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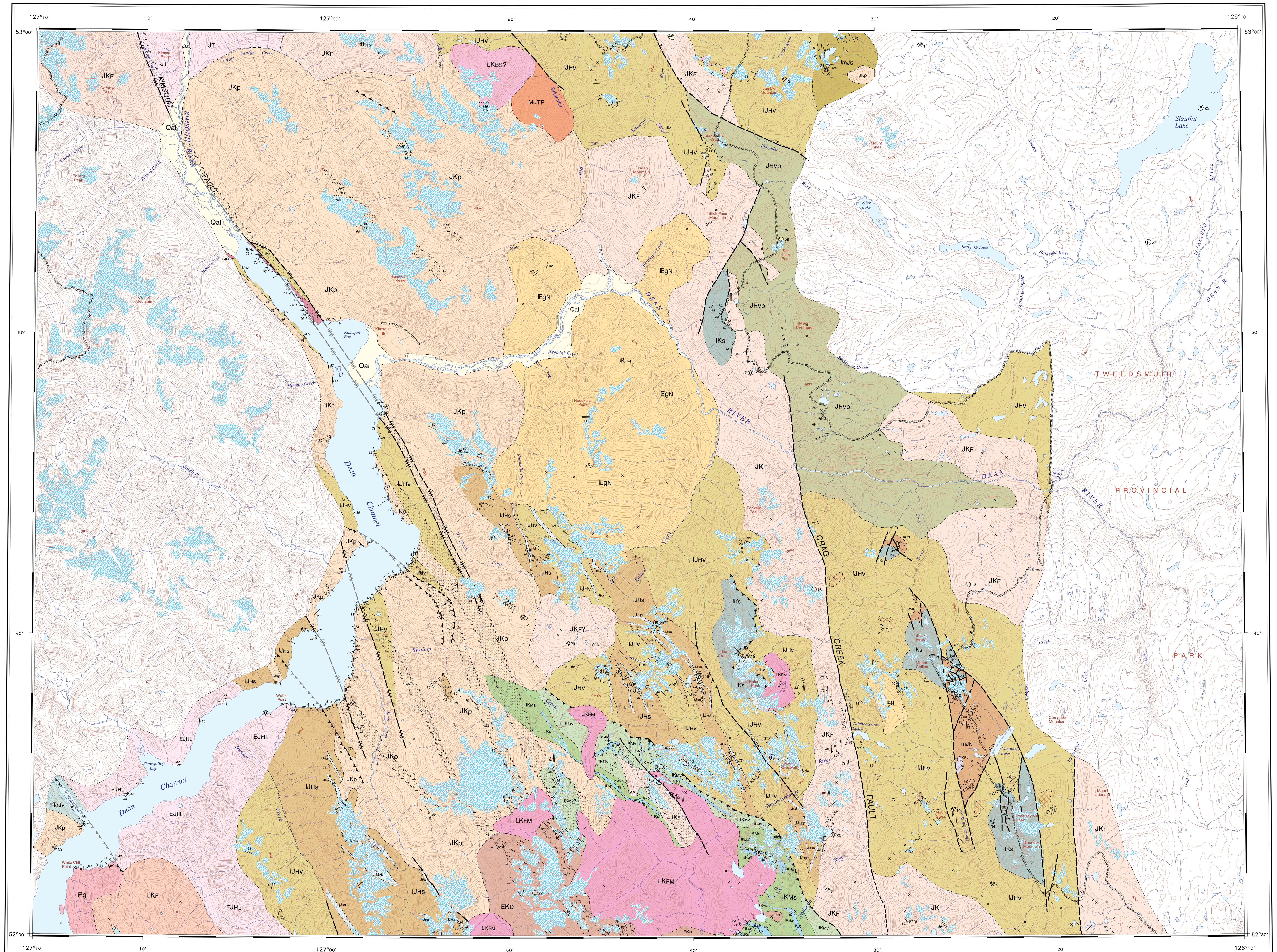
British Columbia, Ministry of Energy, Mines and Petroleum Resources



LEGEND

Coloured boxes indicate units that appear on this map

STRATIFIED ROCKS

QUATERNARY

Qal — *Alluvium, colluvium, till*

PALEOGENE
EOCENE
OOTSA LAKE GROUP (U/Pb ca. 53 Ma)

Er — *Megacrystic potassium feldspar-quartz-biotite-phyric flow dome(?) and as pyroclasts admixed with basalt and andesite lava fragments in crudely layered tuff breccia; small solitary exposure north of Sea Lion Peak*

LOWER CRETACEOUS
ALBIAN
OBSTREPEROUS RIDGE SEDIMENTARY UNIT

lKO — *Silty shale and mudstone, siltstone, minor fine-grained sandstone, commonly fossiliferous; locally with grit to pebble conglomerate at the base; equivalent to Taylor Creek Group and Skeena Group, in part*

APTIAN-ALBIAN
SALLOOMT ASSEMBLAGE (U/Pb ca. 110-112 Ma minimum)

lKs — *Volcanic rocks predominate in lower parts of sections; basalt and lesser andesite lava flows with interflow breccia; amygdaloidal and plagioclase-phyric lavas containing pyroxene and scarce hornblende phenocrysts; thick sections form cliffs with a stepped, diffusely bedded appearance; local welded rhyolite ash-flow tuff near the top of the subaerial succession at Tzeetsaytzul Peak changes laterally to submarine volcanic facies in the section north of Salloomt Peak where thick hyaloclastite and amygdaloidal flows pass upward into a mixed volcanic-sedimentary section dominated by fine- to coarse-grained, cross-stratified calcareous feldspathic sandstone and pebble conglomerate containing significant felsic volcanic detritus, and black siltstone to mudstone with minor interspersed welded ignimbrite, lapilli tuff and tuff breccia; rare grey-black laminated limestone locally, irregularly interlayered with basalt flows; the unconformable lower contact with older layered rocks and Jurassic and Cretaceous plutons is marked locally by a granitoid cobble to boulder conglomerate or a red oxidized conglomerate-sandstone sequence dominated by fine-grained andesite porphyry cobbles and boulders*

?VALANGINIAN, HAUTERIVIAN-BARREMIAN
MONARCH ASSEMBLAGE

lKMv — *Dominantly volcanic rocks; olive green amygdaloidal basaltic andesite and basalt with rare columnar jointing, forming massive step-like cliffs; associated andesitic breccia and tuff breccia; locally intercalated with thinly bedded siltstone, black argillite to slate and pebble conglomerate; complexly interfingered with* lKMs*; unconformably overlies lithologically similar rocks of probable Jurassic age and Jurassic and Cretaceous plutons*

lKMs — *Dominantly sedimentary rocks including feldspathic sandstone and siltstone, black argillite to slate with grit and pebble to cobble conglomerate; subordinate basaltic andesite lava flows and flow breccias*

lKMa — *Laterally continuous beds of black argillite, locally with thinly-bedded siltstone and sandstone and pebble conglomerate*

JURASSIC TO ?CRETACEOUS

JKm — *Mainly orthogneisses and migmatitic gneisses of amphibolite grade; may include metamorphosed plutonic rocks:* EJHL, JKF, EKD

BATHONIAN TO ?CALLOVIAN
HAZELTON GROUP
NOOSGULCH ASSEMBLAGE (U/Pb ca. 163-165 Ma)

mJN — *Feldspathic sandstone and pebble conglomerate locally interstratified with rhyolite flows and welded ash-flow tuffs; black-white, thickly laminated tuffaceous mudstone in lower part of section; this shallow-marine succession in part overlies and is temporally equivalent with nearby subaerial rhyolitic lapilli tuff and aphanitic lava flows, minor ash-flow tuffs and porphyritic andesite lava flows; host succession for the Nifty VMS prospect*

TOARCIAN TO BAJOCIAN
SMITHERS FORMATION

lmJS — *Feldspathic sandstone, grit and pebble conglomerate, locally thick cobble and boulder conglomerate; interspersed fine-grained felsic tuff, locally significant welded rhyolite ignimbrite, minor dacite and rhyolite flows; felsic volcanic events are time-stratigraphic with the Nanika member of the Smithers Formation in Whitesail Lake map area*

?PLIENSBACHIAN TO TOARCIAN

lJHv — *Basalt and andesite lava flows, dark green, aphanitic to medium-grained porphyries; rare planar-cross-stratified grey limestone containing crudely layered scoriaceous basalt clasts, interlayered with flow breccia; volumetrically minor cobble conglomerate and sandstone; maroon and green dacitic to rhyolitic lapilli and finer tuffs (ca. 191 Ma) form prominent stratified units within massive mafic lava flows west of the East Sakumtha River; west of the Crag Creek fault a presumably correlative succession includes substantial sedimentary rocks (*lJHs*) interlayered with amygdaloidal and porphyritic basalt flows with locally thick hyaloclastites and rare pillowed lavas*

lJHs — *Dominantly sedimentary strata; feldspathic sandstone, locally turbiditic; black argillite, locally with thin cross-stratified calcareous sandstone to sandy limestone; granule to cobble conglomerate; lapilli tuff and ash-flow tuff; lesser basaltic andesite, basalt flows and breccia; complexly interfingered with* lJHv

lJHa — *Laterally continuous beds of black argillite, locally with thinly-bedded siltstone and sandstone and pebble to cobble conglomerate; marine fossils present locally as poorly-preserved moulds*

?LOWER JURASSIC

JHvp — *Undifferentiated aphanitic basaltic flows that appear recrystallized and grade imperceptibly into fine-grained dioritic rocks; dark green with ubiquitous chlorite-epidote alteration; locally cut by northwest-trending pink plagioclase porphyry and granodiorite dykes presumed to be related to larger intrusions of the Firvale suite*

?TRIASSIC TO ?LOWER JURASSIC

?TrJv — *Undifferentiated basaltic and andesitic metavolcanic and volcaniclastic rocks; rare calc-silicate rock, marble, conglomerate; intruded locally by the Howe Lake suite; may include Cretaceous strata south of Noieck River*

PALEOZOIC?
BURKE CHANNEL ASSEMBLAGE

PBC — *Undifferentiated quartzite, semi-pelitic and pelitic schist; minor gneiss and marble; lesser mafic and felsic volcanic rocks and rare conglomerate; tightly folded and metamorphosed to amphibolite facies;* PBCa*: amphibolite gneiss with minor biotite schist layers;* PBCs*: mainly metasedimentary rocks with minor amphibolite*

INTRUSIVE ROCKS

PALEOGENE
EOCENE

Eg — *Post-tectonic plutons (U/Pb 52-56 Ma, Ar/Ar 52-53 Ma) that cut all ductile fabrics; generally felsic to intermediate in composition; equigranular to potassium feldspar-megacrystic; unfoliated except locally near the margins but with weak magmatic layering present locally; Nooskulla pluton (*EgN*): hornblende-biotite tonalite and granodiorite; Mesachie pluton (*EgM*): two-mica granite to biotite granodiorite; Sheemahant pluton (*EgS*): granodiorite, granite and tonalite*

Pg — *Undifferentiated tonalite, quartz diorite, diorite, granitic orthogneiss; fabric weakly strained to mylonitic; within Coast shear zone and especially along South Bentinck Arm may include fault slices of* PBC, ?TrJv, *and other older granitoid rocks*

CRETACEOUS TO PALEOGENE

KPd — *Undifferentiated dioritic plutons; hornblende diorite to biotite-hornblende tonalite; lesser quartz monzodiorite; pyroxene present locally; fine- to coarse-grained, generally equigranular; unfoliated to weakly foliated*

?LATE CRETACEOUS TO ?EOCENE

LKEp — *Undifferentiated granitic plutons: hornblende-biotite granodiorite to granite, fine- to medium-grained, equigranular*

LATE CRETACEOUS TO PALEOCENE
FOUR MILE PLUTONIC SUITE (U/Pb ca. 67-73 Ma)

LKFM — *Muscovite-biotite granite, coarse-grained, equigranular; locally contains garnet, pink potassium feldspar megacrysts; aplite dykes with pegmatitic segregations bearing garnet and muscovite; unfoliated except possibly at margins; forms prominent exposures characterized by 'onion-skin' exfoliation joints*

LATE CRETACEOUS
FOUGNER PLUTONIC SUITE (U/Pb ca. 67-68 Ma)

LKF — *Hornblende-biotite-±pyroxene-quartz diorite to granodiorite with conspicuous sphene; medium- to coarse-grained, equigranular to locally inequigranular with potassium feldspar megacrysts, homogeneous; distinct salt-and-pepper fresh appearance*

BIG SNOW PLUTONIC SUITE (U/Pb ca. 79-95 Ma)

LKBS — *Biotite monzogranite, biotite-±hornblende tonalite to granodiorite, coarse-grained, equigranular; inclusions rare*

MOUNT DAUNT PLUTON (U/Pb ca. 91 Ma)

LKMD — *Biotite-hornblende tonalite with mylonitic to protomylonitic fabric*

EARLY CRETACEOUS
MELIKAN PLUTON (U/Pb ca. 110 Ma)

EKM — *Biotite-hornblende tonalite and lesser quartz diorite, unfoliated; weak to strong epidote and chlorite alteration; cut by numerous mafic dykes; lithologically similar to* PKF

DESIRE PLUTONIC SUITE (U/Pb ca. 118-124 Ma)

EKD — *Fine- to medium-grained hornblende diorite to quartz diorite and medium- to coarse-grained biotite-hornblende tonalite, equigranular; abundant screens and xenoliths of metavolcanic rock and amphibolite; displays magmatic and tectonic foliation; similar in field aspects to* EJHL

JURASSIC TO CRETACEOUS

JKP — *Undifferentiated granodiorite, diorite, and hornblende-biotite tonalite*

FIRVALE PLUTONIC SUITE (U/Pb ca. 131-140, 148-164 Ma)

JKF — *Hornblende-biotite granodiorite and quartz diorite, medium- to coarse-grained, equigranular; light pink-green colour due to incipient chlorite alteration; cut by northerly-trending mafic dykes in swarms and spaced bodies; incorporates Stick Pass plutonic suite from earlier published maps*

MIDDLE JURASSIC
TRAPPER PEAK PLUTON (U/Pb ca. 170 Ma)

MJTP — *Hornblende granite to lesser biotite-hornblende granite, medium- to coarse-grained, equigranular to inequigranular; distinct light purple to medium pink potassium feldspar oikocrysts enclose quartz, hornblende and plagioclase; saussuritized plagioclase imparts light green colour; cut locally by epidote veins and numerous hornblende andesite, basalt, and rhyolite dykes*

EARLY JURASSIC
HOWE LAKE PLUTONIC SUITE (U/Pb ca. 182-190 Ma)

EJHL — *Fine- to coarse-grained pyroxene-hornblende diorite to quartz diorite and medium- to coarse-grained biotite-hornblende tonalite; abundant metavolcanic screens and mafic xenoliths, commonly metamorphosed to amphibole grade; widespread magmatic and tectonic foliation; may be subvolcanic to Hazelton Group strata*

TENAIKO PLUTONIC SUITE

JT — *Compositionally and texturally heterogeneous assemblage of coarse-grained pyroxene-hornblende gabbro to medium- to coarse-grained hornblende diorite to quartz diorite; lesser hornblende granodiorite; locally contains abundant mafic and ultramafic xenoliths and metavolcanic screens ranging from a few centimetres to 10s of metres in length*

SYMBOLS

- *Geological contact (defined, approximate, assumed)*
- *Fault, undifferentiated (defined, approximate, assumed)*
- *Fault, normal, down dropped on side with balls (defined, approximate, assumed)*
- *Fault, compressional, defined, approximate, assumed (teeth on upthrust side)*
- *Strike slip fault, defined, approximate (shaded under Qal and water)*
- *Shear zone*
- *Discrete shear zone (inclined, vertical)*
- *Antiform (defined and approximate)*
- *Synform (defined and approximate)*
- *Fold axis*
- *Axial plane*
- *Bedding (tops unknown inclined, tops known inclined, overturned, vertical)*
- *Magmatic foliation and layering*
- *Tectonic foliation (inclined, vertical; includes schistosity, gneissic foliation, cleavage, and may also include some magmatic foliations and foliations of unknown type)*
- *Mylonitic foliation (inclined, vertical)*
- *Mineral lineation**
- *Elongation lineation**
- *Lineation (undivided)*
- *Dyke (inclined, vertical)**
- *Glacial striae**
- *Fossil locality with ID number (see Sheet 3)*
- *Ar-Ar age determination locality with ID number (see Sheet 3)*
- *K-Ar age determination locality with ID number (see Sheet 3)*
- *U-Pb age determination locality with ID number (see Sheet 3)*
- *Gossan*
- *Landslide scarp*
- *Field station location where not indicated by other symbol (foliation, etc.)*
- *Limit of mapping*
- *Park boundary*
- *Road, hard surface (more than 2 lanes, 2 lanes, less than 2 lanes)*
- *MINFILE occurrence with ID number*

