

Station	x	Cutpoint, visited
	⊗	Aerial observation
Bedding	⊖	Horizontal, top known
	⊖/	Overturned, top known
	⊖\	Inclined, top known
	⊖/	Inclined, top unknown
	⊖\	Vertical, top known, ball on younger side
	⊖/	Vertical, top unknown
Cleavage	— —	Fault plane
	— —	Cleavage, vertical
	— —	Cleavage, inclined
Contacts	— —	Defined
	— —	Approximate
	— —	Inferred
	— —	Concealed
	— —	Facies change (approximate)
	— —	Mapping precision change
Faults	— —	Motion undefined, defined
	— —	Motion undefined, approximate
	— —	Motion undefined, inferred
	— —	Motion undefined, concealed
	— —	Normal fault, approximate
	— —	Normal fault, inferred
	— —	Normal fault, concealed
	— —	Thrust fault, approximate
	— —	Thrust fault, inferred
	— —	Thrust fault, concealed
	— —	Sinistral strike-slip fault, inferred
	— —	Sinistral strike-slip fault, concealed
Folds	— —	Anticline, upright, defined
	— —	Anticline, upright, approximate
	— —	Anticline, upright, inferred
	— —	Anticline, upright, concealed
	— —	Anticline, overturned, approximate
	— —	Anticline, overturned, inferred
	— —	Anticline, overturned, concealed
	— —	Anticline, asymmetrical, upright, approximate
	— —	Anticline, asymmetrical, upright, concealed
	— —	Syncline, upright, approximate
	— —	Syncline, upright, inferred
	— —	Syncline, upright, concealed
	— —	Syncline, overturned, defined
	— —	Syncline, overturned, approximate
	— —	Syncline, overturned, inferred
	— —	Syncline, overturned, concealed
	— —	Syncline, asymmetrical, upright, approximate
	— —	Syncline, asymmetrical, upright, inferred
	— —	Syncline, asymmetrical, upright, concealed
	— —	Fold plunge

Abstract
The Mount Prudence area (NTS 94-N05) in the western Liard Basin is underlain by Middle Proterozoic to Triassic strata. Poorly exposed Triassic siltstone and shale form the dominant level of exposure. Folds dominate the structural style. These probably formed in the latest Cretaceous and are well exposed along Liard River and where outlined by more resistant units. Two significant faults (Sulphur Creek and Focier) carry Middle Devonian and older strata to the surface. A regionally significant change in the orientation of structures from northwest in the Rocky Mountain Foothills to north or northeast in the Mackenzie Mountains and Liard fold and thrust belt occurs in the northern part of the area. This map incorporates extensive observations from a major unpublished geological study of the Liard River corridor prepared for B.C. Hydro in 1984 as well as new data collected during fieldwork as part of the Geo-mapping for Energy and Minerals (GEM) project.

Résumé
La région cartographique du Mount Prudence (SNRC 94-N05), dans la partie ouest du bassin de Liard, repose sur une succession du Protérozoïque moyen au Trias. Des siltstones et des shales du Trias, peu représentés en affleurements, correspondent au niveau d'affleurement dominant. Des plis constituent l'élément dominant du style structural. Ceux-ci se sont probablement formés au Crétacé terminal et sont bien représentés dans des affleurements présents le long de la rivière Liard et sont mis en évidence par des unités plus résistantes. Deux failles d'importance (Sulphur Creek et Focier) ont amené les strates du Dévonien moyen et de temps plus anciens à la surface. À l'échelle régionale, on observe un changement significatif de l'orientation des structures, qui passe de nord-ouest dans les contextes des Rocheuses à nord ou nord-est dans les monts Mackenzie et la zone de plissement et de chevauchement de Liard, dans la partie nord de la région. La présente carte incorpore un grand nombre d'observations réalisées pour le compte de B.C. Hydro en 1984 dans le cadre d'une importante étude géologique, aux résultats inédits, du corridor de la rivière Liard ainsi que de nouvelles données acquises lors de travaux sur le terrain d'un projet du Programme de géotopographie de l'énergie et des minéraux (GEM).

