



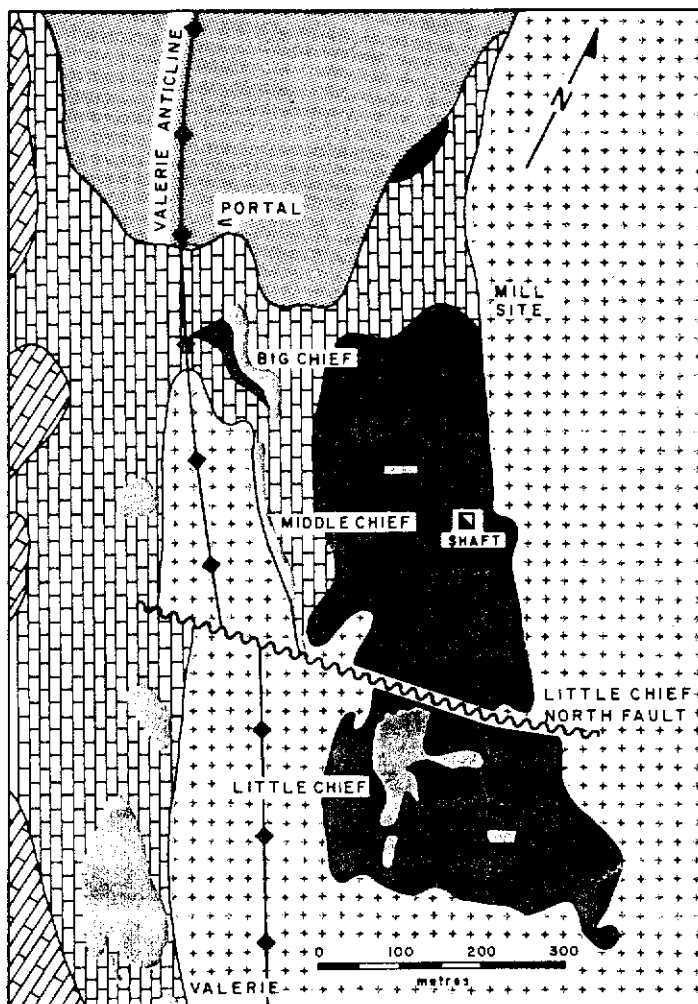
Indian and Northern
Affairs Canada

Affaires indiennes
et du Nord Canada

63-3
\$9.95

YUKON

EXPLORATION and GEOLOGY 1982



Whitehorse Copper 1967-1982

123,000 tonnes Cu
90 tonnes Ag
7 tonnes Au

LEGEND

- LIMESTONE
- GRAPHITIC LIMESTONE
- DIORITE
- MAGNETITE SKARN
- SKARN
- FELDSPATHIC ARENITE

Canada

Whitehorse Copper ended production in late 1982. This geological plan map illustrates the Little Chief flank pendant and the Valerie Anticline. It is extracted from a report by D. Tenney, "The Whitehorse Copper Belt: Mining, Exploration and Geology (1967-1980)" - DIAND Geology Section, Yukon Region, Bulletin 1, 1981.

YUKON
Exploration
and Geology 1982

Exploration and Geological Services
Northern Affairs Program
Indian and Northern Affairs Canada

Whitehorse, Yukon

Minister of Supply and Services Canada, 1983
Available in Canada through Authorized Bookstore Agents
and other bookstores or by mail from
Canadian Government Publishing Centre
Supply and Services Canada
Ottawa, Ontario K1A 0S9

Catalogue No. R71-9/1982-1E Canada 9.95
ISBN 0-660-11450-X Other Countries 11.95

Published under authority of the Hon. John C. Munro,
P.C., M.P., Minister of Indian Affairs and Northern
Development.
Whitehorse, 1983
QS-Y012-000-EE-A1

RESUME

L'INDUSTRIE MINIERE AU YUKON

En 1982, l'exploitation minière s'est arrêtée progressivement et l'exploration des minéraux a ralenti considérablement. La mine Faro de la société Cyprus Anvil a cessé ses activités en juin, celle de UKHM à Elsa, en juillet, et la société Whitehorse Copper prévoit épuiser son minerai en décembre de cette année. Les dépenses d'exploration ont diminué des deux tiers par rapport à celles de 1981. Il y a eu une période d'attente caractérisée par plusieurs traits : les travaux d'équipement ont été réduits et peu de programmes de forage ont été exécutés; le travail effectué, en général, s'est limité au site principal d'exploitation, négligeant le reste de la propriété; le nombre de concessions ajoutées a été le plus souvent minime; peu de nouvelles concessions ont été jalonnées et la taille des groupes de concessions individuelles a été beaucoup plus petite que les années précédentes.

L'exploration a visé principalement trois groupes de produits, dans l'ordre suivant : 1) plomb, zinc, argent; 2) tungstène, molybdène, étain; 3) métaux précieux. Les métaux vils contenus dans les couches schisteuses ont fait l'objet d'une exploration active dans plusieurs régions comme la passe MacMillan, Earn Lake, à l'est de Rancheria et, à titre de reconnaissance, dans l'extrême sud-est du Yukon. Un chiffre de tonnage infra-économique a été donné pour le gisement XY à la passe Howards. Les concessions de tungstène ont été actives. Des forages supplémentaires ont amélioré la base de données au gisement de tungstène Ray Gulch de la Canada Tungsten, de même que le creusage d'une tranchée et l'échantillonnage global à la veine et au gisement massif de quartzwolfram de l'Union Carbide à Kalzas Twins. La mine Mactung de la société Amax est demeurée en situation d'attente, de même que l'important gisement Logtung de wolfram-molybdène d'Amax et de la Regional Resources Ltd. Amoco et Tintina Silver ont continué le forage en profondeur de leur porphyre de molybdène à Red Mountain et ont constaté que la minéralisation se maintenait dans les profondeurs. Des forages supplémentaires dans le porphyre de molybdène plutonien de Cominco et de Getty ont de nouveau confirmé le tableau infra-économique révélé l'an dernier. L'exploration de l'étain s'est limitée plus ou moins à d'autres forages exécutés par la Cominco dans la roche métamorphique stannifère de la concession JC et par la P.C. Syndicate dans les concessions MUN. Les métaux précieux ont fait l'objet de forages dans des terrains volcaniques du Crétacé récent et du Cénozoïque, de la part d'Agip à Mount Skukum et à Archer, et de Cathro à Prospector Mountain. On a recherché le cuivre dans les régions habituelles : UKHM au nord-ouest de Carmacks et la société Whitehorse Copper Mines dans la ceinture cuprifère de Whitehorse. Des travaux mineurs d'exploration ont visé l'uranium, l'amiante, la barytine, le nickel et le charbon.

L'exploitation des placers a été moindre en 1982 qu'en 1981. La plupart des criques étaient occupées, mais plusieurs sociétés très actives en 1981 n'ont rien fait en 1982. On estime que la production de l'or, en 1982, se situe aux trois quarts de celle de 1981.

PRODUCTION MINERALE DU YUKON

1^{er} JANVIER 1982 - 31 DECEMBRE 1982

	Cyprus Anvil* (fermée le 4 juin)	Whitehorse Copper	United Keno* (fermée le 13 juillet)	Total
Minerai traité (tonnes)	1 635 241,38	569 137,02	50 354,81	2 254 733,21
Argent (g)	28 017 224,11	5 293 100,32	34 381 342,35	67 691 666,78
Plomb (kg)	33 905 024,94		888 320,18	34 793 345,12
Zinc (kg)	59 392 290,25		119 675,74	59 511 965,99
Cuivre (kg)		7 246 701,59		7 246 701,59
Or (g)	62 860,17	299 791,09		362 651,26

* En raison de la fermeture de la Cyprus Anvil et de la United Keno, les chiffres de production ne visent que la période de janvier à juin et de janvier à juillet respectivement.

CONTENTS

PAGE

YUKON EXPLORATION AND GEOLOGY, 1982	
INTRODUCTION.....	1
EXPLORATION AND GEOLOGICAL SERVICES DIVISION...	1
YUKON MINERAL INDUSTRY 1982, AN OVERVIEW; J.A. Morin, K.J. Grapes and R.L. Debicki.....	4
TECHNICAL REPORTS	
ORIGIN OF THE CLINTON CREEK ASBESTOS DEPOSIT; Grant Abbott.....	18
GEOLOGY OF THE EPD STANNIFEROUS BRECCIA DEPOSIT, MCQUESTEN AREA, 115 P YUKON; Diane S. Emond....	26
REPORT OF 1982 FIELD WORK ON EARLY TERTIARY CLASTICS, WEST-CENTRAL YUKON; Grant Lowey.....	34
PETROLOGY AND GEOCHEMISTRY OF THE PATTISON ALASKITE PLUTON; Gregory V. Lynch, Calvin Pride and Pat Watson.....	38
A SEDIMENTOLOGIC DESCRIPTION OF CLEAR CREEK FLUVIATILE SEDIMENTS. 115 P, CENTRAL YUKON; S.R. Morison.....	50
PROTEROZOIC AND EARLY PALEOZOIC VOLCANISM IN THE OGILVIE MOUNTAINS: An example from Mount Harper, west-central Yukon; C.F. Roots and John M. Moore, Jr.....	55
UPPER TRIASSIC ROCKS AT HILL 4308, LABERGE MAP AREA, 105 E, YUKON; Pamela Reid and Jennifer O'Brien.....	63
THE SKUKUM VOLCANIC COMPLEX, 105 D SW; GEOLOGY AND COMPARISON TO THE BENNETT LAKE CAULDRON COMPLEX; M.J. Smith.....	68
GEOLOGY OF PYRITE-SPHALERITE-GALENA CONCENTRA- TIONS IN PROTEROZOIC QUARTZITE AT QUARTZ LAKE, SOUTHEASTERN YUKON; P. Vaillancourt.....	73

SUMMARIES OF ASSESSMENT WORK, DESCRIPTIONS OF MINERAL PROPERTIES, AND MINERAL CLAIMS STAKED IN 1982.....

79

LA BICHE (NTS 95 C).....	80
COAL RIVER (NTS 95 D).....	82
FLAT RIVER (NTS 95 E).....	88
WATSON LAKE (NTS 105 A).....	90
WOLF LAKE (NTS 105 B).....	94
TESLIN (NTS 105 C).....	104
WHITEHORSE (NTS 105 D).....	110
LABERGE (NTS 105 E).....	120
QUIET LAKE (NTS 105 F).....	122
FINLAYSON LAKE (NTS 105 G).....	126
FRANCES LAKE (NTS 105 H).....	130
NAHANNI (NTS 105 I).....	134
SHELDON LAKE (NTS 105 J).....	136
TAY RIVER (NTS 105 K).....	140
GLENYLON (NTS 105 L).....	146
MAYO (NTS 105 M).....	151
LANSING (NTS 105 N).....	160
NIDDERY LAKE (NTS 105 O).....	162
SEKWI MOUNTAIN (NTS 105 P).....	170
BONNET PLUME (NTS 106 B).....	172
NADALEEN RIVER (NTS 106 C).....	174
NASH CREEK (NTS 106 D).....	178
WIND RIVER (NTS 106 E).....	182
SNAKE RIVER (NTS 106 F).....	186
DEZADEASH (NTS 115 A).....	188
MOUNT ST. ELIAS (NTS 115 B-C).....	190
KLUANE LAKE (NTS 115 G-F).....	192
AISHIHIK LAKE (NTS 115 H).....	196
CARMACKS (NTS 115 I).....	200
SNAG (NTS 115 J-K).....	206
STEWART RIVER (NTS 115 O-N).....	208
McQUESTEN (NTS 115 P).....	214
LARSEN CREEK (NTS 116 A).....	218
DAWSON (NTS 116 B-C).....	222
OGILVIE RIVER (NTS 116 G-F).....	228
HART RIVER (NTS 116 H).....	230
MARTIN HOUSE (NTS 106 K), TRAIL RIVER (NTS 106 L), EAGLE RIVER (NTS 116 I), PORCUPINE RIVER (NTS 116 K), OLD CROW (NTS 116 N-O), BELL RIVER (NTS 116 P), BLOW RIVER (NTS 117 A).....	232
LIST OF REFERENCES.....	235
INDEX.....	240

MINE PRODUCTION - YUKON

JANUARY 1, 1982 - DECEMBER 31, 1982

	Cyprus Anvil* (shut down June 4)	Whitehorse Copper	United Keno* (shut down July 13)	Total
Ore Milled (tonnes)	1,635,241.38	822,611.83	50,354.81	2,254,733.21
Silver produced (gm)	28,017,224.11	6,497,695.30	34,381,342.35	67,691,666.78
Lead produced (kg)	33,905,024.94	-	888,320.18	34,793,345.12
Zinc produced (kg)	59,392,290.25	-	119,575.74	59,511,965.99
Copper produced (kg)	-	9,040,729.70	-	7,246,701.59
Gold produced (gm)	62,860.17	364,267.30	-	362,651.26

* Due to the shutdown of Cyprus Anvil and United Keno the production figures apply only for January to June and January to July respectively.

MINERAL PRODUCTION, YUKON TERRITORY

	1978*	1979*	1980*	1981*	1982*
Gold (lode) grams	\$ 7,354,000 1,026,000	\$ 5,835,000 523,353	\$ 19,200,000 908,550	\$ 53,964,000 3,046,000	\$ 42,430,000 2,858,000
Gold** (placer) grams	\$ 4,167,000 581,346	\$ 8,819,000 790,949	\$ 34,799,000 1,646,717	55,093,400 2,479,935	\$ 32,404,040 1,842,355
Silver grams	\$ 29,405,000 148,000,000	\$ 47,713,000 125,172,604	\$108,725,000 137,565,148	\$ 69,528,000 172,000,000	\$ 22,141,000 70,000
Lead kg	\$ 65,466,000 80,643,000	\$104,625,000 79,744,650	\$ 76,636,000 70,154,178	\$ 50,706,000 51,651,000	\$ 25,950,000 35,838,000
Zinc kg	\$ 75,481,000 98,506,000	\$115,989,000 120,291,108	\$ 94,137,000 97,935,887	\$103,783,000 86,486,000	\$ 63,264,000 58,961,000
Cadmium kg	\$ 590 96	---	---	---	---
Copper kg	\$ 18,066,000 11,012,000	\$ 18,670,000 7,931,060	\$ 28,504,000 10,879,636	\$ 20,192,000 9,129,000	\$ 14,077,000 7,236,000
Asbestos tonnes	\$ 32,404,000 63,000	Clinton Creek Mine Closed	---	---	---
Coal tonnes	26,000	25,356	11,634	28,933.4	---
Gross Value (excludes coal)	\$232,343,590	\$301,651,000	\$362,001,000	\$353,266,000	\$200,266,040

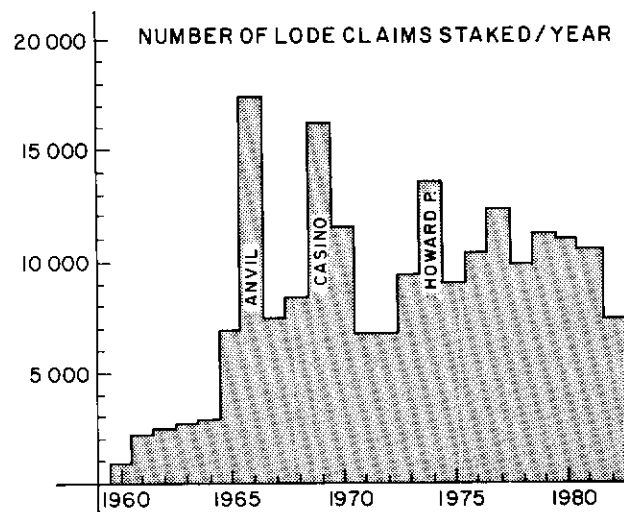
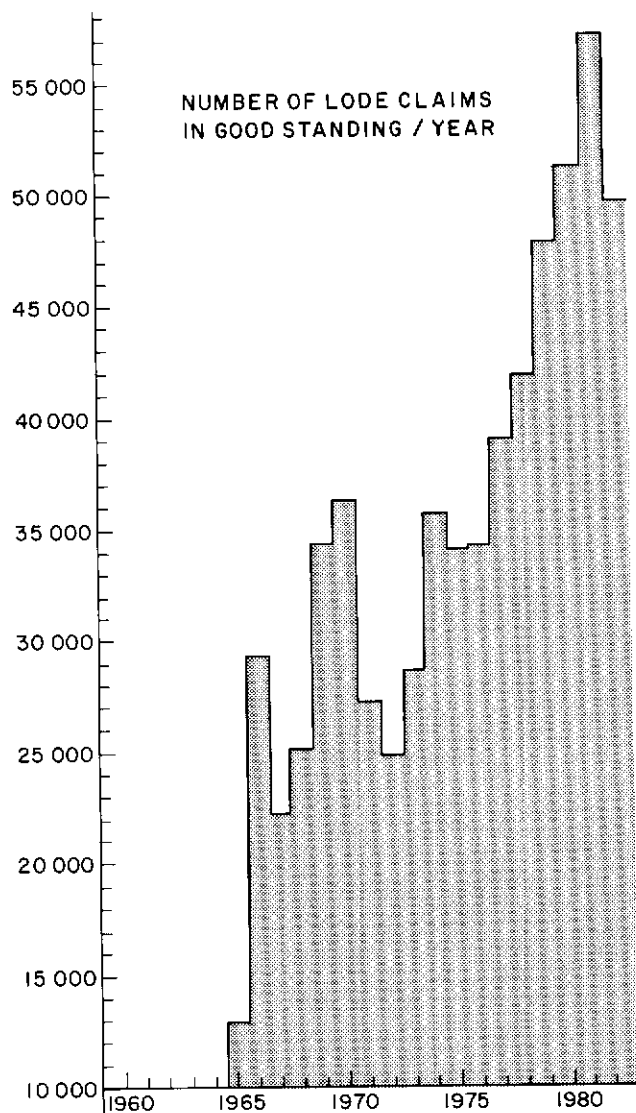
* dollar values determined using average metal price during the year, according to Canadian Mining Journal figures.

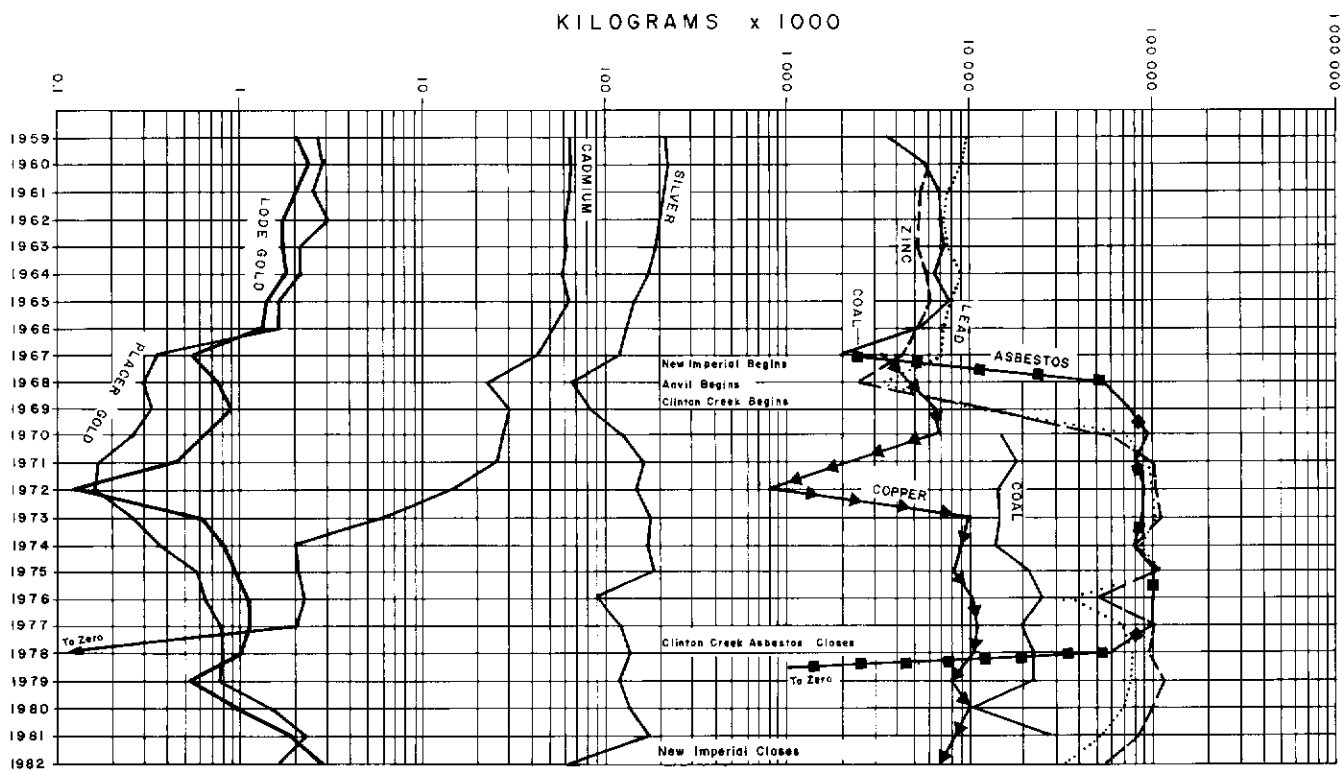
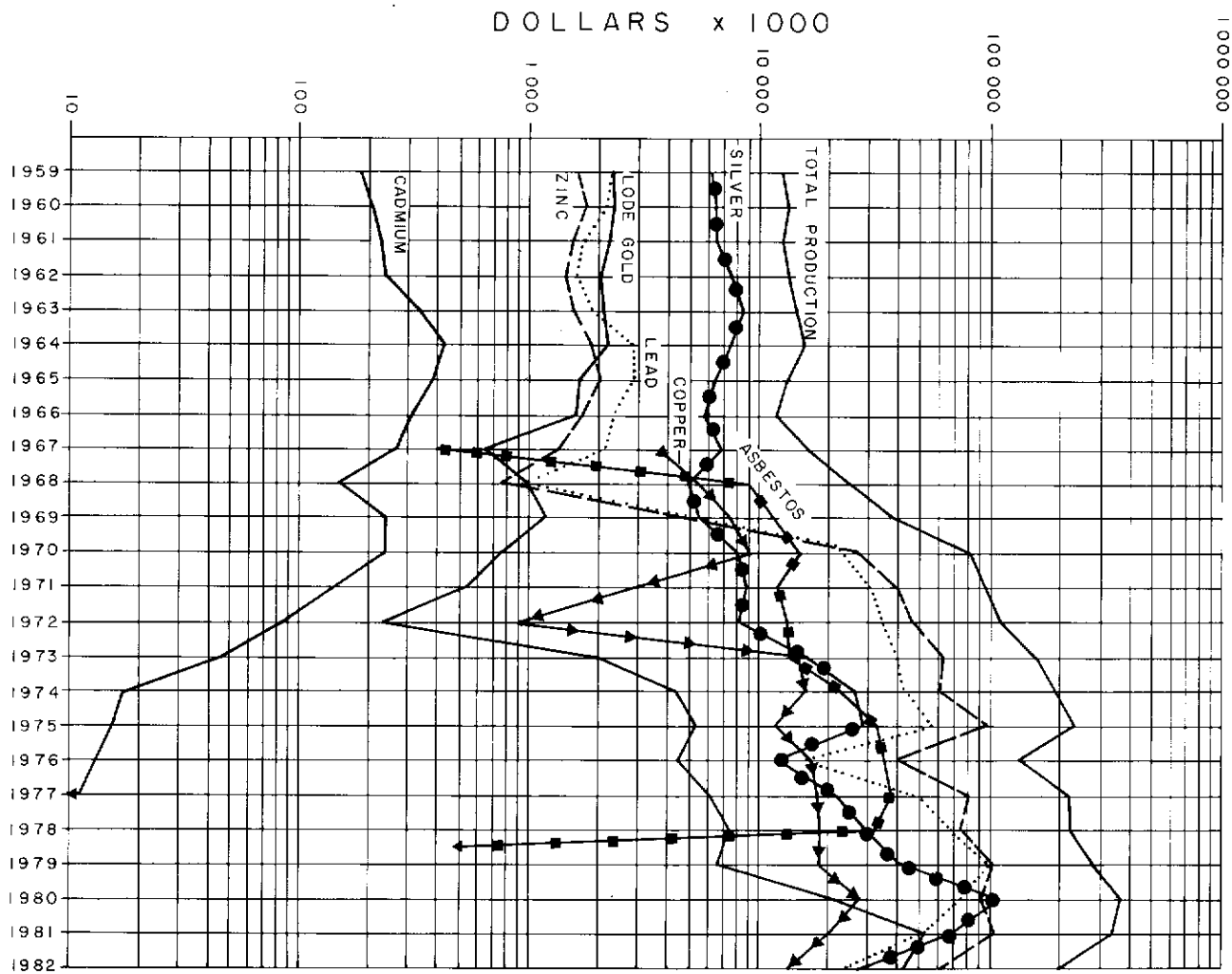
** placer gold production based on royalty paid on crude gold, adjusted to reflect fine gold content.

MINE DEVELOPMENT AND EXPLORATION

	CYPRUS ANVIL	WHITEHORSE COPPER	HUSKY	UNITED NO CASH	KENO ELSA	HILL RUBY	MINES PORCUPINE	KENO	TOTAL UKHM
SINKING ADVANCES (m3)	3,646,152.02	0	0	0	0	0	0	0	0
LATERAL ADVANCES (m)	0	365.15	126.80	66.46	11.89	85.65	26.82	0	317.61
RAISING ADVANCES (m)	0	103.33	35.97	0	7.93	0	25.60	6.4	75.90
SURFACE DIAMOND DRILLING (m)	0	2,321.97							900.38
UNDERGROUND DIAMOND DRILLING (m)	0	0	364.54	0	0	363.63	160.93	0	889.10

* Information from monthly progress reports.





Open cut mining commenced mid-October and continued through until mid-November, by which time approximately 8,000 tonnes had been stock piled across the river from the community of Ross River. The operation is designed to employ approximately 11 people on site as well as providing work for twelve, 15 metric tonne trucks.

Plans are for the barite to be crushed and ground to a specified size in Ross River and packed as bulk barite into two tonne wooden boxes for hauling to Tuktoyaktuk or Inuvik and be used in Beaufort Sea operations.

LEAD, ZINC, SILVER

In the western Ogilvie Mountains, Mattagami Lake Exploration located a soil geochemical anomaly on the WENDY claims (116 H 6) underlain by Permian shales. The property was geologically mapped at 1:13,000 scale and geochemically soil sampled along a grid. They also worked on their KZ claims (116 G 1) which cover a multi-element soil geochemical anomaly that is coincident with a kill zone. All claims were geologically mapped at 1:10,000 scale, soil geochemical samples were collected along a grid and about ten 1.5 m² trenches were blasted.

The main lead-zinc effort was focussed on the Macmillan Pass area for stratiform galena-sphalerite-barite deposits hosted in black shale of Mississippian age. The largest deposit discovered so far is the TOM (105 O 1), about 8 million tonnes of 8.5% lead and zinc each and 90 g/t silver. Further underground work addition to the existing adit proceeded during 1981 but was terminated in March 1982 and the underground workings were promptly flooded. Unfortunately, the decline was stopped short and the planned-for underground diamond drilling never took place. During summer 1982, minor geological mapping and core logging programs were conducted.

The nearby JASON deposit (105 O 1), just a few kilometres to the west, was the object of much drilling, approximately 2850 m in five holes on the south zone. Four mineralized intersections were encountered. Aberford Resources Ltd. of Calgary acquired Pan Ocean Oil Ltd. earlier this year and thus is now the major partner in the Ogilvie Joint Venture which owns the deposit. Drill results have not been released but are reported to be encouraging.

Cominco investigated stratiform mineralization on the MIDD claims (105 O 1,2) which adjoin the JASON property to the north. Sphalerite and galena occur in sedimentary rocks of the Lower Earn Group. They conducted geological mapping at 1:10,000 and 1:5,000 scales, geochemical, geophysical, trenching and diamond drilling programs. Soil samples were analyzed for Pb, Zn, Ag and Ba. Geophysical work included proton magnetometer, max-min horizontal loop EM, VLF EM and gravity surveys. About 18,000 square metres were stripped by a D6 caterpillar and four diamond drill holes (HQ, NQ) were drilled on claims MIDD 81, 83 and 78. The nearby HASTEN, BASIN and FETCH claims (105 O 1) adjoin the JASON property to the south and were optioned by Cominco from Welcome North. Geological mapping (1:5,000) indicates that the JASON favourable horizon may extend onto these claims and a soil geochemical survey resulted in a Pb anomaly that was indicated by previous Canadian Nickel Company work. On their FAM claims (105 O 1, 7), Amex collected 2500 soil samples and analyzed them for Pb,

Zn, Ag, Cu and Ba.

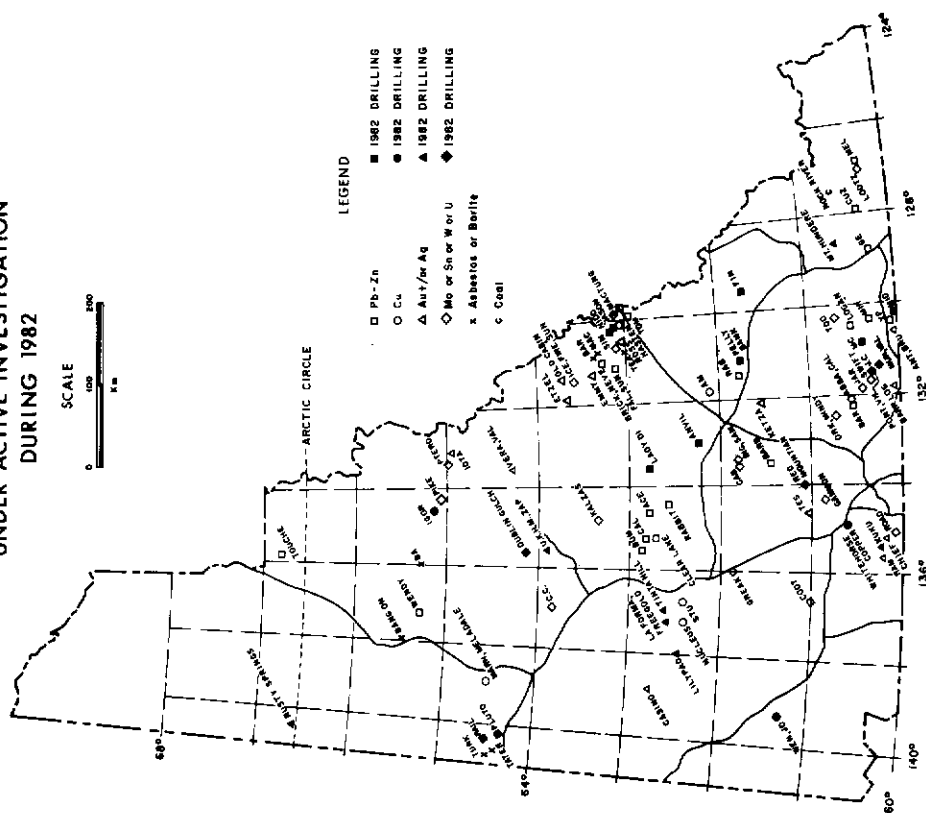
East of Macmillan Pass, Hudson Bay Exploration and Development staked the FAL claims (105 O 7) as part of a follow up on Pb anomalies determined in a reconnaissance stream sediment sampling survey. Work indicates they are underlain by early to mid Devonian chert, cherty argillite, volcanic rocks and younger Devonian shales and host a siderite showing and several gossans. Geological mapping at 1:2,000 scale and grid soil and rock geochemical sampling programs were conducted. Northwest of Macmillan Pass, the BAR claims (105 O 7) of Hudson Bay cover bedded barite showings at the contact of a chert unit with overlying Mississippian shale and siltstone. Work in 1982 consisted of soil and rock geochemical sampling (Cu, Pb, Zn, Ag, Ba), geological mapping (1:50,000) and hand trenching. Nearby, are Hudson Bay's MAC claims (105 O 7) which had similar programs of geological mapping and, soil and rock geochemical sampling. Several bedded barite bodies occur in carbonaceous argillite of the Lower Earn Group on the claims. South of the BAR and MAC claims and about 50 km west of Macmillan Pass, the SUN claims (105 O 3) of Hudson Bay cover vein and bedded barite and stream sediment anomalies generated from a reconnaissance program in 1979. In 1982, geological mapping (1:50,000) and soil, stream sediment and rock geochemical sampling programs were conducted.

Archer, Cathro and Associates worked on the TUDL claims (106 D 1) in the Keno Hill area on behalf of the ZX Joint Venture. The claims cover ground formerly held as the JACK, MARG and HEATHER claims of Canadian Superior. These latter were staked in 1965 on a Pb-Zn anomaly outlined by the G.S.C.'s Operation Keno and were explored in 1965-1966 by a joint venture between Canadian Superior and United Keno Hill Mines. They were subsequently restaked as the FLASH claims by Mountaineer Mines Limited and Welcome North in 1977, but no further work was conducted. In 1982, reconnaissance scale soil and rock geochemical sampling was conducted along with cleaning out of the old trenches.

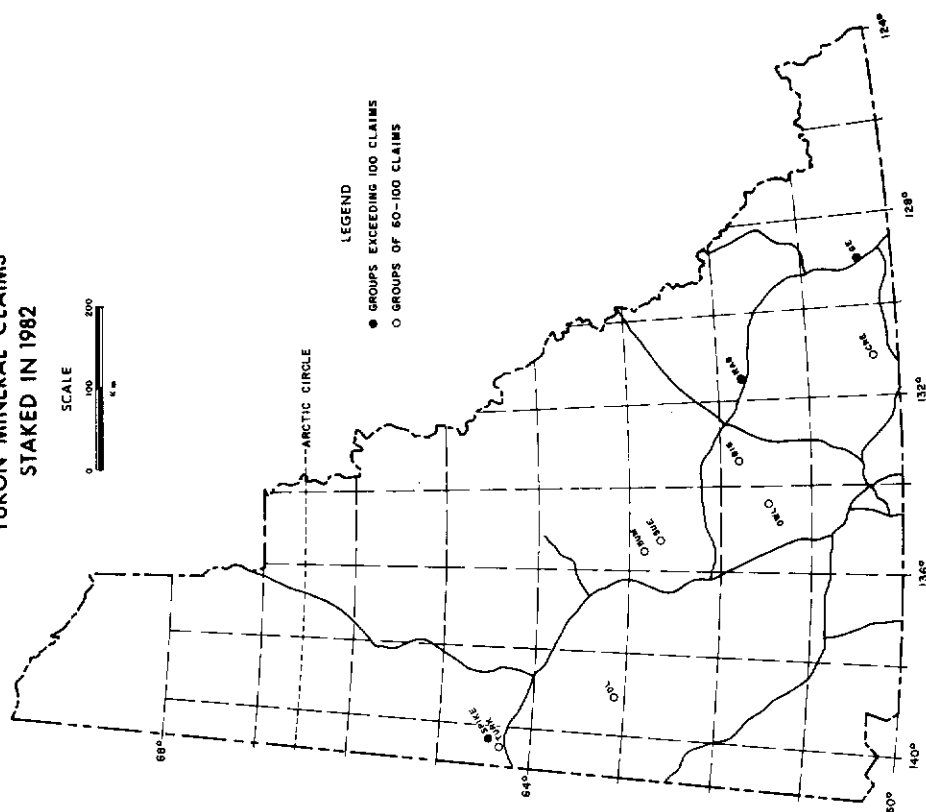
Activity in northern Tay River map area continued as Anaconda evaluated their Dromedary Mountain property (105 L 15, 16), the ACE claims and nearby CLARE, BUSH and EARN. They are underlain by tectonically imbricated Paleozoic strata including the Kechika, Road River and Earn Groups, middle Mississippian chert-siltstone and Permo-Triassic sandstone shale units. A lens of bedded barite occurs within the middle Mississippian unit. Geological mapping at 1:5,000 scale was conducted over six grids totalling 88 km of grid lines along which 3570 soil samples were collected at 25 m intervals and analyzed for Cu, Pb, Zn, Ag and selectively for Ba. Geophysical work included max-min EM, magnetometer and local gravity surveys.

Anaconda also conducted minor geological mapping (1:50,000) and soil geochemical sampling programs on the RABBIT claims (105 L 9). These are underlain by a middle Mississippian chert-siltstone unit and a calc-silicate hornfels over which a total of 590 soil samples were collected and analyzed for Cu, Pb, Zn, Ag and Ba. To the northwest, Anaconda's KAL claims (105 L 14) are underlain mainly by turbidites of the lower Upper Earn Group of probable lower Mississippian age. Geological mapping (1:5,000) and geochemical soil sampling (1790 samples at 25 m intervals analyzed for Cu, Pb, Zn, Ag and selectively for Ba and Hg) programs

YUKON MINERAL PROPERTIES UNDER ACTIVE INVESTIGATION DURING 1982



YUKON MINERAL CLAIMS STAKED IN 1982



GROUPS OF 20 OR MORE CLAIMS STAKED IN 1982*

Number of Claims	Claim Name	N.T.S.	Company
50	MARS	95 C 13	Archer Cathro and Associates
50	DEEK	95 C 13	Kidd Creek
48	SPRUCE	95 D 7	S.E.R.E.M.
40	QUIVER	95 D 12	Archer Cathro and Associates
333	GE	105 A 2, 3, 5, 6, 7	Kerr Addison Mines
34	TOM	105 B 1	
30	CER	105 B 1, 8	
32	PARK	105 B 3	
52	SEA	105 B 3	BRX
84	CRE	105 B 3	BRX
49	A.S.	105 B 3	
24	FALL	105 B 3	
40	BEA	105 B 7	
40	SAB	105 B 7	BRX
24	SPE	105 B 7	BRX
24	MEI	105 B 7	BRX
25	MAR	105 B 7	
29	OTH	105 B 7	
20	BRX	105 B 7	
40	TOD	105 B 9	Hudson Bay Exploration
26	CAL	105 C 8	J.C. Stephen
25	MINDY	105 C 9	Newmont
35	CHIEF	105 D 3	AGIP
46	GLENLIVET	105 D 3	AGIP
40	WOOF	105 D 3	AGIP
69	OWL	105 E 8	General Resources and Savoya Resources Corp.
68	BIG	105 F 14	Hudson Bay Exploration
28	ZOO	105 G 5, 6	Amax
136	RAB	105 G 14	Hudson Bay Exploration
30	FAST	105 I 12	Hudson Bay Exploration
72	SUE	105 L 9	Getty/Essex
74	BUM	105 L 13, 14	Anaconda
32	ACE	105 L 15	Anaconda
29	SS	105 M 13	Canada Tungsten
32	TUDL	106 D 1	Archer Cathro and Associates
32	KID	115 A 3	Noranda Exploration
22	KAT	115 G 6	Halferdahl and Associates
40	JAN	115 G 6	
24	TAWA	115 I 3	BRX
72	D.L.	115 O 2	
32	OMEGA	115 P 14	Noranda Exploration
36	JA	116 B 8	
24	HARP	116 B 12, 13	
60	TURK	116 C 7	Archer Cathro and Associates
56	TATER	116 C 7	Archer Cathro and Associates
156	SPIKE	116 C 8	Noranda Exploration
62	GLAC	116 C 2	Bema Industries
24	FIRE	105 O 11	AGIP
143	BEAU	95 G 5, 12	Utah Mines
52	CAN	115 F 15	
24	JAN	115 G 6	
47	EL	115 G 6	
29	SCOT	105 D 14	

* Information gathered from District Mining Recorders' Reports, January 1, 1982 to December 31, 1982.

were conducted along with geophysical programs including max-min EM, magnetometer and minor gravity and self potential surveys. Bedded barite was discovered in the Earn Group and several Pb anomalies in soil were determined. To the east, Anaconda also worked on their BUM claims (105 L 13, 14) which are underlain by a sequence similar to KAL. Work consisted of geological mapping (1:5,000) along 30.8 km of grid with 200 m line spacing, 852 soil samples collected at 25 m intervals along grid lines and analyzed for Cu, Pb, Zn, Ag and selectively for Ba and max-min EM, magnetometer and gravity surveys.

Also in the area, KIDD Creek Mines Ltd. conducted several surveys on their SUE claims (105 L 9) - geological mapping (1:2,500), geochemical soil sampling, hand trenching, magnetometer and max-min VLF EM programs. The property is thought to be underlain by Cambro-Ordovician metasedimentary rocks and a calc-silicate phyllite. Some geochemical and geophysical anomalies were determined.

Nearby, Welcome North optioned to Noranda the LADY DI claims (105 K 13) where stratabound massive sulphides occur in a tan-green cherty siltstone unit at its contact with Mississippian Kalzas Formation limestone. The pyrrhotite-sphalerite-galena mineralization has yielded assays greater than 19% combined lead-zinc and 380 g/t Ag. A geophysical survey was carried out.

Exploration work in the Anvil camp was concentrated on the GRUM deposit (105 K 3, 6) where Cyprus Anvil drilled 24 diamond drill holes for a total of 5,335 m of NQ and BQ core on claims GRUM 3, 4 and CHAMP 5, 7. Minor property work was also carried out by Cyprus Anvil on the TENAS CREEK claims (105 K 1) optioned from Welcome North.

BRX Mining and Petroleum Corporation carried out property work on the MEISTER claims (105 R 1), 30 km north of Rancheria. Weathered material is reported to have assayed 1.74% Pb, 7.10% Zn and up to 884 g/t Ag.

In the Frances Lake area, Cominco continued working on their FIN claims (105 H 12) which cover upper Paleozoic shale situated within a sequence of coarse clastic sedimentary rocks. A mudstone horizon has been located which is anomalous in Pb-Zn soil geochemistry. Geological mapping at 1:5,000 and 1:10,000 scales, soil geochemical sampling and a UTEM survey were conducted.

Hudson Bay investigated their RAB claims (105 G 14) north of the Pelly River which cover the transition horizon between the lower Paleozoic Mount Mye and Vangorda Formations. Work included geological mapping at 1:50,000 scale, max-min II EM ground survey and a proton magnetometer ground survey.

North of Teslin 45 km, Chevron Standard Ltd. worked on the BAR claims (105 C 8, 9), stratiform Pb, Zn, Ag, barite mineralization hosted in upper Paleozoic shale and chert. Geological mapping (1:25,000) and soil geochemical sampling programs were conducted to further define the stratigraphy, structure and distribution of mineralization.

Southwest of Ross River on Mount Cook (105 F 15), Amax and Procan Exploration worked on their GREW claims on which Upper Devonian-Mississippian fine grained clastic and volcanic rocks contain minor amounts of galena and sphalerite as veins and disseminations in chert. Geological mapping (1:5,000) and grid soil geochemical sampling programs were conducted.

Hudson Bay continued their evaluation of the Pelly Banks area (105 G 14), southeast of Ross River, where they explored for massive sulphides in highly metamorphosed allochthonous Klondike Schist-type rocks. They drilled four NQ holes for 455 m (on SHALE 40, 41, 42 and RENO 38) and three NQ holes for 250 m on EAGLE 20, 22, 63.

In 1982, reserve estimates were released on the Howards Pass property in eastern Selwyn Basin (105 I 6). Quoting a company release directly: "Placer Development Limited and Cygnus Mines Limited report that work carried out on their jointly held (51% and 49%, respectively) Howards Pass Zn/Pb property located on the Yukon-N.W.T. border has established drill indicated geological reserves calculated at approximately 125 million short tons averaging 5.4 percent zinc plus 2.1 percent lead. In addition, inferred reserves in excess of 400 million short tons are projected on the basis of known geology and limited drilling.

This mineral inventory applies to only two areas, the XY and the Anniv, where the bulk of the work has been concentrated. Limits to mineralization have not been established.

An economic analysis of higher grade mineralization localized in the XY area was recently undertaken. A drill indicated, diluted ore reserves of about 9 million tons grading 10.6 percent zinc and 5.5 percent lead was estimated for this evaluation. The evaluation concludes that underground mining and shipment of concentrate to toll smelters, under the assumptions made, would not be economically viable at this time."

The Cassiar Mountains in southern Yukon saw a flurry of activity in 1982 due to the MIDWAY Pb-Zn-Ag deposit (105 B 1). This Paleozoic shale hosted massive sulphide deposit is located only a few kilometres south of the Yukon border in northern B.C., and after 5,274 m of drilling in 15 holes this season, it is reported to still remain open to the north and south. Owners are Regional Resources Ltd. with current work financed by AMAX of Canada Limited and PROCAN Exploration Company and managed by Cordilleran Engineering. In addition to the base and precious metal mineralization, a 13 m thick barite occurrence located 600 m south of the B.C. - Yukon border has several assays in excess of 89% BaSO₄ with specific gravities over 4.2. Soil geochemical sampling in 1981 indicated a strong barium trend extends northward onto the Yukon claims over a distance of 2000 m, and at the north end of the trend, co-incident Pb, Zn, Ag soil geochemical anomalies are present. Work in 1982 included aerial photography and geophysics - horizontal loop pulse EM along 11 km of grid line. This EM work determined conductors co-incident with geochemical anomalies.

North of the Midway area, Regional Resources Ltd. also worked on the M.R. claims (105 B 1, 8) which cover stratiform Pb-Zn-Ag mineralization reported to be hosted in graphitic, locally calcareous phyllites of lower Cambrian age. They conducted geological mapping (1:10,000), soil geochemical sampling and trenching (25 m³) programs which resulted in an extension of the soil anomalies and the mineralized horizon. Northwest of the M.R. claims, the LOGAN claims (105 B 7, 8) of Regional Resources cover a vein system that cuts strongly sericitized granodiorite. The main vein is up to 1.5 m wide and consists of

massive to disseminated sphalerite in a quartz gangue with local intergrown chalcopryite, arsenopyrite, galena and cassiterite with variable silver content. Work in 1982 included prospecting, soil geochemical sampling and hand trenching. A float train of sphalerite boulders was located 400 m SW along strike from the main vein showing and several anomalous Zn, Ag and Sn zones in soil were determined elsewhere on the property. A grab sample of the massive mineralization is reported to assay 38.25% Zn, 0.01% Pb and 25 g/t Ag.

Sulpetro Minerals Limited conducted geological mapping and geochemical survey programs on the JONI claims, east of the MEL lead-zinc-barite deposit (95 D 6) northeast of Watson Lake.

East of Watson Lake, Serem Ltd. conducted geological mapping, prospecting and stream sediment geochemical sampling programs on the LOOTZ claims (95 D 7). The property is underlain by sedimentary and volcanic rocks of Paleozoic age which host minor vein-type galena mineralization.

Exploration interest has surfaced in the base metal potential of sedimentary rocks in the Coal and La Biche River areas in southeastern Yukon. This area has been only sporadically investigated in the past and is one of the few remaining patches of Selwyn Basin rocks that has not been the object of much exploration. Archer, Cathro and Associates were the main investigators in 1982, conducting both reconnaissance exploration and detailed property work on the MARS, TRANZ, RUSH, QUIVER, AUP, QUO and CUZ claims, the first three being financed by Kidd Creek Mines and the latter four by the ZX Joint Venture. The MARS and PUSH claims (95 C 13) are underlain by rocks of the Lower Earn Group and the TRANZ claims (95 C 5) by Road River shale. Geochemical anomalies on these properties were evaluated by reconnaissance scale geological mapping and geochemistry. The QUIVER claims (95 D 5, 12) cover very poorly exposed interbedded limestone, phyllite, quartzite and coarse grit of the Hadrynian Grit Unit. A previously known geochemical anomaly was evaluated by grid soil and selected rock geochemical sampling programs, but results were inconclusive. Similar rocks and another previously known geochemical anomaly occur on the AUP claims (105 A 8) on which geological mapping (1:20,000), grid soil and stream sediment geochemical sampling programs were conducted. Again, results were inconclusive. The QUO claims (95 D 6) are underlain by very poorly exposed Lower Cambrian clastic sedimentary rocks. Previous reconnaissance work had determined a soil and stream sediment geochemical anomaly which was investigated by further more detailed geochemistry. However, the previous anomalies were not reproducible. On the CUZ claims (95 D 5), interbedded phyllite, limestone, quartzite and coarse grit of the Grit Unit are cut by several small shear zones. A previously known geochemical anomaly was investigated by 1:20,000 and 1:5,000 scale geological mapping and grid soil, selected rock and stream sediment geochemical sampling programs. A zone of altered rocks cut by numerous small shears and coincident with a geochemical anomaly was determined.

A large group of claims north of Watson Lake, the GE claims of Kerr Addison Limited (105 A 2, 3, 6, 7), was evaluated by geological, geochemical and geophysical programs in 1982 by George R. Kent and Associates Ltd. Mapping was done at 1:50,000 scale

and stream sediment, soil and rock geochemical sampling programs were conducted, in addition to Crone J.E.M., C.E.M. and magnetic surveys.

TUNGSTEN, MOLYBDENUM, TIN

Tungsten exploration was prominent in 1982.

Canada Tungsten Mining Corporation continued working on their Dublin Gulch project north of Mayo (106 D 4), a scheelite deposit on Ray Gulch with a previously estimated tonnage of 5,454,546 tonnes grading 0.8% WO_3 . Scheelite mineralized marble horizons are interbedded with quartz-biotite schist country rocks intruded by granodiorite. Programs of geological mapping, soil geochemical sampling, EM-16 geophysical survey, trenching and diamond drilling were conducted. A total of 19 trenches was dug and 3 diamond drill holes (NQ core) totalling 750.6 m on the ALEC AND MAR claims. The diamond drilling revealed weakly tungsten mineralized skarn horizons located stratigraphically below the main deposit discovered in 1979.

West of Mayo in the Clear Creek area (115 P 14, 15), Canada Tungsten also worked on their Westridge project, the C.C. claims. Scheelite occurs in skarnified marble horizons interbedded with barren biotite-quartz schists, gold occurs in a stockwork vein system in granitic intrusive plugs and tin mineralization in zones of greisen and brecciation above the granitic plugs. Programs of geological mapping, soil and stream sediment geochemical sampling were conducted on claims C.C. 782 to C.C. 919.

Southeast of Mayo on Kalzas Mountain (105 M 7), Union Carbide Exploration Company worked on the WOLF, DAVID, PAT and BLACKIE claims. Mineralization consists of wolframite, scheelite and cassiterite in quartz veins and as stockwork fracture fillings in quartzite and meta-conglomerate of the Grit Unit. No intrusive rock has been located on the property. Geological mapping (1:2,000), rock geochemical sampling for tungsten and tin along 200 metre spaced grid lines, overburden and bedrock trenching programs were conducted. The rock geochemistry, prospecting and geological mapping indicate broad areas of tungsten mineralization and the trenching suggests bedrock grades of less than 0.1% WO_3 .

In the Ethel Lake area south of Mayo (115 P 8, 105 M 5), Amax evaluated their DRILL claims by geological mapping (1:12,000) and geochemical stream sediment programs. Mineralization consists of scheelite in widely spaced quartz-sericite-pyrite $\pm$ tourmaline veins hosted by sandstone of the Hadrynian 'Grit Unit.' Amax also prospected and geologically mapped (1:12,000) their DOPE claims near Clarke Peak southeast of Mayo (105 M 3). A weak gossan occurs in Devonian green chert pebble conglomerate on the property.

Hudson Bay Exploration and Development worked on several tungsten properties. The most advanced property is Risby Tungsten on the CAB claims west of Ross River (105 F 14), where a tonnage of 2.7 million tonnes of 0.81% WO_3 in two parallel zones is estimated. Scheelite mineralization occurs in two garnet diopside skarn horizons parallel to the contact with a Cretaceous quartz monzonite plug intrusive to the Lower Paleozoic sedimentary country rocks. In 1982, a program of minor geological mapping at 1:2,500 scale was conducted. They also worked on their nearby

RIG and SAM claims (105 F 14), which were located as a result of regional stream sediment geochemical sampling and prospecting. Scheelite occurs disseminated in massive pyrrhotite and garnet diopside skarn bands adjacent to a quartz monzonite plug. Geological mapping at 1:25,000 and locally 1:2,000 scales, local EM-16 and magnetometer surveys and minor hand trenching were conducted.

Noranda Exploration drilled nine holes totalling 719.4 m on their RAIL property northwest of Dawson City (116 C 8). Scheelite-bearing skarn occurs where marble is in contact with an intrusive granodiorite to biotite quartz monzonite stock.

West of Macmillan Pass, Hudson Bay worked on their SIM claims (105 D 2) where the target is scheelite mineralization associated with a Cretaceous pluton intrusive into Mississippian siltstones, sandstones and shales. Geological mapping (1:2,000), soil and stream sediment geochemical sampling programs were conducted. They also worked on the Moraine property on the COOT claims, south of Aishihik Lake (115 H 2). Pyrrhotite, chalcopryite, molybdenite and molybdo-scheelite occur erratically in skarn and marble exposed by trenching over several hundred metres along the contact with a quartz diorite stock. Soil geochemical sampling, magnetometer and EM-16 surveys were carried out and several pits were dug through shallow overburden to bedrock. Hudson Bay also worked on the TOD claims northwest of Watson Lake (105 B 9) which were staked as a result of a regional stream sediment geochemical sampling and prospecting program. Trace scheelite occurs in float derived from a poorly exposed garnet diopside skarn within Paleozoic biotite schist close to the contact with a biotite quartz monzonite stock. In 1982, a soil geochemical sampling program was carried out over 10 claims.

North of Rancheria, Serem Ltd. worked on the SOURCE claims (105 B 11) which are underlain by metamorphic rocks of the 'Grit Unit' intruded by granitic rocks of the Cassiar Batholith. Scheelite mineralization occurs in skarn near the contact with the intrusive rocks. During 1982, prospecting, rock and stream sediment geochemical sampling and preliminary geological mapping were conducted.

Amoco Canada Petroleum Co. Ltd. and Tintina Mines Ltd. continued evaluating the Red Mountain deposit east of Whitehorse (105 C 13, 105 F 4). A small, quartz monzonite porphyry stock has intruded and hornfelsed shales of the Big Salmon Complex. Both the quartz monzonite porphyry and hornfels were cut by a strong, multiple phase, quartz vein stockwork, stages of which were accompanied by molybdenite mineralization. Grade generally increases with depth and a substantial tonnage assaying +0.3% MoS₂ is indicated between 500 and 1,000 metres depth. Late, barren, acid dykes cut off the northern portion of the mineralized zone. The 1982 program consisted of four diamond drill holes (HQ, NO core) varying in depth from 860 m to 1,119 metres on claims BUG 1, 3, 5, 10.

Cominco conducted further drilling on their PLUTO porphyry molybdenum deposit northwest of Dawson (116 C 8). The property is underlain by quartz mica schist intruded by a Late Cretaceous porphyry stock. Veinlets of quartz and sericite with molybdenite, wolframite and pyrite occur in the quartz porphyry plug.

In eastern Selwyn Basin, AGIP Canada Ltd. continued working on their Emerald Lake property - the

ICE, FIRE and SUN claims (105 D 11). Uranium, copper, molybdenum, gold and tungsten vein-type mineralization occurs in the Emerald Lake intrusion and adjacent hornfelsed sedimentary rocks. Geological mapping (1:10,000 scale), rock chip and talus geochemical sampling programs were conducted and two trenches for a total of 40 m² were dug.

The DC Syndicate continued exploring their JC property in the Seagull Batholith (105 B 4). Mineralization consists of a stanniferous skarn situated at the contact of limestone and quartz monzonite. The easterly extension of the skarn was traced by 5 diamond drill holes totalling 731.7 m. Structural complications due to cross faulting were encountered.

J.C. Stephen Explorations Ltd., acting as manager for the DC Syndicate, explored the ABBA claims (105 C 9) east of Whitehorse for their tin potential. Complex skarn zones occur near the base of a sedimentary sequence intruded by porphyritic granite and pegmatite near the west contact of the Hake Batholith. Geological mapping at 1:2,400 and locally 1:1,200 scales, soil geochemical sampling and magnetometer survey programs were carried out. A small skarn zone with low tin content and magnetic indicated down dip extension was determined. On the nearby JAR claims (105 B 5), high tin and zinc geochemical anomalies are associated with small skarn zones in sedimentary rocks close to the Hake Batholith contact. Work consisted of 1:31,680 scale geological mapping and rock, talus and soil geochemical sampling programs.

Two tin prospects associated with the Seagull Batholith, the ROAD claims and the MUN claims (105 B 3) were investigated by the D.C. Syndicate. On the former, low grade tin mineralization occurs in a magnetite bearing skarn and 1982 work consisted of minor geological mapping (1:1,200 scale) and a magnetometer survey. The MUN claims bear low grade tin and tungsten mineralization related to small skarn zones above the Seagull Batholith. In 1982, two diamond drill holes (BQ core) were drilled, one for 76.2 m on MUN 77 and the other for 77.7 m on MUN 79.

Northeast of Teslin, D.C. Syndicate worked on their FF claims (105 C 8) which cover the west contact of the Hake Batholith biotite granite with sedimentary rocks of Paleozoic age. Several skarn bodies are targets for tin-tungsten mineralization. Geological mapping (1:5,000), rock geochemical sampling and selected magnetometer profiles were done in 1982.

GOLD, SILVER, (LEAD, ZINC)

Precious metals were again a major interest, most targets being somehow associated with either Late Cretaceous or Cenozoic plutonism.

The largest program was maintained by AGIP Canada Ltd. on their Mt. Skukum property (KIKU, CHIEF, WOLF claims) (105 D 3) where 29 holes were drilled (HQ, NO, BO core) totalling 3,325.6 m. Property work included geological mapping (1:10,000), soil and rock geochemical sampling and ground magnetometer surveys. Precious metal mineralization is associated with fissure filled veins hosted in continental volcanic rocks of late Cretaceous to early Cenozoic age. Twenty km to the west, on the east side of Primrose Lake, minor property work was carried out by Canadian Nickel Company Limited on the RAM claims (105 D 4) where zones of argillic alteration are associated with

faults within a porphyritic rhyolite plug. Geological mapping (1:5,000), trenching and rock geochemical sampling programs were carried out. To the south, in the northwest quadrant of the Eocene Bennett Lake Cauldron, AGIP staked the GLENLIVET claims as a geochemical target (105 D 3).

Northwest of Whitehorse on the south side of Teslin Mountain, Canadian Nickel Company Limited investigated an epithermal vein stockwork alteration zone 100 m by 50 m in size on the TES claims (105 E 2). The zone contains chalcedony veins, jasperoid veins, silicified breccia, calcite and clay minerals and is hosted in a Tertiary porphyritic diorite.

On the south side of Mt. Byng, AGIP worked on their GAMMON claims (105 D 16) which are underlain by late Cretaceous continental volcanic rocks intruded by a plug of hornblende syenite. Geological mapping (1:10,000) and soil, stream sediment and rock geochemical sampling programs were conducted.

Golden Slipper Resources Inc. and Logan Mines Ltd. prospected and trenched a geophysical anomaly 500 m from a previously known showing on the Jubilee property near Marsh Lake (105 D 1). Gold, silver and copper mineralization is reported in three of the trenches, the best assay being 6.72 g/t Au, 56.91 g/t Ag and 1.47% Cu. The previously known mineralization consists of pyrite and arsenopyrite lenses within a limonitic shear zone in Cretaceous(?) volcanic rocks.

West of Carmacks, Archer, Cathro and Associates Ltd. investigated several properties for their precious metal content. Seven drill holes totalling 637 m were drilled on the LILYPAD property (115 I 5), where veins fill fissures in volcanic rocks of late Cretaceous age intruded by a pink syenite plug. Geological mapping and geochemical programs were also conducted on their NUCLEUS (115 I 6), NITRO (115 I 6), NARNIA (115 F 9) and NAIAD (105 D 3) properties.

On Freegold Mountain, Arctic Red Resources worked on their Laforma deposit (115 I 6) where reserves were estimated at 62,220 tonnes grading 15.08 g/t Au at the cessation of mining operations in 1966. They carried out underground mine rehabilitation and conducted underground drilling in the fall to prove up additional reserves. Mineralization consists of a precious metal-quartz fissure filling in early Mesozoic granitic rocks.

Nearby to the east on Tinta Hill (115 I 7), Silver Tusk Mines Ltd. and Panther Mines Ltd. proceeded with their underground exploration of several precious base metal quartz veins hosted in granodiorite. Previous work in 1981 was on the No. 1 and No. 2 veins which are exposed for 213.4 m on the No. 2 portal level. Sampling results in the No. 2 portal are as follows:

Vein	3W	4W
Length (m)	31.1	35.7
Average		
Width (m)	0.61	0.53
Au g/t	7.5	27.7
Ag g/t	118.6	695.5
Cu (wt %)	0.77	3.56
Pb (wt %)	1.3	6.53
Zn (wt %)	3.77	6.82

Eastern Selwyn Basin is a relatively new area that is being explored for precious metals. The ROSS claims (105 O 1) of Hudson Bay Exploration and Development Co. Ltd. are about 25 km southwest of

Macmillan Pass and are underlain by sedimentary rocks intruded by a felsic dyke. Mineralization consists of vugs and stringers of arsenopyrite associated with clay and sericite altered areas within the dyke. Programs of geological mapping (1:50,000), and rock geochemical sampling of 9 small hand trenches were conducted. Forty km west of Macmillan Pass, a similar target was investigated by AGIP Canada Ltd. on the BRICK and NEVE claims (105 O 7). There, quartz, realgar, stibnite veinlets occur within phyllically altered quartz porphyry dyke intrusive to shale and siltstone. Geological mapping (1:10,000), soil and rock geochemical sampling and ground magnetometer survey programs were conducted. In the Old Cabin Creek - Emerald Creek area in the Rogue Range of the Hess Mountains, Union Carbide Exploration Corporation conducted geological mapping programs on three claim groups, 1:10,000 scale on the OLD CABIN (105 O 11, 12) and EMMY (105 O 6) claims and 1:20,000 scale on the ETZEL claims (105 O 12). Low grade gold values are associated with silicified hornfels and highly fractured hornfels with quartz-pyrite-arsenopyrite veinlets near the margins of Cretaceous granitic plutons.

On the Ketz River in the Pelly Mountains, Iona Industries Inc. conducted a geological mapping program at 1:5,000 scale on the KEY 18 and 3 claims (105 F 9). Minor underground production on a sporadic basis has taken place over the past few years on these argentiferous galena veins hosted mainly in Paleozoic sedimentary rocks.

The Logjam property (105 B 4) of A.M.P. Exploration was explored in 1981 by underground drifting 14.3 m on the #4 vein in the lower adit on the 5150 level. Both Pure Silver and A.M.P. financed 1982 work which consisted of repairing and building the access road from the Logtung property, installing a new camp, legal claim and control surveys and sampling of the vein. Precious and base metal mineralization occurs in a steeply dipping quartz-arsenopyrite-galena-sphalerite vein system that cuts a diorite dyke about 300 m wide. The veins are located on the periphery of the Logtung tungsten-molybdenum porphyry deposit, to which they are probably related.

Canada Tungsten Mining Corporation Ltd. continued working on their Keno Project - the ZAP, RAILROAD, ARC and WERNECKE claims (105 M 13, 14). Silver-bearing galena veins occur in vein faults cutting metasedimentary rocks consisting of massive quartzite, interbedded graphitic schist and minor greenstone units. An airborne electromagnetic survey was conducted over the area and 15 overburden drill holes were drilled.

Archer, Cathro and Associates mined 63,683 tonnes of high grade silver mineralization from the Sadie-Ladue vein system on Keno Hill. The ore graded 5481 g/t Ag, 16.64% Pb and 4.06% Zn.

Cima Resources Limited extended reserves and outlined a second deeper horizon by drilling three holes on their Mt. Hundere property (105 A 10) north of Watson Lake. Prior drill indicated reserves were 263,200 tonnes grading 10.14% Pb, 11.18% Zn and 133.03 g/t Ag. Mineralization consists of coarse grained galena, sphalerite and calc-silicate minerals in a gently dipping manto within a mixed carbonate-clastic sequence in the Hadrynian Grit Unit.

Prism Resources had a much reduced program on their Vera property (106 C 5) at Rusty Mountain north

of Mayo. Underground chip sampling in 1981 gave the following numbers:

	Length(m)	Width(m)	Silver(g/t)	Lead(%)
West Zone	131.1	3.1	696.3	6.25
East Zone	148.4	1.8	960.3	7.3

In 1982 they concentrated on surface prospecting and trenching which resulted in discovery of a float train 213 m west of the Vera portal that may be an extension of the Vera vein. Five km south, a new vein was discovered consisting mainly of tetrahedrite disseminated in dolomite. One sample across 0.92 m assayed 3% Cu, 0.25% Pb, 0.76% Zn, 8073 g/t Ag and another across 2.4 m, 0.83% Cu, 0.14% Pb, 0.65% Zn and 2040 g/t Ag.

In Wernecke Mountains near Dolores Creek, Texaco Canada Resources Ltd., conducted property work on their IOTA claims (106 C 13, 14). They are underlain by Helikian clastic and carbonate sedimentary rocks intruded by a breccia body and mineralization consists of precious and base metals in a quartz-carbonate-sulphide vein.

In the northern Ogilvie Mountains, a silver-rich vein system in Paleozoic sedimentary rocks, the Rusty Springs property, was further investigated by the diamond drilling of 359 m. A vein in the order of 6m wide is reported to have been determined.

Klondike Silver Mines further explored and trenched galena-tetrahedrite veins on their ANT claims east of Rancheria (105 B 2). A small tonnage of high grade ore was mined from the property.

COPPER

In the Whitehorse Copper Belt, Whitehorse Copper Mines diamond drilled a skarn target - the North Star (105 D 11), a roof pendant of limestone, quartzite and skarn in diorite. A total of 2606.7 m (NQ core) was drilled and scattered low grade copper intersections were encountered.

United Keno Hill Mines Ltd. conducted further work on their claims northwest of Carmacks (115 I 6, 7), the HI, FIL, STU, and NOON CLAIMS. The copper mineralization in gneisses was explored by bulldozer trenching, HI - 19,564 m³, FIL - 6,297 m³, STU - 13,835 m³ and NOON - 9,222 m³. Malachite mineralization was discovered in bedrock in trenches on the HI and STU claims, but nothing of interest on the FIL and NOON claims.

Northeast of Teslin, J.C. Stephen Explorations worked on the CAL claims (105 C 8) for D.C. Syndicate. Previously staked as the SURE THING and JACKALOO, copper-silver mineralization is associated with small skarn zones near the contact with the Hake Batholith. Geological mapping (1:31,680) and talus geochemical sampling programs were conducted.

North of Teslin, the D.C. Syndicate worked on the ORK claims (105 C 9) which are underlain by sedimentary rocks intruded by leucogranite and pegmatite. Mineralization consists of massive pyrrhotite and chalcopyrite in conformable beds interbedded with quartzite. Work in 1982 consisted of geological mapping (1:5,000), magnetometer and max-min electromagnetic surveys and soil geochemical sampling (Sn, W, Cu Zn).

Mattagami Lake Exploration worked on three copper properties in northern and central Yukon. The TOUCHE claims in the northern Richardson Mountains (106 L 13,

116 I 16) contain minor sphalerite, chalcopyrite and galena in a vein system cutting Road River shales and Cambrian clastic rocks. Work in 1982 consisted of geological mapping (1:10,000), grid soil geochemical sampling, EM 16 surveys and about 16 blasted pits on grid sites. The work resulted in the definition of soil geochemical anomalies and the location of several minor veins. The MELA and DALE claims northeast of Dawson (116 B 7) contain chalcopyrite-bearing quartz-siderite veins cutting Precambrian phyllites. Work consisted of geological mapping of the eastern claims at 1:10,000 scale and evaluation of the veins' potential. North of Dawson, the MARN claims (116 B 7) cover a chalcopyrite, scheelite-bearing skarn developed within Permian limestone beneath a sill-like protrusion of the Cretaceous Mt. Brenner Stock. Work consisted of geological mapping of the southern half of the claim block at 1:5,000 scale.

East of Ross River, SMD Mining Co. Ltd. worked on their AM claims (105 J 3, 4), which are underlain by a granodiorite intrusion and related porphyry dykes in fine grained clastic sedimentary rocks. Quartz vein stockwork zones with Mo-Cu-Ag mineralization are present. Programs of detailed geological mapping, soil geochemical sampling and a ground magnetic survey were conducted.

NICKEL

Halferdahl and Associates Ltd. worked on the Bur property for the Bur Syndicate. The claims WEN, JO, etc. are located northwest of Kluane Lake (115 G 6) and cover a thick mafic to ultramafic sill. Geochemical survey and diamond drilling programs were conducted. Geochemical anomalies were determined at or near the lower contact of the sill and 3 drill holes (BQ) totalling 273 m were drilled on claims WEN 3, 5 and JO 6.

URANIUM

A minor amount of uranium exploration was conducted in 1982. Uranerz Exploration and Mining Limited conducted geological mapping and geophysical programs south of Carmacks over the GREAK claims (115 H 16) that they co-own with the Central Electricity Generating Board of London, England. Low grade uranium mineralization is associated with clay mineral alteration in a minor shear zone and major fracture system.

Archer, Cathro and Associates Ltd. worked on several claim groups in the Wernecke Mountains on behalf of the Wernecke Joint Venture. Copper, gold, uranium mineralization associated with Proterozoic diatreme breccia bodies is the general target. Geological mapping and geochemical sampling were conducted on the PIKE (106 E 1), DEMON (106 E 2) and APE (106 C 13) claims. In addition, a geophysical survey was conducted on the PIKE claims and geological mapping only on the FLAT (106 E 4). Eight diamond drill holes were drilled for 1044.5 m on the IGOR (106 E 2) claims.

ASBESTOS

Archer, Cathro and Associates worked on the TURK and TATER claims for Brinco and Exploram. The TURK claims (116 C 7) are located along Easter Creek

northwest of the Clinton Mine airstrip and cover compound asbestos veins up to 1.3 cm wide hosted within light apple green, moderately to highly sheared serpentinite. A fibre dispersion survey was conducted which consisted of collecting soil samples in order to measure their asbestos content. Two bulldozer trenches, 50 m and 100 m long respectively, were dug into a fibre dispersion survey anomaly and moderate to highly sheared serpentinite and red quartz-carbonate rocks were exposed. The TATER claims (116 C 7) are located on the northeastern side of Clinton Creek. Several serpentinite bodies that are hosted within graphite and chlorite schists are highly sheared or altered to quartz-carbonate. Asbestos fibres up to 1 cm long are present at several localities in the serpentinites. 1982 work consisted of a fibre dispersion survey and two shallow bulldozer trenches about 50 m and 150 m long respectively.

BARITE

Mattagami Lake Exploration worked on two claim groups with barite mineralization - the HEIDI and BANG-ON. In the Hart River area (116 H 6), the HEIDI claims host barite veins within Road River Formation limestone. Detailed geological mapping was conducted at 1:50,000 scale. The BANG-ON claims near the Ogilvie River (116 G 8) also host barite veins within Road River Formation limestone and they were similarly geologically mapped and prospected.

COAL

Sulpetro Minerals Limited conducted a gravity survey on their Rock River Coal Licences northeast of Watson Lake (95 D 11, 14). The accumulation of sub-bituminous Tertiary coal is estimated to be approximately 50 million tonnes.

MISCELLANEOUS PROGRAMS

East of Watson Lake, Serem Ltd. worked on their SPRUCE claims (95 D 7) with programs of geological mapping (1:31,680, 1:63,360), stream sediment and soil geochemical sampling and a magnetometer survey.

North of Dawson City, Mattagami Lake Exploration geologically mapped their TAK claims (116 B 10) at a scale of 1:10,000. The claims are underlain by an east-trending clastic sedimentary sequence ranging in age from Cambrian to Cretaceous that is intruded by numerous syenite and lamprophyre dykes.

South of Dawson City, Eldorado Nuclear Ltd. conducted geological mapping (1:5,000) and soil, stream sediment, pan heavy mineral concentrate and rock geochemical sampling programs.

RECONNAISSANCE EXPLORATION

The level of reconnaissance exploration, similar to the low activity in property evaluation, was much reduced from that in 1981. Lead, zinc and silver were sought for with regional prospecting and stream sediment, rock and soil geochemical sampling methods in the Macmillan Pass area and in the Pelly River area southeast of Ross River by Hudson Bay Exploration and Development, in the Misty Creek embayment north of Macmillan Pass by a Kidd Creek Mines - Enterprise Exploration Joint Venture, in the Tay River area

northwest of Faro by Anaconda and in southeast Yukon by Utah Mines Ltd.

Amax conducted a reconnaissance program for tungsten in the Nidderly Lake and Sekwi map areas (105 O P). A regional search for copper by United Keno Hill Mines northwest of Carmacks led to the staking of the TOOT and POON claims. Uranerz prospected for uranium in south central Yukon and Homestake for precious and base metals in much of Yukon.

PLACER MINING

The placer industry operated at a reduced level during 1982. The number and size of mining operations, and the amount of gold produced declined. Exploration, staking, and evaluation activities also declined. Decrease in the price of gold caused recession of the industry. From a value of approximately \$670.00 U.S. per ounce in October 1980, the price fell throughout 1981 to a low of approximately \$310.00 U.S. per ounce in June, 1982. At that time, the start of the 1982 mining season, it seemed possible that the price might fall even further.

Mining costs on properties with higher than average gold contents and gold fineness, and with slightly lower than average mining costs are approximately \$190.00 per ounce of gold produced. Mining costs on properties with average gold contents and gold fineness, and with average mining costs are approximately \$345.00 per ounce of gold produced. Considering that these mining costs do not include capital costs and financing charges, it is not surprising that some mining operations were restricted and others curtailed when faced with the gold prices current in spring 1982.

The numbers of placer mining related water use authorizations issued during various years provide an indication of the relative levels of mining activity during those years. There were 194 such authorizations issued in 1979, 317 in 1980, and 365 in 1981. There were 324 issued by mid September during 1982. Of the 324 authorizations issued, approximately 225 covered active mining operations.

There was a reduction in the number of large individual mining operations along with the reduction in total number of mining operations. During 1979, nine operations had 10 or more employees. There were 15 such operations in 1980, and about 20 in 1981. In 1982, there were eight.

Several companies prominent during 1981 did not mine in 1982. Territorial Gold Placers Ltd., Goldmark Minerals, and Peter Kiss Oil Field Construction Ltd. had mining operations at three or more sites each during 1981, but were not active during 1982. Gold Run Investors, Teck Corp., and Nugget Drilling had the largest individual mining operations in 1981. They did not mine during 1982, although Teck did stripping in preparation for future mining, and Nugget Drilling did exploratory work. Territorial Gold Placers and Gold Run Investors were both in receivership in 1982, after being victims of falling gold prices in 1981.

Mining operations active during 1982 provided approximately 270 man-years of work for 650 employees. The secondary impact of the industry resulted in approximately 375 man-years of additional work for 760 employees in Yukon, and in further work outside the territory.

Mining was carried out in the Sixtymile, Klondike, Clear Creek, Mayo, Burwash and Carmacks regions, as well as in other widely distributed areas. Mining and processing methods in use during 1982 differed little from those used in 1981. Attention was paid to waste water quality in anticipation of standards to be established for the 1983 season. Sizing of gravel prior to sluicing was done at an increased number of operations in an effort to achieve optimum gold recovery with minimum use. More, and larger settling ponds were constructed at many mine sites.

According to royalty records, gold production between January and July 1982 was lower than for the same months of 1980 and 1981. However, production between August and December 1982 was higher than presaged by the January to July figures. This higher than predicted production between August and December may be related to the increase of the price of gold to \$400.00 U.S. per ounce in August. Production may have been spurred, or gold held in reserve may have been sold due to the increased price. Total production for the year is 1,842,355 grams of fine gold, virtually the same as 1980 production, or 75% of 1981 production.

Yukon placer gold production is significant in terms of national gold production. It has climbed from 0.19% of total Canadian gold production in 1970 to 3.77% in 1980 and up to 5.0% in 1981. However, it declined in 1982 to 2.9% of total Canadian production.

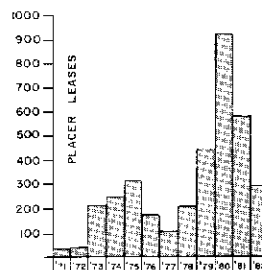
Exploration activity decreased during the year. The low price of gold during the first eight months of 1982 provided little incentive for exploration. The most notable discovery of the season was the identification of an auriferous deposit of White Channel type gravel on Paradise Hill, Hunker Creek, approximately 1,100 m away from the creek and previously worked deposits of the same type.

Staking activity also decreased during 1982. There were 3,896 new claims and 261 new leases staked in 1982, compared with 6978 new claims and 510 new leases during 1981, and 3,558 new claims and 895 new leases during 1980. Most of the activity during 1982 was restaking of lapsed claims and leases, and conversion of leases to claims. Little previously unstaked ground was staked.

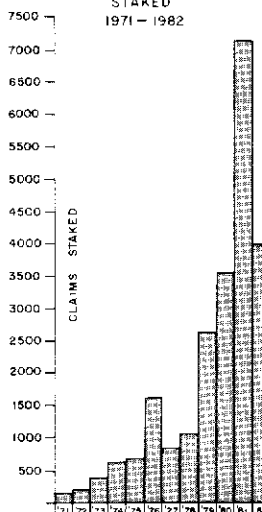
The total line distance of claims and leases held in good standing in 1982 decreased during the year. This decrease was mainly due to the lapsing of more than 300 leases staked two years earlier at the height of the rush to acquire placer properties.

Evaluation activity also decreased. Drilling was done on fewer properties than in 1981. Where it was done, it was done on a local scale to evaluate individual deposits rather than on a reconnaissance scale to evaluate the potential of large areas. One large new mining operation was begun on Bonanza Creek at the foot of Lovett Gulch as a result of drilling done early in 1982. Some trenching and bulk sampling programs were done. A few of those programs were carried out on tailings as little as one year old, in an attempt to determine the efficiency of new processing equipment in recovering very fine-grained gold not recovered during previous processing. No new mining operations resulted from programs testing the new equipment. It is notable that exploration, staking, and evaluation activities all increased during August when the gold price reached \$400.00 U.S. per ounce. Some programs which had been curtailed earlier in the year were resumed.

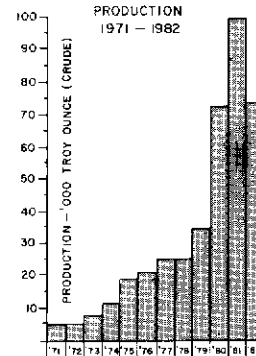
PLACER LEASES
STAKED
1971 - 1982



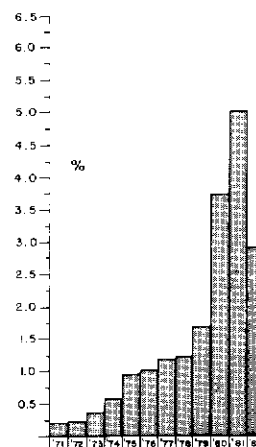
PLACER CLAIMS
STAKED
1971 - 1982



YUKON PLACER
GOLD
PRODUCTION
1971 - 1982



YUKON PLACER
PRODUCTION
CANADIAN
PRODUCTION X 100



Origin of the Clinton Creek Asbestos Deposit

by

Grant Abbott
Exploration and Geological Services Division
D.I.A.N.D.
Whitehorse, Yukon

INTRODUCTION

Asbestos in most Cordilleran deposits has been considered a product of fracturing, metasomatism and thermal metamorphism of ultramafic rocks by Mesozoic intrusions (Budinski 1969, Gabrielse 1960, 1963, Hewett 1978, and Htoon, 1974). Such a history has been postulated for the exhausted asbestos deposit at Clinton Creek, 77 km northwest of Dawson City, Yukon. This report, based on a 5 day visit during July 1981, contains another interpretation of the mine geology. It is based on the premise that the ultramafic host rocks represent slices of oceanic crust thrust onto the North American craton during Mesozoic arc-continent collision (Tempelman-Kluit 1979). A critical fossil occurrence demonstrates that intensely deformed asbestos bearing serpentinite and other cataclastic rocks are tectonically interleaved with weakly deformed Triassic and older (?) shale and sandstone of the younger, southwestern part of the Cordilleran miogeocline. Brittle fracturing, hydration and asbestos formation likely occurred during final emplacement of the ultramafic rocks onto the wet miogeoclinal strata.

Archer Cathro and Associates and Cassiar Asbestos Corp. kindly provided accommodation and access. Scott Murray gave the writer a thorough, informed tour. D.J. Tempelman-Kluit reviewed the manuscript and suggested worthwhile revisions.

REGIONAL SETTING

Rocks originally included with the Yukon Group underlie Clinton Creek and Dawson map area southwest of Tintina Trench. McConnell (1905) and Green (1972) recognized five subdivisions: Namely meta-sedimentary rocks of the Masina Series, sheared granitic rocks of the Klondike Schist, unnamed ultramafic rocks, metavolcanic rocks and granitic gneiss. Tempelman-Kluit (1979) extrapolated his work in the Pelly Mountains and included these rocks in the Yukon Cataclastic Complex, except possibly the Masina Series. He considers the Masina Series the outboard part of the Cordilleran miogeocline. The Cataclastic Complex is a tectonic melange, containing slabs of oceanic crust (Anvil Allochthon), trench sediments (Nisutlin Allochthon) and exotic crustal fragments of igneous rocks possibly derived from the root of a volcanic arc (Simpson Allochthon). All were sheared and imbricated during subduction and/or arc-continent collision.

LOCAL GEOLOGY

Clinton Creek is within the unglaciated Yukon - Tanana upland and bedrock exposures are scarce. This report is therefore based mainly on observations in the abandoned Porcupine and Snowshoe open pits, from nearby exposures on Clinton and Wolverine Creeks and from road cuts in the same area. Most of these exposures are visible in Figure 1. Others occur intermittently for about 10 km along the mine access road and on Wolverine Creek. They are out of the picture to the bottom left and to the right respectively.

Near the mine, Green (1972) mapped serpentinite lenses and related ultramafic rocks within quartzite and graphitic quartzite of the Masina Series. Htoon (1979, 1982) mapped ultramafic rocks and subdivided the Masina Series into four units. He thought that some of these rocks resemble the Klondike Schist.

The writer saw two groups of rocks distinguished lithologically and by differences in intensity of deformation and grade of metamorphism. One group comprises sheared or schistose ultramafic, igneous and sedimentary (?) rocks. The other, includes comparatively undeformed and unmetamorphosed shale, and siltstone. Though generally unmetamorphosed these rocks locally include phyllite and phyllonite.

Sheared Assemblage

The sheared assemblage includes serpentinite, diorite, amphibolite and schist of uncertain origin. Except the serpentinite they display a prominent flaser or a pervasive foliation defined by alignment of metamorphic minerals (Figure 2). Foliation is poorly developed in some of the igneous rocks. Metamorphic grade is greenschist facies and primary textures were not observed.

Serpentinite forms lenses a few meters to 200 (?) meters thick. Aeromagnetic anomalies, vegetation anomalies (vegetation is commonly thin or absent over serpentinite) and limited outcrop data suggest that most lenses have long dimensions about 10 times their thickness. The largest serpentine hosts asbestos ore in the Snowshoe and Porcupine Pits. 'Fish scale' textures are characteristic but not present everywhere (Figure 3). This texture results from irregular, subparallel intersecting cleavage or shear planes. Commonly, parallel, gently dipping, discrete surfaces are intersected by splays of less well developed, S-shaped cleavage. The spacing of shear planes ranges from about 30 cm to less than 1 mm. In cross-section, this pattern looks like a conjugate joint set, but surfaces also splay and converge in the third dimension. Outcrops exhibiting fish-scale texture characteristically break into asymmetric, lozenge shaped fragments. Most chrysotile bearing rock of ore grade is massive and blocky. In a few places,

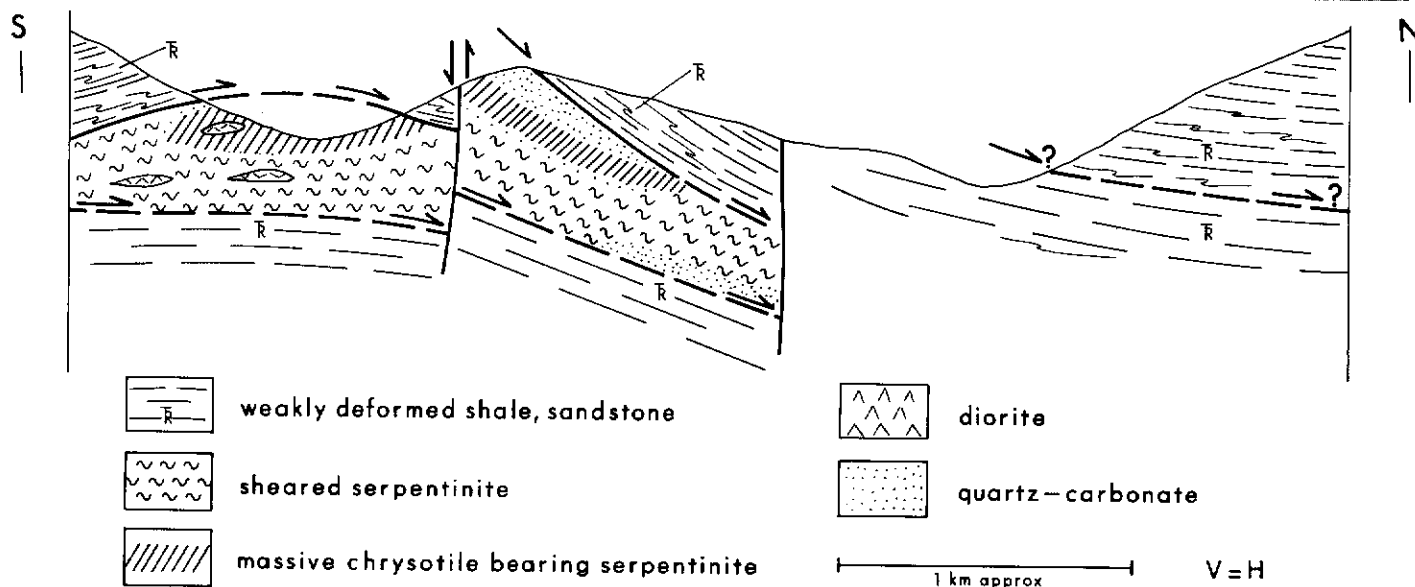


Figure 1. Looking west to the Snowshoe and Porcupine open pits. Thrust faults bound the asbestos bearing serpentinite. The lower thrust is shown with open teeth and the upper thrust is shown with solid teeth. Normal faults cut the thrusts.

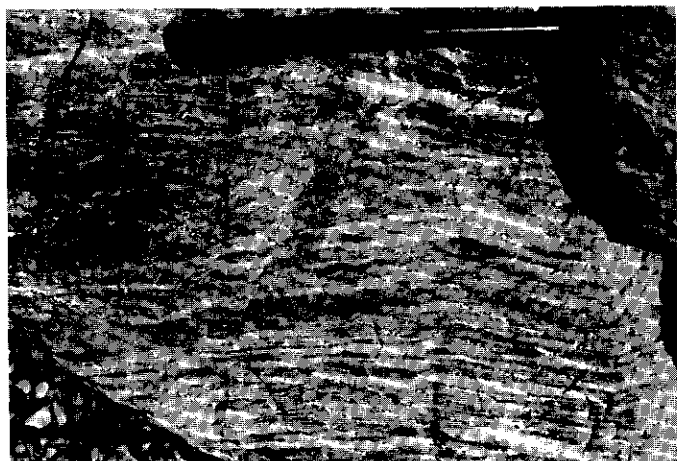


Figure 2. Meta igneous rocks such as these are exposed along the mine access road. They typically display a strong flaser fabric, defined by anastomosing mafic and leucocratic bands.

asbestos bearing veins also mimic fish scale texture, but most asbestos bearing fractures are oriented in different directions at high angles to one another. Massive serpentinite without chrysotile veins is also common.

Orange weathering, quartz-carbonate alteration forms discontinuous, sheets up to 30 m thick along the hangingwall and footwall of the ore bearing serpentinite. Quartz carbonate is also exposed with serpentinite along the mine haul road, but these exposures are poor and their relationship is unclear.

The quartz-carbonate is massive with coarse



Figure 3. Serpentinite typically displays 'fish scale' structure defined by anastomosing cleavage or shear planes.

irregular shaped quartz blebs in orange carbonate.

Htoon (1979) reports that the alteration includes quartz, chalcedony, opal, and magnesite with less ankerite, dolomite, chromite and picotite and rare mariposite, calcite and huntite. Pit exposures show that quartz carbonate replaces asbestos and lacks fractures like those hosting asbestos. Quartz carbonate therefore postdates the asbestos. It probably post dates most penetrative deformation, because it lacks the cleavage of the country rocks.

Sheared amphibolite and hornblende diorite occur as lozenge shaped lenses within the serpentinite and as separate bodies, about the same size as the ultramafic rocks. Penetrative fabrics in these rocks vary more than in others. Some rocks are fairly massive, others display a strong mineral alignment and still others are schistose with a strong flaser fabric defined by anastomosing compositional laminae.

Diorite lenses in serpentinite have massive black, fine grained alteration rinds up to 30 cm thick termed blackwall alteration by mine geologists. The rinds are not present everywhere and shears separate serpentinite from rinds and diorite. Diorite therefore, intrudes the ultramafic rocks, but predates shearing and deformation. Their timing relative to serpentinization is not clear.

Lustrous orange-brown weathering quartz muscovite schist and green weathering quartz-muscovite-chlorite schist, chlorite schist, and amphibolite comprise most exposures on the mine access road. They have a well developed foliation, ranging from a schistosity with aligned platy minerals to a flaser, in which compositional layering is defined by discrete, anastomosing foliation planes comprised of concentrations of mafic minerals.

The amphibolite is thought to be meta-igneous and the chlorite schist, metavolcanic. The quartz-muscovite-chlorite schist may also be igneous, but some is quartz rich and/or contains coarse, opalescent blue quartz grains suggestive of a sedimentary origin. These rocks are similar to the Klondike Schist. McConnell (1905) considered it to be a sheared granitic rock in its type area near Dawson, but Cockfield (1927) and Green (1972) presented evidence for a sedimentary origin. Tempelman-Kluit (pers. com. 1982) agrees with McConnell.

The ultimate origin of the highly sheared assemblage is uncertain. The serpentinite, amphibolite and chlorite schist are most like Tempelman-Kluit's (1979) Anvil Allochthon, and quartz-muscovite schist and quartz-muscovite-chlorite schist, if meta-igneous, like Simpson Allochthon and if meta-sedimentary, like Misutlin Allochthon.

Contacts within the intensely sheared and with other rocks assemblages are tectonic. The rocks apparently lack stratigraphic order. Relative ages are unknown. Radiometric dates obtained by Htoon (1981) give Permian ages for amphibolite, greenstone and quartz-muscovite schist, 278 ± 10 Ma (K/Ar) for amphibolite, $245 \pm$ Ma (K/Ar) for quartz-muscovite schist, and 255.8 ± 23 Ma (Rb/Sr) for greenstone and quartz muscovite schist.) Htoon considers that the dates indicate a metamorphic event and the strong metamorphic fabric of these rocks supports this

conclusion.

Weakly Deformed Assemblage

Weakly deformed shale, siltstone and sandstone are exposed above, below and adjacent to the ore bearing serpentinite. The least deformed exposures are on Clinton Creek downstream from the lake outlet, on Wolverine Creek and in road cuts downstream from the junction of Clinton and Wolverine Creeks (Figure 4). These rocks are recessive, buff and dark grey weathering platy, calcareous, graphitic sandy limestone, sandstone and graphitic argillite or mudstone. Cross beds up to 5 cm across are characteristic of the sandstone. The greatest exposed thickness is about 30 m. Just downstream from the mouth of Wolverine Creek, a borrow pit exposes the sharp, moderately dipping contact between these rocks and overlying quartz carbonate alteration and serpentinite. The shales are sheared and the contact is tectonic. The relationship of the other exposures to the serpentinite is not known.

Locally sheared sedimentary rocks are exposed above serpentinite in both open pits. In the Porcupine Pit, they form a gently dipping sequence with three equally thick members totalling about 100 m. The lowest member is black, sooty, graphitic siliceous shale; the middle is dark grey, thin, well bedded, graphitic, limy quartz arenite and black shale (Figure 5), and the upper member is with a varicoloured thin-bedded sequence of black slate, orangy brown weathering silty phyllite a few thin beds of pale green tuffaceous phyllite.

