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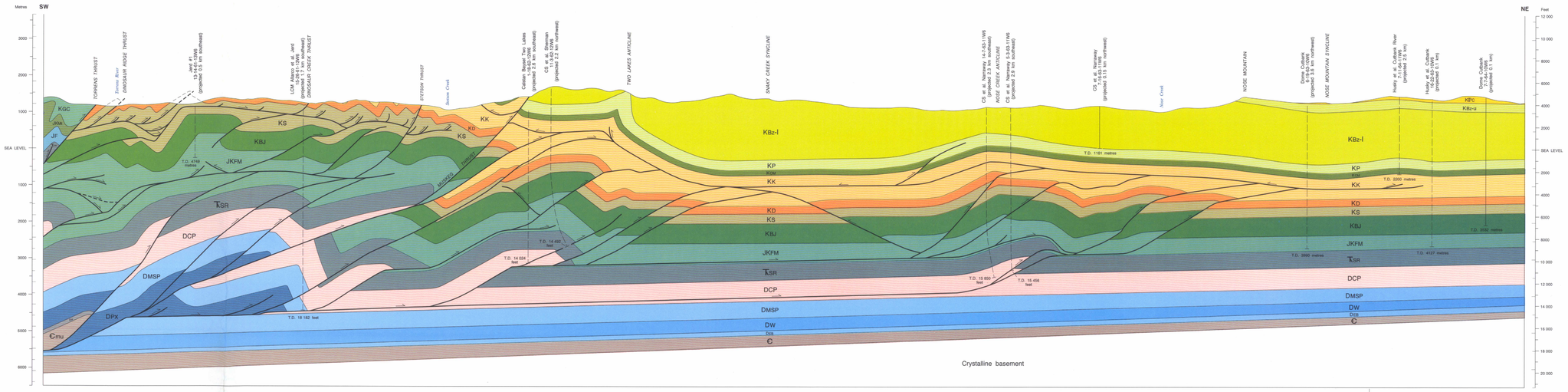
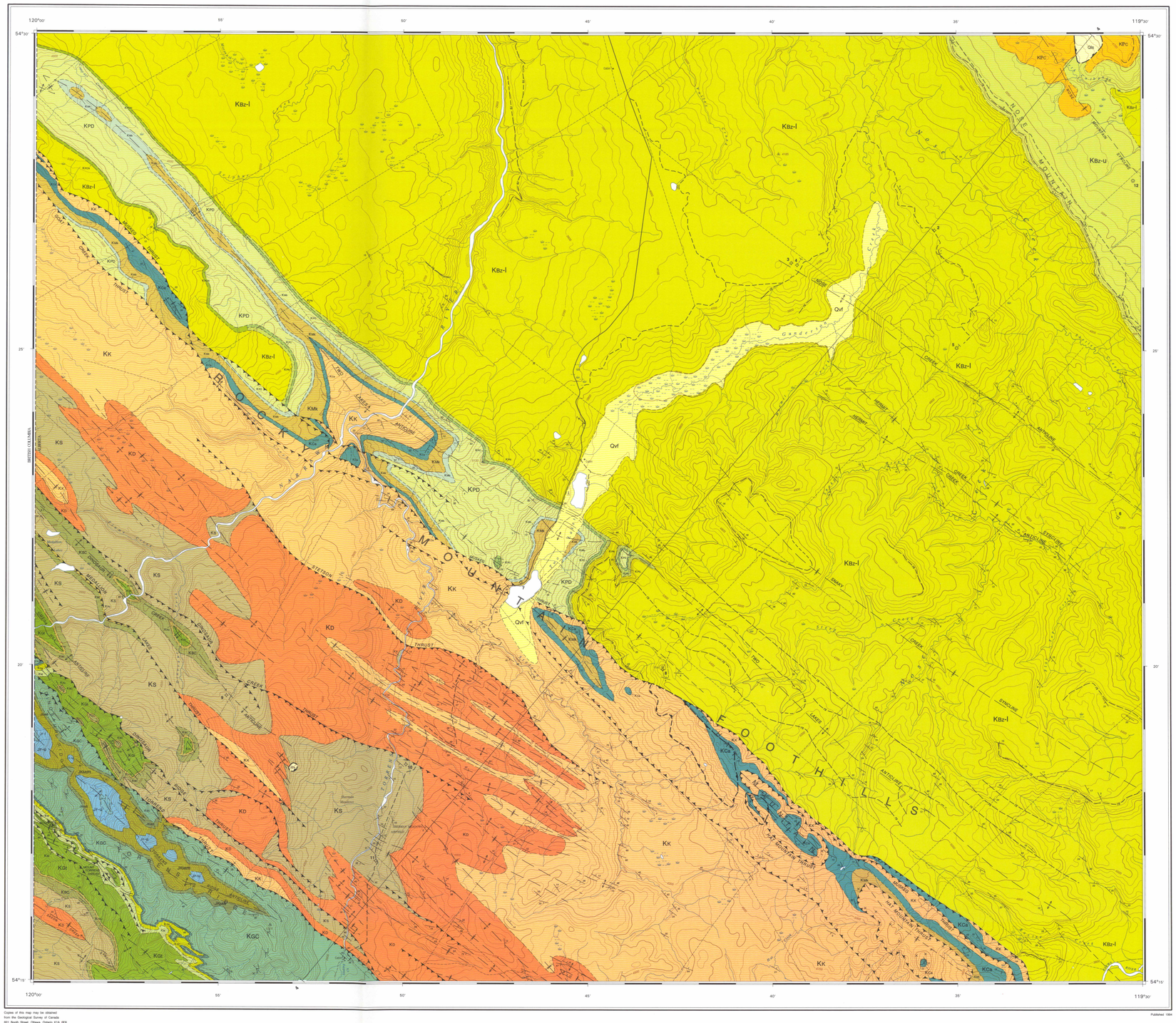
GEOLOGICAL SURVEY OF CANADA / COMMISSION GÉOLOGIQUE DU CANADA