**data not collected consistently across map-area*

MINFILE*

NUMBER	MINFILNO	NAME	STATUS	COMMODITIES	DEPTYPE
1	093D 002	BOOM	SHOW	CU, MO	L04
2	093D 005	CC	SHOW	CU	D03, L04
3	093D 001	RUSS	SHOW	MO, CU	
4	093D 004	DEAN CHANNEL	PAPR	FE, MA	K03
5	093D 014	NUMAS	SHOW	CU, MO	
6	093D 035	SWALLOP CREEK	SHOW	KY	P02
7	093D 009	BELLA COOLA CHIEF (L.176)	SHOW	CU, AG, AU	
8	093D 006	NIFTY	PROS	AG, CU, AU, ZN, BAR, PB	?
9	093D 007	KEEN	PROS	CU, ZN, PB, AG	?
10	093D 023	JAMTART	SHOW	PB, ZN	

* Data from British Columbia Geological Survey Branch MINFILE Mineral Inventory
STATUS abbreviations: SHOW = Showing, PAPR = Past Producer, PROS = Prospect
COMMODITY abbreviations: AG = Silver, AU = Gold, BAR = Barite, CU = Copper, FE = Iron, KY = Kyanite, MA = Magnetite, MO = Molybdenum, PB = Lead, ZN = Zinc
DEPTYP abbreviations: D03 = Volcanic redbed Cu; K03 = Fe skarn; L04 = Porphyry Cu +/- Mo +/- Au; P02 = Kyanite-sillimanite schists, ? = Noranda/Kuroko massive sulphide Cu-Pb-Zn


LOCATION MAP

Geology by L.J. Diakow (2001-2003), J.B. Mahoney (2001-2005), S.M. Gordee (2001-2004), L.C. Struik (2000-2001), J.W. Haggart (2001-2005), G.J Woodsworth (2001-2004), M. Rusmore (2004), P. van der Heyden (1989, 1990) and M.G. Hrudey (2001)

Geological compilation by J.W. Haggart, J.B. Mahoney, G.J. Woodsworth, L.J. Diakow, S.M. Gordee and M. Rusmore

This map supercedes Geological Survey of Canada Open File 1463, 4018 and 4639, and British Columbia Geological Survey Branch Open File 2004-13

Digital cartography by M. Ceh (2005-2006), N.L. Hastings (2002-2005), and J. Joseph (2003), Geological Survey of Canada

Contribution of Bella Coola Targeted Geoscience Initiative, Cordilleran Energy and Minerals Project Number Y15

GSC OPEN FILE 5385

GEOLOGY

BELLA COOLA REGION
(93D/01, /07, /08, /10, /15 AND PARTS OF 93D/02, /03, /06, /09, /11, /14, /16 AND 92M/15 AND /16)

BRITISH COLUMBIA

Scale 1:100 000/Échelle 1/100 000

kilometres 2 0 2 4 6 8 kilomètres

Universal Transverse Mercator Projection
North American Datum 1983

Projection transverse universelle de Mercator
Système de référence géodésique nord-américain, 1983

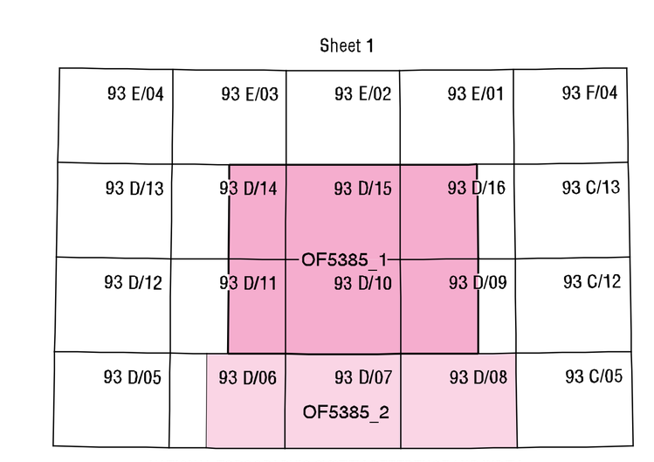
Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada

Digital base map from data compiled by Geomatics Canada modified by Geological Survey of Canada

Mean magnetic declination 2006, 20° 18´ E, decreasing 15.0´ annually. Readings vary from 20° 29´ E in the northwest to 20° 06´ E in the southeast corner of the map

Elevations in metres above mean sea level

Contour interval 200 feet



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

OPEN FILE
DOSSIER PUBLIC
5385
GEOLOGICAL SURVEY OF CANADA
COMMISSION GÉOLOGIQUE DU CANADA
2006
SHEET 1 OF 3
FEUILLET 1 DE 3

Sheet 1 of 3, Geology (North half)

Recommended citation:
Haggart, J.W., Diakow, L.J., Mahoney, J.B., Woodsworth, G.J., Struik, L.C., Gordee, S.M., and Rusmore, M.
2006: Geology, Bella Coola region (93D/01, /07, /08, /10, /15 and parts of 93D/02, /03, /06, /09, /11, /14, /16 and 92M/15 and /16), British Columbia; Geological Survey of Canada, Open File 5385; British Columbia Geological Survey, Geoscience Map 2006-7, scale 1:100 000.

Canada

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GEOLOGICAL SURVEY OF CANADA / COMMISSION GÉOLOGIQUE DU CANADA
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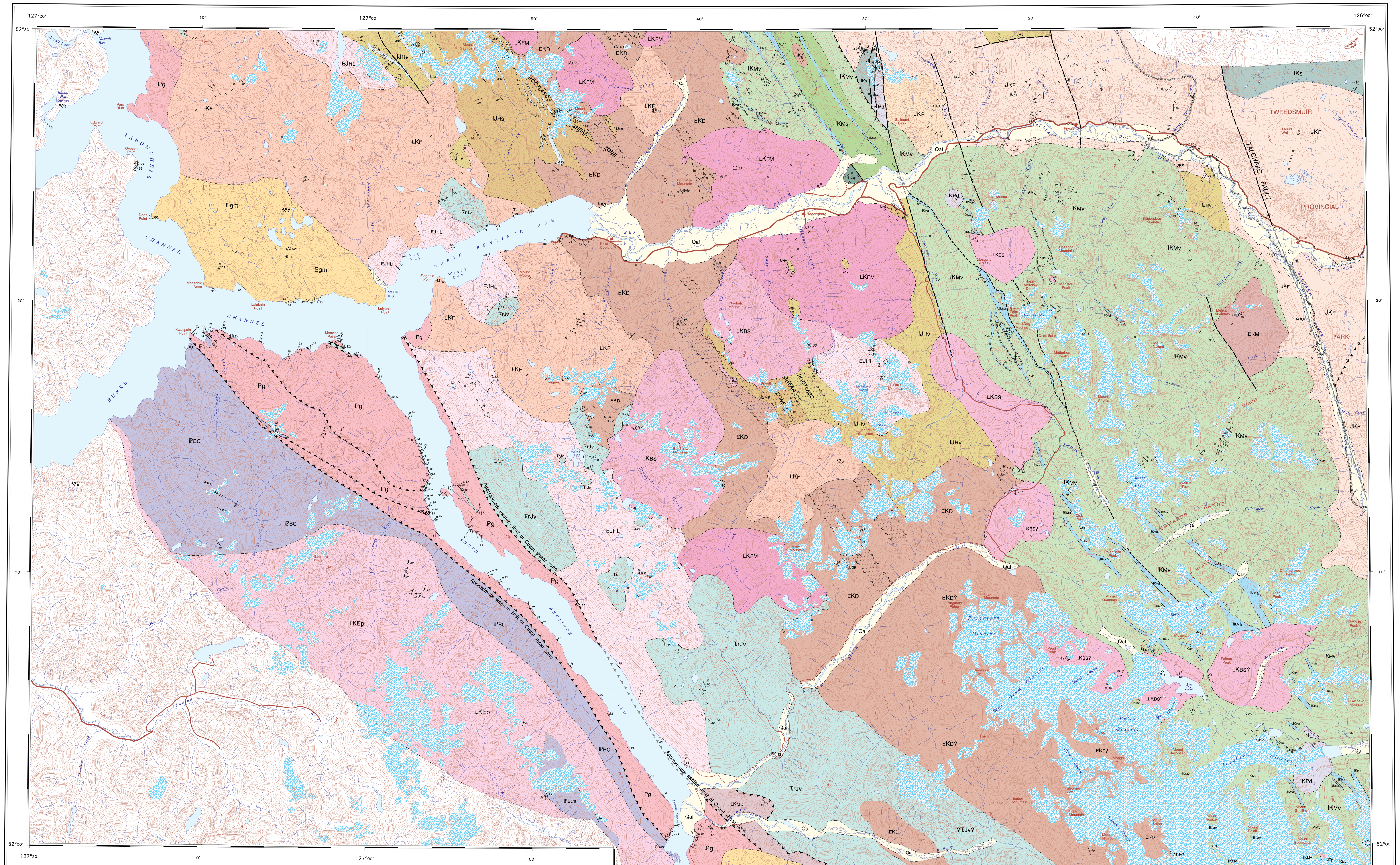

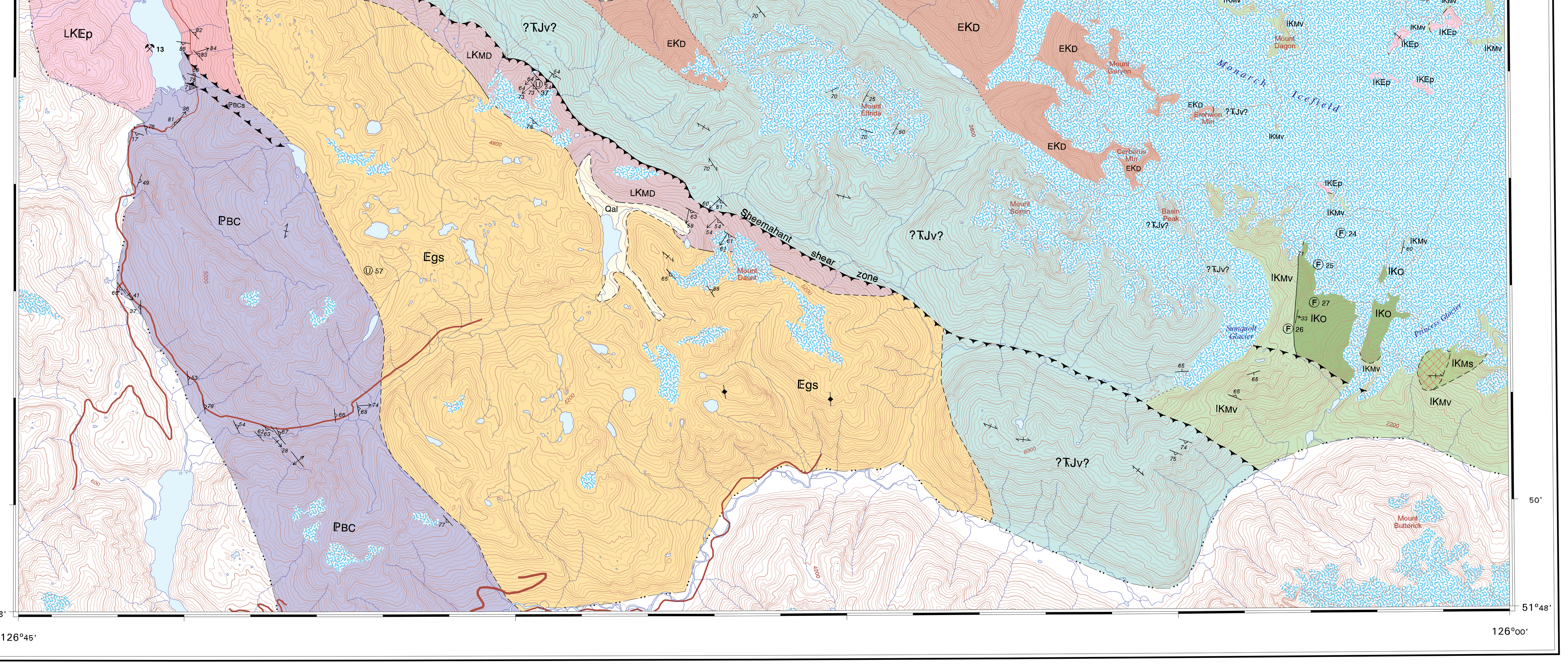

LEGEND

Coloured boxes indicate units that appear on this map

STRATIFIED ROCKS

QUATERNARY

Qal — *Alluvium, colluvium, till*

PALEOGENE
EOCENE
OOTSA LAKE GROUP (U/Pb ca. 53 Ma)

Er — *Megacrystic potassium feldspar-quartz-biotite-phyric flow dome(?) and as pyroclasts admixed with basalt and andesite lava fragments in crudely layered tuff breccia; small solitary exposure north of Sea Lion Peak*

LOWER CRETACEOUS
ALBIAN
OBSTREPEROUS RIDGE SEDIMENTARY UNIT

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APTIAN-ALBIAN
SALLOOMT ASSEMBLAGE (U/Pb ca. 110-112 Ma minimum)

lKs — *Volcanic rocks predominate in lower parts of sections; basalt and lesser andesite lava flows with interflow breccia; amygdaloidal and plagioclase-phyric lavas containing pyroxene and scarce hornblende phenocrysts; thick sections form cliffs with a stepped, diffusely bedded appearance; local welded rhyolite ash-flow tuff near the top of the subaerial succession at Tzeetsaytzul Peak changes laterally to submarine volcanic facies in the section north of Salloomt Peak where thick hyaloclastite and amygdaloidal flows pass upward into a mixed volcanic-sedimentary section dominated by fine- to coarse-grained, cross-stratified calcareous feldspathic sandstone and pebble conglomerate containing significant felsic volcanic detritus, and black siltstone to mudstone with minor interspersed welded ignimbrite, lapilli tuff and tuff breccia; rare grey-black laminated limestone locally, irregularly interlayered with basalt flows; the unconformable lower contact with older layered rocks and Jurassic and Cretaceous plutons is marked locally by a granitoid cobble to boulder conglomerate or a red oxidized conglomerate-sandstone sequence dominated by fine-grained andesite porphyry cobbles and boulders*

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JURASSIC TO ?CRETACEOUS

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BATHONIAN TO ?CALLOVIAN
HAZELTON GROUP
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TOARCIAN TO BAJOCIAN
SMITHERS FORMATION

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CRETACEOUS TO PALEOGENE

KPd — *Undifferentiated dioritic plutons; hornblende diorite to biotite-hornblende tonalite; lesser quartz monzodiorite; pyroxene present locally; fine- to coarse-grained, generally equigranular; unfoliated to weakly foliated*

?LATE CRETACEOUS TO ?EOCENE

LKEp — *Undifferentiated granitic plutons: hornblende-biotite granodiorite to granite, fine- to medium-grained, equigranular*

LATE CRETACEOUS TO PALEOCENE
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FOUGNER PLUTONIC SUITE (U/Pb ca. 67-68 Ma)

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MELIKAN PLUTON (U/Pb ca. 110 Ma)

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JKP — *Undifferentiated granodiorite, diorite, and hornblende-biotite tonalite*

FIRVALE PLUTONIC SUITE (U/Pb ca. 131-140, 148-164 Ma)

JKF — *Hornblende-biotite granodiorite and quartz diorite, medium- to coarse-grained, equigranular; light pink-green colour due to incipient chlorite alteration; cut by northerly-trending mafic dykes in swarms and spaced bodies; incorporates Stick Pass plutonic suite from earlier published maps*

MIDDLE JURASSIC
TRAPPER PEAK PLUTON (U/Pb ca. 170 Ma)

MJTP — *Hornblende granite to lesser biotite-hornblende granite, medium- to coarse-grained, equigranular to inequigranular; distinct light purple to medium pink potassium feldspar oikocrysts enclose quartz, hornblende and plagioclase; saussuritized plagioclase imparts light green colour; cut locally by epidote veins and numerous hornblende andesite, basalt, and rhyolite dykes*