Phyllitic rocks like the upper member in the Porcupine Pit are exposed in road cuts and outcrops north of Clinton Creek and Hudgeon Lake (Figure 2). They are a thick sequence of light brown weathering, impure grey shale, siltstone and some micaceous sandstone. Underlying rocks are the weakly deformed buff weathering limey sandstones already described. In places the phyllites display two cleavages and appear to be more intensely deformed than the underlying rocks. This contrast may mean that the contact between the two groups is a thrust.

Along the lower reaches of Clinton Creek, cleaved and folded shale and siltstone and tuffaceous phyllite, belong to the weakly deformed assemblage. Some of the more highly cleaved green phyllites may belong to the sheared assemblage. Highly sheared rocks tectonically overlie the phyllites in some places and may underlie them in others.

A sample of sandy limestone from the middle quartz arenite member in the Porcupine Pit yielded a single conodont fragment. M. Orchard of the Geological Survey of Canada considers the conodont (G.S.C. Loc. No. C102345) middle or late Triassic (pers. com. 1983). Most of the weakly deformed assemblage resembles Triassic rocks in Selwyn basin. Micaceous sandstone like that north of Clinton Creek resembles transported synorogenic clastic rocks described by Tempelman-Kluit (1979) from five localities in central Yukon. He considers those rocks to be upper Triassic or Jurassic and to be westerly derived from Teslin Suture Zone during the early



Figure 4. Weakly deformed Triassic shale and calcareous sandstone is exposed along Clinton Creek between Wolverine Creek and Hudgeon Lake. Note the contrast between the planar bedding in this photograph and the metamorphic fabric shown in Figure 2.

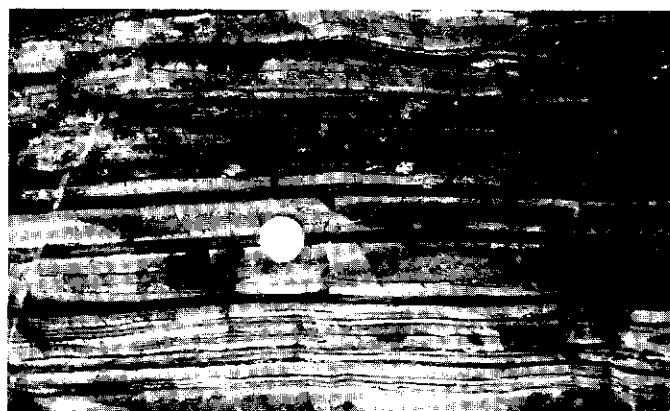


Figure 5. Weakly deformed calcareous sandstone exposed in the Porcupine Pit above serpentinite. These rocks have yielded Triassic conodonts and are similar to those shown in Figure 4. The coin is 3 cm across.

stages of arc-continent collision. Unlike those at Clinton Creek, the rocks described by him contain coarse mylonite fragments or other rock types from an active orogen. At Clinton Creek, the micas and the immature aspect of strata are evidence of such a source.

STRUCTURE

Two penetrative fabrics with related folds and thrust faults and several steep faults have been recognized. The penetrative fabrics and thrust faults are late Paleozoic - Mesozoic and probably related to arc-continent collision. The steep faults cut the penetrative fabrics and are younger than other structures.

Steep Faults

Vertical and northeast or west trending faults are best displayed in both open pits (Figure 1). The fault with the largest known displacement truncates the northwest side of the orebody. There are no markers or serpentinite on the northwest side of the fault and the sense of movement is uncertain, but the amount of movement must exceed 100 m, because that is the thickness of the exposed serpentinite. The fault is marked by a disturbed zone several meters wide.

A second fault, similar to the first, separates ore in one pit from that in the other. Displacement of the serpentinite-shale contact is between 50 and 100 m with the southeast side down.

A few other faults are exposed on the south wall of the Porcupine Pit. They parallel the larger faults, displace markers 1 to 3 meters, differ in movement sense and are knife sharp (Figure 6).

In other areas with less exposure, steep faults, related to those in the open pits are suggested by the juxtaposition of different rock types.

Penetrative Fabrics

Fossil and radiometric ages and contrasts in intensity of deformation and grade of metamorphism demand that the two groups of rocks at Clinton Creek be tectonically juxtaposed after development of a cataclastic fabric in one group and that there be more deformation this group than the other. Htoon (1979) showed that two foliations, one deforming the other, are present in 'schistose rocks', but he did not recognize that schistosity is confined to one group. He described the second cleavage as a Gleitbrett. The 'fish scale' texture within serpentinite may reflect two or more phases of deformation.

In the weakly deformed assemblage a single cleavage is generally parallel to or subparallel to bedding and dips at a low angle. The few folds are recumbent, isoclinal, less than 2 m across and have westerly trending axes. Intensity of cleavage varies from place to place. Exposures beneath serpentinite along Clinton Creek near the mine site appear almost undeformed. In contrast those above serpentinite in



Figure 6. Gently dipping shear zones that roughly parallel the shale-serpentinite contact and bedding are well exposed in the Porcupine Pit. This photo shows a sandstone boudin about 2 m thick. It is enclosed by sheared shale and cut by a late normal fault.

the open pits have a stronger cleavage. In places they are phyllonites with local breccia zones roughly parallel to bedding (Figures 6 and 7). Brown weathering micaceous phyllite north of Hudgeon Lake and Clinton Creek unlike most other phyllite, exhibits two cleavages.



Figure 7. Close-up of sheared and brecciated shale and sandstone from Figure 6. Coin is 3 cm across.

Schistosity and cleavage have similar orientations where both are exposed. Orientation of bedding and penetrative fabrics varies from place to place. The strike is generally west to southwest and the dips range from 0° to 45° north and south. These variations may represent a late phase of broad open folding (Htoon 1979).

Thrust Faults

Thrust faults must separate the cataclastic rocks from the less deformed sedimentary rocks. Only the two that bound the ore bearing serpentinite are obvious (Figure 1). The lower thrust surface is in a borrow pit just east of the mouth of Wolverine Creek where quartz carbonate alteration lies directly on the Triassic shale. The contact dips north at about 40° and cannot be traced far. The upper thrust is in both open pits. From a distance it appears to be sharp and separates quartz-carbonate alteration or serpentinite from Triassic shale. The surface roughly parallels bedding in the shale. It is gently curved and the serpentinite appears through a window beneath the shale. This 'window' may reflect late folding of the thrust, or it may reflect the shape of the serpentinite. The second alternative is favoured because the ultramafic rocks are discontinuous lenses.

Other thrusts are likely but have not been recognized. Contrasts in intensity of deformation such as that seen north of the mine may indicate such structures. Contacts between different rock types within the highly sheared assemblage are tectonic but most are likely old and related to shearing that predates obduction.

Elsewhere in Yukon, along Teslin Suture Zone, the tectonic history is simpler than at Clinton Creek. Tempelman-Kluit (1980) has shown that the allochthonous Yukon Cataclastic Complex, in the Pelly Mountains, is a discrete package, separated by thrust faults from underlying autochthonous, miogeoclinal strata. Three assemblages of the Complex are thrust bounded and stacked in the same order. Nowhere, are the cataclastic rocks interleaved with, or overthrust by, less deformed miogeoclinal rocks. The three cataclastic assemblages are presumed to have been tectonically assembled before being thrust on to the Ancient North American margin.

ORIGIN OF ASBESTOS

Asbestos at Clinton Creek could be related to granitic intrusions, late normal faulting or shearing and thrusting with the third most likely. Htoon (1979) favoured a mechanism related to Cretaceous granitic intrusions, but he also stated that the nearest intrusion, a small one, is 5 km west of the mine. The nearest intrusion mapped by Green (1972) is 16 km away. Metamorphic aureoles surrounding most plutons in Yukon are less than a kilometer wide and there is no thermal metamorphic or other evidence near the ore deposit to indicate a buried intrusion. Fracturing and asbestos veining like that in the Clinton orebody are unlikely to result from an unexposed pluton for which there is no evidence.

Diorite and gabbro lenses within the ore body predate shearing and asbestos formation and cannot be appealed to as a late hydrothermal source.

Normal faults are also unlikely to be related to asbestos formation because they have consistent attitudes, are sharp, and are widely spaced; unlike the irregularly oriented, closely spaced asbestos bearing fractures. Although the faults are likely younger than asbestos, cross-cutting relationships were not seen.

The asbestos bearing fracture system differs from the shearing and thrust faulting, but the two are thought to be genetically linked. Htoon (1979) showed that asbestos bearing fractures have several orientations in any exposure (Figure 8) and are randomly oriented when the whole orebody is considered. In contrast, bedding, cleavage, thrusts



Figure 8. Asbestos bearing fractures are typically irregularly oriented. These are from the Snowshoe Pit.



Figure 9. In places, massive serpentinite is enclosed by more highly sheared rocks. The orebody may represent a similar but larger lens.

and shears near the orebody have consistent orientations. This contrast and the fact that fractures of the kind hosting asbestos are confined to serpentinite may reflect the greater competence and massive blocky nature of the serpentinite in comparison to enclosing shales. If so, serpentinite probably contains asbestos elsewhere only if it is a lens in less competent rocks.

'Fish scale' texture is only locally developed within the orebody. Either that part of the orebody was never deformed or was reserpentinized after development of the 'fish scales'. The first possibility is suggested by the nearby occurrence, on a small scale, of massive lenses enclosed by more highly sheared rocks (Fig. 9). No matter which possibility

is correct, a prerequisite for ore formation is massive serpentinite in which brittle fracturing is possible.

The time of asbestos formation is limited as follows. Most asbestos veins are undeformed and younger than cleavage in shales and the 'fish scales' in serpentinite. The random orientation of fractures suggests that they formed under low confining pressures. The geometry and contact relations of quartz carbonate alteration are evidence that asbestos predates imbrication of serpentinite with enclosing shale. The alteration forms selvages on the margin of the serpentinite along thrust contacts. Adjacent shales exhibit no veining or other alteration that are expected if alteration followed thrusting. The

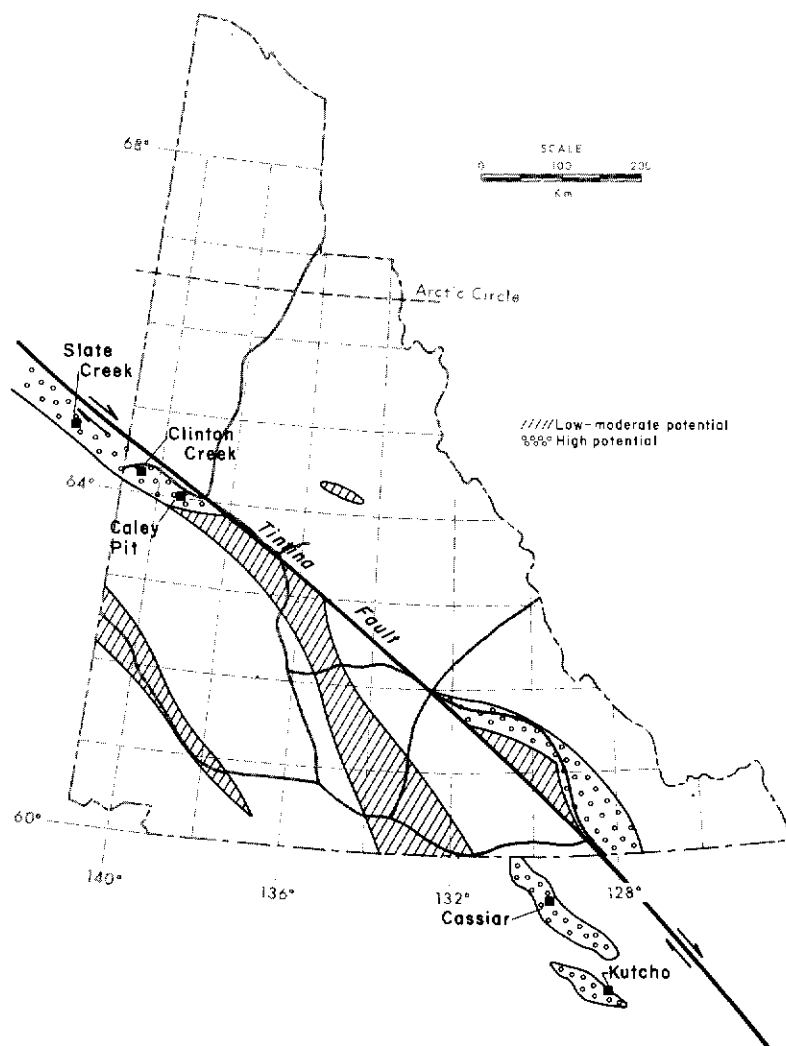


Figure 10. Areas with high potential for discovery of large asbestos deposits are thought to be underlain by ultramafic rocks that are near the leading edge of thrust surfaces along which they were emplaced. Large deposits occur in these areas. Other areas with large to moderate potential are those underlain by ultramafic rocks in different tectonic settings.

alteration replaces asbestos veins and is younger.

Granitic rocks have been considered the source of water and heat to form asbestos. Htoon, (1979, p. 145) cited evidence that asbestos can form below 100°C. A granite heat source is therefore unnecessary because such temperatures can be formed at shallow depths, under normal geothermal gradients. Water to form serpentine and chrysotile may derive from enclosing sedimentary rocks.

EXPLORATION POTENTIAL

If asbestos formed at low temperatures and shallow depths during the late stages of obduction and imbrication of serpentinite, areas where more deposits are likely to be found are in Teslin Suture Zone and the leading edge of thrust slices of ultramafic rocks (Fig. 10). Three other large asbestos deposits in western Canada and Alaska are in this zone. They are, the Slate Creek deposit about 40 km northwest of Clinton Creek in Alaska, the Caley Pit near Clinton Creek and the Cassiar Creek deposit in Northern British Columbia. An exception may be the Kutcho deposit located in Northern British Columbia. Near known deposits, recognition of the fact that serpentinite is in fault bounded lenses or sheets and that there is a genetic relationship between these faults and ore should result in new drill targets.

References

- BUDINSKI, D.R. 1969, September. Geology of the Clinton Orebody; Western Miner, p. 30-32.
- COCKFIELD, W.E. 1921. Sixtymile and Ladue Rivers area, Yukon; Geol. Surv. Can., Memoir 123.

- GABRIELSE, H. 1960. The Genesis of Chrysotile Asbestos in the Cassiar Asbestos Deposit, Northern British Columbia: Ec. Geol., Vol. 55, p. 327-338.
- GABRIELSE, H. 1967. McDame Map-Area, Cassiar District, B.C.: Geol. Surv. Can., Memoir 319, 139 p.
- GREEN, L.H. 1972. Geology of Nash Creek, Larson Creek and Dawson map areas, Yukon Territory (106 n, 116 A, 116 B and 116 C (E 1/2), Operation Ogilvie; Geol. Surv. Can., Memoir 364, 157 p.
- HEWETT, F.G. 1978, April. The Cassiar Story: Geology: C.I.M. Bull. p. 56-63.
- HTOON, M. 1979. Geology of the Clinton Creek asbestos deposit, Yukon Territory, unpublished M.Sc. thesis, University of British Columbia, 194 pp.
- HTOON, M. 1981. Isotopic Age Determinations of some metamorphic and igneous rocks from Clinton Creek Area, Yukon; Yukon Geology and Exploration, Geology Section., D.I.A.N.D., Whitehorse, p. 65-67.
- McCONNELL, R.G. 1905. Report on the Klondike gold fields; Geol. Surv. Can., Ann. Rept. (New Series), Vol. XIV, 1901, Pt. B, 71 pp.; also as separate publ. No. 884; reprinted in Bostock, 1957, p. 64-113.
- TEMPELMAN-KLUIT, D.J. 1979a. Five occurrences of transported synorogenic clastic rocks in Yukon Territory; Geol. Surv. Can., Paper 79-1A, p. 1-12.
- TEMPELMAN-KLUIT, D.J. 1979b. Transported Cataclasite, Ophiolite and Granodiorite in Yukon: Evidence of Arc-Continent Collision; Geol. Surv. Can., Paper 79-14, 27 pp.

Geology of the EPD Stanniferous Breccia Deposit,
McQuesten Area, 115 P, Yukon

by Diane S. Emond

Ottawa Carleton Centre for Geoscience Studies

Introduction

The EPD property is located in central Yukon, (Fig. 1) 30 km northwest of Mayo, just south of the McQuesten River. Tin, zinc, and silver anomalies found in stream sediment samples of Oliver Creek in 1977 led to staking of the EPD claims in 1978. Over 300 m of diamond drilling between 1979 and 1981 (area on Fig. 1) explored targets outlined by soil sampling on the slopes above Oliver Creek.

This paper is based on detailed logging of drill core in the summer of 1982 supplemented by petrography of selected samples, and geochemistry values for sections of the drill core provided by Billiton Canada Ltd. Core logging was done using the methods of the 'Geolog' system (Blanchet and Godwin, 1972). This preliminary report outlines the geology, mineralogy, and petrogenesis of the EPD stanniferous breccia. Further laboratory studies will be incorporated in a M.Sc. thesis at Carleton University, Ottawa, Ontario.

GENERAL GEOLOGY

Metamorphic Rocks

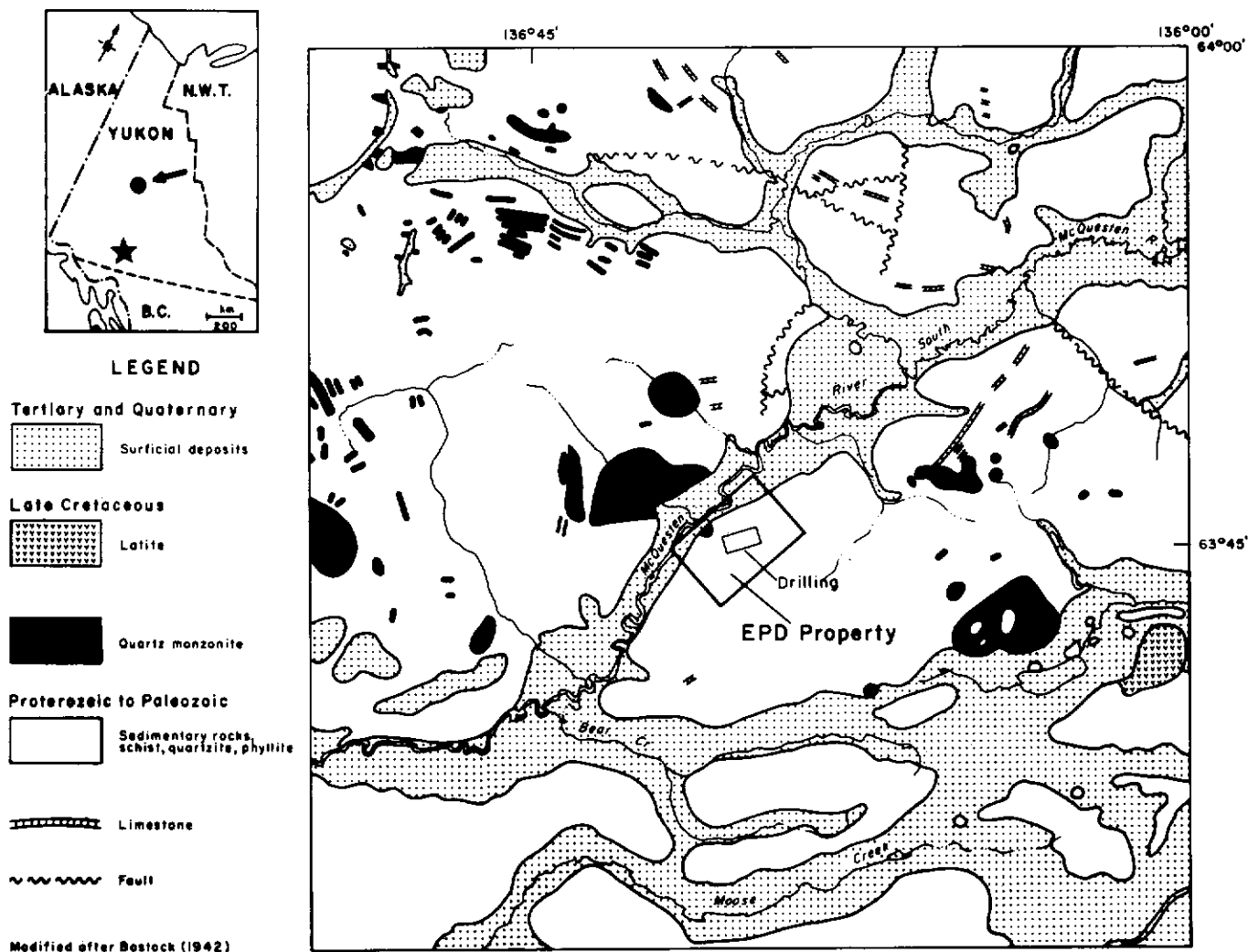


Figure 1. Geology and locations of the McQuesten River area (after Bostock, 1964) and location of EPD property. Oliver Creek flows north through the central part of the property.

The region is underlain by quartzite and schists which are interpreted by Tempelman-Kluit (1981) as Upper Precambrian to Lower Cambrian Grit Unit (Fig. 1 - white unit). The quartzite, quartz-chlorite schist, chlorite schist and quartz-mica schist contain minor amounts of intercalated marble, calc-silicate, and amphibole (+ pyrrhotite) schist. Cataclastic deformation and complicated folding resulting in transposition foliation and mylonitic textures inhibit correlation between drill holes. Abundant marker horizons of marble, calc-silicate and amphibole schist and closely spaced drill holes in the eastern part of the area enable some lithologic units to be matched (Fig. 2). The prominent foliation dips shallowly to moderately to the south.

porphyroblastic zone.

Igneous Rocks

Numerous, small, high level quartz-monzonite plutons intrude the McQuesten area. They range from 83 to 108 Ma (K/Ar, Sinclair, et al., 1981a). Porphyritic quartz-monzonite outcrops in the northwestern corner of the property and may be connected to the Boulder Creek stock across the McQuesten River. It locally contains fractures filled with fluorite and tourmaline. Several of the intrusions in the McQuesten River area have associated mineralization (i.e. tungsten at Scheelite Dome, tungsten and tin at Dublin Gulch).

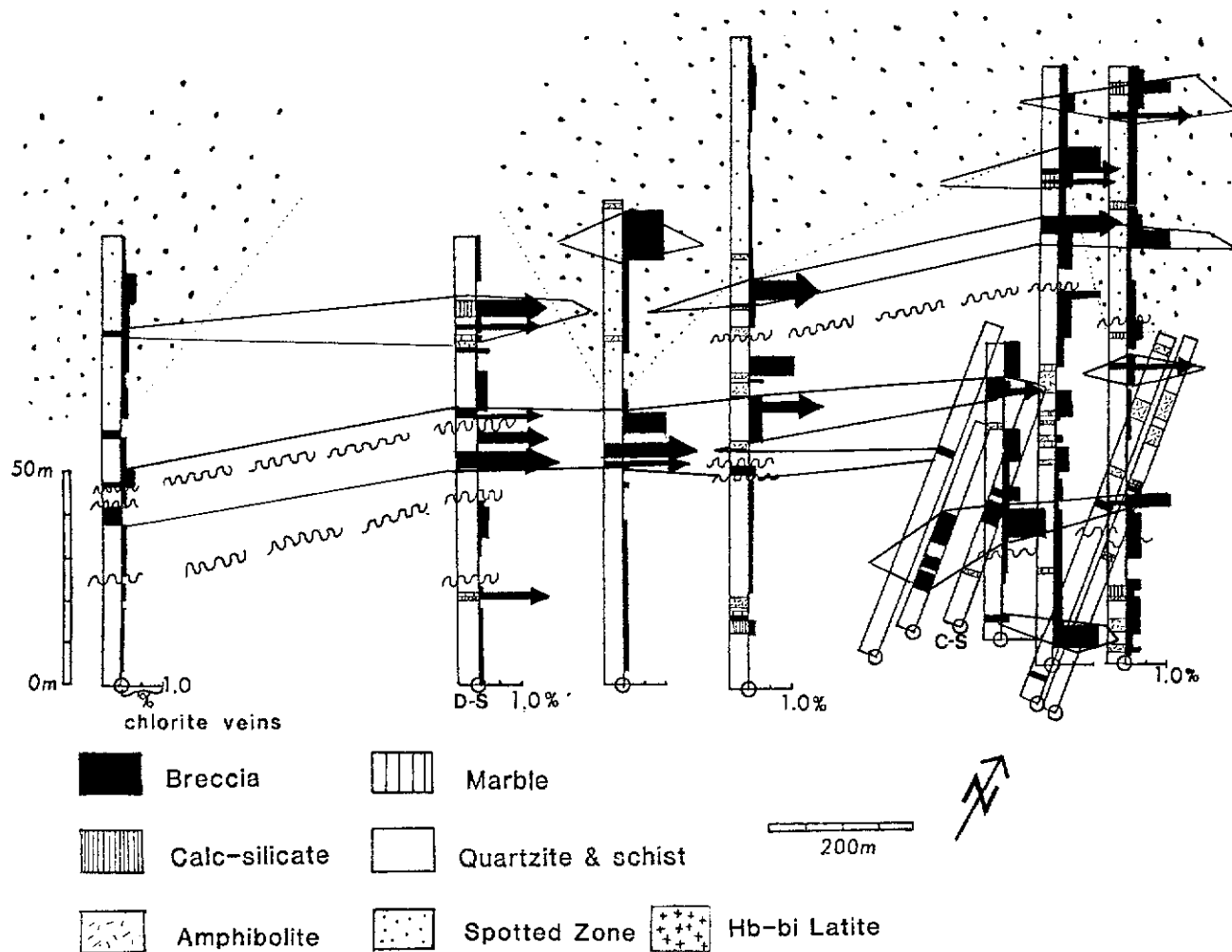


Figure 2. Geology and volume % chlorite veins per rock unit in the EPD drill area - Plan View. The outlined bodies are approximate boundaries of alteration/breccia zones.

Below 70 m depth, chlorite and biotite schists contain scattered andalusite porphyroblasts which are partially altered to sericite + biotite. This spotted rock outcrops north of the area of drilling. Drilling has outlined the porphyroblastic zone seen in plan view in Figure 2. Surrounding the nearby Scheelite Dome intrusion, Kuran (1980) has described a similar

Hypabyssal sills and dykes and probable volcanic equivalents are present. A biotite-quartz porphyry dyke on nearby Mount Haldane has cassiterite-greisen mineralization at its contact with quartzite. The dyke has been dated at 89.0 ± 2.6 Ma (Biotite, K-Ar - Stevens et al, 1982). Near Minto Lake, 20 km east of EPD, columnar jointed hornblende-biotite latite is

interpreted as an extrusive rock and has been dated by the G.S.C. at 85.3 ± 2.1 Ma (Whole rock K-Ar - Personal Communication, W.D. Sinclair - 1982).

Breccias.

The breccia bodies are vein-like in shape and can be traced between most drill holes (Fig. 2). The veins strike generally east and dip 70° or more south (Fig. 3), pinching and swelling irregularly along strike. They are most common in the eastern part of the drill area, the main type being a rock flour breccia of 70-90% angular quartzite fragments in a finely comminuted matrix of similar composition (Fig. 4). Sub-parallel gouge zones commonly cut the breccias.

A second breccia type cuts both the earlier rock flour breccia and country rock. It consists of 50-80% rock fragments (mainly quartzite) in a matrix of various compositions that are used to distinguish the breccia phases. Locally, the rock flour matrix has been altered to another mineral (ie. chlorite, tourmaline). Petrographic examination indicates the

following sequence of crystallization in the matrix: from first to last, quartz, tourmaline, biotite, muscovite, chlorite, and calcite-fluorite (Fig. 5). The matrix is commonly monomineralic, but in some places several phases occur together, such as tourmaline-chlorites, and tourmaline-muscovite. Figure 6 indicates that 6 main stages of mineral deposition took place.

The final stage is depicted mainly by limonite, but also includes some manganese oxide and minor malachite/azurite stain. These minerals are found in fractures in both the country rock and breccia zones.

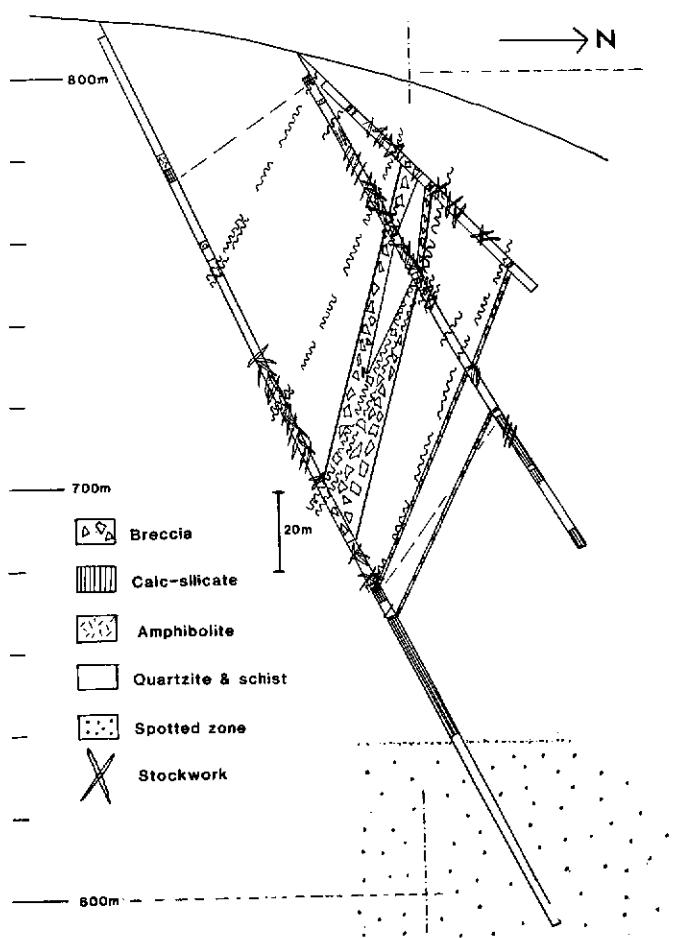


Figure 3. N-S cross section at DDH's 13-7-8 (denoted by "C-S" on Figure 3).

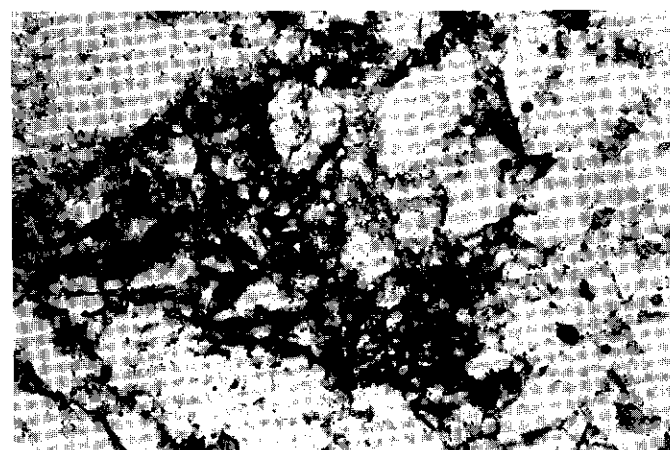
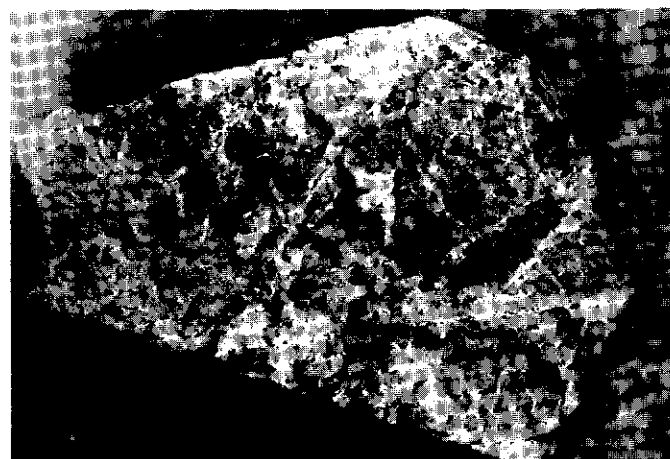
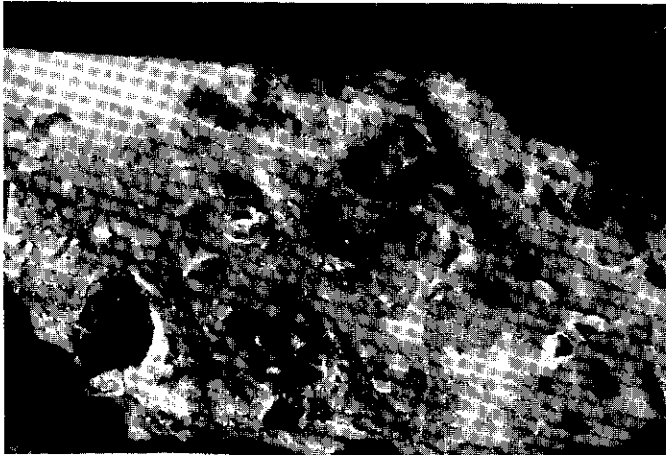


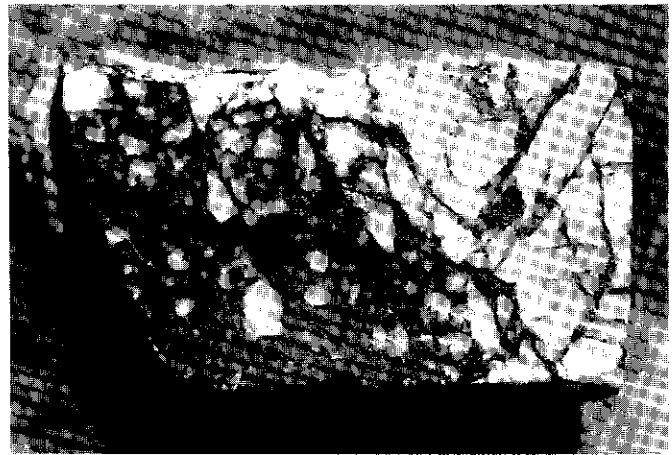
Figure 4. Rock Flour Breccia. Quartzite fragments with ground-up quartz matrix. a) rock sample. Field of view - 7.3 cm. b) thin section. Field of view - 0.55 cm.

Tin Mineralization

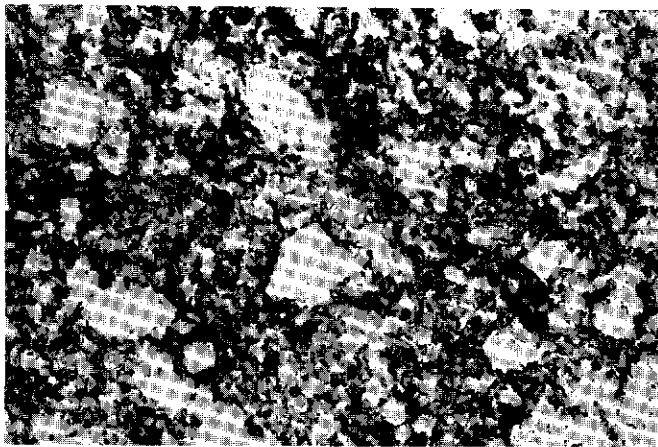
Tin mineralization appears to be mainly associated with chlorite vein and breccia zones. Cassiterite, the only tin mineral present, occurs both as fragments of crystal aggregates (monomineralic vein material) in a chlorite matrix, and as small crystals disseminated in the chlorite matrix of some breccias (Fig. 7). Cassiterite also occurs locally in the fractures of the rock flour breccia, and in



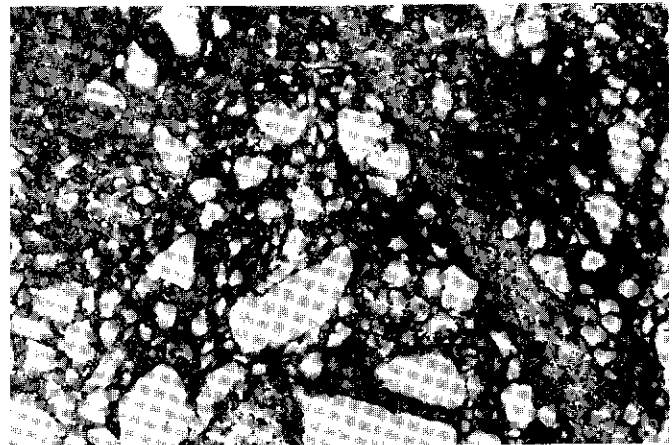
a



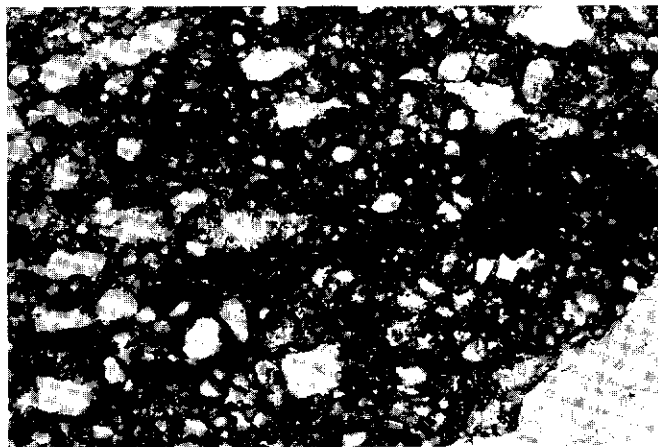
b(i)



b(ii)



b(iii)

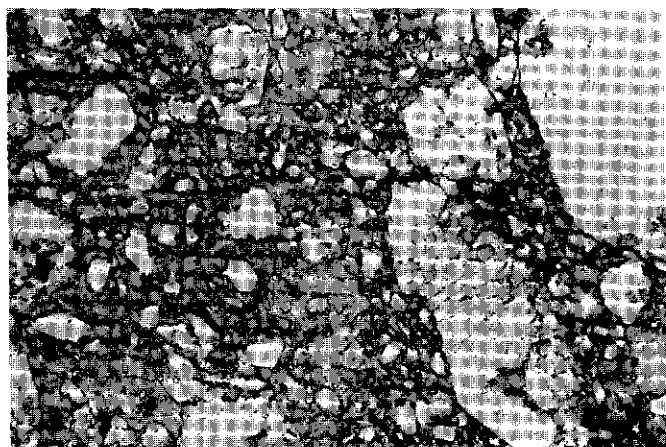


c

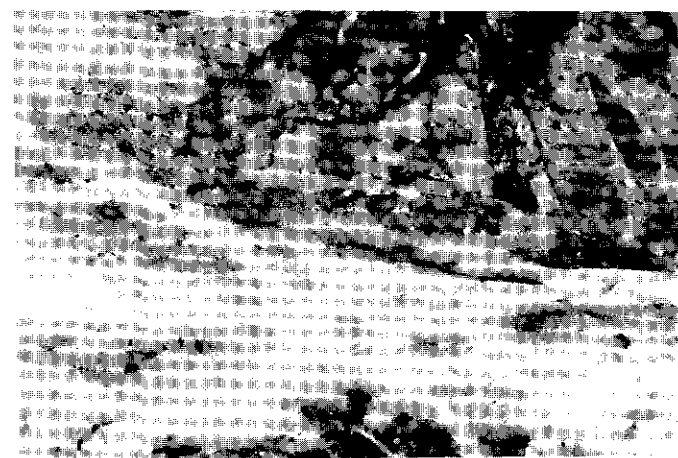
Figure 5. Hydrothermal Breccias.
a) Quartz breccia. Field of view - 7.5 cm.
b) Tourmaline breccia:
i) rock sample. Field of view - 7.5 cm.
ii) thin section - note tiny tourmaline crystals in matrix. Field of view - 0.55 cm.
iii) thin section - note cross-cutting tourmaline vein. Field of view - 0.55 cm.
c) Cassiterite breccia clast in chlorite breccia - thin section, the clast has a dark cassiterite matrix with quartz and cassiterite fragments. Field of view - 0.09 cm.



d(i)



d(ii)



e

Figure 5 (continued).

- d) Chlorite breccia:
 - i) rock sample. Field of view - 7 cm.
 - ii) thin section. Field of view - 0.55 cm.
- e) Calcite fluorite stockwork cutting quartz breccia. Field of view - 7 cm.

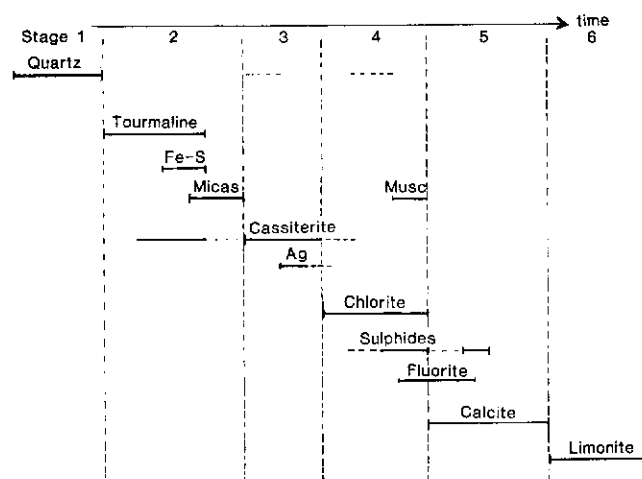


Figure 6. Paragenesis diagram for alteration minerals at EPD.

some tourmaline breccias. In addition, sphalerite and chalcocopyrite are in the matrix of some chlorite breccias.

The tin mineralization is erratic in concentration. It is anomalously high only locally within the breccias and is irregularly dispersed therein. Anomalous tin concentrations at EPD are in the order of approximately 0.5 to 1.5% Sn over several meters width of breccia. Tin and silver are also anomalous usually over the same general area (breccia zones), but not coincident. These metals are in the range of 17 to 120 g/t Ag and 0.2 to 2.0% Zn over several meters width.

Alteration

During drill core logging, estimates were made of the amount of vein material in each rock unit. The proportion of the rocks occupied by vein chlorite (% per rock unit) is plotted in figure 2. This graph along with others which were made for quartz and tourmaline show that the amount of alteration generally increases towards the breccia zones. As breccia zones are approached, the amount of stockwork generally increases as does the amount of fracturing of the country rock (Fig. 3). From Figure 2, six east-striking parallel zones of alteration can be traced from hole to hole, following fault and breccia zones. Similar to the breccia zones, the zones of alteration pinch and swell. In the eastern part of the area, (the Discovery Zone), several alteration zones are depicted, but in the western part most of these zones do not continue. In some cases, the marble, calc-silicate, and amphibole schist also contain a greater amount of alteration than the surrounding quartzite.

Drill hole 16 (the second furthest west), shown in detail on Figure 8, is an example of variation in the abundance of chlorite, tourmaline, quartz and calcite veining, tin and silver. Two styles of quartz veins were distinguished during the core logging-concordant and discordant. The concordant veins were probably secreted out along foliation planes during regional metamorphism and are metamorphogenic. Discordant veins were probably formed by later

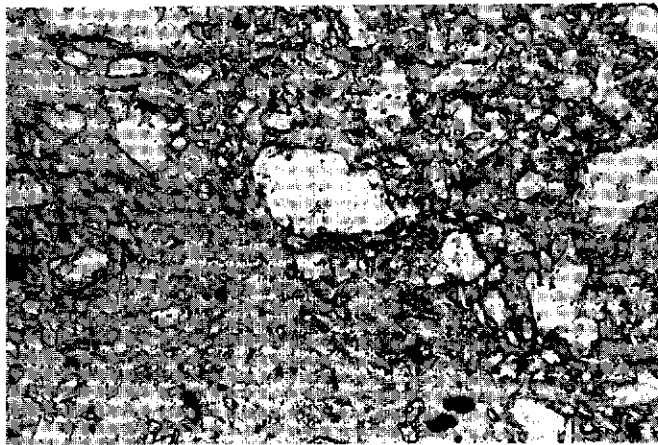
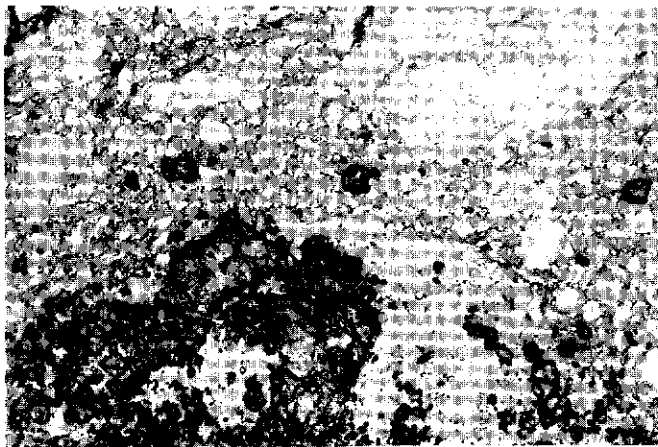
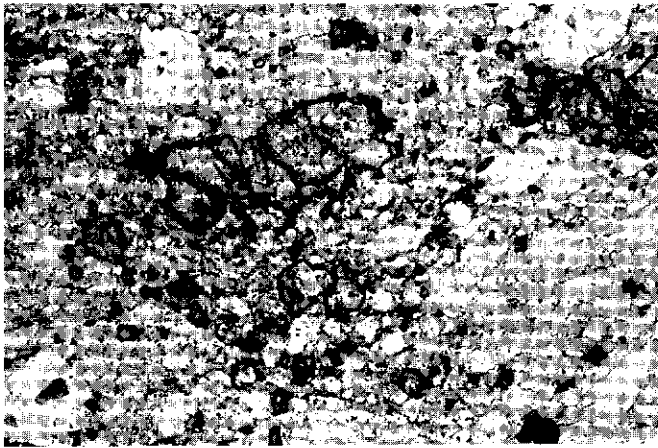


Figure 7. Cassiterite in chlorite breccia.
 a) Fragments of monomineralic cassiterite crystal aggregates. Field of view - 0.55 cm.
 b) Fragments of cassiterite mineral aggregates in a chlorite clast within a chlorite breccia. Field of view - 0.55 cm.
 c) Disseminated fine grained cassiterite in chlorite matrix. Field of view - 0.55 cm.

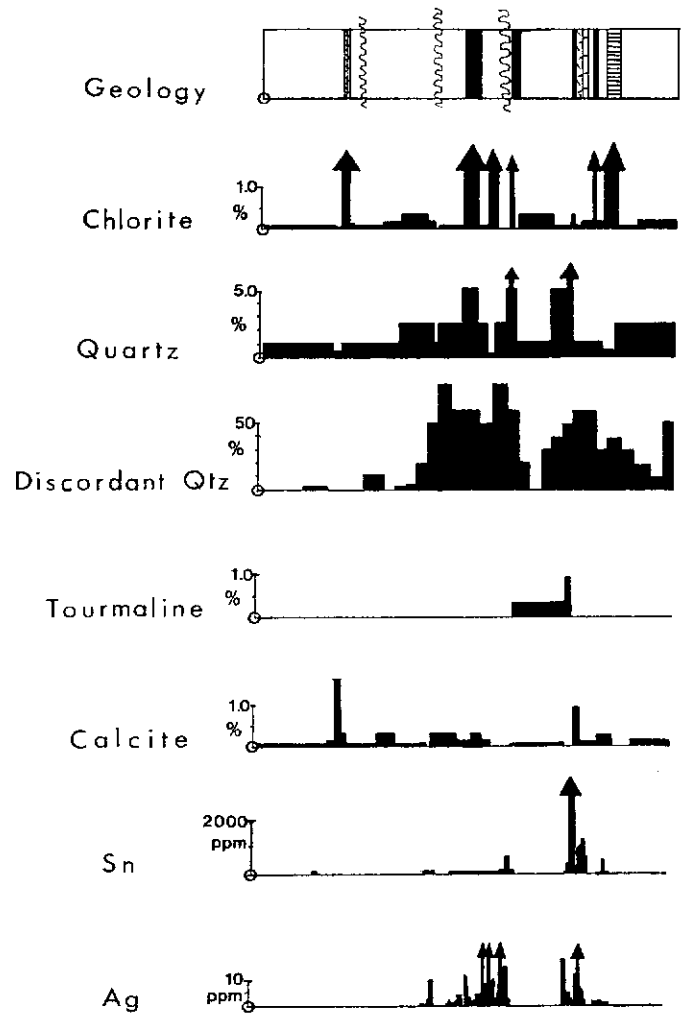


Figure 8. Geology and alteration in DDH 16. Geology legend is the same as in Figure 3. Alteration minerals are in volume percent veins. This drill hole is marked on Figure 3 as "D-S".

hydrothermal activity which deposited quartz in fractures that cross-cut the foliation. Thus, the measure of % discordant quartz, which is an estimate of the volume of discordant quartz veins/volume of total quartz veins, may be a measure of the amount of hydrothermal quartz. The variation in this percentage is also shown in Figure 8.

All of these alteration parameters are similar in that they increase in abundance as breccia (or fracture) zones are approached. As the amount of total vein quartz increases from the "background" values of approximately 1%, so does the percentage of discordant quartz veins. There are two main anomalies - one in the central part of the hole covering two breccia zones and another deeper in the hole covering another breccia body. Chlorite veining is also anomalous in the breccia zones, as well as in the calc-silicate and limestone units. Calcite veining is most abundant in the limestone and calc-silicate. Tourmaline veining, although of minor abundance in

this drill hole, is present in one of the deeper breccia zones. Tin and silver vary somewhat similarly, however, their patterns are not exactly the same. The tin values are not only high in the breccia zones (up to 1.0%), but also in the amphibolite and calc-silicate units. Silver is high in fault gouge zones, breccias and in the amphibolite adjacent to the breccia (up to 30 ppm). Zinc, although not shown on this plot, commonly closely follows tin distribution, and is present in quantities of over 2.0% locally. In these patterns, irregularity of the mineralization is noted. Some breccias are mineralized and some are not, and when mineralized, metal values are not constant throughout the unit.

Conclusion

At the EPD property, tin mineralization occurs mainly in steep south-dipping fault breccia zones cutting the quartzite. These were further brecciated

and altered by magmatic and hydrothermal solutions. Cassiterite is also present in some skarn rocks which are metasomatized lenses of marble and amphibole (+ pyrrhotite) schist. Quartz, chlorite, tourmaline, micas, calcite and fluorite occur in veins which increase in abundance toward the breccia zones. Skarn and limestone are more altered than surrounding quartzite and tin, silver, and zinc concentrations are irregularly dispersed through the breccia and some skarn units.

Figure 9 shows a model for the formation of the deposit. Emplacement of the quartz-monzonite intrusion caused fault and fracture zones which localized the rock flour breccia. Heat from the intrusion was responsible for convection of groundwater through fractures in the country rock. During this period, groundwater solutions were acidic and the first stage of alteration took place with the deposition of quartz (Fig. 6).

Fluids and volatiles in the magma collected in the upper part of the intrusion. Once the fluid pressure within the intrusion exceeded the lithostatic pressure, the magmatic solutions hydraulically fractured the carapace of the intrusion and moved into the country rock. The great increase in volume occupied by the fluid, accompanied by a rapid drop in temperature of the fluids forced the precipitation of metals contained in solution. At EPD, this appears to have occurred enough times to have formed several different types of breccia.

Solutions which altered the rocks during this stage were acidic, high temperature, and rich in volatiles and metals (B, F, Sn, Ag, Zn, Cu). They were transported mainly along the large fractures into the country rock and favourable horizons were altered. As the solutions moved through the country rocks, they hydrolytically attacked minerals, and dissolved some metals, precipitating them further away from the intrusion under more neutral conditions.

Eventually the convection system became sealed off from the intrusion, and solutions became increasingly more alkaline and cooler because of country rock - solution interaction. These are favourable conditions for calcite (fluorite) precipitation and retrograde alteration. Supergene alteration forming limonite, manganese oxide, and malachite-azurite stains took place in the latest stage of alteration following the same permeable fracture zones.

Acknowledgements

Much appreciation goes to Jim Morin, Chief Geologist, Whitehorse who initiated this project, gave helpful guidance in the field, and encouraged the writer. Exploration and Geological Services Division, Department of Indian Affairs and Northern Development, financed this work. Thanks to Daniel Rota of Billiton Canada Ltd. who obtained company permission and additional financial support for this project to be carried out. He also provided available information on the EPD property. Darlene Roberts, Kathryn Salmon and Greg Lynch gave able assistance and encouragement in logging of the drill core and Colin Godwin instructed the author in the use of 'Geolog'. Charlie Roots critically reviewed this report.

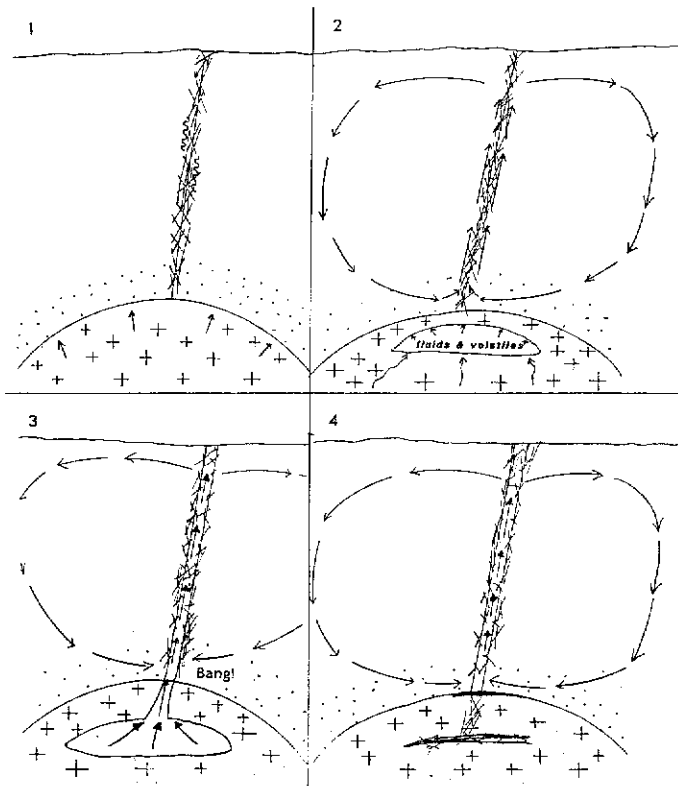


Figure 9. Model of formation of EPD. Four stages are proposed:

- 1) Emplacement of the quartz-monzonite intrusion and fracturing of the country rock;
- 2) Separation of fluids and volatiles within the intrusion and convection of groundwater within the country rock;
- 3) Hydraulic fracturing of the intrusion's carapace and movement of the magmatic fluid through fractures in the country rocks;
- 4) Convection and cooling of the country rock-retrograde alteration.

REFERENCES

- BLANCHET, P.H. AND GODWIN, C.I. 1972. Geolog system for computer and manual analysis of geologic data from porphyry and other deposits; Econ. Geol., Vol. 67, pp. 796-813.
- BOSTOCK, H.S. 1964. "Geology, McQuesten River, Yukon Territory," Geol. Surv. Can., Map 1143A.
- KURAN, V.M., GODWIN, C.I., AND ARMSTRONG, R.L., 1982. "Geology and geochronometry of the Scheelite Dome area," C.I.M.M. Bull., Vol. 75, pp. 137-142.
- SINCLAIR, W.D., STEVENS, R.P., BELABIO, R.N. AND LACHANCE, G.R. 1982. "Determinations and Geological Studies, K-Ar isotopic ages," Report 16, Geol. Surv. Can., Paper 82-2, 56 p.
- STEVENS, R.D., LACHANCE, G.R. AND DELABIO, R.N. 1982. Age determinations and geological studies, K-Ar isotopic ages, Report 15; Geol. Surv. Can., Paper 81-2.
- TEMPELMAN-KLUIT, D.J. 1981. Geology of the southern Yukon, In Yukon Geology and Exploration 1979-80, Department of Indian Affairs and Northern Development, Whitehorse, pp. 8-31.

REPORT OF 1982 FIELD WORK ON EARLY TERTIARY CLASTICS,
WEST-CENTRAL YUKON

by Grant Lowey
Department of Geology
University of Calgary

ABSTRACT

Eight lithofacies types have been identified. These include: 1) Gms - massive, matrix supported conglomerate; 2) Gm - massive or crudely bedded, clast supported conglomerate; 3) Sr - rippled sandstone; 4) Sp - planar crossbedded sandstone; 5) Sh - massive sandstone; 6) Fl - laminated sandstone, siltstone and mudstone; 7) Fsc - laminated or massive siltstone and mudstone; and 8) L - limestone. All lithofacies are present in the Sixtymile River area, but only lithofacies Sp, Sh and Fl were observed in the Grayling Creek area.

The eight types are grouped into four assemblages and are interpreted as: 1) Scott type braided river deposits 2) Donjek type braided river deposits 3) South Saskatchewan type braided river deposits and 4) lacustrine deposits.

Lithofacies assemblages are arranged into at least ten fining-upward and thinning-upward megacycles reflecting a history of pulsed and rapid uplift in the source area.

INTRODUCTION

Scope of Study

Late Tertiary clastic sediments are widespread in west-central Yukon (Lowey, 1982). These deposits are fluvial and lacustrine in origin, and consist of interbedded sandstone, siltstone and conglomerate beds. They contain coal, paleoplacer gold and are potential hosts for basal-type uranium deposits.

A detailed study of these sediments was started by the author in May 1981. The present report discusses the results of field work carried out over a two week period in May 1982 in the Sixtymile River area, and one day in September 1982 in the Grayling Creek area. Data collected during these two seasons of field work will form the basis of a Ph.D thesis at the University of Calgary.

Acknowledgements

Financial and logistic support was provided by Exploration and Geological Services Division, DIAND, Whitehorse. Field assistance was provided by J.F. Lowey.

Previous Work

The first systematic geological investigation of the report area was by Tempelman-Kluit (1974). He outlined the regional geology and general stratigraphy of the area. Prior to this work, Cockfield (1921) had made brief observations along the Sixtymile and Ladue

Rivers and Bostock (1948) mapped the area immediately east of the Sixtymile River. In 1981, Lowey (1982), through a personal service contract with DIAND, began a detailed sedimentological study of these deposits.

Regional Setting

The study area lies within the Yukon Cataclastic Terrane and a major unconformity separates the Early Tertiary clastic rocks and the underlying Paleozoic and Mesozoic igneous and metamorphic rocks. The clastic rocks are usually gently folded with low dips (approximately 10 to 20 degrees). Bostock (1948) mapped a major northwest trending syncline in the Sixtymile River area and locally the sediments are highly folded and faulted.

Although no major faults have been mapped within the study area, Hughes and Long (1980) suggest that Early Tertiary deposits in west-central Yukon were deposited in continuous or discontinuous, fault bounded, continental basins. Scattered occurrence of the sediments, particularly near the summits of surrounding hills, led Cockfield (1921) to believe that most of the sediments and the original outlines of the basins were removed by erosion.

LITHOSTRATIGRAPHY

Sixtymile River area

Heavily vegetated, low rounded hills and little outcrop is typical of this area. The best exposures are found along the Sixtymile River, from Ten Mile Creek to Matson Creek. Scattered occurrences are also present along Matson Creek and on Mount Hart.

Just north of Ten Mile Creek, the deposits rest nonconformably on muscovite quartz monzonite. At this location, over 77 m of continuous section was measured. Strata generally dips northward at approximately 15 degrees and the total stratigraphic thickness of these deposits may be 200 m.

Predominant in the stratigraphically lowest (down river) part of the deposits are interbedded sandstone and siltstone beds. They are arranged in fining-upward cycles, with sandstone beds less than 1 m in thickness and siltstone beds 0.1 to 0.5 m in thickness, although beds over 9 m in thickness were observed.

Interbedded sandstone and conglomerate beds are most abundant in the stratigraphically highest (up river) part of the deposits. Here, conglomerate beds increase in number and thickness and single beds are over 15 m in thickness. Minor limestone beds occur in the lower part of the deposits while tuff beds and volcanic flows are intercalated throughout the sediments.

Grayling Creek Area

The best exposures occur along Grayling Creek and scattered outcrops are reported (Tempelman-Kluit, 1974) along the Klotassin River and its tributaries. At Grayling Creek, over 20 m of continuous section is exposed. The total stratigraphic thickness of these

deposits is probably less than 100 m.

Predominant are interbedded sandstone and siltstone beds, arranged in fining-upward cycles with bed thicknesses less than 1 m. Conglomerate beds were not observed, although they are reported by Tempelman-Kluit (1979). The sediments are overlain by volcanic flows.

Age and Stratigraphic Correlation

The precise age and stratigraphic correlation of these deposits, particularly with similar deposits in the Indian River area and in Tintina Trench, awaits the results of K-Ar and palynological analyses currently underway. Previously, the deposits were assigned an Early Tertiary, probably Eocene age (Cockfield, 1921; Bostock, 1948; Tempelman-Kluit, 1974). Initial results of K-Ar analyses from a tuff bed in the Sixtymile River area (51.4 ± 3.9 Ma) supports this interpretation (W.D. Sinclair, Written Comm., 1982).

LITHOFACIES ANALYSIS

Methods

Lithofacies analysis was performed by detailed measurement and description of columnar sections in the field. Thirteen sections were measured in the Sixtymile River area and one section was measured in the Grayling Creek area. These sections range from 3 to 77 m in stratigraphic thickness, with a total of 297 m of section being examined.

Lithofacies Types

Miall (1977, 1978) devised a lithofacies nomenclature and code system for describing alluvial sediments. His system was modified for this study.

Conglomerate and sandstone beds are grouped into the following five lithofacies: 1) Gms - massive, matrix supported conglomerate; 2) Gm - massive or crudely bedded, clast supported conglomerate; 3) Sp - planar crossbedded, medium - coarse-grained sandstone; 4) Sr - rippled, fine - to medium grained sandstone; and 5) Sh - horizontally laminated to massive, fine - to coarse grained sandstone, occasionally pebbly.

Fine-grained sediments are divided into three lithofacies: 1) Fl - thinly laminated and/or rippled, sandstone, siltstone and mudstone; 2) Fsc - laminated to massive, siltstone and mudstone; and 3) L - finely crystalline limestone.

Lithofacies Assemblages and Environments of Deposition

Lithofacies assemblages provide the key to interpreting the depositional environments of alluvial sediments and form the basis of various facies models. Four lithofacies assemblages are defined in this report (Fig. 1). All are present in the Sixtymile River area, but only assemblage 3 occurs in the Grayling Creek area. Assemblage 1 consists of lithofacies Gm and rarely Sh. It is interpreted as "Scott type", proximal braided river deposits. Assemblage 2, consisting of lithofacies Gm, Sh, and Fl, and rarely Sr, is interpreted as "Donjek type", intermediate braided river deposits. Assemblage 3 is

interpreted as "South Saskatchewan type", distal braided river deposits, and consists of lithofacies Sh and Fl, and occasionally Sr, Sp and Fsc. Assemblage 4 consists of lithofacies Fsc and rarely Gms, Sh, Fl and L. It is interpreted as channel fill and lacustrine deposits.

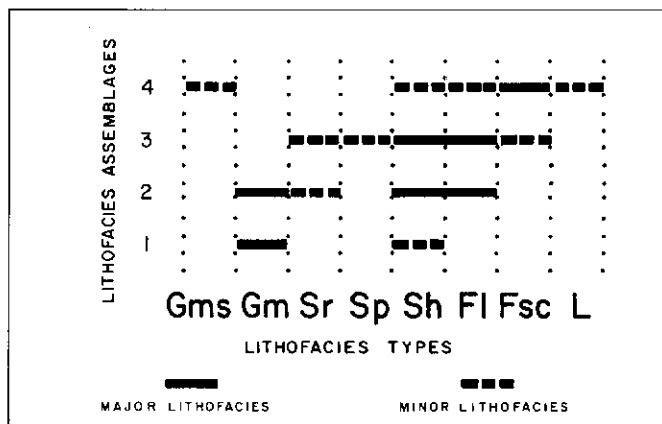


Figure 1. Schematic diagram showing the four lithofacies assemblages and the lithofacies types making them up.

Composition of Conglomerate Beds

The composition of conglomerate beds was previously reported in Lowey (1982). Results are briefly summarized in Figure 2. Generally, the conglomerate composition changes from metamorphic-rich to sedimentary-rich, and back to metamorphic-rich pebbles. Vein quartz, metamorphic and igneous clasts were all locally derived. Chert clasts (and possibly sandstone and siltstone clasts) were derived from the Ogilvie Mountains north of the study area (mainly from the Road River Formation, Unit 9, Green, 1972).

Sedimentary History

The vertical sequence in which lithofacies assemblages are stratigraphically stacked is fundamental to interpreting the sedimentary history of an area. The sequence of lithofacies assemblages may reflect major changes in climate, sea level, or tectonics, such as basin subsidence or source area uplift (Figure 3). Lithofacies assemblages are arranged into at least 10 fining-upward and thinning-upward megacycles. They range from 14 to 48 m in thickness and begin with proximal or intermediate braided river deposits (and occasionally distal braided river deposits) and end with distal braided river deposits or lacustrine deposits. These megacycles are interpreted as representing pulsed uplift in the source area.

Each megacycle indicates that uplift was initially rapid, resulting in an influx of conglomerate and coarse sandstone debris into the basin, followed by a decrease in the rate of uplift and the deposition of finer-grained sediments. The intensity of these uplifts climaxed with megacycles 6, 7 and 8, which corresponds with the greatest influx of sedimentary clasts and the thickest conglomerate beds into the basin.

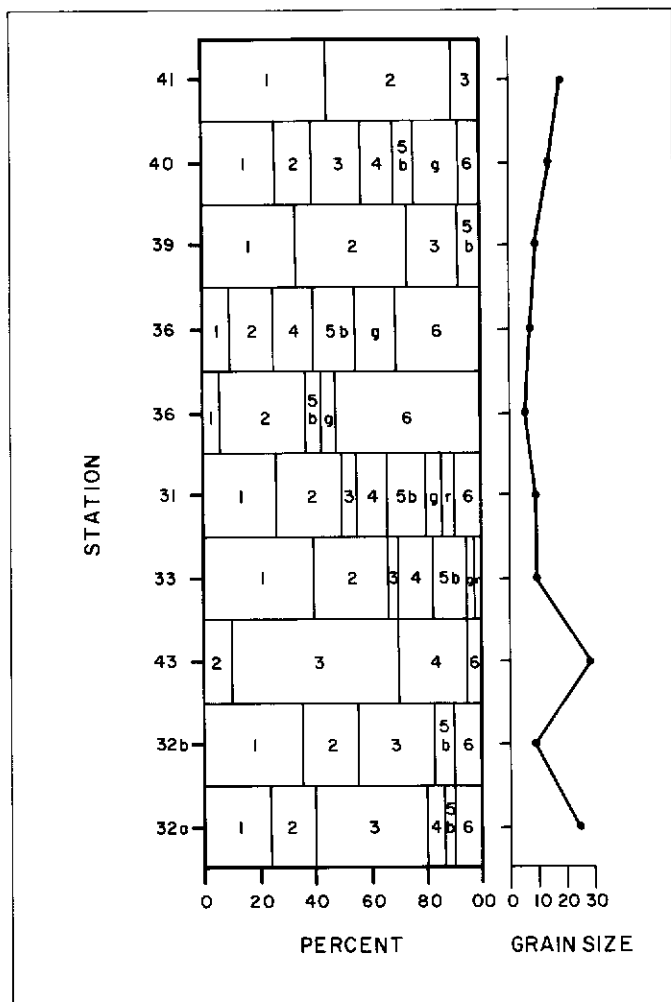


Figure 2. Composition of conglomerate beds at individual station sites. Under the percent column, 1 = quartz and gneiss; 3 = schist; 4 = slightly to highly porphyritic volcanic clasts and rare granitic clasts; chert, where b is black, g is grey and green; and 6 = sandstone and siltstone. The grain-size column refers to the largest clast observed at that station).

In summary, clastic sediments in the Sixtymile River area were deposited in a continental basin that was fed by southward flowing braided rivers. The depositional environments shifted from proximal to distal braided rivers and lacustrine environments, reflecting a history of pulsed and rapid uplift in the source area.

ADDENDUM

Continuing work on clastic sedimentary rocks in the Indian River and Sixtymile river areas has resulted in two important discoveries. First, pyritized radiolarians found in a chert pebble from the Red Conglomerate Unit, Indian River area (Lowey, 1981) were identified by B. Murchy of the United

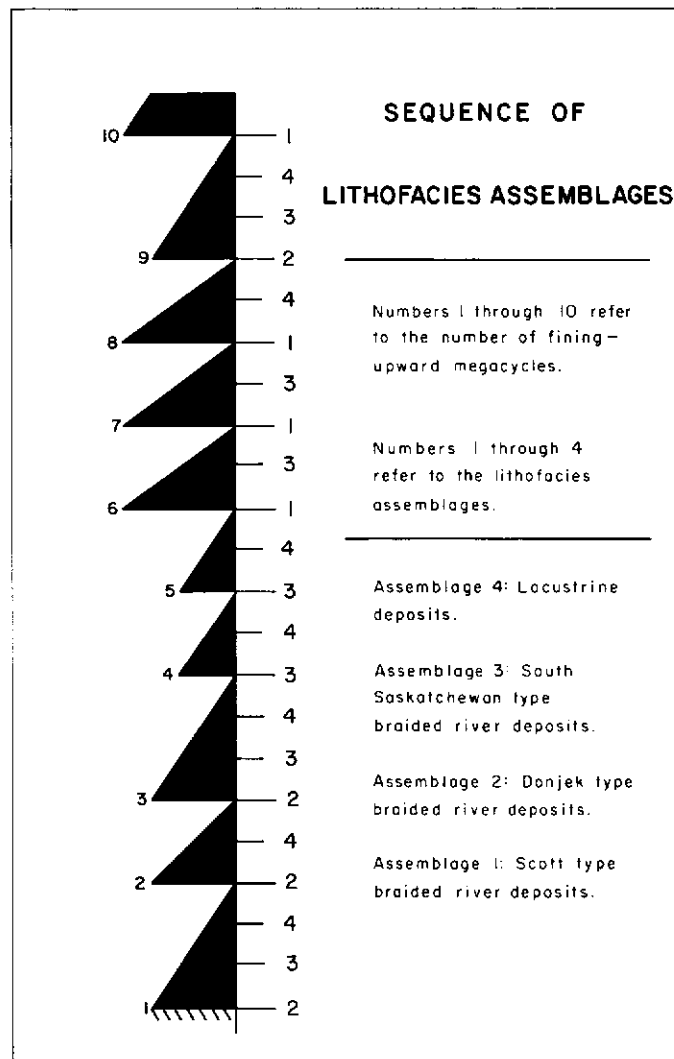


Figure 3. Schematic diagram showing the sequence of lithofacies assemblages in the Sixtymile River area.

States Geological Survey (written communication, 1983) as Mesozoic, very probably Triassic in age. Second, examination of palynomorphs by the author and Dr. L.V. Hills of the University of Calgary (personal communication, 1983) indicates that clastic sedimentary rocks in the Sixtymile River area are probably Maastrichtian in age, while those in the Indian River area are definitely Albian in age. Also, dinoflagellates and acritarchs (marine microfossils) are present in the uppermost part of the sediments in the Indian River area.

Abundant chert of Triassic age occurs in the Cache Creek Group in southeastern Yukon-northeastern British Columbia. This implies an ultimately southeasterly source area for part of the clastics in the Indian River area. Note however, that a polycyclic origin for the chert clasts has not been ruled out.

Clastic sediments in the Indian River area are mostly fluvial in origin although the uppermost part

of the sediments appear to be marine. They are chronostratigraphically equivalent to the lowermost part of the Monster Formation (Albian to Tertiary in age, Green, 1972), the lowermost part of the Bonnet Plume Formation (Albian to Paleocene in age, Rouse and Srivastava, 1972), and possibly the uppermost part of the Keno Hill Quartzite (Lower Cretaceous in age, Tempelman-Kluit, 1970) and the uppermost part of the Tantalus Formation (Upper Jurassic to Lower Cretaceous in age, Wheeler, 1961).

REFERENCES

- BOSTOCK, H.S. 1942. Ogilvie, Yukon Territory; Geol. Surv. Can., Map 711A.
- COCKFIELD, W.E. 1921. Sixtymile and Ladue River area; Geol. Surv. Can., Memoir 123.
- GREEN, L.H. 1972. Geology of Nash Creek, Larsen Creek, and Dawson map-areas, Yukon Territory; Geol. Surv. Can., Memoir 364.
- HUGHES, J.D., and LONG, D.F. 1980. Geology and coal resource potential of Early Tertiary Strata along Tintina Trench, Yukon Territory; Geol. Surv. Can., Paper 79-32.
- LOWEY, G.W. 1982. Report on Fieldwork on Early Tertiary clastics, west-central Yukon, p. 51-57, in D.I.A.N.D., 1982, Yukon Exploration and Geology 1981, 281 pp.
- MIALL, A.D. 1977. A review of the braided river depositional environment; Earth Science Reviews, 13, 1-62.
- MIALL, A.D. 1978. Lithofacies types and vertical profile models in braided river deposits: a summary; in A.S. Miall, e.d., CSPG Memoir 5, 597-604.
- ROUSE, G.E., and SRIVASTAVA, S.K. 1972. Palynological zonation of Cretaceous and Early Tertiary rocks of the Bonnet Plume Formation, Northeastern Yukon, Canada; Canadian Journal of Earth Sciences, 9, 1163-1179.
- TEMPELMAN-KLUIT, D.J. 1970. Stratigraphy and Structure of the "Keno Hill Quartzite" in Tombstone River - Upper Klondike River map-areas, Yukon Territory; Geol. Surv. Can., Bull. 180.
- TEMPELMAN-KLUIT, D.J. 1974. Reconnaissance geology of Aishihik Lake, Snag, and part of Stewart River map-areas, west-central Yukon; Geol. Surv. Can., Paper 73-41.
- WHEELER, J.O. 1961. Whitehorse map-area, Yukon Territory; Geol. Surv. Can., Memoir 312.

PETROLOGY AND GEOCHEMISTRY OF THE PATTISON ALASKITE PLUTON

by Gregory V. Lynch and Calvin Pride
Department of Geology, University of Ottawa
and
Pat Watson
Exploration and Geological Services Division
DIAND, Whitehorse

ABSTRACT

The Pattison Pluton is a high level Tertiary subaluminous alaskite that is part of a northwest trending chain of igneous intrusions in the Yukon Crystalline Terrane, southwestern Yukon. It is roughly circular in form with a diameter of about 18 km and a funnel-like profile. Crosscutting it are a series of shallowly dipping aplite dykes which intruded into open fractures. Compositionally and mineralogically, the alaskite body and aplite dykes are very uniform but the pluton is texturally and gradationally divided into a fine-grained upper border phase, a medium grained graphic, strongly miarolitic, weakly porphyritic phase, and a lower coarse-grained phase.

Due to eutectic crystallization, no strong major element trends are found within the pluton and dykes. Trace element chemistry, however, shows an apparent liquid line of descent with the fine grained alaskite the least differentiated and the aplite dykes the most differentiated. The medium and coarse-grained alaskites plot in between these. Rayleigh fractional crystallization of alkali feldspar accounts for these trends.

Textural zonation evolved by the initial chilling of the originally H₂O-poor magma at its upper edges. Crystallization of anhydrous phases from the melt had the effect of increasing the volatile pressure within the enclosed chamber. The volatiles migrated to and concentrated in the upper regions where the melting temperature was depressed, causing the pluton to crystallize from the bottom up. This allowed for the lower regions to reach more advanced stages of phenocryst crystallization, hence forming the lower coarse grained alaskite. The volatile pressure eventually exceeded the confining pressure, resulting in failure of the surrounding rocks and retrograde boiling, as well as vertical extension and lateral injection of residual magma due to filter pressing to form the aplite dykes. This final series of events also resulted in the formation of the graphic groundmass, straining of the minerals within the pluton, brecciation of some of the surrounding rocks, as well as quartz veining and molybdenum mineralization.

Introduction

The Pattison Pluton is part of the Dawson Range in western Yukon between the Klotassin and Nisling Rivers, about 40 km east of Wellesley Lake, 130 km west-northwest of Carmacks and 265 km northwest of Whitehorse, in the Snag Map area, 115 J (Fig. 1). Barren flat-topped ridges cover most of the intrusion and large castellated outcrops in the form of fins, block and pillars are a common feature of the ridges

in this unglaciated part of Canada (Fig. 2).

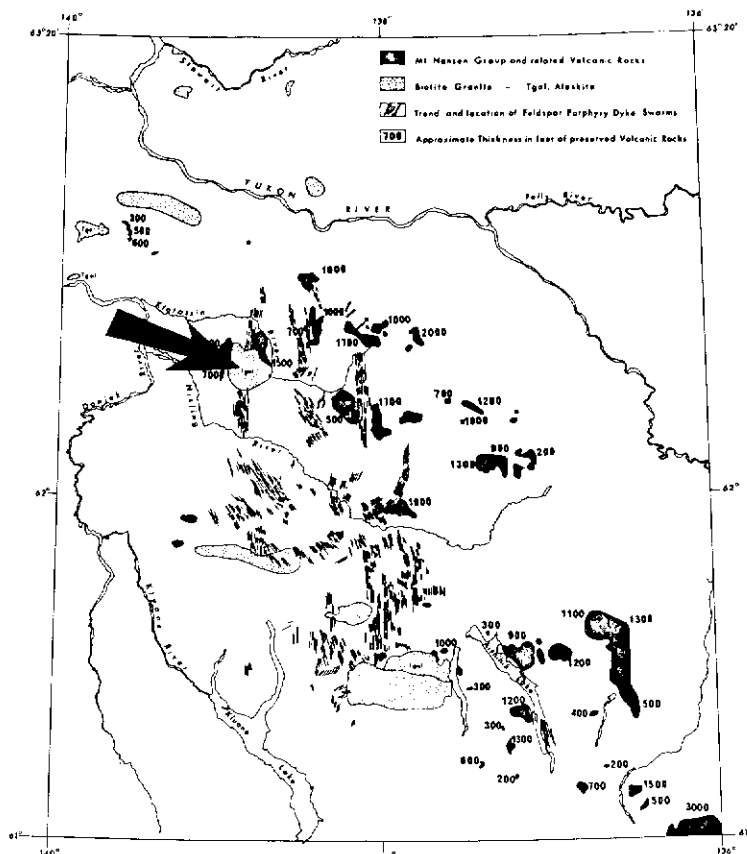


Figure 1. Location of Pattison Pluton between the Klotassin and Nisling Rivers (modified map from Tempelman-Kluit, 1974).

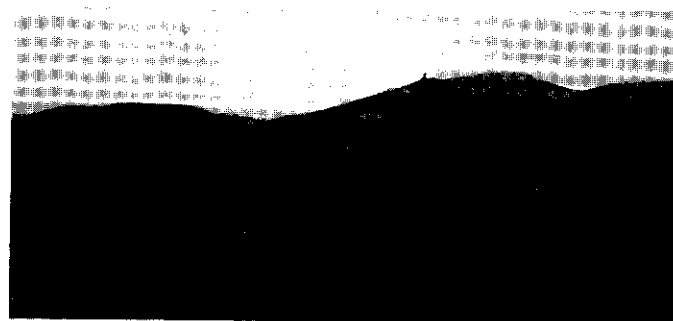


Figure 2. Photograph of ridgetops showing castellated outcrops in Pattison Pluton.

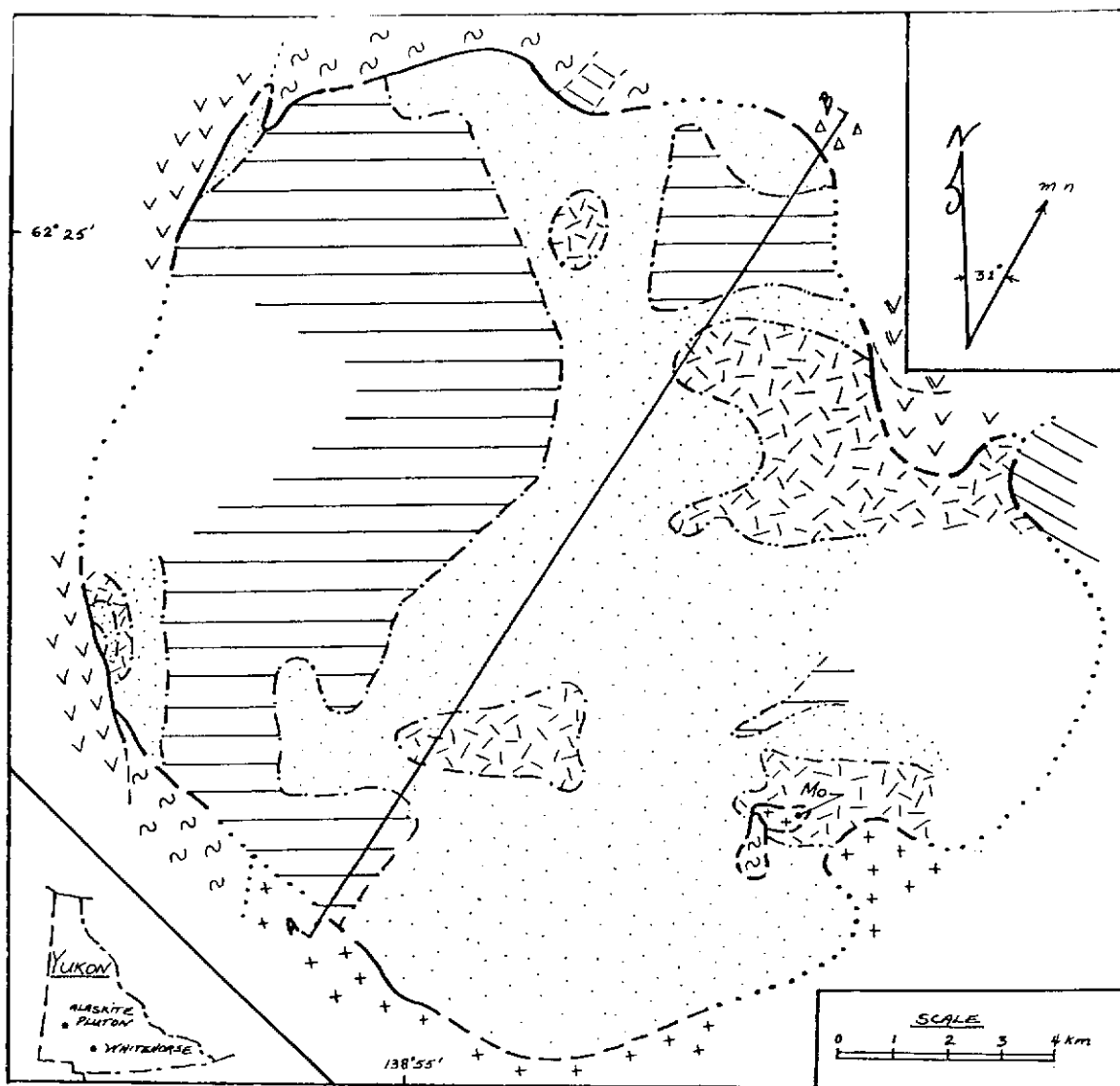


Figure 3

PATTISON PLUTON, SNAG MAP AREA, Y.T.

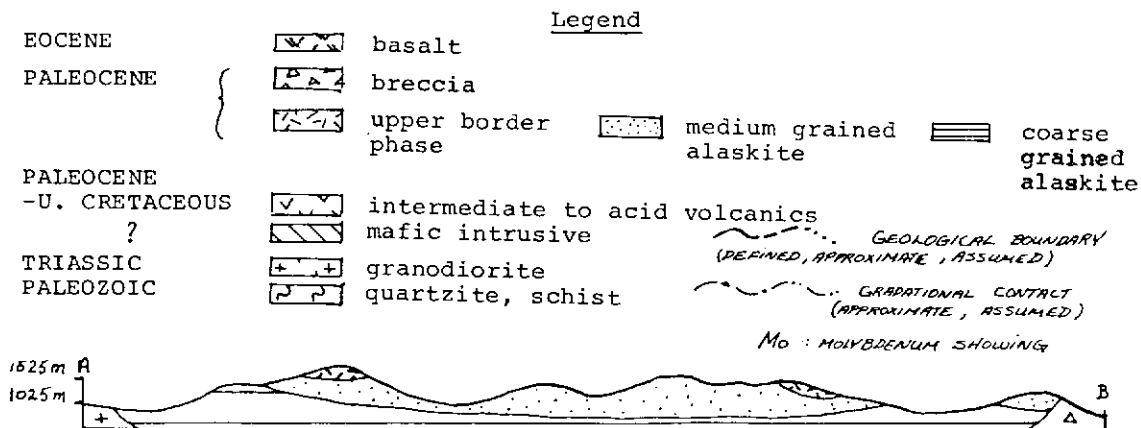


Figure 3. Geological map of Pattison Pluton, Snag map area.

Local and Regional Geology

The Pattison Pluton is part of a group of intrusions known as the "Nisling Range Alaskite" (Tempelman-Kluit, 1974). These are related in time and in space with other biotite granite intrusions, north trending feldspar porphyry dyke sets, and rocks of the Mt. Nansen Group (Fig. 1). The whole group forms a northwest trending belt in the Yukon Crystalline Terrane.

Nisling Range Alaskite is thought to be coeval with Mt. Nansen Group volcanic rocks which have been dated at 55-70 Ma. (Tempelman-Kluit, 1981). The Pattison Pluton crosscuts the Mt. Nansen Group volcanic rocks along the northeastern and northwestern edges of the intrusion (Fig. 3). Here the volcanic rocks have been metamorphosed to the hornblende-hornfels facies (Lynch, 1983). For this reason, the Pattison Pluton is thought to be Paleocene in age. The pluton is also in contact with granodiorite (from the Klotassin Batholith?) along its southern edge as well as quartzite and schist along the northern and southwestern edges (Fig. 3). In the northeast, basalt and volcanic breccia from the Carmacks Group are exposed.

The Pattison Pluton is roughly circular in form with a diameter of 18 km. It is a miarolitic, graphic alaskite, ie a granitic rock with less than 10 percent by volume of mafic minerals (Strechisen, 1976). The pluton is mineralogically and chemically homogeneous. However, it may be texturally divided into a fine grained upper border phase, a coarse grained vertically lower alaskite, and a porphyritic medium grained alaskite in between (Fig. 3). The changes are gradational and proximity to the wallrock does not appear to have had a large influence on the textural distribution. The pluton is crosscut by sets of parallel, flat lying to shallowly dipping aplite dykes.

A roof pendant of granodiorite and quartzite occurs in the southeast end of the pluton (Fig. 3). In its vicinity, granodiorite and surrounding alaskite are cut by numerous quartz veins and molybdenite occurs in the veins crosscutting the granodiorite.

PETROGRAPHY

Course Grained Alaskite

Coarse grained alaskite (CGA) is porous, crumbly and has penetrative rust staining and weathering and a consequent orange-white colour. It has a massive granitic texture with subhedral white feldspar laths and glassy grey quartz grains forming 90 percent by volume (Fig. 4). Microscopic observations show that the quartz is anhedral to subhedral and is often slightly skeletal (Fig. 5). Quartz grains range in size from 1 mm to 4 mm and comprise approximately 35 - 40% of the rock. Microperthite is lath-like or in anhedral patches. It may reach sizes of up to 12 mm. The anhedral patches are interstitial and fill the spaces created by the skeletal growth of quartz. Carlsbad twins are a common feature of the microperthite. Orthoclase and microperthite may occupy up to 50 percent of the volume. Replacement perthite and antiperthite have also been identified.

Sodic plagioclase makes up only about 10 percent

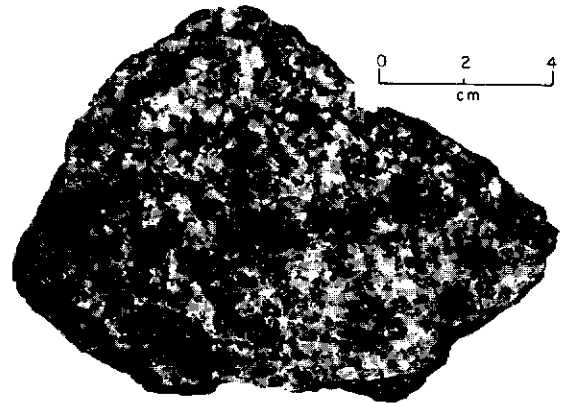


Figure 4. Photograph of typical coarse grained alaskite (scale in cm).

of the volume. It is typically subhedral, from 1 to 3 mm in size and in all of the alaskite phases, normal zoning may be present. Plagioclase is commonly altered with small flecks of sericite, minutely pitted surfaces and weathered out cores of zoned plagioclase.

Biotite is fine to medium grained and about 5 percent by volume. It is anhedral and fills in wedge shaped gaps between quartz and feldspar crystals. Most of the biotite is brown, but very fine grained deuteritic green biotite may also be present. Minor amounts of biotite are altered to chlorite.

Small amounts of fine grained anhedral magnetite and hematite are present. Biotite-magnetite mixtures occur as pseudomorphs after pyroxene. Allanite, fluorite and zircon (or possibly monazite) are also minor constituents. The dark brown, pleochroic, nonmetamict allanite is fine grained and anhedral to subhedral in form (Fig. 6). Zircon (or monazite) grains occur as very fine grained subhedral crystals, locally as inclusions with pleochroic halos within



Figure 5. Photomicrograph of coarse grained alaskite showing quartz and microperthite. Notice the weakly skeletal nature of quartz (cross polars, field of view 7 mm x 5 mm).



Figure 6. Photomicrograph showing two subhedral allanite crystals with possibly some minute zircon or monazite crystals (plane transmitted light, field of view 1.8 mm x 1.2 mm).

biotite. Trace amounts of anhedral fluorite up to 2 mm in size are found mainly in the miarolitic cavities.

Miarolitic cavities occupy less than 5% of the volume and these are usually no more than 1 cm in length with irregular forms. The cavities are lined with some fluorite and biotite but mostly with subhedral to euhedral alkali feldspar and smoky quartz.

Mineral grains within the coarse grained alaskite are commonly strained. Strain features include fractured minerals, contorted biotite (Fig. 7), offset and bent twinning in feldspar and undulose extinction in quartz.



Figure 7. Photomicrograph of highly strained interstitial biotite amongst quartz (clear) and feldspar (mottled) grains (plane transmitted light, field of view 1.8 mm x 1.2 mm).

Medium Grained Alaskite

The coarse grained alaskite grades into the medium grained alaskite which is found at higher altitudes. The latter has a porphyritic texture with subhedral alkali-feldspar lath-shaped phenocrysts occupying 20 to 30 percent by volume (Fig. 8). Phenocrysts are mostly 3 to 5 mm in length but may be up to 10 mm. They are surrounded by a matrix of graphic micrographic quartz and feldspar (Fig. 9). Miarolitic cavities are most abundant and largest within the medium grained alaskite. They have irregular shapes, may occupy up to 15% of the volume and are commonly 1 to 2 cm in length but locally up to 20 cm. Cavities are lined with euhedral, singly terminated alkali feldspar and smoky quartz crystals with lesser amounts of biotite and fluorite. Phenocrysts are microperthite or orthoclase. Microcline and anorthoclase have also been identified. Subhedral plagioclase crystals, 0.5 to 3 mm in size, fill 5 to 10 percent of the volume. Optically determined anorthite content is An_4 to An_{28} . Some of the crystals are zoned and commonly sericite is an alteration product.

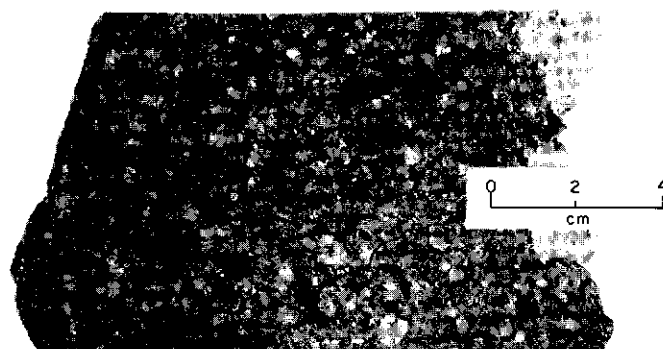


Figure 8. Photograph of typical medium grained alaskite. Note the miarolitic cavities (dark), porphyritic texture and graphic groundmass (scale in cm).