94M9	94N12	94N11
94M5	CGM 169	CGM 115
94N1	94N4	94N3
CGM 102		

National Topographic System reference and index to adjoining published Geological Survey of Canada maps

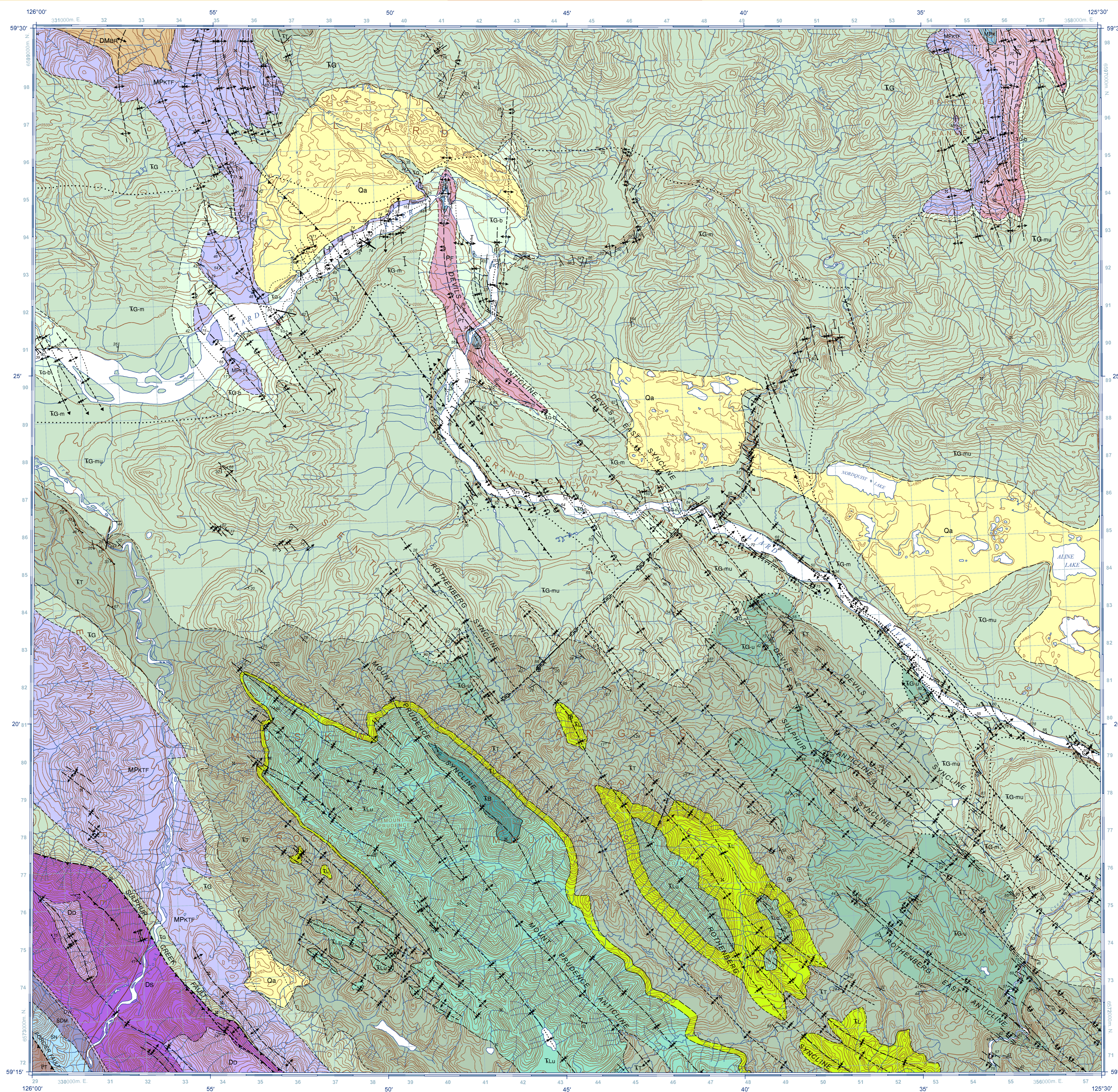
Cover illustration
More resistant mixed clastic and carbonate strata of the Ludington and Liard Formations exposed on ridge tops in the Mount Prudence, British Columbia area provide welcome relief from the more typical tree covered ridges and valleys underlain by siltstone, shale, and sandstone of the Grayling and Toad Formations. Photograph by M.E. McMechan, 2015-205

