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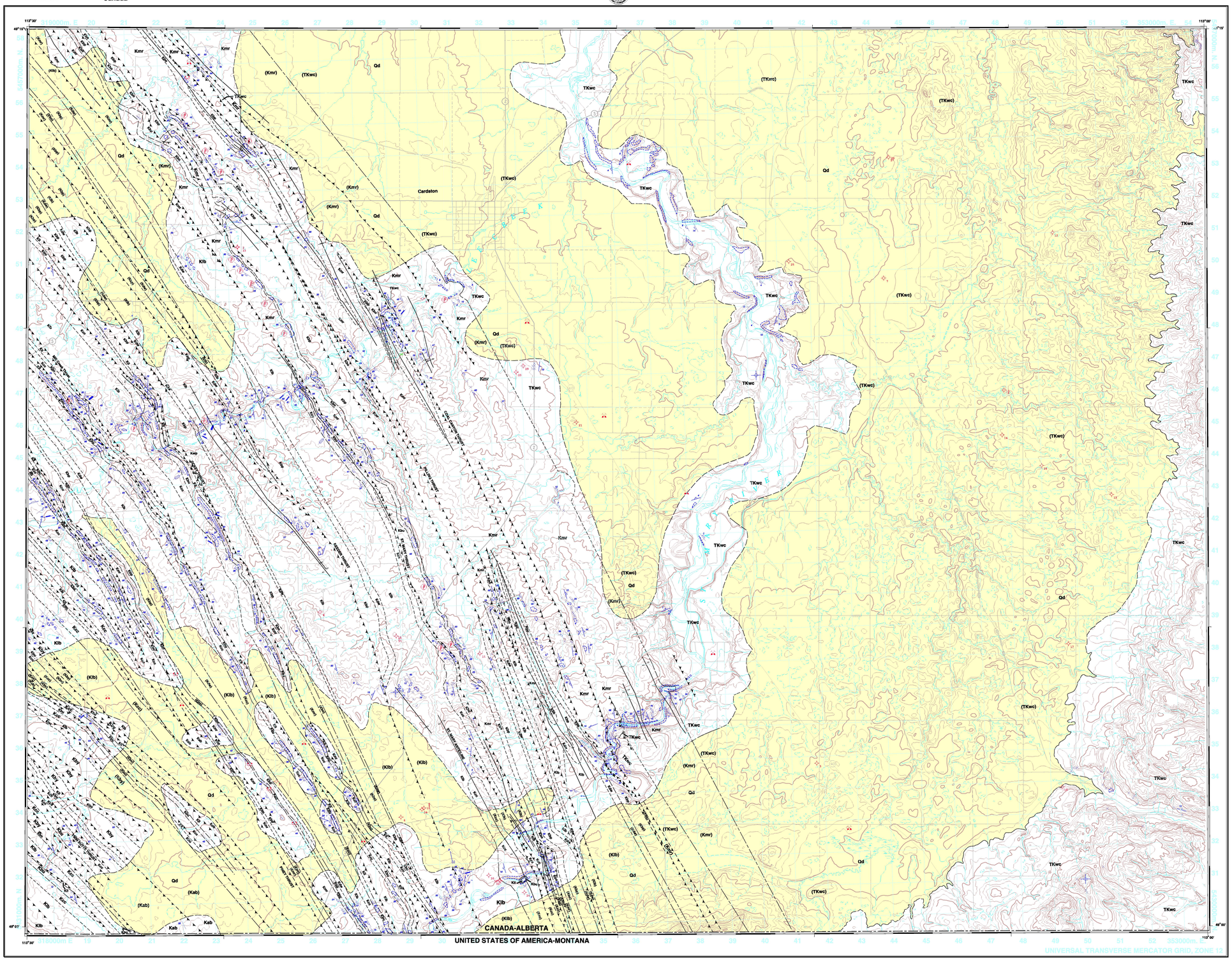
GEOLOGICAL SURVEY OF CANADA | COMMISSION GÉOLOGIQUE DU CANADA



LEGEND

Stratigraphic symbols in brackets on the map indicates projected under younger deposits

CENOZOIC

QUATERNARY
PLEISTOCENE AND RECENT

- Qd — *Till, alluvium, colluvium*

CRETACEOUS AND TERTIARY
UPPER CRETACEOUS AND PALEOCENE

- TKwc — *WILLOW CREEK FORMATION: red, green, dark grey, and purple shale; sandstone lenses; limy nodules*