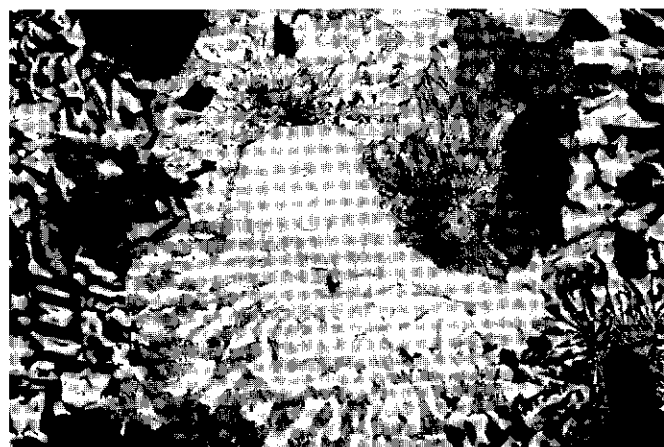


Figure 9. Photomicrograph of medium grained alaskite demonstrating an orthoclase phenocryst surrounded and mantled by a graphic groundmass (crossed polars, field of view 7mm x 5 mm).

Quartz is skeletal and dendritic. Graphic to micrographic texture is very well developed and dominates the thin sections (up to 70 percent of the area). Skeletal quartz grains may be as large as 3 mm but appear most often to be less than 1 mm in size. Cross-sections of the dendritic branches are in the form of very small triangles and trapezohedrons or other similar shapes. These occur in optically continuous clusters which are included in and surrounded by interstitial micrographic crystals forming the graphic intergrowths. The graphic intergrowths occur as radiating mantles around the feldspar phenocrysts (Fig. 9).

Minor mineral phases and mineral strain features are similar to those in the coarse grained alaskite. Clinopyroxene (probably augite) is more abundant in the medium grained alaskite. The 1 mm subhedral grains are strongly altered to hornblende, tremolite and a mixture of biotite and very fine grained opaque minerals.

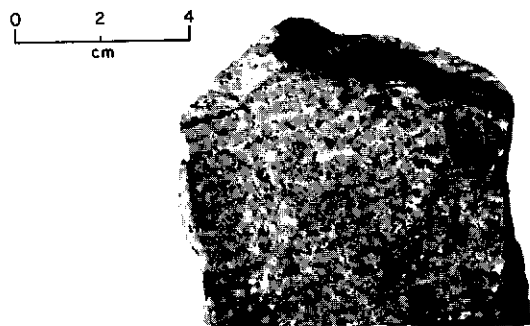


Figure 10. Photograph of fine grained alaskite. Note the small miarolitic cavities and relatively sparse phenocrysts (scale in cm).

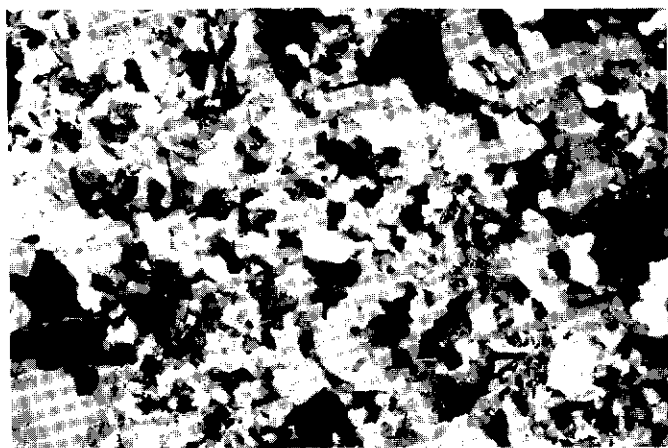


Figure 11. Photomicrograph of fine grained alaskite. Note the anhedral quartz, microperthite and weak development of micrographic texture (crossed polars, field of view 7 mm x 5 mm).

Fine Grained Alaskite

The fine grained alaskite forms the upper capping of the Pattison Pluton. It grades downwards into the medium grained alaskite and its mineralogy is the same as in both the coarse and medium grained alaskites. However, it is more competent, much finer grained and much less abundant in phenocrysts and graphic intergrowths. Most of it is made up of allotriomorphic granular, fine grained anhedral quartz and microperthite in roughly equal proportions (Fig. 11). Corrosion embayments are present in quartz crystals and myrmekite occurs in microperthite. Plagioclase (about An₂₁) is present in small amounts and the biotite content is approximately 10%. Small, 1 to 5 mm miarolitic cavities are rare and free of mineral linings.

Spherulites locally occur in fine grained alaskite near the roof pendant in the southeast section of the pluton (Fig. 2). They are about 1 mm in diameter and are composed of radiating assemblages of alkali feldspar which have been partly altered to sericite. Some have a very fine grained crystal at their centers.

Silicification is common within the fine grained alaskite - crypto-crystalline silica replacing feldspar. Minor minerals and mineral strain features are similar to those in the other alaskites.

Aplite Dykes

Aplite dykes are common throughout the pluton and are best exposed in the tall castellated outcrops. The dykes are 10 to 50 cm wide and horizontal to shallowly dipping (Fig. 12). Sets of two or three parallel dykes with about 5 - 10 m separating them occur in the taller outcrops. No dykes were found crosscutting the fine grained alaskite, but this could

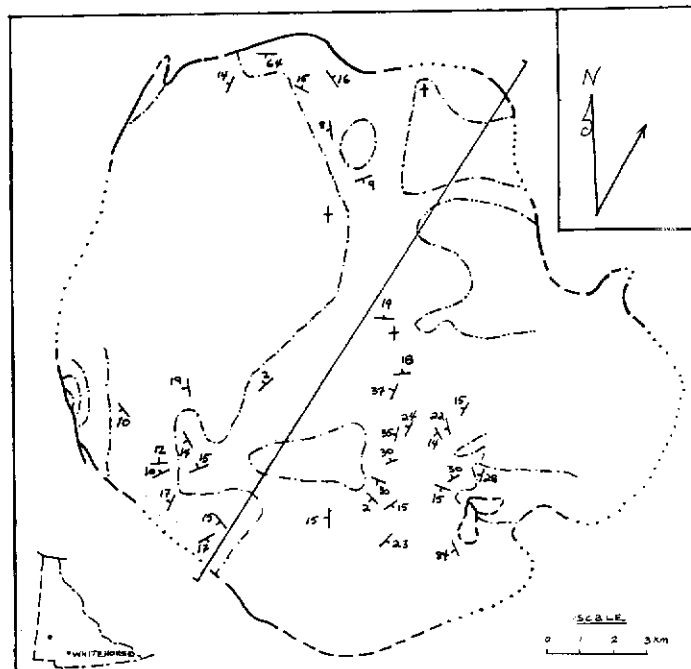


Figure 12. Strike and dip of the aplite dykes.

be due to the relatively poor exposure of the fine grained alaskite. The dykes crosscut the medium and coarse grained alaskite phases and also intrude Mt. Nansen Group volcanic rocks adjacent to the pluton.

The aplite is texturally and mineralogically very similar to the fine grained alaskite. Quartz and feldspar are evenly distributed and both are anhedral and irregular in form (Fig. 13). Most of the feldspar is microperthite, with some orthoclase and rare microcline. Plagioclase is absent. Micrographic intergrowths are rare and minor mineral phases are as in the alaskites. However, biotite is usually green, very fine grained and tends to occur in clusters.

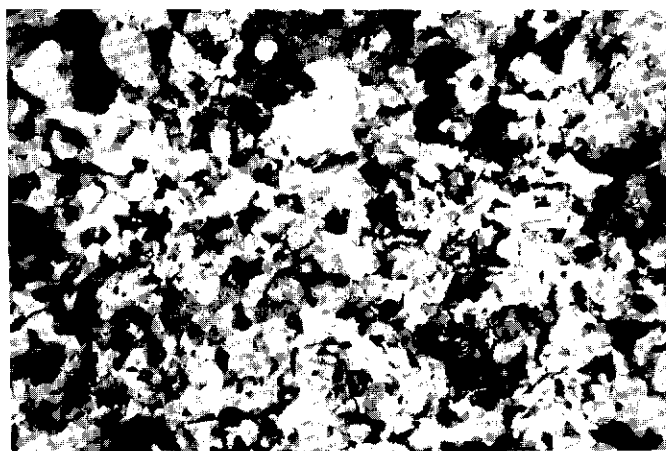


Figure 13. Photomicrograph of aplite showing fine grained aggregate of anhedral quartz and microperthite (crossed polars, field of view 7 mm x 5 mm).

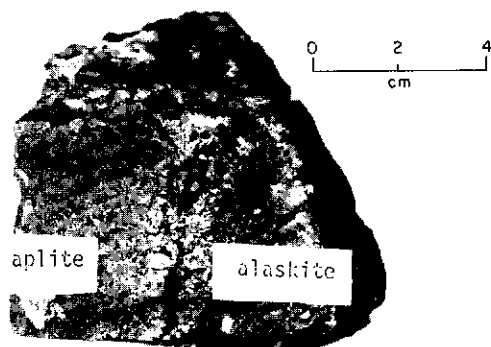


Figure 14. Photograph of aplite and alaskite with row of medium grained micrographic quartz and feldspar crystals perpendicular to aplite-alaskite contact (scale in cm).

Unaltered, thin, prismatic hornblende is present in the aplite but only near the contacts of the dykes with the host alaskite. In some instances, these subhedral to euhedral crystals are quite densely clustered along a contact and are perpendicular to it. The hornblende prisms vary widely in size and

may be up to 1.5 cm long. The contact zone of the dykes with the host alaskite also contain closely stacked rows of medium to coarse dendritic quartz crystals intergrown with perthite in a micrographic texture perpendicular to the contacts (Fig. 14).

Miarolitic cavities are locally present, but they are small and not lined with ingrowing crystals. Unlike the alaskites, strain features do not occur in the aplite dyke minerals.

Molybdenum Mineralization and Alteration of the Alaskite

Molybdenum mineralization is found in quartz veins within the hornblende granodiorite roof pendant at the south-east end of the pluton (Fig. 2). The quartz veins are commonly about 1 cm wide and may contain some anhedral calcite and zoisite. Small amounts of medium to fine grained molybdenite in flakes are found along the vein-host rock interfaces. Similar veins are present in the alaskite immediately surrounding the roof pendant, but no mineralization has been noted in them. However, much of the alaskite here is strongly altered. In some samples, intense sericitization is evident with sericite and medium grained granular quartz as well as minor amounts of very fine grained apatite, biotite, opaque minerals, sillimanite, zircon, and medium grained tourmaline. Potassic alteration is also present in the same area, again with granular quartz as one of the main constituents but also with considerable amounts of fine grained green biotite, some sericite and minor amounts of garnet, opaque minerals and apatite. The biotite also occurs as small veinlets.

Quartz veins are occasionally seen in areas away from the roof pendants but appear to be restricted to the fine and medium grained alaskites. These veins are not associated with the above alteration assemblages. Silicification is sporadically distributed in the medium and fine grained alaskites as well. As a result of silicification, quartz crystals and dendrites are preserved but most or all of the feldspar is replaced by cryptocrystalline silica.

The molybdenum bearing fluids probably emanated from the alaskite pluton during a late stage of its evolution. Because the molybdenite occurs at the vein to wall rock interface, it is postulated that precipitation was due to chemical reactions of the fluid with the wall rock.

Intrusive Breccia Unit

Intrusive breccia is characterized by subangular to subrounded clasts from diverse origins. The clasts are as large as 10 cm but size is quite variable. They comprise quartzite, schist, gneiss, volcanic rocks, and mafic rocks. Although no alaskite clasts were seen, the matrix is thought to have been partly derived from the alaskite because the matrix consists of fragmental quartz, alkali feldspar, plagioclase, biotite and opaque minerals with minor amounts of what appears to be allanite. The matrix occupies about 25% of the volume.

CHEMISTRY

Major and Minor Elements

Twenty-six alaskite samples and three samples of the surrounding volcanic rocks were analyzed for major and minor elements by X-ray fluorescence. Five alaskite samples and one volcanic sample were analyzed for rare earth elements by neutron activation. The geochemistry sample distribution is shown in Figure 15.

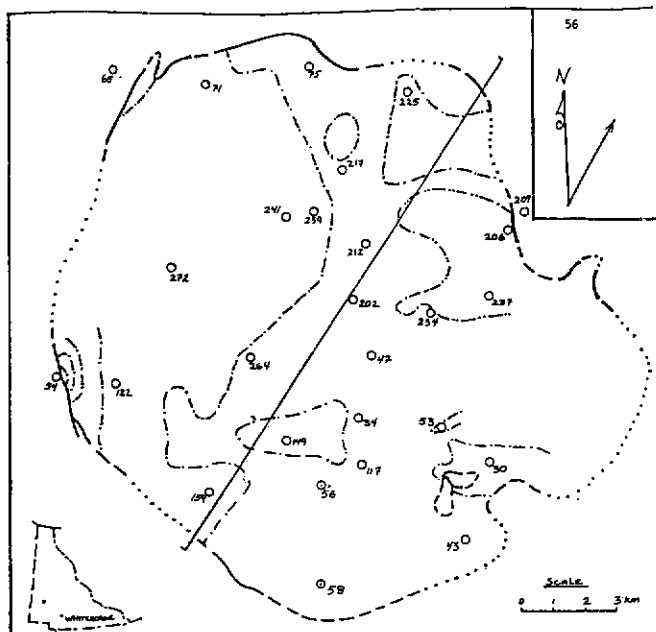


Figure 15. Map showing location of samples for geochemistry.

The Pattison is an acid subaluminous alkali granite. In terms of major elements, the alaskite is very uniform across all textural subdivisions including the aplite dykes (Tables 1 and 2). No trends are seen. Conversely, the large ion lithophile elements Ba, Rb and Sr vary considerably within the pluton according to their textural category. Figure 16, Ba versus Rb demonstrates a good linear trend and an apparent liquid line of descent; three of the four fine grained alaskite samples have high Ba and low Rb, the dykes have low Ba but high Rb and the medium grained alaskite clusters with the coarse grained alaskite in between these. In the Ba versus Sr graph (Fig. 17), the early formed fine grained alaskite samples have the high Ba and Sr contents, the late dykes have low Ba and Sr while the medium and coarse grained alaskites occur together between these. The textural subdivisions are gradational and the observed chemical overlapping of the alaskite is to be expected. However, the dykes are a crosscutting feature and Ba and Sr values do not overlap those of the alaskite, even though it is apparent that the dykes were derived from a residual phase of the alaskite.

On both of the large ion lithophile element plots (Fig. 16 and 17), vectors are drawn which show the trends that single crystal phases would impart on the melt during Rayleigh fractional crystallization.

Table 1. Chemistry of the coarse grained alaskite, aplite dykes and volcanics.

	COARSE GRAINED ALASKITE										APLITE DYKES					VOLCANICS				
Sample No.	154	172	122	718	239	241	53	202	34	117	478	47C	548	65	209					
% SiO ₂	76.95	74.58	74.93	75.12	75.39	75.53	76.32	76.25	76.45	76.88	75.36	73.01	64.61	59.11	48.26					
% Al ₂ O ₃	12.36	12.87	12.35	12.77	12.64	12.94	12.50	12.23	12.20	12.33	11.73	11.97	16.51	16.49	14.63					
% Fe ₂ O ₃	1.24	1.38	1.45	1.34	1.00	1.29	1.40	1.15	1.36	1.23	2.05	3.00	4.93	6.67	9.74					
% MgO	0.36	0.29	0.27	0.27	0.25	0.27	0.29	0.29	0.33	0.40	0.27	0.33	1.51	2.61	5.51					
% CaO	0.32	0.42	0.50	0.38	0.42	0.3	0.46	0.53	0.51	0.35	0.44	0.87	4.98	6.35	10.11					
% Na ₂ O	3.91	3.86	3.77	3.98	3.78	4.24	4.07	4.51	4.44	4.44	3.75	3.61	2.75	3.66	1.61					
% K ₂ O	4.64	5.23	4.67	5.01	5.06	5.06	4.86	4.23	4.39	4.42	4.28	4.85	2.10	2.88	2.50					
% TiO ₂	0.06	0.07	0.07	0.07	0.07	0.06	0.07	0.05	0.07	0.06	0.12	0.28	0.61	0.81	1.12					
% P ₂ O ₅	0.0	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
% MnO	0.01	0.01	0.01	0.01	0.00	0.01	0.03	0.01	0.01	0.03	0.01	0.05	0.01	0.12	0.18					
% S	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
PPM Ba	405	450	300	525	478	467	472	51	67	54	85	95	1205	1402	795					
PPM Rb	9	10	0	0	6	9	0	9	7	10	0	3	2	18	103					
PPM Sr	180	188	194	202	187	195	178	191	220	208	205	181	211	364	158					
PPM Cs	12	10	6	10	12	13	14	0	0	0	1	5	1024	527	542					
PPM Pb	163	186	159	168	179	171	158	217	243	261	180	183	68	83	63					
PPM Y	44	45	52	40	36	53	53	87	74	25	59	72	18	22	27					
PPM Nb	24	11	28	26	22	30	-	68	52	53	3	5	5	0	0					
PPM Zn	56	68	92	115	49	60	79	59	77	90	107	163	95	68	85					
PPM Ni	21	7	8	11	6	7	97	8	7	8	120	48	20	10	20					
TOTAL	99.757	98.869	98.154	98.980	98.741	99.828	100.127	99.437	99.755	100.046	98.012	98.172	98.544	99.155	94.481					

Table 2. Chemistry of the medium and fine grained alaskites.

	MEDIUM GRAINED ALASKITE										FINE GRAINED ALASKITE									
Sample No.	47A	234	217	43	75	212	225	58	264	56	206	237	30	148						
% SiO ₂	75.34	75.13	74.49	74.62	74.16	75.64	76.44	75.06	74.98	75.38	75.42	74.57	74.78	75.79						
% Al ₂ O ₃	12.60	12.50	12.70	12.64	12.90	12.76	12.67	12.71	12.64	12.80	12.62	12.66	12.88	12.38						
% Fe ₂ O ₃	1.77	1.41	1.48	1.80	1.32	1.15	0.94	1.41	1.33	1.73	0.74	1.85	0.89	1.31						
% MgO	0.28	0.22	0.33	0.26	0.32	0.33	0.34	0.31	0.26	0.30	0.27	0.21	0.39	0.11						
% CaO	0.52	0.42	0.51	0.34	0.27	0.30	0.27	0.30	0.40	0.43	0.50	0.41	0.43	0.13						
% Na ₂ O	3.83	4.03	4.05	4.15	4.34	4.06	4.33	4.10	4.25	4.13	4.20	3.83	4.05	3.98						
% K ₂ O	5.02	4.75	4.90	4.86	4.91	4.93	4.89	4.94	4.93	4.96	4.90	4.93	5.01	4.85						
% TiO ₂	0.09	0.08	0.08	0.11	0.08	0.09	0.07	0.08	0.07	0.10	0.09	0.09	0.09	0.07						
% P ₂ O ₅	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
% MnO	0.02	0.01	0.01	0.05	0.01	0.01	0.01	0.02	0.01	0.03	0.01	0.06	0.00	0.03						
% S	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01						
PPM Ba	520	337	475	1205	517	475	879	441	527	8	868	711	833	294						
PPM Rb	0	10	8	10	9	9	9	7	10	0	0	0	0	0						
PPM Sr	200	187	200	268	216	199	214	195	203	209	224	236	232	198						
PPM Cs	15	9	12	10	12	11	9	14	13	29	25	16	21	6						
PPM Pb	160	164	155	144	168	149	171	160	173	152	158	158	159	176						
PPM Y	53	57	43	35	56	41	25	49	36	43	51	45	47	46						
PPM Nb	118	112	79	141	84	86	69	58	67	80	86	115	218	69						
PPM Ni	33	8	9	8	7	10	5	11	6	114	8	9	9	7						
TOTAL	99.602	98.798	98.651	98.978	98.690	99.420	100.072	99.060	98.939	101.000	98.824	98.762	98.717	99.168						

Plagioclase and mostly K-feldspar are responsible for the trends within the Pattison Pluton. Biotite does not appear to have been an influence. This is due to its low abundance and because of its late appearance. Rayleigh fractional crystallization assumes that only the crystal surface is in equilibrium with the melt (Tindle and Pearce, 1981). This seems to be a good assumption for the Pattison Pluton since some of the plagioclase crystals are zoned.

The partition coefficients for the alaskite were likely constant throughout its evolution because temperature dependence of partition coefficients is small for these types of melts (Mahood & Hildreth, 1983) and its composition was constant throughout crystallization. Partition coefficients used are shown in Table 3.

Table 3. Mineral/Melt partition coefficients.

	1. K-feldspar	2. plagioclase	3. biotite	4. clinopyroxene	5. hornblende
Ba	12.9	1.21	3.21	0.131	0.044
Rb	1.04	0.091	2.51	0.032	0.014
Sr	3.55	4.12	0.080	0.516	0.022

1. 2. and 3. from Mittlefehldt and Müller (1983),
4. and 5. from Arth and Hanson (1975).

Since there are no major element trends to correspond with the observed minor element and textural variations, it can be assumed that crystallization of the Pattison Pluton occurred mostly at a natural

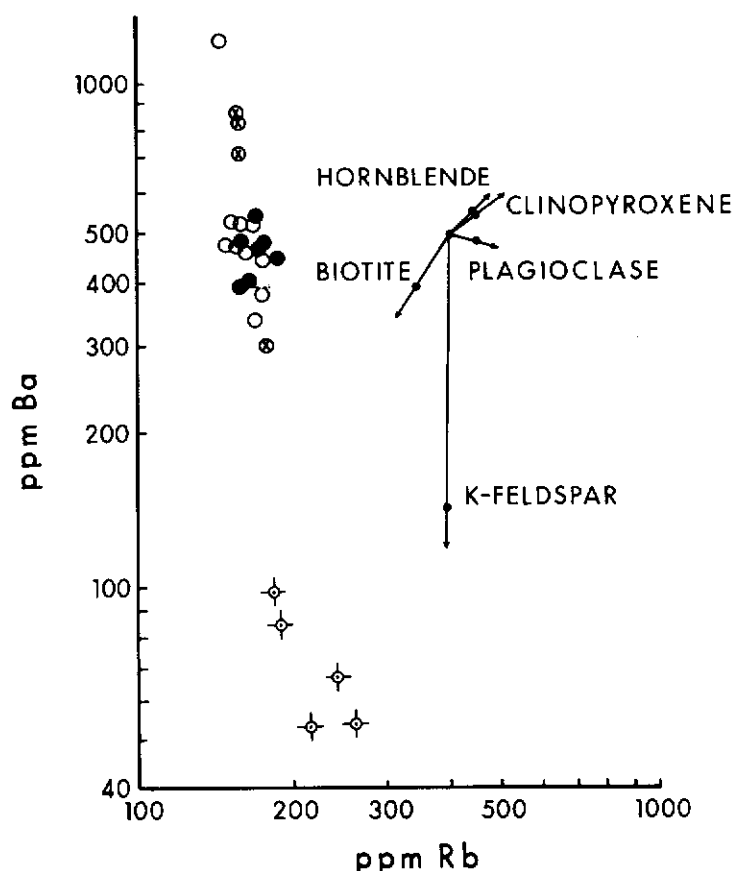


Figure 16. Ba versus Rb plot for the Pattison Pluton; alaskite - coarse grained ($\bullet$), medium grained ($\circ$), fine grained ($\circ$) and aplite dyke ($\diamond$). Vectors are drawn for Rayleigh fractional crystallization of individual phases, from the equation

$$\frac{C_L}{C_0} = F(D_a - 1)$$

C_L = concentration of element a in the residual melt,

C_0 = concentration of element a in the original melt,

D_a = bulk distribution coefficient for element a,

F = weight fraction of melt remaining. F was arbitrarily set at 0.9 for Figures 16 and 17.

eutectic point. The presence of zoned plagioclase goes against this conclusion. The plagioclase is thought to have formed at a very early stage just prior to the arrival of the melt at the eutectic point. The low abundance of zoned plagioclase did not noticeably influence the major element chemistry between the textural subdivisions.

Rare Earth Element Distribution and Partitioning

Rare earth element abundances are shown in Table 4. Unfortunately, no data is available for the fine grained alaskite.

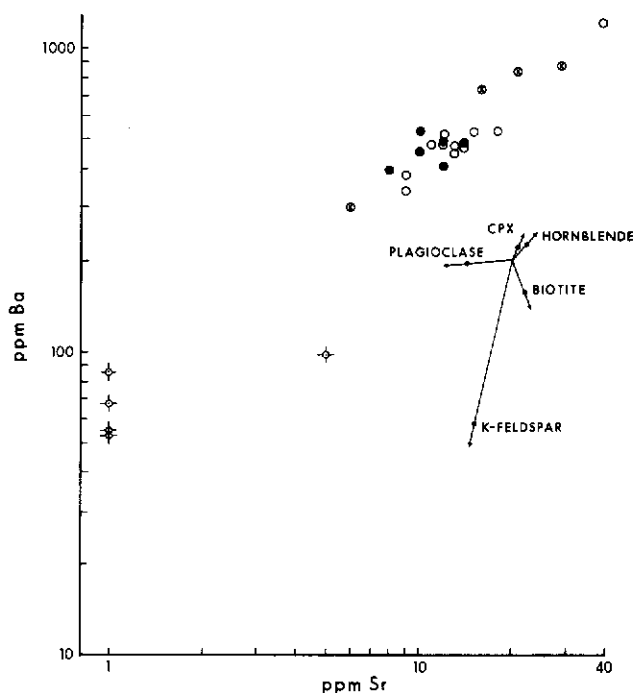


Figure 17. Ba versus Sr plot with vectors shown for Rayleigh fractional crystallization of single mineral phases, $F=0.9$. Symbols as for Figure 16.

Table 4. Concentrations of REE, Th and Hf.

Rock Type	aplite dyke		medium-grained alaskite		coarse-grained alaskite	Volcanic
Sample No.	47B	47C	47A	56	53	54B
ppm						
Ce	26.662	65.727	119.061	109.633	89.590	50.295
Nd	16.814	27.432	46.368	46.817	38.187	23.648
Sm	9.178	12.520	12.076	11.487	12.870	6.064
Eu	0.025	0.244	0.711	0.682	0.689	1.361
Tb	1.155	2.008	1.112	1.097	1.534	0.557
Yb	5.940	9.178	5.142	5.956	6.538	2.068
Lu	0.875	1.281	0.781	0.790	0.856	0.327
Th	18.931	18.159	12.586	15.511	13.389	5.776
Hf	4.317	5.339	5.082	6.159	0.973	3.366

Figure 18 illustrates the REE trends. The medium grained alaskite is enriched in the light REE while the aplite samples are relatively depleted. The single coarse grained alaskite sample is in between the two. For the coarse grained alaskite and aplite dykes, Sm is enriched relative to Nd. This is not the situation for the medium grained alaskite. All five samples of Figure 18 cluster close together at Sm. Very strong negative Eu anomalies are present, especially for the aplite dykes. In the heavy REE, both of the medium grained alaskite samples as well as one of the aplite samples are relatively depleted. The other aplite sample is enriched in the heavy REE while the coarse grained alaskite has the middle values.

The presence of allanite, fluorite and possibly monazite in the medium grained alaskite accounts for

the high light REE values (Deer, Howie and Zussman, 1966). The later formed dykes and coarse grained alaskite are subsequently depleted even though they also contain allanite, fluorite and possibly monazite. Fractional crystallization of feldspar in the alaskite accounts for the low Eu content of the aplite. The heavy REE information is complicated by the fact that one of the aplite dykes has relatively high values and the other sample is found amongst the low values with the medium grained alaskite. The high heavy REE values in the one dyke go against the observation that zircon may be present. Since zircon has a high affinity for the heavy REE (Hanson, 1980), then the late phases of the pluton (i.e. aplite dykes) should be depleted in heavy REE. Fine grained zircon is often mistaken for monazite in optical studies of

and diluted the stable REE values of 47C. The amplified Eu anomaly of 47C was possibly due to alteration and removal of feldspar which has a high affinity for Eu (Hanson, 1980). Parallel shifts in REE patterns for one rock unit is a common indicator of alteration (Campbell et al, 1982, Dostal and Strong, 1983). Chemical analysis indicates that the alteration fluid was possibly iron rich (Table 1). 47C and 47B are two parallel aplite dykes from the same outcrop. The alteration is peculiar in that it appears to be restricted to the one dyke, leaving the host rock unaffected.

If zircon is not present, then the heavy REE are enriched into the progressively later phases - the early medium grained alaskite with the low values, the late aplite dyke with the high value, and again, the coarse grained alaskite in between these.

REE ABUNDANCE

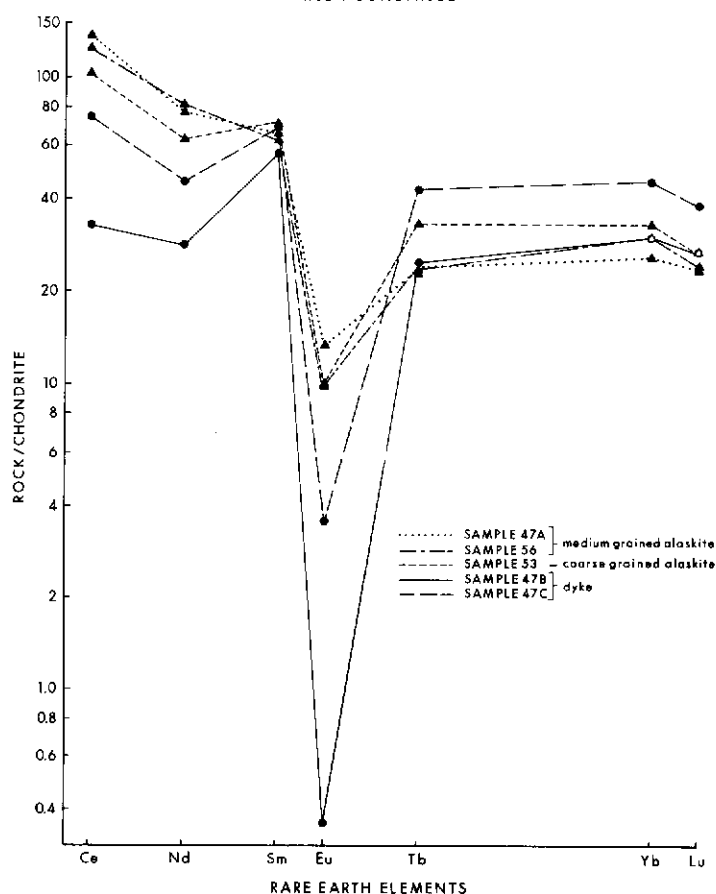


Figure 18. Chondrite normalized REE abundances in the Pattison Pluton.

granitic rocks (Mittlefehldt and Miller, 1983) and is probably the case here.

The REE patterns for both dyke samples are the same except that all of the values for Sample 47C are shifted to lower amounts. Field observations show that 47C has been altered and the porosity of 47C is distinctly lower than 47B. Also, 47C has a high biotite content (15 to 20 percent fine grained biotite). It appears that a late fluid penetrated 47C and precipitated biotite. This lowered its porosity

Use of Experimental Data

Normative values for the alaskite and aplite (Tables 5 and 6) plot within the restricted area of the shaded box in the $\text{SiO}_2 - \text{KAlSi}_3\text{O}_8 - \text{NaAlSi}_3\text{O}_8$ diagram (Fig. 19). Again, the homogeneity of the Pattison Pluton is demonstrated. The shaded area is the eutectic point (or very near) for the alaskite. It corresponds to experimental eutectics from one to four kilobars with most values including the end member apaites closer to two kilobars. This system applies well to the alaskite since normative $\text{SiO}_2 - \text{KAlSi}_3\text{O}_8$ make up more than 95% of the rock.

At 2 kbar, biotite is the last phase to crystallize from a biotite granite only if the water content for the entire system is less than 1.2 weight percent (Maaloe and Wyllie, 1975). Thus, the water content for the Pattison Pluton must have been less than 1.2 weight percent (approximately).

Table 5. Normative values (weight percent) for the coarse grained alaskite and aplite dykes.

SAMPLE NO	COARSE GRAINED ALASKITE						APLITE DYKES		
	154	272	122	71 B	239	241	202	34	117
Q	35.331	31.289	34.316	32.144	33.207	30.552	32.992	32.856	33.230
C	0.120	0.213	0.184	0.290	0.179				
OR	27.541	31.324	28.181	29.979	30.152	30.017	25.184	26.056	26.157
AB	33.196	33.069	32.541	34.066	32.433	35.976	38.408	37.694	37.585
AN	1.593	1.778	2.531	1.405	2.113	1.323	0.628	0.111	0.650
DI						0.171	1.568	1.779	0.112
EN	0.900	0.731	0.686	0.680	0.631	0.595			0.944
NO							0.002	0.060	
RU	0.074	0.060	0.060	0.59	0.071	0.049	0.039	0.059	0.026
MT									
IL	-0.026	0.002	0.022	0.022		0.021	0.022	0.021	0.064
HM	1.244	1.397	1.479	1.356	1.014	1.294	1.158	1.365	1.231
PO	0.028	0.117							

Table 6. Normative values (weight percent) for the medium and fine grained alaskites.

Sample No.	MEDIUM GRAINED ALASKITE						FINE GRAINED ALASKITE			
	264	217	75	43	212	225	234	206	237	30
Q	30.799	31.167	29.245	31.291	32.139	31.590	32.435	31.959	32.677	30.928
C					0.121				0.277	0.277
OR	29.387	29.413	29.469	29.114	29.364	29.936	29.535	29.380	29.581	30.076
AB	36.384	34.774	37.258	35.560	34.589	36.650	35.063	35.164	32.871	34.063
AN	0.910	2.020	1.222	1.357	1.699	0.681	1.884	1.569	2.063	2.143
DI	0.855	0.466	1.047		0.513	0.177	0.177	0.716	0.017	0.046
EN	0.259	0.568	0.323	0.656	0.828	0.609	0.725	0.340	0.530	0.978
NO										
RU	0.059	0.070	0.095	0.294	0.079	0.059	0.083	0.080		0.091
MT									0.650	0.062
IL	0.022	0.022	-0.026	0.212	0.022	0.021	-0.005	0.022	0.022	0.113
HM	1.326	1.502	1.339	1.359	1.158	0.940	1.425	0.750	1.137	0.903
AP										
PO							0.028			0.028

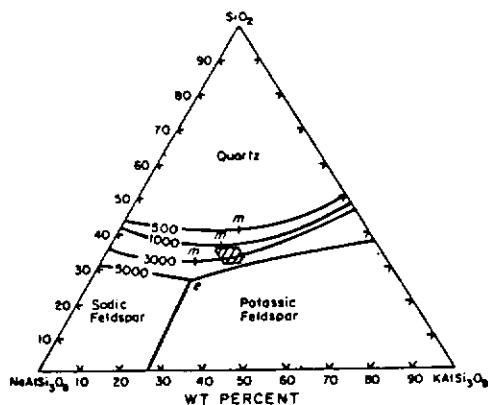


Figure 19. Phase diagrams showing boundary curves for water saturated liquids in equilibrium with quartz and alkali feldspar at indicated confining pressures (500, 1000, 3000, 5000 bars) (from White et al, 1981). Pattison Pluton values plot in the shaded area.

Experimental data from Burnham (1967) demonstrates that pegmatites at 2 kbar are saturated with respect to water only when the water content is 6.6 weight percent or greater. Water saturated textures are most evident in the medium grained alaskite (i.e. high abundance of large miarolitic cavities). For the alaskite to increase its water content from 1.2 weight percent to 6.6 weight percent, over 75 percent of the magma would have had to crystallize anhydrous phenocrysts. However, the medium grained alaskite contains no more than 30 percent phenocrysts. This indicates that much of the lower pluton had crystallized and/or fluid was migrating to, and concentrating in the top of the chamber. Higher concentrations of fluids in the upper zones would have depressed the melting temperature, allowing for further crystallization to occur from the bottom up.

Graphic and micrographic textures are extensively developed in the medium grained alaskite and moderately well developed in the coarse grained alaskite. Jahns and Burnham (1969) have shown that graphic textures are formed in water rich magmas in the presence of a separate aqueous fluid phase containing dissolved alkali chloride. It is also generally accepted that graphic intergrowths are formed under eutectic conditions (Cox, Bell, and Parkhurst, 1979, p. 301). Graphic textures involve the intergrowth of dendritic quartz with alkali feldspar (the latter filling in the interstices, Swanson, 1978). Most authors agree that the quartz and alkali feldspar crystallize simultaneously (Simpson, 1962, Fenn, 1979a, Shannon et al, 1982), but Swanson (1976) suggests that graphic textures in granites formed by the "initial growth of dendritic quartz followed by the crystallization of alkali feldspar." The formation of dendritic quartz proceeds at relatively low temperatures (Fenn, 1979b).

Besides the presence of a graphic groundmass, the high concentration of miarolitic cavities in the medium grained alaskite is further evidence of the high fluid content as well as the low pressure of this rock at one time in its evolution. The graphic and micrographic textures mantle, surround and use the feldspar phenocrysts as a substrate, indicating that

they formed later than the phenocrysts. The irregular form of the miarolitic cavities indicates that they are a late feature as well.

DISCUSSION AND SYNTHESIS

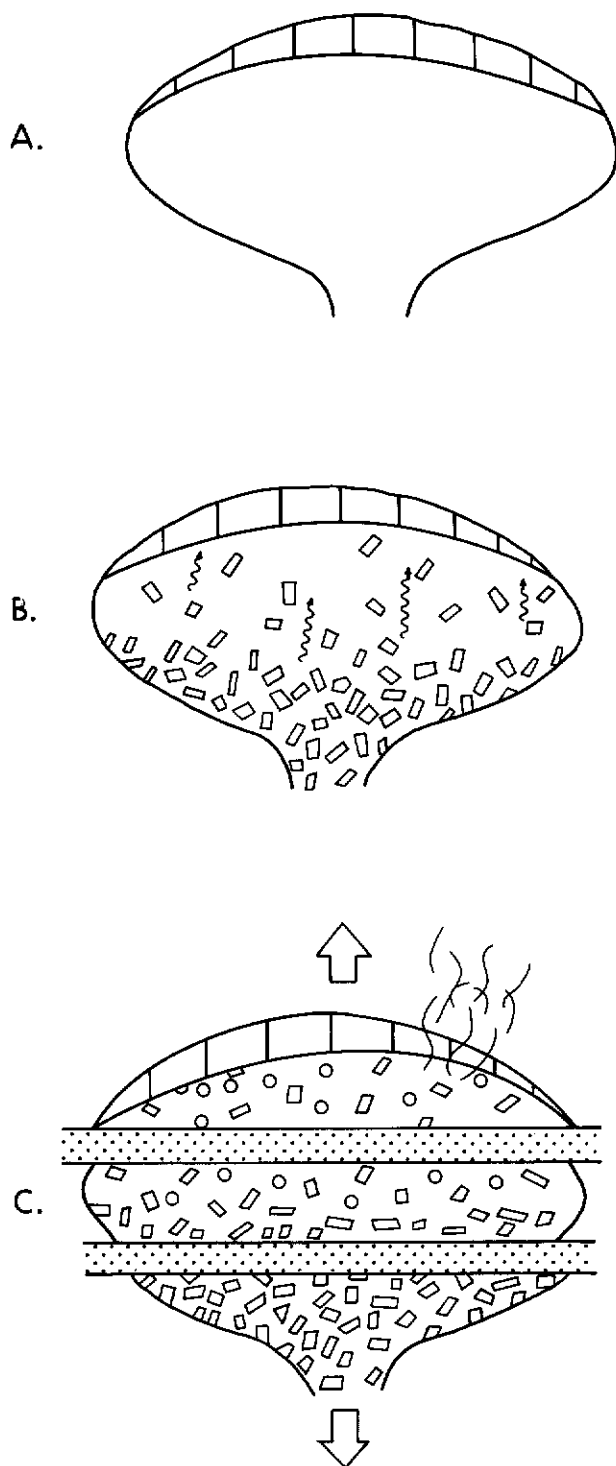
Three principal crystallization stages were involved in the formation of the Pattison Pluton (Fig. 20):

- Chilling of the fine grained alaskite.
- Formation of feldspar phenocrysts from a relatively dry, biotite free, slow cooling melt.
- Rapid cooling, fluid-rich stage characterized by graphic textures, miarolitic cavities and injection of aplite dykes.

Initially, the relatively dry alaskite magma intruded to high levels and was chilled along its upper surface to form the fine grained alaskite upper border phase. The early formed feldspars concentrated Ba and Sr. Rb was enriched into the melt.

Subsequently, the pluton was stationary and confining pressures remained constant. As the temperature dropped, anhydrous crystals began to form. Minor phases such as allanite and monazite (?) formed first in the upper cooler regions and concentrated the light REE. The residual melt became enriched in heavy REE and depleted in light REE. Ba, Rb, Sr and Eu information indicate that feldspars formed at approximately the same time in the upper and lower sections. With increased phenocryst production there came a rise in volatile pressure with the volatiles migrating and concentrating near the top of the chamber where the melting temperature was depressed. Further crystallization occurred from the bottom up.

Late in the crystallization history, vapour pressure exceeded confining pressures. This caused retrograde boiling and the formation of irregularly shaped bubbles, later to become the miarolitic cavities. Retrograde boiling greatly reduced the temperature within the pluton (Evans, 1980, p. 125). The combination of a separate fluid phase with the lowered temperature allowed for the formation of the graphic groundmass. The graphic groundmass was developed to an extensive degree in the medium grained alaskite where much residual melt was still available and to a lesser degree in the coarse grained alaskite where most of the melt had already crystallized and the water content was lower. At this point, there was also failure of the surrounding rocks causing vertical extension of the body. The extension created sets of flat lying open gaps. Pressure gradients gave rise to injection of volatiles and residual magma into the openings to form the aplite dykes, leaving behind a more porous alaskite. The more mobile volatiles would have been the first to race through the openings, effecting volatile transfer (Cox, Bell and Parkhurst, 1979, p. 8) and precipitating hornblende, as well as medium to coarse grained graphic quartz and feldspar as shingle-like aggregates perpendicular to the hot walls of the openings. The ensuing intrusion of dryer melt by filter pressing, chilled and formed the aplite. In some localized areas, the extension was at least five percent. This is demonstrated in the castellated outcrops which may have 0.5 meters of dyke thickness for every 10 meters of alaskite. Movement



of the crystal mush likely caused the strain features found in the mineral phases of the alaskite. These features are not present in the minerals of the aplite dykes.

Retrograde boiling, failure and brecciation of surrounding rocks, vertical extension, formation of the graphic groundmass, straining of the minerals,

Figure 20. Cartoon representation of the evolution model for the Pattison Pluton.

- A. Initial rapid chilling of the upper border phase.
- B. Concentration of volatiles at the top of the Pluton, buildup of volatile pressure, and formation of the lower coarse-grained alaskite.
- C. Vertical extension, lateral injection of aplite dykes, formation of miarolitic cavities and the graphic groundmass as well as quartz veining with molybdenum mineralization.

intrusion of aplite dykes and injection of molybdenum bearing quartz veins are all thought to have occurred approximately simultaneously towards the end of the Pattison Pluton's evolution.

Similar mineralogy and textures are present in the Tertiary alaskites of the Aishihik Lake map area (Ridgeway, 1973).

Acknowledgements

This project was funded by the Exploration and Geological Services Division, Whitehorse, Yukon. I am grateful to Dr. J.A. Morin, for initiating the project and supplying me with the perfect thesis topic. Many thanks go to staff geologist Pat Watson, who efficiently organized and led in the field work. I am greatly indebted to Dr. Calvin Pride, University of Ottawa, who supervised this work and was very generous with his time at school as well as in having visited us in the field. I would also like to acknowledge Ron Hartree and Jean Lafleur for their tutoring in the X-ray laboratory.

LIST OF REFERENCES

- ARTH, J.G., HANSON, G.H. 1975. Geochemistry and origin of the early Precambrian crust of North-eastern Minnesota; *Geochimica et Cosmochimica Acta*, Vol. 39, pp. 325-362.
- BURNHAM, C.W. 1967. Hydrothermal fluids at the magmatic stage. In: H.L. Barnes (editor), *Geochemistry of Hydrothermal Ore Deposits*; Holt, Rinehart and Winston, Inc., Montreal, 670 p.
- CAMPBELL, I.H., GOAD, P., FRANKLIN, J.M., GORTON, M.P., HART, T.R., SOWA, J., THURSTON, P.C. 1982. Grant 80: Rare earth elements in felsic volcanic rocks associated with Cu-Zn massive sulphide mineralization. In: E.G. Pye (editor), *Ont. Geol. Survey Misc. Paper 103*, pp. 20-28.
- COX, K.G., BELL, J.D., PARKHURST, R.J. 1979. *The Interpretation of Igneous Rocks*; George Allen and Unwin, Boston, 450 p.
- DEER, W.A., HOWIE, R.A., ZUSSMAN, J., 1966. *An Introduction to the Rock Forming Minerals*; Longman Group Ltd., London, 528 p.

- DOSTAL, J., STRONG, D.F. 1983. Trace-element mobility during low-grade metamorphism and silicification of basaltic rocks from Saint John, New Brunswick; *Can. J. Earth Sciences* Vol. 20, pp. 431-435.
- EVANS, A.M. 1980. *An Introduction to Ore Geology*; Elsevier, New York, 321 p.
- FENN, P.M. 1979a. On the origin of graphic intergrowths; *Geological Society of America, Abstracts with Programs*, Vol. 11, p. 424.
- FENN, P.M. 1979b. Experimental crystallization of Harding, New Mexico pegmatite; *Geological Society of America Abstracts with Programs*, Vol. 11, p. 77.
- HANSON, G.N. 1980. Rare earth elements in petrogenetic studies of igneous systems; *Ann. Rev. Earth Planet. Sci.*, Vol. 8, pp. 371-406.
- JAHNS, R.H., BURNHAM, C.W. 1969. Experimental studies of pegmatite genesis: I. A model for the derivation of crystallization of granitic pegmatites; *Economic Geology*, Vol. 64, pp. 843-864.
- LYNCH, G.V. 1983. *Petrology and Geochemistry of the High Level Alaskitic Pattison Pluton, Snag Map Area, Yukon*; B.Sc. thesis, University of Ottawa, 87 p.
- MAALOE, S., WYLLIE, P.J. 1975. Water content of a granite magma deduced from the sequence of crystallization determined experimentally with water undersaturated conditions; *Contr. Mineral. Petrol.*, Vol. 52, pp. 175-191.
- MAHOOD, G., HILDRETH, W. 1983. Large partition coefficients for trace elements in high-silica rhyolites; *Geochimica et Cosmochimica Acta*, Vol. 47, pp. 11-30.
- MITTFELFELDT, D.W., MILLER, C.F. 1983. Geochemistry of the Sweetwater Wash Pluton, California: implications for "anomalous" trace element behavior during differentiation of felsic magmas; *Geochimica et Cosmochimica Acta*, Vol. 47, pp. 109-124.
- RIDGEWAY, W.R. 1973. *The Petrology of Nisling and Ruby Range Volcanic and Plutonic Rocks, Yukon Territory*; B.Sc. thesis, University of British Columbia, Vancouver, B.C., 49 p.
- SHANNON, J.R., WALKER, B.M., CARTEN, R.B., GERAGHTY, E.P. 1982. Unidirectional solidification textures and their significance in determining relative ages of intrusions at the Henderson Mine, Colorado; *Geology*, Vol. 10, pp. 293-297.
- SIMPSON, D.R. 1962. Graphic granite from the Ramona Pegmatite District, California; *American Mineralogist*, Vol. 47, pp. 1123-1137.
- STRECKEISEN, A. 1976. To each plutonic rock its proper name; *Earth Science Reviews*, Vol. 12, pp. 1-33.
- SWANSON, S.E. 1976. Growth of quartz crystals from silicate melts and the origin of the graphic granite texture (abs.); *EOS (American Geophysical Union Transactions)*, Vol. 57, p. 340.
- SVANSON, S.E. 1978. Snowflake-like quartz, McKinney Mine, North Carolina - Evidence of rapid crystallization; *Geological Society of America Abstracts with Programs*, Vol. 10, p. 198.
- TEMPELMAN-KLUIT, D.J. 1974. Reconnaissance geology of Aishihik Lake, Snag and part of Stewart River map areas, west-central Yukon; *Geol. Surv. Can.*, Paper 73-41, 97 p.
- TEMPELMAN-KLUIT, D.J. 1981. Geology and mineral deposits of southern Yukon. In: *Yukon Geology and Exploration, 1979-80*; Department of Indian and Northern Affairs, 1981, Whitehorse, pp. 7-31.
- TINDLE, A.G., PEARCE, A.P. 1981. Petrogenetic modeling of in-situ fractional crystallization in the zoned Loch Doon Pluton, Scotland; *Contributions to Mineralogy and Petrology*, Vol. 78, pp. 196-207.
- WHITE, W.H., BOOKSTROM, A.A., KAMILLI, R.J., GANSTER, M.W., SMITH, R.P., RANTA, P.E., STEININGER, R.C. 1981. Character and origin of Climax-type molybdenum deposits. In: B.J. Skinner (editor), *Economic Geology Seventy-Fifth Anniversary Volume, 1905-1980*, pp. 270-316.

A SEDIMENTOLOGIC DESCRIPTION
OF CLEAR CREEK FLUVIATILE SEDIMENTS
115 P, CENTRAL YUKON

by

S.R. Morison
Exploration and Geological Services Division
Whitehorse, Yukon

Introduction

Clear Creek drainage basin (see Figure 1) contains fluvial gravels which have been explored and mined for placer gold since the early 1900's. Access is largely by road, and there were four mining operations and two exploration programs in the basin during the mining season of 1992. This paper briefly describes the various fluvial sediments in Clear Creek drainage basin, interprets the described facies, and outlines the fluvial environment which influences the distribution of placer gold in Clear Creek gravels. The author would like to thank the placer miners on Clear Creek for their hospitality and for access to both their properties and gold.

General Geology

McQuesten map sheet (115 P) has been mapped by Bostock (1964) at a scale of 1:250,000 (see Figure 2). Clear Creek drainage basin is characterized by Late PreCambrian(?) metasedimentary rocks, and a Cretaceous granitic intrusion. Late Tertiary (Pliocene?) outcrops of fine and coarse clastics can also be found in the Tintina valley, and it is of interest to note that Bostock (1964) mapped an outcrop of White Channel Gravel (Unit 19A) which has been mined for placer gold (see Figure 2). Altered and crumbly schistose and granitic bedrock is generally associated with and below the Late Tertiary clastic deposits, and appears to be similar to the bedrock alteration described by Tempelman-Kluit (D.I.A.N.D., 1982) in the Klondike area. It is also of interest to note that some Late Tertiary clastic exposures described by the author appear to be largely reworked granitic gneiss with distinct planar stratification, which implies pre-Pliocene(?) alteration of the Cretaceous intrusion. Figure 2 illustrates that Clear Creek drainage basin is beyond the Reid glacial limit as defined by Bostock (1966), and Hughes et al (1969). Glacial drift within the Reid limit is thought to represent an early Wisconsin Cordilleran ice advance (Hughes et al, 1969), and consequently glacial drift within Clear Creek drainage basin probably represents an older advance (i.e. pre-Wisconsin?) which has been outlined by the pre-Reid glacial limit (see Figure 2, after Hughes et al 1969). It should be noted however, that immediately south of Bellevue Point (see Figure 2), the author has mapped an outcrop of diamicton (Reid till?) which directly overlies pre-Reid sand and gravel. Pre-Reid glacial deposits in Clear Creek basin include till, resedimented till sequences, and glaciofluvial sediments. Other surficial materials include colluvial veneers and blankets, debris and sediment flow deposits, and alluvial fans, terraces, and plains.



Figure 1. Location map for Clear Creek.

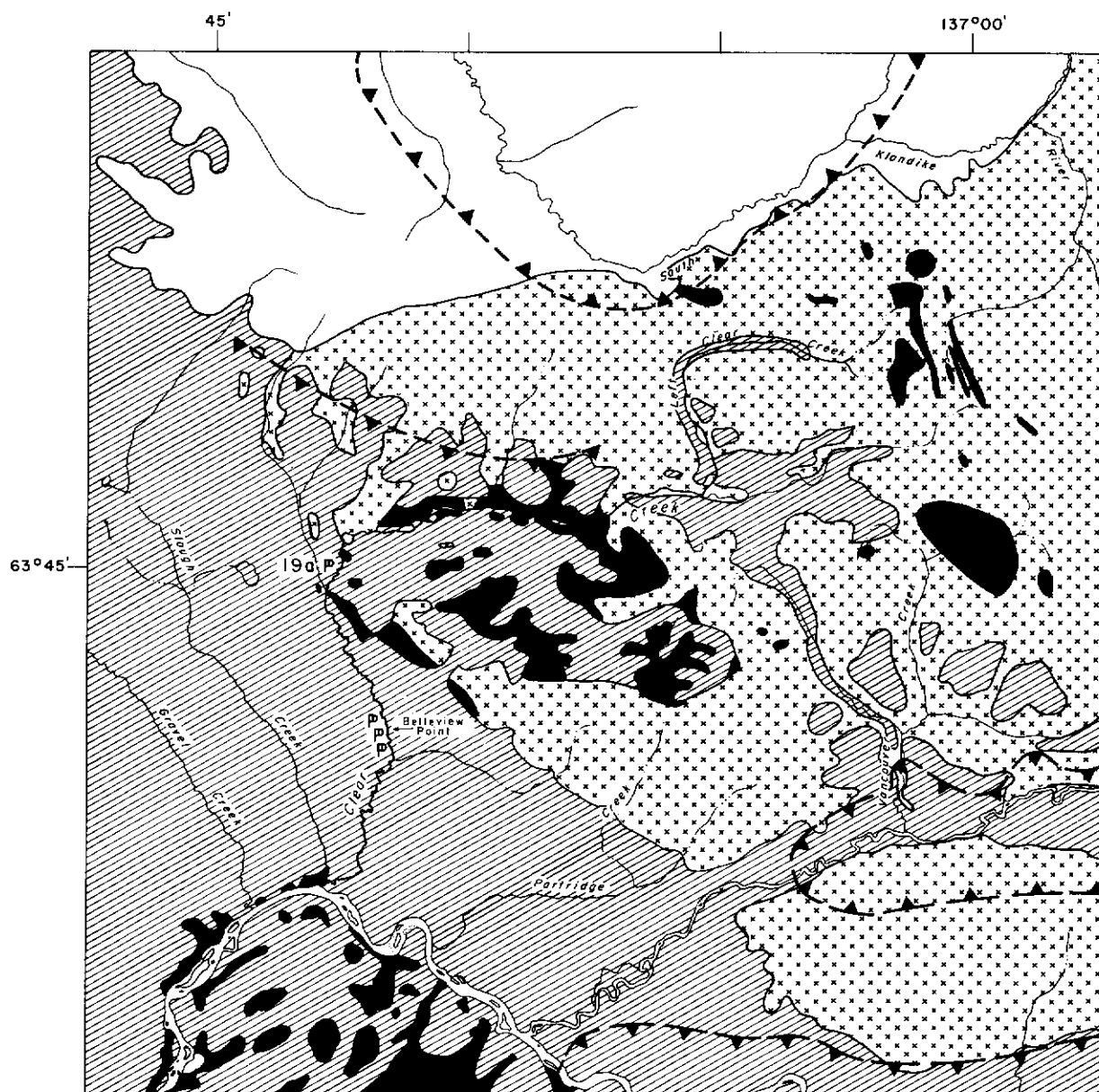
Quaternary History

Clear Creek drainage basin contained a substantial thickness of both Late Tertiary (Pliocene?) clastic and pre-Reid glacial deposits. During the Wisconsin glacial interval, fluvial erosion and downcutting through these thick clastic deposits and into competent bedrock occurred. Clear Creek reached base level, and was progressively widened through lateral stream erosion. The valley bottom gravelly facies largely represents the widening and lateral erosion of Clear Creek valley in competent bedrock. These gravels have been radiocarbon dated at 6230 ± 80 years and it is important to understand that the associated placer minerals represent a concentration process which occurred during the Wisconsin glacial interval. The concentration process and gravelly sedimentation ended during the late Holocene, at which time the fluvial regime of Clear Creek changed dramatically. The tributaries to Clear Creek (i.e. Zinc Creek, Barlow Creek, and Squaw Creek) were also eroded by fluvial downcutting during the Wisconsin glacial interval, and the present day V-shaped, incised drainage is the result.

Valley Bottom Fluvial Sediments: Lithofacies Description and Interpretation

Seven distinct sedimentary facies have been assigned to Clear Creek fluvial deposits.

The silty facies has two members F_{1c} and F_{1tc} (see Figure 3). Facies F_{1c} is characterized by sediment which is generally silt to fine sand, with occasional pockets and stratifications of coarser clastics (i.e. coarse sand to grit). It is dominantly laminated, and may be wavy parallel, even parallel,



LEGEND

QUATERNARY

Approximate Glacial Advance Limits
(after Hughes et al, 1969)

Reid 
Pre-Reid

 Surficial deposits undivided

TERTIARY

Pliocene (?) Outcrop P
(Unit 19a - "White Channel Gravel")

CRETACEOUS

Granite, granodiorite, quartz monzonite

ORDOVICIAN (?) OR EARLIER (Yukon Group)

 Schist, quartzite, phyllite, limestone

(Geology after Bostock 1964)

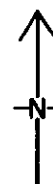
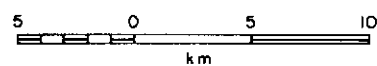


Figure 2. General Geology and Glacial Limits of Clear Creek Area.

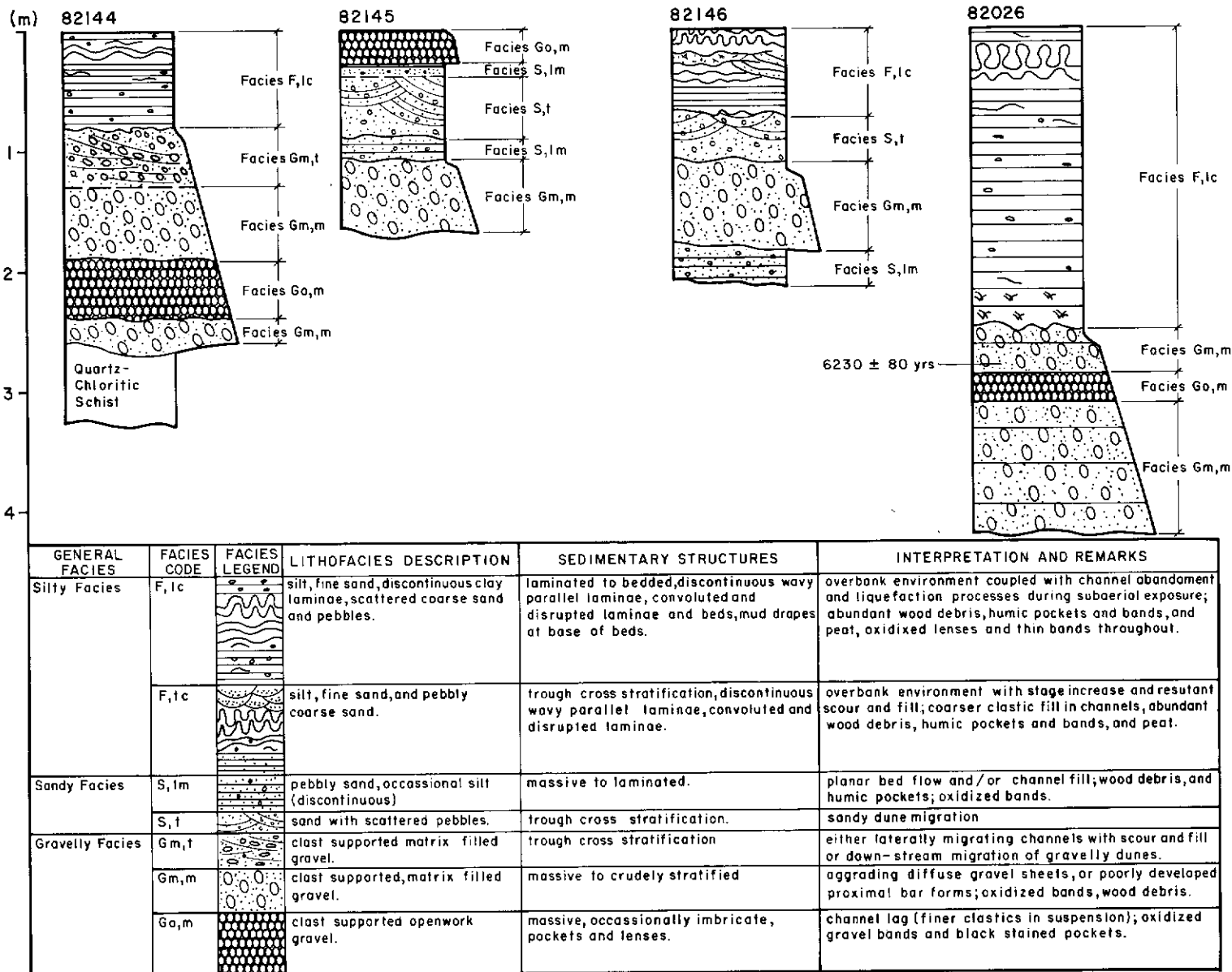


Figure 3. Sedimentary facies for Clear Creek fluvial deposits. Note the vertical sequences of mapped exposures, and the radiocarbon date in column 82026.

convoluted, or disrupted (see Figure 3). Mud drapes are seen at the base of this facies, and significant peat accumulation and wood debris is common. The interpretation of F,lc involves channel abandonment coupled with deposition of finer clastics, and organic landform establishment. Liquefaction processes in association with overloading or deformation through shear action from low current velocities during channel abandonment are probably responsible for the convoluted and disrupted stratification in this facies (Reineck and Singh 1975, p. 79).

Facies F,tc, is similar to F,lc except for the added structure of scour troughs associated with stratified coarser clastic fill (see Figure 3). This

facies represents minor channel development with resulting scour and fill associated with fluctuating discharge levels.

The sandy facies, S,lm is a pebbly sand unit with occasional silty interlaminae (see Figure 3). The sedimentary structures range from massive to laminated, and the facies is thought to represent massive scour fill or planar bed flow.

The facies S,t has similar textures and characteristics to S,lm but is trough cross-stratified (see Figure 3), with sandy dune migration likely responsible for the above structure.

In the coarse grained gravelly facies, Gm,m is a clast supported, moderately to poorly sorted, matrix

filled gravel (see Figure 3). There are also discontinuous sandy beds, oxidized gravelly bands, and wood debris (although not common) throughout this facies. Sedimentary structures range from massive to crudely stratified. Facies G_{m,m} is thought to represent aggrading diffuse gravel sheets, or proximal bar forms (Hein and Walker 1977). Hein and Walker (1977) describe diffuse gravel sheets as low relief channel features which are a few pebble diameters in thickness, submerged, and move only during peak discharge intervals. These morphologic features cover the majority of the channel width and in an aggrading proximal environment massive to crudely stratified, poorly sorted gravels would be the result (Hein and Walker, 1977). The stratification is due to fluctuating discharge levels with the tendency of finer sediment to be deposited during lower discharge intervals (Hein and Walker, 1977). Emergent proximal bar forms result from aggradation of channel gravels, and internally these features are poorly sorted, and massive to crudely stratified with poor development of foresets in the proximal environment (Hein and Walker, 1977). It is very difficult to distinguish these types of unit bars from preserved gravel deposits. As foresets are distinctly lacking in the facies G_{m,m} it is reasonable to conclude that diagonal and/or longitudinal unit bars were developed, and the thicker (i.e. greater than 1.0 m), distinctly stratified gravelly deposits which contain scattered wood debris probably represent the above bar forms. The thinner (i.e. less than 1.0 m) massive to crudely stratified gravelly deposits in this facies probably represent aggraded diffuse sheets.

The last gravelly facies G_{o,m} is a clast supported, openwork gravel which is massive, occasionally imbricate, and can also occur in discrete pockets and lenses. This facies is interpreted as channel or lag gravels which have been deposited under higher discharge conditions (i.e. finer clastics held in suspension), or diffuse gravel sheets which have been winnowed as a result of increased discharge levels. The discrete pockets of openwork gravels are commonly stained black (manganese coatings?), and are due to winnowing by a perched water table on the valley floor.

Fluvial Environment - A Synthesis

The environment of deposition which relates to the gravelly facies does not represent the modern Clear Creek fluvial system. The distribution of detrital gold bears a relationship to the hydraulic action associated with the deposition of the gravelly facies. The physical characteristics and interpretations of the gravelly facies infer high, fluctuating, discharge levels. The overall fluvial environment appears to resemble a braided system with facies which should be found in upstream and downstream reach locations. The characteristics of this braided system are:

1. Downstream braided sequences with laterally migrating anastomosing channels and vertically aggrading unit bars as illustrated in Figure 4, (Hein and Walker, 1977). The gravelly facies G_{m,m} in the form of aggraded unit bar sequences and/or diffuse gravel sheets with the sandy facies (i.e. S_{1,m} and S_{1,t}) in association with both channel and bar sedimentation should

represent the above system.

2. Upstream pseudo-braided sequences, with few major channels, downstream migration of channel sediments (i.e. gravelly dunes), some vertical aggradation of diffuse gravel sheets, and minimal unit bar development (see Figure 4). All of the gravelly facies would associate with this high gradient and high discharge environment.

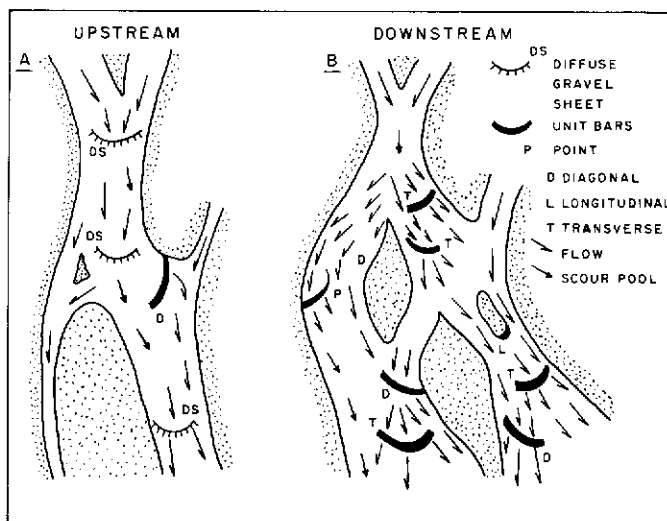


Figure 4. Characteristics of upstream and downstream reaches of a gravelly, braided river (from Hein and Walker, 1977).

The distribution of placer gold in the gravelly sediments is discontinuous and sporadic. Smith and Minter (1980) comment on the variability and transitory nature of braided systems. They indicate that any heavy mineral concentrate can be thought of as local point sources, which can either be reworked and redeposited as a higher concentrate, or distributed randomly throughout the alluvial sediments depending upon the change in flow regime. The variability in terms of flow regime associated with the deposition of Clear Creek gravel (as the facies indicate) will lead to random, dispersed pockets of detrital gold concentration.

The multi-channel nature associated with the interpreted environment for Clear Creek gravel also implies discontinuous concentrations of detrital gold. Finally, the interpreted aggraded gravelly sediments will contain concentrations of placer gold throughout, therefore a pay streak on a bedrock surface does not apply with Clear Creek gravel deposits.

References Cited

- BOSTOCK, H.S., 1964. Geology, McQuesten River, Yukon Territory, Geol. Surv. Can., Map 1143A.
- BOSTOCK, H.S., 1966. Notes on glaciation in central Yukon Territory, Geol. Surv. Can., Paper 65-36

HEIN, F.J. and WALKER, R.G., 1977. Bar evolution and development of stratification in the gravelly, braided, Kicking Horse River, British Columbia, Can. J. Earth Sci., V. 14, p. 562-570.

HUGHES, O.L., CAMPBELL, R.B., MULLER, J.E., and WHEELER, J.O., 1969. Glacial limits and flows patterns, Yukon Territory, south of 65 degrees north latitude, Geol. Surv. Can., Paper 68-34.

REINECK, H.E. and SINGH, I.B., 1975. Depositional Sedimentary Environments, Springer-Verlag, p. 430.

SMITH, N.D. and MINTER, W.E.L., 1980. Sedimentological controls of Gold and Uranium in two Witwatersrand Paleoplacers, Econ. Geol. V. 75, p. 1-14.

TEMPELMAN-KLUIT, D.J., 1982. White Channel Gravel of the Klondike, Yukon Geology and Exploration 1981 D.I.A.N.D. Geology Section Pub., Whitehorse, p. 74-79.

PROTEROZOIC AND EARLY PALEOZOIC VOLCANISM
IN THE OGILVIE MOUNTAINS:
An example from Mount Harper, west-central Yukon

By
C.F. Roots and John M. Moore, Jr.
Ottawa-Carleton Centre for Geoscience Studies
Ottawa, Ontario
K1S 5B6

supported by the Geological Survey of Canada; funds from the Department of Indian and Northern Affairs enabled thesis supervisor Moore to visit the area. Staff of the Exploration and Geological Services Division in Whitehorse offered sound advice and encouragement on many occasions.

INTRODUCTION

Volcanic rocks in the Dawson map-area (116 B and C) are under study as a supplement to the stratigraphic and structurally oriented G.S.C. Ogilvie Mountains project (Thompson and Roots, 1982). They occur as isolated lenses within the early Paleozoic Selwyn Basin assemblage and as sets of flows and complexes within Proterozoic carbonate rocks near the edge of the Mackenzie Platform (Figure 1). Mount Harper complex, an example of the latter group, has been studied in greater detail than the others because it is more completely exposed, and contains two mafic to felsic volcanic cycles.

This report, based on two field mapping seasons, has two parts. Characteristics of the two volcanic groups and correlative occurrences are discussed in the first part; the second presents interpretations from the stratigraphy of the Mount Harper complex as an illustration of the style of volcanism in the region.

REGIONAL CORRELATIONS

Unlike the sedimentary rocks, whose correlation with established units in the Wernecke Mountains and Alaska is now well advanced, understanding of the stratigraphic position and internal relations of the volcanic piles is less definite. Most belts of volcanic rocks were outlined by Green (1972; Unit 4 and 4a), several have been intensively prospected, but examination of the structure and stratigraphic detail within them has only begun.

In the 'off-shelf' assemblage (northwest extremity of the Selwyn Basin), lenticular accumulations of predominantly mafic flows and breccias are interbedded with mudstones and phyllitic shales of the Road River Formation. Limestone breccia pods that occur within the volcanics west of the Dempster Highway yield brachiopod fragments and agglutinated foraminifera of lower to middle Ordovician age (pers. comm. M.J. Orchard and M.P. Cecile). The volcanic flows and their textures resemble descriptions from

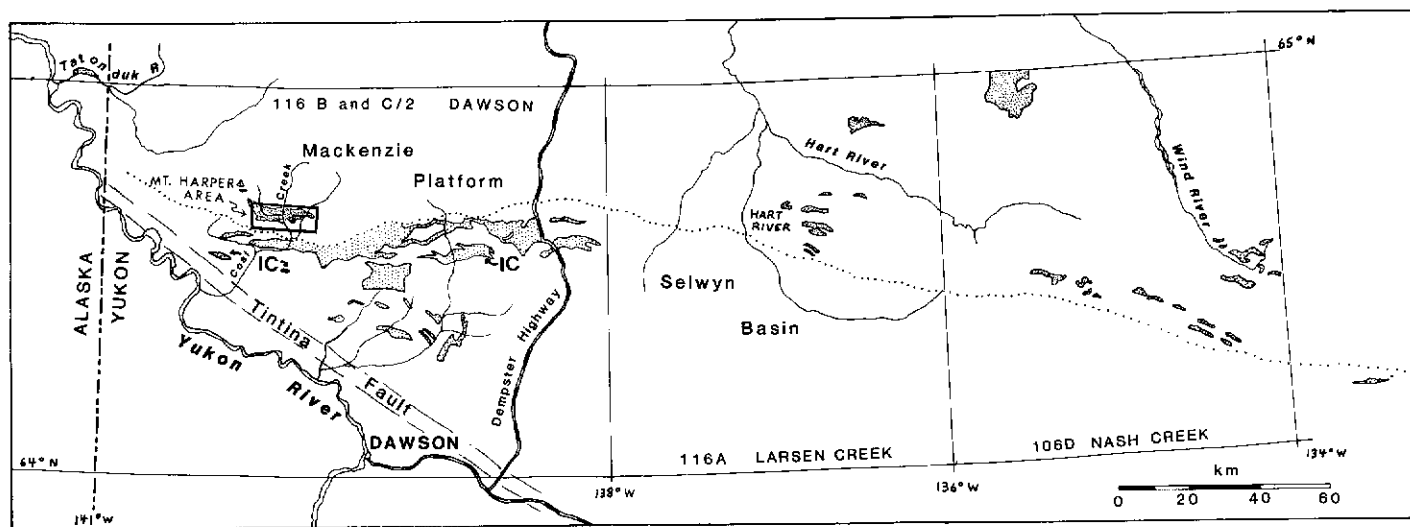


Figure 1. Distribution of volcanic rocks on the Mackenzie Platform (north of dotted line) and within the Selwyn Basin tectonic elements of the Ogilvie Mountains. 'IC' indicates localities thought to be older than most volcanic occurrences within the 'off-shelf' assemblage.

ACKNOWLEDGEMENTS

The Mount Harper complex forms the subject of a Ph.D thesis by Roots, currently in progress at Carleton University in Ottawa. Field work was

the alkalic Marmot Formation in the Misty Creek Embayment (Cecile, 1982) 500 km to the east. In the Dawson map-area however, incomplete mapping of the isoclinal folds, thrust faults and abrupt facies changes hamper attempts to match separated outcrops of

the Ordovician rocks, and it is unclear whether the volcanics once formed an areally extensive sheet or are numerous local accumulations of various ages. Some exposures contain elongate masses of pillow lavas and peperite (vesicular lapillistone) stacked within extensive volcanic siltstone that can be interpreted as localized fissure extrusions.

Several volcanic outcrops in the 'off-shelf' assemblage ('IC' on Figure 1) are associated with maroon argillite which regionally contains *Oldhamia* trace fossils, indicating a possible age as old as middle Cambrian. Serpentine-green rather than grey weathering hues are shown by these pillowed flows and sheared breccias that may be older than the other volcanic piles in the 'off-shelf' assemblage. The age relationship of these possibly older lavas to those atop the Proterozoic dolostone platform has not been established. In the western part of Dawson map-area, similar volcanic rocks underlie the Shell Creek Iron Formation (Green, 1972, p. 143, and Anaconda Canada Exploration Company geologists, pers. comm.) suggesting that it may be of the volcanic exhalative type.

Within the 'shelf' assemblage (Mackenzie Platform in the Ogilvie and Wernecke Mountains), volcanic piles formed at various times in different places (cf. Bell, 1982); no absolute ages are known. Mount Harper complex is the largest, covering 105 km². Other occurrences are located to the east, in Larsen Creek (116 A) and Nash Creek (106 D) map-areas, and within the Tindir Group in Alaska (Figure 1). Those near the Platform margin in Nash Creek map-area may be equivalent to the Mount Harper complex because they are overlain by a similar massive, lower Cambrian dolostone unit. To the north, also in this map-area, feldspar-phyric andesite flows are intercalated with fossiliferous sandstone and conglomerate. Green (1972, p.24) mapped the flows as Unit 5, of lower Cambrian age, and noted that they overlie older units with marked unconformity. Similarly, the volcanic flows at Mount Harper disconformably overlie older dolostone or rest on boulder conglomerate. That the platform volcanic piles overlie significant breaks in the shelf sedimentary record may be important, as will be discussed later.

The igneous rocks in the Hart River drainage consist primarily of thick diabasic sills and dykes that Green (1972) grouped with Cretaceous intrusions, but are probably Proterozoic. Pillowed flows are well exposed near the Hart River prospect. Diabasic dykes also occur in the older Proterozoic units in the Dawson map-area; they may have been feeders to late Proterozoic or early Cambrian volcanism, and may be evidence for extension in this part of the Mackenzie Platform.

MOUNT HARPER VOLCANIC COMPLEX

Mount Harper (1875 m) is a prominent dark peak which contrasts with the surrounding light-coloured dolostone ranges. The steep-walled valleys of Coal Creek and a tributary expose up to 1200 m of layered rocks constituting the erosional remnant of a long-lived, compositionally variable volcanic centre. The term 'volcanic complex' as used here denotes the present outcrop, that is, the remains of several superimposed ancient volcanoes. The lateral extent of the original edifice is unknown because the upper members are exposed only on a few ridge crests.

The complex has been divided into three successions of mafic rocks (members 'a', 'c' and 'e') separated by two, less voluminous felsic intervals ('b' and 'd'), outlined in Roots (1983). Within each member, various rock types, such as scoriaceous flows and lapilli, or hyaloclastite breccias, are referred to as facies, and commonly reflect different depositional environments.

This interpretation considers three stages in the evolution of the volcanic edifice. In stage I, pillowed flows and breccias (member 'a') built a broad, subaqueous shield volcano. When the volcanic pile intermittently rose above the sea (stage II), the four facies of member 'c' record subaerial, transitional and underwater depositional environments. Felsic volcanism (member 'd') and epiclastic sedimentation (Stage III) indicate major subsidence of the mature edifice. This discussion emphasizes environment interpretation; description of the stratigraphic members is included in Roots (1982, 1983).

Stage I: Early Subaqueous Volcanism

Earliest lava flows (member 'a') that overran shallow water dolostone reefs and slopes may have been extruded in deeper water along normal faults. Faulting immediately prior to volcanism is indicated by the distribution of boulder conglomerate and a throw of several hundred metres of the older stratigraphy in ranges east of Mount Harper. Along the southeast margin of the complex, lava flows rest directly upon older dolostone units; to the north, (interpreted as the down-dropped side), an intervening conglomerate reaches up to 100 m in thickness (Figure 2).

Member 'a' is dominated by close-fitting pillows best exposed in loose cliffs along the lower valley walls. Tops of the cliff-forming rocks within the succession form remnants of an extensive, shallow-dipping paleosurface, suggestive of a shield-like volcanic edifice (Figure 3). The pillows are metre-wide, bulbous protrusions of lava tubes tens of metres long. Their shapes in outcrop depend upon the orientation of the exposure relative to the ancient flow direction, being thin and worm-like in lengthwise sections or forming a profusion of hemispheres when cut across the flow. The most useful structural measurement, therefore, is a vector of flow propagation (see Figure 2), from which probable vent location and paleotopography may be inferred. Generally, three-dimensional exposures of pillows yield this information, but flow directions can also be approximated by studying the sequence of emplacement of individual pillows in a two dimensional, vertical section. Dips measured on pillow outcrops are misleading because lavas freeze on moderate slopes, and their attitudes may have been altered by subsidence or doming of the volcanic pile. Abrupt discordances in original slope angle between successive flows represent overlapping of lava streams from local topographic highs.

On steeper slopes, pillows break off and tumble down (paleoslope angles greater than 25 to 35 degrees, depending upon lava fluidity and flow rate), forming two breccia textures common in the subaqueous stages of the volcano. 'Flow-foot breccia' (Jones and Nelson, 1970 and many others) here appears as trains of teardrop and amoeboid pillows in chloritic 'ash'

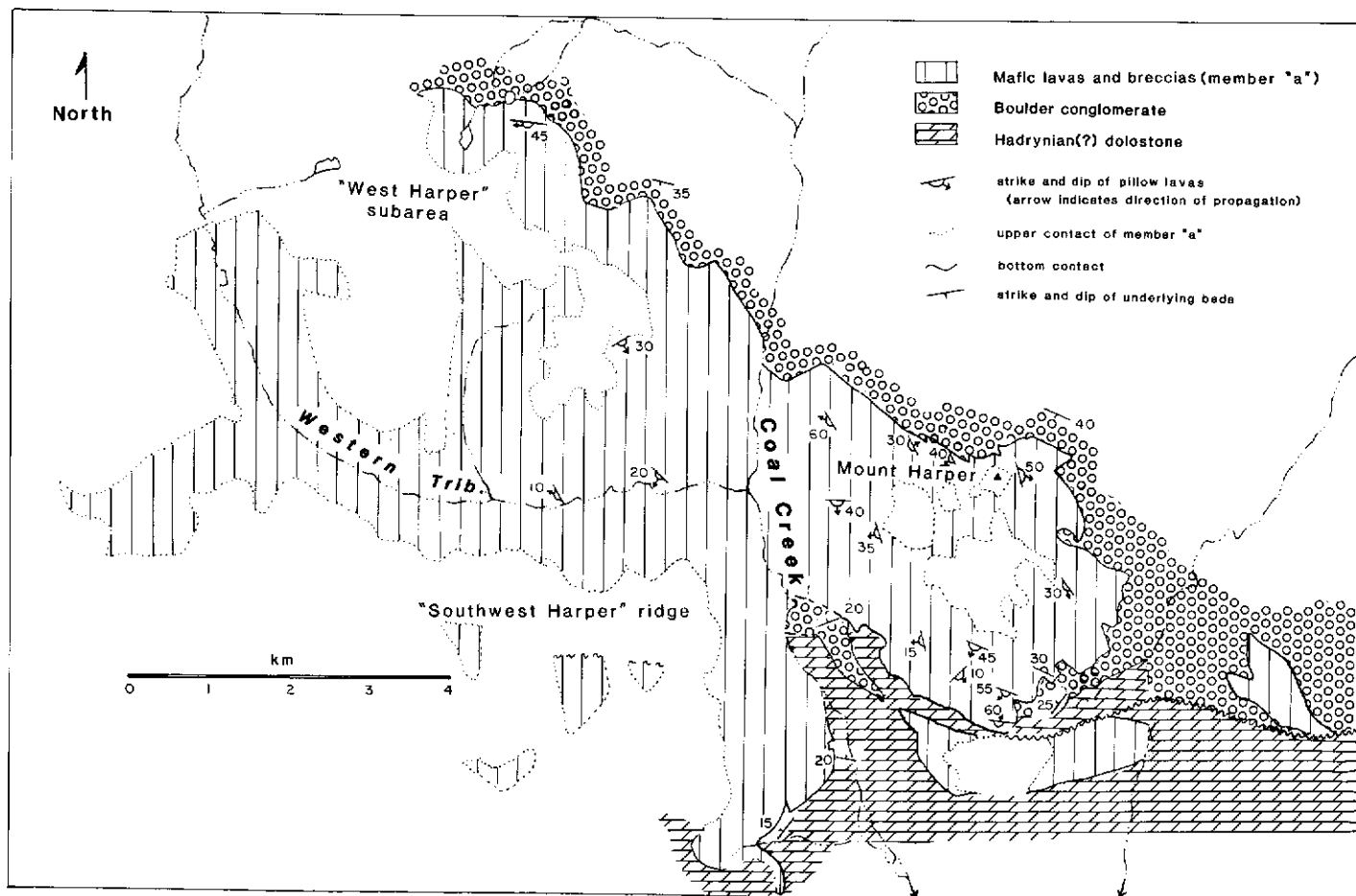


Figure 2. Mount Harper area. Distribution of rocks deposited during 3 stages in the growth of the Mount Harper volcanic complex, upon which interpretive Figures 3, 7 and 10 are based. Earliest volcanic rocks and adjacent underlying sedimentary units are shown here.

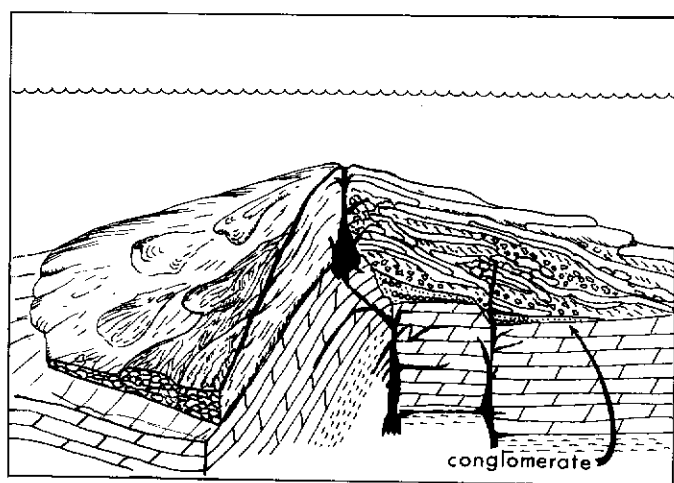


Figure 3. Schematic cutaway view of a submarine shield volcano (Stage I). Pillow lava flows and breccias, not to scale, are redrawn from photos and sketches.

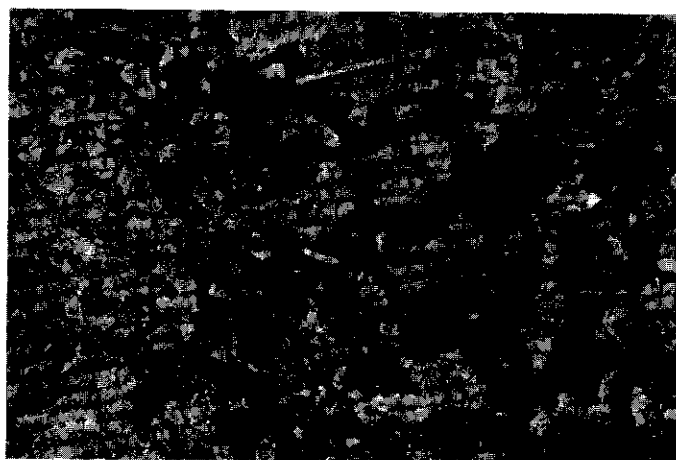


Figure 4. Flow-foot breccia. Amoeboid pillow lava shapes are suspended in chloritic 'ash.' From member 'a', 4 km south of Mount Harper.

(Figure 4). Breccia units are tabular but poorly layered, showing instead a marked foreset stratification, defined by the long orientation of pillows and fragment trains, as well as diagonal bands of finer clasts. This breccia prograded in advance of thicker pillowed and massive flows, and is generally overlain by them.

'Broken pillow breccia' (Carlisle, 1963) is a chaos of angular fragments that include blocks with diagnostic 'melon-rind' shapes (pieces of disintegrated pillow rims) that form at the base of steeper paleoslopes. Intercalated lenses several metres thick consist of medium- to fine-grained chloritic fragments where glass dust was winnowed away from the tumbling lava blocks. Such breccia deposits taper strongly, lack uniform textures, and probably occurred where lavas overran previous flow fronts, gullies and fault scarps.

Stage II: Emergent Mafic Volcanism

Pillow lavas at the base of middle mafic member 'c' can be difficult to distinguish from those of 'a' except in the southwest part of the complex where 150 m of tabular, intermediate to felsic flows (member 'b') separates them. Distribution of the four facies

of member 'c' is shown in Figure 5. Although their order is variable, they occupy the same stratigraphic interval, and deductions can be made about the shape and growth of the stage II edifice.

Facies 'c_i' (Roots, 1983) consists of shallow water lavas and breccias. Pillows are large (up to 3m high), rarely show preferred flow direction and are sometimes dome-shaped. They are characterized by hematitic and highly amygdaloidal rims. These 'mega-pillows' are overlain by distinctive breccias (facies 'c_{ij}') composed of angular mafic fragments, often with bleached rims (Figure 6) and shards (hyaloclastite) in a chloritic matrix. Structures range from chaotic, largely clast-supported frameworks to planar cross-stratified volcanic wacke with occasional cobbles. This facies is believed to mark a 'transition zone' in which lavas extruded underwater or flowed into water, explosively contracted and disintegrated into progressively smaller pieces. Its position in each stratigraphic section indicates sea level at that locality (cf. Furnes and Sturt, 1976); repetition of the facies suggests fluctuations, most likely due to periodic subsidence.

The ridges around Mount Harper consist of maroon vesicular lava flows and scoriaceous lapilli-tuff deposits (facies 'c_{ijj}'). Weathering produces

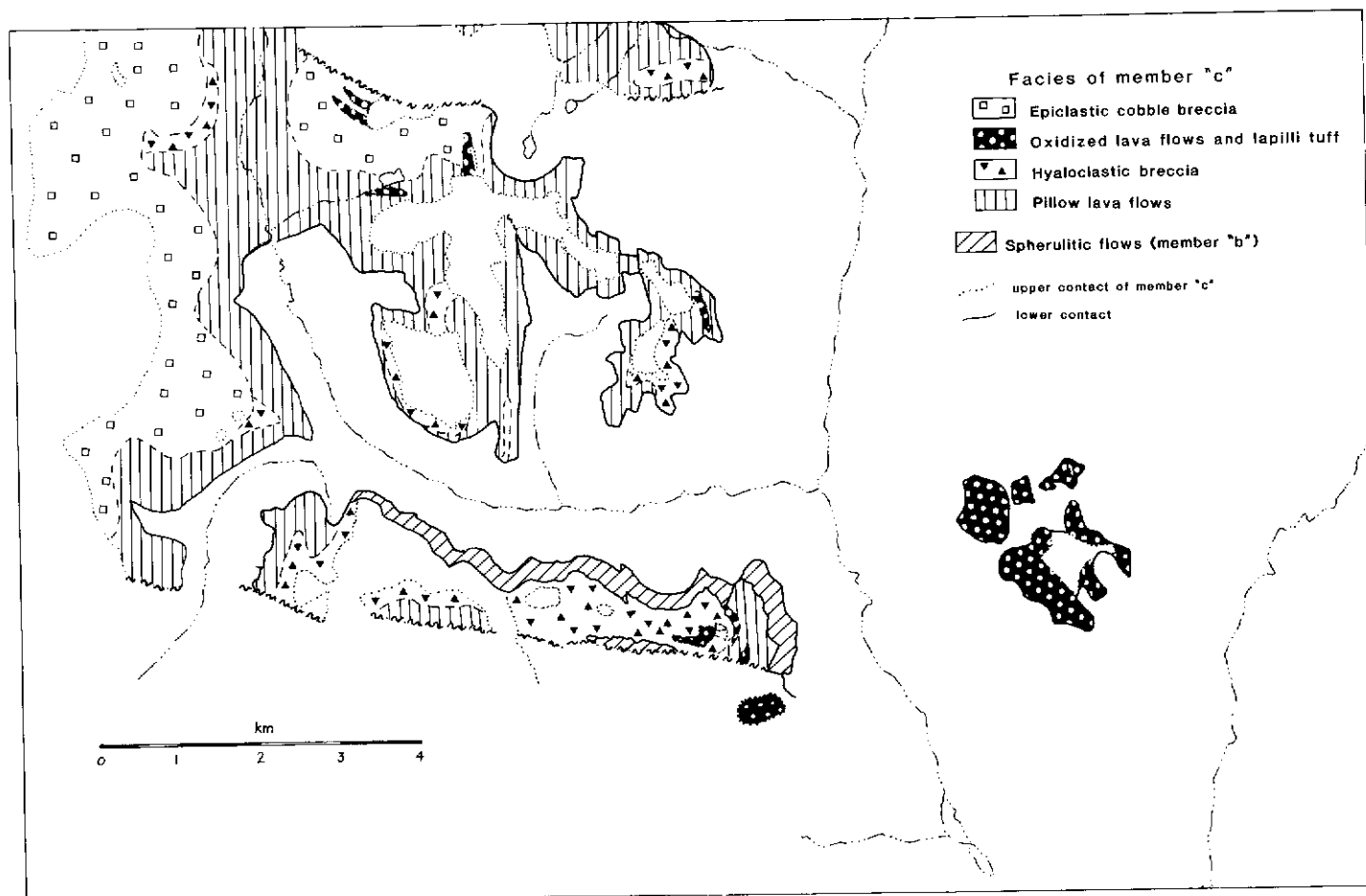


Figure 5. Mount Harper area. Distribution of subaqueous, transitional and subaerial volcanic rocks of member 'c' (Stage II).

