



LEGEND

OVERLAP ASSEMBLAGES

TERTIARY

Eocene

- OL: Oda Lake Group: undivided basalt, andesite, rhyolite and related volcanics; a: vesicular and amygdaloidal basalt or andesite flows; minor conglomerate; b: feldspar phytic andesite flows; c: quartzite; dark grey basalt; d: biotite-hornblende phytic rhyolite, diorite and andesite flows; breccia, air fall tuff, lithic locally flow banded and welded; e: mudstone, siltstone, conglomerate; f: debris flow, volcanic conglomerate.
- LP: feldspar-biotite porphyritic granite, quartz monzonite
- LPb: biotite + hornblende-feldspar porphyritic granodiorite, quartz diorite
- LPc: biotite + hornblende-feldspar diorite, quartz diorite
- LPmp: muscovite-quartz-feldspar porphyritic granite

Early Cretaceous

- EKq: Mitchell Range intrusions: medium to coarse-grained granite and granodiorite; locally includes diorite and quartz diorite.

Late Jurassic to Early Cretaceous

- JKq: granite, quartz monzonite, biotite granodiorite
- JKa: quartz porphyry

Middle Jurassic

- MJka: McKwab Lake intrusive suite: quartz diorite, tonalite, diorite

Middle Jurassic

- MJkm: Spike Peak Intrusive Suite
- MJkn: red to pink monzonite, quartz monzonite, monzogranite
- MJk: hornblende diorite; tonalite, locally foliated
- MJb: hornblende-feldspar porphyritic quartz monzonite, granodiorite

Lower to Middle Jurassic

- ImJk: Hazelton Group: undivided subvolcanic, mafic to grey, feldspar phytic andesite to dacite flows and associated pyroclastic rocks.

Upper Triassic to Lower Jurassic

- UJk: a: lapilli tuff, breccia, volcanic conglomerate with pink, flow banded rhyolite, monzonite, feldspar phytic andesite clasts; b: flow banded rhyolite; c: feldspar phytic diorite or andesite.
- UJb: dark grey siltstone, mudstone, minor limestone, with interbeds of quartzose-feldspathic wackes, chert; limestone clast polymictic conglomerate.

Upper Triassic

- UJt: Taka Group: a: coarse grained pyroxene rich basalt; b: volcanic breccia, agglomerate and conglomerate containing pyroxene phytic basalt clasts; c: feldspar + pyroxene phytic basalt; andesite flows, breccia and lapilli tuff; d: mudstone, siltstone, chert-limestone clast conglomerate; e: biotite-feldspar + pyroxene phytic andesite flows; f: pyroxene bearing

Late Triassic

- LJd: Tochoha Lake stock: foliated hornblende diorite (219 Ma)
- LJb: Butterfield Lake intrusive complex: a: pyroxenite; b: hornblende gabbro, diorite, chlorite schist

Permian and/or Upper Triassic

- PJs: fine siltstone, mudstone, chert, argillaceous limestone, marl; locally strongly deformed and metamorphosed; in whole or in part Taka Group and/or Alkita Group.

Upper Pennsylvanian to Lower Permian

- JPA: Astika Group: a: grey thick bedded limestone; b: chlorite schist, locally fragmental with flattened felsic clasts; local flow banded rhyolite lenses.

Paleozoic and/or Triassic

- PJt: Talpin metamorphic complex: chlorite-feldspar-amphibole schist, amphibolite, gneiss