MESOZOIC

CRETACEOUS
UPPER CRETACEOUS

- Kmr — *ST. MARY RIVER FORMATION: siltstone, channel- fill sandstone, and shale; bentonite and ironstone; basal member, coal-bearing*
- Kbo — *BLOOD RESERVE FORMATION: massive and crossbedded arenite; sandstone concretions; local shale partings; coquina lenses (Ostrea, Halymenites), up to 3 m thick*
- Kbp — *BEARPAW FORMATION: dark grey-brown shale; minor thin sandstone, bentonite, and ironstone; basal coquina (Ostrea)*

BELLY RIVER GROUP

- Kdw — *DRYWOOD CREEK FORMATION: sandstone, dark greenish grey shale; minor coal, coquina*
- Klb — *LUNDBRECK FORMATION: greenish grey shale; limy concretions, pedogenic limestone, channelized sandstone bodies*
- Kcc — *CONNELLY CREEK FORMATION: channelized sandstone bodies and shale; common wood, plants and coaly fragments in sandstone; minor coquina (gastropods)*

→ Kby — *BELLY RIVER GROUP: undivided*

ALBERTA GROUP

- Kbu — *PAKOWKI FORMATION: recessive dark greenish grey marine shale, minor sandstone (formation less then 10 m thick)*
  BURMIS FORMATION: light grey, crossbedded arenite; minor brown weathering, concretionary and iron-bearing calcareous sandstone and magnetite-bearing sandstone
- Kll — *LEES LAKE FORMATION: dark grey marine shale, light grey sandstone*
- Kwp — *WAPIABI FORMATION: dark grey marine shales and minor thin siltstone, fine grained sandstone and calcareous sandstone*

→ Kab — *ALBERTA AND BELLY RIVER GROUPS: undivided*

MAP SYMBOLS

Outcrop (small, large, scattered)
Geological boundary (defined, approximate, assumed)
Geological boundary (assumed projection under younger deposits)

LOCAL STRUCTURES

PLANAR STRUCTURES

Bedding, tops known (horizontal, inclined, overturned, vertical)
Bedding, tops unknown (inclined, vertical, dip unknown)
Cleavage, first phase (inclined)
Joint (inclined, vertical)
Vein (inclined, vertical)

LINEAR STRUCTURES

Intersection lineation (L_i^1)
Fold axis (anticline, Z-fold)
Fault striation

REGIONAL STRUCTURES

Thrust fault (teeth indicate dip direction; defined, approximate, assumed)
Thrust fault (assumed projection under cover of younger deposits)
Anticline (upright, overturned; approximate position)
Syncline (upright, overturned; approximate position)

OTHERS

Well (gas producer, dry and abandoned)
Abandoned mine
Sand and gravel pits
Fossil locality

Geology by D. Lebel and E.P. Williams based on fieldwork and studies of vertical air photographs by E.P. Williams (1947, 1948) and D. Lebel (1993,1994). Additional information about the geology can be found in Williams (1949, 1956) and Lebel (1994).

REFERENCES

Lebel, D. 1994. Regional geology of the Cardston map area, Alberta; in Current Research 1994-A; Geological Survey of Canada, p. 231-236.

Williams, E.P. 1949. Preliminary Map, Cardston, Alberta; Geological Survey of Canada, Paper 49-3.

Williams, E.P. 1956. Geology of the Cardston area, Alberta, Canada. Unpublished Doctoral Thesis, Harvard University, Massachussett, 205 pages.

