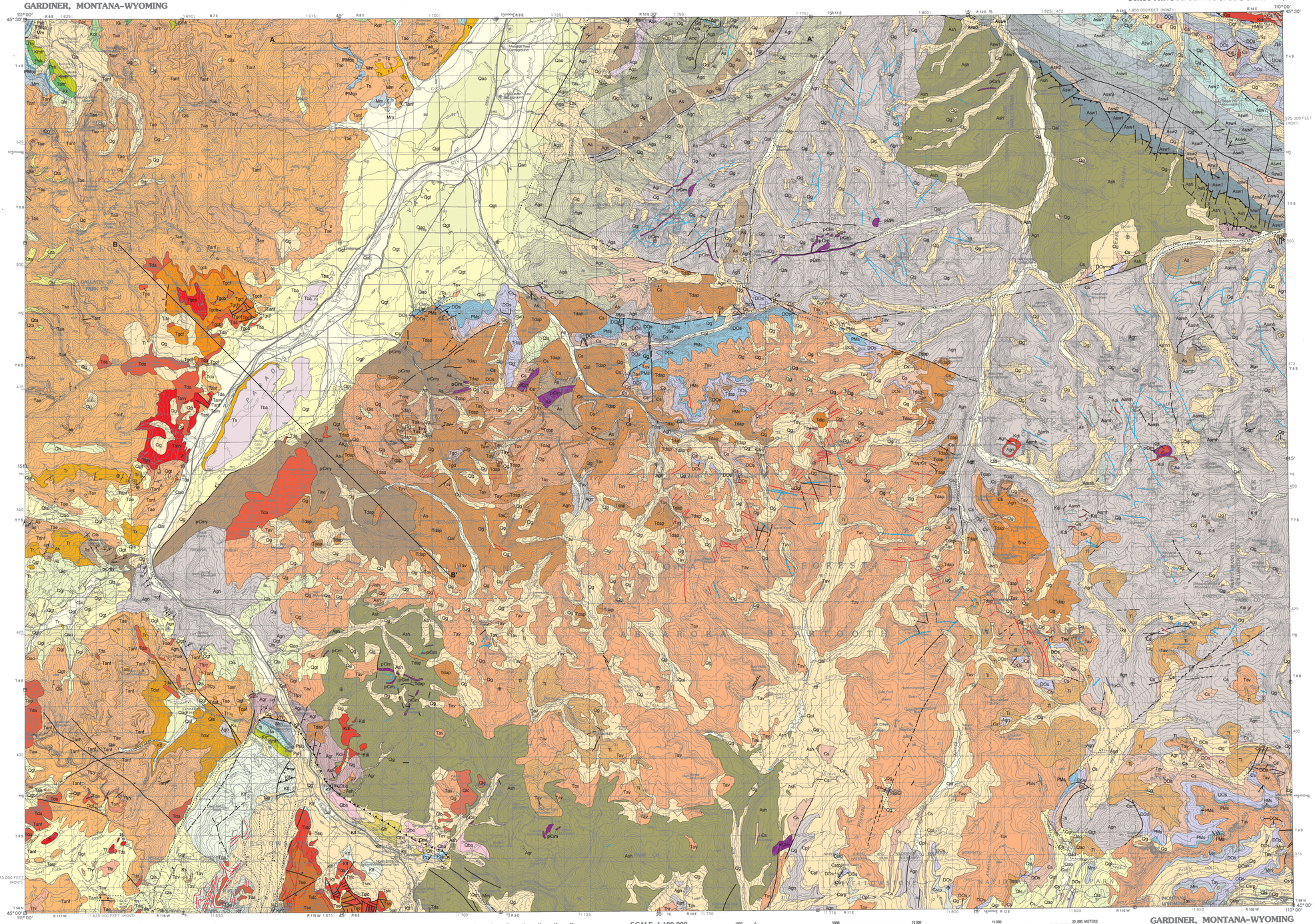
GARDINER, MONTANA–WYOMING

30X60 MINUTE SERIES (TOPOGRAPHIC)



SCALE 1:100 000
KILOMETERS 1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
MILES 1 0 1 2 3 4 5 6 7 8 9 10 11 12 13
1 CENTIMETER ON THE MAP REPRESENTS 1 KILOMETER ON THE GROUND
CONTOUR INTERVAL 50 METERS
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10 000 11 000 12 000 13 000 14 000 15 000 16 000 17 000 18 000 19 000 20 000 METERS
5000 0 5000 10 000 15 000 20 000 25 000 30 000 35 000 40 000 45 000 50 000 55 000 60 000 65 000 70 000 FEET

GARDINER, MONTANA–WYOMING
45110-A1-TM-100
1992

Base from U.S. Geological Survey
Gardiner 30'x60' topographic quadrangle
Map date: 1997
Projection: UTM zone 12; 1927 NAD