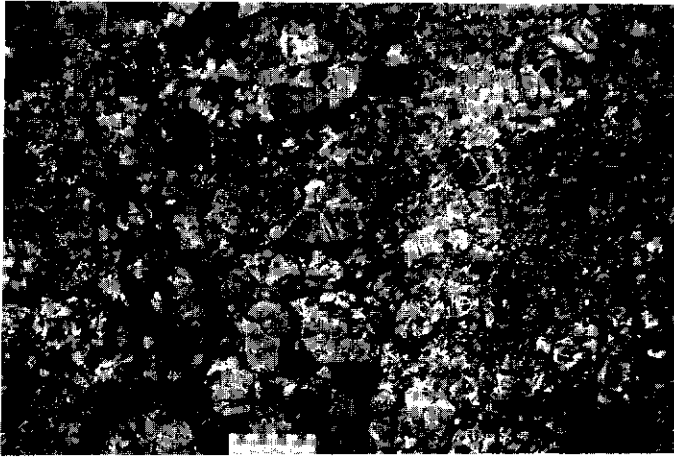


Figure 6. Breccia showing incipient fracturing and bleached rims of lava fragments, thought to be due to sudden contact with water. From facies 'c_{ii}', 'Southwest Harper' ridge, 6.9 km southwest of Mount Harper.

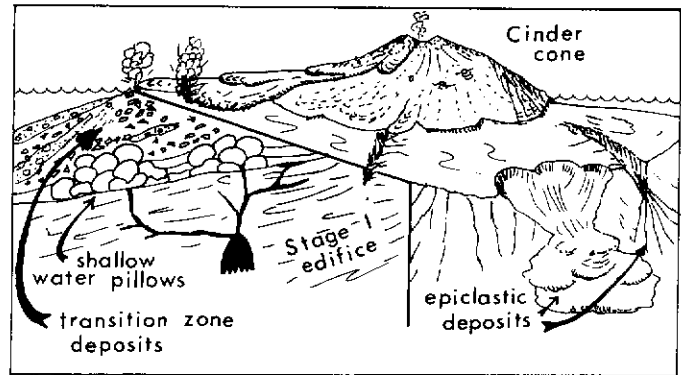


Figure 7. Schematic cutaway view of the mafic volcanic edifice at Stage II. Facies relations are as observed along 'Southwest Harper' ridge to the distal western part of the complex.

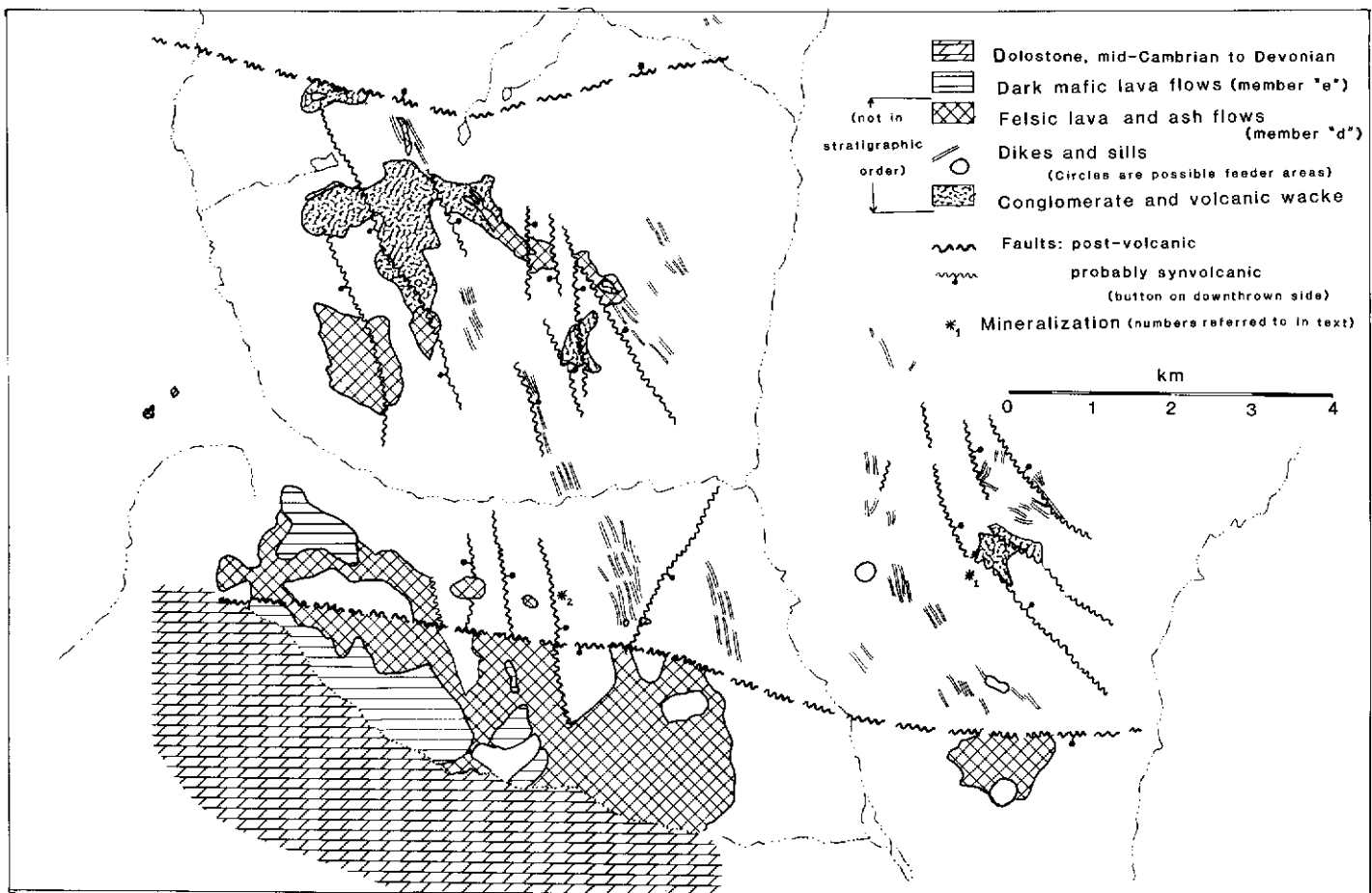


Figure 8. Mount Harper area. Distribution of the upper members of the volcanic complex and the adjacent portion of the overlying dolostone unit (Stage III).

vesicular textures suggestive of the original cinder, and some cored lapilli are preserved. Up to 70m thick, the interdigitated pyroclastic and lava accumulations are remnants of a cinder cone that was probably built above sea level (Figure 7). Similar oxidized vesicular rocks within the hyaloclastite breccias and 'c₁' flows elsewhere may be minor subaerial eruptions, or (more likely) slumped portions of eroded cones.

Facies 'c_{iv}' includes subrounded cobble breccias with a volcanic sand matrix, that form laterally continuous beds 2-5m thick, most extensive in the wide valley of the western part of the Mount Harper complex. Most clasts are vesicular, purple or reddish, and were derived from resistant rocks of member 'c'. Finely laminated siltstone horizons and soft sediment deformation of some layers implies a low energy environment of rapid deposition. This facies is interpreted as a distal accumulation from the erosion and reworking of pyroclastic piles, probably continuing throughout eruption of later volcanic members (subaerially erupted products on small volcanic islands are preferentially preserved as subaqueous flank deposits, (Ayres, 1982).

The distribution of these facies, from oxidized piles in the east to epiclastic layers to the west, suggests westward transport down a flank of the ancient volcanic edifice. Along distinct horizons in the cliffs of 'Southwest Harper' ridge, interdigitation of the four facies can be examined. Further study will document the westward progradation as the volcano increased in size, and sea level transgressions as parts of the edifice subsided.

Stage III: Felsic Volcanism and Block Faulting

Quartz and feldspar-phyric lavas and less common ash flows (member 'd') weather dark reddish, forming blocky, rubble-covered slopes and several conical hills 30-250m high. Few outcrops show internal structures or facies relationships from which environments might be interpreted. The lavas may have been fed by northwest-trending swarms of dykes that intrude lower members and appear compositionally equivalent to member 'd'. Normal faults that also trend northwest, with vertical offsets up to 50m, have traces that run beneath the felsic hills (Figure 8) and probably occurred along planes of weakness opened by dykes during and after the felsic eruptions.

Sedimentary units, both underlying and intercalated with the felsic flows (Figure 9) contain lapillistone and cobble breccias (smooth, rounded rhyolite boulders are locally common), and are interlayered with paraconglomerate derived from dolostone units older than the volcanic complex. Presence of the latter indicates that the volcanic edifice was in part lower than the adjacent older dolomite reefs (Figure 10). Although the dimensions of the sedimentary basin cannot be determined from its erosional remnants, changes in bed thickness and clast size imply near-shore environments, as well as periodic adjustments of the fault blocks (Figure 11).

Felsic member 'd' is overlain in the southwestern corner of the complex by massive basalt flows ('e'). Except for local highly vesicular pillows, the lavas lack internal textures and are notable primarily for their blue illite-chlorite alteration. Member 'e' is overlain by Archeocyathid-bearing dolostone,

indicating cessation of volcanic activity by lower Cambrian time.

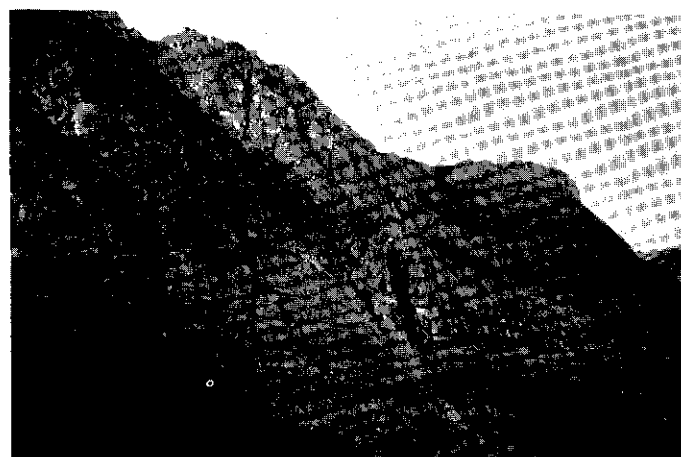


Figure 9. Epiclastic sedimentary layers with intercalated lava flows of member 'd'. Visible section on right side is 70 m thick from bottom of photo. From 'West Harper' subarea, 7.5 km northwest of Mount Harper.

MINERALIZATION

Mount Harper Complex has limited demonstrated economic mineral potential, but the tectonic setting and volcanic environment of Mount Harper were favourable for ore deposition and merit further exploration. Secondary pyrite occurs in interstices and altered fragment rims within the upper three members, and chalcopryite disseminations were noted in member 'c'. Regional stream sediment geochemical sampling (G.S.C. Open File 418, 1977) reveals no anomalies associated with the volcanic complex. However, local zinc, copper and silver stream sediment geochemical anomalies have been found at several places near the boundary of the Selwyn Basin, particularly where volcanic rocks and enclosing black shales show structural disruptions.

Two localities of mineralization within the volcanic complex are marked by asterisks on Figure 8. The first consists of crystalline digenite and chalcopryite in calcite veins cutting vesicular maroon flows (facies 'c_{iii}'). The mineralization ranges from sparse specks to 3 mm long; slivers of country rock incorporated in the veins have malachite-stained rims. Elsewhere, quartz and calcite veins are extremely rare. The second locality occurs on 'Southwest Harper' ridge, in pillowed flows thought to be facies 'c_i'. Low angle gouge zones contain pods up to 20 cm long in which specularite crystals form a dense envelope up to 7 mm thick enclosing loose red hematite. Traces of azurite and malachite occur in the gouge, but no sulphide minerals were found. Such shears may be common, but difficult to recognize in rubble and fractured exposures. Although these occurrences are solitary, they suggest that trace amounts of copper are present in the lavas of member 'c'.

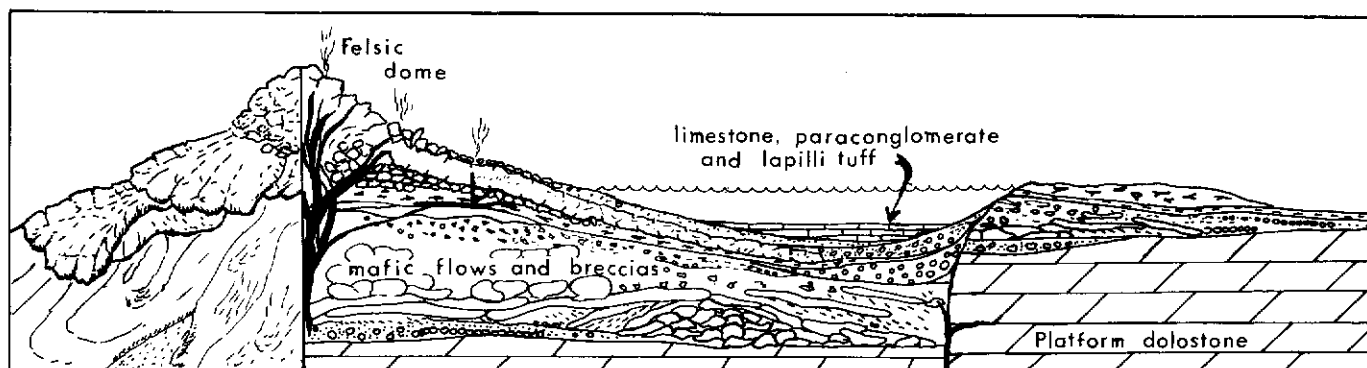


Figure 10. Schematic section of a basin developed during stage III volcanism. This interpretation is based upon stratigraphic relations observed in the 'west Harper' subarea.



Figure 11. Intervolcanic epiclastic basin remnant 1 km south of Mount Harper. Throw on the fault to the right of centre is 70 m.

CONCLUSION

Field studies at Mount Harper point to important differences between the stratigraphy of a volcanic complex and that of a typical sedimentary assemblage of similar scale. As volcanism builds a topographically positive feature, extreme changes in thickness and facies become more common, and multiple source areas develop. Under conditions of rapid erosion, angular unconformities and cases of reversed stratigraphy multiply. Products of shallow water and subaerial volcanism are preferentially preserved as subaqueous breccias in deeper water environments. Younger lavas tend to fill depressions between older flows and, in places, progressively older rocks are uncovered, eroded and then deposited on top. Interpretation of field relations within volcanic rocks requires both detailed scrutiny as well as observations from a distance. Volcanism is among the most random of geologic processes to form rocks that are preserved in sequential deposits, and it is wise to uphold the disclaimer that "although all evidence fits my proposed model, events did not necessarily occur in that way."

Although broadly similar in composition and texture, the volcanic rocks in the Selwyn Basin and on the adjacent Mackenzie Platform represent different ages and tectonic regimes. The Ordovician piles may have resulted from intermittent fissure effusions, during deposition of black clastic sediments. That this volcanism occurred contemporaneously at several localities across the Selwyn Basin implies a regional magmatic event, such as crustal thinning during extension.

Mount Harper complex, on the Mackenzie Platform, is the manifestation of a significant structural event, marked by a major unconformity elsewhere (R.I. Thompson, pers. comm.). Over much of the Ogilvie Mountains, the overlying unit is a massive, shallow water dolostone unit of lower Cambrian to Devonian age (A.W. Norris, pers. comm. to Thompson, 1982); in the study area this unit overlies the Mount Harper complex and the unconformity is marked by the conglomerate below. Thus, the volcanic pile records the period during which most of the shelf assemblage was subject to varying degrees of erosion and non-deposition. Stratigraphy from the base to the top of the complex preserves not only a classic history of magmatic evolution and volcanic construction and collapse, but also the time interval, whether a few million, or a few hundred million years, of a regional event. Radiometric dating may forge one solid link between the Ogilvie Mountains stratigraphy and one of several 'orogenic events' proposed from unconformities in the sedimentary records to east and west.

REFERENCES

- AYRES, L.D., 1982. Pyroclastic rocks in the geologic record. in *Pyroclastic volcanism and deposits of Cenozoic intermediate to felsic volcanic islands with implications for Precambrian greenstone-belt volcanoes*; (Ed. by L.D. Ayres) Geological Association of Canada Short Course notes Volume 2, pp. 1-17.
- BELL, R.T., 1982. Comments on the geology and uraniumiferous mineral occurrences of the Wernecke Mountains, Yukon and District of Mackenzie; Geological Survey of Canada Paper 82-1B, pp. 279-284.

- CARLISLE, D., 1963. Pillow breccias and their aquagene tuffs, Quadra Island, B.C.; *Journal of Geology*, Volume 71, pp. 48-71.
- CECILE, M.P., 1982. The lower Paleozoic Misty Creek embayment, Selwyn Basin, Yukon and Northwest Territories; *Geological Survey of Canada Bulletin* 335, 78p.
- FURNES, H. and STURT, B.A., 1976. Beach, shallow marine hyaloclastite deposits and their geological significance: an example from Gran Canaria; *Journal of Geology*, Vol. 84, pp. 439-454.
- GREEN, L.H., 1972. Geology of Nash Creek, Larsen Creek and Dawson map-areas, Yukon Territory; *Geological Survey of Canada Memoir* 364, 155 p.
- JONES, J.G. and NELSON, P.H.H., 1970. The flow of basalt lava from air into water; *Geological Magazine*, Vol. 107, pp. 13-20.
- ROOTS, C.F., 1982. Ogilvie Mountains Project, Yukon; Part B: Volcanic rocks in north central Dawson map-area; *Geological Survey of Canada Paper* 82-1A, pp. 411-414.
1983. Mount Harper complex, Yukon: Early Paleozoic volcanism at the margin of the Mackenzie Platform; *Geological Survey of Canada Paper* 83-1A, pp. 423-427.
- THOMPSON, R.I. and ROOTS, C.F., 1982. Ogilvie Mountains Project, Yukon; Part A: A new regional mapping program; *Geological Survey of Canada Paper* 82-1A, pp. 403-411.

UPPER TRIASSIC ROCKS AT HILL 4308,
LABERGE MAP AREA, 105 E, Yukon

by

Pamela Reid
University of Miami
Fisher Island Station
Miami Beach, Florida 33139

and

Jennifer O'Brien
Dept. of Geological Sciences
University of British Columbia
Vancouver, B.C.

ABSTRACT

Upper Triassic carbonate, volcanic and clastic rocks deposited in the Whitehorse Trough, a Mesozoic forearc basin, are well-exposed at Hill 4308. The deposition of these rocks occurred in three distinct stages: 1) sedimentation of lime sands and clastics on the flank of a volcanic high, 2) development of reefal carbonates and associated limestones, and 3) renewal of clastic deposition with both erosion and continued growth of patch reefs. The reefal carbonates are similar in structure and composition to reefal carbonates at Lime Peak about 6 km to the south, but the stratigraphic section at Lime Peak differs from that at Hill 4308, the former representing more continuous deposition of carbonate on an underlying clastic foundation. Differences between Hill 4308 and Lime Peak may reflect local variation in relative sea level and in the distribution and intensity of clastic sedimentation experienced by nearby localities in tectonically active areas.

Introduction

The Upper Triassic carbonate, volcanic and clastic rocks in the Whitehorse Trough were deposited in the forearc basin of a Mesozoic subduction system (Tempelman-Kluit, 1979). Previous studies at Lime Peak (Reid 1981, 1982) established the major carbonate facies, but revealed little about the associated volcanic and clastic rocks because the section at Lime Peak is mostly limestone. In contrast, clastic, volcanic and carbonate rocks are exposed at Hill 4308 in the Laberge map area.

A field study of the rocks at Hill 4308 formed part of our investigation of carbonates in the Whitehorse Trough in the summer of 1982. Principal reasons for studying this hill were: 1) to observe the clastic-carbonate rock association, 2) to observe the succession of faunas within the carbonate rocks, and 3) to assess the general usefulness of the carbonate facies defined at Lime Peak. This report summarizes the results of our study at Hill 4308.

GENERAL SETTING

Hill 4308 is east of Lake Laberge, north of Laurier Creek, about 50 km northeast of Whitehorse and 6 km north of Lime Peak (see Figure 1). The study area is about 4.5 km from north to south and about 3

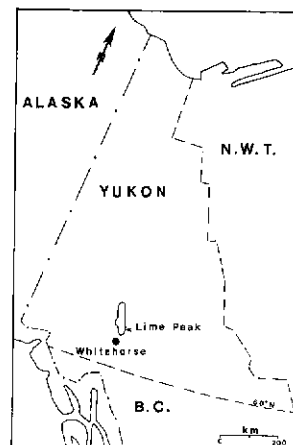


Figure 1. Index map showing the location of Lime Peak (Hill 4308 is 6 km to the north).

km from east to west. Conodonts recovered from the section at Hill 4308 by Tim England are Upper Norian (England, 1980).

The rocks at Hill 4308 strike about 030° and dip northwest at 30° . A small reverse fault on the eastern face of the hill reflects north-south compression with little vertical movement (see Figure 2).

4308 refers to the elevation, in feet, of this hill on the 1:250,000 Laberge map sheet 105 E; the elevation on the 1:50,000 map sheet 105 E 3 East is 4319 feet.

RESULTS OF THE FIELD STUDY

Hill 4308 was mapped using air photo A11472-354. Five major lithologic units were recognized; the distribution of these units is shown in Figure 2 and the characteristics of the rocks in each unit are summarized in Table 1. A brief discussion of each unit is given below, followed by a depositional history and a comparison of the rocks to those at Lime Peak.

LITHOLOGIC UNITS

Green volcanic rocks form a massive structural high at the base of the section at Hill 4308 and appear to be overlapped by clastics and lime sands. They are intermediate in composition, a mixture of flow breccia and volcanic sandstone.

Dacite up to 150 m thick occurs mainly in the middle of the section, generally conformable with the surrounding limestone. It may have formed as a viscous plug dome which was overlapped by and interfingered with reefal carbonates, or, more likely, it represents a later intrusive event. Similar rocks elsewhere in the Laberge map area form thin dykes which clearly intrude Triassic carbonate and clastic rocks. Radiometric age dates of the dyke rocks range from Upper Triassic to Jurassic, 209-160 Ma (D.J. Tempelman-Kluit, 1982 pers. comm.).

Clastic rocks are found at two levels: near the base of the section are sandstone, siltstone and conglomerate with clasts up to 2 cm in a red sandy matrix; in the upper part of the section, the same sandstone and siltstone occurs, but the conglomerate is much thicker and contains volcanic and limestone clasts commonly 6-9 cm in diameter in a dark green siliciclastic matrix. The sandstone, siltstone and fine conglomerate are physically and chemically somewhat mature and are probably reworked sediments which may have been derived from the dacite or the green volcanic rocks. However, the coarse conglomerate, is extremely immature and probably represents first cycle sediments eroded from volcanic and limestone exposures during rapid uplift. The clastic rocks surround many of the limestones at Hill 4308, but there is relatively little intermixing of them. Several explanations are possible: a) the limestone accumulated only when or where clastic influx was low, b) the clastic rocks may have been deposited in low areas around limestone patches or c) there may have been alternating periods of limestone and clastic deposition.

Lime sands at Hill 4308 are accumulations of skeletal and non-skeletal grains that form pods and

beds from a few meters to about 30 meters thick in the lower part of the section. They are similar in composition to modern shallow water carbonate accumulations. In particular, the presence of ooids, the abundance of peloids and grains with micrite envelopes and the occurrence of laminated nodules which are probably algal suggest water depths less than 5 meters. The lime sands probably accumulated as shoals surrounded by clastic rocks in shallow water on the flank of the green volcanic rock high.

The reefal and associated limestone unit consists of about 80% massive reefal carbonate, and about 20% dark, thick-bedded, richly fossiliferous limestone and thin-bedded, lime packstone and partly silicified lime mudstone. The massive reefal carbonate forms lenses 0.5 - 1 km long and 50-100 m thick; these lenses may be stacked on top of each other to form thick sections of carbonate such as that found at the north end of the study area (see Figure 2). Some of the massive carbonates overlie dark fossiliferous limestone, others developed directly on shoals of lime sands or clastics, and still others may have formed on the flanks of a dacite plug dome. A reef building community of small calcareous sponges, corals and tabulozoans/bryozoans formed patches of bindstone in a

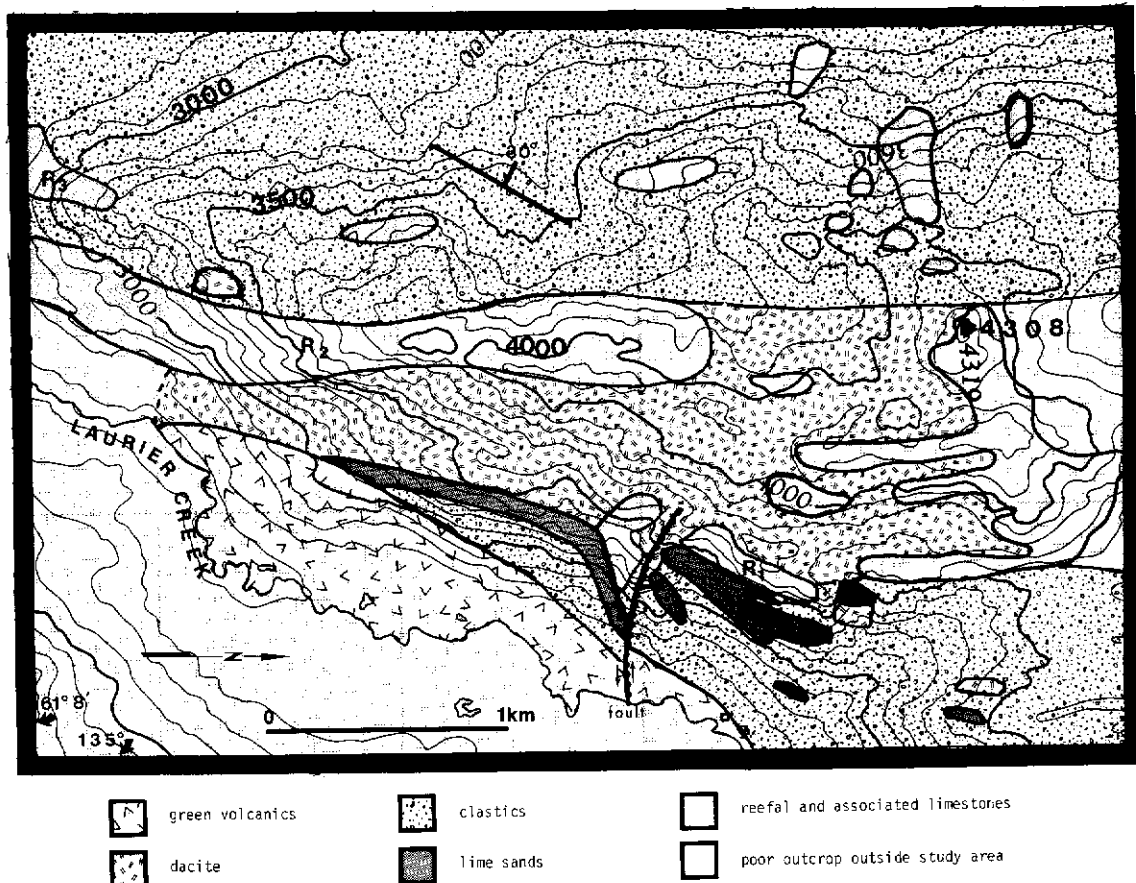


Figure 2. The general distribution of the five lithologic units at Hill 4308. Note that the elevation of Hill 4308 is 4319 feet on the 1:50,000 topographic map 105 E 3E. The contour interval is 100 feet. Letters (eg. R2) indicate equivalent outcrops in Figure 3.

shallow agitated environment. In Triassic limestones in Europe, large toothed bivalves called megalodonts are restricted to shallow-water, back-reef lagoons. However, at this locality in Yukon, the restricted occurrence of megalodonts indicates there was only a slight differentiation of facies in some of the reefs, but in general, no horizontal zonation of reef building organisms, indicating that there was no strong asymmetry of wave action. In addition, there was no vertical evolution of organisms within the reef, except for the appearance of the platy spongiomorph, *Spongiomorpha gibbosa*, about half way up the section (see Figure 3).

The third stage of sedimentation (Stage III/ Figure 3) involved renewed clastic deposition accompanied by sporadic uplift, exposure and erosion of patch reefs, and periods of patch reef growth. During the surges of clastic input, volcanic sands and coarse, poorly-sorted conglomerate containing volcanic rock and limestone clasts may have been deposited in low areas around exposed patch reefs. As the volcanic input decreased, volcanic rock clasts became less prevalent and the conglomerate became dominated by limestone clasts in a fine siliciclastic matrix. Finally, limestone sedimentation recommenced with the deposition of thick, dark, fossiliferous limestone

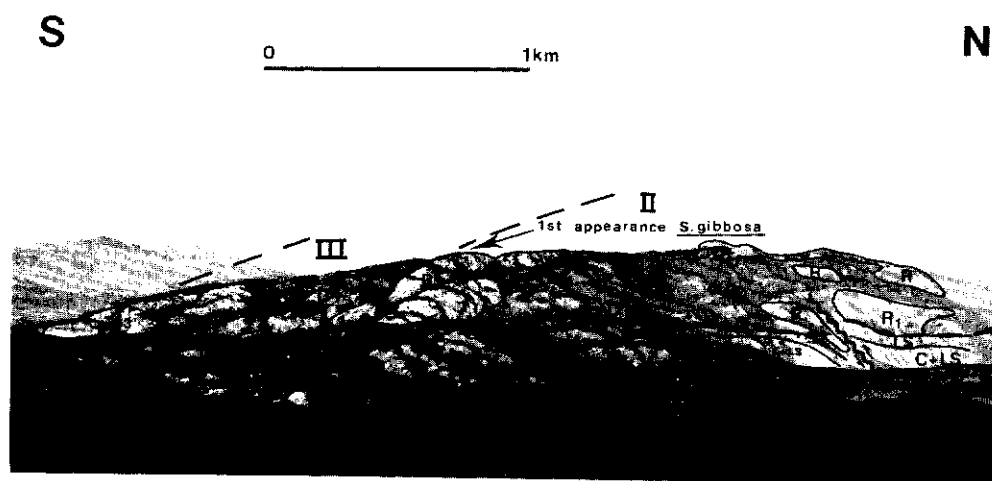


Figure 3. Stages of sedimentation at Hill 4308:

- I deposition of lime sand (LS) and clastics (C) on the flank of a high of green volcanics (not seen in photo)
- II accumulation of reefal and associated limestones (R); dacite (D) probably intruded ls. section later in the Jurassic
- III renewal of clastic sedimentation and erosion and continued growth of patch reefs (R)

Subscripts (eg. R₂) indicate equivalent outcrops in Figure 2.

DEPOSITIONAL HISTORY

Three distinct stages of sedimentation have been recognized (Figure 3). Initially, carbonate sands and volcanoclastic silts, sands and conglomerate were deposited together in shallow water on the flank of a topographic high of volcanic sands and flows; the autochthonous carbonate formed as shoals and is interbedded with and surrounded by allochthonous clastic rocks (Stage I, Figure 3).

As the volcanic high was transgressed, clastic input decreased and the lime sand formed a relatively widespread indistinctly bedded layer approximately 30 m thick. With continued transgression, a reef-building community of small calcareous sponges, tabulozoans/bryozoans, and *Thecosmilia* corals colonized the shoals formed by both lime and clastic sands (Stage II, Figure 3). This community thrived in an agitated surf zone and submarine cements developed in the well-washed voids. The growth of patch reefs may have been accompanied by the emplacement of a dacite plug dome, but, more likely, the dacite intruded the limestone section later in the Jurassic.

beds followed by the reestablishment of reef-building communities forming new patch reefs.

Comparison to Lime Peak

Rocks at Hill 4308 are compared to those at Lime Peak (described by Reid 1981, 1982) in Table 1. The stratigraphic sections of the two localities are compared in the schematic drawings in Figure 4. The green volcanic rocks and the lime sands at Hill 4308 are not found at Lime Peak. The dacite, clastic rocks and reefal and associated limestones at Hill 4308 are similar to rocks at Lime Peak, although the dacite at Lime Peak forms only thin dykes which are not shown in Figure 4. The main difference between the reefal carbonate at Hill 4308 and at Lime Peak is the abundance of the platy spongiomorph, *Spongiomorpha gibbosa*. This spongiomorph is common in the massive limestone at Lime Peak and is a major contributor to the bedded limestone facies. At Hill 4308, however, *S. gibbosa* first appears half way up the section in the massive limestone (see Figure 3) and is never particularly abundant in either the

TABLE 1
CHARACTERISTICS OF ROCKS IN THE MAIN LITHOLOGIC UNITS AT HILL 4308 AND
COMPARISON TO ROCKS AT LIME PEAK

Lithologic Unit and Characteristics of Rocks

I. Green Volcanics

dark weathering, structureless, flow breccias and volcanic sands; angular maroon and green volcanic rock fragments in a fine matrix; rock fragments commonly have augite phenocrysts.

II. Dacite

unbrecciated, orange-red rocks with phenocrysts of hornblende and feldspar; unit is up to 150 m thick and forms cliffy outcrops; generally conformable with surrounding limestones and clastic rocks with some cross-cutting relationships.

III. Clastic Rocks

Sandstone and siltstone: recessive, limey, red and green moderately sorted mixtures of weathered feldspars, volcanic rock fragments and quartz.

Conglomerate: more resistant well-bedded rocks; some are thin with subangular volcanic and limestone clasts up to 2 cm in diameter in a sandy red matrix; others are thick (up to 15 m) with volcanic and limestone clasts that are commonly 6-9 cm in diameter in a dark green siliciclastic matrix; coarse cg. show vertical succession from volcanic and limestone clasts at bottom of section to mainly limestone clasts at top.

Sand, silts and conglomerates may be interbedded or may be laterally equivalent; clastics surround many of the limestone but there is relatively little mixing of clastics and carbonates.

IV. Lime Sands

light-dark grey, in general, indistinctly bedded but in places laminated or thinly layered; grain supported mixtures of peloids, crinoids, forams, thin shells, ooids, recrystallized grains with micrite envelopes, various micritized fragments and occasional detrital grains including quartz, feldspar and rock fragments; grains surrounded by lime mud (packstones) or by calcite cement (grainstones); no macrofossils except one 3 cm band of laminated nodules composed of a mass of partially silicified tubules approx. 25 cm in diameter.

V. Reefal and Associated Limestones

Reefal Limestones: white weathering, resistant, massive limestone; patches of macrofossils (20-60%) surrounded by lime sands; principal organisms small chambered and unchambered calcareous sponges, tabulozoans/bryozoans, corals, crinoids and shells; skeletons generally unbroken; many skeletons bound together to form patches of bindstone, others not bound and form patches of floatstone/rudstone (definitions according to Embry and Klovan, 1971); isopachous cements and layered internal sediments common in voids; little horizontal zonation of reef building community except for the restriction of megalodonts to the western dip slope of some of the limestone half way up the section; no vertical change in community except for appearance of *Spongiomorpha gibbosa* about half way up the section.

Associated Limestones:

a) dark, thickly-bedded, richly fossiliferous limestone; contain large calcareous sponges, corals and shells; commonly underlie the reefal limestone.

b) thinly-bedded lime packstones and partly silicified lime mudstones; commonly adjacent to the reefal limestones.

Comparison to Lime Peak

no similar rocks at Lime Peak; rocks at Lime Peak may be younger than the green volcanics.

similar to dikes which intrude limestone at Lime Peak, but the dikes at Lime Peak are only a few meters thick

similar to the clastic rocks under the limestone section at Lime Peak, but in general the clastics at Hill 4308 are coarser and surround or are laterally equivalent to the carbonates.

no similar rocks at Lime Peak; may be older than the carbonate section at Lime Peak or may represent a facies which was not developed at Lime Peak.

similar in structure and composition to massive thick lenses and irregular masses at Lime Peak which are mainly accumulations of lime sands with scattered patches of bindstone and floatstone/rudstone; there are no rocks at Hill 4308 which are similar to the thin tabular massive limestone at Lime Peak which are mostly bindstone.

similar to the bedded limestones at Lime Peak.

similar to the shaley limestones at Lime Peak.

massive or the dark, bedded limestone. The presence, absence or abundance of *S. gibbosa* may be related to age of the limestone (i.e. the limestone section at Lime Peak is time equivalent only to the upper half of Hill 4308) or may be related to environmental factors (i.e. *S. gibbosa* simply did not like the living conditions in the lower half of Hill 4308!).

The depositional history of Lime Peak differs

from that at Hill 4308. Sedimentation at Lime Peak involved more continuous deposition of carbonates on a clastic foundation. There may have been considerable variation in rates of subsidence and some subaerial exposure of the carbonates at Lime Peak (Reid, 1982), but erosion of the carbonate was not extensive and there is no record of volcaniclastic deposition during patch reef development.

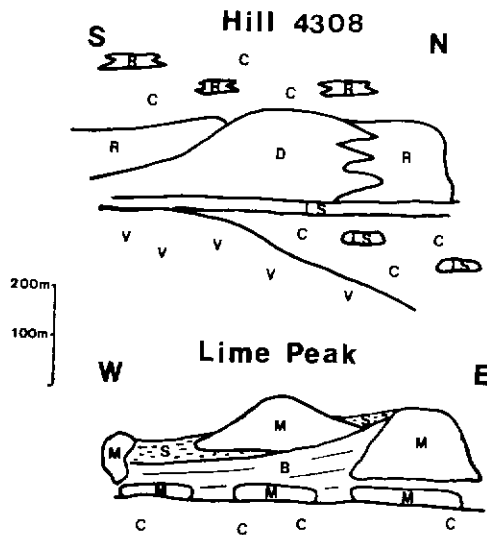


Figure 4. Schematic cross-sections showing differences between the stratigraphic sections at Hill 4308 and Lime Peak. The reefal and associated ls. (R) at Hill 4308 are equivalent to the massive limestone (M), the bedded limestone (B) and the shaley limestone (S) at Lime Peak. Green volcanics (V), lime sands (LS) and thick sections of dacite (D) are not found at Lime Peak. Clastic rocks (C) underlie the limestone section at Lime Peak, whereas they surround many of the limestones at Hill 4308.

The differences between Lime Peak and Hill 4308 may be partly explained by differences in the age between the two sections (the green volcanic rocks at Hill 4308 may be older than rocks at Lime Peak); however, Upper Morian conodonts have been recovered from both Hill 4308 and Lime Peak, indicating that at least some of the carbonate rocks are time equivalent. Therefore, differences in the stratigraphic sections likely reflect variation in relative sea level changes and in the distribution and intensity of clastic sedimentation.

SUMMARY

Clastic rocks ranging from siltstone to coarse conglomerate surround many of the limestones at Hill 4308. However, there are no clastic grains in the massive, reefal carbonate and only a low percentage of clastic grains in the other carbonate facies, indicating that carbonate accumulated when or where clastic influx was very low. The clastic rocks may have been deposited in low areas around the patch reefs or there may have been alternating periods of clastic influx and limestone deposition.

Vertical carbonate succession at Hill 4308 begins with non-reefal lime sand composed of crinoid fragments, forams, peloids, ooids and small shells.

This is followed by reefal limestone composed mainly of calcareous sponges, tabulozoans/bryozoans and corals. This vertical succession reflects a change in depositional environments from shallow shoals in a dominantly clastic lagoon to cleaner, more open-marine, well-agitated conditions. The reef-building community itself shows little vertical change except for the appearance of *Spongiomorpha gibbosa* about half way up the section. The appearance of *S. gibbosa* may reflect the age of the carbonates or may be related to environmental factors.

The carbonate facies recognized at Lime Peak by Reid (1980, 1981) are similar to those at Hill 4308 and may be characteristic of reefal buildups in the Whitehorse Trough. As well as the carbonate facies defined as Lime Peak, an additional non-reefal lime sand facies was recognized at Hill 4308; this facies may represent a depositional environment not developed at Lime Peak. Although the carbonate facies at Hill 4308 and Lime Peak are very similar, the stratigraphic sections in the two locations are quite different. The differences may reflect variations in relative sea level changes and in the distribution and intensity of clastic sedimentation which can be experienced by nearby localities in tectonically active areas.

ACKNOWLEDGEMENTS

We are particularly grateful to Dirk Tempelman-Kluit and Grant Abbott for help and discussion in the past three summers. We would like to thank the Exploration and Geological Services Division (Yukon) of DIAND for support of the project.

References

- EMBRY, A.F. and J.E. Klován. 1971. A late Devonian reef tract on northeastern Banks Island, Northwest Territories; Bull. of Can. Petrol. Geology, 19: p. 730-781.
- ENGLAND, T.D.J. 1980. A study of Upper Triassic conodonts of Intermontane belt, Yukon Territory; Unpubl. B.Sc. Thesis., U.B.C. Vancouver, 55 pp.
- REID, R.P. 1981. Report of field work on the Upper Triassic reef complex of Lime Peak, Laberge map area, Yukon, p. 110-114 in Yukon Geology and Exploration 1979-1980, Dept. of Indian and Northern Affairs, 1981, Whitehorse, Yukon.
- REID, Pamela. 1982. The co-variation of lithology and geometry in Triassic reefal limestones at Lime Peak, Yukon; Yukon Exploration and Geology 1981, Dept. of Indian Affairs and Northern Development, 1982, Whitehorse, Yukon.
- TEMPELMAN-KLUIT, D.J. 1979. Transported cataclasite, ophiolite and granodiorite in Yukon: evidence of arc continent collision; Geological Survey of Canada, Paper 79-14, 27 pp.

THE SKUKUM VOLCANIC COMPLEX, 105 D SW:
GEOLOGY AND COMPARISON TO THE BENNETT
LAKE CAULDRON COMPLEX

By M.J. Smith

Dept. of Earth Sciences
University of Manitoba

INTRODUCTION

Several centres of continental volcanism are situated in southern Yukon. Two of these, the Skukum Volcanic Complex and the Bennett Lake Cauldron Complex (BLCC) are closely associated in space and gross geological characteristics, including their important role as hosts for epithermal precious metal mineralization. The BLCC was studied extensively by Lambert (1974) and the Skukum complex is currently under investigation by the author.

The Skukum complex was previously thought to represent a similar structural and volcanic setting to the BLCC (Wheeler, 1961). Study of the Skukum complex began in the summer of 1982 with the idea that it represented a cauldron subsidence feature and that an improved understanding of its geology would assist in developing potential targets for mineral exploration. The geology in the area is complex due to the discontinuous nature and incomplete exposure of volcanic units and is further complicated by severe faulting. Mapping was only partly completed in the 1982 field season and the ideas present in this report are subject to change as research continues.

The early Tertiary BLCC is 80 km south of Whitehorse; the nearby Skukum complex of probable similar age is located 58 km SSW of Whitehorse. Both complexes exhibit topographical features typical of the Coastal System. In the BLCC, elevations range from 655 m to 2,300 m a.s.l. with an average relief of the tributary valleys of about 1,050 m. Elevations in the Skukum complex range from 950 m to 2,378 m a.s.l. (Mt. Skukum), with an average relief of about 700 m. The terrain is rugged, has high relief and is deeply incised with youthful and glacially scoured valleys. Other glacial features include cirques, horns, serrated ridges and moraine deposits.

GEOLOGY

The Skukum complex and the Bennett Lake Cauldron Complex are both elliptical in plan, early Tertiary in age and part of the Sloko province of southern Yukon and northern British Columbia (Fig. 1). The province forms a broad northwest-trending belt along the northeastern margin of the Coast Crystalline Belt. Volcanic rocks of the Sloko province are preserved in downfaulted blocks and as erosional remnants on many higher uplands. The group is comprised of intermediate to acid volcanic and derived sedimentary rocks that lie unconformably on folded Jurassic and older (Precambrian) metasedimentary rocks and on Cretaceous granitic rocks (Souther, 1967) (Fig. 2). In Yukon, the Skukum volcanic rocks are considered to represent part of the Mt. Nansen volcanic rocks, ranging in age from 55 to 70 Ma. Mt. Nansen rocks

have been described as explosive intermediate to acid volcanic rocks which intrude and are deposited on parts of the Yukon Crystalline Terrane, Whitehorse Trough and Coast Plutonic Complex, (Tempelman-Kluit, 1981).

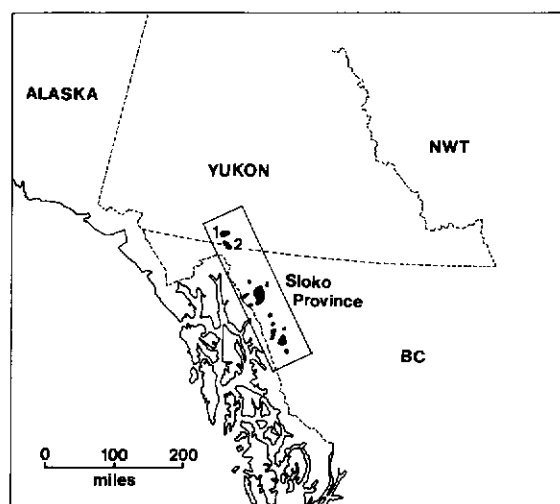


Figure 1. Distribution of the volcanic rocks of the Sloko Province and location of the 1) Skukum Volcanic Complex and 2) Bennett Lake Cauldron Complex.

BENNETT LAKE CAULDRON COMPLEX

The BLCC is deposited predominantly on Cretaceous granitic rocks of the Coast Intrusions. Much of the BLCC is rhyolite to dacite ash-flow tuff and breccia with subordinate rhyolite, dacite and andesite lava flows intercalated with epiclastic conglomerate, breccia, wacke and siltstone. Indications of cauldron subsidence are the predominance of pyroclastic rocks, the abundance of shattered and brecciated granitic rocks around the complex and evidence that the volcanic rocks lie in a depression that is roughly circular in plan and partly surrounded by a ring dyke. In his detailed report, Lambert (1974) concluded that the structure of the BLCC consists of two nested cauldrons, a central dome, concentric and radial fracture systems and a subelliptical rhyolite ring dyke.

SKIUKUM COMPLEX

The Skukum complex is deposited on Cretaceous granitic rocks of the Coast Plutonic Complex and older schists and gneisses and is surrounded in part by high level rhyolite intrusions (Fig. 2). Volcanic rocks lie unconformably on granitic and gneissic rocks with the exception of a fault-bounded eastern contact. Preservation of the Skukum complex was mainly due to accumulation of the volcanic material

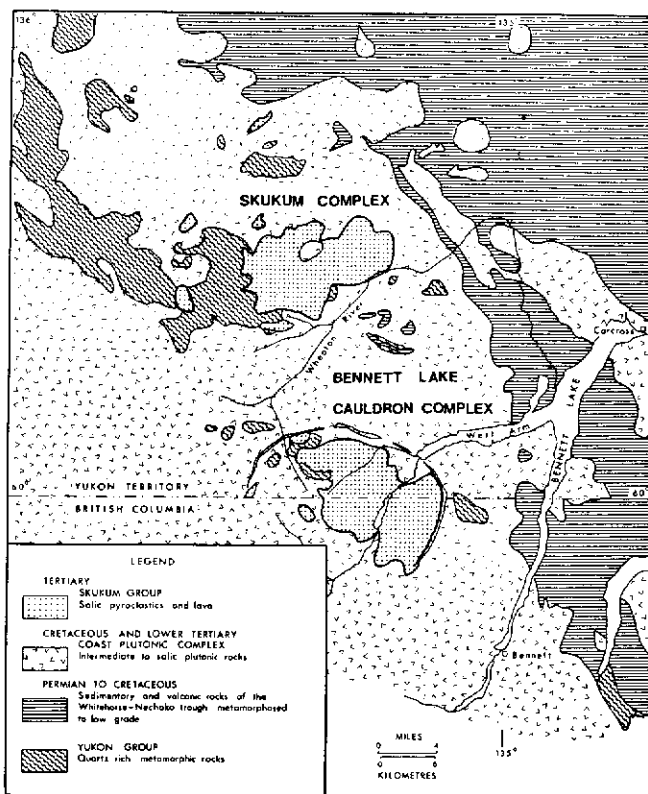


Figure 2. General geology of the Skukum Volcanic Complex and the Bennett Lake Cauldron Complex area (Lambert, 1974).

in a depression. Internally, the complex is severely dissected by at least 2 major faults; one along Butte Creek and another along Skukum Creek (Fig. 3). Along Skukum Creek, the volcanic rocks are down-dropped at least 450 m on the north side. The volcanic rocks to the north of Butte Creek are down-dropped at least 300 m. Outcrop patterns in Frigid and C&R cirques suggest that relatively hilly topography prevailed at the time of volcanism. Vegetation such as small shrubs are preserved in epiclastic sediments in Frigid cirque and in C&R cirque charred wood up to 25 cm in diameter is preserved in debris flows. The preserved flora is consistently found at higher elevations than the present tree line of approximately 1,200 m and shows that the environment in the early Tertiary was considerably different than the present-day environment. Many volcanic rock outliers capping basement rocks have been preserved and may represent either a distal facies equivalent to major volcanism in the Skukum complex or remnants of eruptions from other volcanic centres. The high level rhyolite intrusions peripheral to the Skukum complex were examined by the author in the summer of 1981 and were found to represent a cogenetic suite of igneous rocks (Smith, 1983). It's now doubtful that they represent intrusions along a ring fracture, but rather may represent intrusions along a more complex fracture system.

In the Skukum complex, three lithologically distinct and geographically restricted units are recognized; 1) Unit A, the lowermost unit, is composed mainly of epiclastic rocks and lava flows and is found in the western and southeastern part of the complex; 2) Unit B, a thick sequence of andesite pyroclastic rocks and lava flows, which in part overlies the

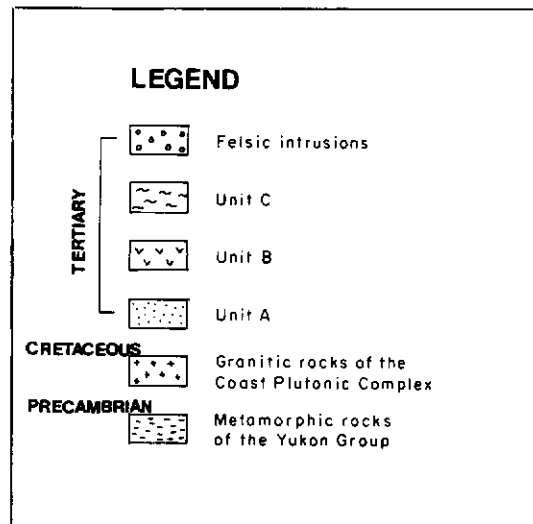
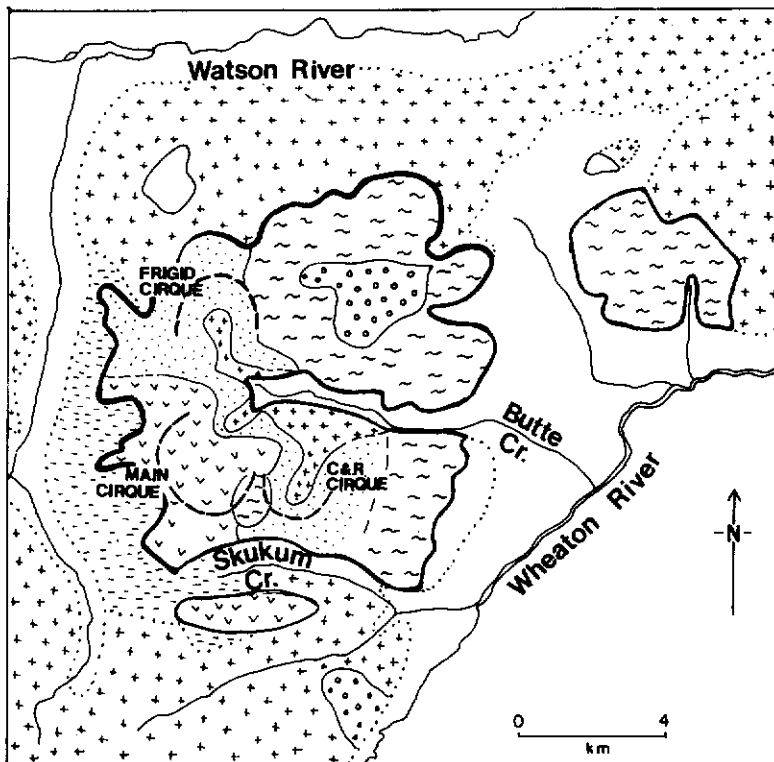


Figure 3. Major subdivisions of the Skukum Volcanic Complex.

epiclastic unit and is restricted to the northwest part of the complex; and 3) Unit C, rhyolite to dacite ash-flow tuff, possibly associated with a central dome. Felsic sills, dykes and small intrusions intrude Units A, B and C while andesitic intrusions are only found intruding Units A and B (Fig. 3).

Unit A

Unit A is exposed in Frigid cirque and can be traced along the north side of Butte Creek into C&R cirque (Fig. 4). This unit consists of a sequence of horizontal to shallowly dipping beds of volcaniclastic

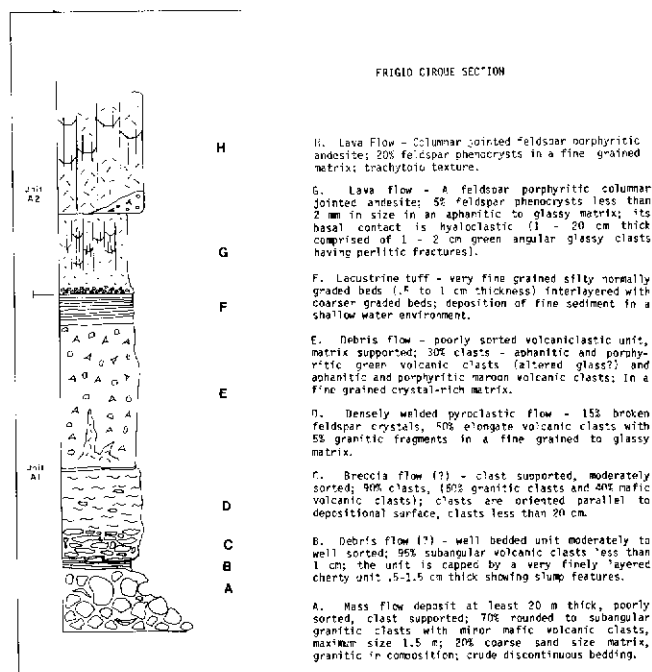


Figure 4. Frigid Cirque - Vertical section through Unit A.

rocks and flows. In Frigid cirque, the sequence lies unconformably on basement rock at an elevation of approximately 1,850 m and along Butte Creek and in C&R cirque the contact is at an elevation of approximately 1,600 m. Felsic and andesite dykes and sills intrude Unit A. In Frigid cirque, Unit A can be subdivided into two subunits. The lower sequence, (A1), is comprised of debris flows, avalanche deposits, minor welded pyroclastic flows, fluvial deposits(?) fine grained, normally graded, shallow water sediments (lacustrine?) and minor airfall (?) tuff. The upper sequence (A2) is made up mainly of feldspar porphyritic andesite flows which may be filling valleys and which show features such as columnar jointing, trachytoid flow alignment and hyaloclastic basal contacts.

In C&R cirque, the sequence differs slightly. The lower sequence is debris flows and bedded reworked sediments and/or airfall material. The debris flows characteristically contain charred wood fragments, thus indicating they were emplaced while still hot.

The upper sequence consists mainly of intercalated andesite lava flows and debris flows with occasional fine grained, bedded, reworked sediments. Locally, there is a wedge of pyroclastic rocks that look distinct from the rest because of an abundance of pumice fragments. Because of the larger clast size, the evidence of hot debris flows and the higher concentration of faulting, it is likely that the deposits in the C&R cirque are more proximal to the vent than those in Frigid cirque. In summary, Unit A may represent a flank of a stratovolcano, an area which is commonly composed of lava flows and reworked volcanic rocks.

Unit B

Unit B is restricted to the southwest portion of Skukum complex and overlies Unit A. It consists mainly of andesite pyroclastic rocks and lava flows. Lithologic units are difficult to differentiate due to lack of exposure, extensive (intense) alteration (silicification and calcite, epidote, chlorite), discontinuous nature of lava flows, faulting, and similar compositions from one lava flow to the next. These rocks are forcefully intruded by felsic dykes which, on the average, trend in a north-northeasterly direction, as do the faults. In the upper part of the main cirque are at least four rhyolite intrusions (domes) approximately 150 m in diameter. They are flow banded and autobrecciated. The complexity of this unit, as well as stratigraphic evidence that Unit A has been down-dropped in the Main cirque, suggests that the Mt. Skukum area may represent a collapsed vent.

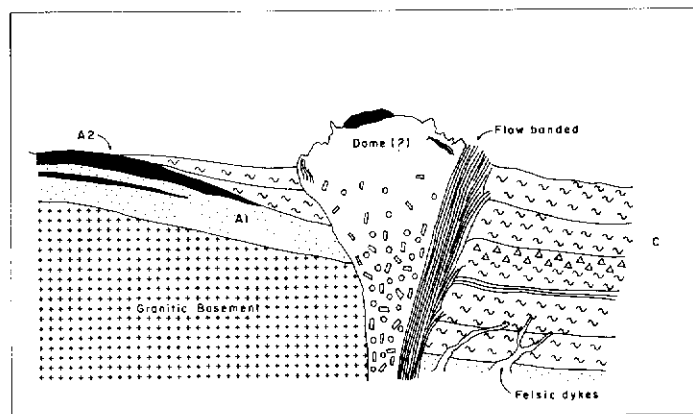


Figure 5. East-west cross section through the central intrusion showing the possible relationships between Units A, C and the intrusion.

Unit C

Unit C outcrops in the eastern half of the area and caps Unit B on the eastern ridge of Main cirque and Unit A along the eastern ridge of Frigid cirque. Due to the nature and alteration of the rocks, Unit C is poorly exposed and alters to pale pastel colours. It consists of flow banded felsic rocks and welded to non-welded felsic pyroclastic rocks with minor reworked volcanic rocks. The unit appears to be

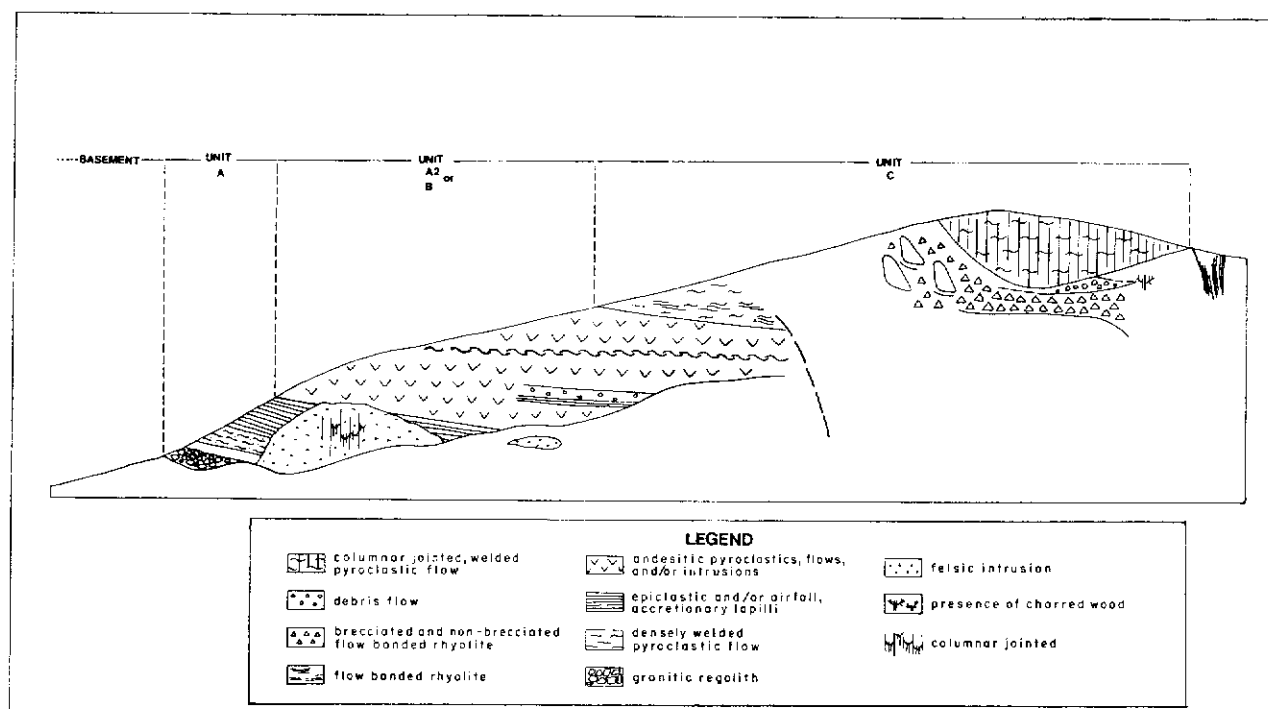


Figure 6. A section along eastern ridge of main cirque showing the relationship between Units A, B and C.

intimately related to a zoned porphyritic intrusion. The core of the intrusion can be described as a coarse, crowded, quartz feldspar porphyritic alaskite grading into a finer grained outer zone of porphyritic rhyolite. Extending along the eastern contact of the intrusion, a zone approximately one km in thickness of vertical to near vertical flow banded rhyolite occurs. It is in part intercalated with a thick sequence of welded to non-welded, felsic lapilli tuff, which extends all the way down to the base of Butte Creek (Fig. 5). The relationship between Units A, B and C is shown in Fig. 6 which is a section along the eastern ridge of Main cirque. It should be noted that the A2 units may be distal equivalents of the same volcanism that produced the extensive localized area of andesites near Mt. Skukum, Unit B.

CONCLUSION

In conclusion, the Skukum complex differs from the BLCC in three respects: 1) the presence of a bimodal suite of extrusive rocks suggests the tapping of two magma chambers, 2) its structural complexity and the absence of major cauldron subsidence and 3) the variability of depositional environments within the complex. Contrary to past speculation, the two complexes, which have been considered to be closely related in time and space, each represent a distinctive structural and volcanic setting.

Accordingly the Skukum complex can be divided into three volcanofacies: 1) a dissected flank of a stratovolcano, 2) a downdropped vent area and 3) late felsic volcanism related to a late stage dome.

ACKNOWLEDGMENTS

This project was financed by the Exploration and Geological Services Division, Department of Indian Affairs and Northern Development, Whitehorse. I would like to thank Jim Morin at D.I.A.N.D. for suggesting the project and also the AGIP Canada Ltd. crew, especially Al Doherty for their support and discussion and for permission to examine some of their drill core. Lastly, I am grateful to Marion Craig for her assistance in the field.

FUTURE RESEARCH

The author is presently working on an MSc. thesis at the University of Manitoba under the supervision of Dr. L.D. Ayres. The present study provides an understanding of the volcanic setting of the Skukum complex and provides a basis for further detailed study. A thesis topic concentrating on the epiclastic unit has been selected for detailed study because of good exposure, lack of extensive alteration, continuity of units and, most importantly, because a detailed examination of the stratigraphic sequence will aid in the understanding of the type of volcanism which occurred in the early development of the Skukum complex.

SKUKUM VOLCANIC COMPLEX

REFERENCES

- LAMBERT, M.B. 1974. The Bennett Lake cauldron subsidence complex, B.C. and Y.T.; Geol. Surv. Can., Bull. No. 227.
- SMITH, M.J. 1983. Petrology and geology of high level rhyolite intrusives of the Skukum area, 105 D SW, Yukon Territory, p. 62-73 in Yukon Exploration and Geology 1981, D.I.A.N.D. 1983.
- SOUTHER, J.G. 1967. Acid volcanism and its relationship to the cordillera of British Columbia, Canada; Bull. Volcanol., Vol. 30, p. 161-176.
- TEMPELMAN-KLUIT, D.J. 1981. Geology and mineral deposits of southern Yukon, p. 7-31 in Yukon Geology and Exploration 1979-80, D.I.A.N.D. 1981.
- WHEELER, J.D. 1961. Whitehorse map-area. Geol. Surv. Can., Memoir 312 (Includes Map 109 3A).

GEOLOGY OF PYRITE-SPHALERITE-GALENA CONCENTRATIONS IN PROTEROZOIC QUARTZITE AT QUARTZ LAKE, SOUTHEASTERN YUKON

By
P. VAILLANCOURT
University of Western Ontario
London, Ontario

Introduction

The Quartz Lake sedimentary hosted lead-zinc occurrence is within an area approximately 4 km by 2 km, 70 km northeast of Watson Lake, Yukon (Figure 1). It was discovered in 1892 by prospectors from the Cassiar gold fields searching for placer gold in the Quartz Creek - Hyland River area. The prospect was rediscovered by Ken McMillan in 1948 and has been under continuous exploration since 1949.

Proterozoic rocks of the area are divided into three groups of argillite, quartzite and limestone which are, in stratigraphic succession from oldest to youngest, the Range Group, the Mine Group and the Ridge Group. There are two principal lead-zinc occurrences in rocks of the Mine Group where pyrite, sphalerite and galena occur in tabular bodies, lenses and disseminations in a predominantly quartzite host rock.

Regional Geology

Quartz Lake is in the south part of the Selwyn Basin (Figure 1). Miogeoclinal to eugeoclinal rocks of the Selwyn Basin are bounded by the Mackenzie Platform to the east and the Pelly-Cassiar Platform to the west, both of which are stable miogeoclinal assemblages. The Selwyn Basin, Mackenzie Platform and Pelly-Cassiar Platform are part of the Columbian orogen which is the eastern pericratonic province of the Canadian Cordillera.

Late Proterozoic to early Paleozoic rocks of the Columbian orogen are mature, well sorted terrigenous clastic and carbonate rocks and minor volcanic rocks, deposited in shallow water tidal flat and floodplain environments as prograded continental terrace wedges supplied from shields to the east and northeast (Gabrielse, 1967). Quartz Lake has rocks of the Proterozoic Grit unit (Gabrielse and Wheeler, 1961) of central and southeast Yukon which is mostly siliclastic fine grained to coarse grained quartzites and conglomerates and fine grained argillilastics with intercalated limestone. The structure is north to northeast trending, simple and continuous folds. In the west and southwest of the Selwyn Basin, complex and heterogeneous structures reflecting at least two stages of deformation result in part from the volcanism and the intrusion of granite plutons (Gabrielse and Blusson, 1969).

Geology of Quartz Lake

At Quartz Lake, the older rocks are in a northwest trending synclinorium with the younger rocks in the axis which strikes northwest (Morin, 1981). The Quartz Lake occurrence is within the synclinorium and is characterized by a cyclicity of quartzite, argillite and limestone in three groups (Figure 2).

The Range Group is the oldest and most widespread,



Figure 1. Main tectonic subdivisions in the Yukon with the location of Quartz Lake.

occurring east of Pyrite Creek, west of Mine Creek and north and south of the known base metal occurrences (Figure 3). It varies from 10 m to 200 m in thickness and has a base of light grey to beige quartzite which is massive and medium to coarse grained. The quartzite is overlain by grey fine grained limestone which is recessive and brittle in places. The limestone is essentially fine grained equigranular calcite and is overlain by light green argillite which is thin bedded and composed mostly of fine grained sericite and clay minerals. It has randomly distributed quartz and calcite veinlets. Black argillite is at the top of the Range Group and outcrops only in a few locations along Mine Creek and, in drill holes near Pyrite Creek which pass through rocks of the Ridge Group (Figure 3). The black argillite has an appreciable carbon content plus numerous quartz and pyrite clasts and stringers. This rock also contains some mylonitized and compacted grain intervals.

The Mine Group outcrops along and east of Mine Creek and is from 5 to 50 m thick (Figure 2). It grades from a pink and green argillite to the sulphide mineral-hosting quartzite into light green argillite and is capped by a grey limestone which is siliceous in places. The Ridge Group is the youngest rock group and outcrops along Pyrite Creek and north of Moranda Lake (Figure 3). It varies in thickness from 1 to 25 m. Quartzite at the base is massive, medium grained

and light grey to white. It is overlain by a grey brittle limestone and then by a light green argillite which is thin bedded, composed of sericite and clay minerals, and distinctive by having crenulation folds.

In addition to the sedimentary sequence, dike rock was drilled below Mine Group argillite, north of Little Mountain at a depth of 144 m. The thickness of the dike is 10 m, it is dark green, friable, and has the composition of a diabase. There is also abundant granodiorite float but no outcrop, however, the Quartz Lake region has a number of plutons outcropping as well as dike swarms which may have acted as the source area for these rocks.

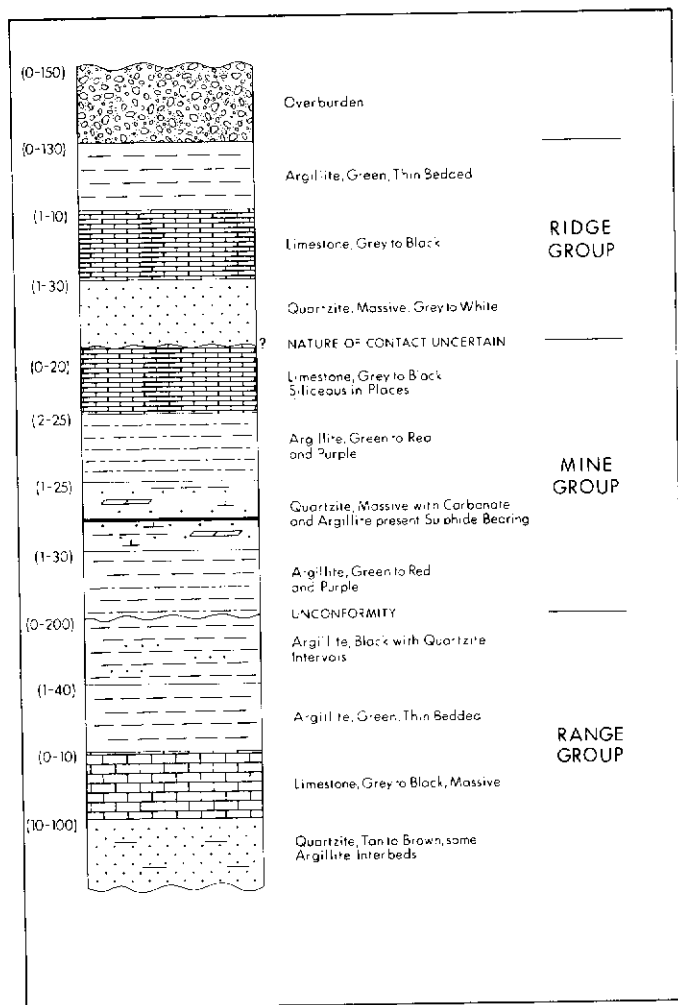


Figure 2. Generalized stratigraphic section of the Quartz Lake area. Thickness in metres.

Geology of base metal occurrences at Quartz Lake

There are two concentrations of sulphide minerals at Quartz Lake, both within the Mine Group - the Main zone and the South zone. The Main zone as outlined in outcrop and drill holes is 600 by 150 m in plan and 2 to 30 m thick striking northwest and dipping east. It is a northwest trending elongate body of 1.1 million

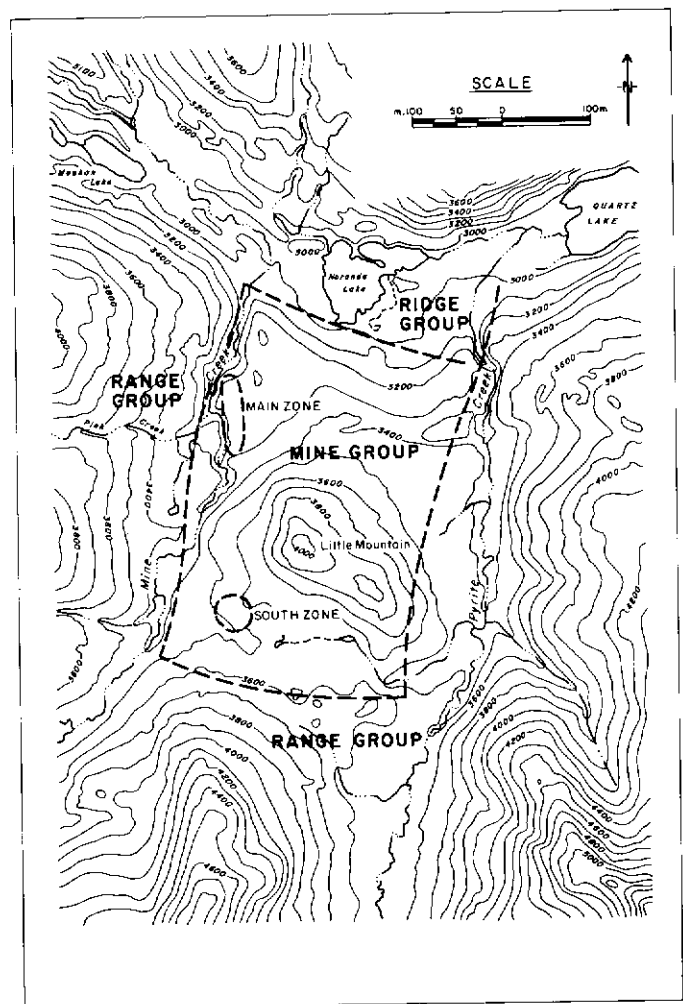


Figure 3. General geologic map of the Quartz Lake area.

tonnes of 8.32% Zn, 4.13% Pb and 61.7 g/tonne Ag in near massive pyrite, sphalerite, and galena stratabound within quartzite and argillite of the Mine Group.

The South zone, 300 m to the south, does not outcrop but is outlined by drill holes as 100 m by 75 m and up to 10 m thick of 0.4 million tonnes of 1.72% Zn, 9.34% Pb and 214 g/tonne Ag as dispersed and lensoid sphalerite, galena and pyrite in quartzite and argillite at approximately the same stratigraphic position as the Main zone. The distribution of sulphide minerals therefore indicates a sphalerite-rich Main zone and a galena-rich South zone.

The sulphide-bearing section of the Mine Group (Figure 4) has a red to green argillite at its base which grades into quartzite to a massive pyrite unit and then back to quartzite and argillite. The basal red and green argillite which can be 1 to 10 m thick has only disseminated pyrite and veinlets but contains more sphalerite and galena in lenses and veinlets at the top of the sequence. The argillite interbeds with and grades into quartzite which is the main host to pyrite, galena and sphalerite. Within the quartzite,

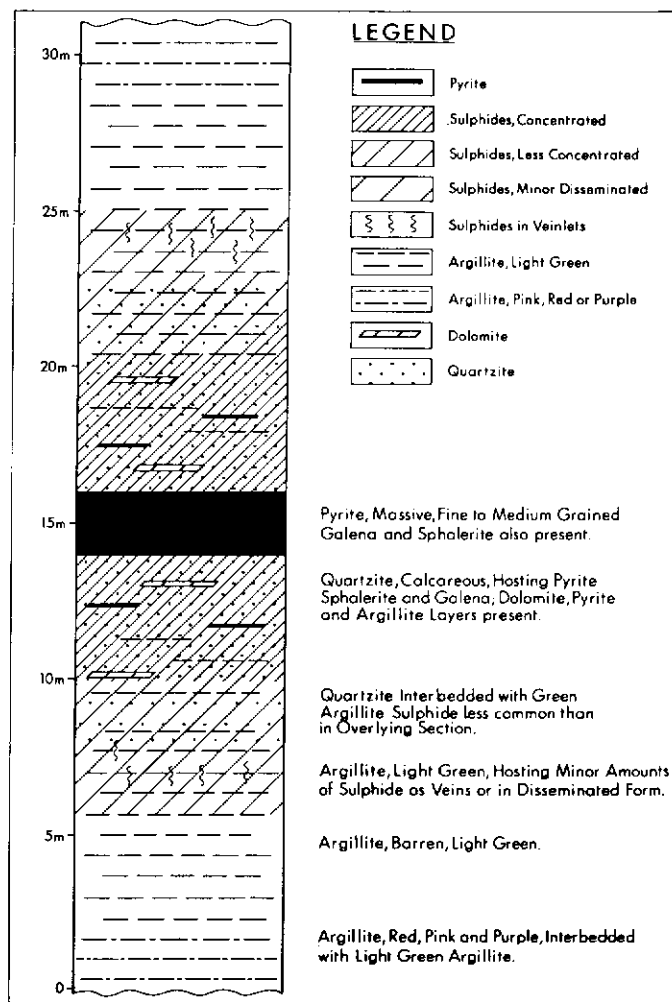


Figure 4. Stratigraphic section through the base metal-bearing part of the Mine Group.

1 to 10 m thick, sulphide mineral distribution includes other less common sulphide and sulphosalt minerals, the most important ones being boulangerite, arsenopyrite and tetrahedrite. The sulphide mineral morphology varies from discontinuous pods and lenses to discordant veins to disseminations. Sphalerite occurs as irregular masses and patches, minor veins and fracture filling in association with other sulphide minerals and as intergrowths or inclusions in pyrite. It is also very common for the sphalerite to occur interstitial to quartz grains as spheroids with concentric zoning and polysynthetic twinning (Figure 5a,b). Galena is along grain boundaries as intergrowths with quartz or sulphide minerals, in veinlets and along cleavage planes. Galena also occurs as granular aggregates or sub spherical spots to clusters in the interstices of quartzite and calcareous quartzite (Figure 5c). In the South zone, galena also commonly occurs with black argillite.

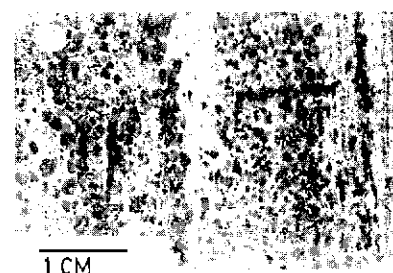
The most important aspect of the Mine Group quartzite is the presence of calcite and siderite which are interstitial grains and act as a cement for sulphide or quartz grains. Where present with the

sulphide minerals, the carbonates are commonly manganiferous (up to 17%); generally, a high manganese content is sympathetic with a high iron content.

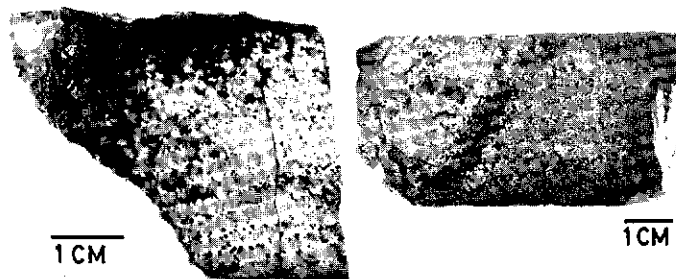
There are concordant and discordant dolostone lenses which contain galena. They are usually in quartzite but may also be in argillite. These lenses which are from 0.5 to 1 m thick and extend along strike for 5 to 10 m are more common in the galena-rich South zone than the sphalerite rich Main zone. The quartzite grades up into a layer of 80 to 90% massive pyrite with 10 to 20% combined sphalerite and galena (Figure 5d). The pyrite can be up to 5 m thick but pinches and swells along strike. The pyrite may have sedimentary features such as graded bedding or cross bed sets and occurs as well developed pyritohedrons which overprint or pseudomorph quartz grains. It is common to find other sulphide minerals as inclusions or intergrowths within pyrite. Massive pyrite grades upward into quartzite and green and red argillite. This sequence is capped by a barren grey limestone.



1MM



1 CM



1CM

1CM

Figure 5. a) Photomicrograph of concentrically zoned sphalerite from Quartz Lake, b) Photograph of thin section slide with disseminated spheroidal sphalerite in quartz groundmass, c) Photograph of disseminated galena as sub-spherical spots and clusters in calcareous quartzite and d) Photograph of massive pyrite hosting sphalerite (dark grey).

Sulphide mineral distribution at Quartz Lake is erratic in detail. The stratigraphy of the Mine Group in any given location is likely to vary from the idealized sequence. It is very common to find argillite interbedded with quartzite or pyrite or for the sulphide mineral-bearing zones to occur over very short thicknesses. Discontinuous horizons or rapid facies changes laterally are characteristic and deviation from conformability is common to the point where there is no trace of stratification within the ore itself. In addition, the sulphide mineral occurrences are never as extensive as the facies that host them.

Physicochemical Conditions of Sulphide Mineral Emplacement

Filling temperature determinations of primary fluid inclusions in sphalerite and quartz in the sulphide zone range from 185 to 195 degrees C with a median of 192. These represent minimum temperatures uncorrected for pressure. Filling factors determined on geometrically regular inclusions are 0.99 ± 0.06 . The liquid-vapour ratios in all inclusions examined are uniform and no evidence of boiling was observed. No daughter crystals were detected in primary liquid inclusions and hence the hydrothermal fluids were less than 25% NaCl equivalent (Roedder, 1967, 1979). For salinities at 5% and 25% NaCl equivalent and a filling factor of 0.99 based on gas to liquid ratios, the density of the fluid was 1.08 and 1.23 g/cm³, respectively.

Eleven galena samples were analyzed by Dr. Colin Godwin at the University of British Columbia for relative abundances of lead isotopes. There is very little variation in their lead isotopic composition: ²⁰⁶Pb/²⁰⁴Pb averages 20.185, ²⁰⁷Pb/²⁰⁴Pb averages 15.823 and ²⁰⁸Pb/²⁰⁴Pb averages 39.947. These ratios are those of very radiogenic lead.

Oxygen isotope analyses by Dr. Robert Kerrich at the University of Western Ontario on quartz from within as well as beyond the sulphide mineral bearing zone have a relatively uniform $\delta^{18}O$ of 16.08 to 17.57‰, signifying that the $\delta^{18}O$ fluid and fluid temperatures were also relatively uniform throughout the zones of the sulphide mineral occurrence. The oxygen isotope composition of fluids from which sulphide minerals were precipitated is estimated at 2.3 to 3.8‰, based on the $\delta^{18}O$ quartz, a corrected temperature of $192^\circ C \pm 20$ to $192^\circ C \pm 40$, and the quartz-water fractionation equation of Clayton et al. (1972).

Interpretation

At Quartz Lake, cyclicity of deposition of argillite, quartzite and limestone is expressed from the basal Range Group through the overlying Mine Group to the Ridge Group. The lateral extent, texture and uniformity of composition of all the rock types suggest deposition in a tectonically stable area with shallow marine conditions such as an epicontinental sea. Quartzite in the Range, Mine and Ridge Groups is generally clean and medium to coarse grained, indicating thorough clear water flushing of sands in a near shore tidal beach environment. The limestone is also similar in all three groups and is distinguished only by minor textural features. The

dark colour, and fine grain size indicate the depositional environment was restricted anaerobic waters which were stagnant and much lower in energy than the conditions for quartzite deposition. Argillite in the area is extensive, characterized by fine grain size, light green color and sericite. The few quartz particles indicate very little near shore influence and that deposition was slow and regular in quiet water. In general, the cyclicity and nature of the rock types indicates sedimentation in fairly shallow water, not far from a land-marine water interface; it is possible that sedimentation alternated between transgressive and regressive clastic deposition and was periodically restricted to permit limestone formation.

The stratabound nature of the sulphide minerals that are now mostly in quartzite indicates they were emplaced predominantly in interconnected pore spaces in sands. The largest sulphide mineral concentrations, which are parallel to parting surfaces and interstitially distributed between quartz grains suggest that the control to sulphide mineral deposition was permeability and porosity as well as the alternation of sand and shale which confined fluid flow. The sulphide mineral assemblage of pyrite, sphalerite, galena and sulphosalts as well as the trace metal content of the sulphide minerals are characteristic of low to moderate temperature sedimentary deposits (Vaughan, 1976) under moderate loading, leading to minor pressure solution but not extensive recrystallization. Mutual relationships of the sulphide minerals suggest that they formed by a series of pulses of metal-bearing fluids which were mainly zinc-rich with a lesser Eh in the Main zone and lead-rich with a greater Eh in the South zone (Barnes and Czamanske, 1967, Rickard et al., 1979).

Five fluid reservoirs can be identified on the basis of their $\delta^{18}O$ signatures: these are marine, meteoric, magmatic, metamorphic, and formation brines which may be derived from marine or meteoric waters (Taylor, 1974). Given the marine environment and the low temperature of formation, the fluid $\delta^{18}O$ of 2-3‰ at Quartz Lake is meteoric water that underwent a positive shift of +2 to +3‰ during low temperature circulation through very $\delta^{18}O$ -rich sediments.

Based on the fluid density of 0.93 g/cm³ and the distribution of fluid inclusions in large grains, the rate of movement of the fluids was probably slow. Given these conditions, the fluids could migrate freely and form discontinuous pods and semi-massive sections. The relatively low salinity of the fluids suggests there was little influence from saline brines or evaporite source rocks. With a shallow depth of burial, mechanical compaction was the dominant porosity reducing process, although pressure solution, secondary overgrowths and cementation were effective as well.

Genesis of the Quartz Lake Occurrence

The depositional setting and evolution of Quartz Lake is shown in figure 6. During Late Proterozoic time, sediments were deposited on the North American craton above a granitic basement in an epeirogenic sea near the continental margin where stable tectonic conditions prevailed. With progressive weathering of the continent, meteoric groundwaters migrated through the granitic basement as part of the hydrologic cycle.

Base metals were carried in a warm slightly acidic, slightly saline fluid. Fluids circulated through

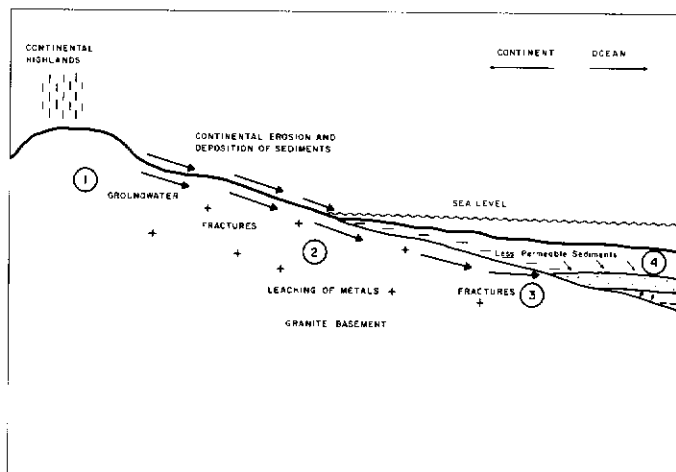


Figure 6. Depositional environment and genetic sequence for the source, transport and deposition of metal-bearing fluids at Quartz Lake. Length of section is approximately 100 km, vertical scale is greatly exaggerated.

1. Erosion of highlands and initiation of groundwater circulation through the granite basement.
2. Groundwater circulates through the basement and leaches metals.
3. Slightly saline brine moves into onlapping sediment and particularly permeable sandy horizon. This flow may be assisted by fractures.
4. Precipitation of sulphide minerals as metalliferous mix with sulphate-rich seawater and formation waters in sandy horizon. Arrows indicate hydrodynamic movement of waters from less permeable underlying and overlying sediments.

fractured basement and later through onlapping porous permeable sandstone. Precipitation of sulphide minerals occurred as the slightly saline brine mixed with seawater and formational water containing sulphate in sandstone. Deposition was a result of a combination of falling temperature and increasing pH and Eh as the fluids mixed with cooler more oxidized waters (Large, 1977) and waters that moved hydrodynamically from overlying and underlying sediment.

LIST OF REFERENCES

- BARNES, H.L. and CZAMANSKE, G.K., 1967. Solubilities and transport of ore minerals; in *Geochemistry of Hydrothermal Ore Deposits*, First edition, by H.L. Barnes, ed., New York: Holt, Rinehart and Winston, p. 334-381.
- CLAYTON, R.N., O'NEIL, J.R. and MAYEDA, T.K., 1972. Oxygen isotope exchange between quartz and water; *Journal of Geophysical Research*, Vol. 77, p. 3057-3067.
- GABRIELSE, H., 1967. Tectonic evolution of the northern Canadian Cordillera; *Can. Jour. of Earth Sci.*, Vol. 4, pp. 271-298.
- GABRIELSE, H. and WHEELER, J.O., 1961. Tectonic framework of southern Yukon and northwestern British Columbia; *Geol. Surv. Can. Paper* 60-24, 37 pp.
- GABRIELSE, H. and BLUSSON, S.L., 1969. Coal River map area, Yukon Territory and district of Mackenzie; *Geol. Surv. Can. Paper* 68-38, 22 pp.
- GODWIN, C.I., Personal Communication, 1981.
- KERRICH, R., Personal Communications, 1981 and 1982.
- LARGE, R.R., 1977. Chemical evolution and zonation of massive sulfide deposits in volcanic terrains; *Econ. Geol.*, Vol. 72, 1977, pp. 549-572.
- MORIN, J.A., 1981. The Macmillan deposit- a stratabound lead-zinc-silver deposit in sedimentary rocks of Upper Proterozoic age, p.107-112 in DIAND, 1982, *Yukon Geology and Exploration 1979-80*, 364 pp.
- RICKARD, D.T., WILLDEN, M.Y., MARINDER, N.E. and DONNELLY, T.H. 1981. Studies on the genesis of the Laisvall sandstone lead-zinc deposit, Sweden - A reply; *Econ. Geol.*, Vol. 74, pp. 2052-2060.
- ROEDDER, E., 1967. Fluid inclusions as samples of ore fluids in *Geochemistry of Hydrothermal Ore Deposits*, H.L. Barnes, editor, Rinehart and Winston, New York, pp. 515-574.
1979. Fluid inclusions as samples of ore fluids in *Geochemistry of hydrothermal ore deposits*, Second edition, H.L. Barnes, editor, Wiley, pp. 684-737.
- TAYLOR, H.P., 1974. The application of oxygen and hydrogen isotope studies to problems of hydrothermal alteration and ore deposition; *Econ. Geol.*, Vol. 69, pp. 843-883.
- THOMPSON, R.I. and PANTELEYEV, A., 1976. Stratabound mineral deposits of the Canadian Cordillera. in Wolf, K.H. (ed), *Handbook of stratabound and stratiform ore deposits*, Elsevier, Amsterdam, Chap. 2, pp. 37-108.
- VAUGHAN, D.J., 1976. Sedimentology, Geochemistry and Mineralogy of the Sulfides of Lead, Zinc, and Copper and Iron and their Occurrence in Sedimentary Ore Deposits, in *Handbook of Stratabound and Stratiform Ore Deposits, Principles and General Studies*, Vol. 2, Geochemical Studies by K.H. Wolf, ed., New York: Elsevier Scientific Publishing Company, pp. 317-363.

