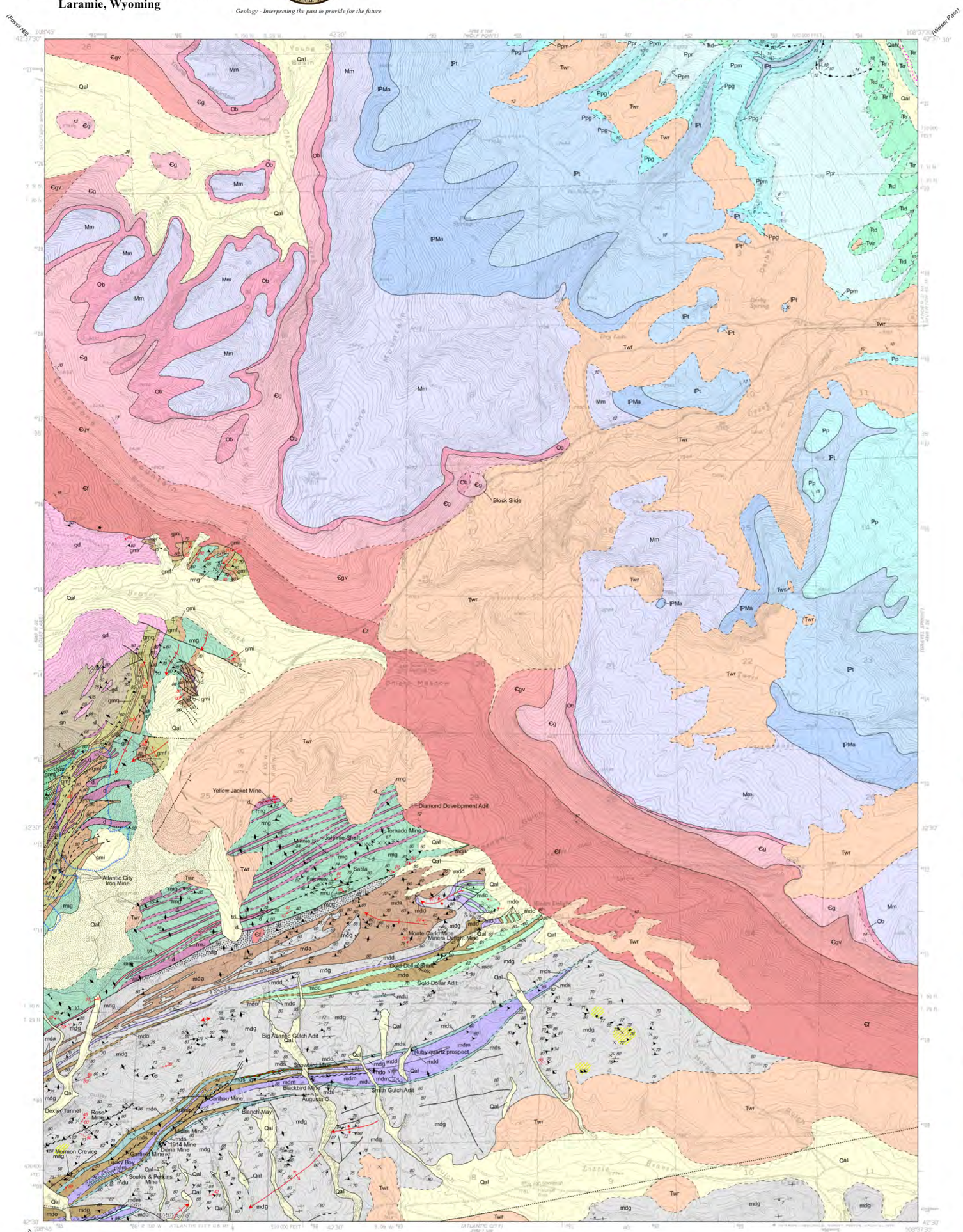
Laramie, Wyoming

Geology - Interpreting the past to provide for the future

USGS science for a changing world — **Prepared in cooperation with the U.S. GEOLOGICAL SURVEY**

MAP SERIES 38
Miners Delight 1:24,000 - scale Geologic Map



Base map from U.S. Geological Survey 1:24,000-scale topographic map of the Miners Delight, Wyoming Quadrangle, 1959

Projection: Universal Transverse Mercator (UTM), zone 12
North American Datum of 1927 (NAD 27)
10,000-foot grid ticks:Wyoming State Plane Coordinate System, East Central zone

A digital version of this map is also available on CD-ROM.

