

MAP UNITS

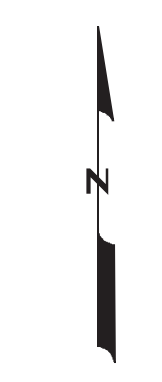
Qal	Alluvium of modern channels and flood plains
Qls	Landslide deposit
Qgl	Glacial lake deposit
Qg	Glacial deposit
Qgo	Glacial outwash deposit
Qgt	Glacial till
QTab	Alluvium of broad plains
Kam	St. Mary River Formation
Kh	Horsehead Formation
Kb	Beaupow Shale
Km	Two Medicine Formation
Kit	Vigile Formation and Telegraph Creek Formation, undivided
Kv	Vigile Formation
Kc	Telegraph Creek Formation
Kmr	Matias River Formation
Kmk	Kovin Member of Matias River Formation
Kbk	Lower Cretaceous sedimentary rocks
Kjme	Sedimentary rocks, undivided
Mm	Madison Group, undivided
MDm	Sedimentary rocks, undivided
Cs	Sedimentary rocks, undivided

CORRELATION of Units

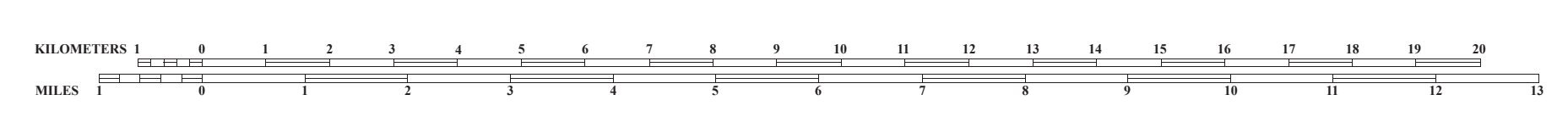
Qal	Qls	} Pleistocene	} Quaternary
Qgl	Qg		
Qgo	Qgt		
QTab			
unconformity			
unconformity		} Tertiary	
Kam			
Kh			
Kb		} Upper Cretaceous	
Km			
Kv			
Kc			
Kmr	Kmk	} Cretaceous	
unconformity			
Kbk		} Lower Cretaceous	
unconformity			
Kjme		} Jurassic	
unconformity			
Mm		} Mississippian	
unconformity			
MDm		} Devonian	
unconformity			
Cs		} Cambrian	

glacial lake shoreline

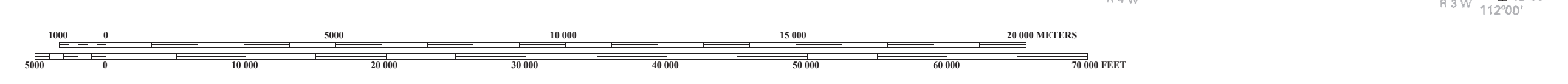
For a more detailed description of the map units and symbols, please refer to the text accompanying this map.



Base from U.S. Geological Survey
 Valier 30'x60' topographic quadrangle
 Map date: 1954
 Projection: UTM zone 12; 1927 NAD

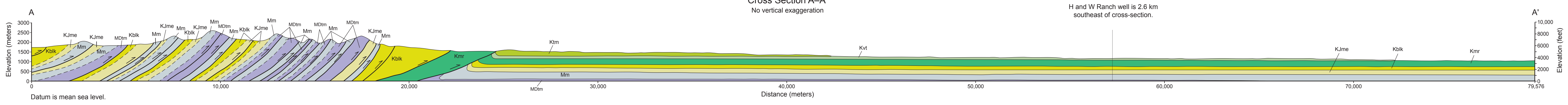


SCALE 1:100 000
 CONVERSION OF THE MAP REPRESENTS A REDUCTION ON THE GROUND
 CONTOUR INTERVAL 20 METERS
 NATIONAL GEODETIC VERTICAL DATUM OF 1929
 ELEVATIONS SHOWN TO THE NEAREST METER



Cross Section A-A'
 No vertical exaggeration

H and W Ranch well is 2.6 km
 southeast of cross-section.



Datum is mean sea level.
 For clarity, surficial deposits are not shown.
 Dashed formational contacts at southwestern end of cross section indicate the uncertainty of contacts in this area of intense deformation in the Montana Disturbed Belt.

Thicknesses used in cross section are based on exposures, well log for H and W Ranch well, and for MDm, cross section C-C' of Mudge and Earhart, 1983.

Montana Bureau of Mines and Geology
 Open File No. 453
**Geologic Map of the
 Valier 30' x 60' Quadrangle
 Northwestern Montana**

Compiled and mapped by
 Richard B. Berg

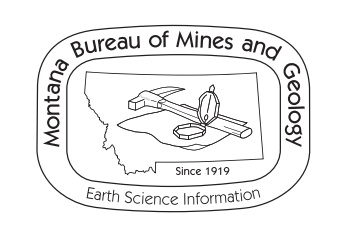
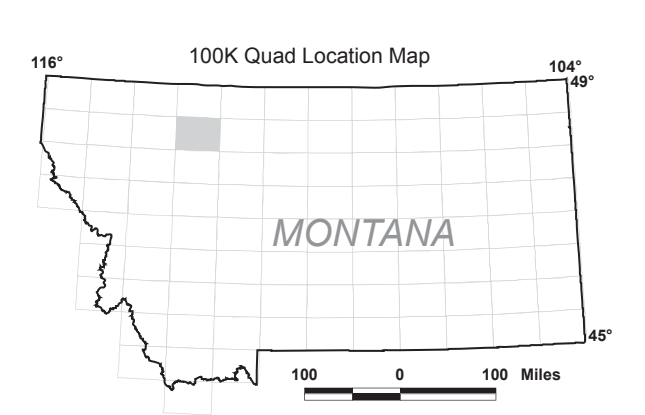
2002 (Revised in 2011)

Revised	Date
Map and text	2011

Partial support has been provided by the STATEMAP component of the National Cooperative Geologic Mapping Program of the U.S. Geological Survey under Contract Number 01-HQ-AG-0096.
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Quad index

SAINTE MARY	CUT BANK	SWEET CROWN HILLS
HUNGRY HORSE RESERVOIR	VALIER	CONRAD
SWAN PEAK	CHOTEAU	GREAT FALLS NORTH



Maps may be obtained from
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