SUMMARIES OF ASSESSMENT WORK,
DESCRIPTION OF MINERAL PROPERTIES,
AND MINERAL CLAIMS STAKED IN 1982

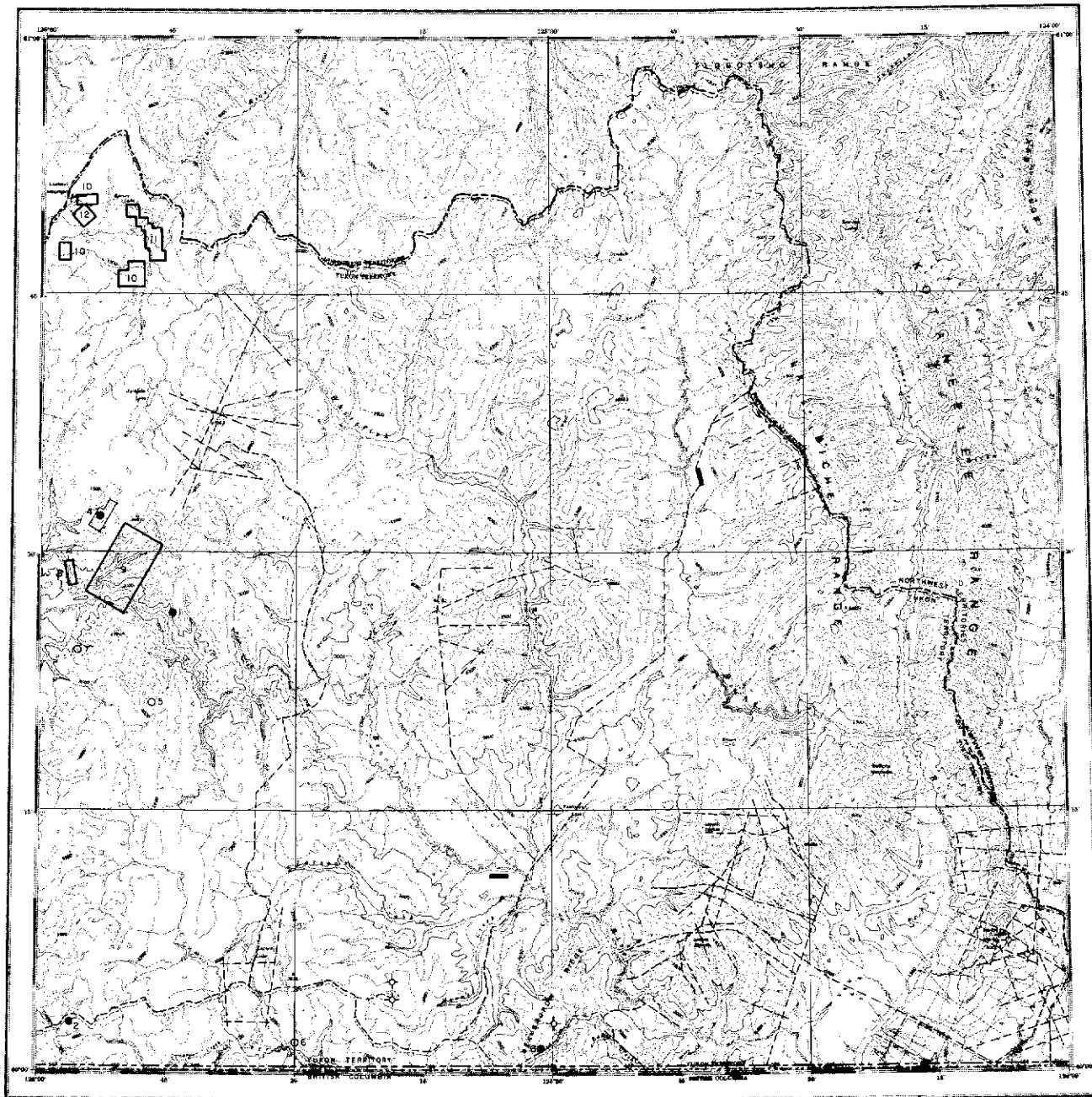
The reports and summaries of work done are keyed to a set of maps which are reductions of the 1:250,000 topographic maps of Yukon. The maps show three features in relation to the topography. They include the location of known mineral occurrences with a key naming them. They also give the most recent literature reference describing the occurrence. The maps also show the areas covered by mineral and placer claims in good standing and the areas covered by leases to prospect for placer and coal. Mineral claims staked during 1982 are distinguished from those located earlier to emphasize areas that will focus future exploration. The claim information derives from the maps of the Supervising Mining Recorder, D.I.A.N.D., Whitehorse. Finally, the maps indicate secondary access roads and winter tote trails.

The maps are ordered according to the National Topographic System and the work summaries and records of new staking also follow this order. Thus, each map precedes a section describing exploration activity within that area. Each report on a property includes the National Topographic System reference number keying it to the relevant 1:50,000 scale map-area. The number beside the MTS relates to the property location on the index map. Latitude and longitude further define the location. The name reported is that given by the original discoverer or staker; it may not match that of the present claims. Repetition of names is avoided by assigning a unique name where the claim name is not diagnostic.

Further information concerning the properties may be obtained from several sources. The National Mineral Inventory (NMI) is maintained by Department of Energy, Mines and Resources as a looseleaf file of property descriptions grouped according to the MTS system and within that according to commodity. A copy of the inventory is available for consultation at the D.I.A.N.D. Geology office in Whitehorse.

The Yukon Land Resource and Inventory Atlas contains a series of 1:250,000 maps with different resources plotted on them. The material was compiled by F.F. Slaney and Company Limited through a contract with D.I.A.N.D. and Y.T.G. Their subject categories include the following: physical resources - meteorology, hydrology, areas of bedrock geology studies. Quaternary geoscience, pedology; demographic resources - land status, settlement patterns, tourism and recreation services, archaeological resources, historic resources, transportation, native peoples; non-renewable resources - economic minerals, industrial surficial deposits, oil and gas; renewable resources - hydroelectric, forestry, vegetation, agriculture, fisheries resources, ungulates, furbearers and large carnivores and birds. However, the mineral related data is complete up to 1974 only. A copy of this Inventory is available for consultation at the D.I.A.N.D. Geology office in Whitehorse.

The Northern Cordillera Mineral Inventory is an accurate and thorough private system maintained by Archer, Cathro and Associates (1981) Ltd. and is available from them on a fee and subscription basis. Their inventory was the prime source of data for the economic mineral section of the above mentioned Yukon Atlas and likewise the Atlas maps were the initial foundation for the maps presented in our 1979-80 Yukon Geology and Exploration report.



LA BICHE RIVER
YUKON TERRITORY - NORTHWEST TERRITORIES

Kilometres 5 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|-----------------|
| ① Mineral Deposit or Occurrence
see Key on facing page | Placer Lease in good standing (Jan. 1983) | Trail |
| ② Unmineralized Target | Placer Claims in good standing (Jan. 1983) | Driveable Road |
| Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982 | CEL Coal Exploration Licence | Oil or Gas Well |
| Mineral Claims staked in 1982 | CML Coal Mining Lease | Ship |

LA BICHE RIVER MAP-AREA (NTS 95 C)

General Reference: GSC Map 1380A by: R.J.W. Douglas,
1976.

RUSH
Archer, Cathro and
Associates (1981) Limited

Geochemical Target
95 C 13 (12)
(60°50'N, 125°55'W)

Claims: RUSH (16)

Current Work and Results:

The claims are underlain by rocks of the Lower
Earn Group and in 1982, reconnaissance scale mapping
and geochemical surveying were carried out.

NO. PROPERTY NAME	REFERENCE
1 POOL	Barium Vein Occurrence
2 TROPICAL	Barium-Lead-Zinc Occurrence
3 BEAVERCROW	D.I.A.N.D. Files, Log of SOBC Shell Beavercrow Well K-2 (Drill- ed 1963)
4 TING	D.I.A.N.D. (1981, p. 131)
5 VISTA	D.I.A.N.D. (1982, p. 83)
6 DUFFY	D.I.A.N.D. (1982, p. 83)
7 THOR	D.I.A.N.D. (1982, p. 83)
8 TRANZ	This Report
9 BEAV	This Report
10 DEEK	This Report
11 MARS	This Report
12 RUSH	This Report

1982 MINERAL CLAIMS STAKED

TRANZ
Archer, Cathro and
Associates (1981) Limited

Geochemical Target
95 C 5 (8)
(60°29'N, 125°56'W)

Claims: TRANZ (14)

Current Work and Results:

The claims are underlain by Road River Formation
shale and in 1982, reconnaissance scale mapping and
geochemical surveying programs were conducted.

MARS
Archer, Cathro and
Associates (1981) Limited

Geochemical Target
95 C 13 (11)
(60°49'N, 125°47'W)

Claims: MARS (49)

Current Work and Results:

Rocks of the Lower Earn Group underlie the
claims and in 1982, reconnaissance scale geological
mapping and geochemical sampling programs were carried
out on the claims.

TRANZ
Archer, Cathro and
Associates (1981) Limited

95 C 5 (8)
(60°28'N, 125°56'W)

Claims 1982: TRANZ 1-14

BEAV
Stubenberg

95 C 5, 12 (9)
(60°29'N, 125°50'W)

Claims 1982: BEAV 37-180

DEEK
Kidd Creek Mines Limited

95 C 13 (10)
(60°46' - 60°51'N,
125°49' - 125°55'W)

Claims 1982: DEEK 1-10, 36-43, 48-71, 101-112

MARS
Archer, Cathro and
Associates (1981) Limited

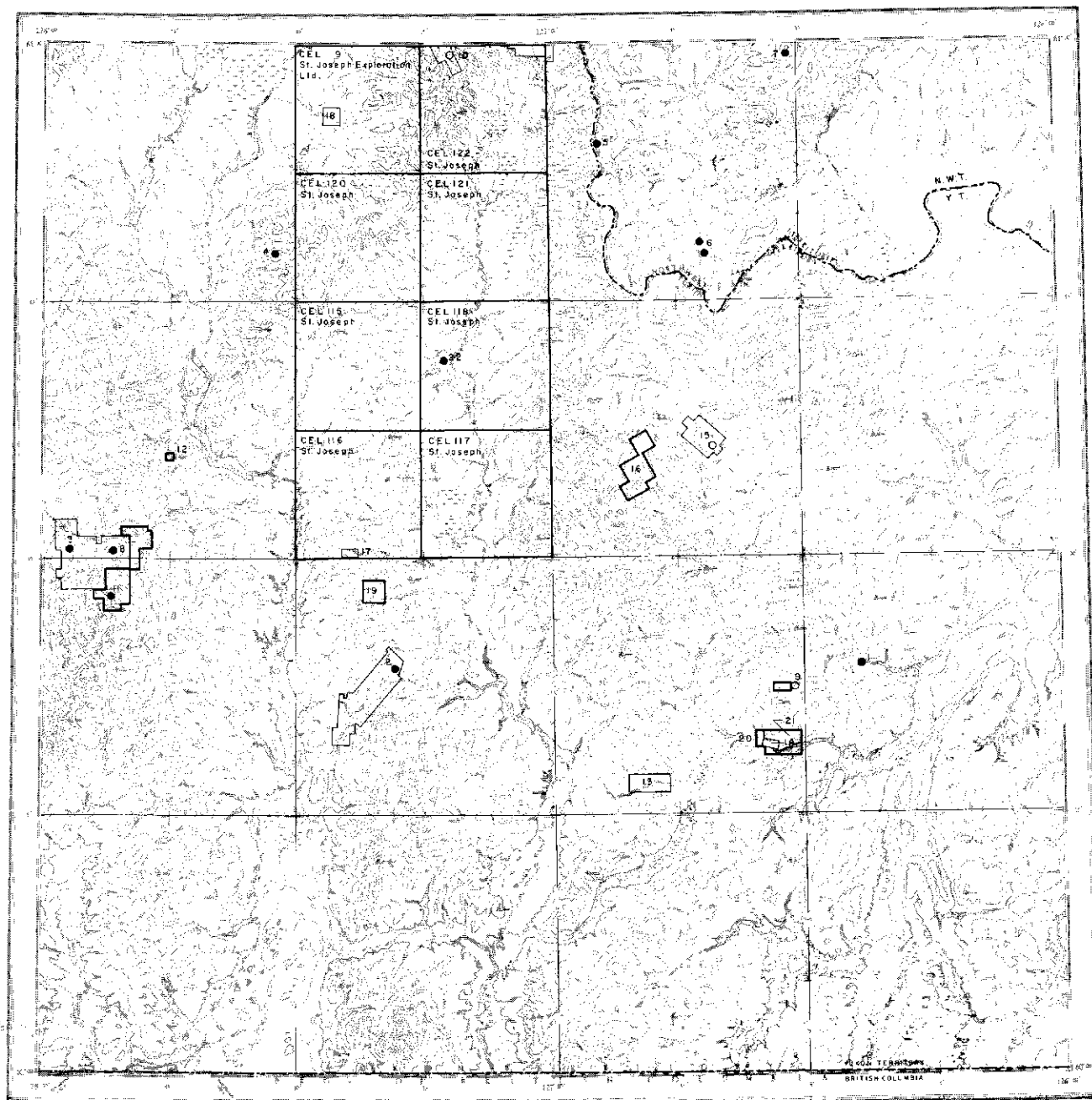
95 C 13 (11)
(60°48'N, 125°47'W)

Claims 1982: MARS 1-49

RUSH
Archer, Cathro and
Associates (1981) Limited

95 C 13 (12)
(60°49'N, 125°55'W)

Claims 1982: RUSH 1-16



COAL RIVER

YUKON TERRITORY — NORTHWEST TERRITORIES

Kilometres 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|-------------------|
| ● ⁴¹ Mineral Deposit or Occurrence
see Key on facing page | — Placer Claims in good standing (Jan. 1983) | — Tail Trail |
| ○ ⁷² Unmineralized Target | — Placer Claims in good standing (Jan. 1983) | — Driveable Road |
| — Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982 | CEL — Coal Exploration Licence | ♦ Oil or Gas Well |
| — Mineral Claims staked in 1982 | CML — Coal Mining Lease | — Airstrip |

COAL RIVER MAP-AREA (NTS 95 D)

General Reference: GSC Map 11-1968 by: H. Gabrielse,
1969.

NO.	PROPERTY NAME	REFERENCE
1	GUSTY	Gabrielse & Blusson (1969, p. 16)
2	MEL-HOSER	This Report
3	McMILLAN	Vaillecourt (This Report)
4	CHU	Skarn Lead-Zinc Occurrence
5	GABE	Gabrielse & Blusson (1969, p. 16), D.I.A.N.D. (1981, p. 133)
6	LAST	Lambert (1969, p. 21-23)
7	STONEMARTEN	Lambert (1969, p. 21-23)
8	PORKER	This Report
9	WOLF	D.I.A.N.D. (1982, p. 86)
10	SPORK	D.I.A.N.D. (1981, p. 133); D.I.A.N.D. (1982, p. 87)
11	CUZ	This Report
12	PLAY	This Report
13	LOOTZ	This Report
14	JT	This Report
15	OUDDER	This Report
16	OK	This Report
17	STAR	D.I.A.N.D. (1982, p. 86)
18	HERPES	This Report
19	QUO	This Report
20	LOBO	This Report
21	SPRUCE	This Report
22	ROCK RIVER COAL	This Report

MEL-HOSER Lead, Zinc, Barite
Sulpetro Minerals Limited 95 D 6 (2)
(60°23'N, 127°20'W)

Reference: D.I.A.N.D. (1982, p.85,87).

Claims: 59 claims of MEL, JEAN, WET, SOV; 96 claims of JONI, KELI, EDY, HOSE, JERI, OTT, RALFO, SIN, MUMBO, TOMI, YANG, CHUNGO, BOZ.

Source: Summary by P. Watson from assessment report 091077 by D.C. Miller and J.D. Blanchflower.

History:

Ninety-six claims (JONI to BOZ claims) were added to the MEL claim block in 1981 to cover additional mineralized occurrences located 7 km north-east of the MEL main zone.

Description:

The new claims are underlain by a series of Lower Cambrian to Middle Ordovician sedimentary rocks. The oldest unit is represented by grey dolomite, grey sandstone, grey thin-bedded limestone and brown siltstone at the MEL-EAST ZONE (new zone), while at the MEL zone, it is mainly calcareous shale and siltstone.

An alteration zone of silicification and dolomitization, 10 m or more thick, occurs near the top of the next unit, a cryptocrystalline limestone, at the MEL-EAST and marks the base of the mineralized zone. At MEL, the dolomite zone occurs at the base of the limestone unit, approximately 140 m below the mineralized zone.

At MEL-EAST, mineralization consists of smithsonite blebs in silicified limestone at the top of the limestone unit. Mineralization is found in 3 outcrops over a strike length of 125 m and up to a width of 2 m. The mineralized zone at MEL is up to 15 m thick and 900 m long and contains sphalerite, galena and barite.

Rabbitkettle Formation calcareous phyllite grading into wavy banded silty limestone overly the mineralized unit.

The youngest material mapped in the area is thick-bedded dolomite with chert nodules that may be part of the Sunblood Formation.

The MEL-EAST zone appears to lie on the east limb of an overturned syncline.

Current Work and Results:

In 1982, a soil geochemistry program was conducted on JONI and KELI claims and the new claim block was mapped at a reconnaissance level. A total of 247 soil samples were collected and analyzed for

Pb, Zn and Ag.

Moderately anomalous values were noted in soil samples over a length of 2,100 m along the trend of the mineralized zone. Samples containing greater than 1,200 ppm Zn or 168 ppm Pb were considered definitely anomalous. Zn and Pb anomalous values showed a good correspondence. Silver values ranged up to 1.3 ppm Ag and correlated with Pb values.

The geochemical response of MEL-EAST is weaker and less extensive than the response at MEL. The average of assays of the three showings at MEL-EAST was 9.6% Zn, less than 0.1% Pb, 1.03 g Ag/t and 0.03% Ba.

PORKER	Geochemical Target
Archer, Cathro and	95 D 5,12 (8)
Associates (1981) Limited	(60°32'N, 127°49'W)

Reference: Sinclair et al (1976, p.155,156).

Claims: QUIVER 1-40

Source: Summary by P. Watson from assessment report 091425 by A.R. Archer.

History:

The QUIVER claims were staked to the east of the PORKER claims in 1982 to cover an area of anomalous arsenic geochemistry.

Description:

The property lies 70 km northeast of Watson Lake. It is underlain by grit, quartzite and quartz pebble conglomerate of the Hadrynian Grit Unit, which is locally overlain by Cambrian-Ordovician(?) silty limestone and calcareous shale of the Rabbitkettle Formation.

Current Work and Results:

In 1982, 12 stream sediment, 761 soil and 22 rock samples were collected and analyzed for Au, As, Bi, Sb, Pb, Cu, W and Mn.

CUZ	Gold Vein
Archer, Cathro and	95 D 5 (11)
Associates (1981) Limited	(60°28'N, 127°52'W)

References: D.I.A.N.D. (1982, p.85,87).

Claims: CUZ 1-60

Source: Summary by P. Watson from assessment report 091427 by A.R. Archer.

History:

This property lies to the south of the McMILLAN (#3) property. The northern part of the claim group was previously part of the SN (1954) and the PORKER (1973) claim blocks. The CUZ claims were staked in 1981 to cover anomalous As values in stream sediment samples. Fourteen claims were added in 1982 to cover the extension of an Au soil anomaly.

Current Work and Results:

During the 1982 geochemical program, 22 stream sediment, 865 soil and 59 rock samples were collected. The property is underlain by Hadrynian Grit Unit.

LOOTZ	
SEREM Limited	95 D 7 (13)
	(60°17'N, 126°40'W)

References: D.I.A.N.D. (1982, p.85,86,87).

Claims: LOOTZ 1-40

Source: Summary by P. Watson from assessment report 091073 by M.A. Stammers.

Description:

The property is located 130 km east-northeast of Watson Lake. It is underlain by a package of Paleozoic sedimentary and volcanic rocks. These include; Lower Cambrian(?) to Devonian silty limestone and volcanic rocks; dolomite, sandstone and conglomerate; and Road River Formation limestone, chert and shale.

Current Work and Results:

The claims were staked in 1981. In 1981 and 1982, prospecting, geochemical sampling and geological mapping programs were conducted.

JT	Geochemical Target
R.H. Seraphim Engineering Ltd.	95 D 7 (14)
	(60°17'N, 126°35'W)

Reference: D.I.A.N.D. (1982, p.85,87).

Claims: JT 1-8

Source: Summary by P. Watson from assessment report 091079 by R.H. Seraphim.

History:

The claims were staked in 1981 to cover two

brown ocher spring deposits containing up to 1% Zn.

Description:

The area is underlain by Road River and Besa River Formation rocks. On the property, outcrops of grey-black limestone containing carbonate stringers were mapped. Float of quartzite, limestone, shale and grit was found near the showing and minor galena in a quartz stringer was found in the creek bed.

Current Work and Results:

Geological mapping in the vicinity of the springs and geochemical sampling programs were conducted in 1982. Thirty-four stream sediment or soil samples were collected. Maximum values returned were 50 ppm Cu, 38 ppm Pb and 1,650 ppm Zn, except for the 1% Zn at the spring.

OUDDER	Geochemical Target
Archer, Cathro and	95 D 10 (15)
Associates (1981) Limited	(60° 37'N, 126° 42'W)

References: D.I.A.N.D. (1982, p.85,86,87).

Claims: OUDDER 1-22; FAR 1-16; WAY 1-16

Source: Summary by P. Watson from assessment report 091019 by C.A. Main and R.J. Cathro.

History:

The claims were staked in 1981, following a soil and stream sediment panning program.

Description:

The claim block covers a small hornblende-biotite granodiorite stock that has intruded middle to lower Paleozoic limestone, siltstone and chert. These sediments are part of the Road River and Sunblood Formations. Float of unmineralized garnet-diopside skarn was found near the contact.

Current Work and Results:

Stream sediment and soil samples were collected on the property and a ground magnetometer survey was conducted. Samples were split, one part retained for geochemical analysis and the remainder panned and lamped for tungsten minerals. Streams draining from the intrusive contact contain anomalous amounts of scheelite.

A total of 418 samples were analyzed for W and Mo and 215 were also analyzed for Au. Values greater than 10 ppm W, 3 ppm Mo or 10 ppb Au were considered anomalous. The main W anomaly occurs near the skarn float, upstream of the location of panned samples containing anomalous amounts of scheelite. Four areas anomalous in Mo were outlined. Magnetometer highs may be related to magnetite in skarn or chert.

DK
R.H. Seraphim Engineering Ltd.

Geochemical Target
95 D 10 (16)
(60° 35'N, 126° 50'W)

Reference: D.I.A.N.D. (1982, p.85,87).

Claims: DK 1-64

Source: Summary by P. Watson from assessment report 091080 by R.H. Seraphim.

History:

The claims were staked in 1981 to cover an area of anomalous stream sediments located during a reconnaissance program.

Description:

The area is underlain by rocks of the Sunblood, Road River and Besa River Formations.

Current Work and Results:

Approximately 450 grid soil samples were collected and analyzed for Cu, Pb and Zn. One Cu value of 265 ppm was reported; all others were less than 80 ppm Cu. Similarly, one Pb value of 52 ppm was found; all others were less than 40 ppm Pb. Zinc values up to 6,800 ppm Zn were reported and are probably derived from the Road River Formation rocks.

HERPES	Geochemical Target
Archer, Cathro and	95 D 14 (18)
Associates (1981) Limited	(60° 56'N, 127° 25'W)

References: D.I.A.N.D. (1982, p.85,87).

Claims: HERPES 1-16

Source: Summary by P. Watson from assessment report 091021 by C.A. Main and R.J. Cathro.

History:

These claims were staked in 1981 to cover the apparent source of stream sediments containing anomalous amounts of scheelite, located near the contact between a Cretaceous intrusion and Hadrynian(?) limestone. The property was staked for CUB Joint Venture (Brinco Mining Limited, formerly Cassiar Asbestos Corporation Limited; Highland Crow Resources Limited; Union Carbide Canada Limited).

Description:

The property is located on the east side of the Coal River valley, 14 km west of the Yukon Territory - Northwest Territories border and 140 km northeast of Watson Lake. No outcrop was found on the property, which is on the west side of the Grizzly anticline. Two small, previously unmapped stocks are poorly exposed nearby. These biotite granites range from

fine grained to pegmatitic and contain up to 10% quartz, biotite and tourmaline. The stocks are intrusive to a package of Hadrynian Grit Unit clastic rocks and limestone, possibly faulted against lower Cambrian and older (?) "Phyllite Unit".

Current Work and Results:

Preliminary investigations in 1981 were interrupted by a forest fire. Fifty-eight grid soil samples, and reconnaissance stream sediment and soil samples were analyzed for W and Mo. Both geochemical and panning samples were collected at stream sediment sample sites. Most geochemical samples (soil and stream sediment) contained 1 ppm W only, although a few single sample highs were reported. All samples contained less than 3 ppm Mo.

QUO	Geochemical Target
Archer, Cathro and	95 D 6 (19)
Associates (1981) Limited	(60°28'N, 127°20'W)

Claims: QUO 1-16

Source: Summary by P. Watson from assessment report 091423 by A.R. Archer.

History:

Soil and stream sediment samples previously collected in the area were reanalyzed and results delineated an area of anomalous gold values which was staked in 1982.

Description:

The property is located 90 km northeast of Watson Lake. The area is underlain by upper Precambrian and lower Paleozoic rocks, bounded on the east by the Rock River Fault.

Current Work and Results:

In 1982, 74 soil and 21 stream sediment samples were collected and analyzed for Au.

SPRUCE	95 D 7 (21)
SEREM Limited	(60°19'N, 126°32'W)

Claims: SPRUCE (48)

Current Work and Results:

The property was mapped at 1"=1 mile and 1"=1/2 mile scales in 1982. Stream sediment and contour soil

sampling programs and a single line proton magnetometer survey were carried out on part of the claim block.

ROCK RIVER COAL	Coal
Sulpetro Minerals limited	95 D 11, 14 (22)
	(60°45'N, 127°10'W)

Reference: D.I.A.N.D. (1982, p.86).

Coal Exploration Licences: 117, 118, 121, 122

Source: Summary from assessment report 062132 by J.L. Wright.

Current Work and Results:

In March, 1982, a gravity survey was conducted and six anomalies were located. Three of these anomalies could represent substantial volumes of carbonaceous material (coal). In addition, two poorly defined anomalies require further work for verification of additional reserves.

1982 MINERAL CLAIMS STAKED

QUO	95 D 6 (19)
Archer, Cathro and	(60°28'N, 127°21'W)
Associates (1981) Limited	

Claims 1982: QUO 1-16

SPRUCE	95 D 7 (21)
SEREM Limited	(60°19'N, 126°32'W)

Claims 1982: SPRUCE 1-48

LOBO	95 D 7 (20)
A. Potter	(60°19'N, 126°35'W)

Claims 1982: LOBO 1-8, 2Fr

DK	95 D 10 (16)
R.H. Seraphim	(63°35'N, 126°49'W)
Engineering Limited	

Claims 1982: DK 49-64

PORKER
Archer, Cathro and
Associates (1981) Limited

95 D 12 (8)
(60° 32'N, 127° 49'W)

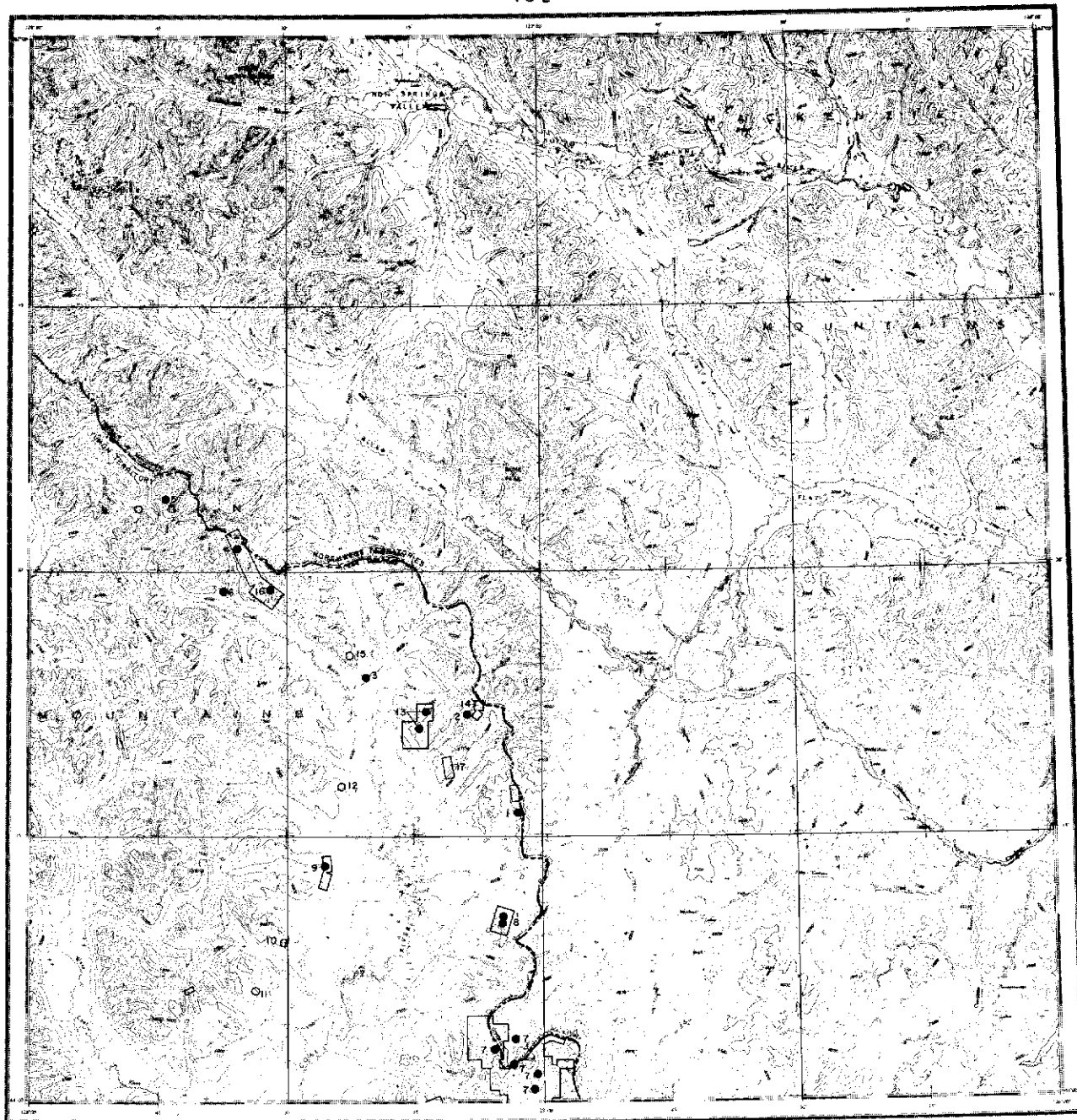
PLAY
Noranda Exploration
Company Limited

95 D 12 (12)
(60° 36'N, 127° 44'W)

Claims 1982: QUIVER 1-40

Claims 1982: PLAY 1-4

95 E



FLAT RIVER YUKON TERRITORY / NORTHWEST TERRITORIES

Kilometres 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|-------------------|
| ● ⁶¹ Mineral Deposit or Occurrence
see Key on facing page | — Placer Lease in good standing (Jan. 1982) | --- Tote Trail |
| ○ ⁷² Unmineralized Target | ----- Placer Claims in good standing (Jan. 1982) | — Driveway Road |
| □ Mineral Claims in good standing (Jan. 1983)
and stated before Jan. 1982 | CEL Coal Exploration Licence | ◆ Oil or Gas Well |
| □ Mineral Claims stated in 1982 | CML Coal Mining Lease | — Airstrip |

FLAT RIVER MAP-RIVER (NTS 95 E)

General Reference: GSC Map 1313A and Memoir 366 by:
H. Gabrielse, J.A. Roddick, S.L.
Blusson, 1973.

CREAM

Archer, Cathro and
Associates (1981) Limited
(CUB Joint Venture)

Tungsten Skarn

95 E 6 (13)
(61°23'N, 127°13'W)

References: D.I.A.N.D. (1982, p.89-90); D.I.A.N.D.
(1981, p.51-54).

Claims: CREAM (44)

Source: Summary by P. Watson from assessment report
091020 by C.A. Main and R.J. Cathro.

Description:

Three small (500 m by up to 2 km), previously unmapped, tourmaline and biotite rich plutons of granitic composition intrude lower Paleozoic or older clastic rocks and limestones. These stocks are recessive-weathering and are exposed only in low terrain. They are younger than the typical Cretaceous stocks of the area, such as the North Coal Batholith, and one was dated by D. Archibald at Queen's University as 69.4 ± 1.2 my. The stocks contain unusually large quantities of biotite, muscovite and tourmaline and are surrounded by wide aureoles of pervasive biotite alteration. They are also cut by closely spaced fracture systems containing pegmatitic quartz, tourmaline, muscovite and biotite.

Six tungsten showings are known in the area, all occurring as skarns in the calcareous members of the lower Paleozoic(?) country rock at the margins of plutons. Three occur at the contact of the North Coal Batholith and three are adjacent to the small, younger stocks.

The two original showings (Iso #1 and Iso #2) were found in 1969 by Iso Mines Ltd. and were explored by Placer Development Ltd. in 1970-71. Drill intersections of 0.85% WO_3 over 7 m were reported from the #1 showing. The four other showings were found during the current program, either as float or outcrop. These consist of scheelite-bearing diopside + garnet skarns that occur in thin calcareous horizons adjacent to the stocks.

Current Work and Results:

In 1981, 265 soil samples were collected. Small, erratically distributed W anomalies containing up to 38 ppm W were reported. All Mo values were less than 3 ppm W. Magnetometer and VLF-EM surveys were also conducted.

NO. PROPERTY
NAME REFERENCE

1	TWIN (SUNSET)	Copper-Silver-Lead-Zinc-Gold Vein; Morin et al (1980, p. 50)
2	KOMISH	Skarn Tungsten Occurrence
3	MARION	Gabrielse et al (1965, p. 28); Mulligan (1964, p. 81)
4	HEATHER	
5	CAESAR	Skarn Tungsten Occurrence
6	CHARLIE	D.I.A.N.D. (1981, p. 135)
7	IVO	This Report
8	SNEET	D.I.A.N.D. (1981, p. 136)
9	FYIQ	D.I.A.N.D. (1981, p. 136-137)
10	JOSE	D.I.A.N.D. (1981, p. 137)
11	NOWA	D.I.A.N.D. (1981, p. 137)
12	HOGIE	D.I.A.N.D. (1981, p. 137)
13	CREAM	This Report
14	LABELLE	D.I.A.N.D. (1981, p. 137)
15	ROSE	D.I.A.N.D. (1982, p. 90)
16	RIO	D.I.A.N.D. (1982, p. 90)
17	VNER	D.I.A.N.D. (1982, p. 90)

IVO Tungsten Skarn
Archer, Cathro and 95 E 2,3 (7)
Associates (1981) Limited (61°03'N, 127°03'W)
(CUB Joint Venture)

References: D.I.A.N.D. (1982, p.89,90); D.I.A.N.D.
(1981, p.135-136).

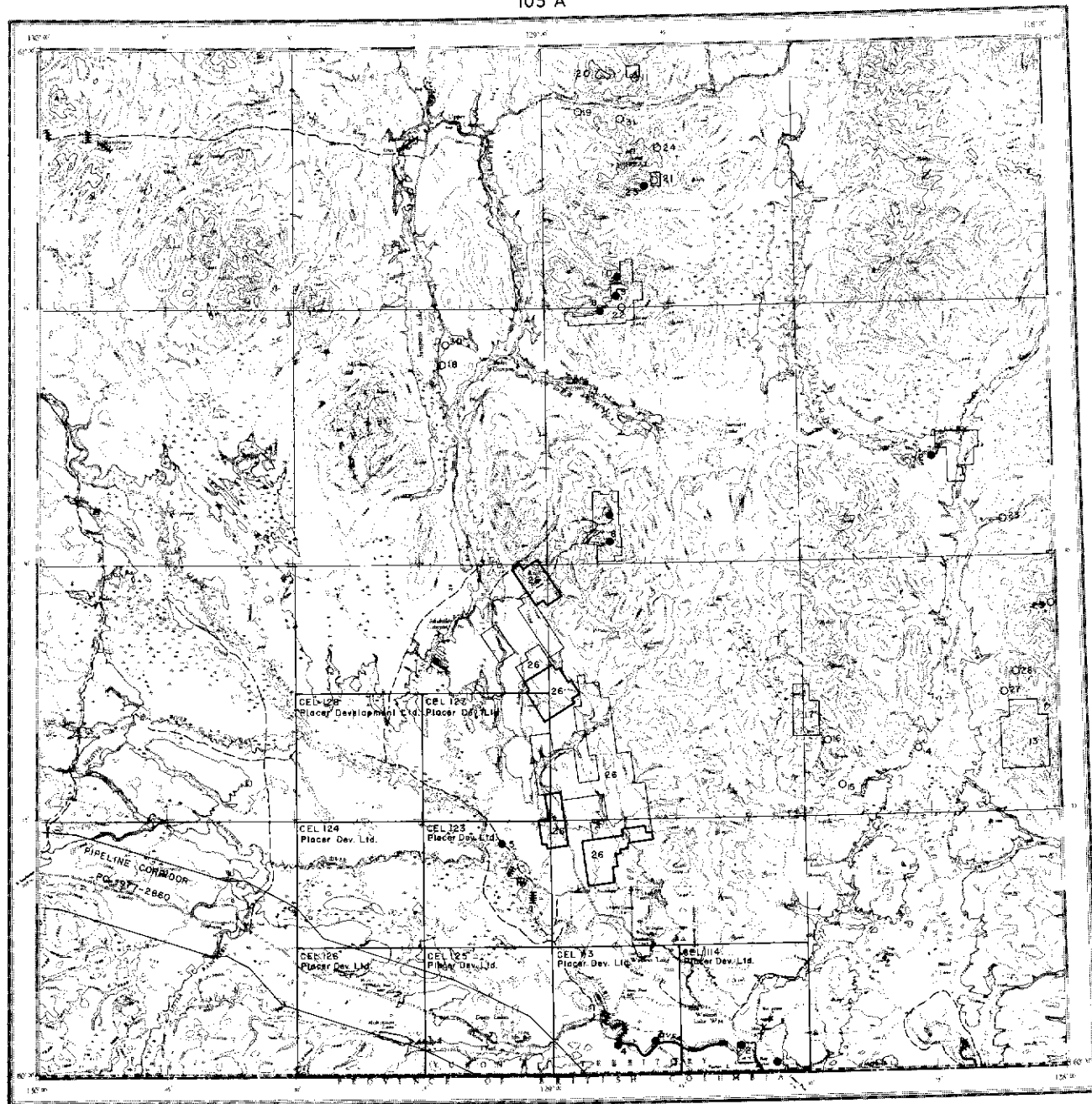
Claims: IVO (274) plus 5 claims in N.W.T.

Source: Summary by P. Watson from assessment report
091027 by C.A. Main and R.J. Cathro.

Current Work and Results:

In 1981, 1,222 m were drilled in 12 holes to test a 4 km length of contact between a Tertiary (?) K-feldspar porphyry biotite granite (the 'Salivo Stock') and lower Paleozoic sediments. All holes bottomed in granite. The two northern holes tested beneath the Salivo showing, which consists of brown garnet skarn float containing molybdoscheelite that grades up to 3% WO_3 and 200 ppm Mo. The holes intersected rocks of the Backbone Ranges Formation. The other 10 holes intersected skarn developed in the upper part of the Sekwi Formation limestones. The best intersection contained scheelite, molybdoscheelite, pyrrhotite and rare chalcopyrite and molybdenite and graded 0.44% WO_3 over 7.6 m.

105 A



WATSON LAKE YUKON TERRITORY

Kilometres 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|---|-------------------|
| ● Mineral Deposit or Occurrence
see Key on facing page | — Placer Leases in good standing (Jan. 1983) | --- Tote Trail |
| ○ Unmineralized Target | ==== Placer Claims in good standing (Jan. 1983) | — Driveable Road |
| □ Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982 | CEL Coal Exploration Licence | ★ Oil or Gas Well |
| □ Mineral Claims staked in 1982 | CML Coal Mining Lease | — Airstrip |

WATSON LAKE MAP-AREA (NTS 105 A)

General Reference: GSC Map 19-1966 by: H. Gabrielse,
1966.

NO. PROPERTY NAME	REFERENCE
1 WATSON	Dawson (1889, p. 99)
2 MAZO	D.I.A.N.D. (1982, p. 95,98)
3 CAROL	Lord (1944, p. 19)
4 ALBERT	Lord (1944, p. 19)
5 SAWMILL	Lord (1944, p. 19)
6 HUNDERE	D.I.A.N.D. (1982, p. 93)
7 RITCO	Findlay (1967, p. 65-66)
8 OSCAR	Skarn Tungsten-Copper-Molybdenum
9 PAT	D.I.A.N.D. (1981, p. 140)
10 MARTIN	Skarn Tungsten-Copper
11 NOTT	D.I.A.N.D. (1982, p. 93-94)
12 Warburton	Silver-Lead-Zinc-Copper Vein; D.I.A.N.D. (1982, p. 95)
13 Hyland	D.I.A.N.D. (1982, p. 94)
14 TILL	D.I.A.N.D. (1981, p. 141)
15 LING	D.I.A.N.D. (1981, p. 141)
16 TOMMY	D.I.A.N.D. (1981, p. 141)
17 CELESTIAL	D.I.A.N.D. (1982, p. 94)
18 FALSE	D.I.A.N.D. (1981, p. 141)
19 KLUNK	D.I.A.N.D. (1981, p. 141)
20 BLACK	D.I.A.N.D. (1982, p. 94-95)
21 MURRAY (RAY)	D.I.A.N.D. (1981, p. 140)
22 PEGASEUS	D.I.A.N.D. (1981, p. 141)
23 GUM BEE	Morin et al (1980, p. 51)
24 EMILY	Morin et al (1980, p. 52)
25 MARK	Morin et al (1980, p. 52)
26 GE	This Report
27 CJ	D.I.A.N.D. (1982, p. 95)
28 MJM	D.I.A.N.D. (1982, p. 95)
29 AUP	This Report
30 CASHBOX	D.I.A.N.D. (1982, p. 95)
31 MOLLY	D.I.A.N.D. (1982, p. 95)

GE
Kerr Addison Mines Limited

Geophysical Target
105 A 2,3,6,7 (26)
(60°17'N, 128°55'W)

Description:

Reference: D.I.A.N.D. (1982, p.93,95).

Claims: GE (943)

Source: Summary by P. Watson from assessment report
091396 by D. Arscott and G. Ellis.

History:

This 200 km² area was staked to cover a large number of electromagnetic conductors outlined in a 1981 airborne geophysical survey. It was optioned to Kerr Addison Mines Ltd. in 1982 and they now hold most of the claims.

The property is located just north of Watson Lake with the Robert Campbell Highway running along its western boundary. It covers the lowland area between the Liard and Frances Rivers and is blanketed by alluvial and glacial deposits. It is underlain by chert, greywacke and phyllite with minor (less than 10%) interbeds of siltstone and argillite. A few outcrops of schist, gneiss, andesite, ultramafic rock, felsic intrusive, volcanic breccia, calcareous siltstone and felsic volcanic rocks were reported on the property. At this time, it appears that the chert is of post-Upper Devonian age and part of an allochthonous package of rocks, but it is possible that older rocks might be exposed in windows on the property (see Abbott, in D.I.A.N.D., 1981, p.45-54).

Current Work and Results:

During the regional program, 886 soil and stream sediment, and 28 lake bottom sediment samples were collected, and analyzed for Cu, Pb, Zn, Ag and Ba. Some were also analyzed for Au and Hg. Background values for soil and stream sediment samples were similar for all elements except Ba, which was higher in soil samples. The most anomalous results were in the areas of least overburden.

Detailed geophysical and mapping programs were carried out on 16 grids. The magnetometer survey of 52.3 line-km did not provide any useful correlations. A total of 96.6 line-km of shootback EM and VLF-EM were run and gravity measurements were taken at 528 stations.

A large portion of the airborne EM anomalies are believed to be caused by carbonaceous sediments. Others were attributed to the effects of overburden or swampy ground. Several mineralized rock samples were found, including a quartz-carbonate-sericite rock containing 1.25% Cu, 1.65% Pb, 1.2% Zn, 92.7 g Ag/t and 1,800 ppm Ba.

AUP	Geochemical Target
Archer, Cathro and	105 A 8 (29)
Associates (1981) Limited	(60°27'N, 128°02'W)

Reference: D.I.A.N.D. (1982, p.93,95).

Claims: AUP 1-24

Source: Summary by P. Watson from assessment report 091424 by A.R. Archer.

History:

The claims were staked in 1981 to cover anomalous geochemical values found in samples collected during an earlier reconnaissance program.

Description:

The property is located 55 km northeast of Watson Lake and is underlain by Hadrynian sedimentary rocks of the Grit Unit.

Current Work and Results:

During the 1982 sampling program, 19 stream sediment and 228 soil samples were collected and analyzed for Au, As, Bi, W, Pb, Cu and Ag.

1982 MINERAL CLAIMS STAKED

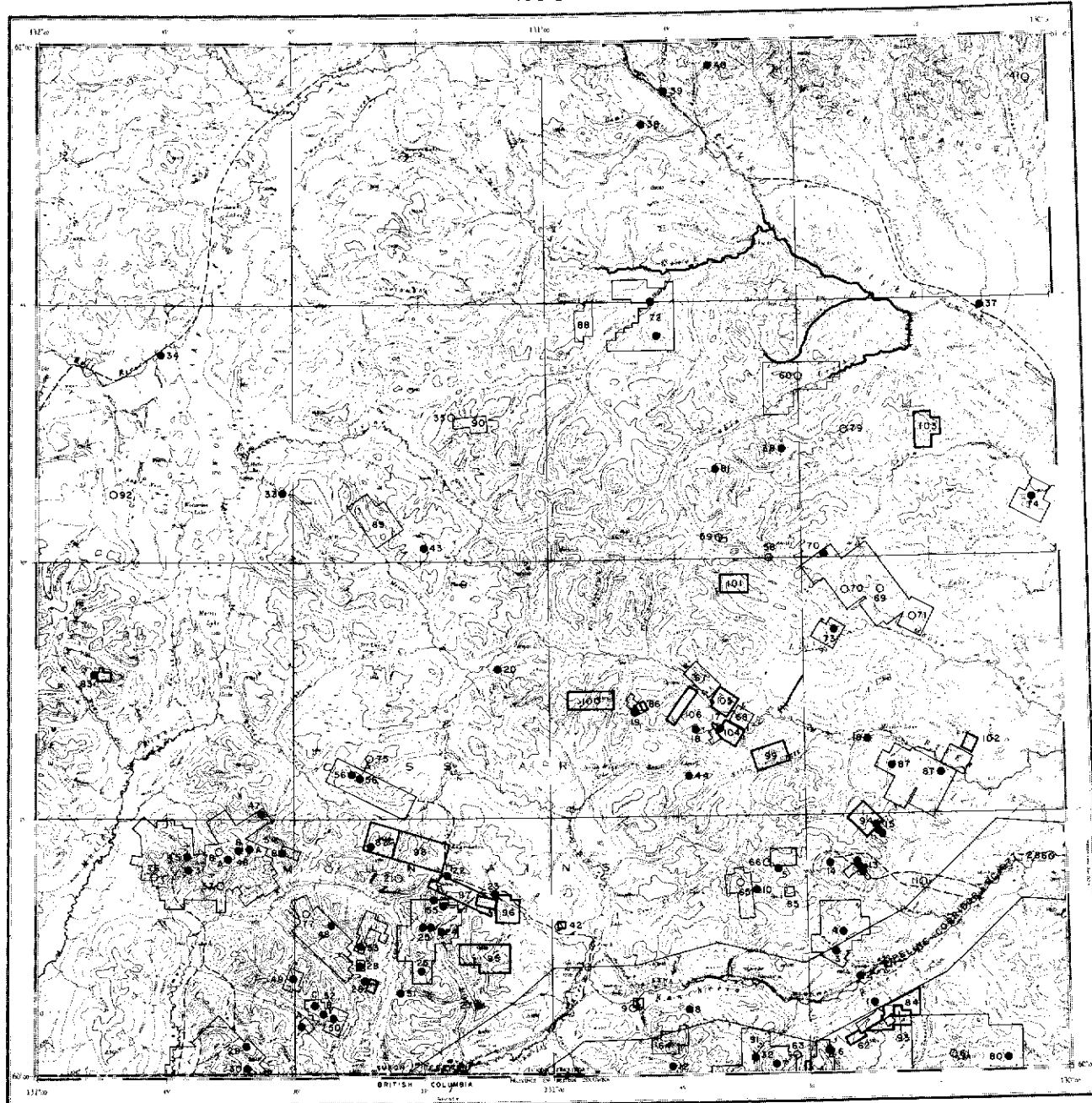
GE
Kerr Addison Mines Limited

105 A 2,3,5,6,7
(26)
(60°13' - 60°28'N,
128°47' - 129°08'W)

Claims 1982: GE 612-884, 891-950

NOTES

105 B



WOLF LAKE YUKON TERRITORY

Kilometres 5 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|-------------------|
| ● ⁶¹ Mineral Deposit or Occurrence
see Key on facing page | — Placer Leases in good standing (Jan. 1983) | --- Tote Trail |
| ○ ⁷² Unmineralized Target | — Placer Claims in good standing (Jan. 1983) | — Drivable Road |
| □ Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982 | CEL Coal Exploration License | ◆ Oil or Gas Well |
| □ Mineral Claims staked in 1982 | CML Coal Mining Lease | — Airstrip |

WOLF LAKE MAP-AREA (NTS 105 B)

General Reference: GSC Map 10-1960 by: W.H. Poole,
J.A. Roddick and L.H. Green, 1960.

NO.	PROPERTY NAME	REFERENCE
1	LORD	Lord (1944, p. 17)
2	STERLING	Silver-Lead-Zinc-Copper-Gold Vein
3	LUCK	D.I.A.N.D. (1981, p. 144)
4	FIDDLER	D.I.A.N.D. (1981, p. 144)
5	LENA	Silver-Lead Vein
6	DALE	This Report
7	HOLLIDAY	Silver-Lead-Zinc-Tin Vein
8	TROY	Copper Occurrence
9	CARLICK	
10	SHILSKY	Skarn Copper
11	KUBIAK	Lead-Zinc Vein
12	BLACK ROCK	Silver-Lead-Zinc-Copper Vein
13	KODIAK	Green (1965, p. 44); This Report
14	HARDTACK	Green (1965, p. 44)
15	KERNS	Silver-Lead-Zinc-Copper-Tungsten Vein; D.I.A.N.D. (1982, p. 105)
16	MEISTER	Copper Vein
17	NITE	Skarn Tungsten-Molybdenum-Zinc
18	MIDNIGHT (MID)	This Report
19	AURORA	D.I.A.N.D. (1981, p. 159); This Report
20	ALMOST	Tungsten Occurrence
21	HIDDEN (PONT B)	Morin et al (1980, p. 56)
22	ATOM	D.I.A.N.D. (1981, p. 144)
23	BAR	D.I.A.N.D. (1981, p. 144); This Report
24	BOM	This Report
25	MUNSON	D.I.A.N.D. (1981, p. 145)
26	PARTRIDGE (VAL A)	D.I.A.N.D. (1981, p. 147)
27	GEM	D.I.A.N.D. (1981, p. 147)
28	VAL B	This Report
29	LOGJAM	This Report
30	LOGTUNG (BERYL)	D.I.A.N.D. (1982, p. 98,105)
31	J.C. (VIOLA)	This Report
32	POG	Silver-Lead Vein
33	TROUT	Iron Vein
34	MUNG	Copper Porphyry
35	IRVINE	D.I.A.N.D. (1981, p. 149)
36	TUNG	D.I.A.N.D. (1981, p. 149)
37	MOOSELICK	Craig and Laporte (1972, Vol. 1, p. 138-139)
38	DOVE	Green (1966, p. 84)
39	OLD GOLD	Findlay (1967, p. 64)
40	RAINBOW	Copper Vein
41	PORCUPINE	Asbestos; D.I.A.N.D. (1982, p.106)
42	OULETTE	D.I.A.N.D., Mines and Minerals Activities, 1971, p. 73; This Report
43	ZAC	Sinclair & Gilbert (1975, p. 80)
44	BOY	D.I.A.N.D. (1981, p. 150)
45	M.C. (SWIFT)	D.I.A.N.D. (1982, p. 98-99)
46	DU	D.I.A.N.D. (1982, p. 99)
47	I	D.I.A.N.D. (1982, p. 99,105)
48	SIN	D.I.A.N.D. (1981, p. 152); D.I.A.N.D. (1982, p. 105)
49	VH	D.I.A.N.D. (1981, p. 152)
50	SLOUCE	D.I.A.N.D. (1982, p. 99,105)
51	SKIN	D.I.A.N.D. (1981, p. 152)
52	MW	D.I.A.N.D. (1982, p. 99)
53	MUN	This Report
54	CAN	D.I.A.N.D. (1982, p. 100)
55	STQ	D.I.A.N.D. (1981, p. 145)
56	HL	D.I.A.N.D. (1982, p. 100)
57	FUR	D.I.A.N.D. (1981, p. 155)
58	COM (54-59)	D.I.A.N.D. (1981, p. 155)
59	COM (45-53)	D.I.A.N.D. (1981, p. 155)
60	CABIN	D.I.A.N.D. (1982, p. 100)
61	MIDWAY (TOOT)	This Report
62	IDAHO	D.I.A.N.D. (1981, p. 159); This Report
63	ANT	D.I.A.N.D. (1981, p. 159); This Report
64	LICK	D.I.A.N.D. (1982, p. 101-102)
65	GOAT	D.I.A.N.D. (1982, p. 102)
66	BESSEY	D.I.A.N.D. (1981, p. 159)
67	CARIBOU	D.I.A.N.D. (1981, p. 156)
68	OAKE	D.I.A.N.D. (1981, p. 156)
69	URSUS	D.I.A.N.D. (1982, p. 103)
70	LOGAN	This Report
71	MOOSE	D.I.A.N.D. (1981, p. 156)
72	TEAM	D.I.A.N.D. (1982, p. 103,105)
73	LITTLE MOOSE	D.I.A.N.D. (1981, p. 157)
74	WOLF	D.I.A.N.D. (1982, p. 103)
75	ICE	D.I.A.N.D. (1982, p. 103)
76	PLUG	D.I.A.N.D. (1981, p. 158)
77	PONT	D.I.A.N.D. (1981, p. 158)
78	ZINC	D.I.A.N.D. (1981, p. 158)
79	ELLE	D.I.A.N.D. (1981, p. 158)
80	HOT	D.I.A.N.D. (1981, p. 159)
81	BINGY	Sinclair et al (1976, p. 159-160)
82	GULL	Morin et al (1980, p. 56); This Report
83	ANNI	This Report
84	MAC	This Report
85	LOST	D.I.A.N.D. (1982, p. 105)
86	PINESOL	D.I.A.N.D. (1982, p. 105)
87	MR	This Report
88	STONEAXE	D.I.A.N.D. (1982, p. 104,105)
89	THRALL	This Report
90	SOURCE	This Report
91	BORDER	D.I.A.N.D. (1982, p. 104)
92	CO	D.I.A.N.D. (1982, p. 105)
93	LYDIA	This Report
94	CER	This Report
95	SEA	This Report
96	PARK	This Report
97	FALL	This Report
98	CRE	This Report
99	BEA	This Report
100	SAB	This Report
101	MEI	This Report
102	GLEN	This Report
103	TOD	This Report
104	MAR	This Report
105	OTH	This Report
106	BRX	This Report

DALE
Loann Silver Mines

Lead, Silver
105 B 1 (6)
(60°01'N, 130°29'W)

References: D.I.A.N.D. (1982, p.97,105); Green (1966, p.79).

Claims: LOLA (18); L (4); X (2); ANNE (8); POND 1-6

Source: Summary by P. Watson from assessment report 091054 by V. Cukor.

History:

A block of new claims was added to the property in 1981. In 1968, 8.2 tonnes of ore shipped from the property assayed 56% Pb and 3,531.5 g Ag/t. In 1970, 20 additional tonnes were shipped.

Description:

The property is 7 km southeast of Rancheria, and is underlain by granodiorite of the Cassiar Batholith. A northeast-trending shear zone contains spotty but high grade Ag-Pb-Zn mineralization over a 400 m strike length and widths up to 2.1 m.

Current Work and Results:

In 1981, one 106.7 m deep diamond drill hole and VLF-EM and magnetometer surveys were completed. The hole intersected 3 m of 0.34 g Au/t, 199.9 g Ag/t, 4.31% Pb and 2.68% Zn. A total of 11.5 line-km of EM-16 and 9 line-km of magnetometer surveys were conducted. The EM survey indicated that the shear zone extends for a possible 15 km.

MIDNIGHT (MID)
W. Hyde;
McCrory Holdings Limited

Manganiferous
Vein and Skarn
105 B 7 (18)
(60°20'N, 130°44'W)

References: D.I.A.N.D (1982, p.97,105); D.I.A.N.D. (1981, p.159).

Claims: CMC 1-136

Source: Summary by P. Watson from assessment report 091084 by V. Ryback-Hardy and assessment report 091379 by T.C. Scott.

History:

The area was first staked in 1947 (BASTILLE claims) and was re-staked as MID and NIGHT in 1971. Grid soil sampling, mapping and test pitting programs were carried out and two skarn showings were located. Following trenching and 476.4 m of diamond drilling in 8 holes, the claims lapsed. The CMC claims were staked in 1980 and acquired by McCrory Holdings Ltd. in 1981. Some hand trenching was done in 1981, and in 1982 Pamicon Developments Ltd. conducted diamond drilling on behalf of BRX Mining and Petroleum Ltd.

Description:

The property, 105 km east of Teslin, covers a series of manganiferous showings that occur near the contact between interbedded quartz biotite schist and marble of Cambrian or older age, and the Jurassic to Cretaceous Cassiar Batholith.

Minor molybdenite and scheelite were reported in a narrow skarn zone near the contact, and 100 m east, a garnet-pyroxene-quartz-wollastonite skarn with scheelite and minor molybdenite was traced over several hundred metres. Late stage veins contain minor sphalerite. Several gossanous zones at the base of the marble unit may represent leached veins.

Current Work and Results:

The gossans extend for up to 400 m in length over 3 m to 50 m in width. Manganese oxides (psilomelane and pyrolusite) are found in vuggy quartz veinlets containing galena, sphalerite and molybdenite and some Ag values. Chip samples (unknown length) across the zone returned up to 4.5% Pb, 6.2% Zn and 81.6 g Ag/t, but most were less than 1% Pb, 2.4% Zn and 34.3 g Ag /t.

In 1982, 196.6 m were drilled in two diamond drill holes and some diopside garnet skarn was intersected.

BOM
J.C. Stephen
Explorations Limited

Zinc, Lead, Silver
Skarn
105 B 3 (24)
(60°09'N, 131°11'W)

Reference: D.I.A.N.D. (1982, p.97,98).

Claims: ROAD (44)

Current Work and Results:

In 1982, 1:1,200 scale mapping and a magnetometer survey were completed on a small area of the property.

VAL B
Du Pont of Canada
Exploration Limited;
Duval Mining Limited

Tin, Zinc Skarn
105 B 3 (28)
(60°06'N, 131°22'W)

References: D.I.A.N.D. (1981, p. 147); Morin et al (1980, p. 54).

Claims: VAL (12)

Source: Summary by P. Watson from assessment report 091414 by J.M. Kowalchuk.

History:

All but 6 of the original VAL claims were allowed to lapse in 1981. Six new claims (VAL 101-106) were staked nearby in 1982.

Current Work and Results:

The new claims were mapped at 1:2,500 and 1:1,000 scales. Two varieties of skarn were mapped: orange-brown garnet and actinolite with some diopside, and diopside and brown garnet with some actinolite and calcite. All skarns contain sphalerite, magnetite, fluorite and limonite, but this material is most commonly found as pods in the actinolite-garnet and in the diopside-garnet-actinolite skarns. Disseminated galena with up to 8% sphalerite was noted in one skarn.

VLF-EM, magnetometer and geochemical surveys were carried out in 1982. Two magnetic zones, 200 m by 100 m and 50 m by 300 m, correspond directly to the magnetite-bearing skarn zones, and a small magnetic anomaly lies over the peridotite outcrops. The VLF-EM survey indicated a large conductive zone with three centers which partially correspond to the location of skarns.

Two hundred and ten 'C' horizon soil samples were collected and analyzed for Sn. Values greater than 51 ppm Sn were considered definitely anomalous. Higher values tend to concentrate near the granite and ultramafic unit contacts. Rock samples also returned higher values near intrusive contacts and low values over the magnetic anomalies.

Four 5 m chip samples across relatively magnetite-rich rocks were tested for both 'cassiterite tin' and total tin content. Values such as 50 ppm Sn in cassiterite and up to 1,500 ppm total Sn indicate that tin-bearing silicates are probably present. A sample of the actinolite-magnetite skarn contained 460 ppm Sn in cassiterite and 1,000 to 1,800 ppm total tin, while the garnet-actinolite skarn contained 30 ppm Sn in cassiterite and greater than 1,000 ppm total Sn.

The magnetite-actinolite skarns, which occur nearest to the granite, are higher in cassiterite and lower in sphalerite than the diopside-garnet skarns which occur further from the granite body.

LOGJAM
A.M.P. Exploration
and Mining Limited

Gold, Silver, Lead,
Zinc Vein
105 B 4 (29)
(60°01'N, 131°06'W)

Reference: D.I.A.N.D. (1981, p.143,147).

Claims: BARB; LOG; (34 claims and 12 fractions)

Current Work and Results:

In 1981, 14.3 m were drifted on the #4 Vein on the 5150 level (lower adit). The diorite dyke was not intersected during 1982 drifting and the vein was only weakly mineralized. Legal claim and control surveying was also done in 1981 and 1982.

J.C. (VIOLA)
Cominco Limited

Tin Skarn
105 B 4 (31)
(60°12'N, 131°44'W)

References: D.I.A.N.D. (1982, p. 97,98); D.I.A.N.D. (1981, p.148).

Claims: J.C. (82)

Source: Summary by P. Watson from assessment report 091062 by L.J. Nagy.

Current Work and Results:

In 1981, eight diamond drill holes totalling 1,527 m were drilled on the main skarn zone. One hole completed to the west of the main zone was summarized previously (D.I.A.N.D., 1982, p.98).

MUN
J.C. Stephen Explorations
Limited;
D.C. Syndicate

Tin, Tungsten Skarn
105 B 3 (53)
(60°08'N, 131°21'W)

References: D.I.A.N.D. (1982, p.97,100); D.I.A.N.D. (1981, p.153); Morin et al (1980, p.55).

Claims: MUN (80)

Source: Summary by P. Watson from assessment report 091441 by J.C. Stephen.

Current Work and Results:

In 1982, two BQ diamond drill holes were drilled to 77.7 m and 76.5 m, respectively. The holes intersected quartzite and calc-silicate units, including diopside skarn. Disseminated pyrrhotite, quartz veins with tourmaline and pyrrhotite and minor pyrrhotite and pyrite in skarn were reported. In a 5.5 m thick band of diopside skarn, 1.6 m sections contained up to 2,100 ppm Zn with 38 ppm Cu. A 0.6 m thick tourmaline-quartz-pyrrhotite vein higher in the same drill hole contained 25 ppm Cu, 165 ppm Zn and 700 ppm Sn. This was included in a 7.92 m section of altered quartzite averaging 356 ppm Sn. Neither hole reached the contact of the Seagull Batholith.

MIDWAY
Regional Resources Ltd.;
Amax of Canada Limited;
Procan Exploration Company;
Cordilleran Engineering

Lead, Zinc, Silver
Stratabound;
Barite Stratiform
105 B 1 (61)
(60°02'N, 130°12'W)

References: D.I.A.N.D. (1982, p.9,97,101,105).

Claims: MID (240) plus 1002 units in British Columbia

Source: Summary by P. Watson from assessment report 091418 by J.J. Hylands, E.T. Pezzot and G.E. White.

Current Work and Results:

In 1982, a detailed ground survey was used as control for a series of black and white and colour air photos taken over various parts of the property at scales ranging from 1:40,000 to 1:10,000. Two areas of zero outcrop were examined with horizontal loop pulse EM. These surveys indicate the presence of numerous, narrowly spaced, near surface, highly conductive, dyke-like zones, possibly related to stratigraphy, and, in one area, a horizontal, near surface conductor.

Diamond drilling in 1982 (on the B. C. claim units) totalled 5,283 m in 15 holes. Results such as 8.9 m of 10.46% Pb, 15.68% Zn and 691.2 g Ag/t were found in drill core, according to press releases. Present estimates, based on exploration drilling, have been indicated in press releases as 3,600,000 tonnes of 411 g Ag/t and 19% combined Pb-Zn.

LOGAN	Zinc, Silver, Tin,
Regional Resources Ltd.;	Copper Vein
Cordilleran Engineering	105 B 7, 8, 9 (70)
	(60° 28' N, 130° 28' W)

References: D.I.A.N.D. (1982, p.97); D.I.A.N.D. (1981, p.156).

Claims: LOGAN 1-36

Source: Summary by P. Watson from assessment report 091400 by J.D. Rowe and M.H. Sanguinetti.

Current Work and Results:

In 1982, 72 soil samples were collected southwest of known mineralization and several Zn, Pb and Sn linear soil anomalies were outlined. A 500 m by 100 m area of anomalous Pb and Sn in soil merges into a 200 m by 200 m Zn anomaly to the northeast. A second, smaller Zn anomaly parallels the first 200 m to the northeast and a subparallel, arcuate trend of anomalous Sn values was outlined 200 m to the southeast.

Two trenches were excavated by hand in the area of extensive sphalerite-rich float. The trenches did not reach bedrock, but did expose boulders of sphalerite mineralization in quartz veins. Granodiorite float with mineralized quartz stockwork veining was found upslope of the trenches.

A chip sample across a 1.78 m vein, collected in 1980, contained 7.22% Zn, 63.77 g Ag/t and 0.73% Cu. Brecciated felsite cut by quartz stockwork contained up to 1.42% Sn with minor sphalerite and arsenopyrite.

ANNI
J.C. Stephen
Explorations Limited

Skarn
105 B 5 (83)
(60° 23' N, 131° 53' W)

Reference: Morin *et al* (1980, p. 59).

Claims: JAR 1-8

Current Work and Results:

Anomalously high tin and zinc geochemical values appear to be associated with small skarn zones within sedimentary rocks close to the Hake Batholith. Approximately 100 contour talus and soil samples were collected as part of a 1:1,200 scale mapping program.

MR	Lead, Zinc, Silver
Regional Resources Ltd.;	105 B 1, 8 (87)
Getty Canadian Metals, Limited;	(60° 17' N, 130° 18' W)
Cordilleran Engineering	

References: D.I.A.N.D. (1982, p.97, 104, 105).

Claims: MR (376)

Source: Summary by P. Watson from assessment report 091028 by C.G. Verley and M.H. Sanguinetti, and assessment report 091419 by M.H. Sanguinetti and B.A. Youngman.

History:

The claims were staked in 1981 and 1983 by Cordilleran Engineering for Regional Resources, as a result of an airborne EM, resistivity and magnetometer survey.

Description:

The property is located 97 km west of Watson Lake, southeast of Meister Lake, in the Cassiar Mountains. It is underlain by a sequence of folded, Upper Precambrian to Lower Cambrian, miogeoclinal metasedimentary rocks, including quartzites, graphitic and calcareous phyllites and limestone. A Cretaceous quartz monzonite stock intruding these rocks is exposed 1.6 km north of the claims.

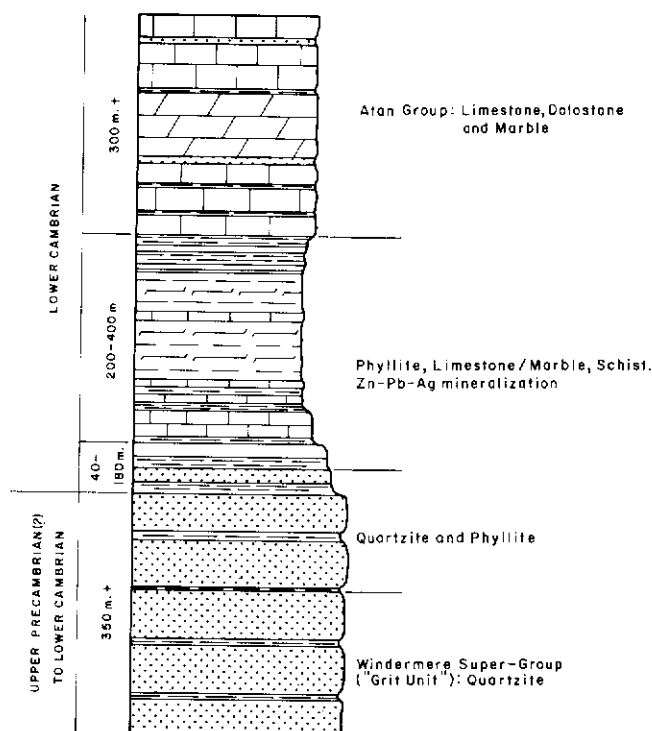
At least 350 m of thick-bedded to massive "clean" quartzite, with minor interbeds of phyllite and quartz mica schist are exposed on the property (see figure). This probably represents the upper part of the Late Proterozoic to Lower Cambrian "Grit Unit" and forms the lowermost part of the exposed sedimentary package.

This is overlain by 40-180 m of Lower Cambrian quartzite and phyllite which show a gradational change from rusty, micaceous quartzite to siliceous sandstone interbedded with silty phyllite.

A recessive unit of Lower Cambrian phyllite, marble and schist, which hosts Pb-Zn-Ag mineralization, is exposed for 200-400 m on the property. Graphitic phyllite with local calcareous or

silty phyllite, quartz biotite schist and calc-schist forms a rapidly alternating sequence with platy to blocky limestone or marble which contains frequent phyllite laminae and local silty horizons. Disseminated, nodular and laminated pyrite, or limonitic remnants after pyrite occur throughout. Sericitic phyllite (possibly indicative of hydrothermal alteration) is also found.

The uppermost sedimentary unit mapped on the claims consists of limestone, dolostone and marble, probably equivalent to the Lower Cambrian Atan Group in northern B.C. There are two main members, grey weathering, platy to blocky limestone, and buff weathering, blocky to massive dolostone. Both contain phyllitic laminae.



STRATAGRAPHIC SECTION

MR CLAIMS

Modified from assessment report 091419.

Two mineral occurrences have been found. Zn-Pb-Ag mineralization of apparent stratiform nature was located by surface trenching in siliceous, gossanous phyllite in the eastern part of the claim group. In the western part of the claim block, three kill zones cover a 2,000 m² area. A Zn-rich linear ferricrete gossan extending approximately 70 m was found in one kill zone. Trenching revealed crudely banded limonite with smithsonite and hemimorphite. Trenching 500 m along strike revealed similar material to greater than 2.5 m thickness. A hydrozincite-depositing spring 700 m further along strike suggests a potential mineralized strike length of 3,000 m.

Current Work and Results:

In 1981, part of the property was covered with a grid soil geochemical survey, in which 1,024 soil samples were collected and analyzed for Cu, Pb, Zn, Ag and Ba. This grid was extended in 1982, when 1,475 soil samples were collected. In addition, 71 stream or seep sediment samples and 7 rock samples were collected and analyzed. Geological mapping was carried out at 1:10,000 scale, a Dighe II airborne geophysical survey of 282 line-km was flown and 4 test pits were excavated at anomalous soil locations along the west zone.

Anomalous soils contain greater than 290 ppm Pb, 1,800 ppm Zn or 2.0 ppm Ag. Three multi-element anomalous areas were defined. The most extensive were over a 1.0 km by 1.2 km area coincident with the west mineralized zone, and over 2.0 km by 1.5 km on a south zone with no surface mineralization.

The airborne survey was successful in delineating the phyllite unit. This unit has a low resistivity signature and is conductive because of the presence of graphite ± sulphides.

THRALL
Getty Canadian
Metals, Limited

Molybdenum
Porphyry
105 B 11 (89)
(60° 33'N, 131° 20'W)

Reference: D.I.A.N.D. (1982, p.97,106).

Claims: THRALL (92)

Source: Summary by P. Watson from assessment report 091051 by R.T. Holland and assessment report 091408 by N. Hulstein.

History:

A coincident Mo-W-Cu stream sediment anomaly was reported near Irvine Creek in 1979 by the G.S.C. in the U.R.P. report on 105 B. The area was staked in 1979 but no work was reported and the claims lapsed. The THRALL claims were staked in 1981, following reconnaissance follow up of the 1979 results, to cover a small granodiorite stock containing stockwork quartz-molybdenite mineralization in float and talus.

Description:

The property is located approximately 60 km north of the Alaska Highway. It lies between the Seagull and Cassiar Batholiths, and is underlain by a small, previously unmapped Cretaceous stock. This northwest-trending, dyke-like stock and associated quartz-feldspar porphyry granodiorite bodies, have intruded intercalated greenstone, metasedimentary rock, diorite and quartz diorite of Cambrian (or earlier) to Devonian-Mississippian age. Quartz-feldspar porphyry and fine grained porphyritic felsite host the major part of the best quartz-molybdenite stockwork, which occurs over a length of 200 m in float and talus.

Two grab samples of mineralized vein contained 0.034% Mo with 7.89 g Ag/t and 0.009% Mo with 2.4 g Ag/t. Rusty, unmineralized quartz veins were also found. Rare grains of molybdenite were seen throughout the stock and surrounding rocks.

K-feldspar alteration envelopes are common and are strongly developed adjacent to some veins. Weak, pervasive clay, chlorite and sericite alteration is also common.

Current Work and Results:

In 1981, 700 soil, 49 stream sediment and 13 rock samples were collected and analyzed for Mo, Cu, W, Pb, Ag and F. In 1982, the sampling grid was extended to the northwest, and 220 soil and 3 stream sediment samples were collected and analyzed for Mo, Cu, W, Pb, Ag and Zn.

Values greater than 9 ppm Mo, 110 ppm Cu, 5 ppm W, 60 ppm Pb or 0.8 ppm Ag were considered anomalous. A Mo anomaly 4,500 m long by 400 m to 800 m wide closely follows the granodiorite contact. Anomalous Cu, W, Pb, F and Ag zones are generally coincident with, but less extensive than, the Mo anomalous zone. Silver anomalies were small and dispersed, correlating with Mo in the general trend only. Zinc was determined only in 1982 and a few spot anomalies were outlined.

In 1982, five additional showings of Mo in 1-3 cm wide quartz veins found in float extended the mineralized zone a further 1,200 m. Minor malachite, azurite and chalcophyllite were found in quartz veining.

A proton magnetometer survey conducted in 1982 indicated the intrusion to be approximately 1,600 m long.

SOURCE
SEREM Limited 105 B 11 (90)
(60°37'N, 131°10'W)

Reference: D.I.A.N.D. (1982, p.97,106).

Claims: SOURCE 1-24

Source: Summary by P. Watson from assessment report 091074 by M.A. Stammers.

History:

The property was staked in 1981 to cover showings discovered while prospecting. It lies immediately south of Dayton Creek Silver Mining Limited's COM 21-26 claims and partially on ground formerly held as part of that group. G.S.C. first reported the presence of galena and sphalerite with quartz and fluorite in veinlets and disseminated in diopside and magnetite skarns. During 1975-1976, the COM group was examined by geological, geochemical and geophysical (IP) surveys, trenching and diamond drilling (806 m).

Description:

The property, located 153 km northwest of Watson Lake, covers the contact between Upper Hadrynian to Lower Cambrian schists, marbles and garnet-diopside skarn and biotite quartz monzonite to granodiorite of the Cassiar Batholith.

Current Work and Results:

Preliminary geological mapping and sampling of the property was undertaken in 1982.

TOD	Tungsten
Hudson Bay Exploration and	105 B 9 (103)
Development Company Limited	(60°37'N, 130°15'W)

Claims: TOD 1-40

Current Work and Results:

Trace scheelite was found in a poorly exposed diopside skarn within Paleozoic biotite schist, close to the contact with a biotite quartz monzonite stock. Ten claims were soil sampled in 1982 and trace scheelite was found in float.

1982 MINERAL CLAIMS STAKED

DALE	105 B 1 (6)
Loann Silver Mines	(60°01'N, 130°27'W)

Claims 1982: POND 1-6

KODIAK	105 B 1 (13)
H. Fierro	(60°12'N, 130°17'W)

Claims 1982: DAVE 10-11

IDAHO C. Wilman	105 B 1 (62) (60°02'N, 130°25'W)	FALL D. Schellenberg	105 B 3 (97) (60°11'N, 131°09'W)
Claims 1982: G.P. 1-8		Claims 1982: FALL 1-39; LORI 1-8; LAKE 1-8	
MAC J. Legare	105 B 1 (84) (60°04'N, 130°19'W)	CRE BRX	105 B 3 (98) (60°13'N, 131°15'W)
Claims 1982: TOM 1-34		Claims 1982: CRE 1-84	
LYDIA	105 B 1 (93) (60°03'N, 130°20'W)	LOGJAM A.M.P. Exploration and Mining Company Limited	105 B 4 (29) (60°01'N, 131°35'W)
Claims 1982: LYDIA 1-24; FLO 1-22		Claims 1982: BARB 1-6Fr, 29-30	
CER S. Ridgeway	105 B 1, 8 (94) (60°15'N, 130°18'W)	ANNI J.C. Stephen Explorations Ltd.	105 B 5 (83) (60°23'N, 131°52'W)
Claims 1982: CER 1-30		Claims 1982: JAR 1-9	
OULETTE N. Bastien	105 B 2 (42) (60°09'N, 130°49'W)	MAR BRX	105 B 7 (104) (60°20'N, 130°39'W)
Claims 1982: RAY 1-4		Claims 1982: MAR 1-23, 2Fr	
ANT B. Poulin	105 B 2 (63) (60°01'N, 130°32'W)	OTH	105 B 7 (105) (60°22'N, 130°40'W)
Claims 1982: A(4)		Claims 1982: OTH 1-29	
BAR P. Wilman	105 B 3 (23) (60°10'N, 131°06'W)	BRX BRX	105 B 7 (106) (60°21'N, 130°45'W)
Claims 1982: RED 1-8		Claims 1982: BRX 1-20	
VAL B Dupont of Canada Exploration Limited	105 B 3 (28) (60°05'N, 131°21'W)	AURORA B.A. Resources Ltd.	105 B 7 (19) (60°22'N, 130°50'W)
Claims 1982: VAL 101-106		Claims 1982: RINGO 9-12	
GULL B. Martel	105 B 3 (82) (60°14'N, 131°20'W)	BEA B. Dickey	105 B 7 (99) (60°18'N, 130°34'W)
Claims 1982: A.S. 1-49		Claims 1982: BEA 1-40	
SEA BRX	105 B 3 (95) (60°07'N, 131°08'W)	SAB BRX	105 B 7 (100) (60°22'N, 130°55'W)
Claims 1982: SEA 1-52		Claims 1982: SAB 1-40	
PARK R. Stratham	105 B 3 (96) (60°09'N, 131°05'W)	MEI BRX	105 B 7 (101) (60°39'N, 130°30'W)
Claims 1982: PARK 1-32		Claims 1982: MEI 1-24	

105 B

GLEN
Goldex Resources Inc.

Claims 1982: GLEN 1-12

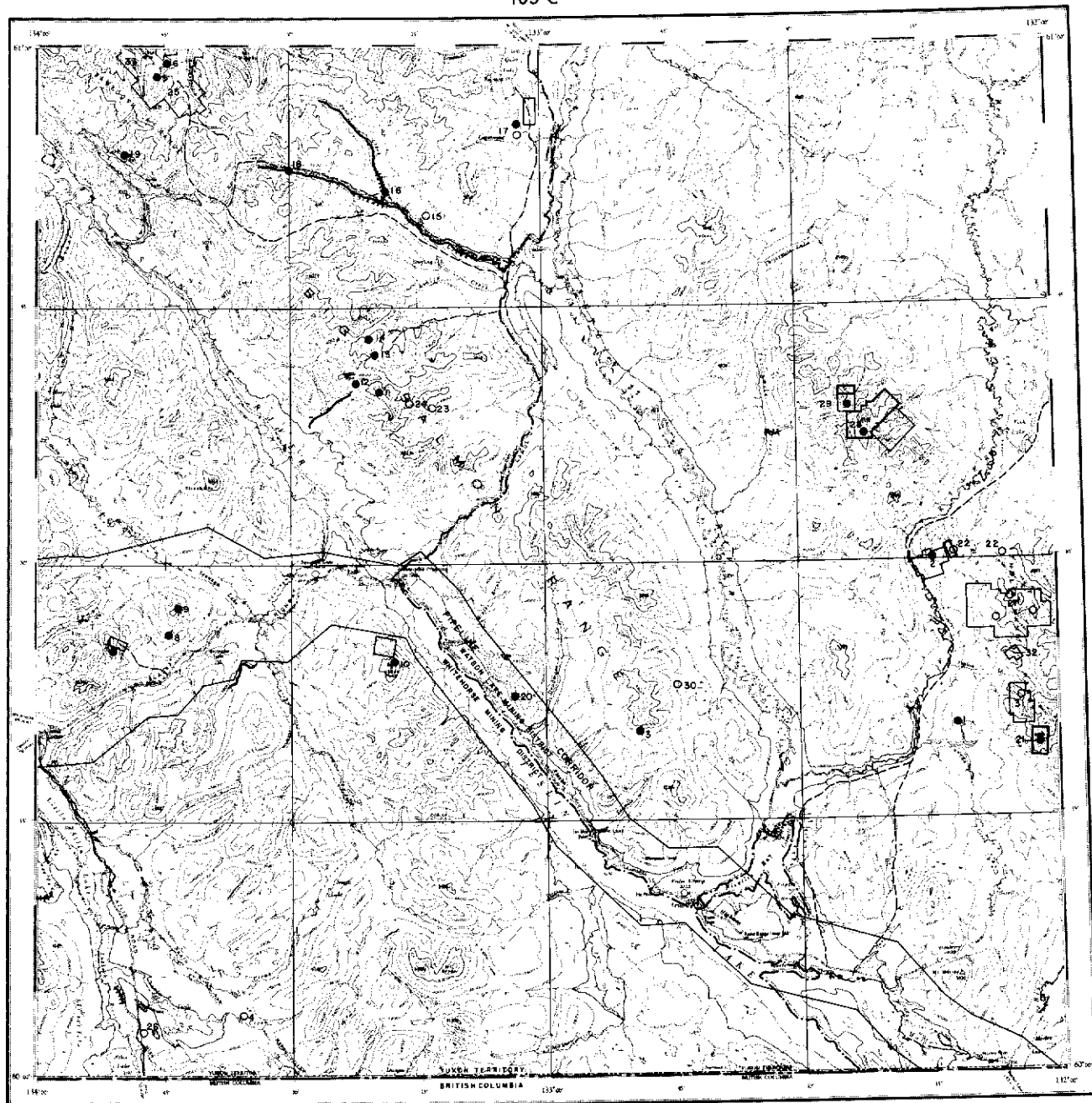
105 B 8 (102)
(60° 19'N, 130° 11'W)

TOD
Hudson Bay Exploration and
Development Company Limited

Claims 1982: TOD 1-40

105 B 9 (103)
(60° 37'N, 130° 16'W)

105 C



TESLIN YUKON TERRITORY

Kilometres 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|----------------------|
| ● ⁶¹ Mineral Deposit or Occurrence
see Key on facing page | ————— Placer Leases in good standing (Jan. 1983) | ————— Test Trail |
| ○ ⁷² Unmineralized Target | ————— Placer Claims in good standing (Jan. 1983) | ————— Driveable Road |
| □ Mineral Claims in good standing (Jan. 1983)
and stated before Jan. 1982 | CEL Coal Exploration Licence | ★ Oil or Gas Well |
| □ Mineral Claims stated in 1982 | CML Coal Mining Lease | ————— Airstrip |

TESLIN MAP-AREA (NTS 105 C)

General Reference: GSC Map 1125A and Memoir 326 by:
R. Mulligan, 1963.

NO.	PROPERTY NAME	REFERENCE
1	KITCHEN	Silver-Lead Vein
2	SMEG (BAR)	This Report
3	LINCOLN	Mulligan (1963, p. 78)
4	TARFU	
5	SLATE (SM)	Silver-Lead-Zinc Vein
6	RED MOUNTAIN	This Report
7	RIBA	Asbestos
8	SEAFORTH	Asbestos
9	SQUANGA	Asbestos
10	HAYES PEAK	Mulligan (1963, p. 78); D.I.A.N.D. (1982, p. 111)
11	GUNSIGHT	D.I.A.N.D. (1981, p. 162)
12	MOOSE HILL	Lees (1936, p. 24); D.I.A.N.D. (1982, p. 111)
13	MARLIN	Manganese Occurrence
14	MT. GRANT	Copper Vein
15	DRY	
16	IRON CREEK	Silver-Gold Occurrence
17	LINDSAY	D.I.A.N.D. (1981, p. 162)
18	SIDNEY	Mulligan (1963, p. 77)
19	ROSY	Bostock (1936, p. 6)
20	DEADMAN	Silver-Lead Vein
21	JACKALOO (McCLEERY)	This Report
22	ABBA	This Report
23	FORSURE	D.I.A.N.D. (1981, p. 162)
24	CHRIS	D.I.A.N.D. (1981, p. 162)
25	NW	This Report
26	LISA	D.I.A.N.D. (1981, p. 162)
27	MICH	D.I.A.N.D. (1981, p. 162)
28	ORK	This Report
29	MINDY	This Report
30	STARTIP	Morin et al (1979, p. 78-79)
31	DB	This Report
32	BAS	D.I.A.N.D. (1982, p. 111)
33	GRIZZLY	This Report
34	SAYEH	This Report

SMEG
Chevron Canada Limited

Lead, Zinc, Silver,
Barite Stratabound
105 C 8,9 (2)
(60°38'N, 132°22'W)

References: D.I.A.N.D. (1982, p.109,111); D.I.A.N.D.
(1981, p.161).

Claims: BAR (44)

Source: Summary by P. Watson from assessment report
091382 by D. Shaw and C.V. Dyson.

Current Work and Results:

In 1982, 708 soil samples were collected on a 50

m by 100 m grid, and analyzed for Zn, Pb, Ag and Ba. Zinc soil anomalies were located in the south and central parts of the claims. These were separate from Pb-Ag-Ba anomalies outlined in the central part of the claim block. Anomalous Pb, Ag and Ba zones were either adjacent to or superposed on each other and are believed to indicate the location of baritic strata hosting argentiferous galena. Separate Zn anomalous values are attributed to greater mobility of Zn in groundwater.

RED MOUNTAIN
Amoco Canada Petroleum
Company Limited;
Tintina Mines Ltd.

Molybdenum
Porphyry
105 C 13 (6)
(60°59'N, 133°45'W)

References: D.I.A.N.D. (1982, p.3,8,12,16,18,19,109).

Claims: BUG; GUB; SM

Source: Summary by P. Watson from assessment report
091392 by P. Brown.

Current Work and Results:

Detailed diamond drill logs were submitted for three holes drilled in 1982. These holes totalled 2,988.2 m and intersected porphyritic quartz monzonite and chloritic quartz-eye diorite (granodiorite porphyry), as well as various dykes. Quartz veins up to 3 cm in width were reported as well as quartz stockwork and breccia. Oxidized, sericitic and potassic alteration zones were intersected. The entire core was assayed for MoS_2 and Cu in 3 m sections.

JACKALOO (McCLEERY)
J.C. Stephen
Explorations Limited;
D.C. Syndicate

Copper, Iron Skarn
105 C 8 (21)
(60°19'N, 132°02'W)

Reference: Sinclair et al (1976, p.161).

Claims: CAL 3-26

Source: Summary by P. Watson from assessment report
091447 by J.C. Stephen.

History:

JACKALOO and SURETHING were staked in 1974 and examined with geological and geochemical surveys. The CAL claims were staked in 1982 to cover rocks found to be anomalous in Sn and W in a 1981 regional program.

Current Work and Results:

The property is located 42 km northeast of Teslin and is underlain by phyllite, greenstone, limestone/marble/skarn, siliceous argillite and argillaceous quartzite intruded by granite of the Hake Batholith. The limestone unit is discontinuous and ranges from 30 m to 100 m in thickness. It has been altered to a calc-silicate assemblage near the contact with granitic intrusions.

Three main skarn zones and many small 1-2 m pods were mapped. Towards the north end of the claim block, actinolite-tourmaline-garnet skarn is exposed for 125 m with a maximum thickness of 80 m. An inner zone of this skarn contains magnetite, pyrrhotite and minor chalcopryite. No significant Sn or W values were reported. A magnetite-chalcopryite-sulphide skarn is found above and below a 30 m thick limestone lens. The upper zone is 3 m by 30 m and the lower

zone is 1.3-2.0 m by 30 m. Elsewhere a mixed zone of phyllite, quartzite and skarn is copper-stained. To the southeast, a chalcopryite-bornite skarn is exposed for 7 m by 5 m. Pink cobalt bloom occurs in the skarn and surrounds small blebs of sulphide in limestone to the east of the skarn.

Near the outcrops of calc-silicate and limestone, veinlets of hematite, magnetite and copper sulphides occur in phyllitic sediments.

No significant Sn or W values were found during this study.

ABBA
J.C. Stephen
Explorations Limited;
D.C. Syndicate

Iron Skarn
105 C 9 (22)
(60°31'N, 132°12'W)

Reference: D.I.A.N.D. (1981, p.161).

Claims: ABBA 1-8

Source: Summary by P. Watson from assessment report
091448 by J.C. Stephen.

History:

Eight claims were staked in 1982 subsequent to the lapsing of the ABBA claims of Urangesellschaft Canada Ltd. The claims cover a magnetite skarn found in 1980 at the west contact of the Hake Batholith.

Current Work and Results:

Reconnaissance mapping, magnetometer and soil geochemical surveys were conducted in 1982. The property is underlain by siltstone, chert, limestone, argillaceous quartzite, tuff, andesite and volcanic breccia which have been intruded by biotite granite of the Hake Batholith and porphyritic granite and pegmatite.

Several types of skarn were mapped, including: massive magnetite; mixed magnetite and green garnet; green garnet; red and green garnet; and wollastonite skarns. The small wollastonite and garnet skarns contain no sulphides, magnetite or scheelite. Samples contained up to 50 ppm Sn and up to 60 ppm Zn.

Two outcrops of magnetite skarn were chip sampled over 6 m and 3.6 m along strike. These samples contained 0.28% Sn and 0.19% Sn, respectively.

Elsewhere on the property, 7 cm to 13 cm wide veins containing quartz, limonitic boxwork and some galena assayed up to 0.97% Pb and 48 g Ag/t.

The magnetometer survey indicated that the magnetite skarn body extends for 120 m with a width of 10 m.

Thirty-three soil samples were analyzed for Sn, W, As and Pb. They generally contained very low values.

NW
Yukon Revenue Mines Limited

Molybdenum, Copper
105 C 13 (25)
(60°57'N, 133°46'W)

References: D.I.A.N.D. (1982, p.111), Craig and
Laporte (1972, p.123).

Claims: YR (28)

Source: Summary by P. Watson from assessment report
090937 by G.C. Lee.

Current Work and Results:

The property is located 50 km northeast of Whitehorse, adjacent to the Red Mountain property. The YR claims were staked in 1981. In 1982, soil geochemical and magnetometer surveys were conducted to follow up a soil geochemical program carried out in 1970 by Hudson Bay Oil and Gas Co. Ltd. on the NW, RH and XY claims.

A total of 283 soil samples and 36 rock samples were collected and analyzed for Cu, Mo and Ag. Rocks were also analyzed for Pb, and, in some cases, Au. Two distinct Mo soil anomalies, with some coincident high Cu and Ag values, were outlined. Magnetic anomalies often showed linear trends corresponding to the strike of the underlying bedrock.

ORK
J.C. Stephen
Explorations Limited;
D.C. Syndicate

Tin, Tungsten Skarn
105 C 9 (28)
(60°38'N, 132°22'W)

References: D.I.A.N.D. (1982, p.109,110); D.I.A.N.D.
(1981, p.162).

Claims: ORK 1-44

Source: Summary by P. Watson from assessment report
091364 by R. Campbell and J.C. Stephen.

History:

Anomalous Cu and Zn values in stream sediments were found in the area in 1976. The ORK claims were staked in 1979 to cover these locations and an arsenopyrite-bearing skarn. In 1980 and 1981, reconnaissance mapping and geochemical sampling programs were undertaken. Additional claims were added in 1982.

Description:

The property is located 35 km northeast of Teslin. An argillaceous quartzite unit containing disseminated pyrrhotite also hosts two conformable horizons up to 30 cm thick of massive pyrrhotite and chalcopyrite. The main marble unit contains thin skarn beds at its upper and lower contacts. These contain garnet, massive arsenopyrite and some pyrite, pyrrhotite, chalcopyrite, molybdenite and fluorite. The carbonate unit is overlain by argillaceous quartzite, quartzite and argillite units and the

entire package is intruded by aplitic leucogranite and pegmatite dykes. A chert pebble conglomerate found in the area is believed to be a fault block or a landslide mass.

In addition to the small skarn zones of massive arsenopyrite with pyrite, pyrrhotite and molybdenite, magnetite garnet skarn was found in float.

Current Work and Results:

Geophysical and geochemical programs were conducted in 1982. The magnetometer survey delineated small skarn zones, the pyrrhotite-chalcopyrite horizons and possible magnetite skarn. VLF-EM and MAX-MIN EM anomalies occur over the small skarn zones, but no EM anomalies were delineated over the magnetite skarn or the pyrrhotite-chalcopyrite mineralization.

In 1982, 350 soil samples and 46 rock samples were collected. Soils were tested for Sn, W, Cu and Zn while rocks were tested for Cu and Sn, and in some cases Au and Ag. Soil samples generally contained low values in all elements. Much of the area is masked by glacial overburden. Anomalous W values were scattered and a few anomalous Sn values were found in the vicinity of the skarn. Moderately anomalous Zn and Cu values occur in a talus-covered area. Elsewhere, scattered anomalous Zn values were noted.