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SCALE 1:24,000

1 0.5 0 1 Mile

1,000 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometer

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

UTM GRID CONVERGENCE (GN) AND
1994 MAGNETIC NORTH DECLINATION (MN) AT CENTER OF SHEET
(DIAGRAM IS APPROXIMATE)

GN 1°33' 28 MILS — MN 13°00' 231 MILS

Editor's note: This map contains additional mapping by Rohrer (1973) in the northeastern corner of the quadrangle as well as mapping by Bayley (1965) in and around the Atlantic City open pit iron mining operation that was not included in Hausel (1987) or Hausel (1992).

Digital cartography by Alice J. Vogelmann

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REVISED* GEOLOGIC MAP OF THE MINERS DELIGHT QUADRANGLE, FREMONT COUNTY, WYOMING

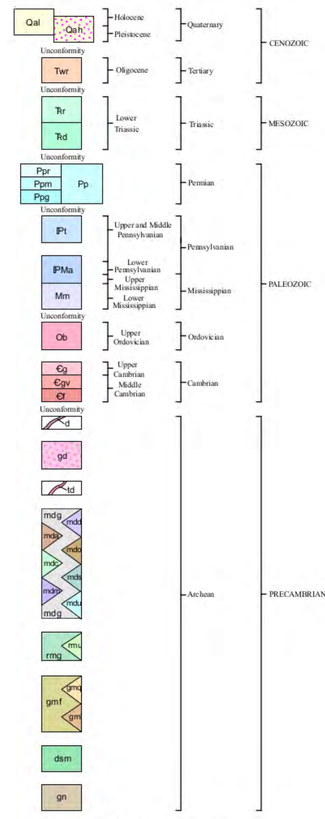
by
W. Dan Hausel
2006

** Revised from original mapping of Bayley (1965) by Hausel (1987). The current map supercedes Hausel's (1992) printed map, also designated Map Series 38.*

QUADRANGLE LOCATION

EXPLANATION

CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

Surficial deposits

Qal — **Alluvium (Holocene and Pleistocene)**—Glacial outwash and unconsolidated stream gravel, sand, and clay; locally includes placer accumulations of gold

Qah — **High-level alluvium (Holocene and Pleistocene)**—On pediment surfaces; commonly contains abundant angular pebbles and cobbles of Paleozoic rocks; lower few feet locally cemented by calcium carbonate; 0 to 10+ feet (0 to 3 m) thick; only occurs in extreme northeast part of quadrangle (from Rohrer, 1973)

Sedimentary rocks

Twr — **White River Formation (Oligocene)**—Light-gray calcareous conglomerate and tuffaceous sandstone; 0 to 300+ feet (0 to 90 m) thick (from Bayley, 1965)

Chugwater Group (part) (Lower Triassic)

Trr — **Red Peak Formation**—Reddish-brown interbedded siltstone, sandstone, and shale (description from Rohrer, 1973); only part of formation is exposed on quadrangle

Trd — **Dinwoody Formation (Lower Triassic)**—Gray to drab-greenish-gray, thin-bedded, ripple marked sandy siltstone and silty sandstone; 40-45 feet (12 to 14 m) thick (description from Rohrer, 1973)

Pp — **Phosphoria Formation (Permian)**—Limestone, dolomite, chert, shale, and phosphatic limestone and shale; mapped as three separate units in northeastern corner of quadrangle

Ppr — **Ervay Member of Park City Formation and Tosi Chert and Retort Phosphatic Shale Members of Phosphoria Formation**—approximately 100 feet (30 m) thick (descriptions are given in Rohrer, 1973)