EARLY JURASSIC
HOWE LAKE PLUTONIC SUITE (U/Pb ca. 182-190 Ma)

EJHL — *Fine- to coarse-grained pyroxene-hornblende diorite to quartz diorite and medium- to coarse-grained biotite-hornblende tonalite; abundant metavolcanic screens and mafic xenoliths, commonly metamorphosed to amphibole grade; widespread magmatic and tectonic foliation; may be subvolcanic to Hazelton Group strata*

TENAIKO PLUTONIC SUITE

JT — *Compositionally and texturally heterogeneous assemblage of coarse-grained pyroxene-hornblende gabbro to medium- to coarse-grained hornblende diorite to quartz diorite; lesser hornblende granodiorite; locally contains abundant mafic and ultramafic xenoliths and metavolcanic screens ranging from a few centimetres to 10s of metres in length*

SYMBOLS

Geological contact (defined, approximate, assumed)
Fault, undifferentiated (defined, approximate, assumed)
Fault, normal, down dropped on side with balls (defined, approximate, assumed)
Fault, compressional, defined, approximate, assumed (teeth on upthrust side)
Strike slip fault, defined, approximate (shaded under Qal and water)
Shear zone
Discrete shear zone (inclined, vertical)
Antiform (defined and approximate)
Synform (defined and approximate)
Fold axis
Axial plane
Bedding (tops unknown inclined, tops known inclined, overturned, vertical)
Magmatic foliation and layering
Tectonic foliation (inclined, vertical; includes schistosity, gneissic foliation, cleavage, and may also include some magmatic foliations and foliations of unknown type)
Mylonitic foliation (inclined, vertical)
*Mineral lineation**
*Elongation lineation**
Lineation (undivided)
*Dyke (inclined, vertical)**
*Glacial striae**
Fossil locality with ID number (see Sheet 3)
Ar-Ar age determination locality with ID number (see Sheet 3)
K-Ar age determination locality with ID number (see Sheet 3)
U-Pb age determination locality with ID number (see Sheet 3)
Gossan
Landslide scarp
Field station location where not indicated by other symbol (foliation, etc.)
Limit of mapping
Park boundary
Road, hard surface (more than 2 lanes, 2 lanes, less than 2 lanes)
MINFILE occurrence with ID number

**data not collected consistently across map-area*

MINFILE*

NUMBER	MINFILNO	NAME	STATUS	COMMODITIES	DEPTYPE
1	093D 032	NASCALL HOT SPRINGS	SHOW	HS	T02
2	093D 003	MALACHITE CLIFF	SHOW	CU, AG, MO	
3	093D 030	BURNT BRIDGE	SHOW	MO, PB, CU	
4	093D 031	EUCOTT HOT SPRINGS	SHOW	HS	T02
5	093D 016	BELLA COOLA VALLEY	SHOW	AB	M06
6	093D 010	SURE COPPER	SHOW	CU	
7	093D 011	BELLA COOLA	SHOW	CU, AU	
8	093D 022	SMITLEY-OLY	SHOW	AU, AG, CU, MO	I06
9	093D 025	BLAZE	SHOW	MO, CU	
10	093D 033	TALLHEO HOT SPRINGS	SHOW	HS	T02
11	093D 027	BENTINCK ARM	SHOW	GT	
12	093D 013	SMITLEY RIVER	SHOW	AG, AU, CU, PB, ZN	
13	092M 017	AA 1-22	PROS	GT, CU	P04

* Data from British Columbia Geological Survey Branch MINFILE Mineral Inventory
STATUS abbreviations: SHOW = Showing, PROS = Prospect
COMMODITY abbreviations: AB = Asbestos, AG = Silver, AU = Gold, CU = Copper, GT = Graphite, HS = Hotspring, MO = Molybdenum, PB = Lead, ZN = Zinc
DEPTYP abbreviations: I06 = Cu±Ag quartz veins, M06 = Ultramafic-hosted asbestos, P04 = Crystalline flake graphite, T02 = Geothermal spring

GSC OPEN FILE 5385

GEOLOGY

BELLA COOLA REGION
(93D/01, /07, /08, /10, /15 AND PARTS OF 93D/02, /03, /06, /09, /11, /14, /16, AND 92M/15 AND /16)

BRITISH COLUMBIA

Scale 1:100 000/Échelle 1/100 000

kilometres 2 0 2 4 6 8 kilomètres

Universal Transverse Mercator Projection
North American Datum 1983

Projection transverse universelle de Mercator
Système de référence géodésique nord-américain, 1983

LOCATION MAP

Geology by L.J. Diakow (2001-2003), J.B. Mahoney (2001-2005), S.M. Gordee (2001-2004), L.C. Struik (2000-2001), J.W. Haggart (2001-2005), G.J Woodsworth (2001-2004), M. Rusmore (1991, 1992), P. van der Heyden (1989, 1990), M.G. Hrudey (2001) and J.A. Roddick (1967, 1982)

Geological compilation by J.W. Haggart, J.B. Mahoney, G.J. Woodsworth, L.J. Diakow, S.M. Gordee and M. Rusmore

This map supercedes Geological Survey of Canada Open File 1463, 4018 and 4639, and British Columbia Geological Survey Branch Open File 2004-13

Digital cartography by M. Ceh (2005-2006), N.L. Hastings (2002-2005), and J. Joseph (2003), Geological Survey of Canada

Contribution of Bella Coola Targeted Geoscience Initiative, Cordilleran Energy and Minerals Project Number Y15

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

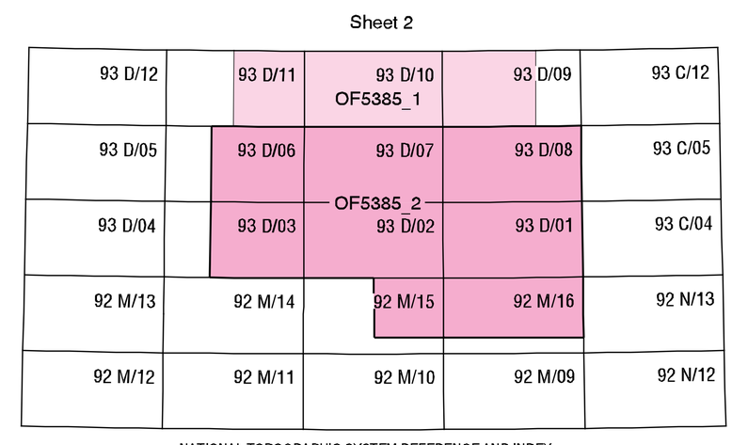
Digital base map from data compiled by Geomatics Canada modified by Geological Survey of Canada

Mean magnetic declination 2006, 20° 03´ E, decreasing 14.0´ annually. Readings vary from 20° 17´ E in the northwest to 19° 48´ E in the southeast corner of the map

Elevations in feet above mean sea level

Contour interval 200 feet

Sheet 2



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

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2006
SHEET 2 OF 3
FEUILLET 2 DE 3

Sheet 2 of 3, Geology (South half)

Recommended citation:
Haggart, J.W., Diakow, L.J., Mahoney, J.B., Woodsworth, G.J., Struik, L.C., Gordee, S.M., and Rusmore, M.
2006: Geology, Bella Coola region (93D/01, /07, /08, /10, /15 and parts of 93D/02, /03, /06, /09, /11, /14, /16, and 92M/15 and /16), British Columbia; Geological Survey of Canada, Open File 5385; British Columbia Geological Survey, Geoscience Map 2006-7, scale 1:100 000.