MINDY
Newmont Exploration
of Canada Limited

Tungsten, Tin Skarn
105 C 9 (29)
(60°37'N, 132°20'W)

References: D.I.A.N.D. (1982, p.8,12,109,110,111);
D.I.A.N.D. (1981, p.162).

Claims: MINDY (33)

Source: Summary by P. Watson from assessment report
091415 by H. Limion.

Current Work and Results:

In 1982, Dighem airborne EM and magnetometer surveys and follow-up ground geophysical surveys were conducted. Twenty-three line-km of magnetometer and horizontal loop MAX-MIN EM were surveyed on two grids. One grid produced weak magnetic conductors. Two moderately magnetic conductors were delineated on the other grid, one north and the other south dipping.

DB
J.C. Stephen
Explorations Limited;
D.C. Syndicate

Tin, Tungsten Skarn
105 C 8 (31)
(60°22'N, 132°05'W)

Reference: D.I.A.N.D. (1982, p.109,110,111); Morin
et al (1980, p.59).

Claims: FF 1-46

Source: Summary by P. Watson from assessment report 091371 by J.C. Stephen and M.P. Webster.

Current Work and Results:

In 1981, sampling of the main skarn zone returned values of 0.078% to 0.216% Sn and 0.046% to 0.097% WO_3 over 2.1 m to 7.19 m along a length of 640 m. In 1982, a detailed geological program was completed, and a restricted magnetometer survey was conducted.

The lowermost unit on the property is a quartz plagioclase porphyry interpreted as a coarse grained volcanic flow. Above this, interbedded siltstone, tuff and agglomerate contains thin bands of green skarn. There is a sharp contact between this unit and the main skarn unit. The skarn has been traced for 810 m. It consists of a red garnet plus epidote layer, which grades to the east into red garnet and then into magnetite skarn, separated from a green garnet skarn by a thin, intermittent limestone layer. Lenses of pyrrhotite with chalcopyrite and arsenopyrite occur in the red garnet skarn. A massive to bedded limestone unit, with occasional calc-silicate and weakly developed skarn bands is found above the skarn zone. Units of argillaceous quartzite, tuff and andesite, cherty quartzite, limestone, chert pebble conglomerate and phyllite were mapped above the limestone and skarn horizons. Quartz feldspar biotite granite of the Hake Batholith and a K-feldspar porphyry granite plug also occur on the property. The entire sequence may be overturned.

Mineralization in the main skarn consists of pyrrhotite with lesser chalcopyrite, arsenopyrite and pyrite in red or green garnet, or magnetite skarn.

Seven small skarns were located. These contain more pyrite than the main skarn, and, in some cases, trace amounts of Au. Some of these are red garnet and magnetite skarns. One contained red and green garnet. Others were tourmaline or calc-silicate skarns. Up to 1,100 ppm Sn and 600 ppm W were reported from one of the skarns. A grab sample of a rusty zone with copper staining and quartz returned 18.8 ppm Ag, 80 ppb Au, 50 ppm W and 330 ppm Sn.

SAYEH	Geochemical Target
Du Pont of Canada	105 C 6 (34)
Exploration Limited	(60°35'N, 133°18'W)

References: D.I.A.N.D. (1982, p.111).

Claims: SAYEH 1-25

Source: Summary by P. Watson from assessment report 091041 by J.T. Neelands.

History:

The claims were staked in 1981 to cover the drainage of a stream containing anomalous values of Au in stream sediments found during a regional sampling

program.

Description:

The claims are located 62 km southeast of Whitehorse, on the west side of Teslin Lake and the north side of Hayes Peak. The claims lie within the Intermontane Belt of sedimentary and volcanic rocks which have been intruded by small plutons of Lower Cretaceous Coast Intrusions and, near the Teslin and Naklin sutures, by small alpine-type ultramafic bodies.

Current Work and Results:

The property is underlain by massive, aphanitic to porphyritic, Permian to Triassic basalt, with Cretaceous granodiorite and Jurassic or Cretaceous peridotite exposed to the south. The only mineralization noted was some malachite staining in a peridotite sample.

Two rock and 6 stream sediment samples were collected on the property during 1981. The original anomalous sample contained 800 ppb Au in the heavy mineral fraction. Two additional anomalous stream sediment samples containing up to 205 ppb Au were located in a tributary stream, upstream of the original sample location, but, to date, no geological explanation for the anomalous values has been found.

GRIZZLY	Unmineralized
Aurun Mines Ltd.;	Target
Atlantic Energy Corp.;	105 C 13 (33)
Westfort Petroleum Ltd.;	(60°58'N, 133°45'W)
Delta Petroleum Ltd.;	
Corsair Petroleum Ltd.	

References: D.I.A.N.D. (1982, p.109,111).

Claims: GRIZZLY (28); BEAR (56)

Source: Summary by P. Watson from assessment reports 091034 and 091035 by A.S. Denton and assessment report 091380 by R.G. Hilker.

History:

Two claims blocks were staked in 1981, to the south (GRIZZLY) and southwest (BEAR) of the Red Mountain porphyry molybdenum deposit, to cover possible extensions of that zone.

Description:

The area is underlain by slate, schist, quartzite and related gneiss of the Big Salmon Complex, which have been intruded by quartz-feldspar porphyry stocks of late Cretaceous to Tertiary age.

Current Work and Results:

In 1981, 235 soil samples and 39 stream sediment samples were collected and analyzed for Cu, Pb, Mo and

Zn. Small Cu and Zn anomalies were outlined on the BEAR claims and a small, slightly anomalous area of Mo, Zn and Pb was found on the GRIZZLY claims. No outcrop was mapped on the property, and no mineralization was reported.

1982 MINERAL CLAIMS STAKED

JACKALOO (McCLEERY)
J.C. Stephen Explorations Ltd.

105 C 8 (21)
(60°19'N, 132°01'W)

Claims 1982: CAL 1-26

ABBA
J.C. Stephen Explorations Ltd.

105 C 9 (22)
(60°31'N, 132°12'W)

Claims 1982: ABBA 1-8

ORK
J.C. Stephen Explorations Ltd.

105 C 9 (28)
(60°38'N, 132°22'W)

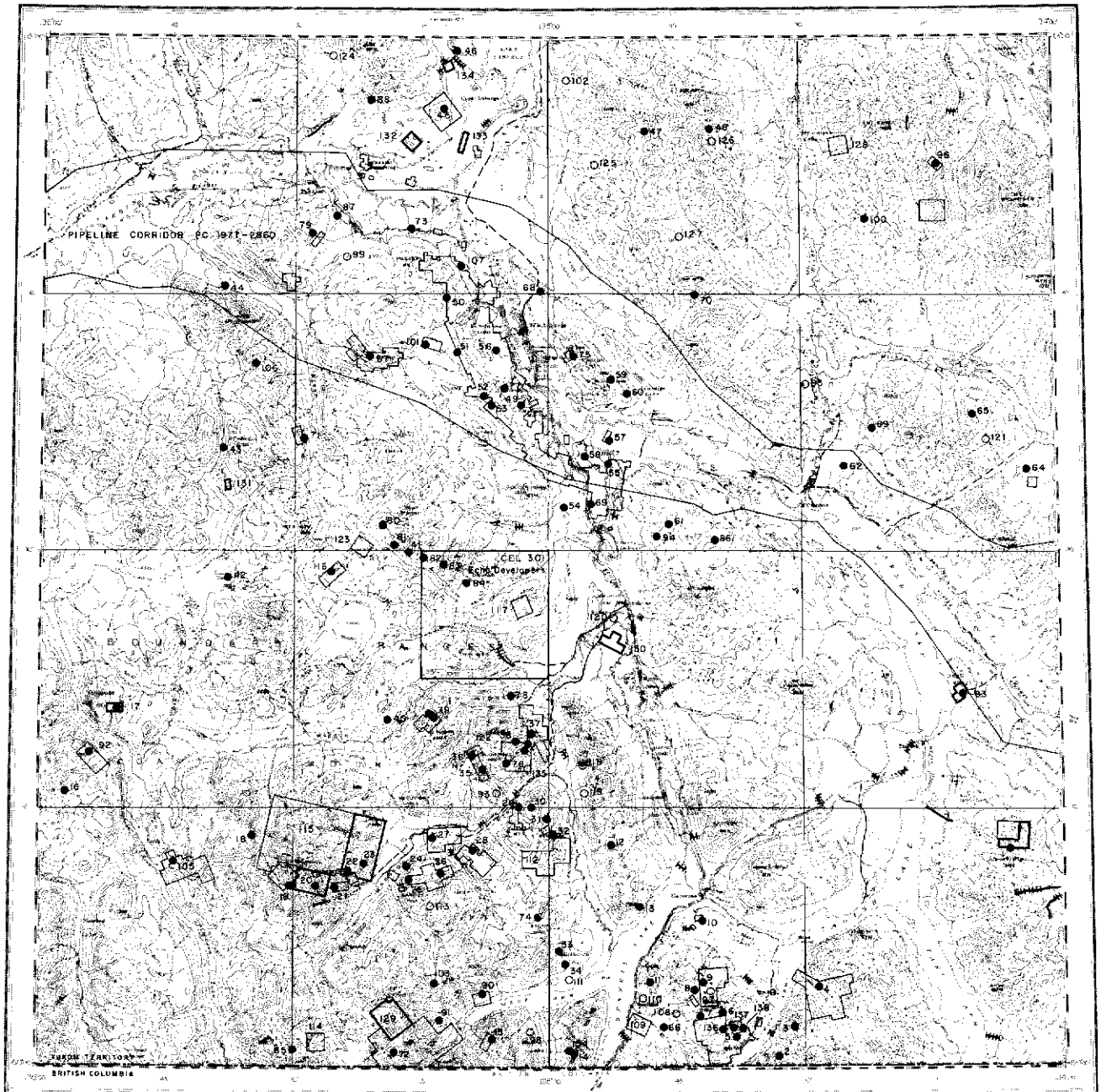
Claims 1982: ORK 37, 38Fr, 39-44

MINDY
Newmont Exploration
of Canada Ltd.

105 C 9 (29)
(60°39'N, 132°20'W)

Claims 1982: MINDY 65-89, 90Fr, 94-97; JILL 1-8

105 D



MAP G53A
WHITEHORSE
 YUKON TERRITORY

Kilometres 5 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|-------------------|
| ● ⁰¹ Mineral Deposit or Occurrence
see Key on facing page | — Placer Lease in good standing (Jan. 1983) | — Total Trail |
| ○ ⁰² Unmineralized Target | — Placer Claims in good standing (Jan. 1983) | — Driveable Road |
| □ Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982 | CEL Coal Exploration Licence | ★ Oil or Gas Well |
| □ Mineral Claims staked in 1982 | CML Coal Mining Lease | — Airstrip |

WHITEHORSE MAP-AREA (NTS 105 D)

General Reference: GSC Map 1093A and Memoir 312 by:
J.O. Wheeler, 1961.

NO. PROPERTY NAME	REFERENCE		
1 JUBILEE	This Report	46 EFFIE	Asbestos
2 LULU	Findlay (1969b, p. 39)	47 POW	D.I.A.N.D. (1981, p. 166)
3 MILLET	Copper	48 ACE	Silver-Gold-Lead-Zinc-Copper Vein; D.I.A.N.D. (1982, p. 118)
4 LIME	D.I.A.N.D. (1981, p. 165)	49 WHITEHORSE COPPER	This Report
5 VENUS	D.I.A.N.D. (1982, p. 7,18,113, 116)	50 TREMAR	Craig & Laporte (1972, p. 113)
6 MONTANA	Findlay (1969a, p. 60-61)	51 WING	
7 THISTLE	Gold-Silver-Lead-Zinc-Copper Vein	52 QUINALTA	Skarn Copper
8 JEAN	Green & Godwin (1964, p. 39-40); Findlay (1969a, p. 61)	53 POLAR	Kindle (1964, p. 35-36)
9 BIG THING (ARCTIC)	D.I.A.N.D. (1981, p. 167)	54 VAL	Copper-Molybdenum Occurrence
10 CARCROSS	Findlay (1969a, p. 62); D.I.A.N.D. (1982, p. 117)	55 DUGDALE	Findlay (1969a, p. 54)
11 KNOB HILL	Bostock (1941, p. 143)	56 TOPAZIOS	Findlay (1969b, p. 34)
12 WABONA	Zinc Vein	57 LEWES RIVER	Findlay (1969b, p. 34-35)
13 COLLEGE GREEN	Copper Vein	58 WALCOTT	
14 FINGER	Copper Occurrence	59 GOLCONDA	Copper-Silver-Lead Vein
15 LATREILLE	D.I.A.N.D. (1981, p. 165)	60 GRONK	Skarn Copper
16 PRIMROSE	Skarn Zinc; D.I.A.N.D. (1982, p. 117)	61 NIP	Skarn Copper
17 ROSE	This Report	62 M'CLINTOCK	Wheeler (1961, p. 143); Craig & Milner (1975, p. 45)
18 BOSTOCK	Bostock (1941, p. 38)	63 MARSH	This Report
19 CHARLESTON	D.I.A.N.D. (1982, p. 114)	64 LAVALEE	Asbestos
20 BERNEY	D.I.A.N.D. (1981, p. 166,168)	65 MICHIE	Chromium-Asbestos Magmatic
21 MT. REID	D.I.A.N.D. (1982, p. 114)	66 RAILROAD	Silver Vein
22 SKUKUM	Findlay (1969a, p. 56-57); Craig & Milner (1975, p. 55)	67 JACKSON (GROUSE)	Craig & Milner (1975, p. 52); Sinclair et al (1976, p. 101)
23 MORNING	Bostock (1941, p. 36-37); D.I.A.N.D. (1982, p. 117)	68 IMP	Copper Occurrence
24 GODDELL	Morin et al (1977, p. 150)	69 BUCHANAN	D.I.A.N.D. (1981, p. 168)
25 PORTER	Bostock (1941, p. 37-38); D.I.A.N.D. (1981, p. 168)	70 WHEELER	
26 BECKER-COCHRAN	Morin et al (1977, p. 149)	71 HARNIAK	Copper-Silver-Gold Vein
27 FLEMING	Morin et al (1977, p. 150)	72 SHAW	D.I.A.N.D. (1982, p. 116,117)
28 MT. ANDERSON	D.I.A.N.D. (1981, p. 166); D.I.A.N.D. (1982, p. 117)	73 ALLISON	
29 TALLY-HO	Wheeler (1961, p. 123)	74 OPULENCE	Antimony Vein
30 MT. WHEATON	Wheeler (1961, p. 122-123)	75 BOBO	
31 BUFFALO	D.I.A.N.D. (1982, p. 117)	76 DONKEY	Silver-Lead-Zinc-Gold-Copper Vein; D.I.A.N.D. (1982, p. 117)
32 MT. STEVENS	D.I.A.N.D. (1982, p. 115)	77 DAWN	
33 CROMWELL	Silver-Lead-Copper Vein; D.I.A.N.D. (1982, p. 117)	78 INCO	Copper-Molybdenum Porphyry
34 MILLHAVEN	D.I.A.N.D. (1982, p. 117)	79 SUITS (KING LAKE)	Sinclair et al (1975, p. 144-145)
35 GOLD HILL	Cairnes (1916, p. 43)	80 FISH LAKE	Coal
36 GOLD REEF	Wheeler (1961, p. 123); Cairnes (1912, p. 111-112)	81 LUSCAR	Coal
37 UNION MINES	Wheeler (1961, p. 135-136)	82 PTARMIGAN	Cairnes (1908, p. 20-21)
38 MT. BUSH	Cairnes (1916, p. 145-147)	83 COAL RIDGE	Coal
39 LEGAL TENDER	Cairnes (1912, p. 112-113)	84 BERESFORD	Cairnes (1908, p. 20-21)
40 ALLIGATOR	Craig & Milner (1972, p. 44)	85 BOUDETTE	Wheeler (1961, p. 143)
41 WHITEHORSE COAL	Craig & Laporte (1972, p. 158)	86 COMBS	Gold Vein
42 MUD	Findlay (1969a, p. 54-55)	87 MIDGETT	Copper Vein
43 ARKELL	Craig & Milner (1975, p. 43)	88 GEE	D.I.A.N.D. (1981, p. 168)
44 INGRAM	Wheeler (1961, p. 136-137)	89 TONY	Lead-Silver-Zinc Vein; D.I.A.N.D. (1982, p. 118)
45 CUTOFF	Silver-Gold Vein; D.I.A.N.D. (1982, p. 118)	90 WEST	D.I.A.N.D. (1981, p. 166)
		91 PART	D.I.A.N.D. (1981, p. 167)
		92 PROSE (DEB)	This Report
		93 POMPEI	D.I.A.N.D. (1981, p. 168)
		94 LORNE	D.I.A.N.D. (1981, p. 168)
		95 JAVA	D.I.A.N.D. (1981, p. 168)
		96 GAMMON	This Report
		97 ART	D.I.A.N.D. (1981, p. 167)
		98 MUNROE	D.I.A.N.D. (1981, p. 167)
		99 UNTILL	Sinclair et al (1976, p. 104)
		100 ABI	Sinclair et al (1976, p. 108)
		101 TOP	Morin et al (1979, p. 61)
		102 LABE	D.I.A.N.D. (1982, p. 118)
		103 CRO	Morin et al (1980, p. 33)
		104 BEN	Morin et al (1980, p. 33)
		105 RAM	This Report
		106 RAMING	Morin et al (1980, p. 36)

107	OJ	Morin et al (1980, p. 36)
108	ATHES	D.I.A.N.D. (1982, p. 116)
109	DUNK	This Report
110	UNDAL	D.I.A.N.D. (1982, p. 117)
111	TROLL	D.I.A.N.D. (1982, p. 117)
112	ODD	This Report
113	BACHUS	D.I.A.N.D. (1982, p. 117)
114	NAIAD	This Report
115	KUKU	This Report
116	DAYIR	This Report
117	EVIEW	This Report
118	TIKA	D.I.A.N.D. (1982, p. 117)
119	ILLIA	D.I.A.N.D. (1982, p. 117)
120	AMN	D.I.A.N.D. (1982, p. 117)
121	ICHIE	D.I.A.N.D. (1982, p. 118)
122	ALBATROS	D.I.A.N.D. (1982, p. 117)
123	BEXI	D.I.A.N.D. (1982, p. 118)
124	FLAT	D.I.A.N.D. (1982, p. 118)
125	ERGE	D.I.A.N.D. (1982, p. 118)
126	UNCER	D.I.A.N.D. (1982, p. 118)
127	SLEWE	D.I.A.N.D. (1982, p. 118)
128	UTSHIG	This Report
129	GLENLIVET	This Report
130	RAVEN	This Report
131	MINK	This Report
132	LAKE	This Report
133	POOLY	This Report
134	A+B,C+D	This Report
135	OLLIE	This Report
136	JOE PETTY	Bostock (1957, p. 151-156,211-213,252-256,606-609)
137	URANUS	Bostock (1957, p. 151-156,211-213,252-256,606-609)
138	M & M	Bostock (1957, p. 151-156,211-213,252-256,606-609)

ROSE
Cominco Limited

Unmineralized
Target
105 D 5 (17)
(60°21'N,135°51'W)

xenoliths of Paleozoic metasedimentary rocks and cut by a 3 m wide diabase dyke.

Current Work and Results:

Reference: D.I.A.N.D. (1981, p.164,167; note that ROSE group described on p.165 is actually PROSE(#92) not ROSE).

In addition to geological mapping, 14 stream sediment samples, 21 soil samples and 10 rock chip samples of quartz boulders were collected and analyzed for Cu, Pb, Zn, Ag and Au.

Claims: PRIMROSE 1-8

Source: Summary by P. Watson from assessment report 091440 by L.G. Nagy.

History:

The claims were staked to cover a reported gold occurrence in pyritic rhyolite, approximately 60 km southwest of Whitehorse. The showing was discovered by T. Worbets in 1949 and first staked in 1962 as the ROSE claims. It was restaked in 1967 as DOT, in 1973 as SHEEP, in 1979 as TIPY and BAR and in 1982 as PRIMROSE.

WHITEHORSE COPPER
Whitehorse Copper
Mines, Limited

Copper, Gold,
Silver Skarn
105 N 10,11,14(49)
(60°40'N,135°10'N)

References: D.I.A.N.D. (1982, p.3,8,16,113,115);
D.I.A.N.D. (1981, p.4,22,24-25);
Tenney (1981).

Description:

The PRIMROSE claims were found to be underlain by medium to fine grained diorite, containing small

Claims: Approximately 700 claims

Source: Summary by P. Watson from assessment report 091394 by A. Hureau.

SUMMARY OF OPERATIONS OF
WHITEHORSE COPPER MINES LIMITED

	1978	1979	1980	1981	1982
Tonnes Mined	841,406	849,362	778,184	748,833	820,070
Tonnes Milled	782,992	829,455	772,864	727,615	814,145
Daily Average Milled (Tonnes)	2,194	2,278	2,367	2,040	2,401
<u>Mill Heads:</u>					
Copper (%)	1.40	1.12	1.58	1.42	1.39
Gold (gm/tonne)	0.75	0.58	0.86	1.03	
Silver (gm/tonne)	7.76	6.33	9.48	9.26	
<u>Metal Production:</u>					
Copper (kg)	9,490,632	7,931,060	10,728,041	9,088,284	9,040,730
Gold (gm)	541,814	492,951	687,439	489,165	364,267
Silver (gm)	5,524,950	5,255,598	7,473,336	6,045,370	6,497,695
<u>Ore Reserves at Year End:</u>					
Tonnes	2,387,462	2,096,525	1,671,051	1,325,000*	
Copper (%)	1.57	1.50	1.40	1.35	
Gold (gm/tonne)	0.79	0.79	0.79	1.03	
Silver (gm/tonne)	7.87	7.87	7.87	9.26	

* as of December 31, 1981.

History:

The Whitehorse Copper Belt is a 30 km long zone of over 30 copper-bearing skarn occurrences, located to the west of Whitehorse, Yukon Territory.

Sporadic mining took place in the belt in the early 1900's. By 1967, the ground had been consolidated under New Imperial Mines Ltd., and production from the Little Chief pit commenced.

The company was reorganized and renamed Whitehorse Copper Mines Ltd. in 1971 and underground development work began on the Little Chief ore body. In 1978, Whitehorse Copper Mines Ltd. became a wholly owned subsidiary of Hudson Bay Mining and Smelting Co. Ltd. Production from 1971 to 1982 was mainly from underground workings on the Little Chief orebody.

On December 31, 1982, production on the property ceased due to the depletion of ore in the underground workings. Between 1967 and Dec. 31, 1982, New

Imperial Mines Ltd. - Whitehorse Copper Mines Ltd. milled 10,247,986 tonnes of ore. From this, they recovered 123,145,041 kg Cu, 7,062,431 gm Au and 89,577,047 gm Ag. The bulk of this ore came from the Little Chief deposit (see map on the front cover), which contained about 7.25 million tonnes grading 1.5% Cu.

Current Work and Results:

In 1982, five diamond drill holes were completed on the North Star property for a total of 2,321.97 m. Intersections over 10.2 m of 1.49% Cu and over 14.0 m of 0.83% Cu were reported from one hole. Other holes intersected smaller sections of bornite, chalcopryite and magnetite skarn mineralization.

MARSH
G. McLeod

Nickel, Cobalt,
Copper Magmatic;
Gold
105 D 8 (63)
(60°22'N, 134°12'W)

Yukon Geology and Exploration Report and incorrectly called ROSE (#17). The correct latitude, longitude and location number for this property are given above.

Reference: D.I.A.N.D. (1982, p.113,117).

Claims: FM 1-3; MF 1-4

Source: Summary by P. Watson from assessment report 091412 by G. Macdonald.

GAMMON
Agip Canada Limited

Geochemical Target
105 D 16 (96)
(60°52'N, 134°13'W)

History:

The MF and FM claims were staked in 1981 on a property that was drilled in 1972. Analysis of this core indicated low grade Au values (1.58 and 1.99 g Au/t) in fractured and altered volcanic rocks.

Description:

The property covers the contact between Laberge series greywacke and quartzite and older, Taku Group(?) volcanic rocks. All units are cut by dykes and are well faulted. A large lens of serpentinized peridotite, probably a dyke or sill, is enclosed in the volcanic rocks. It has been intensely sheared and contains occasional brittle cross-fibre asbestos veinlets near zones of intense serpentinization and minor magnetite and chromite.

Current Work and Results:

Geological mapping revealed that the contact between volcanic and sedimentary rocks is represented by a depression (possibly a fault) and sedimentary rocks several hundred metres from this zone are undeformed. The volcanic rocks are strongly carbonatized near the base over a 100 m by 2,500 m area. The mariposite-fuchsite bearing rock contains quartz and carbonate (siderite and calcite) vein swarms and up to 10% disseminated pyrite, less than 1% arsenopyrite and occasional chalcopyrite and chromite. Veinlets are 1 to 2 cm wide and constitute up to 75% of the rock. The Au values in the core samples appear to be related to a unit not seen in outcrop, between the mariposite bearing unit and the volcanic/serpentinized rocks above it. A restricted magnetometer survey indicated that this zone has a distinctive magnetic signature.

Reference: D.I.A.N.D. (1982, p.113,116,118).

Claims: GAMMON (36)

Source: Summary by P. Watson from assessment reports 091068 and 091390 by P.D. Van Angeren.

Description:

The property is located 7 km south of Mount Byng and outside the eastern edge of the Tertiary Mount Byng volcanic complex. GAMMON 1-6 are underlain by massive hornblende granodiorite.

Current Work and Results:

Work in 1982 consisted of geological mapping and soil, stream sediment and rock sampling.

RAM
Canadian Nickel Company
Limited

Zinc, Lead, Silver
Skarn
105 D 4 (105)
(60°12'N, 135°43'W)

Reference: D.I.A.N.D. (1982, p.113,117);
D.I.A.N.D. (1981, p.123,127);
Morin et al (1980, p.34-35).

Claims: RAM (58)

Source: Summary by P. Watson from assessment report 091086 by E.J. Debicki and assessment report 091383 by W.D. Manson.

History:

These skarns were first staked by E. Kreft in 1976 as the RAM 1-8 claims and were optioned to United Keno Hill Mines Limited from 1977 to 1979. During this time, geological, geochemical, geophysical and trenching programs were conducted. RAM 1-10 were optioned to Canadian Nickel Company Limited in 1980. In 1980, one diamond drill hole was completed to a depth of 52.7 m. Trenching and geochemical sampling were undertaken in 1981 and 1982. RAM 11-58 were staked in 1981 to cover zones of kaolinization, sericitization, carbonatization, silicification and shattering in nearby Tertiary rhyolitic quartz

PROSE (DEB)
United Keno Hill
Mines Limited

Lead, Zinc, Silver
Skarn
105 D 5 (92)
(60°18'N, 135°54'W)

Reference: D.I.A.N.D. (1981, p.165, see ROSE).

Claims: DEB 1-28

History:

This property was described in the 1979-1980

feldspar porphyry.

Description:

The property is located 70 km southwest of Whitehorse, to the east of Primrose Lake. The area is underlain by pre-Mississippian Yukon Group meta-sedimentary rocks, Cretaceous Coast Intrusions, early Tertiary Skukum Group volcanic rocks and late Tertiary quartz feldspar porphyry plugs. Small skarn zones up to 15 m in length occur in the Yukon Group metamorphic rocks over an area of 275 m by 185 m, adjacent to quartz feldspar porphyry. These skarns, consisting of sphalerite and galena in epidote-diopside-garnet-quartz-carbonate, contain values up to 1.49% Pb, 2.26% Zn and 37 g Ag/t over 3 m (chip sample). IP geophysical anomalies were attributed to graphitic schists.

Current Work and Results:

One drill hole to 52.7 m was drilled in 1980 to test a skarn zone at depth. It intersected 4.9 m of 3.73% Pb, 3.80% Zn and 25.4 g Ag/t.

A small soil geochemistry grid sampled in 1982 confirmed earlier results. Two trenches totalling 23.8 m in length were excavated on either side of the 1980 drill hole. One encountered 8.2 m of mineralized skarn assaying 0.82% Pb, 0.85% Zn and 16.5 g Ag/t.

In 1982, work concentrated on RAM 11-58. Four zones of alteration were outlined, three in quartz feldspar porphyry and one in rhyolitic volcanic rocks. The first three are extensive zones up to 200 m by 600 m of yellow-brown gossan containing narrow (up to 2 m), sheared and brecciated zones with varying amounts of clay alteration, sericite and quartz veinlet stockwork. Minor base metal sulphides were reported in one zone. The fourth zone, in the volcanic rocks, is believed to be caused by surface waters, rather than hydrothermal activity.

A total of 176 rock samples were collected, 64 of these from the alteration/gossan zones. All were analyzed for Cu, Pb, Ag, Au and Sb. Alunite was detected by field tests (of dubious reliability) in one zone. The three zones in quartz feldspar porphyry were anomalous in base metals and Ag, or in Sb, but not in Au. The bleached rhyolites were anomalous in Au, but this appears to be related to dykes and flows of Skukum Group volcanic rocks, rather than hydrothermal alteration.

DUNK	Geochemical Target
Du Pont of Canada	105 D 2 (109)
Exploration Limited	(60°02'N, 134°50'W)

Reference: D.I.A.N.D. (1982, p.113,116).

Claims: DUNK 1-20

Source: Summary by P. Watson from assessment report 091045 by H. Copland and J.T. Neelands.

History:

The claims were staked to cover anomalous Au values in stream sediments located during a regional sampling program.

Description:

The claims are located on the east side of Bennett Lake, 15 km southwest of Carcross. The White Pass and Yukon Route rail line passes along the western edge of the property. The eastern portion of the claim block is underlain by Lower Jurassic Laberge Group siltstone, shale and sandstone. The western portion is underlain by dacite, andesite and basalt of the Upper Triassic Lewes River Group.

Current Work and Results:

The original anomalous stream sediment sample contained 700 ppb Au in the coarse heavy mineral fraction. A follow-up program of 59 soil, 3 rock and 2 stream sediment samples, confirmed the anomaly in the stream sediments. Soil samples taken on either side of the creek contained isolated anomalous Au values up to 45 ppb Au.

No significant mineralization was discovered, although dacite exposures were gossanous in isolated pods.

ODD	Geochemical Target
Du Pont of Canada	105 D 3 (112)
Exploration Limited	(60°12'N, 135°60'W)

Reference: D.I.A.N.D. (1982, p. 114,117).

Claims: EVEN 1-16: ODD 1-20

Source: Summary by P. Watson from assessment report 091047 by H.J. Copland and J.T. Neelands.

History:

The claims were staked in 1981 to cover anomalous Au values in stream sediment samples collected during a regional sampling program.

Description:

The property is located 16 km west of Carcross. It is underlain by volcanic rocks of the Upper Triassic Lewes River Group. These include feldspar porphyry dacites, basalts and volcanic breccia / conglomerate.

Current Work and Results:

The anomalous stream sediment sample contained 60 ppb Au in the fine heavy mineral fraction. An additional 9 stream sediment, 4 rock and 169 soil samples were collected. All samples in one stream running west contained anomalous Au, with up to 1,100 ppb Au reported in the coarse heavy mineral fraction.

A Cu-Zn soil anomaly merges into a Pb-Zn soil anomaly, to the east. The highest Au values in soils

occurred at the head of a creek just west of the original anomalous creek. Elsewhere, Au values were background levels or lower.

One rock sample of volcanic breccia contained 100 ppb Au. Minor disseminated pyrite was found in dacite and a few barren quartz veins 1-4 cm wide were noted in the breccia. One southeast striking quartz vein 5 m by 2 m contained minor chalcopyrite and a chip sample assayed 0.045% Cu and 0.62 g Ag/t.

NAIAD	Geochemical Target
Archer, Cathro and	105 D 3 (114)
Associates (1981) Limited	(60°01'N, 135°27'W)

Reference: D.I.A.N.D. (1982, p.114,117).

Claims: NAIAD 1-16

Source: Summary by P. Watson from assessment report 091434 by W.D. Eaton.

History:

The claims were staked in 1981 to cover anomalous Ag and Pb soil geochemical values and associated minor mineralized vein float.

Description:

The property is underlain by equigranular granodiorite to quartz monzonite of the Coast Plutonic Complex and is just northwest of the margin of the Bennett Lake Caldera. The intrusive rock is cut by andesite, rhyolite and aplite dykes and contains xenoliths of metavolcanic rocks.

Current Work and Results:

A total of 37 soil samples and 25 reconnaissance rock chip or representative rock samples were collected and analyzed for Ag and Pb. Soil samples contained 0.8 to 2.6 ppm Ag and usually greater than 200 ppm Pb. Except for visibly mineralized samples, Ag and Pb values in rock samples were less than in soil samples. Samples of copper-stained quartz veins containing traces of galena assayed 50.0 ppm Ag and greater than 10,000 ppm Pb.

KUKU	Gold Veins
Agip Canada Limited	105 D 3 (23,115)
	(60°12'N, 135°25'W)

Reference: D.I.A.N.D. (1982, p.113,116,117).

Claims: KUKU 1-331; CHIEF 1-106; WOOF 1-40

Source: Summary by P. Watson from assessment report

091061 by R.A. Doherty and assessment report 091391 by R.A. Doherty and R. Tykajlo.

History:

The KUKU and CHIEF and WOOF claim blocks were staked in 1981 and 1982 to cover gossan zones found during reconnaissance work.

The CHIEF claims, on Chieftain Hill, to the southeast of the KUKU block, cover an area examined in 1893 and 1967. The old MORNING and EVENING claims (#23) covered a quartz stibnite vein found in 1893. The vein is up to 30 cm wide but was not traced for any length. In 1967-68, Yukon Antimony Corporation conducted an exploration program for porphyry copper in this area (SKUKUM, #22). No previous work has taken place in the main cirque area of the KUKU claims.

Description:

This claim block covers 99.22 km² and is located 65 km southwest of Whitehorse. It covers a 10 km wide remnant of Tertiary, Skukum Group, intermediate to felsic volcanic rocks. These volcanic rocks unconformably overly a basement of metamorphosed Late Precambrian Yukon Metamorphic Complex schist and marble which have been intruded by granite to monzonite rocks of the Coast Plutonic Complex. Small Tertiary quartz feldspar porphyry intrusions and late dykes are also intrusive to the volcanic rocks.

Current Work and Results:

In 1981 and 1982, a program of geological mapping, trenching and geochemical sampling was carried out. Magnetometer surveys were also conducted in selected areas and 29 diamond drill holes to a total of 3,325.58 m were completed on KUKU claims.

DAYIR	Copper, Iron Skarn
Du Pont of Canada	105 D 6 (116)
Exploration Limited	(60°29'N, 135°25'W)

Reference: D.I.A.N.D. (1982, p.114,117).

Claims: DAYIR 1-18

Source: Summary by P. Watson from assessment report 091048 by L. Holmgren and J.A. Korenic.

History:

The claims were staked to cover anomalous Cu and Zn values in stream sediments.

Description:

The property is located 11 km west of Fish Lake. The claims cover the contact between Cretaceous quartz monzonite to granodiorite and andesite. A sequence of arkose, greywacke, black argillite and conglomerate which probably belongs to the Upper Triassic Lewes River Group, occurs to the north.

Current Work and Results:

During the follow up program, 48 soil, 17 rock and 21 stream sediment samples were collected. These confirmed the initial results and outlined areas of high Cu and Zn values over the contact zone.

The contact between the intrusive and volcanic rocks is a 20-30 m wide skarn zone that contains trace chalcopyrite, with malachite and azurite staining, and a 1.5 m wide band of massive magnetite with trace malachite. In addition, several gossanous zones contain 1-2% pyrite within intensely silicified sedimentary rocks. Anomalous Cu and Zn soil values also occur over these pyrite zones.

EVIEW	Geochemical Target
Du Pont of Canada	105 D 6 (117)
Exploration Limited	(60°27'N, 135°03'W)

Reference: D.I.A.N.D. (1982, p.114,117).

Claims: EVIEW 1-16

Source: Summary by P. Watson from assessment report 091044 by H.J. Copland and J.T. Neelands and assessment report 091431 by H.J. Copland.

History:

The claims were staked in 1981 to cover anomalous Pb-Zn values in stream sediments located during a regional sampling program.

Description:

The claims are located one km east of Lakeview Mountain and 30 km south of Whitehorse. They are underlain by mafic to felsic volcanic and sedimentary rocks that have been intruded by Cretaceous granodiorite. The sedimentary rocks are part of the Lower Jurassic Laberge Group and include siltstone, limestone and quartzite. Rhyolite, dacite, basalt and tuff of the Cretaceous Hutshi Group are also found.

Current Work and Results:

The initial 1981 anomalous stream sediment sample, containing 206 ppm Pb and 1,200 ppm Zn in the fine fraction, was confirmed during 1981 follow up work, when 95 soil, 9 rock and 10 stream sediment samples were collected. A soil anomaly at the head of the creek was also outlined, with values up to 20,000 ppm Pb, 3,570 ppm Zn and 12 ppm Ag reported.

In 1982, 200 soil samples and 7 rock samples were collected in conjunction with additional geological mapping. A Pb-Zn-Ag soil anomaly related to the contact between siltstone and rhyolite was 100 m to 300 m wide and greater than 1,100 m long.

This contact consists of a 1-3 m wide zone of gossanous and silicified rock that may represent a shear zone. Pyrite is pervasive throughout the volcanic rocks (1-10%) and is found in the siltstone in amounts from trace to 20% as the contact is

approached. Sugary, vuggy boxwork quartz containing 5% disseminated pyrite, visible galena and 10-15% cubic boxwork is found in the gossan zone. Two rock samples from this zone contained anomalous values up to 6,600 ppm Pb, 990 ppm Zn and 176 ppm Ag.

UTSHIG	Geochemical Target
Du Pont of Canada	105 D 16 (128)
Exploration Limited	(60°54'N, 134°29'W)

Reference: D.I.A.N.D. (1982, p.114,118).

Claims: UTSHIG 1-48

Source: Summary by P. Watson from assessment report 091043 by L.D. Holmgren and J.T. Neelands.

History:

The claims were staked in 1981 to cover a creek containing anomalous Au values in heavy mineral fractions, located during a regional sampling program.

Description:

The claim group covers a creek draining into McClintock Lakes, 37 km northeast of Whitehorse and 5 km west of Mount Byng. The property is underlain by fine grained massive basalt of the Cretaceous Hutshi Group, which has been cut by fine grained felsic dykes up to 1.5 m wide. Minor conglomerate was also noted.

Current Work and Results:

Three rock and 19 stream sediment samples were collected on the claims. The original anomalous sample contained 320 ppb Au in the coarse heavy mineral fraction. Follow-up failed to reproduce this value, and samples collected between 700 m upstream and 200 m downstream did not contain values greater than 10 ppb Au in the coarse heavy mineral fraction. Further upstream, however, 2 samples contained 950 ppb Au and 1,500 ppb Au and up to 3.0 ppm Ag in the fine heavy mineral fraction.

Gossans found in the basalt contain 5-7% pyrite cubes and pyrrhotite blebs. Other mineralization reported included samples of vuggy quartz and calcite with siderite and goethite that were found in talus. Assays revealed no anomalous gold values in these rocks.

GLENLIVET	Geochemical Target
AGIP Canada Limited	105 D 3 (129)
	(60°03'N, 137°17'W)

Claims: GLENLIVET 1-46

Current Work and Results:

Preliminary prospecting was carried out on these claims after they were staked in August, 1982 on a geochemical target.

OLLIE
Du Pont of Canada
Exploration Limited

Geochemical Target
105 D 6 (135)
(60°18'N, 135°04'W)

Reference: D.I.A.N.D. (1982, p.117).

Claims: OLLIE 1-25

Source: Summary by P. Watson from assessment report 091046 by D.M. Strain and J.T. Neelands.

History:

The claims were staked in 1981 to cover anomalous Ag-Pb-Zn values in stream sediments. Argentiferous quartz veins exist to the north and west of these claims on DONKEY (#76) and UNION (#37).

Description:

The property is located 24 km northwest of Carcross and 3 km southeast of Annie Lake. Lower Jurassic Laberge Group quartzite, conglomerate, greywacke and hornfels have been cut by porphyritic dykes. A fault-bounded wedge of basalt and volcaniclastic rock is found in the centre of the claims. Granitic intrusions south and west of the claims have hornfelsed some of the sedimentary rocks.

Current Work and Results:

The original anomalous stream sediment sample contained 5.3 ppm Ag in the coarse heavy mineral fraction. Nine additional stream sediment, 4 rock and 169 soil samples were later collected and soils on both sides of one tributary of the anomalous creek contained up to 4.7 ppm Ag and 2,500 ppm Zn. Two Pb-Zn-Ag soil anomalies were defined on the property, one in the north and one in the southeast.

Minor quartz veins that appeared to be barren cut the greywacke and minor disseminated pyrite occurs in the sedimentary rocks, especially the greywacke.

1982 MINERAL CLAIMS STAKED

JUBILEE
J. Cukor

105 D 1 (1)
(60°13'N, 134°07'W)

Claims 1982: J 1-8; M 1-4

KUKU
AGIP Canada Ltd.

105 D 3 (115)
(60°11' - 60°13'N,
135°22' - 135°28'W)

Claims 1982: WOOF 1-40; CHIEF 72-106

GLENLIVET
AGIP Canada Ltd.

105 D 3 (129)
(60°03'N, 135°18'W)

Claims 1982: GLENLIVET 1-46

ROSE
Cominco Ltd.

105 D 5 (17)
(60°21'N, 135°51'W)

Claims 1982: PRIMROSE 1-8

RAVEN
G. Horae, D.L. Ryder

105 D 7 (130)
(60°25'N, 134°52'W)

Claims 1982: RAVEN 1-16

MINK
E. Kreft

105 D 12 (131)
(60°34'N, 135°38'W)

Claims 1982: MINK 1-2

LAKE
F. Chretien, D. Eastmure

105 D 14 (132)
(60°54'N, 135°16'W)

Claims 1982: LAKE 1-16

POOLY
G. Peel, N. Dool

105 D 14 (133)
(60°54'N, 135°10'W)

Claims 1982: POOK 1-2; DOOLY 1-2

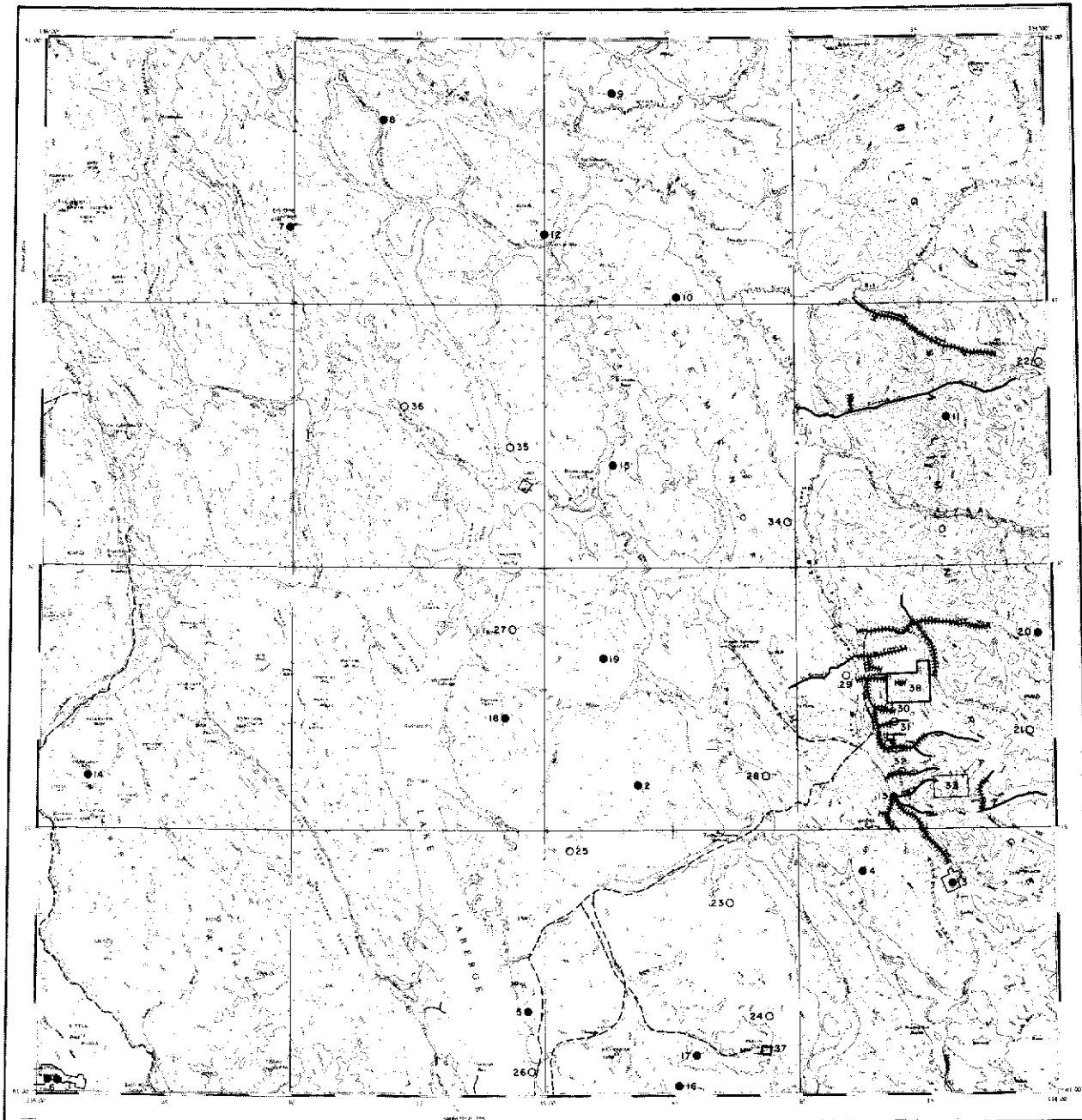
A+B,C+D
G. Maheux

105 D 14 (134)
(60°58'N, 135°12'W)

Claims 1982: A,B,C,D

NOTES

105 E



LABERGE YUKON TERRITORY

Kilometres 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|-------------------|
| ● ⁶¹ Mineral Deposit or Occurrence
see Key on facing page | — Placer Leases in good standing (Jan. 1983) | --- Total Trail |
| ○ ⁷² Unmineralized Target | ----- Placer Claims in good standing (Jan. 1983) | — Driveway Road |
| □ Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982 | CEL Coal Exploration Licence | ★ Oil or Gas Well |
| □ Mineral Claims staked in 1982 | CML Coal Mining Lease | — Airstrip |

LABERGE MAP-AREA (NTS 105 E)

General Reference: GSC Open File 578 by:
D.J. Tempelman-Kluit, 1978.

The claims were staked in 1981 to cover an area of anomalous Au in stream sediments discovered during a regional sampling program.

Description:

The claims are located 77 km northeast of Whitehorse on the northeast side of the South Big Salmon River. They cover the drainage of May Creek. The property lies immediately east of the Teslin Suture and is underlain by Carboniferous and/or Permian schist and gneiss of the Anvil Allochthonous Assemblage.

Current Work and Results:

Six rock, six stream sediment and 54 soil samples were collected in 1981. The original anomalous stream sediment sample of 115 ppb Au was confirmed, but no source for this Au, Cu, Ag anomaly was found. Yuggy, limonitic quartz containing less than 1% galena and pyrite was found as float, but no other mineralization was reported.

TES	Unmineralized
Canadian Nickel	Target
Company Limited	105 E 2 (37)
	(61°02'N, 134°33'W)

Claims: TES 1-4

Current Work and Results:

Mapping at 1:500 scale and rock sampling was done on a portion of the property in 1982. An epithermal vein/stockwork alteration zone, 100 m by 50 m in size, contains quartz veining (chalcedonic quartz), jasperoid veins, silicified breccia zones, carbonate and kaolin. The zone is hosted by a Tertiary porphyritic diorite.

1982 MINERAL CLAIMS STAKED

TES	105 E 2 (37)
Canadian Nickel Company Limited	(61°02'N, 134°34'W)

Claims 1982: TES 1-4

OWL	105 E 8 (38)
General Resources Ltd;	(61°23'N, 134°17'W)
Savoya Resources Corp.	

Claims 1982: OWL 1-69

NO.	PROPERTY NAME	REFERENCE
1	FLOAT	Gold-Silver-Copper-Lead Vein
2	TUV	Copper-Molybdenum Porphyry
3	LOON	Craig & Laporte (1972, p. 119-120)
4	BEE	Copper Occurrence
5	LABERGE	Findlay (1969a, p. 55-56)
6	TAKHINI	Skarn Copper
7	PACKERS (BAND)	Sinclair et al (1976, p. 112-113)
8	CLAIRE	Bostock & Lees (1938, p. 16)
9	WALSH	Bostock & Lees (1938, p. 16)
10	SEMENOF	Copper-Gold-Silver Vein
11	ILLUSION	D.I.A.N.D., Mines and Minerals Activities (1971, p. 19)
12	CASSIAR BAR	Copper-Silver Occurrence
13	SYLVIA	Lead-Zinc-Gold-Silver-Copper Vein
14	CORDUROY	Coal
15	HOOTALINQUA	Coal
16	HIG	D.I.A.N.D. (1981, p. 170)
17	LORI	Sinclair et al (1976, p. 110)
18	MUSTARD (GEM)	Sinclair et al (1976, p. 111)
19	BACON (BOND)	Sinclair et al (1976, p. 111)
20	HAL	D.I.A.N.D. (1981, p. 170)
21	YETI	D.I.A.N.D. (1981, p. 170)
22	FOG MOUNTAIN	D.I.A.N.D. (1982, p. 121)
23	CROST	D.I.A.N.D. (1982, p. 121)
24	SLINE	D.I.A.N.D. (1982, p. 121)
25	AURIER	D.I.A.N.D. (1982, p. 121)
26	AKEL	D.I.A.N.D. (1982, p. 121)
27	OVOAS	D.I.A.N.D. (1982, p. 121)
28	ENOF	D.I.A.N.D. (1982, p. 122)
29	GERM	D.I.A.N.D. (1982, p. 122)
30	REN	D.I.A.N.D. (1982, p. 122)
31	NC	D.I.A.N.D. (1982, p. 122)
32	MARBEE	D.I.A.N.D. (1982, p. 122)
33	MAYBE	This Report
34	SBS	D.I.A.N.D. (1982, p. 122)
35	HOOT	D.I.A.N.D. (1982, p. 122)
36	RANKL	D.I.A.N.D. (1982, p. 122)
37	TES	This Report
38	OWL	This Report

MAYBE Geochemical Target
Du Pont of Canada 105 E 8 (33)
Exploration Limited (60°18'N, 134°12'W)

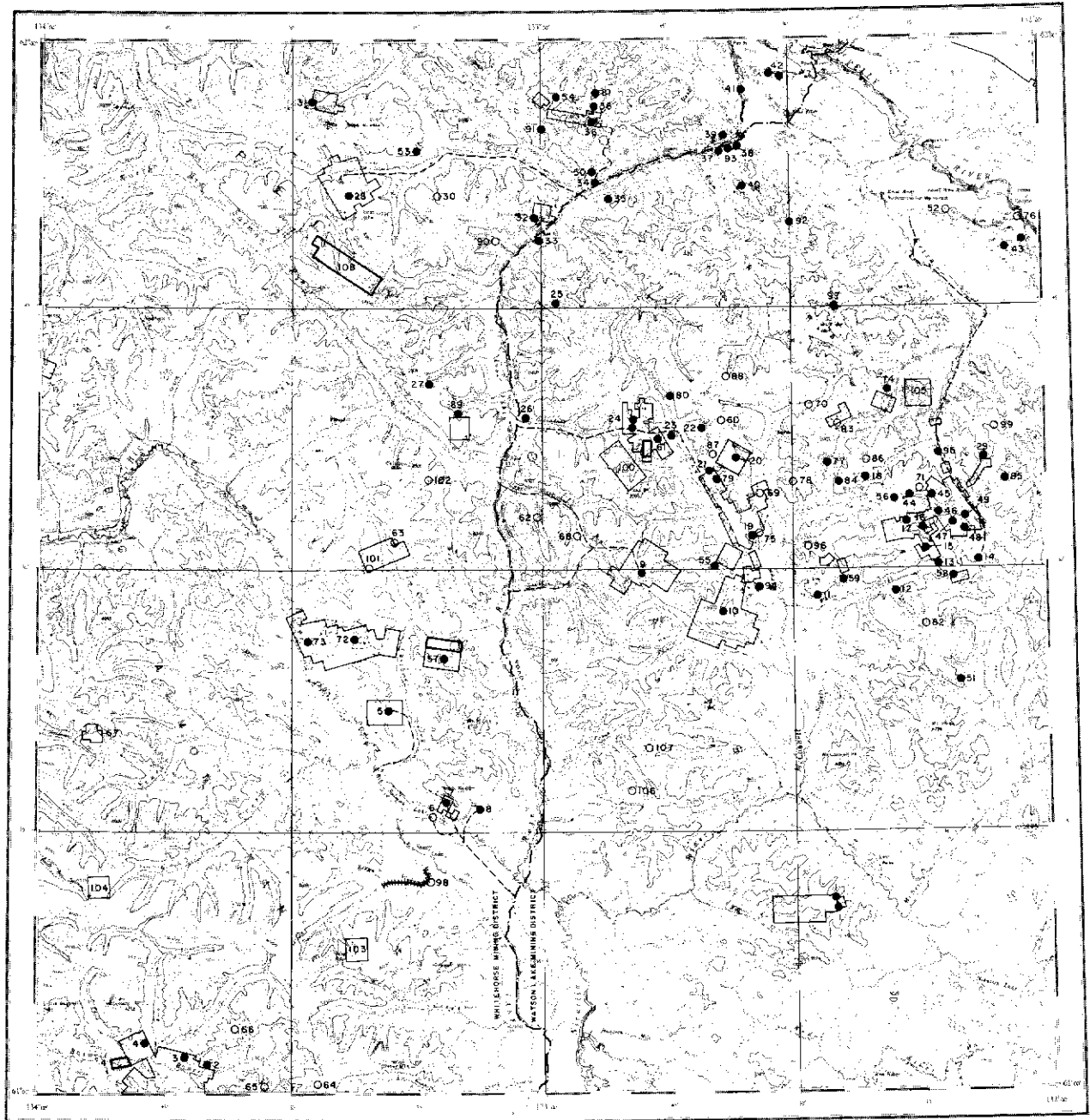
Reference: D.I.A.N.D. (1982, p.121,122)

Claims: MAYBE 1-64

Source: Summary by P. Watson from assessment report
091042 by D.M. Strain and J.T. Neelands.

History:

105 F



QUIET LAKE YUKON TERRITORY

Kilometres 5 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|-------------------|
| ● ⁶¹ Mineral Deposit or Occurrence
see Key on facing page | — Placer Leases in good standing (Jan. 1983) | --- Tote Trail |
| ○ ⁷² Unmineralized Target | ----- Placer Claims in good standing (Jan. 1983) | — Driveable Road |
| □ Mineral Claims in good standing (Jan. 1983)
and stated before Jan. 1982 | CEL Coal Exploration Licence | ✦ Oil or Gas Well |
| □ Mineral Claims stated in 1982 | CML Coal Mining Lease | — Airstrip |

QUIET LAKE MAP-AREA (NTS 105 F)

General Reference: GSC Open File 486 by:
D.J. Tempelman-Kluit, 1977.

NO. PROPERTY NAME	REFERENCE		
1 MOLLY	D.I.A.N.D. (1982, p.126)	48 STUMP	Findlay (1969, p. 44-46)
2 MOBS	Green (1966, p. 60-62)	49 KETZA RIVER	D.I.A.N.D. (1981, p. 174)
3 WOPUS	D.I.A.N.D. (1981, p. 177); D.I.A.N.D. (1982, p. 133)	50 MAGUNDY	Silver-Lead Vein
4 GOPHER	Green (1966, p. 60-62); This Report	51 HOGG	Copper Vein
5 IOLA	This Report	52 CALGAL (CHUNG)	Morin et al (1980, p. 64)
6 VODKA	Asbestos	53 ASKIN	Barite Stratabound
7 TOWER PEAK	D.I.A.N.D. (1982, p. 126-127)	54 DIRK	Barite Stratabound
8 DODY	Asbestos	55 CONNELL	
9 STORMY (PM)	D.I.A.N.D. (1982, p. 173)	56 FURY	
10 MM	Morin et al (1980, p. 60)	57 OBVIOUS	This Report
11 CPA	Morin et al (1979, p. 80-81)	58 NOKLUIT	D.I.A.N.D. (1981, p. 175)
12 SONNY	Silver-Lead Vein	59 GUANO	D.I.A.N.D. (1981, p. 55-59,175)
13 KAY	Findlay (1969a, p. 76-77)	60 TAKU	D.I.A.N.D. (1981, p. 175)
14 SHARON (KET)	Findlay (1969a, p. 76-77)	61 H (PEAK)	D.I.A.N.D. (1981, p. 175); This Report
15 OXO	Green (1965, p. 42-43)	62 FIRST	D.I.A.N.D. (1981, p. 176)
16 KOPINEC	Copper Vein; D.I.A.N.D. (1982, p. 133)	63 LAST	D.I.A.N.D. (1981, p. 176)
17 BOOM (KON)	D.I.A.N.D. (1982, p. 127)	64 B.R.	D.I.A.N.D. (1982, p. 128-129)
18 OPERATION	Copper Occurrence	65 MMM (MURPHY)	D.I.A.N.D. (1982, p. 129)
19 BOX (JD)	D.I.A.N.D. (1981, p. 173)	66 TIM	D.I.A.N.D. (1982, p. 129)
20 GRAYLING	D.I.A.N.D. (1982, p. 127, 133)	67 RPP	D.I.A.N.D. (1982, p. 129)
21 COXALL (BID)	Morin et al (1979, p. 84)	68 ADDY	D.I.A.N.D. (1981, p. 177)
22 TYRO	Zinc-Silver-Copper-Lead Vein	69 JDX	D.I.A.N.D. (1981, p. 177)
23 HADYN	Silver-Lead-Copper-Zinc-Gold Vein	70 McCASH	D.I.A.N.D. (1981, p. 177)
24 GROUNDHOG	Findlay (1969b, p. 46-47)	71 TOOTS	D.I.A.N.D. (1981, p. 177)
25 ROCKY	Asbestos	72 HIDDEN	D.I.A.N.D. (1982, p. 129-130)
26 PONY	Kindle (1945, p. 24)	73 AYDUCK	D.I.A.N.D. (1982, p. 129-130)
27 HAM	Skarn Tungsten	74 CLO	D.I.A.N.D. (1981, p. 176)
28 RISBY	This Report	75 GULL	Sinclair et al (1976, p. 162)
29 AMBROSE	Copper-Silver Vein	76 HOOLEO	Sinclair et al (1976, p. 162)
30 TUB (BRIE)	Sinclair et al (1976, p. 112)	77 CHZERPNOUGH	Morin et al (1979, p. 81)
31 EVA	D.I.A.N.D. (1981, p. 173)	78 BNOB	Morin et al (1979, p. 83)
32 BARITE MOUNTAIN	This Report	79 SUN	Morin et al (1977, p. 195)
33 McNEE	Kindle (1945, p. 24)	80 ANISE	Morin et al (1979, p. 83)
34 CANUSA	Lead-Silver-Gold Vein	81 WIMP	Morin et al (1979, p. 62)
35 CYR	Wheeler et al (1960)	82 MUMS	Morin et al (1979, p. 80)
36 MT. COOK (GREW)	This Report	83 TREE	Morin et al (1980, p. 61)
37 LAPIE	Kindle (1945, p. 25)	84 DROC	Morin et al (1979, p. 81)
38 WATERFALL	Kindle (1945, p. 25)	85 HOWRU	Morin et al (1980, p. 62)
39 DANGER	Kindle (1945, p. 25)	86 EROS	Morin et al (1979, p. 82)
40 MT. ROSS	Kindle (1945, p. 25)	87 NOT	Morin et al (1979, p. 82)
41 TRENCH	Kindle (1945, p. 21)	88 RAM	Morin et al (1980, p. 62)
42 WHISKEY LAKE	Findlay (1967, p. 89)	89 LAP	Morin et al (1980, p. 37)
43 BRUCE LAKE	Green & Godwin (1964, p. 42-43)	90 PIM	Morin et al (1980, p. 37)
44 MT. MISERY	Silver-Lead-Copper Vein	91 GK	Morin et al (1980, p. 38)
45 KEY 3	Green (1966, p. 64-68); Findlay (1969b, p. 44-46)	92 ANGIE	Morin et al (1980, p. 38)
46 LAP 10	Findlay (1969, p. 44-46)	93 BOB	Morin et al (1980, p. 39)
47 HOEY	Findlay (1969, p. 44-46)	94 GRAY	Morin et al (1980, p. 60)
		95 IGLE	Morin et al (1980, p. 61)
		96 SEATU	Morin et al (1980, p. 62)
		97 TOM	Morin et al (1980, p. 63)
		98 FER	D.I.A.N.D. (1982, p. 133)
		99 NCC	D.I.A.N.D. (1982, p. 133)
		100 LORNE	D.I.A.N.D. (1982, p. 130,133)
		101 MOX	D.I.A.N.D. (1982, p. 130-131,133)
		102 SNERD	D.I.A.N.D. (1982, p. 133)
		103 PISA	D.I.A.N.D. (1982, p. 131)
		104 SAL	D.I.A.N.D. (1982, p. 131-132)
		105 TIER	D.I.A.N.D. (1982, p. 132)
		106 OXY	D.I.A.N.D. (1982, p. 132)
		107 BIG OX	D.I.A.N.D. (1982, p. 132-133)
		108 BIG SAM	This Report

IOLA
AGIP Canada Limited

Copper, Lead, Zinc
105 F 6 (5)
(61° 22'N, 133° 20'W)

References: D.I.A.N.D. (1982, p.125,126,133).

Claims: BARB (48)

Source: Summary by P. Watson from assessment report
091078 by P.D. Van Angeren.

History:

The area was explored in 1964 to 1972 by Iola Mines Ltd. Between 1965 and 1969, bulldozer trenching and 7 diamond drill holes totalling 374.6 m were completed. Minor pyrite with traces of galena and chalcopryrite was found in several holes. The BARB claims were staked in two packages in 1981.

Description:

The region is underlain by autochthonous mid-Paleozoic sedimentary rocks and Upper Paleozoic rocks of the Anvil-Campbell allochthon that have been thrust over them.

Current Work and Results:

Mapping and soil sampling programs were conducted in 1982.

RISBY
Hudson Bay Exploration and
Development Company Limited

Tungsten Skarn
105 F 14 (28)
(61° 52'N, 133° 22'W)

Reference: D.I.A.N.D. (1982, p.125,128).

Claims: CAB (128)

Current Work and Results:

Four claims were geologically mapped at 1:2,500 scale in 1982.

BARITE MOUNTAIN
C.W. Friday Contracting

Barite
105 F 14,15 (32)
(61° 51'N, 133° 00'W)

Reference: D.I.A.N.D. (1982, p.125,133).

Claims: CHAR 1-18; BA 1-2

Source: Summary by P. Watson from assessment report
091003 by A.M. McCann.

Current Work and Results:

Barite occurs in a series of near parallel, northeast striking veins within a lower Paleozoic carbonate sequence on the northeast flank of Barite Mountain, 35 km southwest of Ross River. An examination of the property in 1981 located barite exposures in a second gully 300 m south of the previously documented showings. Five showings from 0.6 m to 3.5 m in width were located in the second gully.

MT. COOK
Amax of Canada Limited

Zinc, Molybdenum
105 F 15 (36)
(61° 56'N, 132° 55'W)

Reference: D.I.A.N.D. (1982, p.125,128).

Claims: GREW (29)

Current Work and Results:

The property was mapped at 1:5,000 scale in 1982 and a grid soil geochemical program was completed.

BIG SAM
Hudson Bay Exploration and
Development Company Limited

Tungsten Skarn
105 F 14 (108)
(61° 48'N, 133° 25'W)

Claims: BIG 1-68; SAM 1-16

Current Work and Results:

The property was mapped at 1:25,000 scale in 1982. Two claims were mapped at 1:2,000 scale and covered by EM-16 and magnetometer surveys. Scheelite occurs in massive pyrrhotite and garnet diopside skarn bands adjacent to a quartz monzonite body. Minor hand trenching was done on the showings.

1982 MINERAL CLAIMS STAKED

GOPHER
Skagway Moly Inc.

105 F 4 (4)
(61° 03'N, 133° 49'W)

Claims 1982: MOLY 17-24

OBVIOUS
Archer, Cathro and
Associates (1981) Limited

105 F 6 (57)
(61° 24'N, 133° 15'W)

BIG SAM
Hudson Bay Exploration and
Development Company Limited

105 F 14 (108)
(61° 47'N, 133° 25'W)

Claims 1982: OBVIOUS 33-48

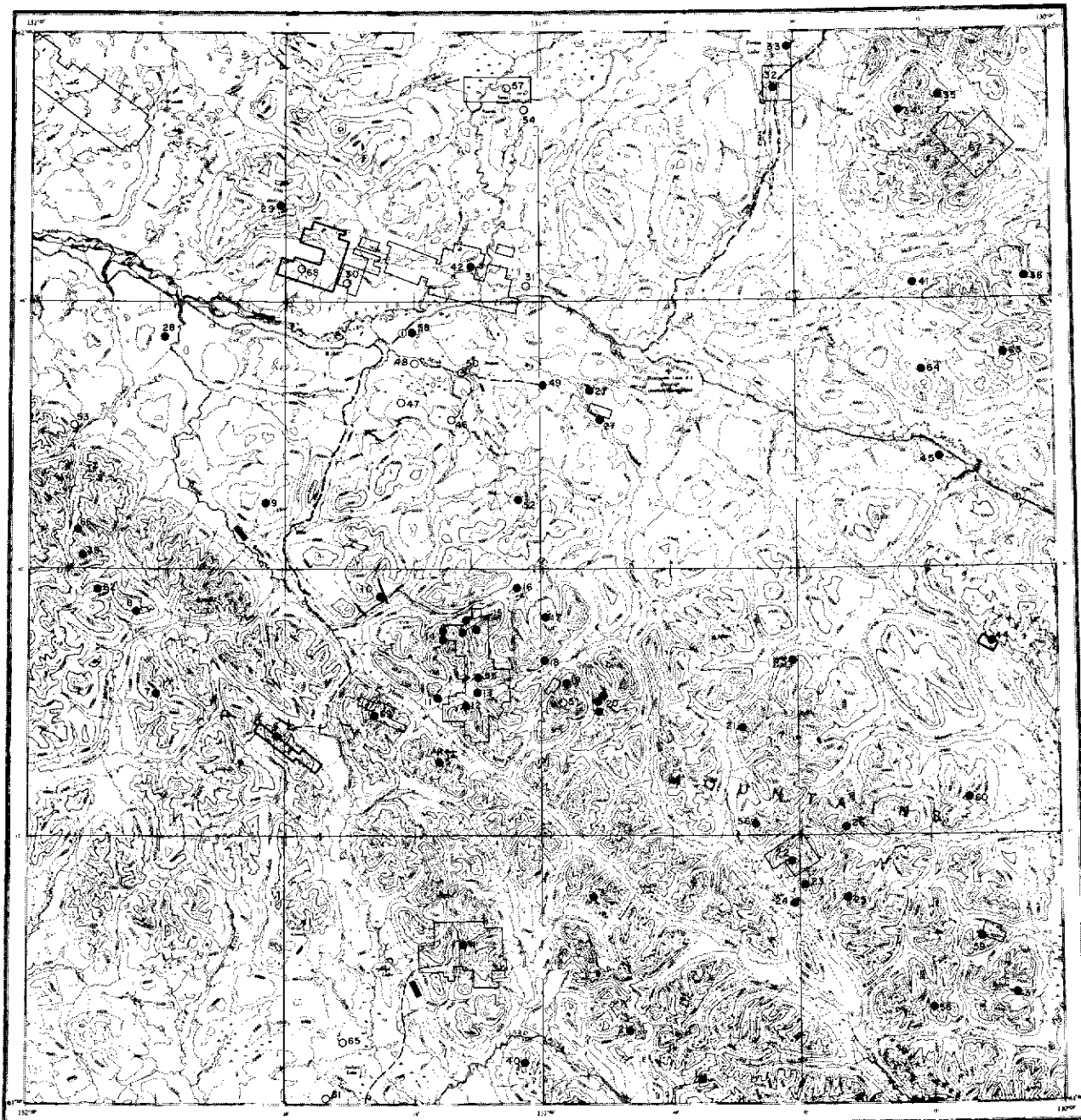
Claims 1982: BIG 1-68; SAM 1-16

H (PEAK)
P. Bland

105 F 10 (61)
(61° 37'N, 132° 48'W)

Claims 1982: WHISTLER 1-8

105 G



FINLAYSON LAKE YUKON TERRITORY

Kilometres 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|---|---------------------|
| ● ¹ Mineral Deposit or Occurrence
see Key on facing page | Floor Lease in good standing (Jan. 1983) | Tail Trail |
| ○ ² Unmineralized Target | Floor Claims in good standing (Jan. 1983) | Driveway Road |
| Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982 | CEL Coal Exploration License | ✦ Oil or Gas Well |
| Mineral Claims staked in 1982 | CBM Coal Mining Lease | Airstrip |

FINLAYSON LAKE MAP-AREA (NTS 105 G)

General Reference: GSC Open File 486 by:
D.J. Tempelman-Kluit, 1977.

NO.	PROPERTY NAME	REFERENCE
1	MONT	Findlay (1967, p. 64-65); D.I.A.N.D. (1982, p. 136)
2	BLUEBERRY	Silver-Lead-Zinc-Copper-Tungsten Vein
3	SLAM	Zinc-Copper Vein
4	TINTINA (EAGLE)	Morin et al (1977, p. 199-203)
5	PLUMB (NOLE)	Morin et al (1979, p. 86)
6	FH (JOE)	Morin et al (1980, p. 64-65); This Report
7	McNEIL	Copper
8	AXE	Craig & Laporte (1972, p. 131)
9	HOO	Sinclair & Gilbert (1975, p. 85- 86)
10	EL	Findlay (1969a, p. 79)
11	PICK	Silver-Lead Vein
12	GRASS	Molybdenum-Tungsten Vein
13	SANDERS	Skarn Lead-Zinc-Copper
14	RILEY	Copper-Lead Vein
15	ZIELINSKI	Lead-Zinc-Copper-Silver Vein
16	RIVIERA	Copper-Zinc Stratabound
17	GYP	Lead-Zinc-Copper Vein
18	GEE	Lead Vein
19	PIT	Zinc-Copper-Silver-Gold Vein
20	ROB	Copper-Lead-Silver Vein
21	PACK	D.I.A.N.D. (1981, p. 180)
22	FYRE	D.I.A.N.D. (1982, p. 135)
23	TOP	Silver-Lead-Zinc Vein
24	DUB	Findlay (1967, p. 59-60)
25	MM	Skarn Copper
26	VINCENT	Copper Vein
27	BOT	Morin et al (1979, p. 85)
28	PUP	Asbestos
29	CHOW	Morin et al (1979, p. 88)
30	DOL	
31	CAMPBELL	Keele (1910, p. 50)
32	PHIL (BOB)	D.I.A.N.D. (1981, p. 180, 182)
33	PAY	Findlay (1969a, p. 81-83)
34	RIS	Copper Vein
35	SPUD	Tempelman-Kluit (1974, p. 44)
36	JAKE	Silver-Lead-Zinc Vein
37	MAP	Silver-Lead Vein
38	WATERS	Silver-Lead Vein
39	ZIMMER	Copper
40	INGS	Copper Vein
41	HARMAN	Sinclair & Gilbert (1975, p. 88)
42	ELECTRIC	This Report
43	MYDA	D.I.A.N.D. (1981, p. 180)
44	FETISH	This Report
45	QUANDARY	
46	FREGERG	
47	FLIN	
48	FLON	
49	HUDSON	
50	AIRBORNE	
51	TOKE	D.I.A.N.D. (1981, p. 180)
52	FOG	D.I.A.N.D. (1981, p. 181)

53	STARR	D.I.A.N.D. (1981, p. 182)
54	GONZO	D.I.A.N.D. (1981, p. 182)
55	BOOT	D.I.A.N.D. (1981, p. 181)
56	HOWDEE	D.I.A.N.D. (1981, p. 182)
57	DWONK	D.I.A.N.D. (1981, p. 182)
58	EAGLE (FRED)	D.I.A.N.D. (1981, p. 182)
59	PY	Sinclair et al (1976, p. 164)
60	MONEY	Sinclair et al (1976, p. 166)
61	BOW	Morin et al (1979, p. 85)
62	NMT	Morin et al (1977, p. 203)
63	TIL	Morin et al (1980, p. 65)
64	IRENE	Morin et al (1980, p. 67)
65	PAT	Morin et al (1979, p. 85)
66	NEW	Morin et al (1979, p. 87)
67	SAS	D.I.A.N.D. (1982, p. 136)
68	LEACH	This Report
69	CYR	Morin et al (1980, p. 64)

ELECTRIC Lead, Zinc
Hudson Bay Exploration and 105 G 14 (42)
Development Company Limited (61° 46'N, 131° 12'W)

References: D.I.A.N.D. (1982, p.135,136); Morin et al (1980, p.66-67); Morin et al (1979, p.88).

Claims: EAGLE (55); BINGO (16); SHALE (83); FRED (4); RENO (66); BIG (38)

Source: Summary by P. Watson from assessment reports 091017 and 091025 by R. Stroshein.

Current Work and Results:

In 1982, seven diamond drill holes totalling 705.7 m were drilled on the EAGLE, SHALE and RENO claims to test EM conductors and to test for extensions of mineralized zones. The surface showing on the EAGLE claims consists of lenses of banded sphalerite and galena in quartz chlorite hornblende phyllite, near the contact with graphite phyllite. Two narrow (1-2 mm) bands of galena-sphalerite were intersected at approximately 30 m depth in one hole in this area. No significant mineralization was found in the other holes.

FETISH Copper, Lead, Zinc
Esso Resources Canada Limited; 105 G 8 (44)
Archer, Cathro and (61° 25'N, 130° 07'W)
Associates (1981) Limited

References: Sinclair et al (1975, p.155); Sinclair and Gilbert (1975, p.86).

Claims: KINK 1-8

History:

The area was examined in 1973 and 1974 by Finlayson Joint Venture (Archer, Cathro and Associates Limited). Geological mapping, soil and stream sediment sampling and diamond drilling were undertaken at that time. Two holes totalling 214.9 m were drilled in 1974. Copper and zinc mineralization occurs in chloritic schist overlain by sedimentary rocks and banded iron formation.

Current Work and Results:

Ground EM and magnetometer surveys were conducted on the property. EM and magnetic responses were obtained from graphitic sedimentary rock and banded iron formation, respectively.

LEACH Geophysical Target
Hudson Bay Exploration and 105 G 14 (68)
Development Company Limited (61° 48'N, 131° 25'W)

Reference: Morin et al (1980, p.67).

Claims: RAB 1-136

Source: Summary by P. Watson from assessment report 091426 by R. Stroshein.

History:

The RAB claims, 80 km east-southeast of Ross River, were staked in 1982 to cover the western end of a geologically favourable belt, following a regional airborne EM and magnetometer survey.

Description:

Three northwest trending, gently undulating formations have been mapped. The oldest rocks are quartz chlorite phyllite of the Mount Mye Formation,

which is probably Cambrian to Ordovician in age. The upper contact is gradational into the lower graphitic unit of the Vangorda Formation. This consists of carbonaceous to graphitic phyllite to shale, and is referred to as the Transition Horizon. The contact zone rocks contain galena-sphalerite mineralization to the east on the EAGLE and SHALE claims (ELECTRIC, #42). Because of its distinctive electromagnetic signature (due to graphite), this contact unit has been traced for 13 km. The upper part of the Vangorda Formation is calcareous quartz chlorite phyllite with minor graphitic shale and metamorphosed volcanic rocks. The third formation in the area is the Menzies Creek Formation. These Ordovician to Devonian, carbonaceous to graphitic shales and phyllites outcrop on the northern portion of the property.

Current Work and Results:

In addition to the geological survey, MAX-MIN EM and magnetometer surveys were carried out in 1982. The electromagnetic survey delineated two main zones of shallow, north dipping, multi-banded conductors, while several spot magnetic highs were located near the southern conductive zone.

1982 MINERAL CLAIMS STAKED

FH	105 G 5, 6	(6)
Amax of Canada Limited	(61°20'N, 131°30'W)	

Claims 1982: ZAP 1-6; ZOO 1-28

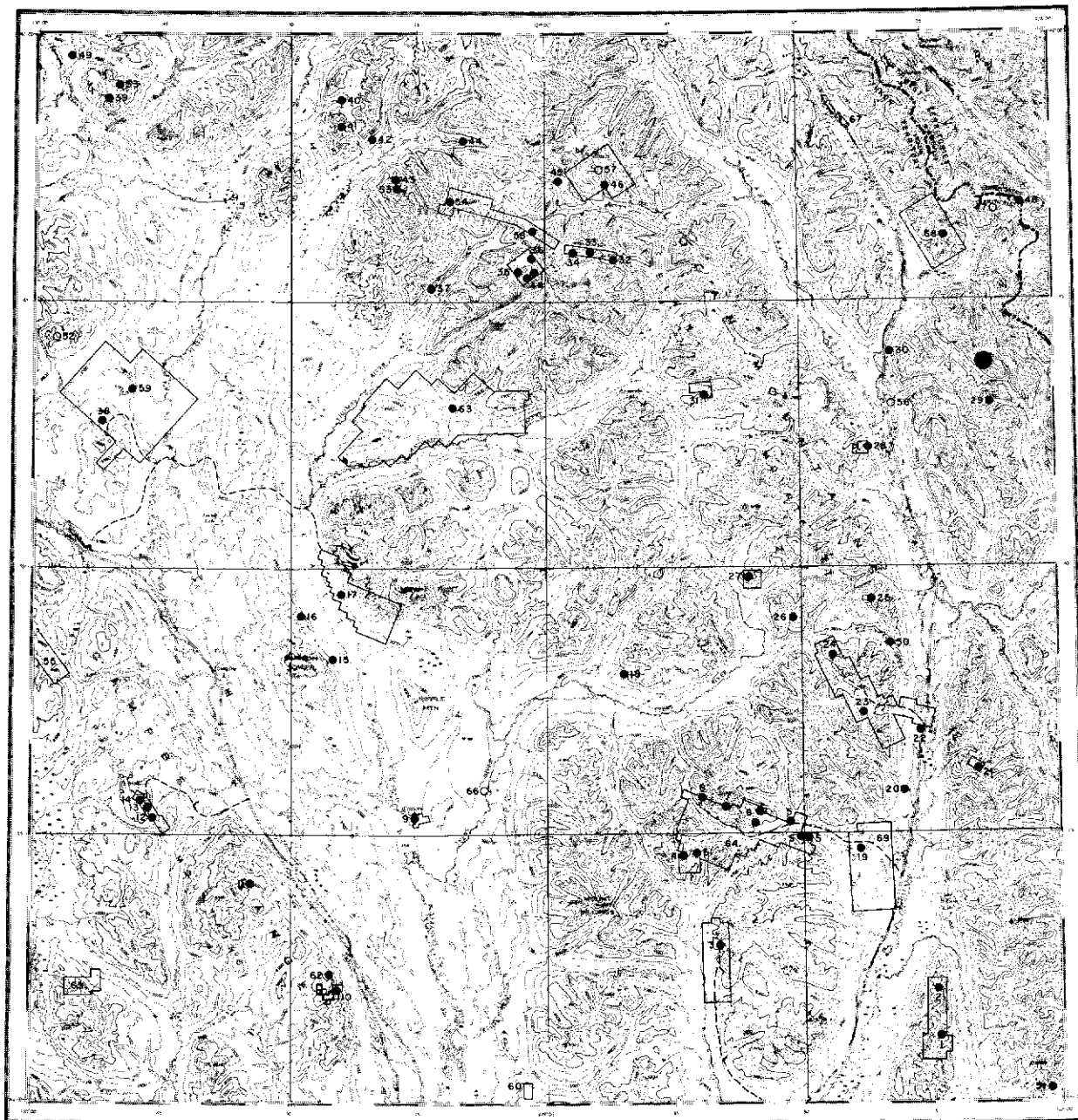
FETISH	105 G 8	(44)
Archer Cathro and Associates (1981) Limited	(60°25'N, 130°08'W)	

Claims 1982: KINK 1-8

LEACH	105 G 14	(68)
Hudson Bay Exploration and Development Company Limited	(61°48'N, 131°25'W)	

Claims 1982: RAB 1-136

105 H



FRANCES LAKE

YUKON TERR. - NORTHWEST TERR.

Kilometres 5 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|-------------------|
| ● ⁶¹ Mineral Deposit or Occurrence
see Key on facing page | — Placer Leases in good standing (Jan. 1983) | — Tote Trail |
| ○ ⁷² Unmineralized Target | — Placer Claims in good standing (Jan. 1983) | — Drivestock Road |
| □ Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982 | CEL Coal Exploration Licence | ☆ Oil or Gas Well |
| □ Mineral Claims staked in 1982 | CML Coal Mining Lease | — Airstrip |

FRANCES LAKE MAP-AREA (NTS 105 H)

General Reference: GSC Map 6-1966 by: S.L. Blusson, 1966.

NO. PROPERTY NAME	REFERENCE
1 JAN	This Report
2 MIDAS	D.I.A.N.D. (1982, p. 139-140,145)
3 FLIP (MTB)	D.I.A.N.D. (1981, p. 185)
4 DC	Green (1966, p. 72)
5 MIKO	D.I.A.N.D. (1982, p. 140)
6 GLENNA	D.I.A.N.D. (1982, p. 141)
7 STEELE	Sinclair & Gilbert (1975, p. 81-82)
8 MAX	Sinclair & Gilbert (1975, p. 81-82)
9 FRANCES	Copper Vein
10 LIND	Asbestos; This Report
11 DOUG	Copper Vein
12 TUCHITUA	D.I.A.N.D. (1981, p. 185)
13 EKO (GREEN STUFF)	Morin et al (1977, p. 209)
14 DIM	Asbestos
15 MAY	Green (1966, p. 72)
16 MAPEL	Copper-Lead-Zinc Vein
17 MATT BERRY	D.I.A.N.D. (1982, p. 141)
18 FLUKE	D.I.A.N.D. (1981, p. 186)
19 CANYON	This Report
20 STU	Blusson (1966)
21 TERRY	Skarn Tungsten; D.I.A.N.D. (1982, p. 145)
22 CORRIE	Copper Occurrence
23 BLACK JACK	D.I.A.N.D. (1982, p. 141-142)
24 FIR TREE	D.I.A.N.D. (1982, p. 141-142)
25 MONTSE	Skarn Tungsten
26 RON	Green (1966, p. 68-71); D.I.A.N.D. (1982, p. 145)
27 HELEN	Blusson (1966); D.I.A.N.D. (1982, p. 145)
28 BROD	D.I.A.N.D. (1981, p. 186)
29 RAIN	D.I.A.N.D. (1981, p. 188); D.I.A.N.D. (1982, p. 145)
30 ROAD	Green (1968, Figure 1); D.I.A.N.D. (1981, p. 188)
31 TOY (REA)	Morin et al (1977, p. 210)
32 BR	Skarn Tungsten-Copper
33 TANYA	Craig & Milner (1975, p. 117)
34 GUY	Green (1968, Figure 1)
35 THOR	D.I.A.N.D. (1982, p. 142)
36 BROTEN	Skarn Tungsten-Copper-Molybdenum
37 TUSTLES	Copper Occurrence
38 TED	D.I.A.N.D. (1982, p. 142)
39 NARCHILLA	Skarn Tungsten-Copper-Lead-Zinc
40 LEE	D.I.A.N.D. (1981, p. 188)
41 YUSEZYU	Blusson (1966)
42 DODGE	Skarn Molybdenum
43 TILLEI	Molybdenum-Tungsten Porphyry
44 HITCH HIKER	Silver-Lead-Zinc Vein
45 ZEUS	D.I.A.N.D. (1982, p. 143)
46 CHAP	D.I.A.N.D. (1982, p. 143)
47 ALM	Skarn Lead-Zinc
48 BUS	Skinner (1961, p. 46)
49 TIM	Skarn Lead-Zinc-Copper
50 SUSAN	D.I.A.N.D. (1982, p. 142)
51 LAN	D.I.A.N.D. (1981, p. 187)
52 TIN	D.I.A.N.D. (1981, p. 187)
53 VIKING	D.I.A.N.D. (1981, p. 187)
54 WOAH	D.I.A.N.D. (1981, p. 187)
55 JULIA	D.I.A.N.D. (1982, p. 143)
56 TINY	D.I.A.N.D. (1981, p. 188)
57 AURORA	D.I.A.N.D. (1982, p. 143)
58 TAI	D.I.A.N.D. (1981, p. 187)
59 FIN	This Report
60 HAWK	D.I.A.N.D. (1982, p. 144)
61 SUZANNE	Morin et al (1977, p. 207)
62 KING ARCTIC	Morin et al (1977, p. 208)
63 MAXI	Morin et al (1980, p. 67-68)
64 ON	D.I.A.N.D. (1982, p. 145)
65 KNEIL	This Report
66 TYER	D.I.A.N.D. (1982, p. 145)
67 LYNX	D.I.A.N.D. (1982, p. 145)
68 TUNA	This Report
69 GEL	D.I.A.N.D. (1982, p. 144-145)

JAN Gold, Copper Skarn
KInai Resources Corporation 105 H 1 (1)
(61°03'N, 128°16'W)

References: D.I.A.N.D. (1982, p.139,145); D.I.A.N.D. (1981, p.184,185).

Claims: PATRICIA (18); PRINCESS (12)

Source: Summary by P. Watson from assessment report 091066 by D.W. Tully.

Current Work and Results:

In 1981, magnetometer, VLF-EM and geochemical surveys were conducted on the PATRICIA 5-22 claims,

which lie to the south of the PRINCESS claims. The magnetometer survey delineated one broad magnetic low in the southeastern part of the claims and two local magnetic highs. Two apparent VLF-EM conductors were indicated, in the southwest and southeast parts of the claims, respectively.

A total of 131 soil samples were collected and analyzed for Pb, Cu, Zn and Ag. Values greater than 200 ppm Zn or 1.2 ppm Ag were considered anomalous. A coincident Zn-Pb-Cu anomaly was located in the southeastern part of the claims. Two, single value Ag anomalies were also noted.

CANYON
 Kimberley Gold Resources
 Incorporated
 Silver, Lead, Zinc
 Skarn
 105 H 1 (19)
 (61°14'N, 128°23'W)

Reference: D.I.A.N.D. (1982, p.139,145).

Claims: SKULL 1-180

Source: Summary by P. Watson from assessment reports
 091060 and 091072 by D.W. Tully.

History:

The first SKULL claims were staked in 1977. In 1981, 140 claims were added to this group. The area was originally staked as the SILVER claims in 1965 to cover two Pb-Zn showings. Trenching was carried out in 1965, 1978 and 1979.

Description:

This property is located just west of Km 78 on the Nahanni Range Road, at Conglomerate Creek Road. The area is underlain by black shale, impure sandstone, calcareous sedimentary rocks and graphitic schists. Granitic intrusions occur in the northern part of the claim block.

Two zones containing base and precious metals outcrop on the property. The Upper Skull Zone consists of galena, sphalerite and pyrite mineralization in sheared shale, phyllite, graphitic schist and argillaceous sedimentary rocks with quartz veins accompanied by skarn-type mineralization. In the Lower Skull Zone, a flat-lying lens of disseminated galena, sphalerite, pyrite and pyrrhotite occurs interbedded in a skarn-type zone in quartz phyllite. The surface exposure is 6 m by 0.3 m.

Current Work and Results:

In 1981, 8 BQ diamond drill holes totalling 1,400.3 m were completed, along with geophysical and geochemical surveys.

Two drill holes in the Upper Skull Zone intersected 0.31 m of 987.4 g Ag/t, 0.17 g Au/t, 0.35% Pb, 0.05% Cu and 0.01% Zn, and 0.61 m of 171.8 g Ag/t, 0.14 g Au/t, 4.28% Pb, 0.01% Cu and 0.15% Zn, respectively. The four other holes on the Upper Skull Zone and two holes on the Lower Skull Zone did not intersect significant mineralization.

The magnetometer survey revealed a northerly trending region of magnetic highs on the eastern part of the property. VLF-EM conductor zones somewhat coincide with the magnetic highs, but no significant geochemical anomalies occur in this area.

A total of 5,635 soil samples were collected and analyzed for Pb and Zn. Values greater than 200 ppm Zn or 60 ppm Pb were considered anomalous. Anomalous values are concentrated in the northern half of the property.

FIN
 Cominco Limited
 Lead, Zinc, Barite
 Stratiform
 105 H 12 (59)
 (61°40'N, 129°50'W)

References: D.I.A.N.D. (1982, p.139,144); D.I.A.N.D. (1981, p.188).

Claims: FIN (469)

Source: Summary by P. Watson from assessment report
 091407 by T.W. Hodson and J.J. Lajoie.

Current Work and Results:

Work in 1982 included geological mapping, geochemical sampling and a UTEM geophysical survey.

Mapping was conducted at 1:10,000 and 1:20,000 scales. The Devonian-Mississippian Besa River Formation (Lower Earn Group) rocks on the property include chert pebble conglomerate, siltstone-mudstone, mudstone, siltstone-sandstone and siltstone-mudstone-sandstone units. A Devonian dolomite was also mapped. Ordovician-Silurian Road River Formation mudstone-chert, siltstone and chert-siltstone units were found to a lesser extent. The oldest material mapped was Proterozoic arkosic sandstone.

During the geochemical program, 1,398 soil, 12 stream sediment and 74 rock samples were collected and analyzed for Pb, Zn, Mn and Ba.

KNEIL
 Cyprus Anvil Mining
 Corporation

Iron, Zinc, Lead
 Stratiform
 105 H 4 (65)
 (61°07'N, 129°50'W)

Reference: D.I.A.N.D. (1982, p.8,139,145).

Claims: KNEIL (58)

Source: Summary by P. Watson from assessment report
 091067 by G.A. Jilson.

History:

The claims were staked in 1981 to cover small showings of stratiform, disseminated to nearly massive sulphides with some base metal content, which were located during reconnaissance mapping.

Description:

The property is located 125 km north-northwest of Watson Lake. Two rock units were mapped on the claims. Along the southern edge of the block, a strongly and pervasively foliated granodiorite pluton of possible Devonian age is exposed. Most of the property is underlain by a metasedimentary and metavolcanic complex, the rocks of which are highly strained and metamorphosed with a strong foliation and well-developed lineation. Two major lithologies were noted, micaceous quartzite to siliceous phyllite and graphitic, siliceous phyllite. Minor amounts of

quartz-phenocryst felsic metavolcanic rock, quartz grit and metabasite are interlayered with the other units.

Current Work and Results:

Mineralization is hosted in micaceous quartzite. Semi-massive to disseminated pyrite and pyrrhotite with lesser sphalerite, galena and chalcopryite forms a layer or pod less than one metre wide and of unknown, but limited lateral extent. Because of the amount of deformation in the host rocks, it is possible the original body may have been structurally segmented.

A 50 m by 200 m soil sampling grid was established on the claims in 1981, and approximately 1,000 samples collected. Samples were considered anomalous if they contained greater than 120 ppm Cu, 100 ppm Pb or 300 ppm Zn. Anomalous Cu values were spread diffusely over the southwestern portion of the property. A weakly anomalous Cu-Pb-Zn zone surrounds the known showing. A weak Cu-Zn anomaly appears to be related to underlying graphitic rocks and a weak Pb anomaly near the granodiorite exposures may be due to the presence of small Ag-Pb veinlets in the intrusive. Regionally, the granodiorite is anomalous in Pb-Ag-Zn because of such veinlets. Au, As, Hg, Ba and Ag values were determined for two sample lines near the showing and a weak Cu-Ag enriched zone was noted.

TUNA	Tungsten	
Union Carbide	105 H 16	(68)
Exploration Corporation	(61°50'N, 128°15'W)	

References: D.I.A.N.D. (1982, p. 139,144,145).

Claims: TUNA (144)

Source: Summary by P. Watson from assessment report 091014 by P.J. Doyle, D. Archibald, D. James and J. Toohey.