SCHEDULE OF WELLS

1- UWID 100010100226W4 0, LETHBERTA (WEEKS) NO. 1, surface location: 1-1-2-26
2- UWID 100010300326W4 0, FRANCO NO. 2, surface location: 1-10-3-26
3- UWID 100012000124W4 0, CHEVRON ET AL WHISKEY GAP 1-20-1-24, surface location: 1-20-1-24
4- UWID 100020200226W4 0, CHEVRON ET AL CARWAY 2-2-2-26, surface location: 3-2-2-26
5- UWID 100030503254W4 0, FRANCO NO. 1, surface location: 3-5-3-25
6- UWID 100041800125W4 0, SUNCOR ET AL CARWAY 4-18-1-25, surface location: 4-8-1-25
7- UWID 100060200324W4 0, OMV ET AL WOOLFORD 6-2-3-24, surface location: 6-2-3-24
8- UWID 100061800125W4 0, CZAR ET AL OUTPOST 6-18-1-25, surface location: 6-18-1-25
9- UWID 100061800125W4 0, ELTUN NRG ET AL OUTPOST 6-18-1-25, surface location: 6-18-1-25
10- UWID 100061800125W4 2, ELTUN NRG ET AL OUTPOST 6-18-1-25, surface location: 6-18-1-25
11- UWID 100063200125W4 0, CZAR ET AL OUTPOST 6-32-1-25, surface location: 6-32-1-25
12- UWID 100070800323W4 0, UNIGAS ET AL SPRING COULEE 7-8-3-23, surface location: 7-8-3-23
13- UWID 100071700223W4 0, BRACELL ET AL JEFFERSON 7-17-2-23, surface location: 7-17-2-23
14- UWID 100072400224W4 0, CS DOME WOOLFORD 7-24-2-24, surface location: 7-24-2-24
15- UWID 100072500224W4 0, OMV ET AL WOOLFORD 7-25-2-24, surface location: 7-25-2-24
16- UWID 100072500224W4 2, OMV ET AL WOOLFORD 7-25-2-24, surface location: 7-25-2-24
17- UWID 100083100123W4 0, PRECAM ET AL WHISKEY GAP 8-31-1-23, surface location: 8-31-1-23
18- UWID 100093600126W4 0, LETHBRIDGE OILS #2, surface location: 9-36-1-26
19- UWID 100101800123W4 0, MINERALS PETERS 10-18-1-23, surface location: 10-18-1-23
20- UWID 100114002826W4 0, MCFARLIN OIL NO. 3, surface location: 11-14-2-26
21- UWID 100112200225W4 0, PHILLIPS AETNA 11-22-2-25, surface location: 11-22-2-25
22- UWID 100113400126W4 0, GPD DOME CARWAY 11-34-1-26, surface location: 12-34-1-26
23- UWID 100122800225W4 0, PHILLIPS AETNA 12-28-2-25, surface location: 12-28-2-25
24- UWID 100140400125W4 0, DOMINION OIL NO. 1, surface location: 14-4-1-25
25- UWID 100140400324W4 0, PAGE ET AL WOOLFORD 14-4-3-24, surface location: 14-4-3-24
26- UWID 100141400324W4 0, OMV ET AL WOOLFORD 14-14-3-24, surface location: 14-14-3-24
27- UWID 100141400324W4 2, OMV ET AL WOOLFORD 14-14-3-24, surface location: 14-14-3-24
28- UWID 100141800223W4 0, SCCONY JEFFERSON NO. 18-14, surface location: 14-18-2-23
29- UWID 100142800225W4 0, WESTCOAST ET AL AETNA 14-28-2-25, surface location: 14-28-2-25
30- UWID 100150500125W4 0, LETHBERTA NO.3, surface location: 15-5-1-25
31- UWID 100151500126W4 0, CARWAY 15-15, surface location: 15-15-1-26
32- UWID 100160500125W4 0, BOSTON ALBERTA #1, surface location: 16-5-1-25
33- UWID 100211000326W4 0, FRANCO NO. 2A, surface location: 1-10-3-26
34- UWID 100261800125W4 0, AEL ET AL OUTPOST 6-18-1-25, surface location: 6-18-1-25
35- UWID 100936001126W4 0, WEEKS & CUTLER NO.1, surface location: 9-36-1-26
36- UWID 102160500125W4 0, BOSTON ALBERTA #2, surface location: 16-5-1-25
37- UWID 103093600126W4 0, LETHBERTA #2, surface location: 9-36-1-26

Geological cartography by D. Lebel with contributions by S. Hinds and M. McDonough

Any revisions or additional geological information to the user would be welcomed by the Geological Survey of Canada

Base map at the same scale published Surveys and Mapping Branch in 1978

Copies of the topographical edition of this map area may be obtained from the Canada Map Office, Department of Natural Resources, Ottawa, Ontario

Elevations values unavailable in the digital file used for this map at press time, please refer to an original topographical map (contours interval 25 feet east half, 50 feet west half)

NOTE: Base map and geology have been transformed from NAD27 to NAD83

Recommended citation:
Lebel, D., and Williams, E.P. 1994. Geology, Cardston, Alberta; Geological Survey of Canada, Open File map 2854, scale 1:50 000.

Copies of this map are available from:
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Calgary, Alberta T2L 2A7
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Canada

SOUTHERN ALBERTA NATMAP PROJECT

GEOLOGY

CARDSTON

ALBERTA

Scale 1:50 000 Echelle 1/50 000

Kilometres 1 0 1 2 3 Kilometres

82H/5 Pincher Creek GSC Pap. 51-22	82H/6 Raley	82H/7 Raymond
82H/4 Waterton Lakes GSC Pap. 52-10	82H/3 Cardston GSC O.F. 2854 GSC Pap. 49-3	82H/2 Del Bonita GSC Pap. 37-10

NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND INDEX TO ADJOINING GEOLOGICAL SURVEY OF CANADA MAPS