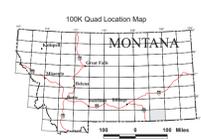


MAP UNITS

Qd	Alluvium of modern channels and flood plains
Qat	Alluvium of alluvial terrace deposit
Clkr	Clinker
Tw	Wasatch Formation
Tfr	Tongue River Member of Fort Union Formation

Quad index

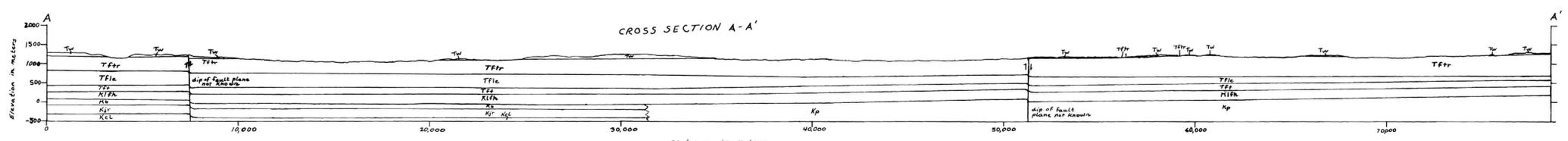
HARDIN	LAME DEER	POWERSVILLE
LODGE CRAGS	BIRNEY	BROADUS
BURGESS JUNCTION	SHERIDAN	RECLUSE



Base from U.S. Geological Survey
 Birney 30' x 60' topographic quadrangle
 Map date: 1980
 Projection: UTM zone 13; 1927 NAD

SCALE 1:100,000
 1 CENTIMETER ON THE MAP REPRESENTS 1 KILOMETER ON THE GROUND
 CONTOUR INTERVAL 20 METERS

BIRNEY, MONTANA
 N4500-W10600/30x60
 1980



Vertical exaggeration: 2x
 Datum - mean sea level
 Surficial deposits and clinker not shown.

Sources:
 Denson and others (1993), Fox (1993), McLeffan, (1991), Vuks and others (2000).

Cross Section A-A' Explanation

Tw	Wasatch Formation
Tfr	Fort Union Formation
Tflc	Tongue River Member
Tflm	Lame Member
Tfln	Tallock Member
Kflh	Lame and Fox Hills Formations, undivided
Kh	Beauregard Shale
Kjr	Judith River Formation
Kcl	Claggett Shale
Kp	Pierre Shale

Approximate location of nonconformity change from Beauregard Shale, Judith River Formation, and Claggett Shale west of symbol to Pierre Shale east of symbol.

Montana Bureau of Mines and Geology
 Open File 431
 Geologic Map of the Birney
 30' x 60' Quadrangle, Eastern Montana

Compiled and mapped by Susan M. Vuks, Edward L. Heffern,
 Robert N. Bergantino, and Roger B. Colton

2001 (Revision 2007)

Revision	Date
map - S M Vuks	8/07

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 00-HQ-AG-0115.

GIS production: Ken Sandau and Paul Thale, MBMG; Map layout: Susan Smith, MBMG.



Maps may be obtained from
 Publications Office
 Montana Bureau of Mines and Geology
 1300 West Park Street, Butte, Montana 59701-8997
 Phone: (406) 496-4167 Fax: (406) 496-4451
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