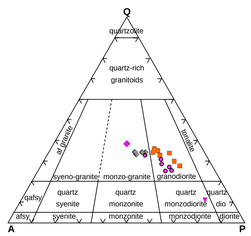
Modal quartz-alkali feldspar-plagioclase feldspar plot for Mount Skelly Pluton and Sanca Creek stock
(fields from LeMaitre, 1989)



MOUNT SKELLY
- pegmatite/aplite
- biotite monzogranite
- mafic xenolith
- K-spar megacrystic hrnb-bio granodiorite

SANCA
- biotite granodiorite

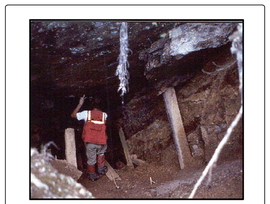
Unit KBMSg: *Medium-grained, equigranular biotite granite from the area west of Mt. Dickson; muscovite-quartz greisen altered fractures*

Unit KBSgd: *Medium to coarse-grained, biotite ± hornblende granodiorite of Sanca Creek stock. Note characteristic rounded, 1 cm, violet to grey quartz grain aggregates*

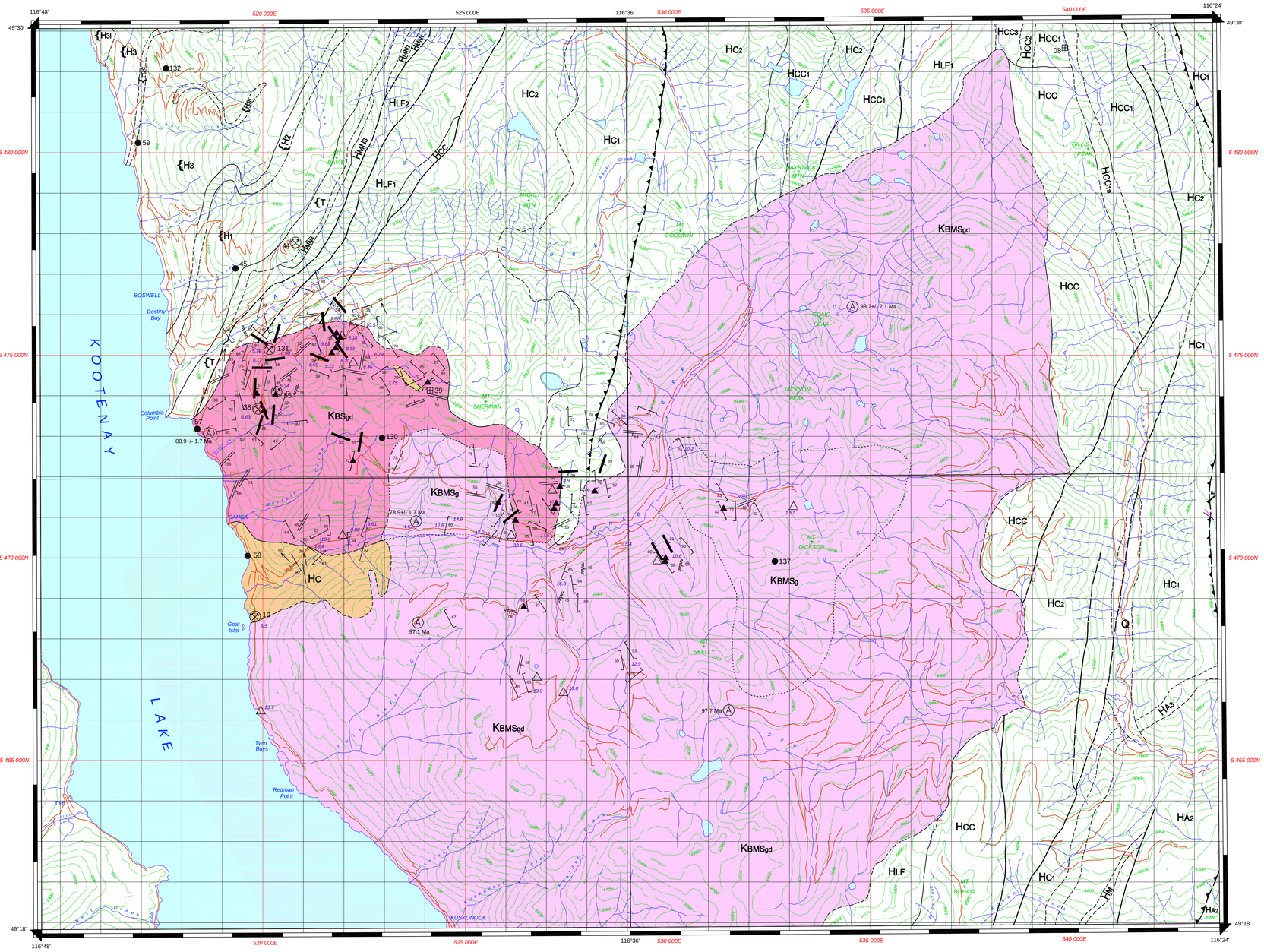
Unit KBMSgd: *Coarse-grained, biotite-hornblende granodiorite, shows characteristic abundant euhedral potassium feldspar megacrysts and mafic zenoliths*

