



LEGEND

PALEOGENE

- Pcg** Conglomerate and sandstone; compositionally immature, various shades of brown and reddish brown, sandstone typically crossbedded, poor to well-indurated. Siltstone, locally preserved in modern river valleys.

CRETACEOUS

UPPER CRETACEOUS

- DURVEGAN FORMATION**
Sandstone: thin to buff, laminated or crossbedded or massive; minor conglomerate; chert-pebbles, brown to grey; shale silty, dark grey; coal. All lithologies are interbedded; resistant.
- LEPINE AND SULLY FORMATIONS** (see Note 2)
Shale: dark grey, interbedded with limestone; dark grey; and siltstone: slightly sandy, dark grey, locally laminated; minor sandstone: lithic wacke, grey or greenish grey, thin-bedded, interbedded with shale, mudstone and siltstone. Siltstone concretions common. Recessive; includes strata equivalent to the Skikani Formation.

LOWER AND UPPER CRETACEOUS

- FORT ST. JOHN GROUP** (units KCh - KLS)
Shale: dark grey, interbedded with sandstone; dark grey; and siltstone: slightly sandy, dark grey, locally laminated; minor sandstone: lithic wacke, grey or greenish grey, thin-bedded, interbedded with shale, mudstone and siltstone. Siltstone concretions common. Recessive; includes strata equivalent to the Skikani Formation.

LOWER CRETACEOUS

- LEPINE FORMATION**
Mudstone: dark grey, silty, siltstone: interbedded with shale; silty, dark grey to black, fossiliferous; lower part of unit contains abundant ammonites.

SCATTER FORMATION (units Ks-B - Ks-T)

- Tussock Member**
Sandstone: lithic wacke, glauconitic, greenish grey, thin- to thick-bedded, laminated; minor siltstone: grey, interbedded with sandstone. Resistant. Zoophycos burrows common.
- Withorn Member**
Mudstone: brown to dark grey, silty, siltstone: recessive.
- Bulwell Member**
Sandstone: lithic wacke, glauconitic, greenish grey, thin- to thick-bedded, laminated; minor siltstone: grey, interbedded with sandstone. Resistant. Zoophycos burrows common.

GARBUTT FORMATION

- Shale and siltstone: dark grey to black, interbedded; siltstone: recessive; minor sandstone: brown to grey, thin-bedded, finely laminated. Recessive.

CHINKHEH FORMATION

- Sandstone: quartz arenite to lithic wacke with variable chert content, brown to grey, laminated, bioturbated; minor siltstone: argillaceous, grey, interbedded with sandstone; conglomerate: chert-pebbles, at base of unit. Woody or plant debris common; locally too thin to map or discontinuous.

TRIASIC

- TGT** Shale: grey, red and green, interbedded with sandstone: brown, thin- to thick-bedded, laminated or massive, locally bioturbated; minor siltstone: brown to grey, interbedded with shale and sandstone. Locally calcareous or phosphatic; higher proportion of shale and more recessive at base.

PERMIAN

- ISHBEL GROUP** (units Pt - Pf)
FANTASQUE FORMATION
Chert: dark grey to white, rusty weathering, well-bedded, spiculate; minor shale and siltstone: siliceous, dark grey to dark brown, rhythmically interbedded with chert. Resistant.
- Tika formation**
Limestone and dolomite: silty or sandy, medium to dark brown, buff weathering, medium bedded, massive to cross-laminated; minor siltstone and shale: calcareous, dark brown or grey, rhythmically interbedded with limestone and dolomite; sandstone: glauconitic, grey, crossbedded, at base of unit. Rectilinear fracture pattern typical; rare brachiopods and trace fossils.

