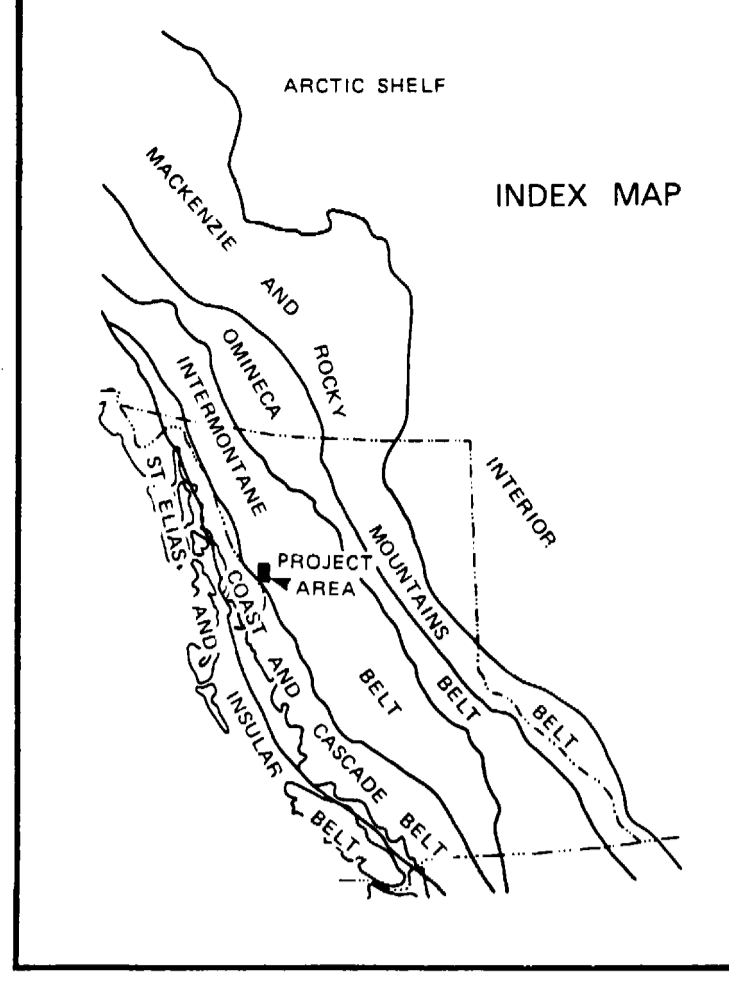

 PROVINCE OF BRITISH COLUMBIA
 Ministry of Energy, Mines and Petroleum Resources
 GEOLOGICAL SURVEY BRANCH
OPEN FILE MAP 1988-4
GEOLOGY AND MINERAL DEPOSITS OF THE SULPHURETS AREA
 NTS 104A/5, 104A/12, 104B/8, 104B/9
 GEOLOGY BY D.J. ALLDRICK AND J.M. BRITTON
 SCALE 1:50 000

CONTOUR INTERVAL 100 FEET
 MAGNETIC DECLINATION 27° EAST (1982)



INDEX MAP

LEGEND

INTRUSIVE ROCKS

TERTIARY

10 POST TECTONIC DYKES: Karotephre, lamprophyre, microdiorite, diabase (narrow, not shown)

JURASSIC

9 POST-VOLCANIC INTRUSIONS: Subvolcanic to porphyritic rocks with phenaritic groundmass. Texturally dissimilar to their volcanic host rocks

MITCHELL-SULPHURETS SUITE

9a Alkali-feldspar Granite: dark red, holoblastic, medium-grained, equigranular, hypersolvus granite

9b Monzonite: Quartz Monzonite: grey-green, pink and red, medium to coarse-grained, subvolcanic (K-feldspar, plagioclase) subvolcanic rock. With increasing quartz locally grades into a texturally identical granite

9c Monzonite: greenish grey, plagioclase-hornblende porphyritic, medium-grained rock; locally grades into light grey equigranular biotite monzonite or monzonite

8 SYN TO POST-VOLCANIC INTRUSIONS: Porphyritic, hypabyssal rocks with aphanitic groundmass. Texturally similar to extrusive rocks; intrusive relationships not always apparent

8a Walker Porphyry: light grey, homogeneous, plagioclase porphyritic diorite with fine-grained coarse xenoliths

8b Roundell Porphyry: light grey, coarse biotite and feldspar phenocrysts in dioritic groundmass

8c Two-feldspar Porphyry: medium to dark green, coarse K-feldspar and fine plagioclase ± hornblende phenocrysts in andesitic groundmass (hypabyssal equivalent of Unit 2a)

8d Wedge Lake Porphyry: light green, plagioclase ± quartz phenocrysts in dioritic groundmass