Canada

Natural Resources Canada / Ressources naturelles Canada

GEOLOGICAL SURVEY OF CANADA / COMMISSION GÉOLOGIQUE DU CANADA

BRITISH COLUMBIA
Ministry of Energy, Mines and Petroleum Resources

PALEONTOLOGY

MAP #	GSC LOC #	FIELD #	COLLECTER	DATE (mo/dy/yr)	NTS MAP	UTM ZONE	DATUM	UTM Easting	UTM Northing	LAT.	LONG.	GEOGRAPHICAL LOCATION	FOSSILS	AGE	IDENTIFIER	REPORT NO.[1]
1	79699	F1-44-TD	H.W. Tipper	1967	93D/01	9U	NAD27			52°00'00"	126°00'00"	Northwest of Talchako Glacier	Possible bivalve? imprint (*Acila* ? sp.) Indeterminate organic(?) matter	Cretaceous or younger Indeterminate	J.A. Jeletzky J.W. Haggart	Km-12-1967-JAJ This report
2	65044	BT-28-01-64	A.J. Baer	1964	93D/07	9U	NAD27			52°29'	126°30'	Approximately 6.5 km northwest of Salloomt Peak, elev. 6000' [2]	cf. *Lima* (*Limea*) ex gr. *blakei* Cox; *Ostrea* ? sp. indet.; *Rhynchonella* (s. str.) ex aff. *alemanica* Rollier;	Early to Middle Jurassic	J.A. Jeletzky	Km-7-1965-JAJ
	C-306164	SCB-01-2501-1	L.C. Struik	08/13/01	93D/07	9U	NAD83	669643	5818001			In saddle at base of highest peak on the ridge north of Salloomt Peak	Trigoniid bivalves, poorly-preserved fragments and molds with some resemblance to *Myophorella* cf. *yellowstonensis* Imlay?; bivalves, fragments, possible ostreids?; bivalves, fam. indet., fragments	Middle Jurassic to Early Cretaceous	J.W. Haggart	JWH-2001-07
	C-306170	SCBM-01-1701-1	J.B. Mahoney	08/08/01	93D/07	9U	NAD83	669653	5818073			North end of Salloomt Peak ridge, ca. 200 m north of nonconformity between 'Firvale pluton' and Monarch volcanics	Trigoniid bivalves, fragments, gen. et sp. indet.; bivalves, fam. indet., fragments	Jurassic-Cretaceous	J.W. Haggart	JWH-2001-07
	C-306171	SCBM-01-1705-1	J.B. Mahoney	08/08/01	93D/07	9U	NAD83	669498	5818314			North end of Salloomt Peak ridge, east side, approximately 40-50 m stratigraphically above nonconformity between 'Firvale pluton' and Monarch volcanics	Ammonite mould, probably compressed form; wood fragments	Late Mesozoic	J.W. Haggart	JWH-2001-07
3	C-211801	SCB-01-2901-1	L.C. Struik	08/21/01	93D/08	9U	NAD83	670475	5818050			Southeast of highest peak on the ridge north of Salloomt Peak	Possible harpoceratid ammonites?	Jurassic to Early Cretaceous?	J.W. Haggart	JWH-2001-07
	C-306441	HFB-02-1601-2	J.W. Haggart	09/01/02	93D/08	9U	NAD83	670569	5817098			Southeast of highest peak on the ridge north of Salloomt Peak	*Leconteites* ? sp.; ammonite, indet.; *Aucellina* ? sp.; bivalve, indet.	Albian?	J.W. Haggart	This report
	C-306442	HFB-02-1601-5	J.W. Haggart	09/01/02	93D/08	9U	NAD83	670449	5817293			Southeast of highest peak on the ridge north of Salloomt Peak	*Leconteites deansi* (Whiteaves); cf. *Moffitites robustus* Imlay; *Pusozia* ? sp.	Late Early Albian	J.W. Haggart	This report
4	C-307255	HFB-04-Lower	J.W. Haggart	07/27/04	93D/08	9U	NAD83	669794	5818318			Southwest of Salloomt Lake	*Dichotomites* ? sp.; bivalve indet.	Valanginian?	J.W. Haggart	This report
5	65045	BT-28-03-64	A.J. Baer	1964	93D/09	9U	NAD27	670200	5843600	52°43	126°28'	On ridge west of Crag Creek, elev. 5800' [3]	*Ostrea* (?) sp. indet.; *Pinna* (?) sp.; *Camptonectes (Camptochlamys)* ? sp.; *Camptonectes* (?) sp.; *Lopha marshii* (Sowerby); *Lopha* (?) sp., large, with well-developed ligament attachment; cf. *Lima* (*Limea*) ex gr. *blakei* Cox; other bivalves, indet.; rhynchonellid brachiopods, indet.; terebratulid brachiopods, indet.	Early to Middle Jurassic Jurassic? Jurassic?	J.A. Jeletzky T.P. Poulton T.P. Poulton	Km-7-1965-JAJ J16-1989-TPP J4-2001-TPP
	65046	HSB-36-02-64	A.J. Baer	1964	93D/09	9U	NAD27	670200	5843600	52°43	126°28'	On ridge west of Crag Creek, elev. 5800' [3]	*Camptonectes* sp.; *Lima* (*Limea*) ex gr. *blakei* Cox; *Lima* spp.; Bivalves, indet.; *Meleagrinella* (?) sp. or *Entolium* (?) sp.; ostreiid(?) bivalves, indet.; *Rhynchonella* (s. str.) ex aff. *baksanensis* Mojsisovics; rhynchonellid brachiopods, indet.; terebratulid brachiopods, indet.	Early to Middle Jurassic Jurassic? Jurassic?	J.A. Jeletzky T.P. Poulton T.P. Poulton	Km-7-1965-JAJ J16-1989-TPP J4-2001-TPP
6	C-082681	80-WV-856	G.J. Woodsworth	1980	93D/09	9U	NAD83	674244	5834218			Near summit approximately 3 km south of Mount Collins at 6400'	*Cylindroteuthis (Arctoteuthis)* ex gr. *septentrionalis* Bodylevsky; bivalves indet.	Callovian to early Oxfordian	J.A. Jeletzky	Km-7-1981-JAJ
	C-306158	01-LDi-25.04	L.J. Diakow	2001	93D/09	9U	NAD83	673811	5834691			Ridge 2.6 km at 147° from Mount Collins summit	Belemnites, gen. and sp. indet.	Jurassic-Cretaceous	J.W. Haggart	JWH-2001-07
7	C-306159	01-LDi-25.07	L.J. Diakow	2001	93D/09	9U	NAD83	673800	5836250			Cirque bottom approximately 1.6 km at 120° from Mount Collins summit	Probable cadoceratid ammonite; belemnites, gen. and sp. indet.	Probably Bathonian or Callovian	J.W. Haggart T.P. Poulton	JWH-2001-07 Pers. comm., 2002
	C-306895	01-LDi-25.07	L.J. Diakow	2001	93D/09	9U	NAD83	673800	5836250			Cirque bottom approximately 1.6 km at 120° from Mount Collins summit	Microfossil collection: radiolarians	Late Bathonian to Early Callovian	E.S. Carter	Pers. comm., 2005
8	C-307242	HFB-04-29	J.W. Haggart	07-27-04	93D/09	9U	NAD83	673959	5835846			Cirque southeast of Mount Collins	Belemnites, gen. and sp. indet.	Jurassic to Early Cretaceous	J.W. Haggart	This report
	C-307243	HFB-04-30	J.W. Haggart	07-27-04	93D/09	9U	NAD83	673556	5835890			Cirque southeast of Mount Collins	Belemnites, gen. and sp. indet.	Jurassic to Early Cretaceous	J.W. Haggart	This report
	C-307244	HFB-04-32	J.W. Haggart	07-28-04	93D/09	9U	NAD83	673620	5835463			Cirque southeast of Mount Collins	Belemnites, gen. and sp. indet.	Jurassic to Early Cretaceous	J.W. Haggart	This report
	C-307251	HFB-04-95	J.W. Haggart	08/17/04	93D/09	9U	NAD83	674045	5835290			Cirque southeast of Mount Collins	Belemnites, gen. and sp. indet.	Jurassic to Early Cretaceous	J.W. Haggart	This report
9	C-306162	SCB-01-1703-1	L.C. Struik	07/27/01	93D/10	9U	NAD83	666250	5825500			Float from near toe of glacier south of Necleetsconnay River and approximately 160° ESE of Mount Creswell; 1550 m elev	*Phymatoceras* (?) sp.; compressed, involute ammonite with smooth whorl, indet.; *Pleuromya* (?) sp.; *Mactra* (?) sp.; bivalves, fam. indet.	Early Jurassic?	J.W. Haggart	This report
10	C-306161	SCB-01-1402-2	L.C. Struik	07/22/01	93D/10	9U	NAD83	662248	5824458			Peak south of Necleetsconnay River and to 190° from Mount Creswell; 2005 m elev	Ammonite fragment, indet.; bivalve, pectinid? conifer frond	Possibly Mesozoic	J.W. Haggart	This report
11	C-053553	WVV-303-78	P. van der Heyden	1978	93D/10	9U	NAD83	662874	5830368			Northwest ridge of Mount Creswell, 7200'	*Rhynchonella* (s. str.) ex aff. *baksanensis* Mojsisovics; rhynchonellid brachiopods, indet.; bivalves indet.	Probably Mesozoic	E.T. Tozer	Tr-3-1979-ETT
12	C-306167	SCBH-01-2304-2	M. Hrudey	08/08/01	93D/10	9U	NAD83	660394	5830245			Cirque west of Mount Creswell; 1200 m elev	Ammonite fragment, indet	Probably Mesozoic	J.W. Haggart	This report
	C-306168	SCBH-01-2304-3	M. Hrudey	08/08/01	93D/10	9U	NAD83	660394	5830245			Cirque west of Mount Creswell; 1200 m elev	Hildoceratid? ammonite fragments	Probably Jurassic to Early Cretaceous	J.W. Haggart	This report
13	C-306160	SCB-01-1106-3	L.C. Struik	07/17/01	93D/10	9U	NAD83	657779	5829642			5.5 km due west of Mount Creswell	*Pleydellia* ? sp.; *Phymatoceras* ? sp.; *Mytiloides* sp.; bivalves, indet.; conifer frond	Toarcian?	J.W. Haggart	This report
	C-306165	SCB-01-2502-1	L.C. Struik	08/13/01	93D/10	9U	NAD83	657607	5829789			5.5 km due west of Mount Creswell; 1915 m elev	*Pleydellia* sp.; *Fanninoceras* sp.; *Mytiloides* sp.; bivalve, gen. and sp. indet.; conifer fronds	Early Jurassic (Toarcian? Pliensbachian?)	J.W. Haggart	JWH-2001-07
	C-306427	SCB-01-2503-1	L.C. Struik	08/05/01	93D/10	9U	NAD83	657556	5829848			Approximately 5.5 km west of Mount Creswell	Microfossil collection: sponge spicules	Phanerozoic	M.J. Orchard	MJO-2005-7
	C-307271	SCBM-01-2101-1	J.B. Mahoney	2001	93D/10	9U	NAD83	658843	5829642			Ridge 5 km due west of Mount Creswell	*Phymatoceras* (?) sp.	Early Jurassic?	J.W. Haggart	This report
14	C-306163	SCB-01-2105-1	L.C. Struik	08/06/01	93D/10	9U	NAD83	653326	5830789			South of Swallop Creek; 1390 m elev	Ammonite, deeply weathered, indet.	Probably Mesozoic	J.W. Haggart	This report
15	C-306166	SCB-01-2504-1	L.C. Struik	08/13/01	93D/10	9U	NAD83	661103	5836582			Cirque due east of Index Crag, in north side of cirque wall; 1560 m elev	*Pleydellia* sp.aff. *maudensis* Jakobs & Smith; *Phymatoceras* sp.	Toarcian	J.W. Haggart	This report
	C-306169	SCBM-01-0802-1	J.B. Mahoney	07/17/01	93D/10	9U	NAD83	661226	5836494			Cirque due east of Index Crag; 1970 m elev	*Phymatoceras* ? sp.	Toarcian?	J.W. Haggart	This report
16	C-306437	HFB-02-1103-1	J.W. Haggart	08/13/02	93D/10	9U	NAD83	658300	5835075			Ridge approximately 3 km WNW of Kalone Peak	Bivalve, indet.; conifer fronds	Mesozoic	J.W. Haggart	This report
	C-306438	HFB-02-1104-1	J.W. Haggart	08/13/02	93D/10	9U	NAD83	658325	5835215			Ridge approximately 3 km WNW of Kalone Peak	*Fanninoceras* ? sp.; *Amaltheus* ? sp.; *Protogrammoceras* sp.	Toarcian	J.W. Haggart	This report
17	C-306415	HFB-02-0602-1	J.W. Haggart	08/07/02	93D/10	9U	NAD83	654465	5834020			Ridge approximately 7 km west of Kalone Peak	Microfossil collection: sponge spicules	Phanerozoic	M.J. Orchard	MJO-2005-9
	C-306426	HFBM-02-1602-3	J.B. Mahoney	08/07/02	93D/10	9U	NAD83	654355	5834235			Ridge approximately 7 km west of Kalone Peak	Microfossil collection: echinoderm	Phanerozoic	M.J. Orchard	MJO-2005-9
	C-306433	HFB-02-0601-1	J.W. Haggart	08/07/02	93D/10	9U	NAD83	654520	5834090			Ridge approximately 7 km west of Kalone Peak	*Camptonectes (Camptochlamys)* ? sp.; *Cylindroteuthis* ? sp.; '*Rhynchonella*' sp.; belemnite indet.; bivalves, indet.	Early Jurassic? Pliensbachian?	J.W. Haggart	This report
	C-306439	HFB-02-1304-1	J.W. Haggart	08/15/02	93D/10	9U	NAD83	654645	5833885			Ridge approximately 7 km west of Kalone Peak	Bivalve indet.	Mesozoic?	J.W. Haggart	This report
	C-306440	HFB-02-1305-3	J.W. Haggart	08/15/02	93D/10	9U	NAD83	654650	5833820			Ridge approximately 7 km west of Kalone Peak	*Lima* sp.; '*Rhynchonella*' sp.	Early Jurassic?	J.W. Haggart	This report
	C-306443	HFBM-02-1602-1	J.B. Mahoney	08/07/02	93D/10	9U	NAD83	654480	5834222			Ridge approximately 7 km west of Kalone Peak	Belemnite, indet.; bivalve fragments, indet.	Jurassic to Early Cretaceous	J.W. Haggart	This report
18	C-306435	HFB-02-0603-1	J.W. Haggart	08/07/02	93D/10	9U	NAD83	654239	5834575			Ridge approximately 7 km west of Kalone Peak	Belemnite, indet.	Jurassic to Early Cretaceous	J.W. Haggart	This report
19	C-306436	HFB-02-0605-1	J.W. Haggart	08/07/02	93D/10	9U	NAD83	653270	5835362			Approximately 8 km west of Kalone Peak	Ammonite, indet.; hildoceratid ammonite?	Pliensbachian?	J.W. Haggart	This report
20	C-307270	SCBM-01-1104-1	J.B. Mahoney	2001	93D/10	9U	NAD83	655466	5838431			Due north of saddle south of elongate 6700' NW-SE ridge crest of Kalone Creek; 5700' elev	*Protogrammoceras* ? sp.; *Fanninoceras* ? sp.	Toarcian?	J.W. Haggart	This report
21	C-404725	HFBM-02-1902-1	J.W. Haggart	08/18/02	93D/15	9U	NAD83	664929	5872982			Approximately 3 km ENE of Jumble Mountain	*Troitsaia westermanni* Poulton & Tipper; bivalves, indet.	Earliest Aalenian	T.P. Poulton	Pers. comm., 2003
	C-404726	HFBM-02-2002-1	J.W. Haggart	08/19/02	93D/15	9U	NAD83	665010	5872919			Approximately 3 km ENE of Jumble Mountain	*Troitsaia westermanni* Poulton & Tipper; bivalves, indet.	Earliest Aalenian	T.P. Poulton	Pers. comm., 2003
	No #		J.C. Lund		93D/15	9U	NAD83	665000	5872600			Approximately 3 km ENE of Jumble Mountain[4]	*Trigonia* sp. cf. *T. dawsoni* (Whiteaves); bivalves, indet.; high-spired gastropods, indet.; possible ammonite fragment (stephanoceratid?); corals, indet.	Probably Early Middle Jurassic (Bajocian)	H.W. Tipper	GSC unnumbered report
22	83375		G.M. Dawson	1876	93D/16	9U	NAD27			52°53'	126°15'	Iltasyuko River[5]	Stephanoceratid(?), or kosmoceratid(?), or cardioceratid(?) ammonites, fragments; *Chondroceras* (?), *Iniskinites* (?), or *Lillooettia* (?) sp.; *Inoceramus* sp.; *Ostrea* sp.; *Camptonectes* sp.; terebratulid brachiopods, indet.; serpulids, indet.	Middle Jurassic	H. Frebold T.P. Poulton T.P. Poulton	J6-1969-HF J16-1989-TPP J4-2001-TPP
23	50919	BTc-62-2/19a	A.J. Baer	1962	93D/16	9U	NAD27	688000	5871000			Float collection from unknown locality "near camp on Sigutlak Lake"	Stephanoceratid ammonites, indet. (fragments); *Myophorella* sp.; *Oxytoma* sp.; *Astarte* sp.; *Corbula* (?) sp., small; *Grammatodon* (?) sp., small, smooth; *Pleuromya* sp.; *Inoceramus* (?) sp., small fragment; *Belemnoteuthis* (?) sp.; serpulid worm tubes encrusted on *Belemnoteuthis* (?) shell	Early Bajocian	H. Frebold T.P. Poulton T.P. Poulton	J9-1962-HF J16-1989-TPP J4-2001-TPP
	83436		G.M. Dawson	1875	93D/16	9U	NAD27	688000	5871000			Unknown locality at "Sigutlat Lake"	*Stephanoceras* sp.; *Gryphaea* ? sp.	Early Bajocian	T.P. Poulton T.P. Poulton	J16-1989-TPP J4-2001-TPP
24	79697	F1-45-TD	H.W. Tipper	1967	92M/16	9U	NAD27			51°55'	126°05'	East of Sumquolt Glacier[6]	Poor ammonites, cf. *Cleoniceras (?Grycia) perezianum*; bivalves, indet.; irregular echinoids (*Toxaster* ?)	Possibly late Early Albian	J.A. Jeletzky	Km-12-1967-JAJ
	79703	F3-45-TD	H.W. Tipper	1967	92M/16	9U	NAD27			51°55'	126°05'	East of Sumquolt Glacier[6]	Poor ammonites, cf. *Cleoniceras (?Grycia) perezianum*; poor ammonites, cf. *Brewericeras hulenense*; bivalves, indet.	Probably late Early Albian	J.A. Jeletzky	Km-12-1967-JAJ
	79711	F2-45-TD	H.W. Tipper	1967	92M/16	9U	NAD27			51°55'	126°05'	East of Sumquolt Glacier[6]	cf. *Cleoniceras (?Grycia) perezianum*; Poor ammonites, cf. *Brewericeras hulenense*; ammonites, gen. et sp. indet.; bivalves, indet.; echinoids (*Toxaster* ?)	Possibly late Early Albian	J.A. Jeletzky	Km-12-1967-JAJ
	79740	F7-45-TD	H.W. Tipper	1967	92M/16	9U	NAD27			51°55'	126°05'	East of Sumquolt Glacier[6]	Possible non-marine bivalves	Indeterminate	J.A. Jeletzky	Km-12-1967-JAJ
	79742	F6-45-TD	H.W. Tipper	1967	92M/16	9U	NAD27			51°55'	126°05'	East of Sumquolt Glacier[6]	Hoplitid ammonite, possibly *Anahoplites*	Probably Albian	J.A. Jeletzky	Km-12-1967-JAJ
	79750	F5-45-TD	H.W. Tipper	1967	92M/16	9U	NAD27			51°55'	126°05'	East of Sumquolt Glacier[6]	Plant material		W.A. Bell	Fl-1-1968-WAB
	79753	F4-45-TD	H.W. Tipper	1967	92M/16	9U	NAD27			51°55'	126°05'	East of Sumquolt Glacier[6]	cf. *Cleoniceras (?Grycia) perezianum*	Possibly late Early Albian	J.A. Jeletzky	Km-12-1967-JAJ
25	96918	79RD-EB-59015	G.J. Woodsworth	1979	92M/16	9U	NAD27			51°54'25"	126°05'42"	Ridge between Princess and Sumquolt glaciers, 7.7 km SE of Cerberus Mtn	cf. *Cleoniceras (?Grycia)* ex gr. *perezianum*; echinoids, probably *Toxaster*	Albian	J.A. Jeletzky	Km-3-1980-JAJ JWH-1994-11
26	C-307245	HFB-04-40	J.W. Haggart	08-01-04	92M/16	9U	NAD83	698850	5752415			Obstreperous Ridge (float occurrence)	*Cleoniceras (?Grycia) perezianum*; bivalve	Albian	J.W. Haggart	This report
27	C-307246	HFB-04-43	J.W. Haggart	08-01-04	92M/16	9U	NAD93	699525	5753275			Obstreperous Ridge	Echinoids	Cretaceous	J.W. Haggart	This report
	C-307247	HFB-04-45	J.W. Haggart	08-01-04	92M/16	9U	NAD83	699725	5753360			Obstreperous Ridge	*Cleoniceras (?Grycia) perezianum*	Albian	J.W. Haggart	This report
	C-307265	HFB-04-44	J.W. Haggart	01-00-00	92M/16	9U	NAD83	699525	5753275			Obstreperous Ridge	*Cleoniceras (?Grycia) perezianum*; echinoids	Albian	J.W. Haggart	This report

[1] Unpublished G.S.C. Fossil Report numbers
[2] Baer (GSC Map 1327A) plotted this locality in saddle north of Salloomt complex, hence 93D/07
[3] Baer (GSC Memoir 372) gives the approximate location of this locality as noted; UTM loc data given here reflect the location plotted on Baer's field map
[4] Collection located within 0.5 km radius
[5] Collection located approximately
[6] Collection located approximately; probably from same area as collections C-307246, C-307247, and C-307265