MAP UNITS

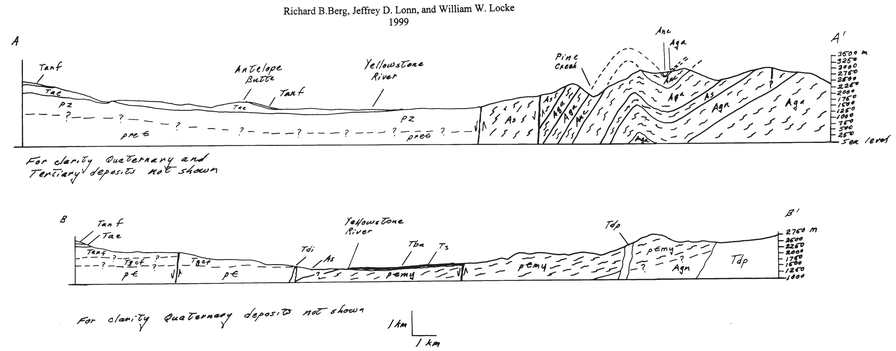
- Qls Landslide deposit
- Qal Alluvium of modern channels and flood plains
- Qao Alluvium, older, undivided
- Qta Talus deposit
- Qtr Travertine deposit
- Qg Glacial deposit, undivided
- Qgl Glacial lake deposit
- Qgt Glacial till
- Qlc Lava Creek Tuff, undivided
- Qba Basalt
- Thr Huckleberry Ridge Tuff, undivided
- Ts Sediment or sedimentary rocks, undivided
- Tba Basalt
- Ti Intrusive rocks, undivided
- Tgd Granodiorite
- Tr Rhyolite or rhyolitic sediment
- Tlt Latite and porphyritic latite
- Tfpy Felsic pyroclastic rocks
- Tmz Monzodiorite of Independence area
- Tdaf Dacite flows
- Tdap Dacite porphyry
- Tda Dacite
- Tdp Diorite porphyry
- Tav Absaroka Volcanics
- Tms Slough Creek Tuff Member of Mount Wallace Formation
- Tse Sepulcher Formation
- Tslc Lost Creek Tuff Member of Sepulcher Formation
- Tsec Elk Creek Basalt Member of Sepulcher Formation
- Tae Andesite epiclastics of Hyalite Peak Volcanics
- Tanf Andesite flows of Hyalite Peak Volcanics
- Tavv Vent facies of Hyalite Peak Volcanics,
- Tgcb Golmeyer Creek Volcanics, andesite breccia
- Tgcf Golmeyer Creek Volcanics, andesite flow
- Tgcs Golmeyer Creek Volcanics, andesite sill
- TpCi Intrusive rocks, intermediate and mafic
- Ks Sedimentary rocks, undivided
- Klf Landslide Creek formation through Frontier formation, undivided
- Kcdf Lower shale member, informal, of Cody Shale and Frontier Formation, undivided
- Kmfr Mowry through Fall River Formations, undivided
- Kkt Kootenai Formation
- Kdi Diorite
- JSs Sedimentary rocks, undivided
- PMs Permian, Pennsylvanian, and Mississippian sedimentary rocks, undivided
- Psh Shedhorn Sandstone
- PMpa Phosphoria, Quadrant, and Amsden Formations, undivided
- PMqa Quadrant and Amsden Formations, undivided
- Mm Madison Group, undivided
- DOs Sedimentary rocks, undivided
- Cs Sedimentary rocks, undivided
- Csrp Snowy Range and Pilgrim Formations, undivided
- Cpf Park through Flathead Formations, undivided
- Pzs Sedimentary rocks, undivided
- pCm Intrusive Mafic
- pCmy Mylonite
- Asw1 Peridotite zone - Stillwater Complex
- Asw2 Bronzitite zone - Stillwater Complex
- Asw3 Norite and lower gabbro zones - Stillwater Complex
- Asw4 Lower anorthosite zone - Stillwater Complex
- Asw5 Lower and middle zones - Stillwater Complex
- Asw6 Middle anorthosite zone - Stillwater Complex
- Asw7 Upper zones - Stillwater Complex
- Aamh Amphibolite and hornblende gneiss
- Aga Amphibolite and gneiss
- Agn Gneissic rocks
- Agr Granitic rocks
- Anc Nappe core complex
- Aqa Quartzite and amphibolite
- As Biotite schist
- Ash Schist and Hornfels

- Ti intrusive rocks, undivided (dikes)
- TpCi intermediate and mafic intrusive rocks
- pCm mafic intrusive rocks

GEOLOGIC CROSS SECTIONS

GARDINER 30' X 60' QUADRANGLE

Richard B.Berg, Jeffrey D. Lonn, and William W. Locke
1999



Revised	Date
MBMG GIS lab - changed colors to match Red Lodge 100K quad	3/01
Map	9/01
Map and text	12/02
Map	9/03
Map and text	4/07
Map R.B. Berg	9/08

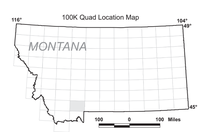
Montana Bureau of Mines and Geology
Open File No. 387

Geologic Map of the Gardiner 30' x 60' Quadrangle, South-Central Montana

Richard B. Berg, Jeffrey D. Lonn, and William W. Locke

1999

100K Quad Location Map



Quad index

BOZEMAN	LIVINGSTON	BIG TIMBER
ENNIS	GARDINER	RED LODGE
HEBGEN LAKE	YELLOW-STONE NAT PARK N	CODY

Maps may be obtained from
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Phone: (406) 496-4167 Fax: (406) 496-4451
http://www.mbmg.mtech.edu

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