7 SUBVOLCANIC INTRUSIONS: Porphyritic hypabyssal rocks with phenaritic groundmass. Composition and phenocrysts similar to extrusive rocks

7 Lee Grant Stock: Light grey, K-feldspar porphyritic, hornblende-biotite quartz monzonite

VOLCANIC AND SEDIMENTARY ROCKS
(Note: No stratigraphic order is implied within units)

QUATERNARY

6 UNCONSOLIDATED SEDIMENTS: Alluvium, glaciofluvial deposits, landslide debris (not shown)

TRIASIC TO JURASSIC

HAZELTON GROUP

MIDDLE JURASSIC (TOARCIAN TO BAJOCIAN)

5 SILTSTONE SEQUENCE (Salmon River Formation): Dark grey, well bedded siltstone and fine sandstone

5a Basal, fossiliferous, pyritic waste

5b Rhythmically bedded siltstone

5c Thickly bedded sandstone

5d Limestone lenses

LOWER JURASSIC (TOARCIAN)

4 FELSIC VOLCANIC SEQUENCE (Mount Dilworth Formation): Light weathering, intermediate to felsic pyroclastic rocks, including dust tuff, crystal and lithic tuff, and lapilli tuff. Locally pyritic (5 to 15%) and gossanous. Minor chalcocyanite quartz veins locally

4a Massive to bedded airfall tuffs

4b Variably welded ash flow tuffs

4c Knipple Porphyry: coarse white glomeroporphyritic plagioclase phenocrysts set in grey dioritic-andesitic groundmass

LOWER JURASSIC (PLEIENSCHACHIAN TO TOARCIAN)

3 PYROCLASTIC-EPICLASTIC SEQUENCE (Betty Creek Formation): Heterogeneous, red, green, purple and grey, bedded to massive pyroclastic and sedimentary rocks

3a Massive, green and grey andesitic to dacitic tuff, lapilli tuff, tuff breccia and minor flows

3ah Hematitic mudstone seams within 3a

3b Bedded, heterogeneous, red, green and grey volcanic breccia, lapilli tuff, crystal and lithic tuff, commonly hematitic

3c Basaltic to andesitic ash flow tuffs

3d Akina Porphyry: hornblende and feldspar porphyritic andesite

3e Massive grey andesite rocks and greywacke

3f Bedded, hematitic siltstone, sandstone and conglomerate, locally fossiliferous

LOWER JURASSIC (HETTANGIAN-PLEIENSCHACHIAN)

2 ANDESITE SEQUENCE (Upper Unuk River Formation): Green and grey, rarely purple, intermediate to mafic pyroclastics and flows with minor interbeds of siltstone and waste

2a Medium to dark green, K-feldspar and plagioclase ± hornblende porphyritic trachyandesite tuffs and flows

2b Grey and green plagioclase porphyritic andesite

2c Dark green, hornblende ± augite porphyritic basalt-andesite

2d Dark grey rhythmically bedded siltstone (turbidite)

2e Grey well-sorted andesite, greenstone and conglomerate

UPPER TRIASSIC TO LOWER JURASSIC (NORIAN TO HETTANGIAN)

1 LOWER SEDIMENTARY SEQUENCE (Lower Unuk River Formation): Brown and grey mixed sedimentary rocks with turbidite interbeds