GEOCHRONOLOGY

MAP #	FIELD #	AGE (Ma)	LAB[1]	UTM Easting (NAD83)	UTM Northing (NAD83)	GEOGRAPHICAL LOCATION	LITHOLOGY	ROCK UNIT	REFERENCE
1	HFBL02-2003	191 ± 12 (U/Pb)	UBC	651942	5870269	W of East Sakumtha River	Quartz-dacite lapilli tuff	Hazelton Group	R. Friedman (this study)
2	HFBM02-3020	189 ± 0.8 Ma (U/Pb)	UBC	655520	5782130	Howe Lake	Tonalite	Howe Lake plutonic suite	R. Friedman (this study)
3	GJP-27	182.4 ± 4.7 Ma (U/Pb)	Univ Az	631589	5832108	1.5 km SW of Wattie Point	Diorite	Howe Lake plutonic suite	G. Gehrels (pers. comm., 2006)
4	HFBL02-1604-1	181.9 ± 0.8 (U/Pb)	UBC	667038	5796259	6 km N of Mount Saugstad	Foliated biotite tonalite	Howe Lake plutonic suite	R. Friedman (this study)
5	HFB03-0508-1	181.6 ± 1.0 Ma (U/Pb)	UBC	652740	5835620	Ridge W of Kalone Peak	Quartz-rich crystal lithic tuff	Hazelton Group	R. Friedman (this study)
6	HFBM02-1405-1	176.5 ± 0.6 (U/Pb)	UBC	664895	5872855	NE of Jumble Mountain	Crystal-lithic lapilli tuff	Hazelton Group	R. Friedman (this study)
7	SCBD01-0605	171.6 ± 2.3 (U/Pb)	UBC	677545	5828855	Lowermost N slope of Tzeetsaytsul Peak	Aphanitic dacite flow dome	Hazelton Group	R. Friedman (this study)
8	HFBL02-1404-1	170.2 ± 1.4 (U/Pb)	UBC	672070	5828107	NW of Mount Stepp	Quartz-rhyolite flow	Noosgulch assemblage	R. Friedman (this study)
9	SCB01-4104/VN01-B05	Detrital zircon continuum: 180-138 Ma, with peak ca. 160 Ma (U/Pb)	GSC-O	656057	5829560	Ridge between Swallop Creek and Necleetsconnay River, apprxoimately 7 km W of Mount Creswell	Wacke with granitic detritus	Monarch assemblage	M. Villeneuve (this study)
10	SCBD01-2502	164.7 ± 2 (U/Pb)	UBC	673912	5834551	Ridge SE of Mount Collins	Rhyolite ash-flow tuff	Noosgulch assemblage	R. Friedman (this study)
11	GR96-124	164.2 ± 4.4 (U/Pb)	UBC	675150	5828850	Nifty mineral prospect	Quartz-phyric rhyolite dyke	Noosgulch assemblage	Ray *et al.* (1998)
12	SCB00-0707-1	163.7 ± 0.4 (U/Pb)	GSC-O	675234	5829271	Nifty area	Dacitic breccia	Noosgulch assemblage	M. Villeneuve (this study)
13	HFBL02-3001-3	162.4 +1.3/-0.6 (U/Pb); 72.9 ± 1.1 Ma (Ar/Ar [K-fspar])	UBC	674616	5841390	NE of Stack Peak	Biotite granodiorite	Firvale plutonic suite[5]	R. Friedman and T. Ullrich (this study)
14	V89-56-4	159.6 ± 0.5 (U/Pb)	vdH	700147[2]	5800899[2]	2 km NNW of Nordschow Creek	Mylonitic granodiorite	Firvale plutonic suite?	van der Heyden (2004)
15	GJP-24	157.1 ± 3.2 Ma (U/Pb)	Univ Az	638343	5839975	E side Dean Channel opposite mouth of Sutslem Creek	Diorite	JKp	G. Gehrels (pers. comm., 2006)
16	04-M-213	149.1 ± 0.5 (U/Pb)	UBC	636263	5873462	E of Dam Mountain	Hornblende-biotite granodiorite	Firvale plutonic suite[5]	R. Friedman (this study)
17	HFBL02-0601-1	149 ± 1 (U/Pb)	UBC	660793	5853994	SW of Mount Bernhardt	Hornblende-biotite granodiorite	Firvale plutonic suite[5]	R. Friedman (this study)
18	HFBL02-3004-2	148.6 ± 0.6 (U/Pb)	UBC	665129	5840789	S of Forward Mountain	K-mega granodiorite	Firvale plutonic suite[5]	R. Friedman (this study)
19	GJP-1	144.5 ± 2.9 Ma (U/Pb)	Univ Az	674762	5814646	W side Tseapseahoolz Creek	Diorite	JKp	G. Gehrels (pers. comm., 2006)
20	SCBM01-1405-1	141 ± 1 (Ar/Ar [hbl, biot])	UBC	650034	5836972	Head of Humpback Creek	Quartz-phyric granodiorite	Firvale plutonic suite?	T. Ullrich (this study)
21	SCBD01-1803-2	140.0 ± 1.0 Ma (U/Pb)	UBC	648705	5813457	S spur of Mount Pootlass	Quartz-phyric rhyolite dyke		R. Friedman (this study)
22	SCB01-1704-1	139.9 ± 1.2 (U/Pb)	GSC-O	666800	5825700	Ridge SW of Talcheazoone Lakes	Chlorite altered biotite granodiorite	Firvale plutonic suite	M. Villeneuve *in* Struik *et al.* (2003)
23	SCB01-4106-2	134.3 ± 0.2 (U/Pb)	GSC-O	669570	5818281	Ridge NW of Salloomt Peak	Chlorite altered hornblende granodiorite	Firvale plutonic suite	M. Villeneuve *in* Struik *et al.* (2003)
	V89-49-1	133.9 ± 0.2 (U/Pb)	vdH	669686[2]	5818248[2]	5.9 km NNW of Salloomt Peak	Chlorite altered biotite-hornblende granodiorite	Firvale plutonic suite	van der Heyden (2004)
24	SCB01-1301-3	133.4 ± 0.2 (U/Pb)	GSC-O	655951	5828563	Ridge between Swallop Creek and Necleetsconnay River	Foliated quartz diorite	Firvale plutonic suite	M. Villeneuve *in* Struik *et al.* (2003)
25	V89-57	133.1 ± 4.3 (U/Pb)	vdH	698046[2]	5805219[2]	Along logging road adjacent to Talchako River	Chlorite altered biotite-hornblende granodiorite	Firvale plutonic suite	van der Heyden (2004)
26	BBC-9	132.0 ± 0.6 (U/Pb) (minimum age)	vdH	703097[2]	5805140[2]	Outcrop along Highway 20, approximately 5 km E of Stuie	Altered granodiorite	Firvale plutonic suite (Atnarko pluton)	van der Heyden (2004)
27	SCB01-2306-1	122.6 ± 1.4 (U/Pb)	GSC-O	648530	5821542	Ridge N of Mount Pootlass	Biotite-quartz diorite/tonalite	Desire plutonic suite	M. Villeneuve *in* Struik *et al.* (2003)
28	91GC1001	119.0 ± 2 (U/Pb)	Univ Az	650084	5804957	Along highway W of Bella Coola	Biotite quartz diorite	Desire plutonic suite	Gehrels and Boghossian (2000)
29	HFBWV02-0905	118.8 ± 0.4 (U/Pb)	UBC	669721	5782973	5 km ESE of Desire Mountain	Tonalite	Desire plutonic suite	R. Friedman (this study)
30	SCBD01-0402	113 Ma minimum[3] (U/Pb)	UBC	677417	5827245	100 m below summit of Tzeetsaytsul Peak	Rhyodacite lapilli tuff	Salloomt assemblage	R. Friedman (this study)
31	79-JBM-05	112.8 ± 1.5 Ma (U/Pb)	UBC	670428	5817241	Upper part of ridge SE from summit of prominent peak N of Salloomt Peak	Welded tuff	Salloomt assemblage	R. Friedman (this study)
32	SCBD01-2803-1	110.6 ± 2.6 Ma (Ar/Ar [hbl]) (date considered unreliable)	UBC	639153	5817702	3 km due W of Mount Saunders	Hornblende andesite tuff	Hazelton Group	T. Ullrich (this study)
33	HFBWV02-0803-2	110.3 ± 0.5 (U/Pb)	UBC	695719	5801042	Melikan Mountain	Granite	Melikan pluton	R. Friedman (this study)
34	SCBD01-0406	104.6 ± 2.5 Ma[4] (Ar/Ar [hbl])	UBC	676590	5826853	W-facing slope of Tzeetsaytsul Peak, elev 1995 m	Augite-hornblende phyric andesite	Salloomt assmblage (massive basaltic unit)	T. Ullrich (this study)
35	GJP-13	98.4 ± 1.8 Ma (U/Pb)	Univ Az	624394	5796555	Burke Channel 0.75 km S of Kwaspala Point	Tonalite		G. Gehrels (pers. comm., 2006)
36	HFBL02-1704-1	95.10 ± 0.76 Ma (Ar/Ar [biot])	UBC	666523	5798035	Ridge between Snootli and Nooklikonnik creeks	Biotite tonalite	Big Snow plutonic suite	T. Ullrich (this study)
37	91MR-85	91 ± 3 (U/Pb)	Univ Az	672578	5760064	NW of Mount Daunt (original published but incorrect loc data: 54°N 126°29'27"W)	Orthogneiss	Mount Daunt pluton	Rusmore *et al.* (2000)
38	HFB02-0101-2	86.9 ± 0.9 (U/Pb)	UBC	660578	5798231	Ridge between Thorsen and Snooka creeks	Biotite granodiorite	Big Snow plutonic suite	R. Friedman (this study)
39	GJP-23	82.8 ± 2.8 Ma (U/Pb)	Univ Az	618865	5823435	W side of Dean Channel, 2.5 km SW of mouth of Carlson Inlet	2-mica granite	JKp	G. Gehrels (pers. comm., 2006)
40	SCB00-0505-1	79 +4/-6 (U/Pb)	GSC-O	680991	5788439	Approximately 2.5 km WSW of Odegard Falls	Granodiorite to quartz diorite	Big Snow plutonic suite?	M. Villeneuve (this study)
41	SCB01-1401-1	77.7 ± 1.8 Ma (Ar/Ar [hbl]) (reset)	UBC	661992	5824615	Near Hourglass Lake	Basalt flows	Monarch assemblage	T. Ullrich (this study)
42	GJP-9	77.3 ± 1.7 Ma (U/Pb)	Univ Az	641406	5801662	S side of North Bentinck Arm at Flagpole Point	Diorite	Fougner plutonic suite	G. Gehrels (pers. comm., 2006)
43	SCBM01-1802-1	76.34 ± 0.52 Ma (Ar/Ar [biot]); 97.3 ± 1.2 Ma (Ar/Ar [hbl, hi-T]) (both dates reset)	UBC	652744	5817961	Ridge N of Christenson Creek	Hornblende-biotite tonalite	Desire plutonic suite	T. Ullrich (this study)
44	HFBM02-2507-1	75.3 ± 0.5 (U/Pb)	UBC	655462	5813720	Necleetsconnay River		Fougner plutonic suite	R. Friedman (this study)
45	SCB01-1209-1	72.9 ± 0.5 (U/Pb)	GSC-O	656750	5827850	Ridge between Necleetsconnay River and Swallop Creek	Garnet-muscovite-biotite granite	Four Mile plutonic suite	M. Villeneuve *in* Struik *et al.* (2003)
46	SCB00-0710-1	72.1 +0.2/-1.0 (U/Pb)	GSC-O	661090	5809963	E of Four Mile Mountain	Garnet-muscovite granite	Four Mile plutonic suite	M. Villeneuve (this study)
47	01JBM03	72.0 ± 0.3 (U/Pb)	UBC	666082	5806097	Bella Coola River valley bottom, S side	Garnet 2-mica granite	Four Mile plutonic suite	R. Friedman (this study)
48	HFBM02-0301-3	70.18 ± 0.60 Ma (Ar/Ar [biot]); 74.0 ± 4.3 Ma (Ar/Ar [hbl])	UBC	701781	5771783	Toe of Jacobsen Glacier	Biotite tonalite	KPd	T. Ullrich (this study)
49	HS-40-06-64	70 ± 14 (K/Ar [biot])	GSC-O	684864	5777235	Elev. 6000', N side of War Drum Glacier (52°07'N 126°18'W)	Unfoliated biotite-hornblende granodiorite	Big Snow plutonic suite?	A.J. Baer *in* Wanless *et al.* (1967) (Date GSC 65-28)
50	HFBL02-2201-1	68.2 ± 1.0 (U/Pb)	UBC	649820	5795231	Summit of Mount Fougner	Biotite tonalite	Fougner plutonic suite	R. Friedman (this study)
51	HFBG02-1003-1	67.2 ± 0.3 (Ar/Ar [biot])	UBC	649619	5816775	Ridge near headwaters of Christenson Creek	Muscovite-biotite granite, trace muscovite	Four Mile plutonic suite	T. Ullrich (this study)
52	91MR-07	62.2 ± 1.0 (U/Pb)	Univ Az	634776[2]	5796947[2]	Burke Channel, Menzies Point	Mylonitized 2-mica granite	Pg	Rusmore *et al.* (2001)
53	GJP-22	61.5 ± 1.7 Ma (U/Pb)	Univ Az	620522	5822251	E side of Dean Channel, 1 km NE of White Cliff Point	Diorite	Pg	G. Gehrels (pers. comm., 2006)
54	91GC1041	61.4 ± 0.6 (U/Pb)	Univ Az	627086[2]	5797377[2]	S shore Burke Channel east of Kwaspala Point	Protomylonitic tonalite	Pg	Rusmore *et al.* (2001)
55	GJP-12	58.4 ± 1.9 Ma (U/Pb)	Univ Az	625219	5797663	Burke Channel, S side of Jacobsen Bay	Tonalite	Pg	G. Gehrels (pers. comm., 2006)
56	BT-89-A-63	57 ± 6 (K/Ar [biot])	GSC-O	620153	5808633	Ovesen Point, Labouchere Channel (52°25'N 127°14'W)	Granite to granodiorite		A.J. Baer *in* Wanless *et al.* (1966) (Date GSC 64-10)
	BT-89-A-63	51 ± 6 (K/Ar [musc])	GSC-O	620153	5808633	Ovesen Point, Labouchere Channel (52°25'N 127°14'W)	Granite to granodiorite		A.J. Baer *in* Wanless *et al.* (1968) (Date GSC 66-20)
57	92MR37	56 ± 2 (U/Pb)	Univ Az	666893[2]	5753409[2]	S of Noieck River	Unfoliated tonalite	Sheemahant pluton	Rusmore *et al.* (2001)
58	HFBW02-1203-1	53.0 ± 0.2 (Ar/Ar [biot])	UBC	651023	5847960	S of Nooskulla Peak	Biotite tonalite	Nooskulla pluton	T. Ullrich (this study)
59	HFBL02-0903	53 ± 0.1 (U/Pb)	UBC	662410	5862290	N side of Sea Lion Peak	Biotite-quartz rhyolite flow dome	Ootsa Lake Group	R. Friedman (this study)
60	GJP-16	52.7 ± 1.5 Ma (U/Pb)	Univ Az	621346	5805356	Labouchere Channel, Deas Point	2-mica granite	Mesachie pluton	G. Gehrels (pers. comm., 2006)
61	HFBL02-1201-1	52.52 ± 0.49 Ma (Ar/Ar [biot])	UBC	657696	5867589	S flank Sakumtha Crag	Quartz biotite granitoid dyke		T. Ullrich (this study)
62	HFBW02-0201-2	51.9 ± 0.2 (Ar/Ar [musc]); 52.7 ± 0.4 (Ar/Ar [biot])	UBC	630796	5803474	Approximately 4 km NNE of Lalakata Point	Muscovite-biotite granite	Mesachie pluton	T. Ullrich (this study)
63	91GC1053	51 ± 4 (U/Pb)	Univ Az	620245[2]	5808966[2]	Labouchere Channel, SE of Edward Point	2-mica granite dyke		Rusmore *et al.* (2001)
64	BT-31-03-64	47 ± 5 (K/Ar [biot])	GSC-O	652900	5854500	Elev. 5500', NE of Nooskulla Peak; location given in reference (52°49'N 126°38'W) is incorrect	Leucocratic granodiorite	Nooskulla pluton	A.J. Baer *in* Wanless *et al.* (1967) (Date GSC 65-19)

[1] GSC-O = Geological Survey of Canada-Ottawa; Univ Az = University of Arizona, Tucson; UBC = University of British Columbia, Vancouver; vdH = University of British Columbia, Vancouver (van der Heyden thesis sample)
[2] UTM Easting and Northing data converted from original NAD27 coordinates as determined from 1:50 000 scale topographic map
[3] Inconclusive date, requires additional zircon grains
[4] Inconclusive date, insufficient hornblende
[5] Formerly Stick Pass plutonic suite

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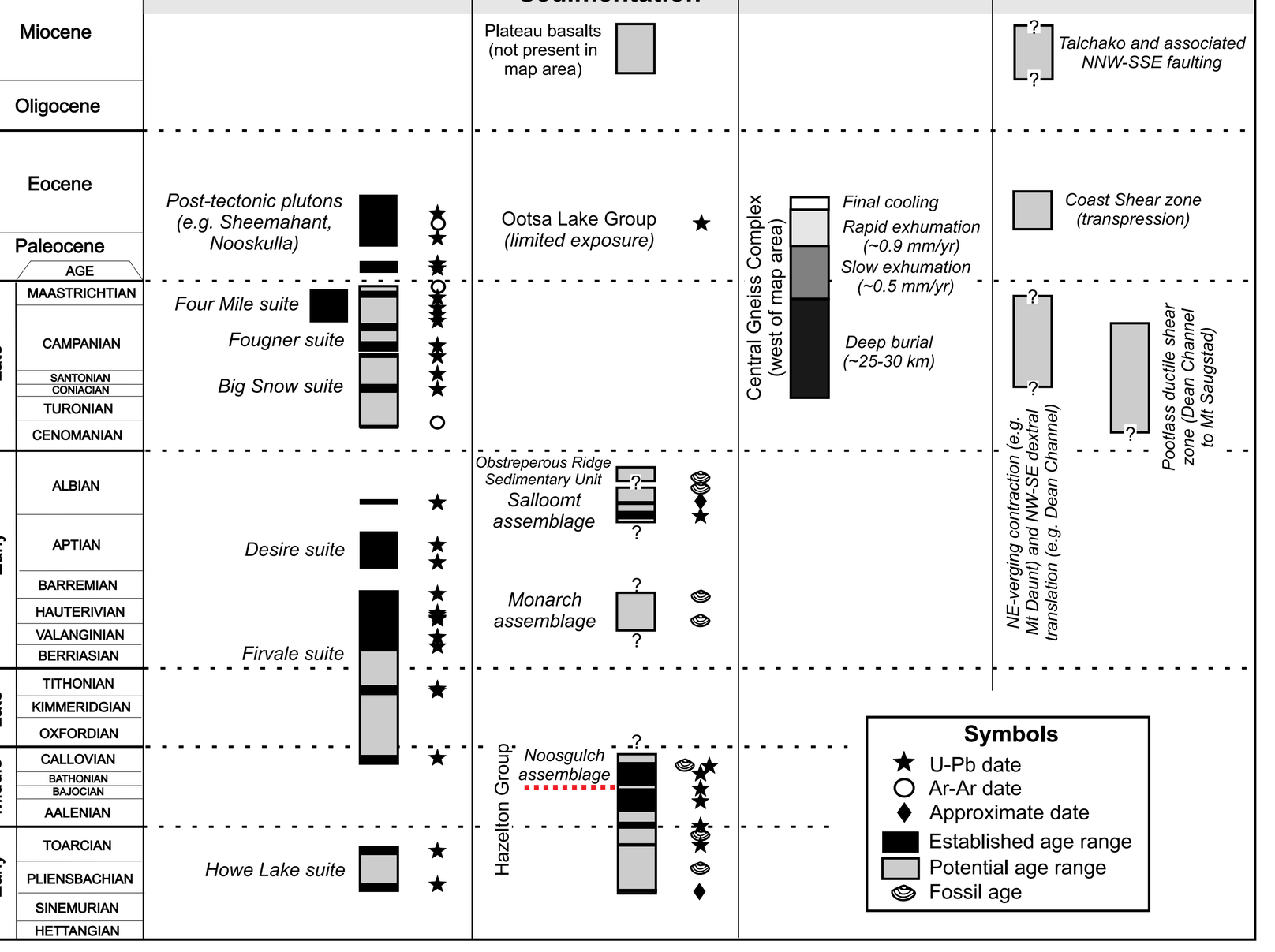
Summary of Geological Events in the Eastern Bella Coola Region