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CANADIAN GEOSCIENCE MAP 169
GEOLOGY
MOUNT PRUDENCE
British Columbia
1:50 000



QUATERNARY	Qa	Till, alluvium, colluvium, lake silt: deposits of gravel, sand, and silt. This unit is shown only where these deposits cover the bedrock extensively.
TRIASSIC	TB	Baldonnel Formation: limestone: grainstone to packstone, light to medium grey, light grey-weathering, medium- to very thick-bedded, crinoid, common crossbeds and irregular light grey cherty nodules.
	TLu	Ludington Formation: limestone: variably silty, medium grey, grey-brown-weathering, very thin- to thin-bedded; platy, common parallel lamination, local crossbeds; sandstone and siltstone: calcareous, medium to dark grey, dark brown- to orange-brown-weathering, parallel laminated, platy to flaggy weathering; minor limestone: argillaceous, dark grey, light grey-weathering, wavy laminated; limestone: wackestone to grainstone, bioclastic, locally dolomitic, light grey, light brown-grey-weathering.
	TL	Liard Formation: sandstone: calcareous, very fine- to locally medium-grained, medium to dark grey, light grey- to orange-brown-weathering, medium- to very thick-bedded, crossbeds, ripples, laminations, scour features, burrows, and concretionary or columnar layers are locally common; minor limestone: sandy or conglomeratic, light to dark grey, buff- to light grey-weathering, medium- to very thick-bedded; minor interbedded dark grey siltstone and shale.
	TT	Toad Formation: siltstone: calcareous, dark grey, dark grey- to brown-weathering, thin- to thick-bedded, commonly laminated; platy, minor shale: calcareous, dark grey to black, dark grey- or brown-weathering, minor sandstone: calcareous, very fine- to fine-grained, commonly laminated and sharp based, more common in the middle and upper part.
	TG	Grayling Formation: shale: noncalcareous, medium grey, light grey-weathering, flaky, laminated with minor interbeds of sandstone: fine-grained, medium grey, brown-grey weathering, very thin- to thick-bedded; and minor shale: dolomitic, medium grey, laminated. Sandstone: calcareous or dolomitic, very fine- to fine-grained, medium grey, brown-weathering, medium- to very thick-bedded, interbedded with dark grey fissile shale; occurs at base.
	TG-mu	Grayling Formation, middle and upper parts: shale: noncalcareous, medium grey, light grey-weathering, flaky, laminated; shale: calcareous or dolomitic, medium grey, light medium grey-weathering; siltstone: dark to medium grey, medium grey-weathering, with interbeds of sandstone: light medium grey, brown-weathering, fine-grained, thin- to thick-bedded with locally abundant ripples, flute casts (middle part); shale: medium grey, light grey-weathering with thick laminae to very thin interbeds of sandstone: calcareous, light medium grey, brown-weathering, very fine-grained, commonly cross-laminated (upper part).
	TG-u	Grayling Formation, upper part: shale: medium grey, light grey-weathering with thick laminae to very thin interbeds of sandstone: calcareous, light medium grey, brown-weathering, very fine-grained, commonly cross-laminated.
	TG-m	Grayling Formation, middle part: shale: noncalcareous, medium grey, light grey-weathering, flaky, laminated; shale: calcareous or dolomitic, medium grey, light medium grey-weathering; siltstone: dark to medium grey, medium grey-weathering with interbeds of sandstone: light medium grey, brown-weathering, fine-grained, thin- to thick-bedded with locally abundant ripples, flute casts, locally form sandstone dominated intervals up to 10 m thick.
	TG-b	Grayling Formation, basal part: sandstone: medium grey, brown weathering, very fine-grained, medium- to thick-bedded, locally laminated with interbeds of dark grey fissile shale; shale: noncalcareous, light to medium grey, silty.