Structure cross-section

N.T.S. Map 83 L/5 | N.T.S. Map 83 L/12 (geological map not published)

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Copies of this map may be obtained from the Geological Survey of Canada
601 Booth Street, Ottawa, Ontario K1A 0E8
3303-33rd Street, N.W., Calgary, Alberta T2L 2A7
100 West Pender Street, Vancouver, B.C. V6B 1R8

LOCATION MAP

*Geological interpretation based on ground and air observations by M.E. McMechan (1981-83, 1985) and F.M. Dawson on Cutbank River (1987), and GSC Preliminary Series Paper 55-14 (including a geological map) by H.R. Greiner*

*Digital cartography by D.A. Lemay, Institute of Sedimentary and Petroleum Geology, Geological Survey of Canada*

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

MAP 1842A

GEOLOGY

# TWO LAKES

WEST OF SIXTH MERIDIAN

ALBERTA

Scale 1:50 000 - Échelle 1/50 000

Kilometres 1 0 1 2 3 4 Kilomètres

Universal Transverse Mercator Projection
Projection transverse universelle de Mercator

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*Base map at the same scale published by the Surveys and Mapping Branch in 1980*

*Copies of the topographical edition of this map may be obtained from the Canada Map Office, Department of Natural Resources Canada, Ottawa, Ontario, K1A 0E9*

*Approximate magnetic declination 1994, 22°36' East, decreasing 9.3' annually*

*Elevations in feet above mean sea level*

| | | |
|---|---|---|
| 93-I/9 | 83L/12 | 83L/11 |
| 93-I/8 | 83L/5 | 83L/6 |
| | 1842A | |
| 93-I/1 | 83L/4 | 83L/3 |

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

## LEGEND

CENOZOIC

QUATERNARY
PLEISTOCENE AND RECENT

**Qls** — *Landslide: blocks of coherent strata from nearby bedrock*

**Qvf** — *Alluvium, colluvium, till: gravel, sand, silt (only shown where bedrock is extensively covered)*

MESOZOIC

CRETACEOUS AND TERTIARY
UPPER CRETACEOUS AND PALEOCENE
WAPITI GROUP (KPc-l - KPc)