Quartz vein, with pyrrhotite and narrow aplite dike hosted by biotite granodiorite of the Sanca Creek stock (above and below camera lens respectively)

Sheeted fractures and quartz veinlets in biotite granodiorite of the Sanca Creek stock



Raise portal, located approximately midway between Government and Valparaiso underground workings. The vein at surface is a well-defined quartz-filled fissure in biotite granodiorite of the Sanca Creek stock



SELECTED GEOCHEMICAL ANALYSES

SAMPLE NO.	UTM E	UTM N	Au	Ag	As	Bi	Cu	Mo	Pb	Sb	W	Zn	SAMPLE DESCRIPTION
Regional													
99JLO-18-190	531376	5471213	3	0.15	0.8	344	16	3.6	38.5	0.3	8.4	38	spaced fractures-sericite, py, qtz
99JLO-18-194	529929	5469904	6	0.25	4.3	2.74	10	1.2	41	3.7	5.2	46	silicified fault zone
99JLO-18-194-2	529943	5469995	-2	0.5	2.2	1.95	3	<0.2	32	0.7	4.7	28	brecciated chalcedony zone
99JLO-18-198	526515	5468885	4	0.05	4.6	0.32	3	0.2	26.5	5	1.9	78	0.35 m fault gouge
99JLO-19-201-2	526236	5470923	4	0.05	2.2	0.29	10	<0.2	24.5	0.3	0.7	52	grab silicified fractures
99JLO-19-203	525807	5471353	154	1.65	1100	1.98	45	0.6	517	6.8	1.2	478	drusy qtz with botryoidal hematite
99JLO-19-207	522227	5472388	247	20.8	38.5	22	765	<1.0	>10000	5.6	<10.0	2590	0.35 m chip alteration+qtz vein
99JLO-19-207-4	522227	5472388	287	>100.0	3	86	320	<1.0	>10000	2.6	<10.0	2000	grab mineralization from trench
99JLO-20-218	527331	5471751	3	0.6	2.5	1.56	158	63.9	92.5	0.1	22.4	30	1-2 cm altered fractures, qtz, py
99JLO-20-219	527241	5471336	4	0.05	2.1	0.89	12	1.6	43.5	0.1	0.2	14	grab-tight qtz fractures, py, chl
99JLO-20-219-2	527241	5471336	2	<0.20	2	778	24	18	52	0.5	<10.0	30	16 cm drusy qtz vein
99JLO-20-221	527190	5471215	21	6.9	32.8	20.4	114	15	490	1.3	3	28	vuggy silicified pyritized intrusive
99JLO-20-222	528195	5471641	138	1.2	47.8	2	12	3	86	1.2	10	146	grab - 0.75 m silicified zone
99JLO-20-222-2	528195	5471641	35	1.3	38.2	1.79	27	1	247	1.6	7.8	116	grab- veins across 16 m zone