MISSISSIPPIAN, PENNSYLVANIAN, AND PERMIAN

MPKTF	Kindie, Tika, Fantasque formations: undivided.
PERMIAN	
PF	Fantasque Formation: chert or mudstone: siliceous, dark to medium grey, grey- to brown-weathering, thin- to medium-bedded, silty shale partings, overlain by minor siltstone: argillaceous, siliceous, dark grey, light to medium grey-weathering, medium- to very thick-bedded.
PT	Tika Formation: sandstone: calcareous, fine-grained, grey, light brown-weathering, with local trace siltstone; siltstone: calcareous or dolomitic, medium to dark grey, light brown-grey-weathering, very thin- to medium-bedded, locally laminated, burrowed (lower part); siltstone: pyritic, medium to dark grey, light brown-grey-weathering, medium-bedded, locally laminated, graded, with lesser interbeds of dark grey, dark grey-weathering shale: minor shale: very silty, medium grey, orange-weathering, medium- to thick-bedded; calcareous (upper part). Upper part forms a parallel bedded unit with distinctive orange-weathering stripes.

MISSISSIPPIAN AND PENNSYLVANIAN

MPK	Kindie Formation: shale: argillaceous, dark grey, dark grey-weathering with a few intervals of dark grey, dark grey-weathering calcareous siltstone: overlain by siltstone: argillaceous, dark grey, dark grey weathering, thick-bedded, interbedded with dark grey, silty shale: in turn overlain by siltstone: slightly dolomitic, medium grey, medium grey-weathering, very thin- to medium-bedded, locally laminated, burrowed (lower part); siltstone: pyritic, medium to dark grey, light brown-grey-weathering, medium-bedded, locally laminated, graded, with lesser interbeds of dark grey, dark grey-weathering shale: minor shale: very silty, medium grey, orange-weathering, medium- to thick-bedded; calcareous (upper part). Upper part forms a parallel bedded unit with distinctive orange-weathering stripes.
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DEVONIAN AND MISSISSIPPIAN

DMBr	Besa River Formation: shale: silty, commonly carbonaceous, dark grey to black, rusty- to dark grey- to blue-grey-weathering, massive, locally laminated, pyrite and orange-weathering nodules are common near the top; siltstone: commonly siliceous, carbonaceous, dark grey to black, light grey- to orange-brown- to rusty-weathering, thin-bedded, common shaly partings, local laminations; shale: siliceous, light grey to black, rusty- to grey-weathering, laminated or bedded with laminae of non-siliceous shale.
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DEVONIAN

DD	Dunedin Formation: limestone: wackestone to packstone; dolomitic, medium to dark grey, medium and light grey-weathering, thin- to thick-bedded, wackestone to packstone with argillaceous partings; minor dolomite: grey, yellow-grey weathering, thin-bedded with common interbeds and algal laminae (lower part); limestone: wackestone, dark grey, medium grey-weathering, thick-bedded to massive wackestone, with minor thin-bedded grainstone or packstone (upper part).
DS	Stone Formation: dolomite: light and medium grey, light and medium grey weathering, medium- to very thick-bedded, massive or less commonly laminated. In the Sentinel Range the lower part - dolomite: sporadic brecciated zones, banded cobble at the base of the formation in the northern Sentinel Range, lighter weathering than the upper part. Barite cobbles occur locally at the base of the formation in the northern Sentinel Range Zones of brecciated dolomite in a corridor of which occur sporadically.
DW	Wokpaash Formation: dolomite: light grey, bright yellow-orange-weathering, solution collapse breccia; sandstone: quartz arenite, dolomitic and nondolomitic, light grey to white, tan- to white-weathering, very fine- to fine-grained, locally burrowed; minor dolomite: argillaceous, red and green; dolomite: grey, medium-bedded.