**KPc** — *COALSPUR FORMATION: sandstone; light grey, brownish weathering, argillaceous, commonly crossbedded. Siltstone and mudstone; grey and greenish grey, in fining-upward cycles; minor volcanic tuff. Twenty-five to thirty metres of light grey, locally conglomeratic sandstone of the Entrance Member form the base of the formation. ru denotes base of a local, resistant and mappable unit*

UPPER CRETACEOUS
*BRAZEAU FORMATION (KBz-l - KBz-u)*

**KBz-u** — *Upper part: sandstone; light grey, brownish weathering, argillaceous, carbonaceous, locally conglomeratic. Siltstone and mudstone; grey and greenish grey, carbonaceous. Coal. Relatively resistant unit. The "Cutbank coal measures" occur in the lower two thirds of the unit*

**KBz-l** — *Lower part: sandstone; green and grey, argillaceous, carbonaceous, locally conglomeratic. Mudstone and siltstone; green, brown, and grey, carbonaceous. rs denotes bases of local, resistant and mappable units*

*PUSKWASKAU FORMATION (KPn - KPm)*

**KPN** — *Nomad Member: siltstone; medium grey and argillaceous, interbedded with dark grey, rusty weathering shale. Relatively recessive member*

**KPC** — *Chungo Member: sandstone; grey, brown weathering, quartz- and chert-rich, well cemented, laminated. Resistant marker member*

**KPCN** — *Chungo and Nomad Members, undivided*

**KPD** — *Dowling, Thistle and Hanson Members, undivided: shale and calcareous shale, dark grey to black, grey to rusty weathering, commonly silty, with sideritic concretions. Recessive sequence*

**KP** — *PUSKWASKAU FORMATION, undivided. Structure section only*

**KMb** — *MARSHYBANK FORMATION*
*Upper part: interbedded mudstone, siltstone, sandstone, and minor coal. Lower part: sandstone; grey, brown weathering, quartz- and chert-rich, well cemented. Resistant weathering formation*

**KMk** — *MUSKIKI FORMATION: shale; dark grey, rusty weathering, silty, with thin interbeds of grey, argillaceous siltstone near the top. Recessive weathering formation*

**KCa** — *CARDIUM FORMATION: sandstone; grey, brown weathering, quartz- and chert-rich, well sorted and cemented. Shale; grey and carbonaceous, with interbeds of argillaceous siltstone to coarse grained sandstone. Local chert-pebble conglomerate. Resistant weathering marker formation*

**KCM** — *CARDIUM, MUSKIKI, AND MARSHYBANK FORMATIONS, undivided. Structure section only*

**KK** — *KASKAPAU FORMATION: shale; dark grey to black, rusty weathering, commonly silty, with sideritic concretions and variable amounts of very thinly interbedded, grey, brown weathering siltstone. Shale; calcareous, dark grey, silver-grey weathering. Recessive, poorly exposed formation; commonly faulted and folded*

**KD** — *DUNVEGAN FORMATION: sandstone (grey, brown weathering, argillaceous) and mudstone (grey and brown, brown weathering, silty, commonly carbonaceous, laminated) in fining-upward cycles. Sandstone; grey, grey weathering, quartzose, crossbedded. Rare, lenticular coal seams. Relatively resistant marker formation*

LOWER AND UPPER CRETACEOUS
FORT ST. JOHN GROUP (KM - KS)

**KS** — *SHAFTESBURY FORMATION: shale; dark grey, grey or rusty weathering, with red-brown weathering, laminated siltstone interbeds more common near the top. Recessive, dark weathering formation*