99JLO-25-271	522493	5470665	5	0.45	11.9	0.13	14	<0.2	464	0.4	6.8	248	0.30 m chip alteration+qtz vein
German Basin													
99JLO-21-234-3	524074	5474326	954	83.4	13	56.1	211	2.8	7720	0.5	1.3	1780	grab qtz vein, py, sph, galena
Sarah-Imperial													
99JLO-22-244-2	519992	5473850	132	8.9	33.7	0.6	340	0.2	315	1.9	67.4	4460	grab vein, drusy quartz, sph, gal
Valparaiso - Government Property													
99JLO-22-240	520028	5473632	647	28.3	1470	26.2	718	9	8370	3.1	10.2	1145	5 cm qtz vein, sericite alteration
99JLO-22-240-2	520028	5473632	8	2.3	216	7.66	35	0.8	576	-0.1	96.1	372	0.5m limonitic drusy qtz, traces py
99JLO-22-241	520030	5473634	456	9.05	3790	14.85	406	1	441	-0.1	105.5	632	altered monzonite
99JLO-23-247-1	519880	5473655	371	8	10600	8	544	2	1160	2.2	10	730	0.9 m chip, altered-sheared HW
99JLO-23-247-2	519880	5473655	2690	23.6	26200	22	615	5	492	2.2	1150	162	0.50 m chip sample of qtz vein
99JLO-23-247-3	519880	5473655	10	1.2	9600	<2.00	2820	3	210	2.5	40	4050	lamprophyre dike FW to vein
99JLO-23-247-4	519880	5473655	14400	>100.0	126000	140	8140	<1.0	234	5.2	3160	80	grab, high grade sulphide- in HW
99JLO-23-249-1	519848	5474047	95	3	1110	9.57	124	1.4	1065	3.1	41.7	2520	1.1 m chip granite+qtz veinlets
99JLO-23-249-2	519848	5474047	55	6.6	643	2	140	6	4680	4.1	1810	486	12 cm scheelite-bearing qtz vein
99JLO-23-249-3	519848	5474047	5310	71.8	41400	72	542	11	6350	7.8	7100	354	0.45 m sulphide-rich ribboned vein
Tungsten Creek vicinity													
99JLO-24-255-2	521799	5475174	1040	12.4	89.3	<2.00	285	4	1630	2.3	2130	16	scheelite, py 3-4 cm qtz vein
99JLO-24-256	521701	5475049	2330	24	12.8	0.45	144	12	8420	4	51	568	qtz vein, sericite alteration selvage
99JLO-24-262-2	521762	5475511	28	0.25	9.5	2.29	6	18.8	60.5	0.3	9.4	28	grab quartz veinlets & alteration
99JLO-24-263	521912	5475436	157	3.4	9.3	2.93	21	0.2	113.5	0.2	5.4	18	2.5 m sericite-altered qtz veinlets

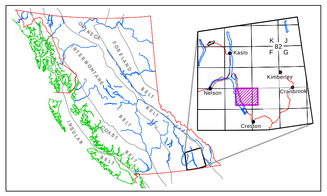
Au, As and Sb by INA; other elements by total digestion-ICP
Au in ppb, rest in ppm