SILURIAN AND DEVONIAN

SDM	Muncho-McConnell Formation: dolomite: light to dark grey, light to medium grey-weathering, thin- to thick-bedded, laminated, resistant; minor dolomite: argillaceous, medium grey, tan-weathering, forms thin unit at the base. Light grey dolomite is predominant especially in the lower part of formation.
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SILURIAN

SN	Nonda Formation: dolomite: dark grey, dark grey-weathering, thick-bedded to massive, stromatoporoids, corals, bryozoan beds, waxy proximal, calcite filled vugs, chert nodules, upper part of formation - dolomite: medium grey, light grey-weathering, medium- to thick-bedded, commonly laminated up to 5 m thick, minor dolomite: silty, medium grey, tan weathering, medium- to thick-bedded, overlain by a few centimetres of minor shale; black, dark grey weathering, at the base of the formation - Minor sandstone: quartz, fine- to coarse-grained white, brown-grey weathering, medium- to thick-bedded, locally cross-laminated.
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PROTEROZOIC

PT	Tuchodi Formation: sandstone: siliceous and dolomitic, grey, grey- to orange-brown-weathering, very fine- to medium-grained, very thin- to thick-bedded, commonly rippled, with locally mudcracked; siltstone or argillite interbeds and partings; siltstone: green-grey and grey, with argillite laminae; argillite: green-grey and grey, with siltstone laminae; dolomite: silty or sandy, orange-brown-weathering, very thin- to medium-bedded with locally mudcracked, vari-coloured argillite interlaminae to very thin interbeds; minor dykes: mafic, dark, chloritized, cut the strata at a high angle.
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REFERENCE

Geotex Consultants, 1984. Liard River Development, Devils Gorge and Beaverrow projects, unpublished geological maps prepared for BC Hydro, scales 1:10 000 and 1:50 000. P.B. Read, principal compiler.

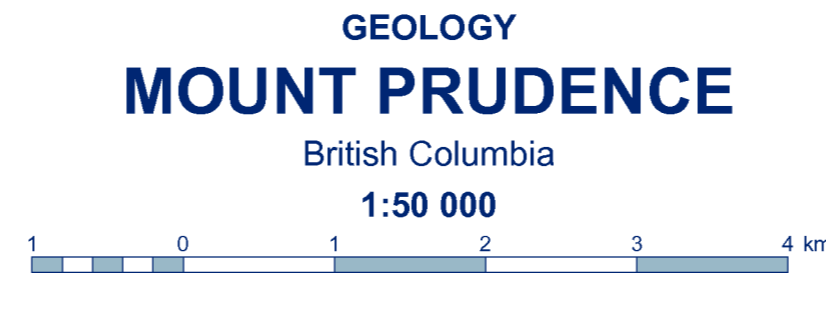
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Geological compilation by M.E. McMechan based on ground and aerial observations by M.E. McMechan (2011), ground observations by F.L. Brown (1982), F. Fern (2012), J.F. Fyles (1982), J.M. Journey (1982), E.D. Kindie (1943), J.M. Moore Jr. and J.P. Puzoska (1982), and P.B. Read (1982), unpublished geological map compilation by Geotex Consultants (1984) for the area along the Liard River, and studies of vertical air photographs and high resolution orthorectified satellite images.

Geomatics and cartography by E. Macey
Initiative of the Geological Survey of Canada, conducted under the auspices of the Yukon Sedimentary Basins project as part of Natural Resources Canada's Geo-mapping for Energy and Minerals (GEM) program, and the British Columbia Ministry of Natural Gas Development, Geoscience and Strategic Initiatives Branch.

GEOLOGY
MOUNT PRUDENCE
British Columbia
1:50 000



Map projection Universal Transverse Mercator, zone 10,
North American Datum 1983
Base map at the scale of 1:50 000 from Natural Resources Canada, with modifications.
Elevations in feet above mean sea level
Magnetic declination 2013, 20°54'E, decreasing 21' annually.

The Geological Survey of Canada welcomes corrections or additional information from users.
The data may include additional observations not portrayed on this map.
See documentation accompanying the data.
Additional descriptive notes and references are included in the map information document.
This publication is available for free download through GEOCAN (<http://geocan.ess.nrcan.gc.ca/>).

Preliminary publications in this series have not been scientifically edited.

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