CARBONIFEROUS

- LOWER AND UPPER CARBONIFEROUS**
 - MATTISON FORMATION** (units Cm-I - Cm-U)
Upper member
Sandstone: quartz arenite to sub-chert-arenite, locally orange or dolomitic, fine- to coarse-grained, light to medium grey, commonly shows large-scale crossbedding; minor limestone: grey, chert nodules and siltstone: typically fossiliferous with crinoids, brachiopods, bryozoans, and corals; dolomite: brown to orange; and shale: grey to green. All lithologies interbedded; resistant.
 - Lower member**
Sandstone: quartz arenite and lesser sub-chert-arenite, fine-grained, grey to buff to brown, thick-bedded, fine- to large-scale crossbedding, poor to well-indurated; minor siltstone and shale: medium to dark grey, interbedded with sandstone. Typically forms sharp-based fining-up sequences; resistant.
 - Lower member**
Sandstone: quartz arenite, fine- to very fine-grained, light grey or buff, grey to orange weathering, thin- to medium-bedded, typically cross-laminated, well-indurated, trace fossils common; minor siltstone and shale: dark grey, interbedded with sandstone; dolomite: orange, massive; lithic breccia: variable composition, uncommon. Typically forms coarsening-up sequences; moderately resistant.

MEASURED SECTIONS

SECTION NOTE

1. 1998-0488 Geyling and Todd formations - R.B. MacNaughton (MacNaughton, 2002)
2. 151 Scatter Formation - D.A. Leckie (Leckie and Potocki, 1998)
3. 1295L Chinkheh Formation - D. Jowett (Jowett, 2004)
4. 1295M Scatter Formation - D. Jowett (Jowett, 2004)

FOSSIL LOCALITIES

LOCALITY NUMBER	CATALOGUE NUMBER	FOSSIL	AGE	EASTING (NAD83)	NORTHING (NAD83)	REFERENCE
1	C-16558	palynomorphs	Late Mississippian or younger	430033	667005	Utting, 2001
2	C-093731	palynomorphs	Late Pennsylvanian to Early Permian	440717	666426	Utting, 1983
3	5600-5610	palynomorphs	Mississippian			

NOTE: Two samples were taken from petroleum well 127 at Fossil locality #2. The downhole depths where the samples were collected are indicated.

LIST OF WELLS

UWID	FULL NAME	SPUD DATE	TD(m)	SURFACE LOCATION (EASTING, NORTHING, UTM ZONE)
1. 300278010124000	CANADA SOUTHERN ET AL. N BEAVER R 127	24 Mar. 1963	4418	440717, 666426
2. 300301601012418	P.N.A.M. BEAVER RIVER 021	11 Jun. 1977	4469	424857, 665340
3. 300327010124000	COLUMBIA GAS ET AL. KOTANEELLEE E 3-27	21 Jan. 1978	4191	437576, 666399
4. 300336010124001	COLUMBIA GAS ET AL. KOTANEELLEE B-38*	23 Sep. 1990	3698	436280, 666346
5. 300350010124001	P.N.A.M. HOME SINK 02P	28 Sep. 1990	4110	437101, 667059
6. 3003178010124001	COLUMBIA ET AL. KOTANEELLEE M-17	10 Nov. 1990	1333	441077, 666439
7. 300486010124000	COLUMBIA ET AL. KOTANEELLEE I-48	02 May. 1991	4430	437299, 666607
8. 300336010124000	DEVON ET AL. KOTANEELLEE E-38	22 Aug. 2004	3670	437466, 666525

*See note 1 regarding well B-38

NOTES

1. The location of well B-38 is based on information supplied to the National Energy Board by Anderson Oil and Gas Inc. in 1998. The location is corrected from the original drilling records of 1977, which placed the well approximately 500 m to the east with the designation H-38.
2. The Lepine and Sully formations are undivided on this map because of the local absence of the Skikani Formation. Riverbank exposures on the La Biche and Kottanelee rivers show that the Sandstone of the Skikani Formation is not present in the immediate area, so the unit was not mapped in this area despite its presence in adjoining areas.
3. Members of the Scatter Formation (Bulwell, Withorn, and Tussock) are mappable locally and are therefore shown west of the Mount Martin and Beaver River anticlines.