1a Immature andesite and lithic waste

1b Siltstone

1c Polymictic conglomerate

1d Tuffite

1e Andesitic pyroclastics

GOSSANOUS ALTERATION ZONES

Pyrite-quartz-sericite ± carbonate ± clay; locally foliated to schistose

Dissminated pyrite

SYMBOLS

Geological boundary (defined, approximate, assumed) / / / / /

Bedding, tops known (horizontal, inclined, vertical, overturned) / / / / /

Bedding, tops unknown (horizontal, inclined, vertical, dip unknown) / / / / /

Bedding, estimated dip (gentle, moderate, steep) / / / / /

Schistosity, cleavage, foliation (horizontal, inclined, vertical) / / / / /

Trend line / / / / /

Minor folding / / / / /

Axis of minor folds (horizontal, inclined, vertical) / / / / /

Anticline (normal, overturned) / / / / /

Syncline (normal, overturned) / / / / /

Fault (defined, assumed; solid circle indicates downthrown side) / / / / /

Thrust fault (teeth indicate relative movement) / / / / /

Mineral prospect: mineral showing X6 Xpy

Mine under development *

Placer deposit (gold) Au

Fossil locality F

Flammé F

Limit of phyllite zone F

Tractor road / / / / /

MINERAL OCCURRENCES

MAP NO.	NAME	COMMODITY	MINFILE NO.	MAP NO.	NAME	COMMODITY	MINFILE NO.
1	Konkin North	Ag, Au	104B-172	25	Gossan Hill	Au, Ag	104B-190
2	Konkin Skarn	Au, Ag, Cu	104B-171	26	Discovery(Luck)	Ag, Ba	104B-022
3	Iron Cap Gold	Au	104B-173	27	Kerr B	Au, Ag, Cu	104B-191
4	Iron Cap Copper	Cu, Mo	104B-174	28	Kerr L	Au, Ag, Cu	104B-192
5	Mitchell	Cu, Mo	104B-103	29	West	Ag, Au, Pb, Zn	104B-193
6	Toe	Ag	104B-176	30	Kerr A	Au, Ag, Cu	104B-194
7	Dawson, (Moly)	Au, Cu, Mo	104B-104	31	367	Ag, Au	104B-195
8	Kirkham	Mo	104B-177	32	Galena Stockwork	Ag, Au	104B-196
9	Quartz Stockwork	Au, Ag	104B-178	33	S-3	Au, Ag	104B-197
10	Snowfield	Au, Mo	104B-179	34	Kerr F	Au, Ag, Cu	104B-198
11	Mitchell-Sulphurets Ridge	Ag, As	104B-180	35	Spine	Ag, Au, Pb, Zn	104B-199
12	Montgomery	Cu, Mo	104B-203	36	Electrum	Ag, Au	104B-200
13	Breccia	Au, Cu, Mo	104B-181	37	Knip	Ag, Pb, Zn	104A-955
14	Sulphurets	Au, Ag	104B-183	38	Delta	Ag, Pb, Zn	104B-166
15	Waterfall	Au, Ag	104B-183	39	Tribe	Au	104B-201
16	Sulphurets Lake	Au, Ag	104B-184	40	Feld	Ag, Pb, Zn	104B-202
17	Hanging Glacier	Au, Ag, Pb, Zn	104B-185	41	Gamma	Ag, Pb, Zn	104B-188
18	Bonnie	Cu	104B-186	42	4-Js	Ag, Pb, Zn, As	104B-128
19	Goldwedge	Au, Ag, As	104B-105	43	Portland	Ag, Pb, Zn, As	104B-082
20	Kerr Copper	Cu, Mo	104B-099	44	Treaty Gossan	S, Ag, Pb, Zn	104B-078
21	Red River	Ag, Au	104B-118	45	Sulphurets Creek	Au	104B-020
22	Kruchkowski	Ag, As	104B-187	46	Tag	Cu, Fe (ja)	104B-081
23	Kerr C	Au, Ag, Cu	104B-188	47	CA	Cu, Mo, Pb	104B-101
24	Shore	Ag, Au, Pb, Zn	104B-189				

PUBLISHED RESERVES

MINERAL DEPOSIT	RESERVE CATEGORY	TONNES	GOLD g/tonne	SILVER g/tonne
West Zone	Drill indicated	488 046	11.38	722.08
	Inferred	438 333	11.38	722.08
TOTAL WEST ZONE		926 377	11.38	722.08
Shore Zone	Inferred	489 885	9.02	933.89
Gossan Hill Zone	Inferred	26 024	88.54	120.34
TOTAL BRUCEJACK LAKE (Newhawk)		1 437 136	11.34	763.76
Snowfield Zone (Newhawk)	Inferred	7 000 000	2.57	
Goldwedge (Cassart)	Inferred	88 854	18.17	136.52

ABBREVIATIONS

Alunite	al	Galena	gn	Pyrrhotite	po
Asenopyrite	asb	Gold	au	Quartz	qtz
Asbestos	asb	Iron	fe	Silver	ag
Barite	ba	Zinc	zn	Sulphur	s
Bornite	bn	Lead	pb	Sphalerite	sp
Calcite	cc	Magnetite	mt	Tetrahedrite	tr
Chalcocyanite	ccy	Mercurite	mc	Zinc	zn
Chalcopyrite	cp	Pyrite	py	Assay value (Au)	
Copper	cu				

ACKNOWLEDGEMENTS

This map includes information from reports by: D.A. Bridge, R.M. Britton, M.G. Brown, D. Cameron, L.K. Eccles, W.R. Epp, L.J. Ferguson, C. Gray, E.W. Grove, W.D. Groves, M.H. Gunning, R.V. Kinnear, E.R. Krukowski, M.G. Lamond, J.W. MacLeod, D.O. Malcom, W. Melnyk, R.E. Meyers, J.H. Montgomery, Newmont Mines, G.W.H. Norman, E.A. Oaterson, J.P. Sorbara, and N.L. Tibbo.

1987 fieldwork assisted by C.W.P. Russell and M. Holmes.