Timescale from Gradstein et al. (2004)

ROCK GEOCHEMISTRY

MAP #	FIELD #	UTM Easting (NAD83)[1]	UTM Northing (NAD83)[1]	LITHOLOGY	PLUTONIC SUITE/ VOLCANIC UNIT	SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O	P_2O_5	MnO	TiO_2	LOI	TOTAL	Ba	Ce	Co	Cr	Cu	Hf	La	Nb	Nd	Ni	Pb	Rb	Sc	Sr	Th	V	Y	Zn	Zr	Pr	Sm	Eu	Gd	Tb	Dy	Lu	Ho	Er	Tm	Yb
INTRUSIVE ROCKS																																															
1	HFBM02-3020-2	655406	5782328	hornblende diorite	Howe Lake	76.1	13.5	0.5	0.2	1.2	4.0	4.1	0.04	0.02	0.10	1.77	101.5	523	15	73	3	31	4	7	3	12	7	5	17	28	296	<1	194	20	75	94	2.3	3.0	1.0	3.5	0.6	3.7	0.4	0.8	2.4	0.3	2.4
2	HFBP02-0905-1	652195	5788731	biotite quartz diorite to tonalite	Howe Lake	63.3	16.7	6.7	2.6	6.0	3.6	1.1	0.13	0.12	0.63	0.07	101.0	505	18	99	5	30	3	8	3	13	5	5	22	24	287	1	155	22	66	109	2.6	3.1	1.0	3.4	0.6	3.9	0.4	0.9	2.5	0.4	2.5
3	HFBP02-1003-2	653119	5788267	biotite granodiorite to granite (biotite tonalite?)	Howe Lake	66.0	16.1	3.8	1.4	3.5	4.9	1.8	0.17	0.08	0.49	0.50	98.7	931	28	91	b.d.	7	4	13	6	10	4	15	76	3	355	0	29	7	57	74											
4	HFBP02-1004-1	653755	5787204	pyroxene diorite	Howe Lake	56.5	17.1	8.8	3.2	7.2	3.4	1.1	0.13	0.17	0.90	0.65	99.1	445	0	74	15	46	2	7	4	10	5	5	21	29	310	0	244	21	94	91											
5	HFB02-1505-1	656675	5785350	hornblende diorite	Howe Lake	57.6	18.2	8.4	3.0	7.4	3.7	0.7	0.22	0.16	0.91	1.34	101.6	400	14	78	10	72	<1	8	4	16	5	6	15	31	337	9	190	28	77	82											
6	HFBW02-1606-1	644097	5794788	hornblende tonalite	Howe Lake	76.3	13.9	1.5	0.4	1.9	4.2	2.6	0.05	0.05	0.18	0.68	101.6	738	28	116	b.d.	4	4	14	3	10	0	7	64	2	135	15	8	12	21	86											
7	HFBL02-1202-1	657500	5868900	hornblende diorite	Intrusion in JHvp	46.8	17.5	11.3	5.6	11.0	3.2	0.4	0.19	0.15	1.64	1.34	99.1	168	13	61	141	20	<1	6	2	9	27	5	7	36	545	8	299	15	56	90											
8	HFBP02-0601-1	700157	5800917	mylonitic tonalite	Firvale	57.5	16.5	7.8	3.1	6.8	3.0	0.9	0.15	0.15	0.78	0.88	97.6	852	25	165	b.d.	5	6	17	3	7	3	7	50	5	251	16	22	16	15	148											
9	HFBG02-0401-2	659489	5858492	biotite granite	Firvale	70.0	14.5	3.0	1.1	2.0	3.7	3.9	0.10	0.06	0.34	1.49	100.2	1090	34	241	2	5	5	21	5	13	5	5	92	6	307	11	53	13	30	130											
10	HFBG02-0501-2	653922	5865141	biotite-hornblende quartz monzonite to granite	Firvale	67.4	14.7	2.9	1.2	2.7	4.2	3.1	0.11	0.05	0.38	0.84	97.6	875	37	49	b.d.	2	6	19	7	17	8	5	51	7	356	6	55	13	34	152	4.4	3.1	0.8	2.8	0.4	2.2	0.2	0.4	1.5	0.2	1.6
11	HFBL02-3001-2	674616	5841390	chloritized biotite granodiorite	Firvale	73.0	13.1	2.0	0.5	1.7	3.5	3.2	0.06	0.06	0.23	0.90	98.4	846	19	102	b.d.	3	4	11	4	0	2	4	68	5	156	15	25	17	18	92											
12	HFBL02-3004-3	665450	5840730	biotite-hornblende tonalite	Firvale	67.9	15.2	3.4	1.2	2.7	3.8	3.5	0.10	0.05	0.38	1.30	99.5	1270	32	80	b.d.	6	5	19	4	14	5	7	72	7	479	5	60	12	31	153	3.6	2.5	0.7	2.5	0.4	2.2	0.2	0.4	1.3	0.2	1.4
13	SCBD01-1605-1	671766	5849797	biotite granodiorite	Firvale	70.9	15.9	2.4	0.8	2.5	4.9	2.5	0.11	0.06	0.32	0.77	101.2	820	13	60	b.d.	1	5	6	3	6	2	4	60	5	200	9	22	12	19	90											
14	SCBD01-2004-1	669962	5850530	monzogranite	Firvale	70.6	15.7	2.0	0.7	2.2	4.3	3.3	0.08	0.06	0.23	1.04	100.3	737	19	245	b.d.	1	4	12	4	8	2	2	55	7	211	0	37	14	21	89											
15	SCBT01-1305-1	661371	5844720	tonalite	Firvale	61.2	16.5	6.5	3.0	5.4	3.9	2.6	0.21	0.10	0.81	0.96	101.3	786	16	53	b.d.	4	5	12	3	9	3	2	31	10	183	2	30	36	25	110											
16	SCBT01-1403-1	676727	5849286	tonalite	Firvale	72.0	13.9	2.9	0.8	1.2	5.2	1.9	0.10	0.05	0.46	1.28	99.8	853	28	175	3	7	5	19	3	14	6	4	38	12	381	6	81	24	37	142											
17	SCBT01-2201-1	674923	5841287	biotite monzogranite	Firvale	67.4	15.4	4.2	1.5	3.7	3.9	2.4	0.12	0.08	0.52	1.07	100.3	904	18	245	b.d.	13	4	10	4	8	2	2	67	4	164	4	23	14	17	90											
18	HFBL02-2903-2	683457	5818251	granodiorite	Firvale	75.1	13.0	2.0	0.5	1.4	4.4	2.8	0.06	0.04	0.29	0.71	100.3	979	35	60	b.d.	0	5	20	4	19	2	4	38	6	118	<1	25	28	26	103											
19	HFBM02-2512-1	669361	5818789	tonalite	Firvale	63.8	16.2	4.1	2.3	2.6	4.6	2.6	0.20	0.08	0.48	2.50	99.4	966	41	36	35	7	4	24	6	19	18	5	39	7	561	4	79	8	49	121	4.9	3.0	1.0	3.2	0.4	1.7	0.1	0.3	0.9	0.1	0.8
20	HFBP02-0602-1	698075	5804972	biotite-hornblende granodiorite	Firvale	72.2	14.1	2.3	0.6	2.3	4.0	3.3	0.08	0.04	0.26	1.10	100.3	979	47	152	14	19	4	20	6	19	19	9	54	10	489	<1	87	12	59	150											
21	HFBP02-0604-1	703109	5805133	biotite granodiorite	Firvale	65.4	15.3	4.0	1.9	3.5	3.9	2.8	0.16	0.08	0.51	0.52	98.0	371	48	140	b.d.	12	5	28	4	15	8	9	43	8	424	18	61	13	45	158											
22	HFBM02-2513-2	666137	5832868	quartz diorite	Firvale	63.6	16.3	4.1	2.3	2.6	4.6	2.6	0.19	0.08	0.48	1.14	97.9	626	25	61	20	55	3	13	5	15	10	6	32	24	511	<1	207	20	82	103											
23	HFBM02-2515-2	666809	5826237	granite	Firvale	55.2	18.1	8.7	3.7	7.3	3.3	1.5	0.17	0.15	0.83	0.51	99.5	1430	25	79	b.d.	1	4	11	6	8	0	11	55	2	173	7	5	12	12	55											
24	HFBL02-1101-2	658565	5871703	monzodiorite	Firvale	63.4	17.1	4.0	1.3	2.6	6.2	2.5	0.26	0.11	0.81	1.45	99.8	929	43	86	b.d.	7	7	22	7	27	3	5	40	10	261	11	57	35	50	252											
25	HFBL02-1103-1	658293	5871251	monzodiorite	Firvale	66.2	16.2	3.8	1.0	2.0	6.2	2.7	0.21	0.15	0.78	0.80	100.1	916	53	38	b.d.	4	8	22	10	39	4	7	47	8	294	0	24	48	47	271											
26	HFBM02-2514-1	665978	5835651	granodiorite	Firvale	74.6	13.9	2.4	0.6	2.2	4.4	2.0	0.06	0.07	0.32	0.70	101.3	822	32	167	b.d.	4	4	15	4	12	3	7	29	7	165	11	25	30	21	120											
27	HFBL02-1804-1	642967	5848441	hornblende tonalite	JK_p	58.8	17.3	7.3	3.0	6.7	3.5	1.5	0.17	0.14	0.71	1.08	100.1	594	22	71	11	31	4	13	3	13	11	5	31	20	443	3	156	28	60	143											
28	HFBM02-2511-1	642642	5821319	tonalite	JK_p	65.7	17.9	4.4	1.5	4.7	4.4	1.6	0.27	0.08	0.44	0.53	101.4	716	31	61	b.d.	19	4	15	5	14	0	9	39	8	661	13	40	8	60	182											
29	HFBL02-2206-1	664869	5787306	tonalite	Desire	60.2	16.6	5.9	3.1	5.8	3.6	1.9	0.20	0.12	0.70	0.60	98.8	726	25	79	25	19	3	13	7	12	13	10	39	18	502	14	146	17	59	109											
30	HFBM02-2506-2	667328	5779278	hornblende diorite	Desire	74.5	13.9	1.5	0.5	1.6	4.2	3.2	0.07	0.04	0.20	0.52	100.2	1290	40	64	b.d.	1	4	22	6	17	0	11	49	3	274	7	13	10	17	106	4.5	2.5	0.6	2.4	0.3	1.7	0.2	0.3	1.1	0.2	1.2
31	HFBW02-2202-2	649132	5804156	biotite granodiorite	Desire	74.7	14.9	1.1	0.3	1.0	4.6	4.1	0.03	0.05	0.13	0.71	101.6	400	27	84	21	57	<1	12	4	19	12	11	37	18	749	5	187	15	82	107											
32	SCBD01-1901-2	652798	5818859	tonalite	Desire	74.2	13.8	1.9	0.5	1.8	3.9	3.1	0.05	0.06	0.21	0.52	100.0	622	20	57	b.d.	4	5	9	3	16	1	8	27	7	226	13	17	34	62	116											
33	HFBM02-2507-2	652822	5813017	granodiorite	Desire	44.6	18.7	14.7	5.6	13.0	1.6	0.2	0.71	0.20	1.14	0.58	101.0	62	0	42	16	53	<1	11	0	14	4	3	6	40	350	2	451	17	87	34											
34	HFBM02-2509-2	648557	5820300	tonalite	Desire	62.5	17.0	5.0	2.0	4.7	3.9	2.0	0.27	0.13	0.46	0.64	98.6	978	0	48	b.d.	13	4	7	5	7	3	8	37	9	628	11	60	14	59	155											
35	HFBWV02-0905-2	669721	5782973	biotite-hornblende tonalite + sphene	Desire	72.0	14.8	2.2	0.6	1.5	4.5	4.3	0.07	0.06	0.39	1.11	101.3	1060	34	65	21	30	5	18	4	20	7	11	54	10	432	5	77	19	49	156	4.6	3.6	0.9	4.0	0.6	3.3	0.3	0.7	2.2	0.3	2.2
36	SCBM01-1801-1	652648	5818460	quartz diorite	Desire	73.1	14.6	2.6	0.8	2.6	4.0	2.7	0.07	0.08	0.28	0.64	101.5	1200	27	59	17	13	5	10	7	5	4	16	65	6	551	9	54	12	62	147											
37	SCBM01-1802-1	652744	5817961	hornblende-biotite quartz diorite	Desire	57.2	17.5	7.3	3.4	6.4	4.1	1.6	0.30	0.13	0.87	0.64	99.6	745	36	90	28	31	4	16	6	18	14	7	27	16	878	3	167	14	87	153											
38	HFBWV02-1407-1	648687	5817968	pyroxene-hornblende-biotite tonalite	Desire?	64.4	16.9	4.3	1.8	4.5	4.3	2.0	0.20	0.08	0.42	0.48	99.4	1130	21	153	2	10	4	6	5	10	9	6	34	8	628	2	70	9	50	135											
39	HFBWV02-0803-2	695719	5801042	granite (hornblende-biotite granodiorite?)	Melikan pluton	72.1	14.8	2.2	0.6	1.5	4.4	4.3	0.08	0.06	0.39	0.77	101.1	1080	48	54	b.d.	5	6	23	8	22	4	8	94	4	163	5	21	25	39	195	5.7	4.6	1.0	4.1	0.6	4.2	0.4	0.8	2.9	0.4	3.1
40	HFB02-0101-2	660578	5798231	biotite granite	Big Snow	69.9	15.7	2.8	0.9	2.4	4.5	2.9	0.13	0.11	0.30	0.61	100.2	787	26	47	3	3	4	12	6	13	3	10	48	3	353	3	31	15	46	95	3.1	2.9	0.7	2.4	0.4	2.5	0.2	0.4	1.4	0.2	1.4
41	HFBG02-0802-1	665335	5800540	biotite tonalite to granodiorite	Big Snow	73.2	14.0	2.7	0.8	2.8	4.0	1.7	0.08	0.07	0.31	0.46	100.1	913	31	72	b.d.	1	5	14	5	16	4	3	40	7	199	3	32	24	38	119	3.8	3.7	0.9	3.7	0.6	3.8	0.4	0.8	2.7	0.4	2.8
42	HFBG02-0804-1	665277	5801171	biotite granite	Big Snow	67.5	15.8	3.1	1.1	2.7	4.5	2.5	0.13	0.14	0.31	0.77	98.5	897	28	81	b.d.	4	4	10	7	12	5	8	54	6	394	<1	42	12	53	90											
43	HFBG02-0901-4	660739	5787655	biotite granite	Big Snow	73.2	14.4	1.4	0.4	1.2	4.7	4.1	0.08	0.05	0.20	0.35	100.1	765	25	179	b.d.	4	4	13	4	11	3	19	80	2	267	4	21	4	45	72	3.0	1.9	0.4	1.8	0.2	0.9	<0.1	0.1	0.4	<0.1	0.3
44	HFBG02-1003-2b	649619	5816775	muscovite-biotite granite	Big Snow	71.8	14.5	2.6	0.9	2.3	3.6	3.5	0.07	0.07	0.29	0.64	100.3	1280	26	154	b.d.	4	3	14	6	11	4	15	100	4	405	5	38	6	44	82	2.9	2.1	0.6	1.8	0.2	1.1	0.1	0.2	0.7	0.1	0.6
45	HFBL02-1704-1	666523	5798035	biotite tonalite	Big Snow	67.5	16.6	3.4	1.2	3.4	4.5	2.4	0.12	0.09	0.34	0.47	99.9	805	20	133	b.d.	8	4	11	4	10	4	8	38	5	485	<1	43	7	48	98	2.7	2.0	0.7	1.9	0.3	1.3	0.1	0.2	0.7	0.1	0.7
46	HFBW02-2105-2	660954	5797160	biotite granodiorite	Big Snow	72.7	14.8	1.8	0.6	2.4	4.6	2.3	0.07	0.08	0.18	0.48	99.9	896	15	43	7	2	3	6	4	7	3	9	40	4	321	8	22	10	31	77											