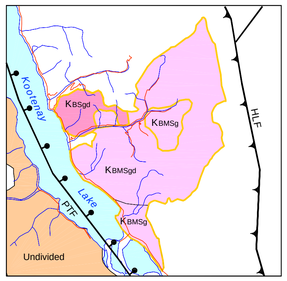
MINERAL OCCURRENCES

MINFILE 082F-	NAME (STATUS)	UTM (Zone 11) EAST	UTM (Zone 11) NORTH	HOST	COMMODITY	DESCRIPTION
Low-sulphide Quartz Veins, As-Pb-Ag-Au and W						
8	Storm King (prospect)	539828	5482597	HCC	Ag,Pb,Sn,Cu,Au	Mineralization occupies multiple north-trending, strata-parallel quartz veins in swarms up to 50 m wide. Sulphides include pyrite, tetrahedrite, galena, chalcopyrite and analyses indicate tin and gold values.
38	Government/ Valparaiso (past Producer)	519880 519848	5473634 5474047	KBSgd	Zn,Pb,W,Au,Ag,Cu	Mineralization occurs in a N-trending, E-dipping shear zone in granodiorite of the Sanca Creek stock. Parallel sheeted and anastamosing quartz veins (from 2 up to 60 cm wide) within and outside the fault zone are mineralized with scheelite, minor wolframite, galena, sphalerite and massive pyrite. The shear is highly altered and oxidized (clay, fine sericite, limonite) near the surface. A 20 cm lamprophyre dike occurs in the footwall at one locality. Production: 37,852 g Ag; 3,732 g Au; 5,080 kg W from 837 tonnes.
39	German Basin (prospect)	524074	5474326	KBSgd	Pb,Cu,W,Au,Ag	Multiple quartz veins in fractures oriented at 144/23 containing minor pyrite, galena and sphalerite. Pervasive sericite alteration occurs at vein boundaries in the host quartz-biotite granodiorite.
55	Sarah (past Producer)	519992	5473650	KBSgd	Ag,Au,Pb,W,Cu,Zn	A number of trenches and 1 adit explore a N-trending, E-dipping set of quartz veins up to 25 cm wide. Pervasive sericite alteration accompanies quartz veining. Mineralization comprises pyrite minor sphalerite, galena and malachite. The host is quartz-biotite granodiorite of Sanca Creek stock. Production: 4,728 g Ag;62 g Au from 5 tonnes.
130	Vancouver (showing)	522991	5472988	KBSgd	Ag,Pb,Zn,Au	Massive to vuggy quartz veins in fractures oriented at 122/22 SW. Quartz contains minor pyrite, galena and sphalerite. Hosted in coarse grained, quartz-biotite granodiorite of Sanca Creek stock.
131	Lost Mine (showing)	520142	5475138	KBSgd	Au,Ag	NNE-striking granodiorite-hosted shear zone (1.4 m thick) contains fractured quartz veins. Veins contain rare pyrite and sphalerite with precious metal values.
Greisen Veins Mo-W+/-Cu						
137	Elmo (showing)	532662	5469949	KBMSg	Mo,W,Cu	Multiple narrow, sheeted veinlets/fracture fillings of quartz-muscovite, molybdenum, scheelite and rare chalcopyrite. The veinlets occur in groups of up to 3-10 per meter in biotite granite of the Mount Skelly Pluton.
Quartz Veins Cu-Ag-Au						
45	Copper Canyon (showing)	519330	5477143	HH	Cu,Ag,Au	Quartz vein (0.7 to 1.2 m thick), mineralized with disseminations of pyrite, chalcopyrite and copper carbonates. The showing has been explored by two adits over a vertical distance of 12 to 15 metres. Production: 3,328 g Ag; 1,782 kg Pb; 985 kg Zn from 11 tonnes mined.
Polymetallic Quartz Veins Ag-Pb-Zn+/-Au						
10	Lakeview (past Producer)	519844	5468405	HC	Zn,Pb,Ag,Au,Cu	N-trending, 3-6 m wide shear zone in pendant of metasedimentary rocks. Sphalerite, galena, pyrite and minor chalcopyrite occur as massive lens and in quartz and calcite veins within the shear.
44	Hope of Discovery (past Producer)	520898	5477674	HH	Pb,Zn,Ag,Cu	NW-trending, steep east-dipping, narrow (<1m) quartz-calcite vein hosted in limestone. Galena occurs as bands in the vein and as disseminations extending into limestone wallrock. Sphalerite, traces of tetrahedrite and gold are reported. Production: 3,328 g Ag; 1,782 kg Pb; 985 kg Zn from 11 tonnes mined.
57	Country Girl (showing)	518376	5473156	KBMSgd	Pb,Zn,Ag,Au	Northerly-striking quartz vein (0.5-1.2 m) mineralized with disseminated galena, sphalerite and pyrite.
58	Iolanthe (showing)	519598	5469701	HC	Pb,Zn,Ag,Au,Cu	Foliation parallel, SE-trending stringers and veinlets of quartz with pyrite, sphalerite and galena.
59	Ebor (showing)	516904	5480254	HH	Pb,Zn,Ag,Au,Cu	East striking, north-dipping quartz fissure vein, mineralized with stringers and disseminations of galena, pyrite and sphalerite.
132	Lockhart (showing)	517602	5482078	HC	Pb,Zn,Ag	Narrow (<15cm) quartz veins containing blebs of galena, sphalerite and minor pyrite.