History:

The claims were staked in 1981 to cover molybdenite-scheelite mineralization following the re-evaluation of data collected in earlier reconnaissance programs. The area was first examined for its potential for skarn development similar to that at nearby Cantung, and later for its W-Mo porphyry potential.

Description:

The property is located approximately 1.6 km east of the Nahanni Range Road. A non-foliated, mid-Cretaceous biotite quartz monzonite body, exposed over a 9 km by 2.5 km area, has intruded late Proterozoic to early Cambrian slate, phyllite, siltstone and quartzite. Some calcareous horizons occur within the phyllite. The pluton is a two-phase quartz monzonite, with an equigranular margin and a megacrystic core. Several pulses are evident within the megacrystic

section, with feldspar crystals up to 8 cm in diameter. Two samples of the pluton were K-Ar dated by D. Archibald at Queen's University. Apparent ages of 92.4 ± 1.6 Ma for biotite and 94.3 ± 1.6 Ma for muscovite were determined. The plug is cut by aplitic and porphyritic dykes and by later quartz and quartz-tourmaline veins with associated breccia and stockwork. Lamprophyre dykes cut all older rocks. Pyrite, molybdenite, scheelite, chalcopryite, chalcocite, arsenopyrite, pyrrhotite and bismuthinite with significant Au and Ag values were reported. Sericitic, potassic and argillic alteration was noted at vein margins and within breccias. Pervasive sericitic alteration occurs in parts of the pluton.

Current Work and Results:

In 1981, a program of geological mapping and rock, soil and stream sediment geochemistry was carried out. Five W-Cu-Mo showings and 13 occurrences of mineralization in talus were discovered. Most of the showings are related to dykes, veins or breccia zones in the intrusion and consist of flakes or fine disseminations of molybdenite and scheelite. A scheelite-pyrrhotite-chalcopryite-bearing pyroxene skarn showing occurs in a roof pendant of phyllite.

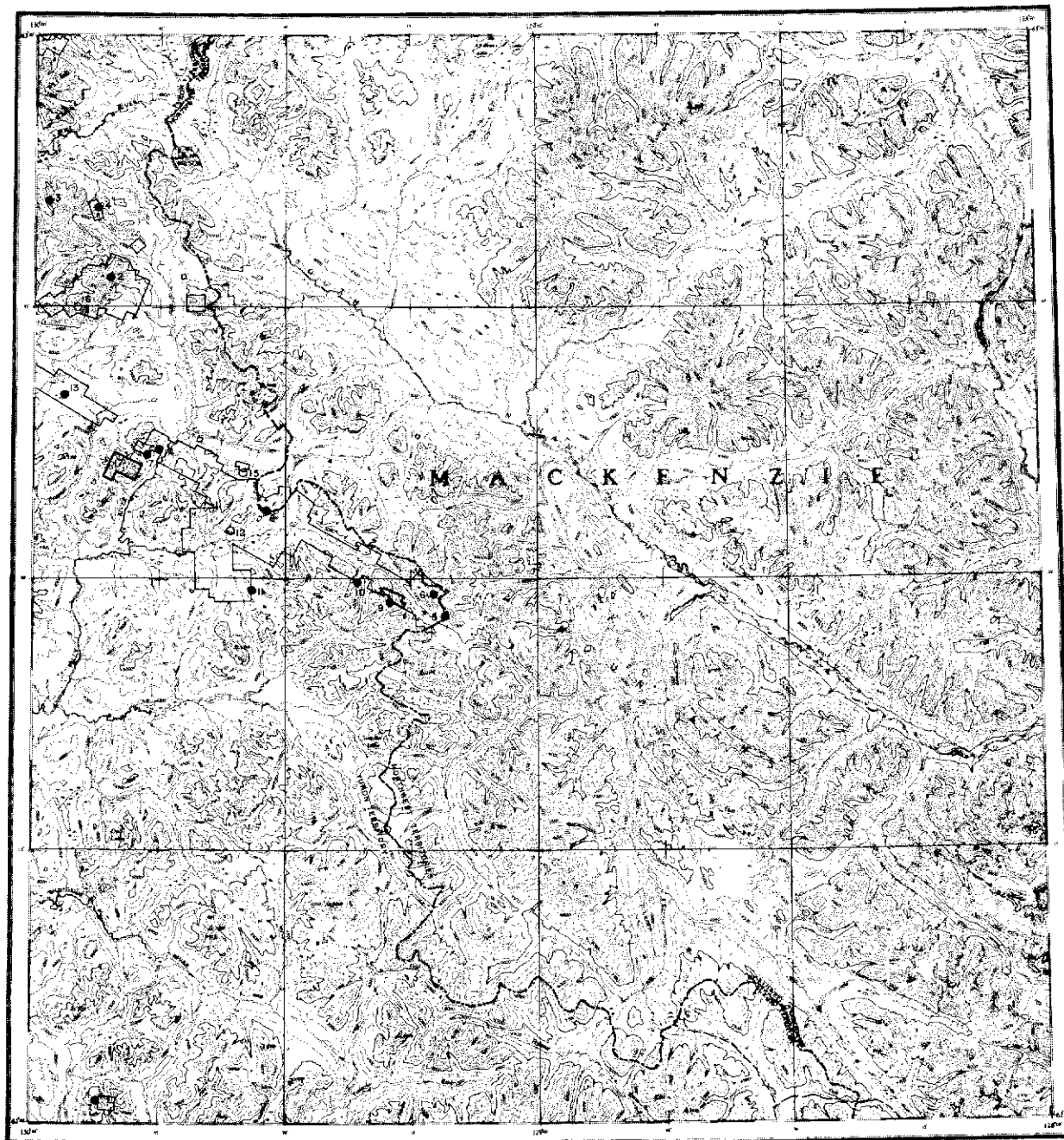
Ten panned concentrates from drainages in the area, 144 stream sediment and soil samples and 44 rock samples were collected. Samples were analyzed for Cu, Mo and W. Selected samples were also analyzed for Ag and Sn.

Eight percent of the W values for soil or stream sediment samples were greater than 35 ppm W and most could be related to known mineralization. Over half of the Mo values were greater than the regional background of 2 ppm Mo. High values could be related to known mineralization. Anomalous Cu values coincided with anomalous Mo and W values and concentrated near the roof pendant and the chalcopryite-scheelite-pyrrhotite skarn within it. Most rock samples analyzed were grab samples from areas near known mineralization.

1982 MINERAL CLAIMS STAKED

LIND	105 H 3	(10)
M. Rosequist	(61°06'N, 129°26'W)	

Claims 1982: KING 3-4; ZIP; ROSE 1-3



NAHANNI YUKON TERRITORY - NORTHWEST TERRITORIES

Kilometres 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|--------------------|
| ● ⁶¹ Mineral Deposit or Occurrence
see Key on facing page | ———— Placer Lease in good standing (Jan. 1983) | ----- Tote Trail |
| ○ ⁷² Unmineralized Target | ----- Placer Claims in good standing (Jan. 1983) | ———— Drivable Road |
| □ Mineral Claims in good standing (Jan. 1983)
and stated before Jan. 1982 | CEL Coal Exploration Licence | ◆ Oil or Gas Well |
| □ Mineral Claims stated in 1982 | CML Coal Mining Lease | ===== Airstrip |

NAHANNI MAP-AREA (NTS 105 I)

General Reference: GSC Open File 780 and GSC Open
File 809 by: S.P. Gordey, 1981.

NO. PROPERTY NAME	REFERENCE
1 NAR	Copper-Lead-Silver-Zinc Vein
2 OMO	D.I.A.N.D. (1982, p. 147)
3 BIRR (BEE)	Findlay (1969b, p. 50)
4 NOM (SEL)	Sinclair et al (1975, p. 165- 166); D.I.A.N.D. (1981, p. 191)
5 HOWARD'S PASS	MIR (N.W.T.), 1973; D.I.A.N.D. (1981, p. 7,18)
6 SHIELD	Sinclair et al (1975, p. 160- 161)
7 ORO	Sinclair & Gilbert (1975, p. 96- 98)
8 WISE	Lead-Zinc-Silver-Stratabound
9 WINKIE (ROSS)	Sinclair et al (1975, p. 161- 162); This Report
10 NESS (MAD)	Sinclair & Gilbert (1975, p. 96- 97)
11 DIANNE	
12 RITZ	D.I.A.N.D. (1981, p. 190)
13 ABBEY	D.I.A.N.D. (1981, p. 190)
14 TANG	Morin et al (1979, p. 92)
15 OHNO	Morin et al (1980, p. 69)
16 ROOK	Morin et al (1980, p. 70)
17 FAST	This Report

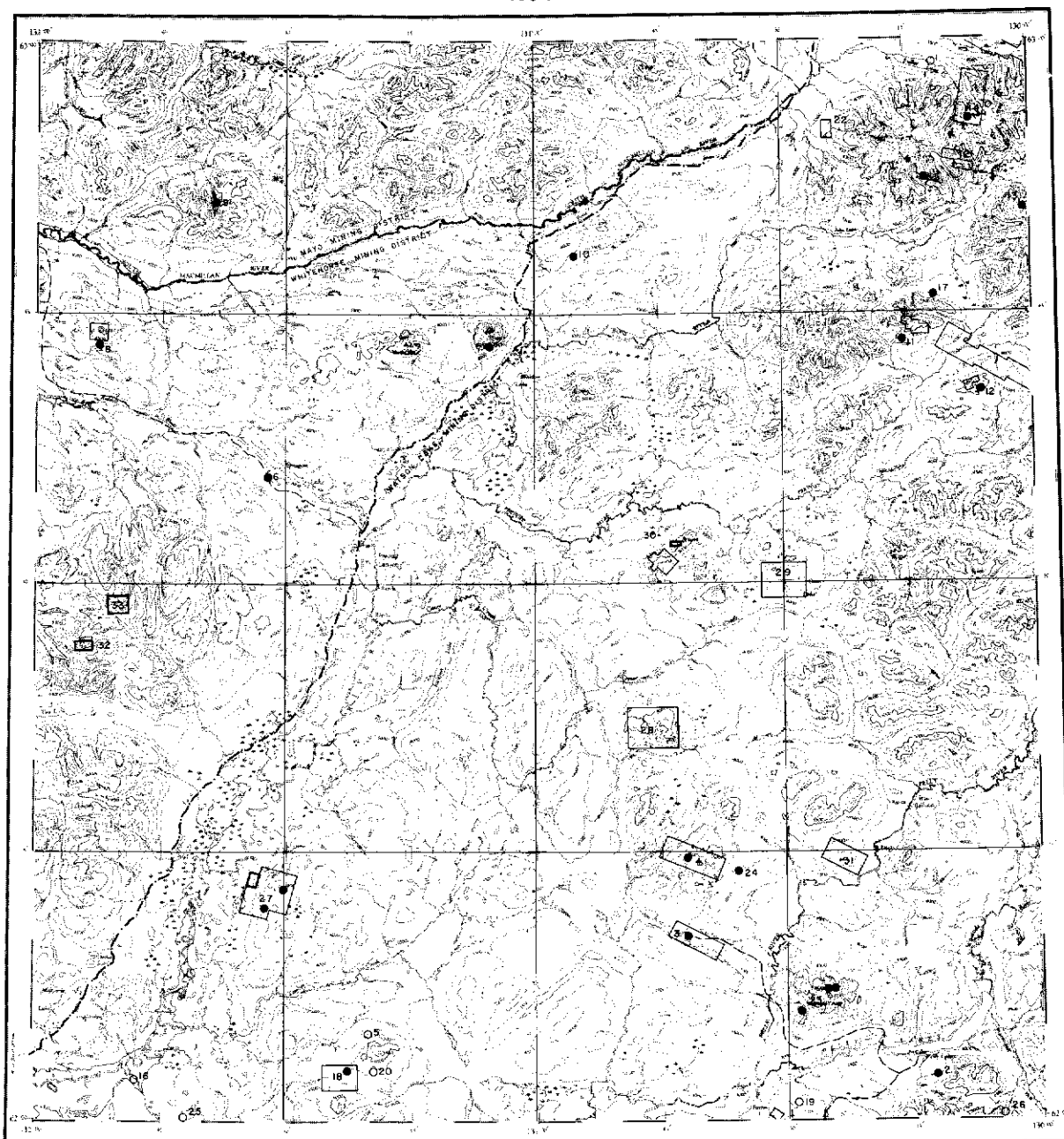
1982 MINERAL CLAIMS STAKED

WINKIE 105 I 6 (9)
Placer Development Limited (62°29'N, 129°17'W)

Claims 1982: NOD 1, 3-14

FAST 105 I 12 (17)
Hudson Bay Exploration and (62°36'N, 129°50'W)
Development Company Limited

Claims 1982: FAST 1-30



SHELDON LAKE YUKON TERRITORY

Kilometres 5 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|--------------------|
| ● ¹ Mineral Deposit or Occurrence
see Key on facing page | ———— Placer Leases in good standing (Jan. 1983) | ----- Tote Trail |
| ○ ² Unmineralized Target | ===== Placer Claims in good standing (Jan. 1983) | ———— Driveway Road |
| □ Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982 | CEL Coal Exploration Licence | ◆ Oil or Gas Well |
| □ Mineral Claims staked in 1982 | CML Coal Mining Lease | ——— Airstrip |

SHELDON LAKE MAP-AREA (NTS 105 J)

General Reference: GSC Map 12-1961 by:
J.A. Roddick and L.H. Green, 1961.
GSC Open File 212 by:
D.J. Tempeiman-Kluit, 1974.

NO. PROPERTY NAME	REFERENCE
1 FULLER	
2 BILL	Findlay (1969a, p. 81)
3 PIKE	D.I.A.N.D. (1982, p. 149)
4 NORKEN	Sinclair et al (1976, p. 169)
5 TAC	Copper-Molybdenum Porphyry
6 DRAGON	Skinner (1961, p. 43); D.I.A.N.D. (1981, p. 195)
7 MT. SHELDON	Kindle (1945, p. 25)
8 RIDDELL	Craig & Milner (1975, p. 105-106)
9 SPEARHEAD (PDM)	Craig & Milner (1975, p. 33)
10 ROG	Craig & Milner (1975, p. 123)
11 CLYDE	Craig & Laporte (1972, p. 128)
12 PROVOST	Sinclair & Gilbert (1975, p. 118- 119); D.I.A.N.D. (1981, p. 195)
13 GUN	Findlay (1969b, p. 166-167); D.I.A.N.D. (1981, p. 151)
14 ITSI	D.I.A.N.D. (1981, p. 193)
15 COSTIN	Silver-Lead-Zinc Vein
16 CAROLYN	Coal
17 VARISCITE (MS)	Sinclair et al (1975, p. 166- 167)
18 HENCH	D.I.A.N.D. (1981, p. 193)
19 PPR	D.I.A.N.D. (1981, p. 195)
20 CLINGON	D.I.A.N.D. (1981, p. 195)
21 WILSON	D.I.A.N.D. (1981, p. 194)
22 EMPTY	D.I.A.N.D. (1981, p. 194)
23 TRAFFIC	D.I.A.N.D. (1981, p. 194)
24 PIG	Morin et al (1979, p. 93)
25 BOJO	Morin et al (1980, p. 71)
26 LH	D.I.A.N.D. (1982, p. 151)
27 AM	This Report
28 SHERPA	D.I.A.N.D. (1982, p. 150,151)
29 DYAK	D.I.A.N.D. (1982, p. 150,151)
30 RUDY	This Report
31 GREGGIE	D.I.A.N.D. (1982, p. 150-151)
32 RAGS	This Report
33 WENDY	This Report

AM
Saskatchewan Mining and
Development Corporation

Copper, Molybdenum
Porphyry
105 J 3,4 (27)
(63°13'N, 131°32'W)

disseminations of pyrite parallel to bedding were found in a 5 m thick black shale unit.

Reference: D.I.A.N.D. (1982, p.149,150,151).

Claims: AM (99)

Source: Summary by P. Watson from assessment reports 091013 and 091069 by T. Walker.

History:

The claim block is located 57 km northeast of Ross River. The first claims were staked in July, 1981, following the discovery of disseminated molybdenite and chalcopryrite during a regional stream sediment geochemistry program. Claims were added in August and September, 1981 and in July, 1982.

Description:

These claims are underlain by a series of sedimentary rocks, of probable Devon-Mississippian age, that have been intruded and hornfelsed by quartz hornblende biotite granodiorite to quartz diorite intrusions. Fine grained porphyritic dykes 1-5 m thick have also intruded the sedimentary rocks. The sedimentary rocks can be subdivided into the following three packages. The first package consists of varicoloured siliceous clastic rocks that are finely banded to massive and include phyllitic and slaty argillite, siltstone and quartzite and thin calcareous beds. These are overlain by calcareous siltstone, mudstone, calc-silicate schist and crystalline limestone. Black shale and phyllite with interbedded black chert, sandstone and siltstone make up the third package.

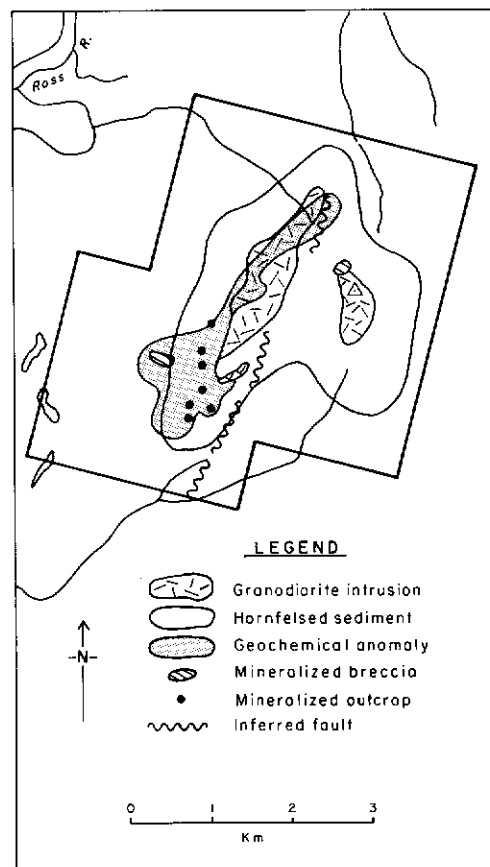
The intrusion is elongate to the north and appears to have been sliced into three blocks by faulting, with downthrow to the west, marked by a decrease in the metamorphic grade of the hornfels from the east to the west. Generally, the metamorphic aureole extends 200-300 m from the intrusive contact. To the southwest, it extends for 1,000 m by 2,000 m and contains mineralized quartz vein stockwork, intense silicification and numerous dykes.

Three types of mineralization are reported. Porphyry-type Cu-Mo mineralization occurs in two areas of quartz vein stockwork in hornfelsed siliceous sedimentary rocks. Disseminated chalcopryrite, molybdenite and malachite were reported in outcrop over a 1,000 m by 1,200 m area, with grades generally increasing towards faults and dykes. Grab samples returned up to 600 ppm Cu, 190 ppm Mo, 9.4 ppm Ag and 200 ppb Au.

Several diopside skarns containing disseminated chalcopryrite, bornite, sphalerite and molybdenite occur in calcareous rocks near the contact with the intrusion. A grab sample assayed 17 g Ag/t.

Two mineralized breccia zones were also found, peripheral to an extensive quartz vein network. One consists of a 75 m to 100 m wide zone of intense brecciation containing disseminations, blebs and stringers of chalcopryrite, bornite, galena, sphalerite and pyrite. A composite sample across the zone assayed 0.34% Cu, 0.33% Zn, 0.09% Pb and 10 g Ag/t.

In addition to the above, lenses, stringers and



Modified from assessment report 091013.

Current Work and Results:

In 1981 and 1982, a program of soil geochemistry and geological mapping was carried out. A ground magnetometer survey was also conducted in 1982.

During the 1981 program, 343 soil samples and 17 rock samples were collected and in 1982, 1,200 soil and 160 rock samples were collected. Samples were analyzed for Cu, Mo, Pb, Zn and Ag. Some soils were also tested for Au, and some rocks for Au, As, Sb, Sn and W.

The Cu-Mo-Ag results indicated an anomaly over a 1,200 by 1,000 m area, generally following the west and south margins of the main intrusion. The Cu-Ag anomaly extends beyond the Mo anomaly to the west and covers the mineralized breccia zone. Within the Mo anomaly, linear higher value zones appear to coincide with better mineralized fault breccia zones and dykes.

A zone of enhanced Pb-Zn values outlines and overlies the southern edge of the Mo-Cu-Ag anomaly. Disseminated sphalerite ± galena was found within this anomaly.

A ground magnetometer survey was partially completed in 1982. Several anomalies indicate possible buried intrusions below the southeastern part of the Cu-Mo zone and along the west edge of the breccia zone.

1982 MINERAL CLAIMS STAKED

AM
SMD Mining Co. Ltd.

105 J 4 (27)
(62° 13'N, 131° 32'W)

Claims 1982: AM 94-99

RAGS
AGIP Canada Limited

105 J 5 (32)
(62° 26'N, 131° 55'W)

Claims 1982: RAGS 1-8

WENDY
AGIP Canada Limited

105 J 5 (33)
(62° 29'N, 131° 50'W)

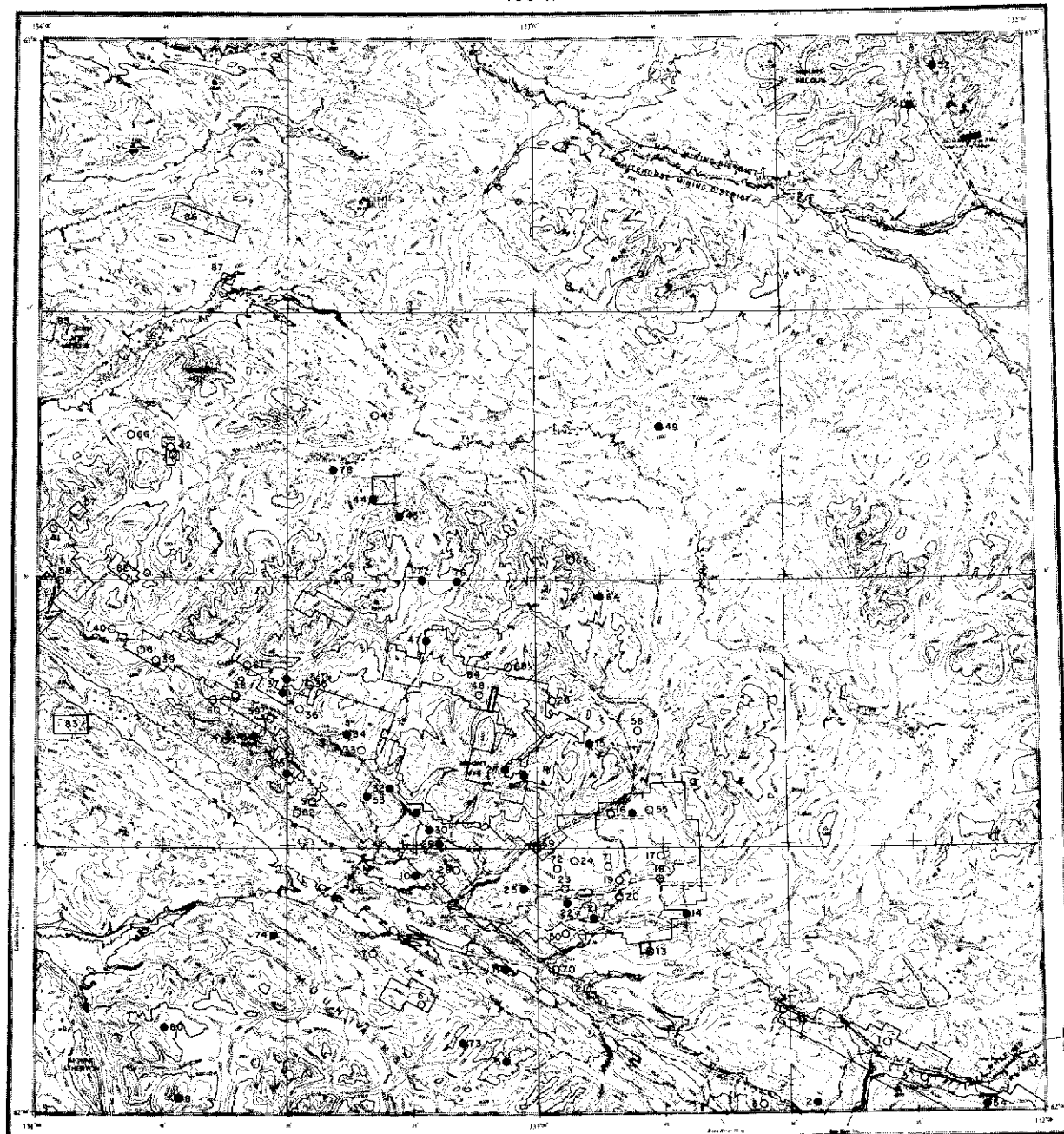
Claims 1982: WENDY 1-16

RUDY
R. Bendiye

105 J 10 (30)
(62° 32'N, 130° 43'W)

Claims 1982: R.B. 7-8

105 K



TAY RIVER YUKON TERRITORY

Kilometres 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|-------------------|
| ① Mineral Deposit or Occurrence
see Key on facing page | — Placer Leases in good standing (Jan. 1983) | --- Tote Trail |
| ○ Unmineralized Target | --- Placer Claims in good standing (Jan. 1983) | — Drivable Road |
| □ Mineral Claims in good standing (Jan. 1983)
and vested before Jan. 1982 | CEL Coal Exploration License | ◆ Oil or Gas Well |
| □ Mineral Claims vested in 1982 | CMC Coal Mining Lease | — Abutment |

TAY RIVER MAP-AREA (NTS 105 K)

General Reference: GSC Map 13-1961 by: J.A. Roddick
and L.H. Green, 1961.
GSC Open File 212 by:
D.J. Tempelman-Kluit, 1974.

NO. PROPERTY NAME	REFERENCE		
1 TENAS	D.I.A.N.D. (1982, p. 154)	35 FLAGSTONE	D.I.A.N.D. (1982, p. 3,18,154-155); This Report
2 RAGS (ROSS RIDGE)	Johnston (1936, p. 18)	36 BRIDEN	Findlay (1969a, p. 45)
3 PEN		37 JACOLA	Silver-Lead-Zinc Vein
4 OLGIE (TER)	Sinclair et al (1976, p. 114)	38 CROWN	D.I.A.N.D. (1982, p. 155,158)
5 FARGO	Morin et al (1979, p. 64)	39 LORNA	Morin et al (1979, p. 66)
6 LYN	D.I.A.N.D. (1981, p. 197)	40 RESERVE	Craig & Milner (1975, p. 98-99)
7 CASCA (RIDGE)	Sinclair et al (1975, p. 135-136)	41 COWARD	Lead-Zinc Occurrence
8 THOMAS	Skarn Zinc Occurrence	42 COLT	This Report
9 TAKU		43 OWL	Craig & Laporte (1972, p. 93-94)
10 NESBITT	Copper Occurrence	44 KEGLOVIC (HAL)	Sinclair et al (1975, p. 133)
11 BOBCAT	Limestone Stratabound	45 IVAN (DANA)	Sinclair et al (1975, p. 133)
12 HOLLY		46 SHANNON	Findlay (1969a, p. 45)
13 SOCK	Findlay (1967, p. 36); This Report	47 REBEL	Craig & Milner (1975, p. 93-95)
14 SPUR	Findlay (1969a, p. 47-48)	48 KANGAROO	Sinclair et al (1975, p. 129); This Report
15 ADAMSON	Tempelman-Kluit (1968, p. 43-52); Sinclair et al (1975, p. 132)	49 TEDDY	Skarn Zinc Occurrence
16 BETA	Green (1965, p. 36-37)	50 SIROLA	Silver-Lead-Zinc-Copper Vein
17 BLIND (FOTO)	Findlay (1967, p. 40-41); Sinclair & Gilbert (1975, p. 54)	51 LAD	Craig & Laporte (1972, p. 97-98)
18 CUB	Green (1965, p. 36-37)	52 SOLO	
19 NASTY	Green (1965, p. 36-37); Craig & Milner (1975, p. 92-93)	53 CESSNA	Sinclair et al (1975, p. 137)
20 ABRAHAM	Craig & Milner (1975, p. 92-93)	54 CHAPLIN (ARO)	D.I.A.N.D. (1981, p. 198)
21 SEA	Green (1965, p. 36-37); D.I.A.N.D. (1982, p. 18,154-155)	55 RUTH	D.I.A.N.D. (1981, p. 198)
22 BS	Sinclair & Gilbert (1975, p. 58)	56 DOT (TEL)	D.I.A.N.D. (1982, p. 155)
23 BLACKWOOD (CIVI)	Morin et al (1977, p. 155)	57 BRAB	D.I.A.N.D. (1982, p. 155-156)
24 BEA	Findlay (1969a, p. 46-47)	58 FISHHOOK	Sinclair et al (1976, p. 118)
25 SWIM	Tempelman-Kluit (1972, p. 42-43); D.I.A.N.D. (1982, p. 18, 154-155)	59 HEK	Sinclair et al (1976, p. 118-119)
26 O'CONNOR	Findlay (1967, p. 39-40)	60 MULTI	Sinclair et al (1976, p. 120)
27 MUR	Silver-Lead-Zinc Vein	61 JOE	Sinclair et al (1976, p. 120)
28 SHRIMP	Green (1965, p. 37-38)	62 TSS	Sinclair et al (1976, p. 121)
29 VANGORDA	Tempelman-Kluit (1972, p. 46-47)	63 DG	Sinclair et al (1976, p. 124)
30 GRUM	This Report	64 NORK	Sinclair et al (1976, p. 124)
31 KULAN	Tempelman-Kluit (1972, p. 32)	65 ZED	Sinclair et al (1976, p. 126)
32 KIM	Findlay (1969a, p. 45)	66 LOLO	Morin et al (1977, p. 160)
33 LOKO	Morin et al (1977, p. 161)	67 RAZ	Morin et al (1977, p. 161)
34 FARO	Tempelman-Kluit (1972, p. 49-65);	68 MING	Morin et al (1980, p. 45)
		69 CAT	Morin et al (1979, p. 63)
		70 TAR	This Report
		71 MN	This Report
		72 RACHEL	Morin et al (1980, p. 41)
		73 SIR JOHN A	Morin et al (1980, p. 42)
		74 DEV	This Report
		75 URN	Morin et al (1980, p. 44)
		76 KD	Morin et al (1979, p. 68)
		77 CON	Morin et al (1979, p. 68)
		78 IRMA	Morin et al (1980, p. 41)
		79 LOU	Morin et al (1980, p. 42)
		80 MAY	Morin et al (1980, p. 43)
		81 EVA	Morin et al (1980, p. 43-44)
		82 LU	D.I.A.N.D. (1982, p. 156)
		83 DELAY	This Report
		84 FOO	This Report
		85 WAD	This Report
		86 LADY DI	This Report
		87 CHUCK	D.I.A.N.D. (1982, p. 156)

GRUM
Cyprus Anvil Mining
Corporation Limited

Lead, Zinc, Silver
Stratabound
105 K 3,6 (30)
(62°15'M, 133°10'W)

ANVIL
Cyprus Anvil Mining
Corporation Limited

Lead, Zinc, Silver
Stratabound
105 K 2,3,6,7
(34)

References: D.I.A.N.D. (1982, p.153,154-155);
D.I.A.N.D. (1981, p.4,18,197); Sin-
clair et al (1975, p.130-131).

Reference: D.I.A.N.D. (1982, p.154-155).

Current Work and Results:

Claims: GRUM; CHUCK; (10 claims)

Operations at the Cyprus Anvil mine at Faro were
suspended indefinitely in June, 1982.

Current Work and Results:

In 1982, 24 NQ/BQ diamond drill holes totalling
5,334.0 m were drilled on the GRUM deposit.

SUMMARY OF OPERATIONS OF CYPRUS ANVIL MINING CORPORATION LTD.

<u>Anvil Mine:</u>	<u>1978</u>	<u>1979*</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
Tonnes Waste					
Mined	20,070,405	15,267,893	18,101,034	21,908,114	953,549
Tonnes Ore					
Mined	3,052,695	3,013,160	2,780,085	3,018,851	679,204
Tonnes					
Milled	3,280,000	2,823,827	2,825,108	2,758,603	1,635,241
Daily Average					
Milled (tonnes)	9,426	8,129	7,723	7,635	10,613
<u>Mill Heads:</u>					
Lead (%)	3.2	3.3	3.0	2.9	2.8
Zinc (%)	5.1	5.3	4.5	4.8	4.8
Silver (gm/tonne)	34.3	-	42.5	41.7	31.0
<u>Metal Production:</u>					
Lead (kg)	87,849,327	77,017,788	67,941,825	61,528,345	33,905,025
Zinc (kg)	136,348,310	119,911,944	97,522,844	89,224,490	59,392,290
Silver (gm)	66,262,546	41,009,473	71,128,673	55,864,281	28,017,224
Gold (gm)	111,255	30,402	222,111	160,401	62,860
<u>Ore Reserves at</u>					
<u>Year End:</u>					
Tonnes					
(000,000's)	34.2	32.0	27.3	34.1	
Lead (%)	3.0	3.1	2.9	3.0	
Zinc (%)	5.6	4.8	4.4	4.6	
Silver (gm/tonne)	40.0	37.0	35.0	35.3	
(approximate)					

*1979 figures adjusted for 29 days work stoppage.

ORE RESERVES - DECEMBER 31, 1982

<u>Deposit</u>	<u>Reserves 000's tonne</u>	<u>Lead %</u>	<u>Zinc %</u>	<u>Silver g/t</u>	<u>Cutoff Pb&Zn</u>
<u>FARO</u>					
Total geological reserves	33,000	3.0	4.6	35.7	4.0
Mineable open pit reserves	25,200	2.9	4.3	36.1	4.0
Oxide stockpile	1,363	2.9	4.7	37.6	n/a
<u>GRUM*</u>					
Geological reserves	30,781	3.1	4.9	49	4.0
Mine reserves	16,875	3.0	4.9	47	4.0
<u>VANGORDA</u>					
Geological reserves	7,080	3.4	4.3	48	4.0
Mine reserves	5,189	3.4	4.2	47	4.0
<u>DY</u>					
Geological reserves (9.0%)	20,267	5.7	7.0	82	9.0
Geological reserves (12.0%)	11,049	6.7	8.0	100	12.0
<u>SWIM**</u>					
Geological reserves	4,750	3.8	4.7	42	6.0

* no refined estimates of U.G. reserves available.

** inferred minimum Pb & Zn used in calculations.

COLT
Overland Exploration
Limited

105 K 12 (42)
(62°37'N, 133°44'W)

argillite, sericite schist, cordierite schist and
quartz sericite schist. Minor pyrrhotite and pyrite
in thin lamellae were reported.

References: D.I.A.N.D. (1981, p.197,198); Craig and
Milner (1975, p.99-100).

Claims: TWO 1-16

Source: Summary by P. Watson from assessment report
091022 by S. Clemmen.

RACHEL, MN
Getty Canadian
Metals, Limited;
Welcome North Mines Ltd.

105 K 2 (72,71)
(62°14'N, 132°56'W)

History:

The COLT claims were staked in 1980. The area
was previously examined in 1970-72 as the BLUE, COLT,
KING and ALTA claims.

References: Morin et al (1979, p.63,64); Sinclair
et al (1976, p.116).

Current Work and Results:

Claims: RACHEL (43); MN (35); CIVI (11)

One diamond drill hole to a depth of 209.4 m was
completed in 1981. It intersected a sequence of

Source: Summary by P. Watson from assessment report
091449 by C.W. Payne.

Current Work and Results:

Two diamond drill holes were drilled in 1982 on the RACHEL and MN claims. These holes were 447.0 m and 515.1 m long and intersected various sections (fault bounded in some cases) of Vangorda and Mt. Mye Formation rocks. In one hole, a 0.5 cm galena-pyrite lamina in tuffaceous Vangorda Formation rocks assayed 0.03% Pb, 0.03% Zn and 0.34 g Ag/t. In the other hole, siliceous graphitic phyllite, which, elsewhere in the district hosts mineralization, contained up to 100 ppm Pb, 145 ppm Zn, 1.6 ppm Ag and 25 ppm Ba.

URN	Bedded Barite
Cyprus Anvil Mining Corporation	105 K 5,6 (75)
	(62°19'N, 133°30'W)

Reference: D.I.A.N.D. (1982, p.153,156).

Claims: BERT 1-6; AND 1-8; URNIE 1-6; URN(15)

Source: Summary by P. Watson from assessment report 091369 by W.S. Read.

History:

Bedded barite was discovered in eastern Selwyn Basin by Cyprus Anvil Mining Corp. while conducting regional mapping in the Faro area in 1977.

Description:

Ten barite showings occur over a 9 km trend southeast from the northeast slope of Barite Mountain, 6 km west of the Faro open pit. They are hosted in phyllitic chert of the Lower Devonian-Mississippian Earn Group.

Current Work and Results:

Three of the ten barite showings were examined for their open pit potential on behalf of Dome Petroleum Ltd.

The barite showings represent 2 or possibly 3 horizons. The lower horizon has a potential strike length of 3.7 km and 3 known showings. Samples from two of these showings contained 63% BaSO₄ with a specific gravity of 3.58 over 10 m, and 48% BaSO₄ over 5 m. Potential true thickness is estimated to be 15 to 20 m.

The upper horizon is 600 m up section and is continuously exposed for 1.2 km. It has an estimated true thickness of 12 m and contains 53.1% BaSO₄ with a specific gravity of 3.36. Barite float, which may be from these, or a third horizon, is found along strike for 3 km past the last outcrop.

The southeast section of the barite trend is regarded to have the best potential for an open pit operation because of location, size and grade. The best showing is partially exposed over an area of 60 m by 25 m. Sampling over 21.5 m returned 79.22% BaSO₄ with a specific gravity of 3.94. The second best showing contains 80.18% BaSO₄ with a specific

gravity of 3.96 over 9.5 m. Silica is reported to be the main impurity, which makes this ore below direct shipping grade.

F00	Unmineralized
Cyprus Anvil Mining Corporation;	Target
Metallgesellschaft Canada Ltd.	105 K 6,7 (84)
	(62°23'N, 133°05'W)

Reference: D.I.A.N.D. (1982, p. 153,156).

Claims: F00 (51)

Source: Summary by P. Watson from assessment report 091374 by D.S. Jennings.

History:

The claims were staked to cover a section of the contact between Mt. Mye and Vangorda Formation rocks, which, elsewhere in the district, host Pb-Zn sulphide mineralization.

Description:

The property is located 8 km northeast of the town of Faro. It covers the contact between green-schist metamorphic grade pelites and metavolcanic rocks of the upper Paleozoic to lower Ordovician Mt. Mye and Vangorda Formations.

Current Work and Results:

A grid soil geochemical program was carried out in 1982, in which 1,054 samples were collected and analyzed for Pb, Zn and Cu. Uniformly low values were reported for all three elements. Generally, combined Pb+Zn values approaching 1,000 ppm are diagnostic of significant surficial mineral occurrences in the Anvil Range. No values on that order were reported from this survey.

WAD	Geophysical Target
Anaconda Canada	105 K 12 (85)
Exploration Limited	(62°44'N, 133°59'W)

Reference: D.I.A.N.D. (1982, p.153,156).

Claims: WAD 1-16

Source: Summary by P. Watson from assessment report 091052 by A.R. Scott.

History:

The claims were staked in 1982 to cover EM anomalies defined in an airborne survey.

Description:

The claims lie 3.2 km west of Mount Menzie, within the Selwyn Basin. The area is underlain by chert, shale and coarser-grained clastic sedimentary rocks that have been intruded by mid-Tertiary high-level intrusions and by Cretaceous biotite-quartz monzonite.

Current Work and Results:

A ground geophysical program was conducted to define the location of airborne EM conductors. VLF, Max-Min, magnetometer and gravity surveys were conducted along two traverses.

LADY DI
Welcome North
Mines Limited

Lead,Zinc,Silver
Stratabound
105 K 13 (86)
(62°51'N,133°40'W)

Reference: D.I.A.N.D. (1982, p.2,7,8,153,156).

Claims: LADY DI 1-60

Source: Summary by P. Watson from assessment report 091081 by W.J. Crawford and J.S. Brock and assessment report 091420 by R. Rogers.

History:

The main showing was discovered in 1981 during a Welcome North - Esperanza joint program. It was staked in 1981 for Welcome North Mines Ltd. In 1981, geochemical and magnetometer surveys were followed by trenching on the main showing. The ground was optioned by Noranda Exploration Company Limited in 1982.

Description:

The property is located 55 km northwest of Faro. Stratabound mineralization occurs in Devonian-Mississippian rocks near the top of a siltstone unit,

and is capped by massive, unfossiliferous Kalzas Formation limestone. Downsection are calcareous siltstone, argillite, ribbon chert and quartzite units. Older chert and chert pebble conglomerate units are located stratigraphically above the showing to the south and a thrust fault contact is assumed.

The main showing is 200 m long and consists of a series of pyrrhotite, sphalerite and galena bodies up to 3 m by 16 m.

Current Work and Results:

In 1981, 396 soil samples were collected and analyzed for Cu, Pb and Zn. A coincident Pb and Zn soil anomaly was outlined over the main showing. Chip samples taken from the main showing in 1982 returned 0.55 % Pb, 9.9 % Zn and 128.5 g Ag/t over 3 m. Two parallel bands of similar mineralization up to 1 m and 3 m thick, respectively, occur three km west of the main showing.

In 1982, Noranda drilled 3 BQ diamond drill holes to a total depth of 187.1 m. All were drilled within 200 m of the main showing. Only one hole intersected mineralization. It contained 0.9 m of massive sphalerite with galena, pyrite and pyrrhotite which assayed 0.08% Pb, 9.60% Zn and 13.7 g Ag/t.

1982 MINERAL CLAIMS STAKED

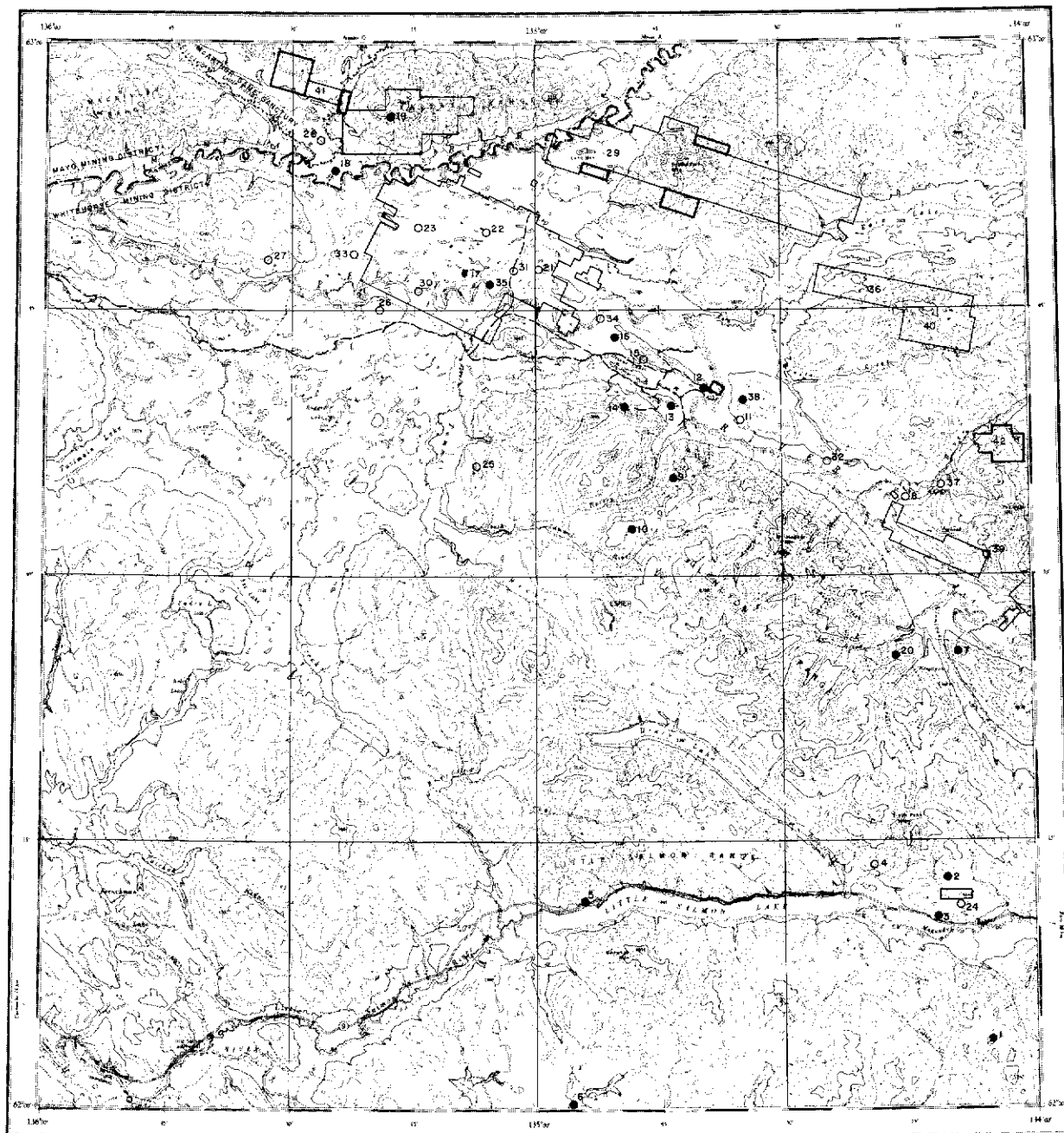
SOCK	105 K 2	(13)
C. Payne	(62°09'N,132°47'W)	

Claims 1982: LINDA 100-103

KANGAROO	105 K 6	(48)
C. Payne	(62°24'N,133°05'W)	

Claims 1982: WYNNE 101-105Fr, 106

105 L



GLENLYON YUKON TERRITORY

Kilometres 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|---|------------------|
| ● ⁶¹ Mineral Deposit or Occurrence
see Key on facing page | — Floor Lease in good standing (Jan. 1983) | --- Tote Trail |
| ○ ⁷² Unmineralized Target | ===== Floor Claims in good standing (Jan. 1983) | — Driveway Road |
| □ Mineral Claim in good standing (Jan. 1983)
and dated before Jan. 1982 | CEL Coal Exploration License | ◆ Oil or G. Well |
| □ Mineral Claims dated in 1982 | CML Coal Mining Lease | ==== Airstrip |

GLENLYON MAP-AREA (NTS 105 L)

General Reference: GSC Map 1221A and Memoir 352 by:
R.B. Campbell, 1967.

NO. PROPERTY NAME	REFERENCE
1 LOKKEN	Skarn Zinc
2 LITTLE SALMON	Green (1965, p. 38-40)
3 MOULE	Campbell (1967, p. 81); D.I.A.N.D. (1982, p. 163)
4 TRUITT	
5 BRANDY	Campbell (1967, p. 81)
6 JUMPONT	Craig & Laporte (1972, p. 156)
7 GLENLYON LAKE	Copper-Lead Vein
8 HODDER	
9 HARVEY	Johnston (1936, p. 18)
10 TUMMEL	Campbell (1967, p. 81)
11 MUIR	D.I.A.N.D. (1981, p. 200)
12 HUB	Findlay (1969b, p. 28-29); This Report
13 SEARFOSS	Findlay (1969b, p. 28-29)
14 FRONT	Copper-Silver Vein
15 GE	D.I.A.N.D. (1981, p. 200)
16 McCOWAN	Findlay (1969b, p. 28-29)
17 CLEAR LAKE	This Report
18 DUO	Coal
19 MACARTHUR	This Report
20 FELIX	Sinclair <u>et al</u> (1976, p. 126)
21 KELLY	
22 TREDGER	
23 CONWEST	
24 DRURY	This Report
25 PETER	D.I.A.N.D. (1981, p. 201)
26 GRAF	D.I.A.N.D. (1981, p. 201)
27 HUGH	D.I.A.N.D. (1981, p. 201)
28 HANK	D.I.A.N.D. (1981, p. 201-202)
29 ONE HUMP	This Report
30 TUM	D.I.A.N.D. (1981, p. 202); D.I.A.N.D. (1982, p. 163)
31 PELLY	D.I.A.N.D. (1981, p. 202)
32 SAP	D.I.A.N.D. (1981, p. 202)
33 RSVP	D.I.A.N.D. (1981, p. 202)
34 WHIP	D.I.A.N.D. (1981, p. 202)
35 HACHEY	Lead-Zinc-Copper
36 JAR	This Report
37 LOBO	Sinclair <u>et al</u> (1976, p. 127)
38 END	Sinclair <u>et al</u> (1976, p. 128)
39 AM-PM	Morin <u>et al</u> (1980, p. 45)
40 RABBIT	This Report
41 BUM	This Report
42 SUE	This Report

CLEAR LAKE Lead,Zinc,Silver
 Getty Canadian Metals, Stratiform
 Limited; 105 L 10,14,15(17)
 Essex Minerals Canada (62°49'N,135°05'W)

References: D.I.A.N.D. (1981, p.85-87,200-201,203);
 D.I.A.N.D. (1982, p.159,160,163).

Claims: SUE; GET

Source: Summary by P. Watson from assessment report
 091036 by C.W. Payne and assessment report
 091411 by R. Vanderhorst.

Current Work and Results:

In 1981, in addition to previously reported work, 1,300 km² were covered by a high level, black and white aerial photography survey. Orthophotos of a 200 km² area were produced at 1:10,000 scale. The Clear Lake grid was flown at a lower level and 1:2,000 scale orthophotos were produced.

Three diamond drill holes were completed in 1982, for a total of 943.7 m. These holes intersected numerous zones with stringers of pyrite or sphalerite, and occasional galena, and brecciated zones with pyrite or sphalerite. No assays were reported, but visual estimates of 1% to 20% sphalerite over 0.1 m to 0.6 m were reported in some sections of core.

In addition, parts of the claim block were mapped at 1:2,500 scale and grid soil sampled. MAX-MIN, horizontal loop EM, magnetometer and VLF surveys were also conducted.

MACARTHUR Geophysical Target
 Anaconda Canada Bedded Barite
 Exploration Limited 105 L 14 (19)
 (62°56'N,135°15'W)

Reference: D.I.A.N.D. (1982, p.159,163).

Claims: KAL 1-80

Source: Summary by K. Grapes from assessment report
 091031 by A.R. Scott, assessment report
 091065 by R. Hall and assessment report
 091393 by R. Hall and A. Scott.

History:

The KAL claims were staked in 1981 to cover airborne geophysical and stream sediment geochemical anomalies delineated in a 1981 reconnaissance program.

Description:

The KAL claims are underlain by a southeasterly plunging anticline, terminated to the west by a stock of biotite quartz monzonite. Calc-silicate hornfels and relatively clean quartz lithic sandstone, possibly correlative to the "Grit Unit", occupy the core of the structure. These rocks are overlain to the southwest by Ordovician Road River Formation, and to the north-

east and southwest by strata of the Earn Group. Lower Mississippian Kalzas Formation and younger interbedded siltstone and shale occur along the southern limit of the anticline. This sequence has been thrust in a northeasterly direction over younger, thinly bedded siltstone, shale and chert. The area was uplifted and tilted to the east during the Upper Cretaceous intrusive event. A 15 m thick bedded barite unit occurs in the Earn Group.

Current Work and Results:

During the spring of 1982 five lines were cut, chained and geophysically surveyed (magnetic and Horizontal Loop EM). The presence and location of a complex sequence of EM conductors and magnetic anomalies that were originally indicated in the 1981 airborne survey were confirmed.

Early in the summer, geological mapping at a scale of 1:5,000, stream sediment sampling and geophysical surveying were carried out.

Thirty-one panned stream sediment samples (-20 mesh) and 13 stream sediment samples were collected. The -80 mesh fraction of stream sediment samples was analyzed for Cu, Pb, Zn, and the -20 mesh fraction for Ba, Sn and W. Results for -20 mesh pan samples indicate occurrences of minor tungsten mineralization in association with calc-silicate hornfels.

Later in the summer, 61 km of line were cut and 1,800 soil samples and 65 rock chip samples of bedded barite were collected on the CAVE grid. Samples were analyzed for Cu, Pb, Zn, Ag and selectively for Hg and/or Ba. Anomalies in soils are semi-continuous over a minimum strike length of seven km.

Forty-five line-km of total field magnetometer, 31 line-km of horizontal loop electromagnetic, one line-km of gravity and four line-km of self-potential surveys were conducted. These surveys have outlined three parallel, 0.5 km to 1.0 km wide zones trending east-west. EM conductors are believed to primarily indicate graphite horizons, and magnetic anomalies are believed to indicate horizons of increased magnetite and/or pyrrhotite content.

DRURY
 Cominco Limited

Zinc,Lead,Silver
 Skarn
 105 L 1 (24)
 (62°12'N,134°09'W)

References: D.I.A.N.D. (1982, p.159); D.I.A.N.D.
 (1981, p.200,203).

Claims: SALMON (14)

Source: Summary by P. Watson from assessment report
 091372 by I.A. Paterson.

History:

The skarn was first staked in 1959 and optioned to Prospectors Airways Ltd., who conducted geophysical surveys and drilled 166.7 m in 20 holes between 1953 and 1956. These claims lapsed and the area was

restaked in 1962 and optioned to Kerr Addison Mines Ltd. in 1964. Geophysical surveys and 337.4 m in 4 diamond drill holes were completed. Atlas Exploration optioned the ground in 1965 and conducted airborne and ground geophysical surveys and a geochemical program. The SALMON claims were staked in 1980 to re-evaluate the Au-Ag-Sn-W potential of the Pb-Zn-Ag skarn.

Description:

The area, 40 km west of Faro, is underlain by Devonian-Mississippian(?) calcareous chert overlain by resistant limestone. These units have been domed into an anticline, the core of which contains a Cretaceous-Tertiary quartz-feldspar porphyry. Garnet-diopside-calcite-quartz-magnetite skarn has developed in the chert for up to 60 m from the intrusive contact.

Current Work and Results:

In 1982, four areas were examined with follow up rock and soil geochemistry. Eleven rock and 40 soil samples were collected.

ONE HUMP	Copper, Tungsten
Anaconda Canada	Skarn
Exploration Limited	105 L 15,16 (29)
	(62° 54'N, 134° 50'W)

Reference: D.I.A.N.D. (1982, p.159-163).

Claims: ACE 1-754; EARN 1-4; CLARE 1-76; BUSH 1-48

Source: Summary by K. Grapes from assessment reports 091032, 091037 and 091039 by A.R. Scott.

Current Work and Results:

During the winter of 1982 a linecutting and geophysical program was carried out over the CLARE 43-48, 55-66 and BUSH 1-32 claims. MAX-MIN and magnetometer surveys were conducted on the BUSH claims. VLF and MAX-MIN electromagnetic, gravity and magnetometer surveys were conducted on the CLARE claims. The results of the surveys confirmed the presence and ground location of several EM conductors and magnetic anomalies detected by a 1981 airborne geophysical survey.

Grids were mapped at a scale of 1:5,000 and 3,570 soil samples were collected at 25 m intervals. The samples were analyzed for Cu, Pb, Zn, Ag and, selectively, for Ba. A bedded barite lens occurs in middle Mississippian chert-siltstone on the ACE claims.

JAR	Barite Stratiform
Getty Canadian	105 L 16 (36)
Metals, Limited	(62° 45'N, 134° 15'W)

Reference: D.I.A.N.D. (1982, p.159,163).

Claims: JAR (202)

Source: Summary by P. Watson from assessment report 091405 by N. Hulstein.

History:

The JAR claims were staked in 1981 to cover a 20 m thick barite horizon containing 41.1% Ba which was located during reconnaissance mapping.

Description:

The JAR claims are located south of Earn Lake. The property is underlain in the north by interbedded limestone and siltstone with occasional graphitic shales of the Road River Formation, cut by hypabyssal rocks of the Cretaceous South Fork Volcanics. To the south, 50 m of crinoidal limestone of the Devonian-Mississippian Kalzas Formation can be traced along strike for 12 km. The overlying Devonian-Mississippian Earn Group can be subdivided into 3 components. These are: up to 700 m of black, red and green chert, baritic siltstone and black shales; up to 1,000 m of interbedded black organic shale, siltstone, limestone and quartzite; and up to 500 m of thick quartzite lenses. To the south, these rocks have been intruded by a Cretaceous muscovite biotite granite to granodiorite plug.

Current Work and Results:

The barite horizon was traced for 4.5 km west and 1 km east of the initial showing. Barite is also found as float in a stream 2 km east of the easternmost outcrop. The western exposure consists of bedded, nodular Ba in black chert containing greater than 15% Ba. To the east, barite is laminated with black chert and contains up to 10% Ba.

A 1.5 m wide bed of stratiform pyrite nodules (up to 20 cm in diameter) in black chert was mapped stratigraphically above the barite horizon. Samples contained 1,425 ppm Zn and 19.5 ppm Ag.

In 1982, 159 stream sediment and 41 rock chip samples were collected and analyzed for up to 13 elements. In addition, 20 soil and 30 stream sediment samples were collected near the barite horizon. Coincident Cu-Ag-Pb-Zn stream sediment anomalies were delineated.

RABBIT	Geophysical Target
Anaconda Canada	105 L 9 (40)
Exploration Limited	(62° 43'N, 134° 12'W)

Reference: D.I.A.N.D (1982, p.159,160-163).

Claims: RABBIT 1-128

Source: Summary by P. Watson from assessment report 091038 by A.R. Scott.

History:

The claims, located 33 km southeast of Dromedary Mountain, were staked in 1981. An airborne geophysical program was conducted on these and related claim blocks in the same year. This information is summarized along with the detailed regional geology in the section on ONE HUMP (#29), D.I.A.N.D., 1982, p.160-163.

Current Work and Results:

The winter, 1982 program consisted of three ground geophysical surveys; MAX-MIN, VLF and magnetometer. These confirmed the presence and defined the ground location of several electromagnetic conductors that were delineated during the 1981 airborne survey.

BUM Geophysical Target
Anaconda Canada 105 L 14 (41)
Exploration Limited (62°52'N, 135°25'W)

Reference: D.I.A.N.D. (1982, p.159,163).

Claims: BUM 1-32

Source: Summary by K. Grapes from assessment report 091033 by A.R. Scott.

History:

The BUM claims are located approximately eight km west of Kalzas Mountain and were staked in 1981.

Description:

The property is underlain by turbidites of the Lower Earn Group, which are bordered to the south by phyllite and carbonate facies of the Keckika Group and Road River Formation.

Current Work and Results:

During the spring of 1982 a program of line-cutting and geophysical surveying was carried out to further investigate electromagnetic conductors detected by an airborne survey conducted in the spring of 1981. Horizontal Loop EM, magnetometer and gravity surveys were completed. The gravity survey did not outline any anomalies. The Horizontal Loop EM and magnetometer surveys confirmed the presence and location of a complex sequence of EM conductors and magnetic anomalies.

In 1982, the claims were also mapped at a scale of 1:5,000 and 852 soil samples were collected and analyzed for Cu, Pb, Zn, Ag and, selectively, for Ba.

1982 MINERAL CLAIMS STAKED

SUE 105 L 9 (42)
J. Witham, R. Koser (62°37'N, 134°03'W)

Claims 1982: SUE 1-62

HUB 105 L 10 (12)
Jalna Resources (62°40'N, 134°23'W)

Claims 1982: ROG 43-48

BUM 105 L 13, 14 (41)
L. Johnson (62°59'N, 135°30'W)

Claims 1982: BUM 33-106

ONE HUMP 105 L 15 (29)
Anaconda Exploration (62°51' - 62°53'N,
134°42' - 134°53'W)

Claims 1982: BUSH 33-48; ACE 719-754; CLARE 65-76

MAYO MAP-AREA (NTS 105 M)

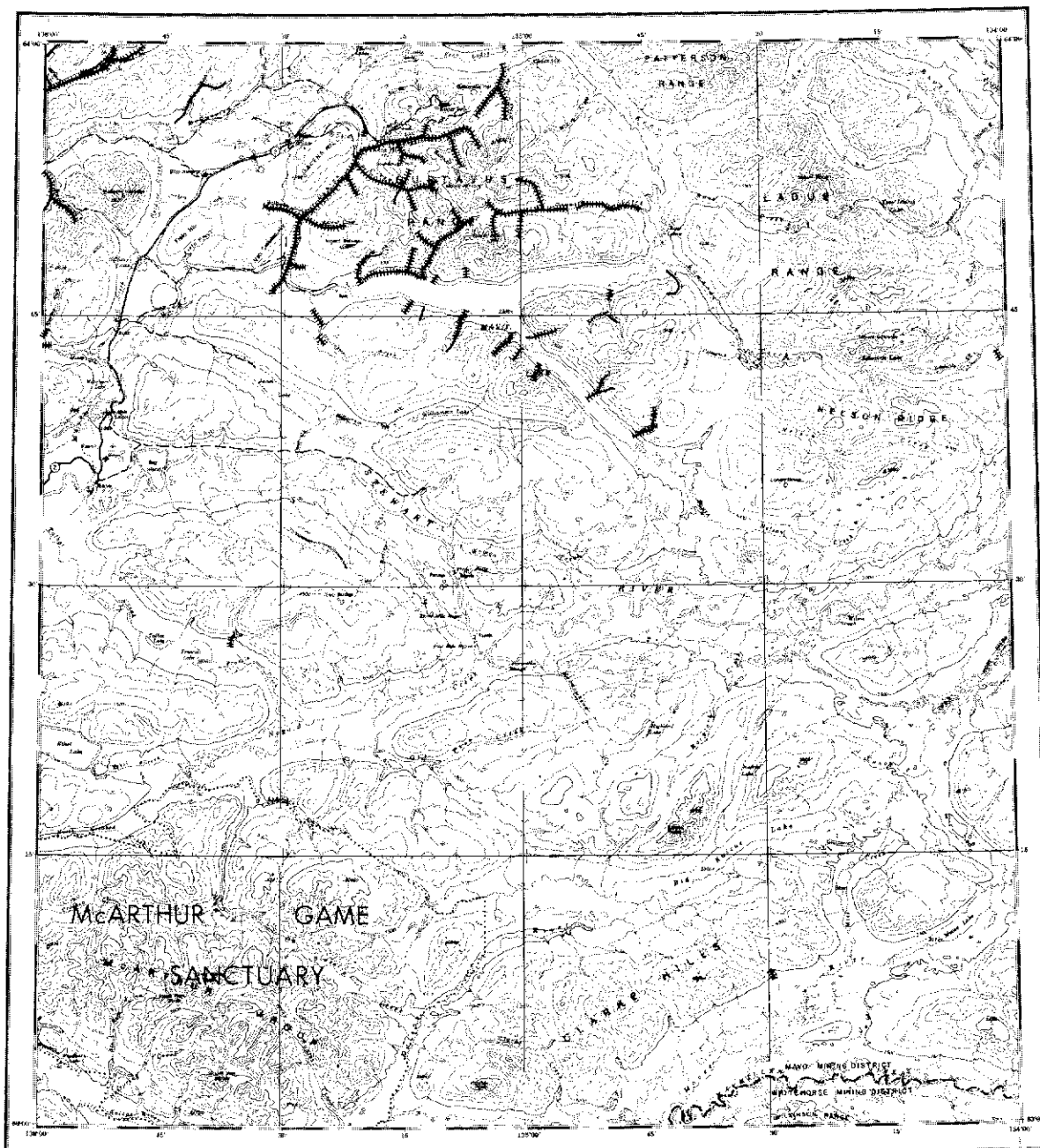
General Reference: GSC Map 890A by: H.S. Bostock, 1947.
GSC Open File 710 by: M.P. Cecile, 1980.

NO. PROPERTY
NAME REFERENCE

1 UNITED KENO HILL D.I.A.N.D. (1982, p. 3,18,165-167); This Report
2 FAITH D.I.A.N.D. (1981, p. 206)
3 DUNCAN Boyle (1965, p. 56)
4 GOLD QUEEN Boyle (1965, p. 52); Green (1966, p. 18-19)
5 SILVER BASIN Boyle (1965, p. 51)
6 NABOB #2 Boyle (1965, p. 51)
7 LADUE FRACTION Boyle (1965, p. 40)
8 COMSTOCK Boyle (1965, p. 39,40,42); Green (1966, p. 15)
9 APEX Boyle (1965, p. 42-43)
10 VANGUARD Boyle (1965, p. 47); Green & Godwin (1963, p. 11)
11 HOMESTAKE Boyle (1965, p.52-53); Findlay (1967, p. 22)
12 CHRISTINE Findlay (1969a, p. 25)
13 MO Silver-Lead Vein
14 MAYBRUN D.I.A.N.D. (1981, p. 206)
15 HOGAN Boyle (1965, p. 46-47)
16 RUNER Boyle (1965, p. 46-47)
17 WERNECKE Findlay (1969b, p. 12)
18 FORMO D.I.A.N.D. (1982, p. 167)
19 PADDY Craig & Laporte (1972, p. 14)
20 EAGLE D.I.A.N.D. (1981, p. 206)
21 FISHER D.I.A.N.D. (1981, p. 207)
22 PARENT D.I.A.N.D. (1982, p. 169)
23 CREAM AND JEAN Boyle (1965, p. 78)
24 NORD Craig & Laporte (1972, p. 13-14)
25 GERLITZKI Green & Godwin (1963, p. 8); D.I.A.N.D. (1982, p. 165)
26 UR Green & Godwin (1964, p. 13); D.I.A.N.D. (1982, p. 165)
27 SHANGHAI Findlay (1967, p. 24-25)
28 WAYNE D.I.A.N.D. (1982, p. 167)
29 ARGENT D.I.A.N.D. (1981, p. 211)
30 STREBCHUCK (JOUMBIRA) This Report
31 MT. HALDANE D.I.A.N.D. (1981, p. 207,211)
32 LAYSIER D.I.A.N.D. (1981, p. 211)
33 COBALT Green (1971, p. 61)
34 GORDON Sinclair & Gilbert (1975, p. 16-17)

35 TWO BUTTES Garrett(1971); D.I.A.N.D. (1982, p. 167)
36 SIDE SLIP Skarn Copper
37 PIMA Skarn Tungsten-Copper-Zinc
38 HOT SPRING Silver-Lead Vein
39 LOST WERNECKE COPPER
40 ROOP Little (1959, p. 36-37)
41 MOON Silver-Lead Vein; D.I.A.N.D. (1982, p. 169)
42 MT. ALBERT Silver-Lead Vein
43 MCKIM Silver-Lead Vein
44 NERO Silver-Lead Vein
45 FREISEN Skarn Copper-Tungsten-Molybdenum-Silver-Gold
46 MT. HINTON Findlay (1969a, p. 23)
47 AVENUE Craig & Milner (1975)
48 CHANCE Antimony Vein
49 YONO Silver-Lead Vein
50 SUNDOWN D.I.A.N.D. (1981, p. 211)
51 GUSTAVUS Silver-Lead Vein
52 NEWRY
53 CHRISTAL D.I.A.N.D. (1981, p. 208)
54 SEGSWORTH Silver-Lead-Zinc Vein
55 IRONCLAD Silver-Lead-Zinc Vein
56 SINISTER D.I.A.N.D. (1981, p. 208); This Report
57 ZAP D.I.A.N.D. (1982, p. 168)
58 W D.I.A.N.D. (1981, p. 209)
59 AZTEC
60 FLO D.I.A.N.D. (1982, p. 168,169); This Report
61 WEASEL D.I.A.N.D. (1981, p. 211)
62 FEEBLE D.I.A.N.D. (1981, p. 211)
63 CLEAVES D.I.A.N.D. (1981, p. 211)
64 ROSS D.I.A.N.D. (1981, p. 211); D.I.A.N.D. (1982, p. 169)
65 GAMBLER D.I.A.N.D. (1981, p. 209)
66 BE NO. 1 D.I.A.N.D. (1982, p. 168)
67 BE NO. 2 D.I.A.N.D. (1982, p. 168)
68 BE NO. 3 This Report
69 BE NO. 4 This Report
70 DIAMOND D.I.A.N.D. (1981, p. 210)
71 HEART Morin et al (1980, p. 8)
72 DOPE D.I.A.N.D. (1982, p. 168); This Report
73 DRILL D.I.A.N.D. (1982, p. 169); This Report
74 SWIFT BAHANAS D.I.A.N.D. (1982, p. 169)
75 TUF D.I.A.N.D. (1982, p. 169)
76 LEETEE D.I.A.N.D. (1982, p. 169)
77 ISABEL D.I.A.N.D. (1982, p. 169); This Report
78 GOLDEN DUKE This Report
79 ORE This Report

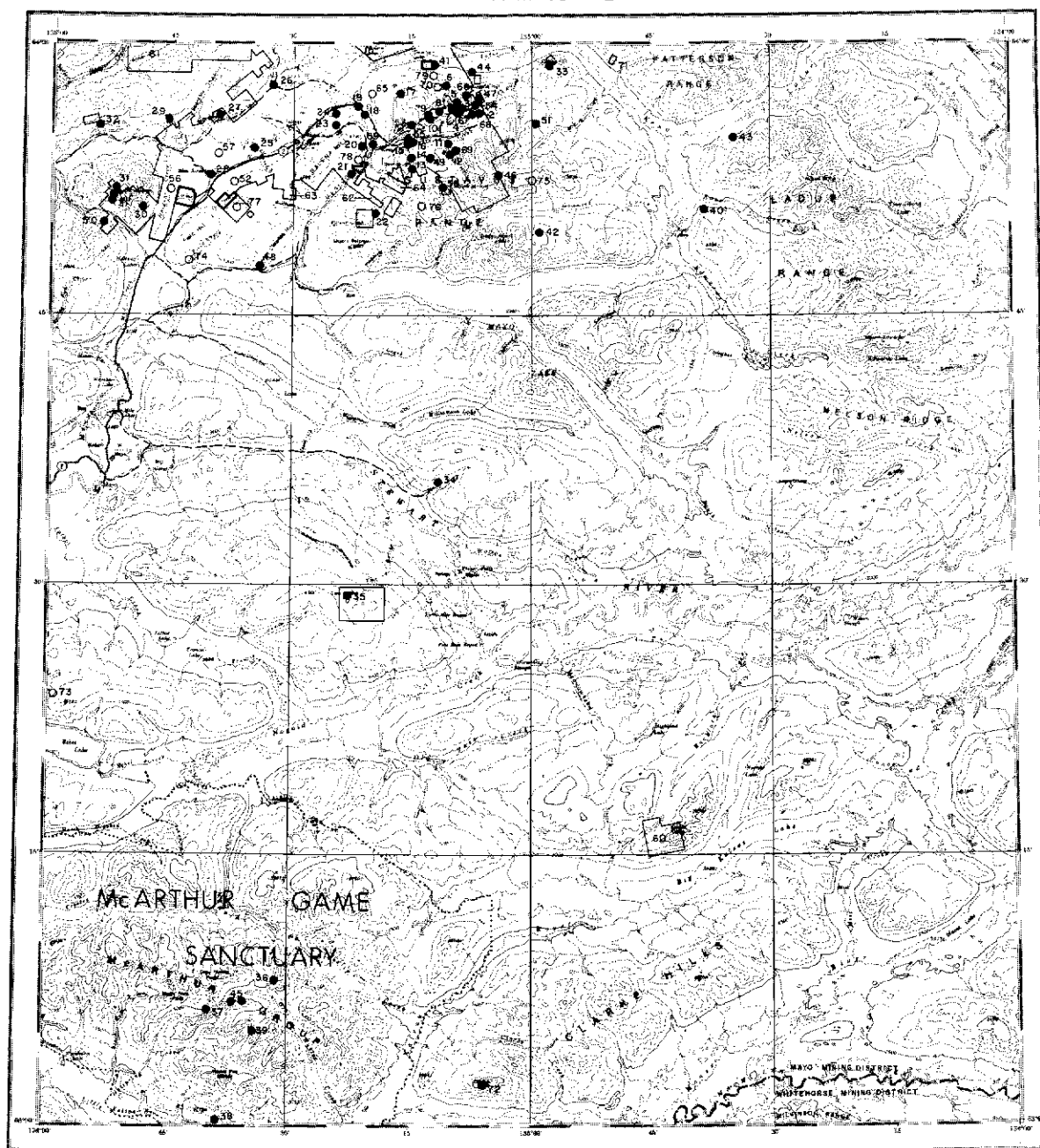
105 M PLACER

MAYO
YUKON TERRITORY

Kilometres 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|-------------------|
| ● ⁴¹ Mineral Deposit or Occurrence
see Key on facing page | — Placer Leases in good standing (Jan. 1983) | --- Tote Trail |
| ○ ⁷² Unmineralized Target | ----- Placer Claims in good standing (Jan. 1983) | — Driveway Road |
| □ Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982 | • CEL Coal Exploration Licence | ◆ Oil or Gas Well |
| □ Mineral Claims staked in 1982 | CM Coal Mining Lease | — Airship |

105 M QUARTZ

MAYO
YUKON TERRITORY

Kilometres 5 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|-------------------|
| ● ⁶¹ Mineral Deposit or Occurrence
see Key on facing page | — Placer Lease in good standing (Jan. 1983) | --- Tire Trail |
| ○ ⁷² Unmineralized Target | ----- Placer Claims in good standing (Jan. 1983) | — Drivable Road |
| □ Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982 | CEL Coal Exploration Licence | ◆ Oil or Gas Well |
| ▭ Mineral Claims staked in 1982 | CML Coal Mining Lease | — Airstrip |

UNITED KENO HILL
United Keno Hill
Mines Limited

Silver, Lead, Zinc
Veins
105 M 13, 14 (1)
(63° 53' - 63° 58' N,
135° 04', 135° 35' W)

Current Work and Results:

In October 1981, 46 overburden holes totalling 1,606.3 m were drilled on the SNOWDRIFT 5, 22-24, 26-29 claims.

In 1982, 45 diamond drill holes totalling 135.6 m were completed on the RUBY and TOWNSITE vein systems. Overburden drilling on SNOWDRIFT, TOWNSITE, HECTOR, JOCK, RUBY, SADIE LADUE, BLACKCAP and MASTIFF vein systems totalled 7,380.7 m in 240 holes.

All mine operations were suspended indefinitely in July 1982. The mine remained closed on December 31, 1982.

Reference: D.I.A.N.D. (1982, p.165-167,169).

Claims: SNOWDRIFT 1-29; KPO 18-29; BUCONJO 17-24

Source: Summary by K. Grapes from assessment report 091049.

SUMMARY OF OPERATIONS OF UNITED KENO HILL MINES LTD.

Summary of Production from Keno Hill - Galena Hill Mines:

	1978	1979	1980	1981	1982
Tonnes Mined	127,424	155,361	95,067	63,478	50,355
Tonnes Milled	81,722	111,685	79,655	60,840	50,355
Daily Average Milled (tonnes)	326	406	388*	367	360
Mill Heads:					
Silver (gm/tonne)	1,224	818	789	754	843
Lead (%)	5.5	3.7	3.4	2.5	---
Zinc (%)	0.8	0.6	0.8	---	---
Metal Production:					
Silver (gm)	90,741,633	78,907,533	58,963,139	36,020,435	37,283,765
Lead (kg)	3,448,912	2,726,862	2,212,353	1,019,649	778,135
Zinc (kg)	11,971	379,164	413,043	---	---
Cadmium (kg)	171	---	---	---	---
Metal Sales:					
Revenues from Shipments (\$)	18,162,909	53,226,219	31,742,000	12,561,000	
Ore Reserves at year end:					
Tonnes	99,517	299,951	435,811	242,636	
Silver (gm/tonne)	1,364	998	846	926	
Lead (%)	4.9	4.3	3.4	4.1	
Zinc (%)	0.9	---	---	---	

*adjusted for strike of 122 days.

COMPARATIVE STATEMENT OF PRODUCTION BY YEARS*

<u>Fiscal Year</u>	<u>Ore Milled Tons</u>	<u>Silver Oz.</u>	<u>Lead Lbs.</u>	<u>Zinc Lbs.</u>	<u>Cadmium Lbs.</u>
Total For Years:					
1947 to 1969.....	3,002,515	108,831,203	397,618,532	308,934,611	3,902,230
Dec. 31, 1970.....	93,215	2,601,960	6,583,652	7,467,164	98,687
Dec. 31, 1971.....	94,754	2,919,693	8,220,513	6,533,208	84,832
Dec. 31, 1972.....	80,646	2,503,921	6,108,042	3,307,178	46,731
Dec. 31, 1973.....	94,819	3,134,828	7,262,400	1,345,062	17,944
Dec. 31, 1974.....	93,232	3,237,205	6,734,719	545,357	7,330
Dec. 31, 1975.....	90,860	2,917,920	6,407,368	620,763	8,758
Dec. 31, 1976.....	75,515	2,369,770	4,909,101	621,945	8,394
Dec. 31, 1977.....	91,486	2,784,098	5,911,083	450,904	6,135
Dec. 31, 1978.....	90,082	2,737,755	7,521,014	17,993	211
Dec. 31, 1979.....	124,322	2,481,356	5,620,065		
Dec. 31, 1980.....	87,784	1,664,386	3,296,052		
Dec. 31, 1981.....	66,924	1,158,083	2,243,228		
Dec. 31, 1982.....	55,491	1,198,734	2,084,836		
TOTAL.....	4,141,645	140,540,912	470,520,605	329,844,185	4,181,252

*United Keno Hill Mines Limited, Annual Report, 1982.

ORE RESERVES*

In Situ Proven and Probable at December 31, 1982.

ELSA AREA:

	<u>Tons</u>	<u>1982 Silver oz/ton</u>	<u>Lead %</u>	<u>Tons</u>	<u>1981 Silver oz/ton</u>	<u>Lead %</u>
Underground Ore Reserves						
Proven	37,600	34.3	4.6	57,400	32.0	4.2
Probable	68,300	29.7	4.3	79,000	30.2	4.5
Sub-total	105,900	31.4	4.4	136,400	31.2	4.2
Open Pit						
Probable	77,900	21.0	3.1	90,400	22.8	3.4
Total Ore Reserves	183,800	27.0	3.9	226,800	27.9	4.0
Stockpile Reserves	25,500	16.9	2.8	40,100	22.4	4.4
Total Ore in Reserve and Stockpile	209,300	25.8	3.7	266,900	27.0	4.1

*United Keno Hill Mines Limited, Annual Report, 1982.

Production from Individual Mines by
United Keno Hill Mines Ltd.

1981:

Mine	Silver Grade (gm/t)	Tonnes Milled	Drifts & Crosscuts (metres)	Raises (metres)	D.D. (metres)
ELSA	798.8	1,963.6	38.7	12.8	1,947
KENO	840	26,305.5	55.8	5.5	---
NO CASH	---	1,000	5.8	---	---
RUBY	1,453.7	3,346	60.0	1.8	---
HUSKY	1,162	12,480	175	4.3	---
SIME & BER- MINGHAM	576	40,996	-----	Open Pits	-----
PORCUPINE	---	---	---	86.0	---
Total		86,091	335.3	110.4	1,947

1982:

Mine	Silver Grade (gm/t)	Tonnes Milled
ELSA	1,069.7	2,356
KENO		
NO CASH		839
RUBY		4,899
HUSKY	1,162.3	13,746
SIME & BER- MINGHAM		
PORCUPINE		
Total		21,840

Reserves of Individual Mines at Year End:

Mine	1979		1980		1981		1982	
	Reserves (tonnes)	Silver Grade (gm/t)	Reserves (tonnes)	Silver Grade (gm/t)	Reserves (tonnes)	Silver Grade (gm/t)	Reserves (tonnes)	Silver Grade (gm/t)
ELSA	19,051	---	11,714	1,008	8,769	1,131.4	10,972	1,100.6
COMSTOCK KENO	8,372	1,029	8,372	1,029	---	---	---	---
KENO	39,114	830	27,668	809	26,305.5	840	20,324	881.2
NO CASH	13,182	902	17,518	819	17,015	822.8	9,756	812.6
RUBY	12,734	1,128	10,836	998	8,535	970.3	3,672	1,076.6
HUSKY	50,850	1,505	47,258	1,330	1,385	44,432.7	35,842	1,296.0
SIME & BERMINGHAM	104,738	790	73,188	904	---	---	---	---
OTHER OPEN PIT RESERVES	10,976	---	133,755	---	5,854.5	925.7	---	---
OTHER UNDERGROUND RESERVES	40,934	---	105,502	---	---	---	---	---
PORCUPINE	---	---	---	---	---	---	13,531	956.6
Total	299,951	---	435,811	---	67,864.0	---	94,097	---

STREBCHUCK (JOUMBIRA)
CCH Minerals Limited;
Billiton Canada Limited;
Inco Limited

Tin, Tungsten, Lead
Zinc
105 M 13 (30)
(63°51'N, 135°50'W)

Source: Summary by K. Grapes from assessment report
091053 by B. Paul and D. Rota.

Current Work and Results:

References: D.I.A.N.D. (1982, p.165); Morin et al
(1980, p.6).

Claims: JOUMBIRA 1-56

A limited program of soil geochemical sampling
and prospecting was carried out in 1979 resulting in
the discovery of a small, vuggy, scheelite-bearing
quartz vein above Aldis Creek. No field work was

conducted in 1980, however an orthophoto of the property was produced. In 1981 most of the property was remapped at 1:5,000 scale and detailed soil geochemical surveys were completed around the PRO and FRED showings.

Cassiterite occurs in accessory amounts on the margin of a quartz porphyry dyke and in sheeted fractures with chlorite and tourmaline. Scheelite occurs associated with quartz porphyry dykes and late, vuggy, quartz veins. Arsenopyrite, sphalerite and galena have been identified in quartz veins and greisen veins associated with the main intrusive stock.

FLO
Union Carbide
Exploration Limited

Tungsten Vein,
Stockwork
105 M 7 (60)
(63°16'N, 134°42'W)

Reference: D.I.A.N.D. (1982, p.168).

Claims: WOLF; DAVID; PAT; BLACKIE; (59)

Current Work and Results:

In 1982, the entire claim block was mapped at 1:2,000 scale and bulk rock samples were collected for W and Sn geochemistry along 200 m spaced grid lines. Eighty metres of overburden trenching and 100 m of bedrock trenching were also completed. Results indicate broad areas of tungsten mineralization, and trenching suggests bedrock grades of less than 0.1% WO_3 .

BE No. 3,4
Canada Tungsten Mining
Corporation Limited

Silver, Lead, Zinc
Vein
105 M 14 (68,69)
(63°57'N, 135°02'W)

Reference: D.I.A.N.D. (1982, p.165, 168).

Claims: BE (282 claims and 38 fractions)

Source: Summary by K. Grapes from assessment report 091386 by G. McLaren.

Current Work and Results:

Reconnaissance mapping at 1:5,000 scale, prospecting and geochemical sampling of the BE 285Fr-322Fr were completed in August 1982. No significant new mineralized vein structures were located. Sampling was done in the area between McNeill and McMillan Gulches where numerous vein and stockwork structures occur. A total of 13 rock chip samples were taken from veined and/or altered exposures and analyzed for Pb, Zn, Ag, and Au. A quartz vein with coarsely disseminated galena returned values of

greater than 10,000 ppm Pb, 56 ppm Zn, greater than 100 ppm Ag and 140 ppb Au.

A thick section of massive quartzite mapped on the southern slope of Keno Hill can be traced across the lower, northern slope of the ridge east of McMillan Gulch. Overlying the quartzite is a sequence of interbedded quartzite, schist and phyllite. Numerous quartz-calcite veins, stockworks and breccia zones are present with evidence of galena, pyrite and/or arsenopyrite mineralization. A few rock chip samples from these veins returned high values of Pb, Ag, and Au. The veins, however, are discontinuous and of limited width due to the intensely fractured nature of the host. A sample of quartzite float with trace arsenopyrite returned values of up to 2,800 ppb Au.

DOPE
Amax of Canada Limited

Unmineralized
Target
105 M 3 (72)
(63°03'N, 135°05'W)

Claims: DOPE (42)

Current Work and Results:

The claims were prospected at 1:12,000 scale in 1982. They are underlain by Devonian green pebble chert conglomerate.

DRILL
Amax of Canada Limited

Tungsten
105 M 5, 115 P 5
(73)
(63°25'N, 136°00'W)

Claims: DRILL 1-60

Current Work and Results:

Mapping at 1:12,000 scale and stream sediment sampling programs were carried out in 1982. Scheelite occurs in widely spaced quartz-sericite-pyrite-tourmaline veins cutting Hadrynian grit.

1982 MINERAL CLAIMS STAKED

SINISTER
Canada Tungsten Mining
Corporation Limited

105 M 13 (56)
(63°52'N, 135°44'W)

Claims 1982: SS 1-29

ISABEL

105 M 13 (77)
(63°51'N, 135°38'W)

Claims 1982: VERA 1-8

GOLDEN DUKE

105 M 14 (78)
(63°53'N, 135°22'W)

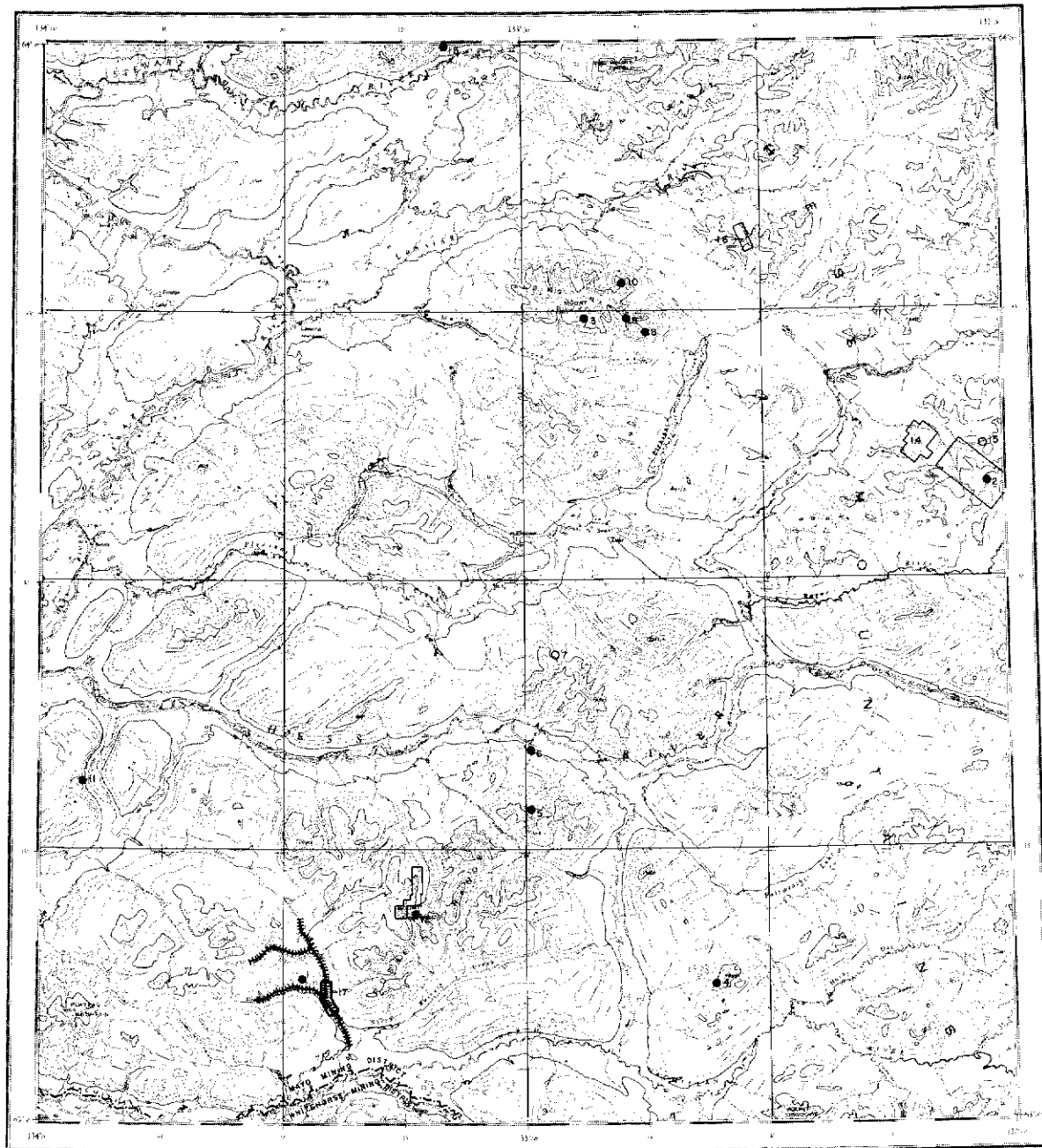
Claims 1982: GOLDEN DUKE 1-4; SILVER DUKE 1-8;
JUNE 1-4

ORE

105 M 14 (79)
(63°59'N, 135°12'W)

Claims 1982: ORE 1-4; MT 1-6

105N



LANSING YUKON TERRITORY

Kilometres 5 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|---------------------|
| ● ⁶¹ Mineral Deposit or Occurrence
see Key on facing page | ———— Placer Leases in good standing (Jan. 1983) | ----- Tote Trail |
| ○ ⁷² Unmineralized Target | ----- Placer Claims in good standing (Jan. 1983) | ———— Driveable Road |
| □ Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982 | DEL Coal Exploration Licence | ◆ Oil or Gas Well |
| □ Mineral Claims staked in 1982 | CML Coal Mining Lease | ——— Airstrip |

LANSING MAP-AREA (NTS 105 N)

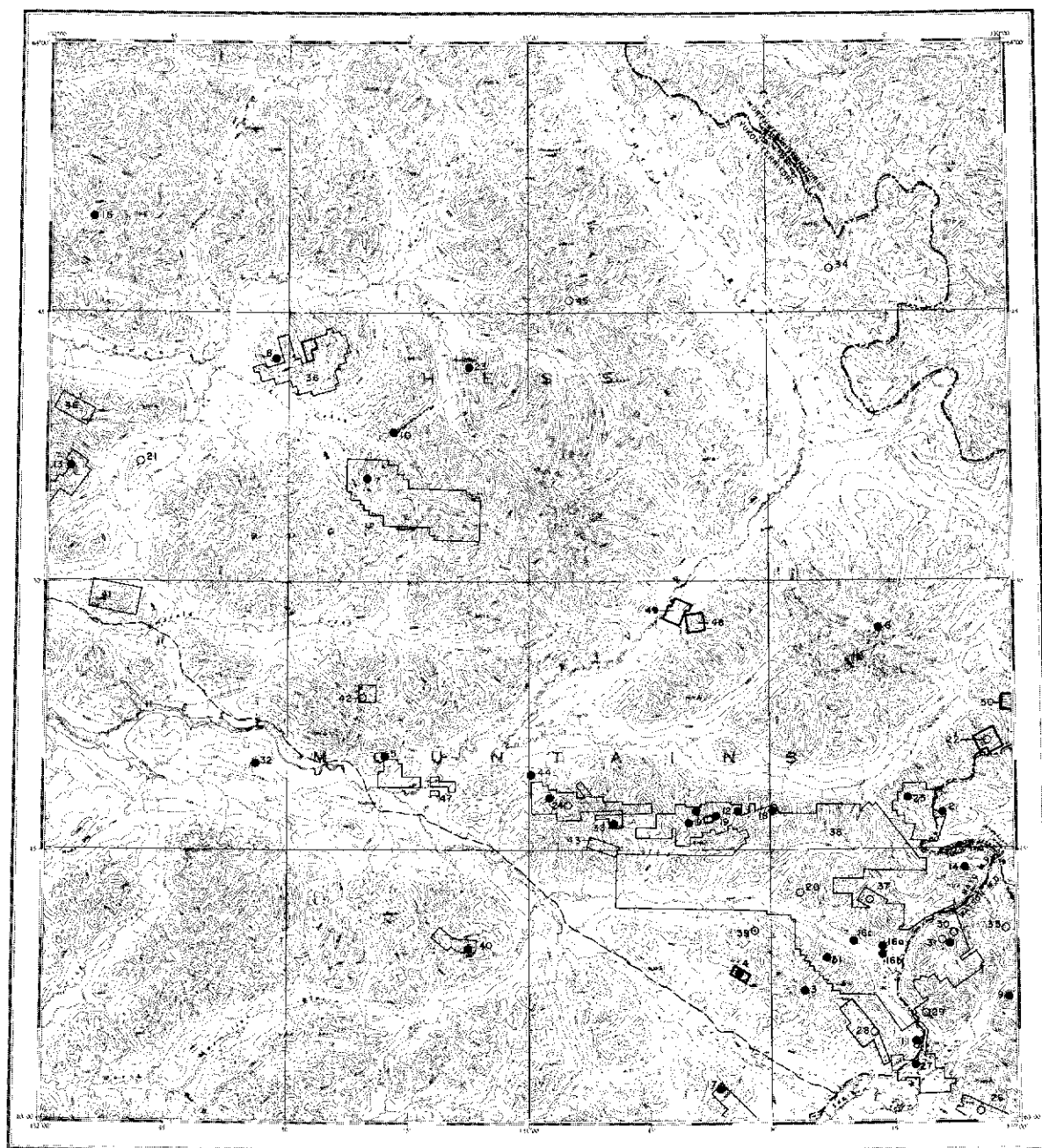
General Reference: GSC Open File 205 by: S.L.
Blusson, 1974.
GSC Open File 710 by: M.P. Cecile,
1980.