SOURCES OF INFORMATION

- Armstrong, J.E. (1949): Fort St. James map-area, Cassiar and Coast districts, British Columbia; Geological Survey of Canada, Memoir 252, 210 pages.
- Ash, C.H., Macdonald, R.W.J. and Peterson, I.A. (1993): Geology of the Stuart-Fraser lakes area, central British Columbia (parts of 93K7, 8, 9, 10 and 11); B.C. Ministry of Energy, Mines and Petroleum Resources, Open File 1993-9.
- Cope, G.R. and Spence, C.D. (1995): Mac porphyry molybdenum prospect, north-central British Columbia; in Porphyry Deposits of the Northwestern Cordillera of North America, Schroll, T.G., editor, Canadian Institute of Mining, Metallurgy and Petroleum, Special Volume 46, pages 127-163.
- Kimura, E.T., Byrsooth, G.D., Coy, J., Buckley, P., Peters, J., Boyce, R., and Nilsson, J. (1980): Geology of parts of southeast Fort Fraser and northern Nechako River map areas, central British Columbia; Placer Dome Incorporated, Internal Report and Maps, Vancouver, British Columbia.
- 1997-1998 mapping by the British Columbia Geological Survey.
- Whittaker, P.J. (1983): Geology and petrogenesis of chromite and chrome spinel in alluvial-type peridotites of the Cache Creek Group, British Columbia; unpublished Ph.D. thesis, Carleton University, 339 pages.

MINERAL OCCURRENCES

MinFile No.	Name	Commodity	Type
093K 054	WATERBURY CREEK	Cu	Porphyry Cu
093K 054	BL	Vn	Vn, disseminated
093K 092	FORT	Cu, Ag, Mo, Pb, Zn	Skarn, Vn
093K 103	ONE	Cu, Ag, Au, Pb, Zn	Vn; disseminated
093K 027	TSTUTUL MOUNTAIN CHROMIUM	Cr	Podiform chromite
093K 028	TSTUTUL MOUNTAIN	Cr	Podiform chromite
093K 042	TSTUTUL MOUNTAIN TN	Si, Mn, V, Cu, Zn, Rhodochrosite, Gersdorffite	Vn
093K 083	TSTUTUL MOUNTAIN	Cu	Disseminated
093K 087	DANE BONNETE	Cu	Vn, disseminated
093K 075	MARY ANN DAVE	Cu	Vn, disseminated
093K 087	MAC	Mn, Ca	Porphyry Mo-Low Fe-epsl.
093K 325	BASS	Cu, Au	Porphyry Cu-Mo-L-Au
093K 029	GENESS	Van/Ni/Ag	Genetite
093K 028	MT. SONEY WILLIAMS	Cr	Podiform chromite
093K 040	PALLINE	Cr	Podiform chromite
093K 041	VAN OSGAR CREEK	Cr	Podiform chromite
093K 043	MT. SONEY WILLIAMS	Aluminum, Ag, Au, Cr	Podiform chromite
093K 044	VAN OSGAR CREEK PLACER	Au	Surface placers
093K 045	VAN OSGAR ARRESTED	Aluminum	Ultramafic-hosted asbestos
093K 072	SONEY	Cr	Podiform chromite
093K 073	ONE-ELL CREEK	Cr	Podiform chromite
093K 089	WATFITE	Talc, Saponite	Ultramafic-hosted talc-magnesite

Geology by J. Armstrong (1945-1946), P. Schieritz, D. MacIntyre, L.C. Strick (GSC), S. Munoz, R. Metcal, D. Tackabery, S. Modland, A. Justson, C. Ash, R. Macdonald, M. Hrusky (GSC), C. Huscraft (GSC), A. Blair (GSC).

Geological compilation by D. MacIntyre and P. Schieritz, B.C. Geological Survey Branch.

Digital cartography by J. Holm

Digital base map from British Columbia Ministry of Environment, Lands and Parks. Generalized and modified from 1:20000 TRIM digital base maps.

Copies of TRIM maps may be purchased from Land Data BC PO BOX 9355 STN PROV GOVT, Victoria, B.C. V8W 9M2

Any revisions or additional geological information known to the user would be welcomed by the British Columbia Geological Survey Branch, Ministry of Energy and Mines, Victoria, B.C.

OPEN FILE 1999-11
BEDROCK GEOLOGY
CUNNINGHAM LAKE
NTS 93K/11, 12, 13 & 14
BRITISH COLUMBIA
Scale 1:100 000

Magnetic declination 1998, 23°26' East, decreasing 9.6' annually. Readings vary from 23°17' E in the SE corner to 23°39' E in the NW corner of the map.

North American Datum 1983
Elevation in metres above mean sea level
Contour interval 100 metres

Kilometres 0 2 4 6 8 Kilometres

Transverse Mercator Projection
NAD 1983, Scale Factor 1.0