BASE MAP INFORMATION
Base map has been reproduced from digital TRIM I (Terrain Resource Inventory Management) 1:20 000 topographic database produced by the British Columbia Ministry of Environment, Lands and Parks.
North American Datum 1983 Zone 11. Universal Transverse Mercator Projection.
Elevation in metres above sea level.
Approximate Mean Declination 1995 18°25'. Decreasing 7.7 annually.

COMMENTS OR CORRECTIONS:
Any improvements or comments concerning this map would be appreciated.
Please contact Jim Logan at (250) 952-0436, FAX (250) 952-0381, E-mail jim.logan@gems6.gov.bc.ca

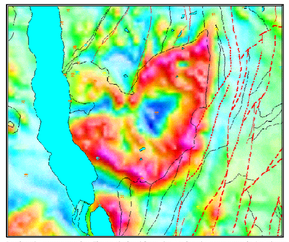




MAGNETIC SUSCEPTIBILITY VALUES

Unit	Number *	MS ** Range	Mean
KBMSg	n = 5	0.53 - 15.7	4.416
KBSgd	n = 47	0.49 - 22.5	9.64
KBMSgd	n = 17	9.5 - 20.7	14.69

* number of field measurements
** MS = magnetic susceptibility, values are x 0.001 S.I. Units



Regional Aeromagnetics Figure derived from the National Aeromagnetic Database

BRITISH COLUMBIA
Ministry of Energy and Mines
Energy and Minerals Division
Geological Survey Branch

Geological Survey Branch
Open File 2000-8

GEOLOGY AND MINERALIZATION OF THE MOUNT SKELLY PLUTON, KOOTENAY LAKE, SOUTHEASTERN BRITISH COLUMBIA

NTS 82F/7E

by Jim Logan and Richard Mann

SCALE 1:50 000
0 1 2 3 4 5
Kilometres

The previous mapping of the area by John Reesor (1996), forms the geological and lithological context to the current Intrusion-Related Gold-Quartz Vein study. Map 1864A was used extensively with only minimal changes in the area surrounding the Mount Skelly Pluton.

LAYERED / IGNEOUS ROCKS

CENOZOIC
QUATERNARY
- **Q** — *Drift cover, till, alluvium, and colluvium.*

MESOZOIC
CRETACEOUS
BAYONNE SUITE
MOUNT SKELLY PLUTON
- **KBMSg** — *Fine to medium grained, equigranular biotite monzogranite. Minor aphanitic, leucocratic phases and dikes.*
- **KBMSgd** — *Coarse grained biotite-hornblende granodiorite. Common euhedral megacrystic potassium feldspar and mafic (hornblende-biotite-titanite-rich) inclusions. Biotite, K-Ar dates of 97.1 to 98.7 Ma (Archibald et al., 1984).*

SANCA STOCK
- **KBSgd** — *Medium to coarse grained biotite granodiorite. Characteristic coarse, sub-rounded violet to grey quartz crystal aggregates. Biotite, K-Ar dates of 78.9 to 80.9 Ma (Archibald et al., 1984).*