47	HFBV02-0702-1	679557	5787408	muscovite-biotite granodiorite	Big Snow	73.9	15.2	1.5	0.5	1.7	4.8	2.7	0.09	0.07	0.21	0.55	101.2	1010	23	201	b.d.	5	<1	12	6	11	0	11	51	2	383	2	16	7	42	84	2.9	2.1	0.5	1.8	0.3	1.2	0.1	0.2	0.7	0.1	0.7
48	HFBW02-0801-1	692715	5776170	biotite tonalite	Big Snow	66.1	17.0	4.0	1.9	4.4	4.6	1.8	0.15	0.09	0.44	0.26	100.6	772	17	104	10	7	<1	9	5	11	9	8	31	9	551	10	71	10	48	109											
49	HFBW02-0801-2	691322	5776353	biotite tonalite	Big Snow	66.4	17.2	3.9	1.8	4.5	4.6	1.7	0.15	0.08	0.42	0.42	101.2	696	21	122	7	7	<1	11	4	14	9	7	28	9	596	2	68	9	42	108	3.2	2.7	0.9	2.7	0.4	2.0	0.1	0.4	1.1	0.1	1.0
50	HFBW02-1101-2	692478	5776464	biotite tonalite	Big Snow	70.3	14.6	0.9	0.2	1.6	4.7	2.9	0.04	0.03	0.11	0.42	95.8	858	26	114	6	5	4	10	5	12	10	6	31	8	609	3	75	8	57	121											
51	HFBWV02-1408-2	646043	5817924	hornblende-biotite granodiorite	Big Snow	64.5	16.9	4.3	1.8	4.5	4.3	2.0	0.20	0.08	0.42	0.59	99.5	1100	19	127	b.d.	6	3	10	5	7	4	10	49	5	518	6	62	7	65	111											
52	SCBD01-1907-1	649475	5816950	muscovite granite	Big Snow	71.5	16.0	2.1	0.7	2.3	4.4	3.4	0.08	0.06	0.23	0.65	101.3	1260	19	57	b.d.	5	4	8	5	8	3	18	90	3	413	11	29	12	38	99											
53	HFBG02-0101-2	649936	5797987	hornblende-biotite tonalite to biotite-hornblende tonalite	Fougner	57.9	18.3	6.9	2.8	5.9	4.5	1.7	0.29	0.12	0.85	0.65	100.0	768	26	97	12	64	5	11	5	19	12	7	48	12	790	1	141	14	97	225	3.9	4.3	1.3	3.7	0.5	2.7	0.2	0.5	1.5	0.2	1.3
54	HFBG02-0203-2	650666	5798692	biotite granodiorite	Fougner	70.0	13.9	2.7	1.0	2.2	3.5	3.8	0.08	0.05	0.32	0.58	98.0	1230	31	131	16	4	5	16	7	11	7	14	110	5	384	5	50	10	46	133											
55	HFBG02-0604-2	627243	5814872	hornblende-biotite tonalite	Fougner	65.4	16.8	4.0	1.6	4.2	4.8	1.9	0.21	0.07	0.65	0.58	100.1	908	25	117	21	8	4	13	7	13	6	10	38	7	843	<1	85	9	68	147											
56	HFBG02-0701-1	625468	5813718	hornblende-biotite tonalite	Fougner	66.5	17.4	3.8	1.5	4.2	5.0	1.6	0.21	0.06	0.55	0.44	101.3	1210	28	116	3	7	<1	12	6	16	5	11	39	8	928	1	76	8	63	144	3.8	3.4	1.0	2.6	0.3	1.6	0.1	0.2	0.9	0.1	0.8
57	HFBL02-2201-1	649820	5795231	biotite tonalite	Fougner	66.4	15.8	4.7	2.1	4.1	4.1	3.0	0.17	0.08	0.58	0.35	101.4	755	40	91	30	102	4	18	5	21	14	14	83	11	478	6	99	14	62	175	5.2	4.6	0.9	3.7	0.5	2.7	0.2	0.4	1.4	0.2	1.3
58	HFBM02-0703-1	648636	5795142	biotite granodiorite	Fougner	71.1	15.5	2.7	1.0	2.6	3.7	3.8	0.10	0.04	0.35	0.42	101.3	1260	32	127	3	8	4	16	6	10	7	15	87	4	424	15	42	12	39	150											
59	HFBM02-1805-2	667181	5791957	granite	Fougner	69.1	15.7	2.6	1.0	3.2	4.0	2.2	0.12	0.09	0.25	0.68	98.8	1100	28	125	8	b.d.	3	15	6	13	b.d.	9	37	5	484	3	32	12	48	108	3.5	2.4	0.7	2.2	0.3	1.7	0.2	0.3	1.1	0.2	1.3
60	HFBM02-2507-1	655462	5813720	granodiorite	Fougner	66.1	16.2	4.3	1.5	3.7	4.3	2.6	0.16	0.09	0.51	0.69	100.1	879	31	118	5	22	5	16	7	15	7	14	64	6	556	7	67	14	67	155											
61	HFBW02-1704-1	622720	5818492	biotite tonalite	Fougner	65.8	16.9	2.5	0.9	3.1	5.6	2.2	0.20	0.03	0.58	0.43	98.2	1080	17	64	b.d.	4	4	7	7	8	2	13	73	4	339	4	22	11	44	79											
62	HFBW02-1706-1	621889	5820225	biotite tonalite	Fougner	72.2	15.1	2.0	0.6	2.0	4.6	3.1	0.09	0.08	0.23	0.41	100.4	1300	23	79	b.d.	4	4	14	7	12	0	13	48	3	398	2	24	10	49	92											
63	HFBW02-1803-1	625891	5818787	biotite tonalite	Fougner	70.9	15.7	2.2	0.6	2.2	4.6	3.4	0.09	0.07	0.25	0.59	100.5	1050	19	124	3	8	4	7	5	6	3	9	35	5	646	3	47	6	57	129											
64	HFBW02-2203-2	650046	5805003	hornblende-biotite granodiorite	Fougner	57.7	17.2	7.4	3.7	7.2	3.8	1.7	0.26	0.11	0.92	0.74	100.8	940	39	40	104	23	4	18	4	17	21	8	40	16	646	12	141	18	74	161											
65	HFBW02-2602-2	619596	5812543	biotite tonalite	Fougner	57.2	17.3	6.7	3.2	5.9	3.9	1.9	0.26	0.13	0.71	0.41	97.5	617	16	73	0	2	3	5	2	6	0	16	45	3	623	12	14	9	44	126											
66	SCBH01-1802-4	640570	5810496	hornblende-biotite tonalite	Fougner	66.9	17.0	2.5	0.9	3.6	4.9	3.0	0.24	0.05	0.42	0.70	100.3	1200	28	6	16	34	4	14	4	14	0	15	46	5	764	2	51	7	58	130	3.5	2.8	0.8	2.0	0.3	1.3	0.1	0.2	0.5	0.1	0.5
67	SCBM01-2201-1	649185	5803930	hornblende-biotite tonalite	Fougner	56.3	18.0	8.2	3.2	6.6	3.9	2.1	0.33	0.20	0.78	0.49	100.1	776	33	60	21	38	3	14	5	19	20	12	65	13	597	8	149	13	81	114											
68	SCBM01-2201-2	649185	5803930	hornblende-biotite tonalite	Fougner	61.3	16.5	5.8	2.7	6.1	4.1	2.3	0.29	0.09	0.71	0.80	100.7	740	42	15	37	50	3	19	6	23	16	11	42	13	601	4	135	19	74	120	5.5	5.0	1.2	4.1	0.6	3.2	0.2	0.6	1.6	0.2	1.5
69	HFB02-1506-2	667090	5780950	biotite tonalite	Four Mile	76.6	13.3	0.8	0.1	0.6	4.1	4.7	0.02	0.07	0.08	0.35	100.8	24	25	88	b.d.	6	3	5	12	10	5	20	218	3	8	16	2	33	25	57											
70	HFB02-1508-1	656438	5819402	muscovite granite	Four Mile	74.7	14.6	0.5	0.1	0.3	4.9	4.0	0.03	0.14	0.06	0.51	99.8	42	0	163	b.d.	5	<1	5	28	0	3	15	167	2	5	17	b.d.	24	24	30											
71	HFBM02-2111-1	UTMs lost		garnet-muscovite-biotite granite	Four Mile	74.1	14.4	0.6	0.1	0.4	4.7	4.2	0.03	0.12	0.07	0.51	99.3	305	15	153	b.d.	3	<1	5	11	7	0	14	107	0	43	12	b.d.	16	24	37											
72	HFBM02-2508-1	654089	5823498	muscovite-biotite granite	Four Mile	74.4	14.4	0.9	0.3	0.6	4.8	4.1	0.05	0.17	0.11	0.87	100.7	250	0	269	b.d.	b.d.	<1	5	27	5	4	16	145	3	75	2	8	17	35	24											
73	HFBM02-2510-1	660428	5822695	muscovite-biotite granite	Four Mile	75.4	14.1	0.6	0.1	0.4	4.7	4.0	0.04	0.18	0.06	0.52	100.2	91	11	208	b.d.	b.d.	<1	5	29	5	3	15	153	3	27	6	b.d.	17	11	20	1.4	1.8	0.1	2.0	0.4	3.1	0.1	0.5	1.4	0.2	1.2
74	HFBW02-2101-2	665832	5805832	muscovite-biotite tonalite	Four Mile	71.4	15.4	2.5	0.8	2.3	4.8	2.5	0.12	0.08	0.25	0.44	100.6	817	18	83	b.d.	b.d.	4	8	8	10	b.d.	15	68	2	115	4	4	9	29	42											
75	SCB01-0906-1	661618	5820198	muscovite granodiorite	Four Mile	74.9	14.6	0.4	0.1	0.2	5.2	4.1	0.04	0.25	0.04	0.40	100.3	25	22	n/a	12	b.d.	2	7	48	11	b.d.	14	200	4	0	15	b.d.	27	17	38	3.0	4.5	0.0	4.3	0.8	4.6	0.2	0.8	1.8	0.3	1.5
76	SCB01-1202-2	656969	5827718	garnet-biotite-muscovite granite	Four Mile	74.1	14.8	0.8	0.1	0.3	5.0	4.3	0.04	0.21	0.07	0.50	100.2	140	20	n/a	b.d.	b.d.	3	9	35	8	b.d.	20	150	3	38	11	6	25	17	64	2.4	2.8	0.1	3.0	0.6	3.9	0.3	0.8	1.9	0.3	1.9
77	SCB01-1204-2	656966	5828215	biotite-muscovite granite	Four Mile	73.8	14.8	0.6	0.2	0.3	5.2	4.3	0.04	0.24	0.06	0.60	100.1	77	22	n/a	b.d.	b.d.	3	9	41	10	b.d.	17	200	4	27	15	b.d.	28	64	51	2.7	3.3	0.1	3.5	0.7	4.4	0.2	0.8	2.0	0.3	1.8
78	SCB01-1502-1	660447	5822580	muscovite-biotite granodiorite	Four Mile	73.9	14.7	0.6	0.1	0.3	5.0	4.3	0.04	0.27	0.05	0.30	99.5	78	17	n/a	12	16	3	7	37	7	b.d.	20	190	5	18	15	b.d.	30	16	51	2.1	2.6	0.1	2.9	0.7	4.5	0.3	0.9	2.2	0.3	1.9
79	SCB01-1909-4	649318	5826864	biotite-muscovite granite	Four Mile	73.5	15.2	0.8	0.2	0.2	5.3	4.2	0.06	0.09	0.10	0.40	100.0	1100	43	n/a	15	b.d.	4	21	16	18	b.d.	20	240	1	101	8	b.d.	13	55	100	5.1	4.4	0.5	4.2	0.6	2.5	0.1	0.4	0.8	0.1	0.7
80	SCB01-2006-2	651028	5825648	biotite-muscovite granite	Four Mile	74.6	14.7	0.4	0.1	0.2	5.1	4.6	0.03	0.14	0.05	0.50	100.4	45	20	n/a	12	b.d.	3	7	21	9	b.d.	21	160	3	0	13	b.d.	16	27	61	2.5	2.8	0.1	2.6	0.5	2.5	0.2	0.4	1.1	0.2	1.1
81	SCBD01-1906-1	654448	5819893	garnet-biotite granite	Four Mile	70.2	15.7	3.5	0.9	3.1	4.6	1.7	0.14	0.14	0.32	0.52	100.9	20	0	68	b.d.	1	<1	0	32	5	3	14	197	4	6	10	b.d.	25	49	15											
82	SCBK01-1703-2	663181	5811943	biotite-muscovite granite	Four Mile	74.1	14.7	0.7	0.2	0.5	5.1	4.1	0.05	0.18	0.08	0.40	100.1	420	25	5	12	b.d.	3	11	11	11	b.d.	13	130	1	67	9	b.d.	21	36	69	3.0	2.8	0.2	2.8	0.5	3.2	0.2	0.6	1.5	0.2	1.5
83	HFBW02-2102-2	661816	5804997	biotite tonalite	Four Mile?	75.8	14.1	1.0	0.2	0.8	4.4	4.2	0.03	0.06	0.11	0.41	101.0	1040	26	134	b.d.	4	4	15	6	11	4	10	46	4	519	5	35	9	37	105											
84	HFBM02-2502-2	658276	5782815	biotite granodiorite	Four Mile?	67.5	16.6	3.1	1.0	3.3	4.7	2.2	0.13	0.10	0.33	1.04	100.0	962	33	146	b.d.	25	4	14	6	14	3	10	46	5	603	3	43	11	55	122											
85	HFBM02-2504-2	659536	5782322	biotite granodiorite	Four Mile?	67.4	16.3	3.3	1.2	3.5	4.6	2.3	0.16	0.10	0.40	0.95	100.0	1020	28	46	b.d.	7	4	12	6	15	3	9	47	4	585	5	42	11	63	134											
86	SCBD01-0906-1	669100	5835721	biotite granodiorite	LKE_p	74.6	14.3	1.5	0.4	1.3	4.2	4.2	0.03	0.03	0.30	0.94	101.8	1180	26	52	12	3	4	11	7	9	3	11	41	3	514	4	32	8	47	117											
87	SCBD01-1004-1	670413	5834982	biotite granodiorite	LKE_p	70.8	15.8	2.4	0.8	2.5	4.9	2.5	0.11	0.06	0.32	0.58	100.8	1150	28	55	b.d.	3	4	12	6	12	3	12	40	4	499	9	32	9	47	115											
88	HFBW02-1904-2	675156	5815578	altered hornblende granodiorite	KP_d	67.0	17.0	3.3	1.1	3.3	5.1	2.1	0.16	0.07	0.41	1.04	100.5	784	25	207	b.d.	4	3	12	5	7	0	8	40	5	320	<1	27	13	35	106											
89	SCBM01-0405-1	670572	5814827	hornblende diorite	KP_d	60.1	14.9	7.3	4.0	5.1	3.4	2.2	0.45	0.12	0.69	2.80	101.1	720	65	21	84	63	5	30	7	34	34	4	41	18	484	4	124	32	88	210	8.4	7.2	1.4	6.2	0.9	5.3	0.4	1.0	2.8	0.4	2.7
90	HFBM02-0301-2	701781	5771783	hornblende biotite tonalite	KP_d	50.1	18.9	9.3	4.6	8.8	3.5	0.9	0.27	0.12	0.96	0.84	98.3	334	17	71	22	12	<1	7	4	13	18	2	19	19	786	<1	246	12	81	103	2.6	3.2	1.1	3.1	0.5	2.6	0.2	0.4	1.3	0.2	1.1
91	HFBW02-1002-1	657742	5862843	biotite granodiorite	Nooskulla pluton	70.9	16.0	2.3	0.7	2.2	4.7	3.1	0.10	0.07	0.28	0.63	101.0	888	32	133	b.d.	5	3	20	7	12	4	16	71	3	372	13	29	14	41	114											
92	HFBW02-1201-2	650736	5850962	biotite tonalite	Nooskulla pluton	60.2	16.2	4.3	1.8	4.2	4.4	1.7	0.14	0.09	0.48	0.60	94.1	1720	40	50	b.d.	12	4	22	3	18	0	14	55	3	945	1	28	3	51	161	4.8	2.7	0.7	2.0	0.2	0.6	<0.1	0.1	0.3	<0.1	0.2