Ppm — **Franson Member of Park City Formation and Meade Peak Phosphatic Shale Member of Phosphoria Formation**—approximately 150 feet (48 m) thick (descriptions are given in Rohrer, 1973)

Ppg — **Grandeur Member of Park City Formation**—30 to 50 feet (9 to 15 m) thick (description is given in Rohrer, 1973)

IPt — **Tensleep Sandstone (Middle Pennsylvanian)**—Gray to brown, thick-bedded, crossbedded sandstone, quartzite, and chert; vertical cliff-former; 400 feet (122 m) thick (description from Bayley, 1965)

IPMa — **Amsden Formation (Pennsylvanian and Mississippian)**—Limestone, shale, and quartzite; slope former; poorly exposed; contains purple, crossbedded quartzite bed near top of formation; approximately 100 feet (30 m) thick (description from Bayley, 1965)

Mm — **Madison Limestone (Mississippian)**—Massive light- to dark-gray limestone, commonly dense, thick-bedded and even-bedded; 500 to 600 feet (152 to 183 m) thick (description from Bayley, 1965)

Ob — **Bighorn Dolomite (Ordovician)**—Massive, white, cliff-forming dolomite, weathered surface rough and pitted; forms conspicuous white cliffs; 50 to 100 feet (15 to 30 m) thick (description from Bayley, 1965)

€g — **Gallatin Formation (Upper Cambrian)**—Limestone, shale, "edgewise" limestone conglomerate, and sandstone; cliff former; 110 to 150 feet (34 to 46 m) thick (description from Bayley, 1965)

€gv — **Gros Ventre Formation (Middle Cambrian)**—Red, green, and gray shale, sandstone, glauconitic sandstone, and limestone; slope former; poorly exposed; 300 to 400 feet (91 to 122 m) thick (description from Bayley, 1965)

€f — **Flathead Sandstone (Middle Cambrian)**—Tan to reddish-brown crossbedded sandstone, quartzite, and conglomerate; lower beds ankosic and conglomeratic; 250 feet (76 m) thick (description from Bayley, 1965)

Intrusive igneous and metaigneous rocks (Archean)

d — **Mafic dikes**—Chloritic dikes with porphyritic texture and hornblendic mafic dikes and flows

gd — **Louis Lake Batholith**—Gray, biotite-hornblende quartz diorite and granodiorite (~2.6 billion years old or Giga-annum, Ga). Contains small, widely spaced disc-shaped clots of amphibolite

td — **Tonalite**—Tan to pink tonalite and leucodacite porphyry dikes

Supracrustal metasedimentary and metaigneous rocks (Archean)

Miners Delight Formation

mdg — **Metagreywacke**—Feldspathic and micaceous metagreywacke, mica schist, and porphyroblastic schist. Rb-Sr whole-rock isochron date about 2.8 Ga

mda — **Meta-andesite**—ellipsoidal and nonellipsoidal meta-andesite

mdd — **Metadacite**—Dense, black to gray metadacite porphyry flows and sills containing white plagioclase phenocrysts aligned in trachytic texture

mdo — **Orthoamphibolite**—Black hornblendic amphibolite with fine-, medium-, and coarse-grained textures. Represents metamorphosed basalt flows and gabbro sills

mdc — **Cherty metagreywacke**—Black, massive, banded cherty metagreywacke and ultramylonite with thin metagreywacke, quartzite, and micaceous and tuffaceous quartzite interbeds

mds — **Graphitic schist**—Black, commonly iron-stained, sheared graphitic schist

mdm — **Mixed member**—Mixed unit of black metabasalt flows and metagreywacke with interbeds of metaconglomerate and meta-agglomerate (?)