PALEOZOIC
CAMBRIAN
EAGER FORMATION
- **E** — *Grey argillite, silty argillite, siltstone; buff weathering, silty limestone; rare bioclastic beds.*

PROTEROZOIC
HADRYNIAN
WINDERMERE SUPERGROUP
HORSETHIEF CREEK GROUP
- **{H3** — *Phyllite and schist; interbedded quartzite, pebble and cobble conglomerate; grey limestone.*
- **{H3l** — *Grey limestone and marble; dolomite.*
- **{H3p** — *Pebble conglomerate; quartz, quartzite and feldspar clasts.*
- **{H3c** — *Cobble conglomerate.*
- **{H2** — *Siliceous, massive white quartzite; pebbly quartzite.*
- **{H1** — *Phyllite, siltite, and carbonate.*

TOBY FORMATION
- **{T** — *Polymict conglomerate; pebble and cobble conglomerate; quartzite and grit; phyllite.*

HELIKIAN
PURCELL SUPERGROUP
MT. NELSON FORMATION
- **HMN4** — *Dolomite, white to dark grey, buff to brown weathering.*
- **HMN3** — *Black argillite, grey siltstone, thinly interbedded.*
- **HMN2** — *Dolomite, dolomitic siltstone, and argillite.*
- **HMN1** — *Quartzite, thick bedded, white to green.*

LA FRANCE CREEK GROUP
Undivided
- **HLF** — *Upper: interbedded grey siltite and black argillite, thin to thick bedded.*
- **HLF2** — *Lower: thinly interbedded black argillite and grey siltite.*
- **HLF1**

MOYIE INTRUSIONS
- **HM** — *Metadiorite and metaquartz diorite.*

COPPERY CREEK GROUP
Undivided
- **HCC** — *Upper: dolomite, thin to thick bedded, white to grey, with interbedded white quartzite.*
- **HCC3** — *Middle: thinly laminated black argillite and grey siltstone.*
- **HCC2** — *Lower: dolomite, dolomitic siltstone, green and black argillite; light grey siltite, and quartzite.*
- **HCC1** — *Grey carbonate member.*
- **HCC1a**

CRESTON GROUP
Undivided
- **HC** — *Middle: purple lined or purple mottled, grey siltite or fine quartzite; black to deep purple argillite; white, medium grained quartzite.*
- **HC2** — *Lower: thin to thick bedded siltite; thinly interbedded argillite and siltite, characterized by wavy bedding, mudcrocks, and cut-and-fill features.*
- **HC1**

ALDRIDGE GROUP
- **HA3** — *Upper: rusty weathering, black argillite and silty argillite, characterized by fine parallel laminae of white siltite.*
- **HA2** — *Middle: light grey weathering, grey siltite and fine quartzite in beds up to 1m; interbeds of dark argillite and successions of thinly interbedded black argillite and grey siltstone.*

SYMBOLS

- Geological contacts (defined, approximate, inferred)
- Thrust faults (defined, approximate, inferred)
- Fault unknown (defined, approximate, inferred)
- Bedding (tops unknown), inclined
- Foliation; dominant schistosity or cleavage
- Joint, fracture or altered fracture
- Fault plane
- Vein
- Dyke
- Lineations; undefined
- Mineral occurrence with MINFILE number (82F-) (past producer, prospect, showing) — 137
- K-Ar age date location — A
- Geochemical/assay rock sample
- Magnetic susceptibility (0.001 S.I. Units) — 7.75
- Roads
- Rivers, streams, and creeks

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Recommended citation: Logan, J.M. and Mann, R.K. (2000): Geology and Mineralization of the Mount Skelly Pluton, Kootenay Lake, Southeastern British Columbia (82F/7E); *B.C. Ministry of Energy and Mines*, Open File 2000-8, 1:50 000 scale map.

ACKNOWLEDGMENTS
We have benefited from field visits and geological discussions with Doug Archibald of Queens University and Paul Wilton of BC Ministry of Mines.

Geological cartography by J. Logan and V. Vilkos.

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