93	HFBW02-1501-2	646640	5857788	altered granite	Nooskulla pluton	71.0	16.3	1.6	0.5	2.1	5.0	3.5	0.11	0.02	0.32	0.38	100.8	890	18	79	b.d.	0	4	12	6	10	2	7	123	4	130	0	11	15	19	52											
94	HFBW02-1503-4	647375	5859699	hornblende microdiorite?	Nooskulla pluton	76.3	13.9	1.3	0.3	1.3	3.7	4.4	0.03	0.06	0.15	0.36	101.8	1700	48	41	b.d.	3	4	22	6	27	3	6	38	4	1315	2	53	5	71	201	6.4	4.5	1.2	3.3	0.4	1.2	0.1	0.2	0.6	<0.1	0.4
95	SCBH01-1403-2	650968	5843450	biotite-hornblende tonalite	Nooskulla pluton	64.8	16.3	4.2	1.9	5.3	4.4	1.9	0.35	0.07	0.69	0.70	100.6	860	39	9	26	0	3	19	6	20	0	10	26	8	764	3	95	11	73	130	4.9	3.9	1.1	3.0	0.4	2.0	0.1	0.4	0.9	0.1	0.8
96	SCBH01-1405-1	652254	5843645	biotite-hornblende tonalite	Nooskulla pluton	63.3	16.5	4.8	2.1	5.9	4.2	1.9	0.40	0.08	0.74	0.80	100.7	900	43	12	23	11	3	19	8	24	0	11	25	9	815	2	108	14	82	120	5.8	4.7	1.3	3.7	0.5	2.6	0.2	0.5	1.2	0.2	1.1
97	HFBW02-0201-3	630796	5803474	muscovite-biotite granite	Sheemahant pluton	56.8	17.4	9.0	3.3	7.2	3.4	1.1	0.13	0.17	0.92	0.54	99.8	966	0	57	b.d.	2	3	0	4	0	2	17	81	2	510	5	9	10	43	87											
EXTRUSIVE ROCKS																																															
98	HFBL02-0901-1	662100	5863593	basalt	Hazelton Group	49.9	17.3	9.7	6.3	8.2	3.8	1.66	0.36	0.28	1.47	3.2	102.23	796	29	50	119	90	4	17	6	17	55	6	37	27	449	8	215	26	149	168											
99	HFBL02-1305-1	677394	5828934	dacite	Hazelton Group	71.1	14.1	4.1	1.4	1.8	2.8	2.50	0.15	0.23	0.51	3.3	101.98	384	13	51	0	17	6	11	4	3	2	6	64	14	80	13	43	22	60	134.5											
100	HFBL02-1306-1	677490	5828899	andesite to dacite porphyry	Hazelton Group	67.0	14.7	4.1	1.2	4.4	4.1	2.38	0.16	0.18	0.58	4.1	102.83	436	32	70	3	7	5	17	4	17	3	11	52	17	245	13	62	34	75	143											
101	HFBL02-1404-2	672070	5828107	quartz rhyolite	Hazelton Group	70.5	14.9	2.3	0.6	4.2	4.2	2.68	0.10	0.06	0.43	2.2	102.17	846	16	90	3	59	5	8	4	0	4	8	48	10	222	6	53	22	34	119											
102	HFBL02-2003-2	651942	5870269	dacite lapilli tuff	Hazelton Group	79.1	12.8	1.8	0.3	1.0	3.7	2.20	0.04	0.05	0.34	1.6	102.81	278	32	70	0	3	8	18	4	17	3	4	53	9	37	7	8	29	29	149											
103	HFBL02-2005-2	651132	5870775	rhyolite tuff	Hazelton Group	78.6	11.4	1.9	0.8	0.7	5.5	0.78	0.04	0.07	0.28	0.8	100.83	152	38	74	7	5	7	24	3	27	5	3	14	7	59	4	21	43	102	114											
104	HFBM02-1303-2	664938	5874374	andesite	Hazelton Group	66.0	15.0	6.4	1.8	3.7	5.0	1.26	0.20	0.09	0.69	1.7	101.69	418	22	81	2	4	3	19	3	14	n/a	5	19	17	239	2	64	40	96	108											
105	SCB01-2606-1	671953	5810406	andesite	Hazelton Group	61.1	18.2	7.1	2.5	0.7	1.3	3.13	0.24	0.13	0.92	7.6	102.91	960	n/a	18	182	40	5	29	13	29	82	11	110	22	139	9	180	34	120	170	7.3	6.4	1.4	5.9	1.0	5.6	0.5	1.1	3.1	0.5	3.2
106	SCBD01-0605-1	677545	5828855	dacite	Hazelton Group	64.9	14.8	5.1	1.5	3.6	4.3	2.06	0.20	0.23	0.55	3.5	100.77	480	n/a	8	31	0	4	13	4	17	0	7	42	15	276	3	63	31	109	140	3.8	4.2	1.1	4.6	0.8	4.8	0.5	1.0	2.8	0.5	3
107	SCBD01-0902-2	669221	5838234	porphyritic andesite	Hazelton Group	48.7	20.2	9.3	4.2	8.2	2.9	1.95	0.24	0.16	0.91	4.3	101.10	760	n/a	28	45	93	2	8	3	14	19	2	32	21	498	1	213	19	83	58	3.0	3.2	1.1	3.4	0.5	3.2	0.3	0.7	1.7	0.3	1.7
108	SCBD01-0903-2	669217	5837616	andesite	Hazelton Group	51.5	15.8	11.8	4.2	7.7	3.6	1.32	0.35	0.17	1.62	3.3	101.36	660	n/a	32	19	44	3	14	5	20	10	2	16	33	588	1	382	29	94	130	4.5	5.0	1.6	5.1	0.8	4.9	0.4	1.0	2.6	0.4	2.5
109	SCBD01-1104-1	669826	5843555	basalt	Hazelton Group	52.5	14.5	12.9	4.2	6.2	4.8	0.32	0.32	0.21	1.49	3.9	101.36	210	n/a	30	17	131	3	11	4	17	14	3	5	37	331	2	402	37	110	93	3.5	5.0	1.5	5.7	1.0	6.0	0.5	1.3	3.5	0.5	3.6
110	SCBD01-1105-2	669138	5843255	andesite	Hazelton Group	57.9	16.6	8.2	2.5	6.6	3.1	1.02	0.14	0.14	0.80	3.9	100.94	180	n/a	15	51	16	2	12	3	13	14	9	24	20	239	2	158	24	105	78	3.1	3.0	1.1	3.6	0.6	3.8	0.4	0.8	2.2	0.3	2.3
111	SCBD01-2502-3	673912	5834551	rhyolite welded tuff	Hazelton Group	71.5	13.5	2.9	1.3	2.1	2.6	2.65	0.08	0.07	0.36	3.7	100.74	560	n/a	5	16	27	4	16	4	18	n/a	8	62	9	103	3	31	33	54	140	4.3	4.3	0.9	4.6	0.8	4.8	0.5	1.0	3.0	0.5	3.4
112	SCBH01-0505-4	670122	5824246	andesite	Hazelton Group	58.5	17.7	8.1	2.5	3.4	2.2	4.04	0.23	0.12	1.08	2.9	100.73	980	n/a	14	26	0	4	13	4	20	n/a	4	160	26	304	4	130	45	86	150	4.3	5.5	1.5	6.2	1.1	6.9	0.7	1.5	4.3	0.7	4.3
113	HFBL02-1302-2	677230	5828730	lapilli block tuff	Hazelton Group	51.6	18.8	10.0	5.1	9.9	3.1	0.23	0.31	0.23	1.11	2.9	103.13	242	31	60	105	137	3	18	4	17	52	7	3	31	570	8	262	26	86	133											
114	HFBM02-1601-1	654481	5834106	andesite to dacite	Hazelton Group	52.7	19.1	7.8	6.5	4.8	4.9	1.29	0.24	0.12	0.92	3.8	102.25	796	31	52	87	64	4	23	7	17	82	5	21	19	397	14	143	28	92	178											
115	HFBM02-1602-5	654355	5834235	basaltic andesite	Hazelton Group	52.1	18.6	7.3	5.7	7.6	3.7	1.69	0.24	0.09	0.88	4.1	102.01	788	35	46	82	52	5	25	7	16	73	6	36	24	512	12	174	26	75	182											
116	HFBM02-2306-1	684998	5786706	amygdaloidal andesite	Hazelton Group	61.1	16.8	5.3	0.2	2.0	3.0	6.39	1.56	0.93	0.24	0.0	97.55	508	19	55	120	63	4	14	4	16	62	4	47	29	513	4	223	23	83	148											
117	SCB01-1401-1	661992	5824615	basalt	Hazelton Group	50.8	16.5	10.2	8.0	5.5	4.7	0.56	0.43	0.17	1.51	2.8	101.18	200	n/a	34	187	80	2	13	6	23	87	2	7	27	314	0	228	33	83	150	5.0	6.2	1.8	6.3	1.0	5.7	0.4	1.2	3.0	0.4	2.7
118	SCBD01-1505-1	660693	5843706	basalt	Hazelton Group	51.6	15.2	12.2	4.1	5.6	5.3	1.96	0.64	0.21	2.05	2.2	101.04	570	n/a	30	26	46	3	17	7	29	n/a	1	30	31	281	1	291	39	110	170	6.2	6.4	2.0	6.9	1.1	6.4	0.5	1.3	3.4	0.5	3.4
119	SCBH01-1101-1	656194	5838691	metabasalt	Hazelton Group	48.8	17.2	9.4	5.7	6.2	3.2	2.55	0.36	0.21	1.28	6.5	101.38	780	n/a	36	188	37	3	16	6	22	100	4	48	24	376	2	202	28	87	160	4.9	5.1	1.5	4.9	0.8	4.7	0.3	0.9	2.5	0.4	2.4
120	SCBD01-0802-2	678317	5824393	amygdaloidal basalt	Monarch assemblage	55.0	17.0	8.9	4.3	3.6	5.1	2.34	0.42	0.19	1.25	2.7	100.71	600	n/a	21	23	15	4	20	6	27	0	4	34	23	546	2	184	33	99	160	6.2	5.3	1.7	5.6	0.9	5.3	0.5	1.1	2.9	0.5	3
121	HFBL02-0703-1	658915	5857898	andesite	Monarch assemblage	61.1	16.6	5.3	2.0	2.7	6.3	1.50	0.23	0.21	0.94	2.8	99.70	693	48	43	36	22	7	29	9	34	17	8	23	16	292	12	72	40	103	206											
122	HFBM02-0401-1	698712	5772706	amygdaloidal basalt	Monarch assemblage	52.4	19.8	9.9	5.3	5.4	4.5	1.92	0.45	0.18	1.09	0.8	101.79	481	37	70	166	74	4	27	5	24	79	6	46	27	659	9	200	28	86	156											
123	HFBM02-0402-1	698400	5772110	hornfelsed basalt	Monarch assemblage	50.9	19.5	8.8	5.3	4.6	4.7	2.95	0.28	0.15	0.88	1.2	99.13	660	38	46	75	58	4	23	5	23	55	8	58	21	946	10	187	18	107	201											
124	HFBM02-3003-1	689138	5794402	basaltic andesite	Monarch assemblage	53.3	19.7	8.1	3.7	7.5	4.2	1.60	0.38	0.14	1.09	2.6	102.29	890	41	39	52	24	5	24	8	20	23	10	30	22	692	8	205	26	82	208											
125	SCB01-1108-1	656740	5829754	plag-phyric andesite	Monarch assemblage	52.6	17.7	8.3	5.4	8.3	3.4	0.80	0.26	0.14	1.07	2.8	100.77	390	n/a	32	99	79	2	10	3	16	56	3	9	26	562	1	204	22	89	100	3.4	3.9	1.2	4.0	0.6	3.7	0.3	0.7	2.0	0.3	1.8
126	SCBD01-0401-1	677466	5827121	basalt	Monarch assemblage	53.9	16.2	8.7	6.1	8.3	3.1	0.70	0.33	0.16	0.95	2.7	101.09	290	n/a	30	149	63	3	17	6	21	72	4	13	24	698	2	172	24	85	140	4.9	4.7	1.3	4.5	0.7	3.9	0.3	0.8	2.1	0.3	2.2
127	SCBD01-0404-1	677225	5827288	basalt	Monarch assemblage	53.7	17.3	10.0	3.7	7.0	4.0	1.68	0.41	0.22	1.45	1.9	101.34	660	n/a	21	12	12	3	19	7	25	n/a	4	27	23	558	2	196	31	100	170	5.7	5.6	1.8	5.6	0.9	5.1	0.4	1.0	2.7	0.4	2.7
128	SCBT01-2003-2	692283	5805334	basalt	Monarch assemblage	58.2	16.6	6.8	4.5	5.0	4.1	1.74	0.25	0.14	0.71	2.9	100.93	720	n/a	23	97	42	3	20	6	22	44	6	51	19	442	3	138	19	85	170	5.4	4.5	1.1	3.9	0.6	3.3	0.2	0.6	1.6	0.3	1.6
129	SCBM01-1707-1	670306	5815852	amygdaloidal andesite	Salloomt assemblage	49.1	17.2	9.9	5.8	10.1	2.8	1.06	0.35	0.15	1.23	3.2	100.84	520	n/a	39	181	44	3	12	5	19	85	4	15	27	517	1	237	30	86	110	4.1	4.9	1.5	5.1	0.8	5.0	0.4	1.0	2.8	0.4	2.8
130	SCBM01-1707-2	670306	5815852	amygdaloidal andesite	Salloomt assemblage	52.0	17.4	8.8	5.4	7.3	3.2	2.51	0.33	0.21	1.01	3.4	101.55	860	n/a	28	128	64	3	16	5	21	53	4	60	23	433	2	203	28	86	130	4.9	4.8	1.4	4.8	0.8	4.6	0.4	0.9	2.5	0.4	2.5
131	HFBL02-0702-1	658915	5857898	amygdaloidal andesite	Salloomt assemblage	52.3	17.8	8.6	6.4	6.6	4.0	1.97	0.41	0.16	1.11	2.8	102.14	626	32	51	174	62	4	22	6	21	87	7	42	25	689	11	205	25	80	189											
132	HFBL02-0903-3	662410	5862290	biotite rhyolite porphyry	Ootsa Lake Group	72.2	15.8	1.7	0.7	1.8	4.7	3.25	0.10	0.02	0.27	2.0	102.32	1160	28	80	0	9	5	16	4	15	4	13	72	3	576	9	28	6	50	140											
133	HFBL02-1201-2	657696	5867589	quartz biotite crystal ash tuff	Ootsa Lake Group	69.4	15.2	3.3	0.9	1.7	4.2	3.50	0.19	0.07	0.57	2.9	101.84	785	44	64	0	11	6	18	6	18	5	19	102	8	154	16	20	28	64	140											

[1] all samples collected in UTM Zone 9U
b.d. = below detection

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Recommended citation:
Haggart, J.W., Diakow, L.J., Mahoney, J.B., Woodsworth, G.J., Struik, L.C., Gordee, S.M., and Rusmore, M.
2006: Geology, Bella Coola region (93D/01, /07, /08, /10, /15 and parts of 93D/02, /03, /06, /09, /11, /14, /16, and 92M/15 and /16), British Columbia; Geological Survey of Canada, Open File 5385; British Columbia Geological Survey, Geoscience Map 2006-7, scale 1:100 000.

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