mdu — **Ultramafic schist**—Includes green chlorite schist at base of formation

Roundtop Mountain Greenstone

rmg — **Greenstone**—includes greenstone, greenschist, and amphibolite. Represents greenschist- to amphibolite-grade metamorphosed tholeiitic basalts and volcanogenic meta-sedimentary rocks. Cusp-shaped pillow structures preserved on Roundtop Mountain

rmu — **Actinolite schist**—Green massive actinolite and chlorite schist

Goldman Meadows Formation

gmf — **Peltic schist**—Feldspathic quartz-mica schist, chlorite-quartz schist, hornblende-garnet-magnetite schist, quartz-mica schist, quartz-mica-andalusite schist, hornblende-garnet-magnetite schist, and chlorite-garnet schist

gmq — **Quartzite**—White gray to tan vitreous quartzite. Locally contains interbeds of fuchsite schist and quartzite

gmi — **Iron formation**—Banded iron formation composed chiefly of quartz and magnetite with minor amphibole. Locally has up to 5 percent pyrite with accessory chalcopyrite. Iron content averages 30 percent. (Projected under surficial deposits by magnetic surveys)

Diamond Springs Formation

dsm — **Serpentinite**—Black, green, to reddish brown serpentinite, tremolite-talc-chlorite schist, amphibolite, and metabasalt

Gneiss complex (Archean)

gn — **Gneiss and migmatite**—Felsic gray gneiss and granitic migmatite interlayered with supracrustal rocks and granodiorite. Exhibits augen and migmatitic textures

MAP SYMBOLS

Contact—Dashed where approximately located, dotted where inferred

High angle fault—Dashed where approximately located, dotted where inferred; ball and bar on downdropped block; arrows parallel to fault indicate direction of relative transverse movement; arrows perpendicular to fault indicate direction and amount of dip of fault plane where it could be determined

Low angle reverse fault or thrust fault—Dashed where approximately located, dotted where inferred or projected; sawteeth on upper plate

Shear zone—Cataclastic zone of sheared rock with quartz lenses and boudins that are also commonly sheared; arrow indicates direction and amount of dip of shear plane. Shear zones often yield anomalous gold with occasional rich ore shoots. Gold found in quartz, in arsenopyrite, and associated with pyrite and pyrrhotite

Major Folds

Synform—Showing plunge of axis; dashed where approximately located, dotted where inferred or projected

Overturned synform—Showing plunge of axis

Antiform—Showing plunge of axis; dashed where approximately located, dotted where inferred or projected

Anticline—Showing plunge of axis

Minor Folds

Plunge direction and dip of fold axis

Plunge of fold axis and dip of axial plane

Plunge of fold axis and strike of vertical axial plane

Strike of horizontal fold axis and vertical axial plane

Strike and plunge of crenulated beds

Strike and dip of beds

Inclined, showing dip

Vertical

Horizontal beds

Direction of tops of beds

Graded beds—Queried where poorly exposed

Pillow lavas

Foliation trends

Inclined

Vertical

Inclined with direction and plunge of lineation

Vertical with direction and plunge of lineation

Strike and dip of joints

Inclined

Vertical

Mine and vein-related symbols

Shaft

Adit

Prospect pit

Dredge tailings

Mill site

Inclined quartz vein with dip direction and value

Vertical quartz veins

Quartz-carbonate breccia vein

Area of abundant (predominately conformable) quartz veinlets

Area of ground disturbed by mining; includes open pit (once flooded), mine tailings, and settling ponds; blue hachured line indicates extent of the Atlantic City open pit iron mine

Miscellaneous symbols

Nonfoliated breccia

Strongly foliated tectonic breccia

Conglomerates or agglomerates

ACKNOWLEDGMENTS

Prepared in cooperation with and research supported by the U.S. Geological Survey, National Cooperative Mapping Program, under USGS award number 05HQAG0062. Earlier work (Hausel, 1987, and the printed, non-digital version of this quadrangle by Hausel, 1992) was partially funded with the support from the Wyoming State Geological Survey general operating budget and by U.S. Geological Survey COGEOMAP grants 14-08-0001-A0226 and 14-08-0001-A0396. The views and conclusions contained in this document are those of the author and should not be interpreted as necessarily representing official policies, either expressed or implied, of the U.S. Government.

During Hausel's mapping, the Atlantic City open pit iron mine was flooded and inaccessible. Geology of the open pit, tailings areas, and tailing ponds was taken from Bayley (1965) and was mapped prior to open pit operations.

The author wishes to thank Hank Hudspeth, Jr. for providing several mine names for this map.

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