REFERENCES

Jowett, D.M.S.
2004: Foraminiferal biostratigraphy and sequence stratigraphy of Lower Cretaceous strata in the Lard Basin, British Columbia, Yukon Territory, and Northwest Territories. PhD Thesis, Carleton University, Ottawa, Ontario.

Leckie, D.A. and Potocki, D.
1998: Sedimentology and petrography of marine shelf sandstones of the Cretaceous Scatter and Garbutt formations, Lard Basin, northern Canada; Bulletin of Canadian Petroleum Geology, v. 46, p. 30-50.

MacNaughton, R.B.
2002: Sedimentology of Triassic siliceous strata, Mount Martin and Mount Martin map area, Yukon Territory. Geological Survey of Canada, Current Research, 2002-04, 10 p.

Sprole, J.C.
1958: Photogeological mosaic, Lard River and Trout Lake area, Yukon and Northwest Territories: Prepared for Canada Southern Petroleum Ltd., chert, siltstone and sandstone scale 1:37 500.

Stockman, G.S., Kubik, T.E., Currie, L.D., and McDonough, M.R.
2002: Map, stratigraphy and analysis of box and cylindrical folds, with examples from the Rocky Mountain foothills of northeastern British Columbia and the Lard Ranges of southeastern Yukon Territory and southwestern Northwest Territories. Canadian Journal of Earth Sciences, v. 39, p. 145-155.

Utting, J.
1983: Petrological investigation of the Matton and Kinda formations in subsurface samples of outcrops from the southwest District of Mackenzie, southeastern Yukon Territory, and northern British Columbia, submitted by B.C. Rivers (N78-958, 95C, and 94-C7). Geological Survey of Canada, Internal Paleontological Report 10-JU-1983.

Utting, J.
2001: Petrological examination of 4 outcrop samples from the Lard area of southeast Yukon and southwest Northwest Territories, submitted by K.M. Falas (P75-96C7). Geological Survey of Canada, Internal Paleontological Report 5-JU-2001.

Author: K.M. Falas
Geological compilation by K.M. Falas based on fieldwork and studies of vertical air photographs, 2000

Geology from fieldwork by K.M. Falas, 2000, with contributions from: R.B. MacNaughton, F. Aquilini, and volcanologist R. Moore. Additional data from fieldwork by M.R. McDonough, 1995-1996 (Husky Oil Operations Ltd.), and articles by J.C. Sprole (1958) for Canada Southern Petroleum Ltd. This map is a product of the Central Foreland Anticline Project.

Geological cartography by S.D. Orzack
Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada.

Digital base map from data compiled by Geomatics Canada, modified by the Geological Survey of Canada (Calgary)

A GIS dataset with additional structural and lithological information is also available with this map.

Mean magnetic declination 2006, 23°42' East, decreasing 24' annually

Elevations in feet above mean sea level

FOLD SYMBOLOLOGY

Fold symbols as used on the map apply to folds having cross-sectional geometries depicted in the diagram (see Spöck et al., 2007)

SCHEMATIC STRATIGRAPHIC RELATIONSHIPS

MAP 2087A
GEOLOGY
YUKON TERRITORY-NORTHWEST TERRITORIES
BRITISH COLUMBIA
Scale 1:50 000/Echelle 1/50 000

Published 2008

UNITED STATES GEOLOGICAL SURVEY OF CANADA MAPS

95 C7	95 C8	95 B5
2083A	2088A	
95 C2	95 C11	95 B4
2081A (in press)	2087A	
94 N15	94 N16	94 O13

NATIONAL TOPONYM PHOTO REFERENCE AND INDEX TO ADDITIONAL GEOLOGICAL SURVEY OF CANADA MAPS

Universal Transverse Mercator Projection
North American Datum 1983
© Her Majesty the Queen in Right of Canada 2006

Projection transversale universelle de Mercator
Système de référence géodésique nord-américain, 1983
© Sa Majesté la Reine du chef du Canada 2006

Canada