LOWER CRETACEOUS

**KBC** — *BOULDER CREEK FORMATION: sandstone; grey, and grey weathering, well sorted, crossbedded. Conglomerate; "salt and pepper"; grey weathering, granule to pebble sized clasts. Carbonaceous siltstone and shale. Resistant, light grey, or black-lichen covered marker formation*

**KHU** — *HULCROSS FORMATION: shale; dark grey, with ironstone concretions. Siltstone; grey, brown weathering, laminated, micaceous and carbonaceous bedding surfaces. Recessive, dark weathering formation*

**KGt** — *GATES FORMATION: sandstone; grey, tan or red-brown weathering, carbonaceous, and crossbedded. Interlayered with grey and brown carbonaceous shale; grey, crosslaminated, carbonaceous siltstone; coal; and sandy pebble conglomerate. A resistant, grey, brown weathering, fine grained, well sorted sandstone unit forms the base of the succession in many areas. The lower part of the formation is more resistant than the upper part*

**KM** — *MOOSEBAR FORMATION: shale; dark grey, with ironstone concretions, and thin interbeds of grey, brown weathering, laminated sandstone in the upper part. Recessive weathering marker formation*

BULLHEAD GROUP (KCn - KGe)

**KGe** — *GETHING FORMATION: sandstone; grey, orange-brown weathering, carbonaceous, crossbedded, with local sandy pebble conglomerate; interlayered with carbonaceous siltstone, carbonaceous shale, and coal. Plant remains abundant throughout*

**KCn** — *CADOMIN FORMATION: conglomerate; pebble to cobble sized clasts, in red-brown weathering sandy matrix, with local interbeds of sandstone, siltstone, and minor coal. Resistant, light grey, or black-lichen covered marker formation*

**KBJ** — *BULLHEAD AND FORT ST. JOHN GROUPS, undivided. Structure section only*

MINNES GROUP (JKmm - KGc)

**KGC** — *GORMAN CREEK FORMATION: interlayered sandstone, siltstone, mudstone, and carbonaceous shale or coal in fining-upward cycles generally one to five metres thick. Sandstone; grey, orange or brown weathering, carbonaceous, ripple cross-laminated or crossbedded; commonly rich in dark chert, and locally conglomeratic. Siltstone, grey, orange or grey weathering, carbonaceous. Shale; grey weathering, silty, carbonaceous, commonly grading to coal. An orange-brown weathering, folded and faulted succession with few marker units*

JURASSIC AND CRETACEOUS
UPPER JURASSIC AND LOWER CRETACEOUS
*MONTEITH FORMATION (JKmm - JKmts)*

**JKMt** — *MONTEITH FORMATION, undivided. Structure section only*

**JKFM** — *FERNIE FORMATION AND MINNES GROUP, undivided. Structure section only*

**JKmts** — *Mixed facies: sandstone; grey, brown weathering, chert-rich, ripple crosslaminated; locally carbonaceous. Shale and siltstone; grey, brown weathering, interlaminated, micaceous and carbonaceous separation surfaces. Carbonate concretions locally*

**JKmtm** — *Marine sandstone facies: sandstone; grey, light brown-grey, pinkish or light grey, commonly platy weathering, laminated, with minor grey shale interbeds. Resistant marker facies*

JURASSIC
*FERNIE FORMATION (JF-l - JF-u)*

**JF-u** — *Upper part: siltstone and silty sandstone; grey, brown-grey, red-brown weathering, with local, large, orange-brown weathering concretions; interbedded with grey, brown weathering, silty shale. Brown, relatively recessive sequence*

**JF-l** — *Lower part: shale; dark grey, locally rusty weathering, ironstone concretions, and, locally, minor quartzose and glauconitic sandstone with wood fragments. Recessive, poorly exposed sequence, which includes a few metres of interbedded black limestone and shale of the Nordegg Member at the base*

**JF** — *FERNIE FORMATION, undivided. Structure section only*

SUBSURFACE ONLY

TRIASSIC

**TSR** — *SPRAY RIVER GROUP: siltstone, shale, limestone, dolostone, and sandstone*

PALEOZOIC

DEVONIAN, CARBONIFEROUS, AND PERMIAN

**DCP** — *EXSHAW AND BANFF FORMATIONS, RUNDLE GROUP, and the MOWITCH AND BELLOY FORMATIONS, undivided: limestone, shale, dolostone, and minor sandstone*

DEVONIAN
UPPER DEVONIAN

**DMSP** — *MOUNT HAWK, SIMLA, AND PALLISER FORMATIONS, undivided: limestone and argillaceous limestone*

**DPx** — *PERDRIX FORMATION: shale, calcareous shale, and siltstone*

**DW** — *WOODBEND GROUP: shale and calcareous shale (off-reef facies); dolostone and limestone (reef facies)*

**DF** — *FLUME FORMATION: limestone, shale*

MIDDLE AND UPPER DEVONIAN

**DEB** — *ELK POINT AND BEAVERHILL LAKE GROUPS, undivided: limestone, dolostone, evaporites, and sandstone*

CAMBRIAN
MIDDLE AND UPPER CAMBRIAN

**Єmu** — *Limestone, dolostone, and shale*

LOWER CAMBRIAN

**Єg** — *GOG GROUP, undivided: quartz sandstone*

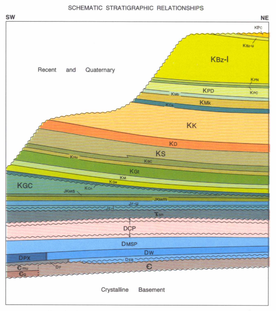
**Є** — *CAMBRIAN, undivided: limestone, dolostone, and shale*

*Outcrop examined, bedding attitude not determined*
*Geological boundary (defined, approximate, assumed)*
*Geological boundary (assumed projection under cover of younger deposits)*
*Bedding, tops known (horizontal, inclined, vertical, overturned)*
*Shallow bedding, approximate orientation*
*Landslide and slumped block detachment surface (approximate, assumed)*
*Fault; thrust or reverse (teeth indicate upthrust side; approximate, assumed)*
*Fault; thrust or reverse (assumed projection under cover of younger deposits)*
*Anticline, trace of axial plane (fold upright, overturned; approximate, assumed; arrow indicates plunge)*
*Anticline (assumed projection under cover of younger deposits)*
*Syncline, trace of axial plane (fold upright; approximate, assumed; arrow indicates plunge)*
*Diagrammatic profiles of sets of minor folds (10 to 30 m wavelength) viewed to the northwest. Axial trace indicates the observed extent of the structures*
*Limit of mappable unit; change in stratigraphic nomenclature denoted by dotted line perpendicular to map unit contacts*
*Line of section*
*Well (gas, abandoned; directional drilling indicated)*

SCHEDULE OF WELLS

1. *Mobil et al. Chinook 11-17-63-13W6*
2. *CS et al. Narraway 7-16-63-11W6*
3. *Union Noas Creek 14-7-63-11W6*
4. *CS et al. Narraway 14-7-63-11W6*
5. *CS et al. Narraway 5-3-63-11W6*
6. *CS et al. Narraway 8-24-62-11W6*
7. *Calstan Baysel Two Lakes 1-18-62-12W6*
8. *CS et al. Sherman 11-3-63-12W6*
9. *Cdn. Oxy. Jerd 14-32-61-13W6*
10. *LCM Mitarco et al. Jerd 15-26-61-13W6*
11. *Jerd #1 13-14-61-13W6*
12. *Dome Cutbank 6-19-63-10W6*

SCHEMATIC STRATIGRAPHIC RELATIONSHIPS

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1842A

Canada

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