NO.	PROPERTY NAME	REFERENCE
1	ARMSTRONG	Mulligan (1975, p. 74)
2	GREG (PLATA)	Morin et al (1977, p.111)
3	JOY	Copper Occurrence
4	GOLF	Skarn Copper
5	ETZEL	Copper Vein
6	BRODELL	Copper Vein
7	PEBBLE	Lead Occurrence
8	DEAN	Lead Vein
9	AUREOLE	Copper Vein
10	BLOOM	Copper-Molybdenum-Lead-Cobalt Vein
11	PLEASANT	Skarn Copper-Tungsten-Silver
12	TONGUE	Skarn Tungsten-Copper-Tin
13	KIDD	Morin et al (1977, p. 119)
14	FLATASA	D.I.A.N.D. (1982, p. 171)
15	SPIS	D.I.A.N.D. (1981, p. 213)
16	ANDREA	D.I.A.N.D. (1982, p. 171)
17	RAM	This Report

1982 MINERAL CLAIMS STAKED

RAM	105 N 3	(17)
Noranda Exploration	(63° 07'N, 133° 25'W)	
Company Limited		

Claims 1982: RAM 1-16



NIDDERY LAKE YUKON TERRITORY - NORTHWEST TERRITORIES

Kilometres 5 0 5 10 15 20 25 30 Kilometres

- | | | |
|---|---|------------------------|
| ● ⁶¹ Mineral Deposit or Occurrence
see Key on facing page | —..... Placer Leads in good standing (Jan. 1983) | —..... Tote Trail |
| ○ ⁷² Unmineralized Target | —..... Placer Claims in good standing (Jan. 1983) | —..... Drivible Road |
| □..... Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982 | CEL..... Coal Exploration Licence | ♦..... Oil or Gas Well |
| □..... Mineral Claims staked in 1982 | CML..... Coal Mining Lease | —..... Airstrip |

NIDDERY LAKE MAP-AREA (NTS 105 O)

General Reference: GSC Open File 205 by: S.L. Blusson, 1974.
GSC Open File 765 by: M.P. Cecile, 1981.
GSC Open File 807 by: S.P. Gordey, 1981.

NO. PROPERTY NAME	REFERENCE
1 TOM	D.I.A.N.D. (1982, p. 174,177)
2 MACTUNG	Morin et al (1977, p. 20-22)
3 JEFF	Garrett (1971, p. 73)
4 ALP	Gold-Silver Vein; This Report
5 SCOT	Craig & Milner (1975, p. 18)
6 KEELE	Garrett (1971, p. 73)
7 EMERALD	This Report
8 HORN	Craig & Milner (1975, p. 17)
9 BEN	Zinc Stratabound
10 ARROWHEAD	Copper Vein
11 RACICOT (MOOSE)	Sinclair et al (1975, p. 21-22); Morin et al (1979, p. 31)
12 HESS	D.I.A.N.D. (1982, p. 174)
13 INCA	Sinclair et al (1975, p. 18)
14 STANDARD	Lead-Zinc-Silver Occurrence
15 ODD	Lead-Zinc Stratabound
16 JASON	This Report
17 BROCK	Barite Stratabound
18 WALT	D.I.A.N.D. (1981, p. 216)
19 TRYALA	Barite Stratabound; This Report

ALP
Hudson Bay Exploration and Development Company Limited 105 O 2 (4)
(63° 07'N, 130° 33'W)

Claims: ROSS 1-8

Current Work and Results:

In 1982, the property was examined by geological mapping. Vugs and stringers of arsenopyrite are associated with altered areas (kaolinite, sericite) in a felsic dyke. Nine small hand trenches were excavated and the dyke channel sampled where exposed.

EMERALD
AGIP Canada Limited; Uranium, Copper,
Cominco Limited Molybdenum, Gold,
Tungsten
105 O 11 (7)
(63° 34'N, 131° 16'W)

Reference: D.I.A.N.D. (1982, p.9,12,94,173-174,177).

20 NIDD	This Report
21 BOBNOB	D.I.A.N.D. (1981, p. 217)
22 BORD	D.I.A.N.D. (1981, p. 217); This Report
23 BEAUCHAMP	D.I.A.N.D. (1981, p. 217)
24 NEVE	This Report
25 KEN	Sinclair et al (1976, p. 30)
26 PETE	Morin et al (1979, p. 94)
27 MOONLIGHT	Morin et al (1979, p. 32)
28 ESS	Morin et al (1979, p. 32)
29 FETCH	This Report
30 CREE	Morin et al (1979, p. 33)
31 ARGO	Morin et al (1980, p. 9)
32 MV	Morin et al (1980, p. 10)
33 MAC	This Report
34 DUO	D.I.A.N.D. (1982, p. 178)
35 FOG	D.I.A.N.D. (1982, p. 177)
36 OLD CABIN	This Report
37 FUN	This Report
38 FAN	This Report
39 SIM	D.I.A.N.D. (1982, p. 176,177); This Report
40 SUN	This Report
41 EMERA	D.I.A.N.D. (1982, p. 176,177)
42 EMMY	This Report
43 FAL	D.I.A.N.D. (1982, p. 177); This Report
44 BAR	This Report
45 URS	D.I.A.N.D. (1982, p. 177)
46 ETZEL	This Report
47 ANDY	D.I.A.N.D. (1982, p. 177)
48 NUT	This Report
49 SMOKEY	This Report
50 BBOB	This Report
51 J.K.	This Report

Claims: FIRE 1,3,9-28; ICE 1-143; SUN 1-139

Source: Summary by K. Grapes from assessment report 091058 by T. Garagan and R. Robertson and assessment reports 091055, 091429, and 091430 by T. Garagan.

History:

The ICE 1-20 claims were staked in 1979 to cover an airborne radiometric anomaly. The FIRE and SUN claims were staked in 1980 and 1981. Geological mapping, prospecting and geochemical sampling were carried out on the FIRE and ICE claims in 1980 and on the FIRE, ICE and SUN claims in 1981. Three trenches were excavated on the ICE claims and one on the FIRE claims.

Description:

The claims cover the Emerald Lake Syenite Intrusion and its contact aureole.

Current Work and Results:

Talus and rock sampling were carried out on the ICE, FIRE and SUN claims in 1982, and two trenches

were blasted on the ICE claims.

JASON Zinc, Lead, Silver
Ogilvie Joint Venture; 105 0 1 (16)
Aberford Resources Ltd., (63°08' - 63°11'N,
Brinco; 130°20' - 130°27'W)
Mitex Mining;
Ogilvie Mineral Corp.

Reference: D.I.A.N.D. (1982, p.8-9,16,18,20,30,173-177).

Claims: JASON (174 claims and 56 fractions); ACE 1-40; MIKE 1-10

Source: Summary by K. Grapes from assessment report 091422 by G.R. Brown and assessment report 091428 by J.Dumouchel.

Current Work and Results:

An environmental program was initiated in 1980 and continued through 1981 and 1982. Studies of the fishery resources, vegetation, water chemistry, land reclamation techniques and wildlife were conducted on the property. As well as the environmental studies, a drill program was conducted to define the geometry of the mineralized zones and increase the known reserves. Five holes totalling 2,866.64 m were drilled on the South Zone. Four of the holes intersected lead, zinc and silver mineralization. Best values returned were 18.74% Pb, 18.37% Zn and 263.66 g Ag/t over 2 m; 9.83% Pb, 3.84% Zn and 175.89 g Ag/t over 11 m; and 5.71% Pb, 11.47% Zn and 103.54 g Ag/t over 10 m. The South Zone remains open at both ends along strike.

NIDD Zinc, Lead
Cominco Ltd. 105 0 1,2 (20)
(63°12'N,130°30'W)

References: Abbott, J.G. (1982); D.I.A.N.D. (1982, p.8-9,173,175,177).

Claims: NIDD 1-704

Source: Summary by K. Grapes from assessment report 091071 by P.M. Scott, assessment report 091365 by D.R. Rhodes and assessment report 091421 by M.R. Murrell.

Current Work and Results:

In 1982 Cominco conducted a program of line-cutting, geochemical sampling, geological mapping on scales of 1:5,000 and 1:10,000, trenching, diamond

drilling, road building and geophysical surveying.

A total of 204 soil samples were collected on claims 521-574, 619-620 and 625-630 (underlain by the Road River Formation) and analyzed for Pb, Zn and Ba.

One thousand two hundred and forty-two (1,242) metres of HQ and NQ diamond drilling were completed in four holes across the NIDD 84, 91 and 316 claims.

NEVE Arsenic, Antimony
AGIP Canada Limited 105 0 7 (24)
(63°17'N,130°55'W)

Reference: D.I.A.N.D. (1982, p.173,175,177).

Claims: NEVE 1-35; BRICK 1-40

Source: Summary by K. Grapes from assessment reports 091056, 091388 and 091389 by T. Garagan.

History:

In 1981 the BRICK 1-40 and NEVE 1-35 claims were staked, mapped on a scale of 1:10,000 and stream sediment, soil and rock chip sampled.

Description:

The claims are located approximately 35 km south of Emerald Lake and 50 km west of Macmillan Pass. Quartz-realgar-stibnite veinlets cut minor acid sills.

Current Work and Results:

Additional mapping and sampling and a magnetometer survey were carried out in 1982.

FETCH
ComInco Limited 105 0 1 (29)
(63°06'N,130°12'W)

Reference: Morin et al (1980, p.8)

Claims: HASTEN; FETCH; BASIN (85 claims)

Current Work and Results:

All claims were mapped at 1:5,000 scale in 1982 and soil samples were collected over part of the property. Mapping indicated that the favourable horizon may extend onto these claims from JASON. A small Pb soil anomaly was delineated.

MAC Barite Stratabound
Hudson Bay Exploration and 105 0 7 (33)
Development Company Limited (63°17'N, 130°55'W)

Reference: D.I.A.N.D. (1982, p.173,175,177).

Claims: MAC (63)

Source: Summary by K. Grapes from assessment report 091075 by R. Stroshein and assessment report 091373 by G. Fraser.

Current Work and Results:

During the 1982 field season, geological mapping, soil and rock geochemical sampling (claims 124-135, 137, 139, 145-146) and a magnetometer survey (claims 101-104) were carried out on the property.

The geochemical sampling was directed at exploration along the contact between Early-Middle Devonian chert and cherty argillite - Middle to Upper Devonian shale and siltstone. Twenty-three rock samples were collected from the chert and cherty argillite unit and analyzed for Cu, Pb, Au, Ag and Ba. The results indicate anomalous lead values near the chert-shale contact, anomalous zinc values from near Road River Formation units and anomalous copper values above the Road River Formation. Barium results were low.

Five occurrences of barite outcrop on the property. Barite occurs as massive, grey, cherty barite or interlaminated, grey, crystalline barite with black platy argillite. The largest occurrence has a strike length of 150 m and a thickness of 50 m. The bodies occur in finely laminated carbonaceous argillite of the Lower Earn Group.

A limited magnetometer survey was conducted to locate possible "feeder" zones. There was no significant magnetic response in the vicinity of the bedded barite, suggesting that the pyrrhotite feeder zone type mineralization occurring on the TOM property does not occur associated with the barite occurrences on the MAC claims.

OLD CABIN Gold, Molybdenum
Union Carbide Canada 105 0 11, 12 (36)
Limited (63°42'N, 131°30'W)

Reference: D.I.A.N.D. (1982, p.173,176,178).

Claims: OLD 1-62; CABIN 1-137

Source: Summary by K. Grapes from assessment reports 091076 and 091404 by D.H. James.

Current Work and Results:

In 1982, the OLD and CABIN claims were mapped on a scale of 1:10,000 and 14 additional claims were staked to cover favourable ground.

The claims are underlain by a Proterozoic and/or lower Paleozoic sequence of sedimentary and volcanic

rocks. The sedimentary rocks are fine-grained clastics and cherts. The volcanic rocks are mafic flows, tuffs, breccias and agglomerates. During the early mid-Cretaceous, the sequence was tightly folded into north-west and easterly trending synclines and anticlines. Mid-Cretaceous quartz diorite and granodiorite stocks and plutons have intruded along a north-west trend. The granodiorite stock and the sedimentary rocks are displaced by north and north-westerly striking faults. Gold-bearing arsenopyrite veins were found at six localities. Samples from the veins assayed up to 22.42 g Au/t. The veins intersect fine grained clastic sedimentary rocks with interbedded chert and minor mafic volcanics. Associated vein sulphides are pyrite and interstitial argentiferous galena and chalcopyrite. Veins cross-cutting the sedimentary rocks or occupying the faults tend to be continuous along strike, and range between 1 cm and 15 cm in width. Veins intruding mafic and intermediate volcanics are smaller, more erratically distributed and numerous. Molybdenite-bearing quartz veins cut the granodiorite stock.

FUN	Geochemical Target
Amax of Canada	105 0 1 (37)
Limited	(63°15'N, 130°20'W)

References: Abbott, J.G. (1982); D.I.A.N.D. (1982, p. 173,176-177).

Claims: FUN 1-25

Source: Summary by K. Grapes from assessment report 091376 by F.R. Harris and N. Humphreys.

Current Work and Research:

In 1982 Amax collected 218 soil samples and four stream sediment samples on the FUN claims. All samples were analyzed for Pb, Zn, Cu, Ag, Ba, Fe and Mn.

Two zones anomalous in Pb (100 ppm - 200 ppm Pb), three zones anomalous in Zn (up to 2,300 ppm Zn), three zones anomalous in Cu (up to 600 ppm Cu) and a large Ag anomalous zone with values up to 5.4 ppm Ag, were delineated. The anomalous zones are parallel to the underlying sedimentary strata but have not been related to any known mineralization. One Cu-Zn soil anomaly occurs over a narrow zone of pyrite in graphitic shale.

FAN
Amax of Canada Limited
Geochemical Target
105 O 1,2,7,8 (38)
(63°15'N,130°20'W)

Reference: D.I.A.N.D. (1982, p.8-9, 173,176-177).

Claims: FAN (460)

Source: Summary by K. Grapes from assessment reports 091012 and 091395 by F.R. Harris.

History:

The FAN claims were staked, mapped on a 1:20,000 scale and geochemically sampled in 1981.

Description:

The claims are located in the Macmillan Pass area five km northwest of the North Canal Road. The property lies within an easterly trending graben near the northeastern margin of Selwyn Basin. The claims are underlain by Cambrian to Devonian shale, siltstone, chert and limestone and Devonian-Mississippian flysch and minor volcanic breccia. All strata are cut by easterly-striking felsic dykes up to 50 m wide. Tight folds occur throughout the property with thrust faults in the northern part.

Current Work and Results:

A total of 1,247 soil samples were collected on two grids in 1982. The samples were analyzed for Cu, Mn, Fe, Ag, Pb, Zn and Ba.

On the South grid, Pb (greater than 58 ppm Pb), Ba (greater than 5,000 ppm Ba) and Ag (greater than 2 ppm Ag) soil anomalies are underlain by Hadrynian phyllite. Copper anomalies (greater than 144 ppm Cu) are associated with a pyritic volcanic breccia at the base of the Earn Group.

On the North grid, Pb, Zn (greater than 1,000 ppm Zn), Ba and Ag soil anomalies are underlain by either the basal baritic unit of the Earn Group or Road River Formation fine grained clastic rock. Copper soil anomalies appear to be randomly distributed over Lower Earn Group and Road River Formation stratigraphy.

SIM
Hudson Bay Exploration and
Development Company Limited
105 O 2 (39)
(63°10'N,130°32'W)

Claims: SIM 1-8

Current Work and Results:

In 1982, grid soil and stream sediment sampling and mapping programs were carried out. The claims cover the contact between a Cretaceous pluton and Mississippian siltstone, sandstone and shale.

SUN
Hudson Bay Exploration and
Development Company Limited
Geochemical Target
105 O 3 (40)
(63°10'N,131°07'W)

Reference: D.I.A.N.D. (1982, p. 173,176-177).

Claims: SUN (30)

Source: Summary by K. Grapes from assessment report 091367 by G. Fraser.

Current Work and Results:

In 1982, work on the claims consisted of soil, stream sediment and rock geochemical sampling, along with geological mapping.

One hundred and fourteen soil samples were collected from the northwest section of the claim block and analyzed for Cu, Pb, Au and Ag. Forty-two silt samples were collected and assayed for Pb, Zn, and Ag. Results show several significant anomalies in which lead and zinc appear to be associated.

Analyses of thirteen rock samples for Cu, Pb, Zn and Ag did not delineate any trends.

Geological mapping indicates that the property can be divided into three lithologic packages. The oldest group is comprised of sedimentary units of the Road River Formation. This is overlain by clastic rocks of the Lower Earn Group and Carboniferous shale, siltstone, sandstone and limestone. A Cretaceous granodiorite plug has intruded to the north of the claims, producing a distinctive rusty weathering aureole in the sedimentary rocks on the property.

EMMY
Union Carbide Exploration
Corporation
Silver, Gold, Lead
105 O 6 (42)
(63°21'N,131°20'W)

References: Abbott, J.G. (1982); D.I.A.N.D. (1982, p.173,177).

Claims: EMMY 1-16

Source: Summary by K. Grapes from assessment report 091377 by D.H. James.

History:

During the years 1971-1976, several exploration programs were conducted in the Niddery Lake area. At that time stream concentrates were analyzed for WO₃ and Cu. The samples were re-analyzed for gold, silver, molybdenum, and arsenic in 1981. A number of anomalous areas were delineated and followed up with further prospecting, and stream sediment geochemistry. The 16 EMMY claims were staked in 1981 to cover a gold-arsenic anomaly.

Description:

The claims are situated approximately 12 km north of Niddery Lake, 67 km west of Macmillan Pass.

Current Work and Results:

The primary purpose of the 1982 program was to map the property at 1:10,000 scale.

A quartz monzonite pluton outcrops in the northwest corner of the property. In the southwestern portion of the claim block, black and white banded chert and quartzite occur. A black breccia unit is associated with faulting in this area. The breccia is made up of brecciated quartzite, crushed chert, gossan quartz, sheared black shales and black clay gouge transected by quartz veins. The southern portion of the claims are underlain by brown to rusty weathering, fine grained, light hornfels increasing in darkness towards the north. In the north the hornfels are in fault contact with black shale. The shale grades into interbedded black shale and brown argillite bands which grade into chert, argillite, minor siliceous black shale and rare white pyritic marble. Quartz veining and stockwork occur within the black breccias, the altered cataclastic zones adjacent to the major fault and smaller subsidiary faults and associated with altered felsic dykes. Epithermal vein characteristics are present, including: banded ribbon quartz, cockscomb textures, small vugs lined with drusy quartz and irregular white to grey chalcedonic patches. Brecciated hornfels fragments are caught up in the vein. Visible sulphides include pyrite and arsenopyrite. This vein yielded a gold assay of 3,400 ppb Au. Geochemical analysis indicates that argentiferous galena, stibnite and bismuthinite may occur in some of the veins. Altered hornfels in the cataclastic zone adjacent to the major fault returned above background values of gold with a maximum of 660 ppb Au. Black breccia with small argentiferous galena concentrations returned values of 3.7% Pb and 948 g Ag/t.

FAL
Hudson Bay Exploration and
Development Company Limited

Unmineralized
Target
105 0 7 (43)
(63°15'N, 130°15'W)

Claims: FAL (14)

Current Work and Results:

The claims were staked to cover favourable, early-mid Devonian chert, cherty argillite and volcanic rocks and younger Devonian shales. These rocks contain several gossans and a siderite showing. In 1982, grid mapping, soil and rock geochemistry surveys were conducted.

BAR
Hudson Bay Exploration and
Development Company Limited

Barite
105 0 7 (44)
(63°19'N, 130°57'W)

References: Abbott, J.G. (1982); D.I.A.N.D. (1982, p.173,177).

Claims: BAR 1-30

Source: Summary by K. Grapes from assessment report 091375 by G. Fraser.

History:

The BAR claims were staked in 1981 to cover bedded barite showings in favourable Devonian stratigraphy.

Description:

The claims are situated approximately 42 km northwest of the Macmillan Pass airstrip, 224 km northeast of Ross River. The property is located near the North and Central Blocks of the Macmillan Fold Belt (Abbott, 1982). The North Block represents thrust sheets of Cambro-Ordovician and older units, overriding highly folded Devonian stratigraphy of the Central Block.

Barite showings occur at the contact of Middle to Upper Devonian, dark blue chert and brown weathering, thinly laminated shale and siltstone of the Mississippian Upper Earn Group. The barite beds are dark grey to black and well bedded, commonly with shale laminae.

Current Work and Results:

In 1982, work on the property consisted of soil and rock geochemical sampling, geological mapping and hand trenching. One hundred and one soil samples, 12 rock samples and 11 channel samples collected across the two trenches, were analyzed for Cu, Pb, Zn, Ag and Ba. Several anomalous values of each element occur near the blue chert-shale and siltstone contact, and particularly near the exposed barite beds. However the values are not consistent.

ETZEL
Union Carbide Exploration
Corporation

Lead, Zinc, Antimony
Veins
105 0 12 (46)
(63°39'N, 131°55'W)

Reference: D.I.A.N.D. (1982, p.171,173,178).

Claims: ETZEL 1-32

Source: Summary by K. Grapes from assessment report 091378 by D.H. James.

History:

The ETZEL claims were staked in 1981 to cover mineralized quartz veins and an area of mineralized

float.

Description:

The property is located seven km south of the Rogue River and 105 km to the northwest of Macmillan Pass. The claims straddle the contact between the "Grit Unit" of Hadrynian to Cambrian age and sedimentary rocks of Ordovician to Mississippian age.

Current Work and Results:

The property was mapped on a scale of 1:20,000 in 1982.

The "Grit Unit" occupies the northern half of the claim block. It consists of maroon and green shale interbedded with minor brown weathering shale, grading upwards into shale interbedded with argillite and thinly bedded fine-grained sandstone. The unit is capped by orange or grey weathering limestone beds in fault contact with overlying Early to Mid-Devonian sedimentary rocks. To the south, the Mid-Devonian sedimentary rocks are underlain by grey phyllite. Silurian intermediate volcanic flows outcrop in the southeast, and thin to the north and east.

The ridge forming the southwestern property boundary comprises a very thick sequence of massive bedded chert pebble conglomerate, Middle to Late Devonian in age, which is underlain by a sequence of thin-bedded black and white chert, cherty argillite, chert conglomerate and black siliceous shale. A mid-Cretaceous granodiorite intrudes the package in the south central portion of the claims. Quartz veins are largely confined to the granodiorite. The earliest veins occupy a regularly oriented vertical and horizontal joint system probably related to cooling and shrinkage of the pluton subsequent to emplacement. These veins are cut by a later generation of quartz veining with associated hydrothermal alteration. Minor chalcopyrite was noted in some veins and pyrite-arsenopyrite-(stibnite) mineralization is associated with south dipping quartz veins. Sulphides preferentially concentrate along the vein margin. Small pockets of disseminated mineralization occur at the intersection of the veins. One banded vein about 7 cm wide contains visible sulphides which include pyrite, arsenopyrite, galena, fine-grained stibnite and yellow-brown sphalerite.

BBOB

AGIP Canada Limited

105 O 8 (50)
(63°23'N, 130°00'W)

Claims: BBOB 1-9

Current Work and Results:

The claims were staked to cover a gossan. In 1982, the claims were mapped at 1:31,000 scale and silt and soil sampled. Two small hand trenches were also excavated.

J.K.
Aberford Resources
Ltd.

Barite
105 O 1 (51)
(63°09'N, 130°23'W)

Reference: D.I.A.N.D. (1982, p.173-175,177).

Claims: J.K. 1-160

Source: Summary by K. Grapes from assessment report
091409 by J.D. Kapusta.

History:

The J.K. claims were staked in 1981 to cover a newly discovered bedded barite occurrence.

Description:

The claims are located nine km northwest of the Canol Road at Macmillan Pass, adjoining the JASON claims to the west.

Current Work and Results:

In 1982 work on the property consisted of soil and rock chip sampling, hand trenching, prospecting and geological mapping.

A total of 395 soil (humus, A, B, C horizon) samples were collected and analyzed for Pb, Ag, Zn and Ba. High Ba anomalies (greater than 20,000 ppm) indicate extension of the barite occurrence to the northwest and southeast. High Zn anomalies (greater than 150 ppm) occur in areas underlain by Road River Formation.

Rock chip samples were collected from sections through the Road River Formation and the Upper Earn Group to determine whether there is a geochemical signature for each lithologic unit. The Road River Formation is high in zinc while the Upper Earn Group contains low, erratic values of zinc and a consistent lead, silver median.

Four one metre deep trenches were blasted to determine the depth of the weathered zone over the barite horizon, and the thickness of ferricrete cover in the valley bottom. The weathering zone and ferricrete thickness exceed one meter in depth.

Mineralization on the claims consists of laminated and nodular baritic sedimentary rock in the Lower Earn Group, associated with accumulations of lead, zinc and silver.

1982 MINERAL CLAIMS STAKED

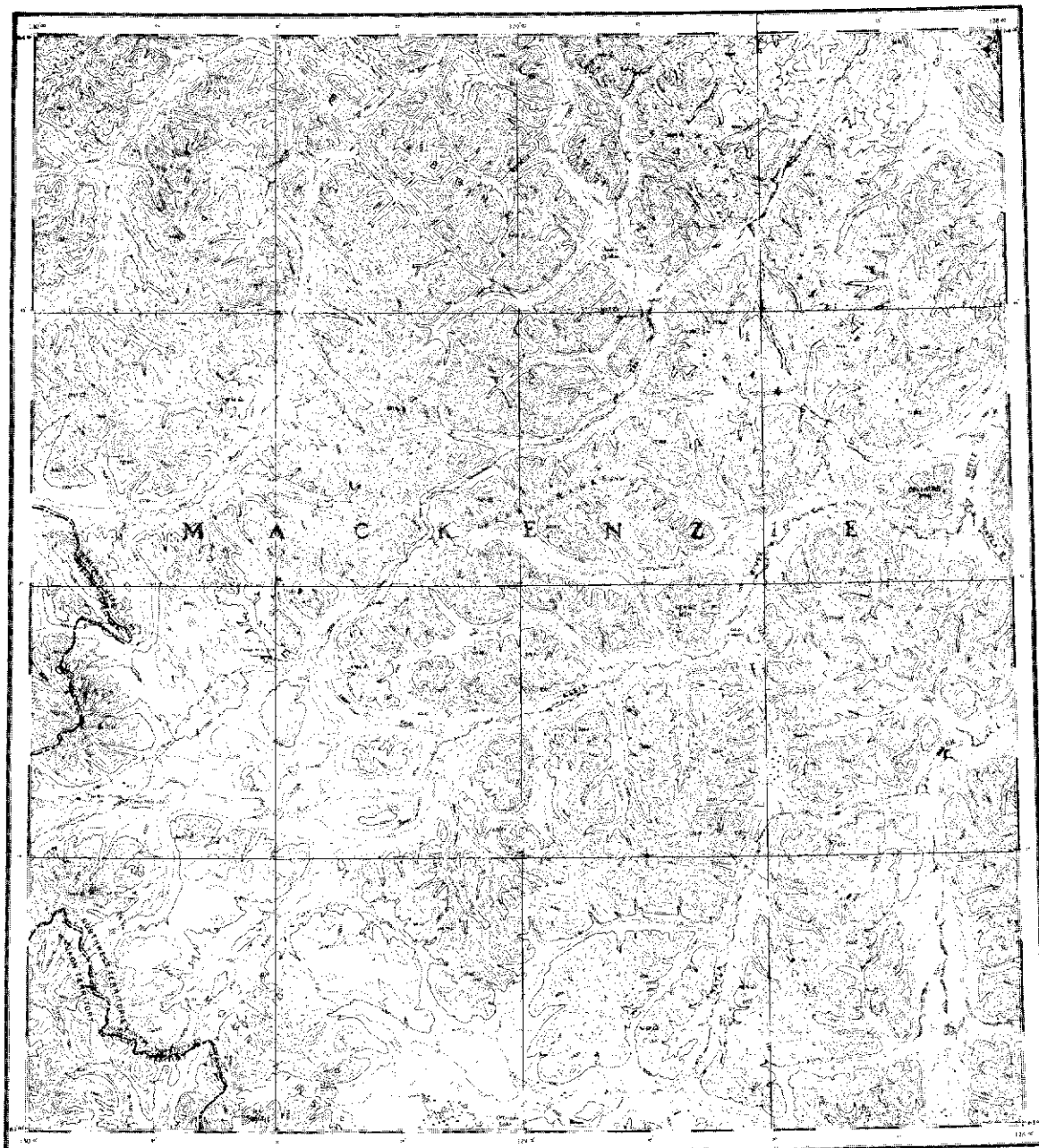
ALP
Hudson Bay Exploration and
Development Company Limited

105 O 2 (4)
(63°08'N, 130°33'W)

Claims 1982: ROSS 1-8

TRYALA	105 0 7 (19)	BORD	105 0 8 (22)
T. Jenkins	(63 16'N,130 37'W)	SEREM Ltd.	(63 21'N,130 01'W)
Claims 1982: KAM 3-6		Claims 1982: WALL 1-24	
NUT	105 0 7 (48)	BBOB	105 0 8 (50)
Amax Of Canada Limited	(63 27'N,130 39'W)	AGIP Canada Limited	(63 23'N,130 00'W)
Claims 1982: NUT 1-16		Claims 1982: BBOB 1-8	
SMOKEY	105 0 7 (49)	OLD CABIN	105 0 11 (36)
	(63 28'N,130 42'W)	Union Carbide Canada Limited	(63 42'N,131 30'W)
Claims 1982: SMOKEY 1-16; PETER 1-4; HAZEL 1-4		Claims 1982: CABIN 124-137	

105P



SEKWI MOUNTAIN

NORTHWEST TERRITORIES - YUKON TERRITORY

Kilometres 5 0 5 10 15 20 25 30 Kilometres

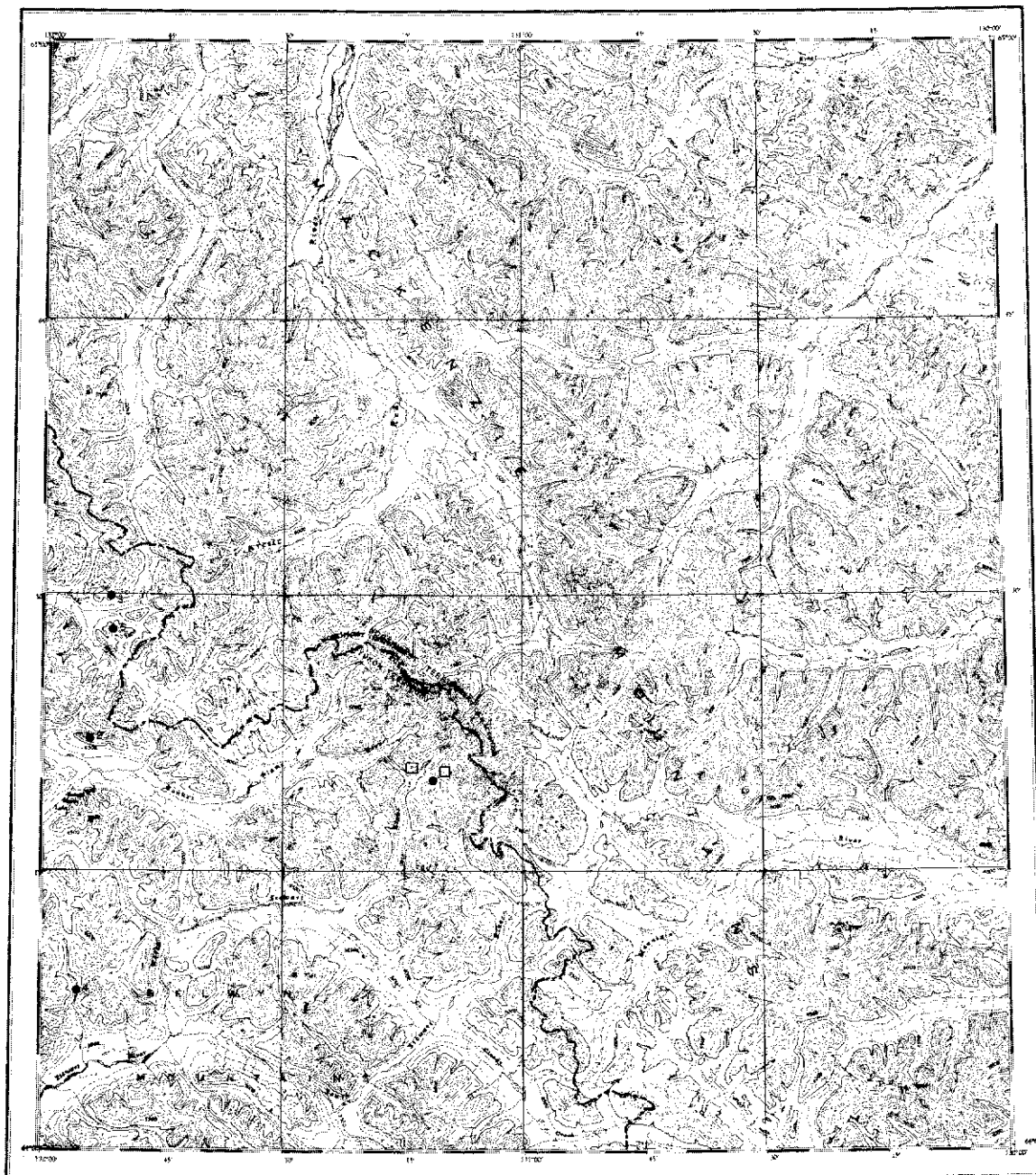
- | | | |
|--|--|---------------------|
| ● PI Mineral Deposit or Discharge
see Key on facing page | ———— Placer Leases in good standing (Jan. 1983) | ----- Tote Trail |
| ○ PT Unmineralized Target | ~~~~~ Placer Claims in good standing (Jan. 1983) | ———— Driveable Road |
| □ Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982 | CEL Coal Exploration Licence | ✦ Oil or Gas Well |
| □ Mineral Claims staked in 1982 | CML Coal Mining Lease | —— Airstrip |

SEKWI MOUNTAIN MAP-AREA (NTS 105 P)

General Reference: GSC Paper 71-22 by: S.L. Blusson,
1971.
GSC Open File 710 by: M.P. Cecile,
1980.
GSC Open File 807 by: S.P. Gordey,
1981.

NO.	PROPERTY NAME	REFERENCE
1	MEHITABEL	Skarn Copper-Tungsten-Molyb- denum

106B



BONNET PLUME LAKE YUKON - NORTHWEST TERRITORIES

Kilometres 5 0 5 10 15 20 25 30 Kilometres

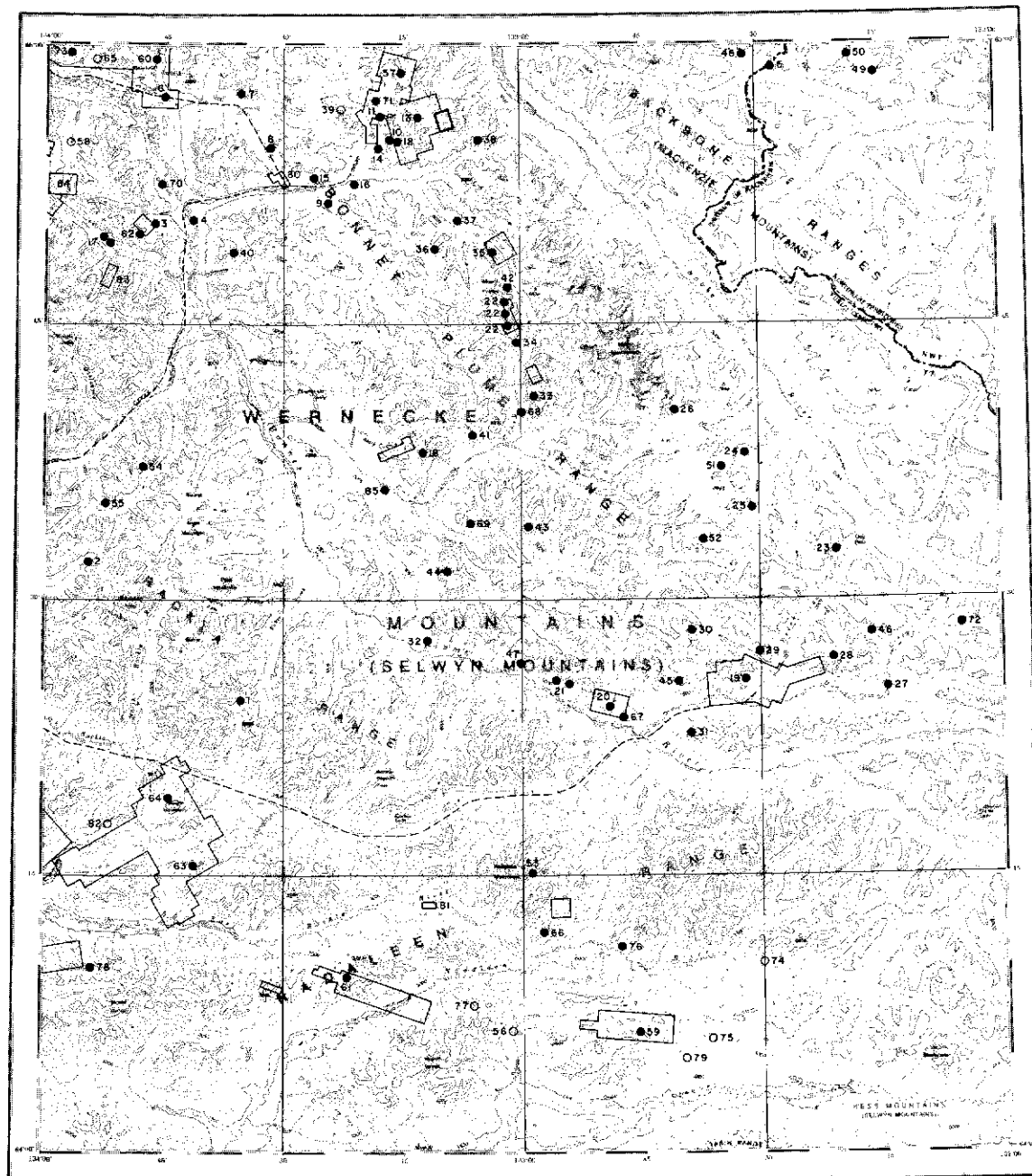
- | | | |
|---|--|---|
| <p> Mineral Deposit or Occurrence
see Key on facing page</p> <p> Unmineralized Target</p> <p> Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982</p> <p> Mineral Claims staked in 1982</p> | <p> Placer Leases in good standing (Jan. 1983)</p> <p> Placer Claims in good standing (Jan. 1983)</p> <p> CEL Coal Exploration Licence</p> <p> CML Coal Mining Lease</p> | <p> Tail Trail</p> <p> Driveway Road</p> <p> Oil or Gas Well</p> <p> Airstrip</p> |
|---|--|---|

BONNET PLUME MAP-AREA (NTS 106 B)

General Reference: GSC Open File 205 by: S.L.
Blusson, 1974.
GSC Open File 710 by: M.P. Cecile,
1980.

NO.	PROPERTY NAME	REFERENCE
1	ECONOMIC	Sinclair et al (1975, p. 19)
2	ANDY	Dawson (1975, p. 240-241)
3	NECO	Zinc-Lead Vein
4	BIRKELAND	Lead-Zinc
5	PR	Morin et al (1977, p. 118)

106C



NADALEEN RIVER YUKON TERRITORY - NORTHWEST TERRITORIES

Kilometres 5 0 5 10 15 20 25 30 Kilometres

- | | | |
|---|---|-------------------|
| ● 61 Mineral Deposit or Occurrence
see Key on facing page | — Placer Leases in good standing (Jan 1983) | — Tail Trail |
| ○ 72 Unmineralized Target | — Placer Claims in good standing (Jan 1983) | — Drivable Road |
| □ Mineral Claims in good standing (Jan 1983)
and staked before Jan. 1982 | CEL Coal Exploration Licence | ☆ Oil or Gas Well |
| □ Mineral Claims staked in 1982 | CML Coal Mining Lease | — Airstrip |

NADALEEN RIVER MAP-AREA (NTS 106 C)

General Reference: GSC Open File 205, 206 by: S.L. Blusson, 1974.
GSC Open File 710 by: M.P. Cecile, 1980.

NO. PROPERTY NAME	REFERENCE		
1 KOHSE	Copper Occurrence	35 PROFEIT	D.I.A.N.D. (1982, p. 186,190)
2 SALUTATION	Copper-Cobalt Occurrence	36 POO	Lead-Zinc Vein
3 GILLESPIE	Lead-Zinc Vein	37 CARNE (EG)	Sinclair et al (1975, p. 61-62)
4 GEORDIE	Lead-Zinc-Silver Occurrence	38 DAN	Sinclair et al (1975, p. 61)
5 GILDERSLEEVE	Dawson (1975, p. 241)	39 DOWSER (MAC)	Sinclair et al (1975, p. 63)
6 FAIRCHILD	This Report	40 LEARY	Zinc-Lead-Copper Vein
7 BIBBER	Copper Vein	41 CANWEX (WX)	Sinclair et al (1975, p. 56-57)
8 DOLORES	Copper-Silver-Cobalt Vein	42 COAST (SUN)	Sinclair et al (1975, p. 60)
9 KEY MOUNTAIN	D.I.A.N.D. (1982, p. 185-186)	43 BOB	Lead-Zinc Occurrence
10 MAMMOTH	Findlay (1969b, p. 16-17)	44 BRENDON (RAM)	Sinclair et al (1975, p. 51)
11 CIRQUE	Copper-Cobalt-Silver Vein	45 GAL	Sinclair et al (1975, p. 30-31)
12 PORPHYRY	Findlay (1969b, p. 16-17)	46 ENVOY (RUM)	Sinclair et al (1975, p. 37,39)
13 TETRAHEDRITE CREEK	This Report	47 TAPIN	
14 AIRSTRIP	Copper	48 CAB	Morin et al (1979, p. 41)
15 VULCAN	D.I.A.N.D. (1982, p. 186)	49 BAK	Zinc-Lead Stratabound
16 DOBBY	Copper Occurrence	50 MOGUL	Sinclair et al (1975, p. 66)
17 KIDNEY	Copper Vein	51 DUNE	Zinc-Lead Vein
18 PING (CORN CREEK)	Sinclair et al (1975, p. 53-54)	52 SNAKE	Lead-Zinc Stratabound
19 GOZ CREEK	Sinclair et al (1975, p. 23-24)	53 McKELVIE	Zinc-Lead-Barium Vein
20 HARRISON	Sinclair et al (1975, p. 41-42)	54 MARSHALL	Copper Occurrence
21 MUELLER	Sinclair et al (1975, p. 42-43)	55 ALGAE	Copper Occurrence
22 CORN CREEK (COB)	Sinclair & Gilbert (1975, p. 26)	56 LEAH	D.I.A.N.D. (1981, p. 224)
23 ZOG	Zinc Occurrence	57 RAM	D.I.A.N.D. (1981, p. 224)
24 GOODMAN (AL)	Sinclair et al (1975, p. 64-65)	58 LFV	D.I.A.N.D. (1981, p. 235)
25 NEST	Sinclair et al (1975, p. 33-35)	59 SIAN	D.I.A.N.D. (1981, p. 224)
26 TOPOROWSKI	Zinc-Lead Stratabound	60 OTTER	D.I.A.N.D. (1982, p. 186-187)
27 ANGLO	Sinclair et al (1975, p. 38,40)	61 CRAIG	D.I.A.N.D. (1981, p. 225-230)
28 GUS	Sinclair et al (1975, p. 36)	62 TOW	D.I.A.N.D. (1981, p. 231)
29 GENTRY	Sinclair et al (1975, p. 24-28)	63 VAL	D.I.A.N.D. (1982, p. 187)
30 CADET	Sinclair et al (1975, p. 29,46)	64 VERA	D.I.A.N.D. (1982, p. 187)
31 LOG		65 ELGEA	D.I.A.N.D. (1982, p. 187-188)
32 MOUSE	Sinclair et al (1975, p. 40-41, 49-50)	66 TARA	
33 FRIGSTAD (STAR)	Sinclair et al (1975, p. 55-56)		D.I.A.N.D. (1982, p. 188,190)
34 SPECTROAIR(DEA)	Sinclair et al (1975, p. 58-59)	67 FUN	Sinclair et al (1976, p. 41)
		68 DF	Sinclair et al (1976, p. 50)
		69 MID	Sinclair et al (1976, p. 51)
		70 ALE	Sinclair et al (1976, p. 56)
		71 PTERD	D.I.A.N.D. (1982, p. 188)
		72 REP	Morin et al (1979, p. 39)
		73 BROMADROSIS	Morin et al (1977, p. 122)
		74 EIRA	Morin et al (1979, p. 35)
		75 BLACK IDA	Morin et al (1979, p. 35)
		76 JAM	Morin et al (1979, p. 36)
		77 STAR	Morin et al (1979, p. 36)
		78 COOKER	Morin et al (1980, p. 37)
		79 GLEN	Morin et al (1980, p. 10)
		80 BONNET	D.I.A.N.D. (1982, p. 190)
		81 STRIP	D.I.A.N.D. (1982, p. 190)
		82 RAFF	D.I.A.N.D. (1982, p. 190)
		83 JOLLY	This Report
		84 APE	This Report
		85 DJ	Sinclair et al (1975, p. 52)

FAIRCHILD
Energex Minerals
Limited

Uranium, Copper
Breccia
106 C 13 (6)
(64° 57'N, 133° 45'W)

091026 by K.V. Campbell and C.K. Ikona.

Current Work and Results:

In the fall of 1981, a program of geological mapping, geochemical soil and rock chip sampling, and detailed rock sampling of mineralized areas and representative outcrops was carried out on the ground northeast of Fairchild Creek. The results were combined with terrain analysis and geochemical gradient analysis to outline copper mineralization and

References: D.I.A.N.D. (1981,p.223); Morin et al (1980, p.11-12).

Claims: FAIR (33)

Source: Summary by K. Grapes from assessment report

estimate the range of copper values in the area.

On the east side of Fairchild Creek, basic hornfels underlies clastic rock of the Proterozoic Fairchild Lake Group. The thin bedded, laminated strata strike east-west and dip moderately to the north. Faults trend northeast with near vertical dips and are commonly mineralized with copper. Widespread chalcopryrite and malachite mineralization occurs in basic hornfels, calc-silicate hornfels and calcareous metasedimentary rocks. Chalcopryrite occurs as fine grained disseminations, blebs and fine stringers.

Chip samples over 13 m across copper mineralized fractures in the basic hornfels averaged 0.38% Cu. Rock samples of calc-silicate hornfels averaged 0.29% Cu and calcareous metasedimentary rocks overlying basic hornfels averaged 0.61% Cu.

Two soil anomalies were delineated on the north-east side of Fairchild Creek, one of which is located on a major northerly trending fault.

JOLLY	Lead, Zinc Vein
Wernecke Joint Venture;	106 C 13 (83)
Archer, Cathro and	(64°48'N, 133°54'W)
Associates (1981) Limited	

Reference: D.I.A.N.D. (1982, p.185,189-190).

Claims: JOLLY 1-10

Source: Summary by K. Grapes from assessment report 091442 by W.D. Eaton.

Current Work and Results:

Geological mapping, hand trenching and airphoto interpretation were conducted on the claims in 1982.

Fracture-filling mineralization containing varying amounts of galena and sphalerite, abundant pyrite and trace chalcopryrite occurs in the area.

Soil anomalies support stream sediment geochemical results with values of up to 870 ppm Pb, 2,600 ppm Zn and 225 ppm Cu.

APE	Copper, Uranium,
Wernecke Joint Venture;	Cobalt, Molybdenum
Archer, Cathro and	106 C 13 (84)
Associates (1981) Limited	(64°52'N, 133°58'W)

Reference: D.I.A.N.D. (1982, p.185,189-190).

Claims: APE 1-24

Source: Summary by K. Grapes from assessment report 091444 by W.D. Eaton.

Current Work and Results:

The northern extension of the U, Mo bearing shear zone in the central claims was prospected and rock and soil sampled in detail.

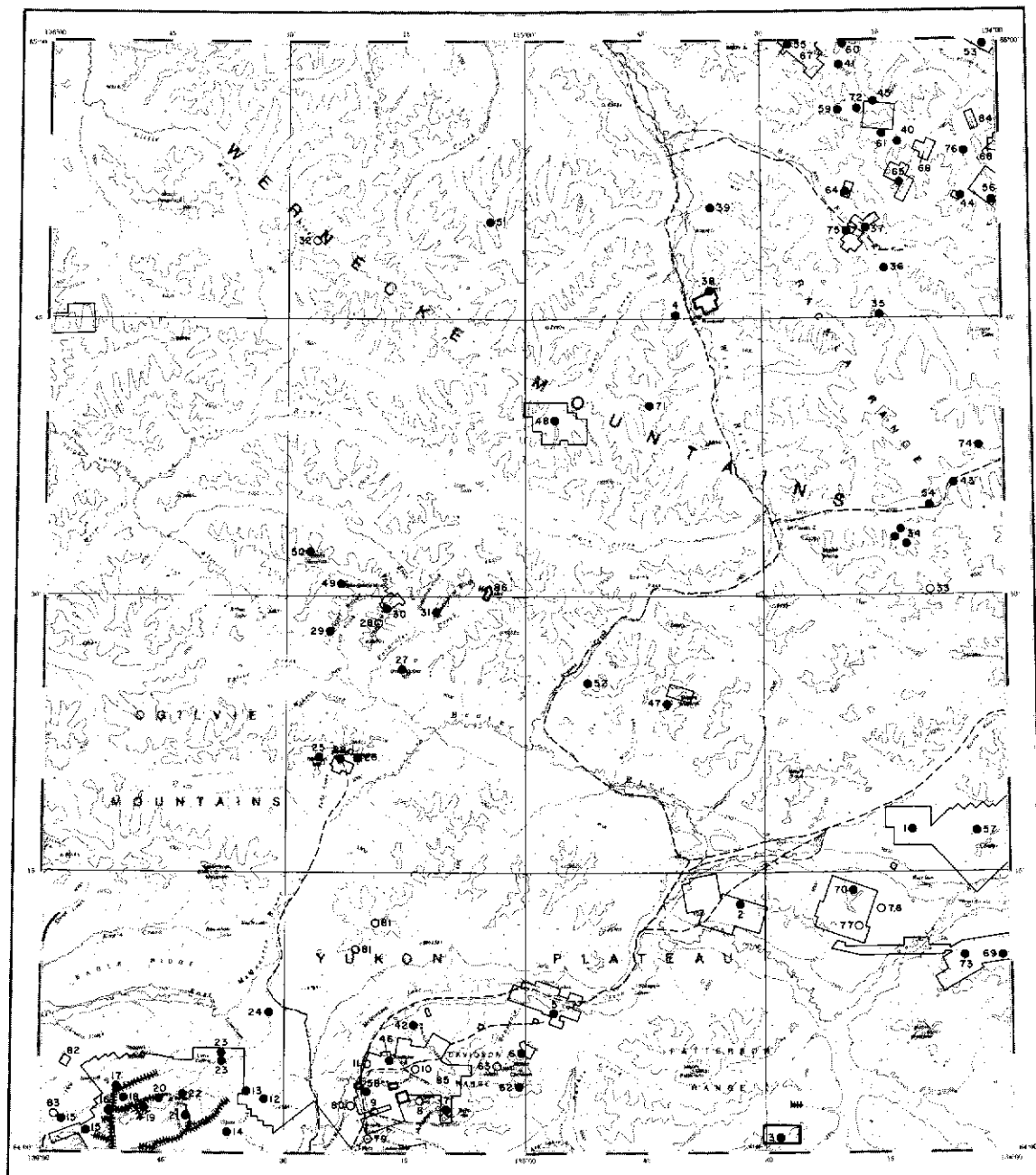
1982 MINERAL CLAIMS STAKED

TETRAHEDRITE CREEK	106 C 14 (13)
Texaco Resources Canada	(64°53' - 64°53'N,
Limited	133°13' - 133°30'W)

Claims 1982: IOTA 113-128

NOTES

106D



NASH CREEK YUKON TERRITORY

Kilometres 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|-------------------|
| ● Mineral Deposit or Occurrence
see Key on facing page | — Placer Leases in good standing (Jan. 1983) | --- Total Trail |
| ○ Unmineralized Target | --- Placer Claims in good standing (Jan. 1983) | — Driveable Road |
| □ Mineral Claims in good standing (Jan. 1983)
and stated before Jan. 1982 | CEL Coal Exploration Licence | ◆ Oil or Gas Well |
| □ Mineral Claims stated in 1982 | CML Coal Mining Lease | — Airstrip |

NASH CREEK MAP-AREA (NTS 106 D)

General Reference: GSC Map 1282A and Memoir 364 by:
L.H. Green, 1972.
GSC Open File 710 by: M.P. Cecile,
1980.

NO. PROPERTY
NAME REFERENCE

1	KATHLEEN	D.I.A.N.D. (1982, p. 194)
2	NOW	D.I.A.N.D. (1981, p. 238)
3	MARG	Lead-Zinc-Silver-Copper Strata-bound; This Report
4	WEN	Green (1972, p. 139)
5	CLARK	Sinclair & Gilbert (1972, p. 15-16); Craig & Laporte (1972, p. 19-20)
6	CAMERON (PAUL)	Green (1971, p. 63-64); Sinclair et al (1975, p. 16-17)
7	STAND-TO	Findlay (1969b, p. 13-14); D.I.A.N.D. (1982, p. 198)
8	FORBES	Cockfield (1922)
9	SPRING (HL)	Craig & Milner (1975, p. 30); D.I.A.N.D. (1982, p. 198)
10	RAMBLER	Cockfield (1922, p. 4-5); Green (1971, p. 63); D.I.A.N.D. (1981, p. 244)
11	RUSTY	
12	ERIN	Craig & Laporte (1972, p. 16-17)
13	GWAIHIR	D.I.A.N.D. (1981, p. 238)
14	SKATE	D.I.A.N.D. (1982, p. 194)
15	PESO (REX)	Green (1965, p. 20-22); D.I.A.N.D. (1981, p. 244)
16	BARKER	Boyle (1965, p. 84)
17	MEILECKE	Silver-Lead Vein
18	SHEPPARD	Mulligan (1975, p. 73-74)
19	DUBLIN GULCH	This Report
20	POTATO HILLS	Little (1959, p. 21-29, 34-36); Craig & Milner (1975, p. 24-25)
21	RAY GULCH	D.I.A.N.D. (1981, p. 240)
22	ELLIS	Green & Godwin (1963, p. 15)
23	LYNX	Green & Godwin (1963, p. 15); D.I.A.N.D. (1981, p. 244)
24	LUCKY STRIKE	Green (1972, p. 137); D.I.A.N.D. (1982, p. 198)
25	WHITE HILL	Cockfield (1925, p. 1-18)
26	MCKAY HILL	Cockfield (1924, p. 22-28); Green (1972, p. 133-134); D.I.A.N.D. (1981, p. 244)
27	GREY COPPER HILL	D.I.A.N.D. (1981, p. 240)
28	CARPENTER	Cockfield (1925, p. 1-18)
29	ELLIOTT RIDGE	Cockfield (1925, p. 1-18)
30	SILVER HILL	Cockfield (1925, p. 1-18); Green (1972, p. 133)

31	SETTLEMEIR	
32	ROYAL	
33	ZULPS	Copper Vein
34	McCLUSKY	Copper Occurrence
35	GRAY	Findlay (1969a, p. 16)
36	NEW JERSEY	Findlay (1969a, p. 16)
37	PAGISTEEL	D.I.A.N.D. (1982, p. 195)
38	AHEARNE	Green (1972, p. 139); This Report
39	FRAN	Green (1972, p. 143)
40	FORD	Copper-Lead Vein
41	SLATS	Copper Vein
42	JEE	
43	DRESEN	Copper Vein
44	FOUND	Copper Vein; D.I.A.N.D. (1982, p. 198)
45	BUT	Copper Vein
46	NAT	Lead-Silver-Zinc-Copper Vein; D.I.A.N.D. (1982, p. 198)
47	BRAINE	D.I.A.N.D. (1982, p. 195-196, 198)
48	BOND	Green (1972, p. 139)
49	LINGHAM	Lead-Zinc Vein
50	NEWT	Lead-Zinc Vein
51	SIHOTA	Copper-Zinc Vein
52	CLOUTIER	Lead-Zinc-Silver-Copper-Gold Vein
53	SLAB	Findlay (1969b, p. 17-18)
54	LOUIE	Copper Vein
55	EATON	This Report
56	CORD	D.I.A.N.D. (1982, p. 196, 198)
57	ZAP	D.I.A.N.D. (1981, p. 241)
58	J.T.	This Report
59	ARCTOS	D.I.A.N.D. (1982, p. 196-197)
60	RAD	D.I.A.N.D. (1982, p. 197)
61	URSUS	D.I.A.N.D. (1982, p. 197)
62	SPRING	D.I.A.N.D. (1981, p. 244)
63	DEAL	D.I.A.N.D. (1981, p. 244)
64	FACE	D.I.A.N.D. (1982, p. 197-198)
65	ADUB	D.I.A.N.D. (1982, p. 195, 198)
66	HAIL	D.I.A.N.D. (1982, p. 195)
67	PIK	D.I.A.N.D. (1981, p. 244); D.I.A.N.D. (1982, p. 198)
68	SNOW STAR	D.I.A.N.D. (1982, p. 195)
69	ROD	D.I.A.N.D. (1981, p. 242)
70	BLUE LITE	D.I.A.N.D. (1981, p. 243-244)
71	BOZO	Sinclair et al (1976, p. 62)
72	GNUCKLE	Morin et al (1977, p. 125)
73	BAG	Morin et al (1980, p. 13)
74	JAZ	Morin et al (1979, p. 43)
75	PITCH	Morin et al (1979, p. 44)
76	SER	Morin et al (1979, p. 45)
77	KATHY	Morin et al (1980, p. 14)
78	LEEN	D.I.A.N.D. (1982, p. 198)
79	D. BURKE	D.I.A.N.D. (1982, p. 198)
80	SHARON	D.I.A.N.D. (1982, p. 198)
81	BREFAULT	D.I.A.N.D. (1982, p. 198)
82	KISS	D.I.A.N.D. (1982, p. 198)
83	COLLEEN	D.I.A.N.D. (1982, p. 198)
84	SAM	D.I.A.N.D. (1982, p. 198)
85	FOHU	
86	NANCY	This Report

MARG
Archer, Cathro and
Associates (1981) Limited

Geochemical Target
106 D 1 (3)
(64°00'N, 134°27'W)

Claims: TUDL (32)

Current Work and Results:

The claims cover a geochemical anomaly underlain by graphitic schists within the Keno Hill 'Central Quartzite'. The ground was initially staked as the JACK, MARG and HEATHER claims in 1965 by Canadian Superior Exploration Limited to cover a Pb-Zn anomaly outlined by the G.S.C.'s Operation Keno. It was examined in 1965-66 by a Joint Venture between Canadian Superior Exploration Ltd. and United Keno Hill Mines Ltd. In 1977, it was restaked as the FLASH claims by Mountaineer Mines Ltd. and Welcome North Mines Ltd. but no work was recorded. In 1982, reconnaissance scale soil and rock sampling and a re-evaluation of old trenches was carried out for 2X Joint Venture.

DUBLIN GULCH
Canada Tungsten Mining
Corporation Limited;
Queenstake Resources
Limited

Tungsten Skarn
106 D 4 (19)
(64°02'N, 135°50'W)

Reference: D.I.A.N.D. (1982, p. 193-195).

Claims: ALEC; BOB; C.J.; DAVE; D.G.; JEFF; MAR; MOLE;
R.D.; SMOKEY; WEASEL. In total 891 claims
plus fractions.

Source: Summary by K. Grapes from assessment report
091387 by C. Orssich and J. Donnelly.

Current Work and Results:

During the summer of 1982 three NQ holes were drilled on the MAR claims; one hole totalling 287.13 m on the MAR 19 claim and two holes totalling 451.11 m on the MAR 21 claim. Thirty trenches were excavated on the property; six on the D.G. 53, 54 claims, two on MAR 1, nine on MAR 3, three each on MAR 5 and 11, one each of MAR 6, 8, 19, and 21, and three on ALEC 14.

All three diamond drill holes intersected tungsten mineralization. The best values returned were from hole 82-1; 0.18% WO₃, 0.34 g Au/t over 0.8 m and 0.139% WO₃ over 1.7 m. Best mineralization occurs in a dark green hedenbergite skarn containing minor to moderate scheelite mineralization and veins and/or veinlets of pyrrhotite. Values returned from a fracture zone containing chlorite and light green carbonate with an arsenopyrite-sericite vein were 1.37 g Ag/t and 0.96 g Au/t.

EATON
Wernecke Joint Venture;
Archer, Cathro and
Associates (1981) Limited

Copper, Uranium
Breccia
106 D 16, 106 E 1
(55)
(65°00'N, 134°26'W)

Reference: D.I.A.N.D. (1982, p.192-193,196).

Claims: PIKE 1-51,55-108

Source: Summary by K. Grapes from assessment report
091437 by W.D. Eaton.

Current Work and Results:

The 1982 program included grid geochemical and geophysical (magnetic, IP, VLF-EM and radiometric) surveys over a large soil anomaly outlined in 1981, as well as detailed geological mapping, geochemical sampling and hand trenching.

Soil and rock chip samples collected in the area of the 1981 anomaly were analyzed for copper and molybdenum.

The geophysical surveys classified the rock units in terms of magnetic susceptibility, sulphide content and resistivity as well as outlining fault zones.

A trench was excavated on the radioactive quartz float train. The trench did not reach bedrock but did show that the zone of anomalous soils associated with the float train is narrow.

J.T.
Hacienda Oil and Minerals
Limited;
W.G. Timmins Exploration
and Development Limited

Silver, Lead Vein
106 D 3 (58)
(64°03'N, 135°19'W)

Reference: D.I.A.N.D. (1981, p.237,241).

Claims: J.T. 1-56; H.L. 1-32

Source: Summary by K. Grapes from assessment report
090912 by B.J. Wing and W.G. Timmins.

History:

In 1968 Silver Springs Mines Ltd. conducted soil geochemical, geological and geophysical surveys and trenched on the Silver-Springs claim group, which is now covered by the J.T. and H.L. claims. In 1971 Canada Reserve Oil and Gas Limited conducted a geophysical program which outlined several conductors. W.G. Timmins Exploration and Development Ltd. conducted airborne magnetometer, VLF electromagnetic and radiometric surveys in 1979, delineating several conductors.

Current Work and Results:

Follow-up ground geophysical, geological and geochemical surveys were conducted in 1981 to focus on the anomalies delineated in the 1979 airborne survey.

Two airborne VLF-EM anomalies were located on the ground by the follow-up surveys. A weak conductor striking north-northeast and continuous over 1,200 m occurs east of Hanson Lake. A smaller conductor striking 340° and extending 800 m occurs to the west and converges with the south end of the first conductor.

Two hundred and fifty soil samples were collected and analyzed for Cu, Pb, Zn and Ag. Four zones anomalous in silver were delineated. Two of the zones are located along strike of the southerly VLF-EM conductor. One anomaly appears coincident with a zinc anomaly along strike with the VLF-EM conductor to the north of the property.

The only mineralization reported on the property was tetrahedrite in a north-northwest striking quartz vein approximately one metre in width.

1982 MINERAL CLAIMS STAKED

MARG	106 D 1	(3)
Archer Cathro and Associates (1981) Limited	(64°30'N, 134°28'W)	

Claims 1982: TUDL 1-32

J.T.	106 D 3	(58)
K. Hepner	(64°03'N, 134°20'W)	

Claims 1982: RAFE 1

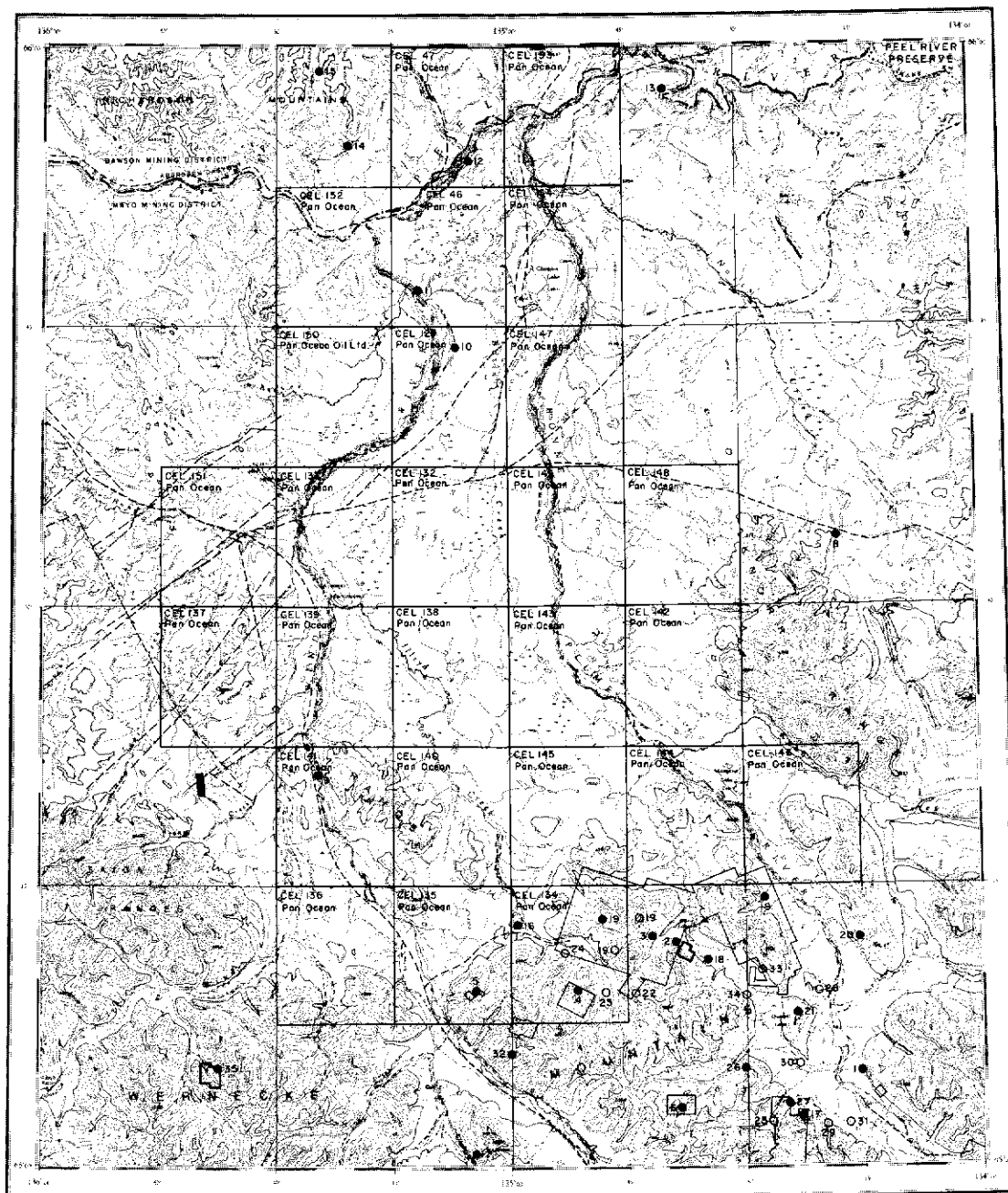
NANCY	106 D 6, 11	(86)
R. Furniss	(64°30'N, 135°04'W)	

Claims 1982: NANCY 1-3

AHEARNE	106 D 15	(38)
Wolfe Resources	(64°46'N, 134°22'W)	

Claims 1982: BUG 1-6

106E



WIND RIVER YUKON TERRITORY

Kilometres 5 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|-------------------|
| ● ⁶¹ Mineral Deposit or Occurrence
see Key on facing page | — Placer Leases in good standing (Jan. 1983) | — Tote Trail |
| ○ ⁷² Unmineralized Target | — Placer Claims in good standing (Jan. 1983) | — Driveable Road |
| □ Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982 | CEL Coal Exploration Licence | ★ Oil or Gas Well |
| □ Mineral Claims staked in 1982 | CML Coal Mining Lease | — Airstrip |

WIND RIVER MAP-AREA (NTS 106 E)

General Reference: GSC Open File 715 by: D.K. Norris,
1980.
GSC Map 1528A by: D.K. Norris,
1982.

NO. PROPERTY NAME	REFERENCE
1 IRENE	Blusson (1976, p. 132)
2 GREMLIN	This Report
3 CHLOE	Lead-Zinc Occurrence
4 FLUNK	Sinclair et al (1976, p. 65-67)
5 FORSTER (MST)	Sinclair et al (1975, p. 67-68); Morin et al (1977, p. 133)
6 IGOR	This Report
7 MAGIC	Sinclair et al (1975, p. 69)
8 HENDRY (DTS)	Sinclair et al (1975, p. 63-64)
9 PRONGS	Camsell (1907, p. 30)
10 CHAPPIE	Camsell (1907, p. 27-30)
11 BASIN	Camsell (1907, p. 27-30)
12 SAINVILLE	Camsell (1907, p. 41-46)
13 LOPSTICK	Camsell (1907, p. 41-46)
14 ONCE	Sinclair et al (1975, p. 86-87)
15 TUKU	Sinclair et al (1975, p. 87)
16 SLATER	Coal
17 OTIS	D.I.A.N.D. (1981, p. 246-247)
18 SCYLLA	D.I.A.N.D. (1981, p. 247)
19 DEER	Morin et al (1980, p. 18-20)
20 BEV	Sinclair et al (1976, p. 63)
21 WERNECKE	Morin et al (1980, p. 17)
22 YOGI	Morin et al (1980, p. 21)
23 JEANETTE	Sinclair et al (1976, p. 70)
24 WINDY	Sinclair et al (1976, p. 71)
25 CUS	
26 MARTET	Morin et al (1977, p. 128-129)
27 THORIUM	Morin et al (1977, p. 128)
28 MTR	Morin et al (1979, p. 48)
29 ORION	Morin et al (1979, p. 45-46)
30 GSTD	Morin et al (1979, p. 46)
31 POLARIS	Morin et al (1979, p. 47)
32 TAR	Morin et al (1980, p. 20)
33 RIN	Morin et al (1980, p. 18)
34 RAPI	Morin et al (1979, p. 49)
35 LWR	This Report

GREMLIN
Wernecke Joint Venture;
Archer, Cathro and
Associates (1981) Limited

Copper, Silver,
Cobalt
106 E 2 (2)
(65°11'N, 134°58'W)

History:

The DEMON claims were staked in 1982 to cover the Gremlin copper-cobalt occurrence formerly held by Cyprus Anvil Mining Corp. Since 1975 work on the claims has consisted of stream sediment, soil and rock chip geochemical sampling, geological mapping and geophysical surveying (magnetometer).

References: Morin et al (1977, p.132-133); Norris (1975); Sinclair et al (1976, p.69-70).

Claims: DEMON 1-8

Source: Summary by K. Grapes from assessment report 091436 by W.D. Eaton.

Current Work and Results:

Detailed mapping and chip sampling programs were

conducted on the claims in 1982, with emphasis towards identification of the mode of occurrence, grade, extent and zoning of mineralization.

Copper-cobalt mineralization is best developed in a siderite unit, while pyrite is the dominant sulphide in underlying strata, veins and stockwork. The siderite unit, containing coarse chalcopryrite with pyrite and minor cobaltite, occurs as two, almost massive, siderite lenses one metre apart. The sulphides occur as irregular massive pods up to 20 cm in diameter. The upper lens averages one metre in thickness and has a strike length of 150 m. Stockworks and most veins in the underlying rock have been truncated along the base of the lower lens. Seven, 10 kg channel samples were taken from the lowest lens. Highest values reported (3.85% Cu and 11.2 ppm Ag over one metre) were from the thickest part of the lens. Silver values are coincident with chalcopryrite, with cobalt occurring as cobaltite. Veins of massive pyrite and minor chalcopryrite up to 10 cm wide occur within the stockwork. Two chip samples of the stockwork returned values of 0.16% and 0.57% Cu with low cobalt, silver, lead and zinc values. Quartz, dolomite and siderite are the main gangue minerals.

IGOR	Copper, Uranium
Wernecke Joint Venture;	Breccia
Archer, Cathro and	106 E 2 (6)
Associates (1981) Limited	(65°03'N, 134°38'W)

Reference: D.I.A.N.D. (1982, p.201).

Claims: IGOR 1-26

Source: Summary by K. Grapes form assessment report 091445 by W.D. Eaton.

Current Work and Results:

In 1982, nine holes totalling 1,043.4 m were drilled to test 1981 geophysical anomalies, and to determine the orientation of known mineralized zones. Radioactive and sulphide rich sections of the core were assayed for Cu, U, Co and Ag. Significant uranium mineralization and/or new areas of copper mineralization were not intersected.

Drilling and surface work has shown that metals are not uniformly distributed throughout the breccia body.

LWR
Wernecke Joint Venture;
Archer, Cathro and
Associates (1981) Limited

Lead, Zinc
106 E 4 (35)
(65°05'N, 135°39'W)

References: D.I.A.N.D. (1982, p.201); Morin *et al* (1980, p.21).

Claims: FLAT 1-16

Source: Summary by K. Grapes from assessment report 091443 by W.D. Eaton.

History:

In 1974 Cyprus Anvil explored the area for Mississippi Valley Type lead-zinc deposits by conducting reconnaissance stream sediment surveys. In 1979 the Wernecke Joint Venture conducted airborne radiometric surveys over the southern part of the area and the Geological Survey of Canada conducted a reconnaissance stream sediment survey. In 1977 Getty Minerals Ltd. staked the LWR 1-284 claims to cover lead, zinc and copper anomalies. In 1977 and 1978 the claims were soil sampled, prospected, mapped and hand trenched, leading to the discovery of several strata-bound and vein galena and sphalerite occurrences. Wernecke Joint Venture staked the FLAT claims to cover the main lead-zinc occurrences when the LWR claims expired in the spring of 1982.

Description:

The FLAT claims are located 165 km north of Mayo, and 55 km northeast of the Hart River airstrip. The property is underlain by Wernecke Supergroup sedimentary and volcanic rocks and is surrounded by unconformably overlying lower to middle Paleozoic platform carbonate and clastic rocks. Numerous mafic sills and dykes up to 100 m wide intrude the older rocks and are truncated by the unconformity.

Current Work and Results:

Exploration in 1982 consisted of geological mapping and prospecting.

Base metal sulphides in sedimentary rocks are confined to the lower Quartet Group and occur in three modes: 1) as fracture fillings of sphalerite and galena with pyrite, quartz and carbonate; 2) as sphalerite and minor galena occurring with quartz and pyrite as disseminated blebs up to 1 cm in diameter; and 3) as bands of massive coarse-grained galena with minor pyrite, sphalerite and quartz, filling open spaces in brecciated horizons within the dolomite-chert unit.

Disseminated chalcopryrite and pyrite are common in metavolcanic rock, while disseminated chalcopryrite, pyrite, hematite and trace cobaltite occur in a diatreme breccia body.

1982 MINERAL CLAIMS STAKED

LWR
Archer Cathro and
Associates (1981) Limited

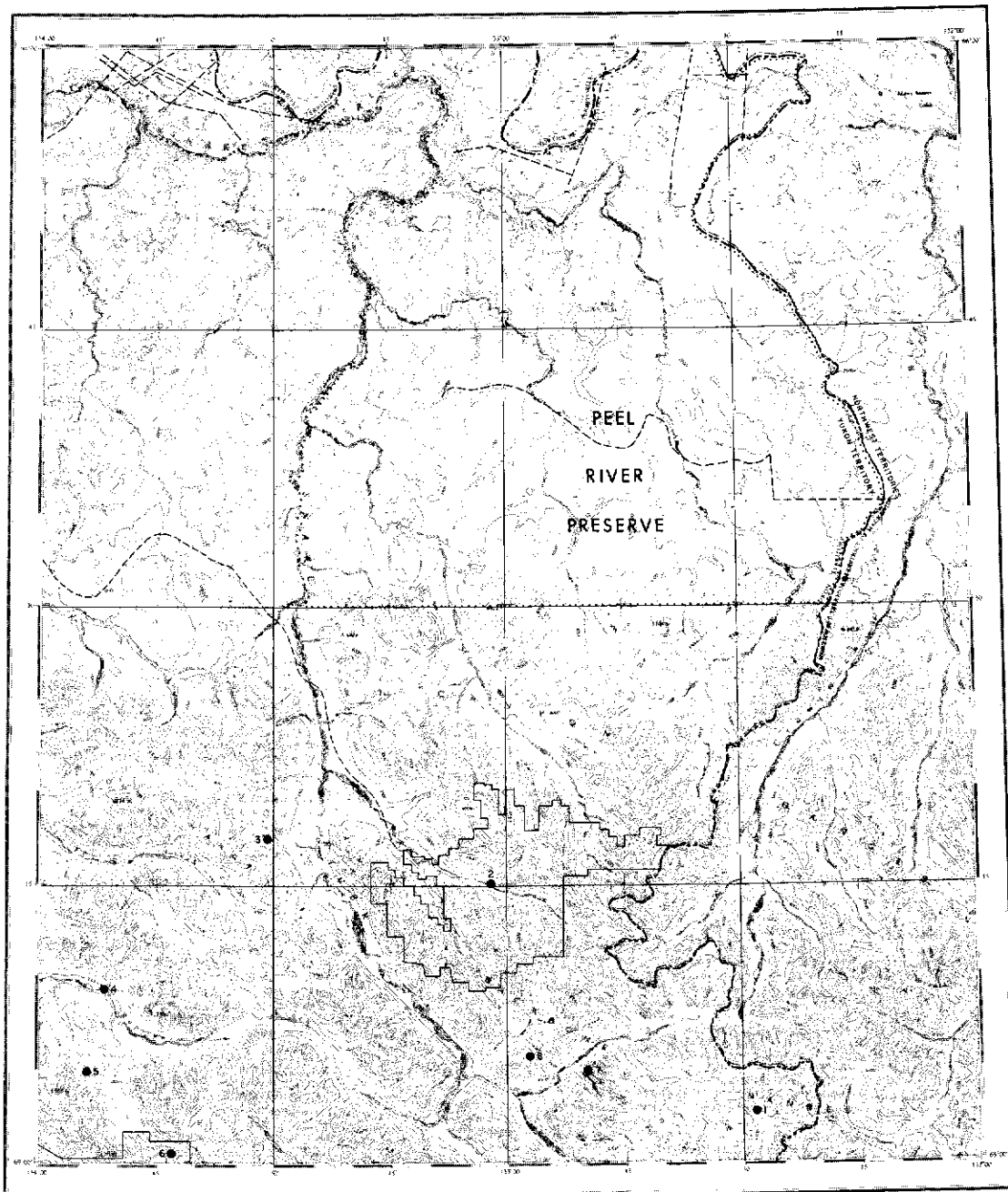
106 E 4 (35)
(65°05'N, 135°23'W)

GREMLIN
Archer Cathro and
Associates (1981) Limited

106 E 2 (2)
(65°11'N, 134°23'W)

Claims 1982: FLAT 1-16

Claims 1982: DEMON 1-8



SNAKE RIVER
YUKON TERRITORY-NORTHWEST TERRITORIES

Kilometres 5 0 5 10 15 20 25 30 Kilometres

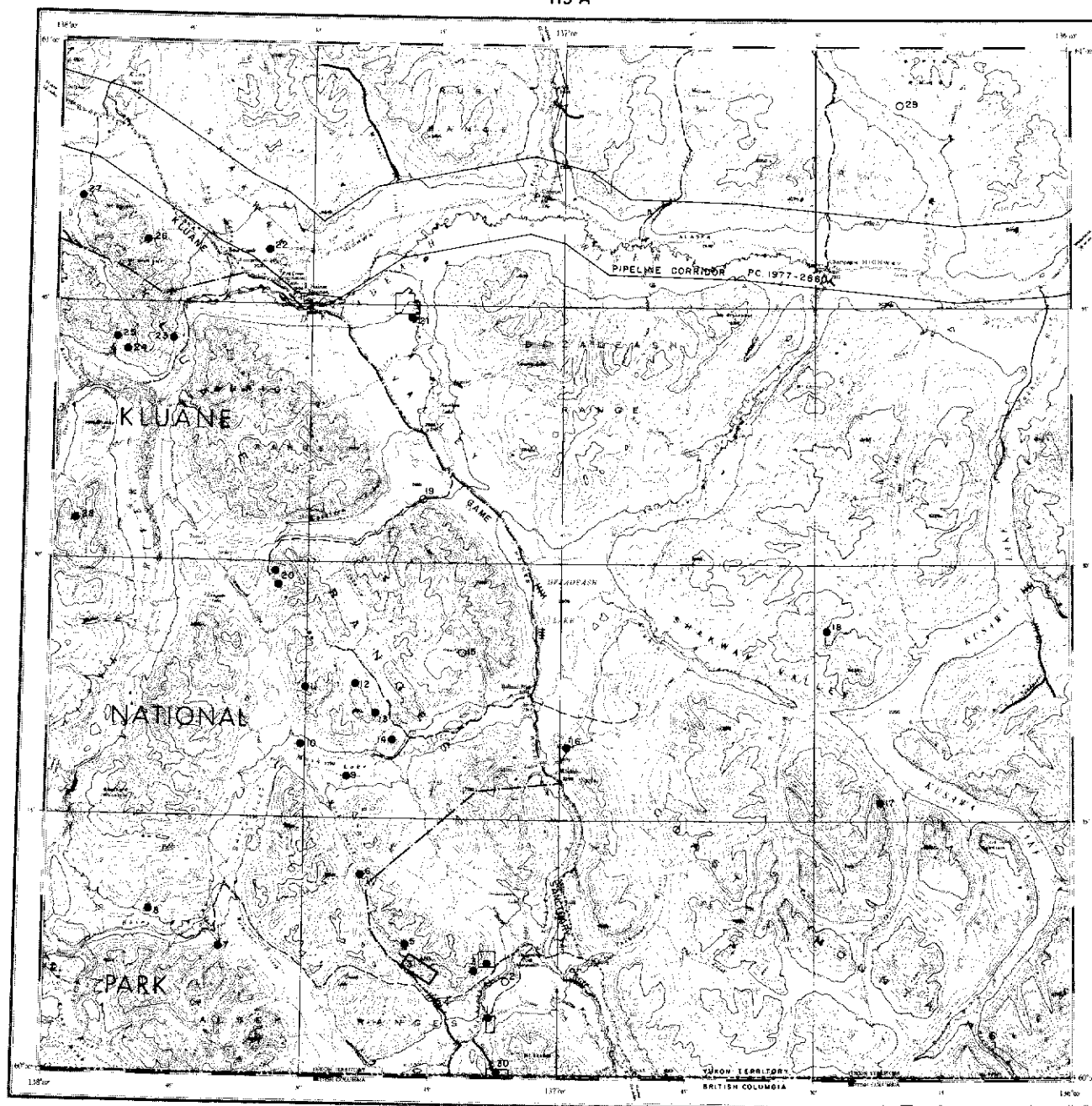
- | | | |
|--|--|-------------------|
| ● ⁸¹ Mineral Deposit or Occurrence
see Key on facing page | — Peacer License in good standing (Jan. 1983) | --- Tote Trail |
| ○ ⁷² Unmineralized Target | --- Peacer Claims in good standing (Jan. 1983) | — Driveable Road |
| □ Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982 | CEL Coal Exploration Licence | ✦ Oil or Gas Well |
| □ Mineral Claims staked in 1982 | CML Coal Mining Lease | — Airstrip |

SNAKE RIVER MAP-AREA (NTS 106 F)

General Reference: GSC Open File 715 by: D.K. Norris,
1980.
GSC Map 1529A by: D.K. Norris,
1982.

NO.	PROPERTY NAME	REFERENCE
1	VYE	Zinc Stratabound
2	CREST	Green & Godwin (1963, p. 15-18)
3	HOME	Zinc Occurrence
4	PLAINS (KEN)	Sinclair <u>et al</u> (1976, p. 73)
5	YUK	Sinclair <u>et al</u> (1976, p. 73)
6	VOLE	D.I.A.N.D. (1982, p. 203)
7	LAURA	Morin <u>et al</u> (1977, p. 134)
8	BUH	Morin <u>et al</u> (1977, p. 134)

115 A



DEZHADEASH YUKON TERRITORY

Kilometres 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|------------------------|
| ● ⁵¹ Mineral Deposit or Occurrence
see Key on facing page | Placer Leases in good standing (Jan. 1983) | Tote Trail |
| ○ ⁷² Unmineralized Target | Placer Claims in good standing (Jan. 1983) | Driveable Road |
| Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982 | CEL..... Coal Exploration Licence | ○..... Oil or Gas Well |
| Mineral Claims staked in 1982 | CML..... Coal Mining Lease | Airstrip |

DEZADEASH MAP-AREA (NTS 115 A)

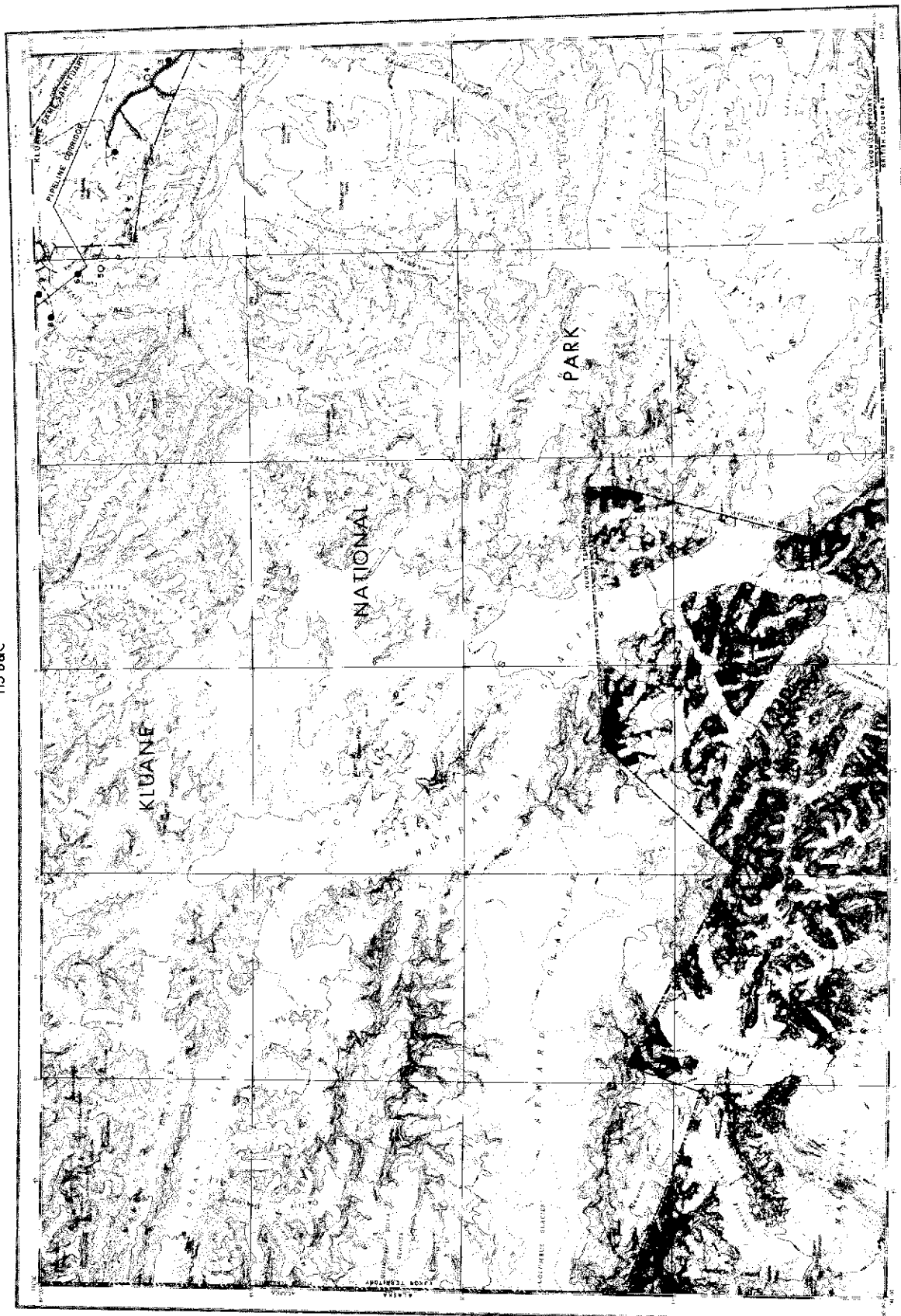
General Reference: GSC Map 1019A and Memoir 268 by:
E.D. Kindle, 1952.
GSC Open File 831 by: R.B.
Campbell and C.J. Dodds, 1982.

NO.	PROPERTY NAME	REFERENCE
1	JACKPOT	Findlay (1969b, p. 43-44); Sinclair & Gilbert (1975, p. 72)
2	DALTON	
3	KANE	D.I.A.N.D. (1981, p. 251)
4	CHICKALOON	
5	PHOTO	Findlay (1969a, p. 74)
6	MUSH	Skinner (1961, p. 37-38)
7	BATES	Kindle (1953, p. 56)
8	FENTON	Copper Vein
9	CAVE	Copper-Silver Vein
10	SHAFT	Copper Occurrence
11	BELLOUD	Kindle (1952, p. 49-50, 55)
12	HUSKY	Copper
13	WREN	Copper
14	KEL	Copper
15	SHORTY	Kindle (1953, p. 49, 55)
16	KLUKSHU	Copper Occurrence
17	DEVILHOLE	Copper-Molybdenum-Lead Porphyry
18	KUSAWA	Skarn Copper
19	MILLHOUSE	
20	JOHOB	Findlay (1967, p. 55); Kirkham (1971, p. 85)
21	REX	Findlay (1967, p. 55); Sinclair & Gilbert (1975, p. 73)
22	ELGIN	Skarn Copper
23	STRIDE	Kindle (1953, p. 56)
24	SUGDEN	Kindle (1953, p. 58)
25	FERGUSON	Bostock (1937, p. 11); Bostock (1936, p. 12)
26	DECOELI	Copper-Asbestos Vein
27	KLOO	Findlay (1967, p. 54)
28	SOUTHER	Souther & Stanciu (1975, p. 66- 70)
29	SIFTON	D.I.A.N.D. (1981, p. 251)
30	CHARLIE	D.I.A.N.D. (1982, p. 205)
31	KID	This Report

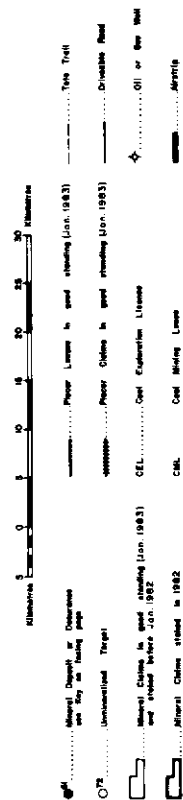
1982 MINERAL CLAIMS STAKED

KID 115 A 3 (31)
Noranda Exploration Company (60°06'N, 137°16'W)
Limited

Claims 1982: KID 1-32



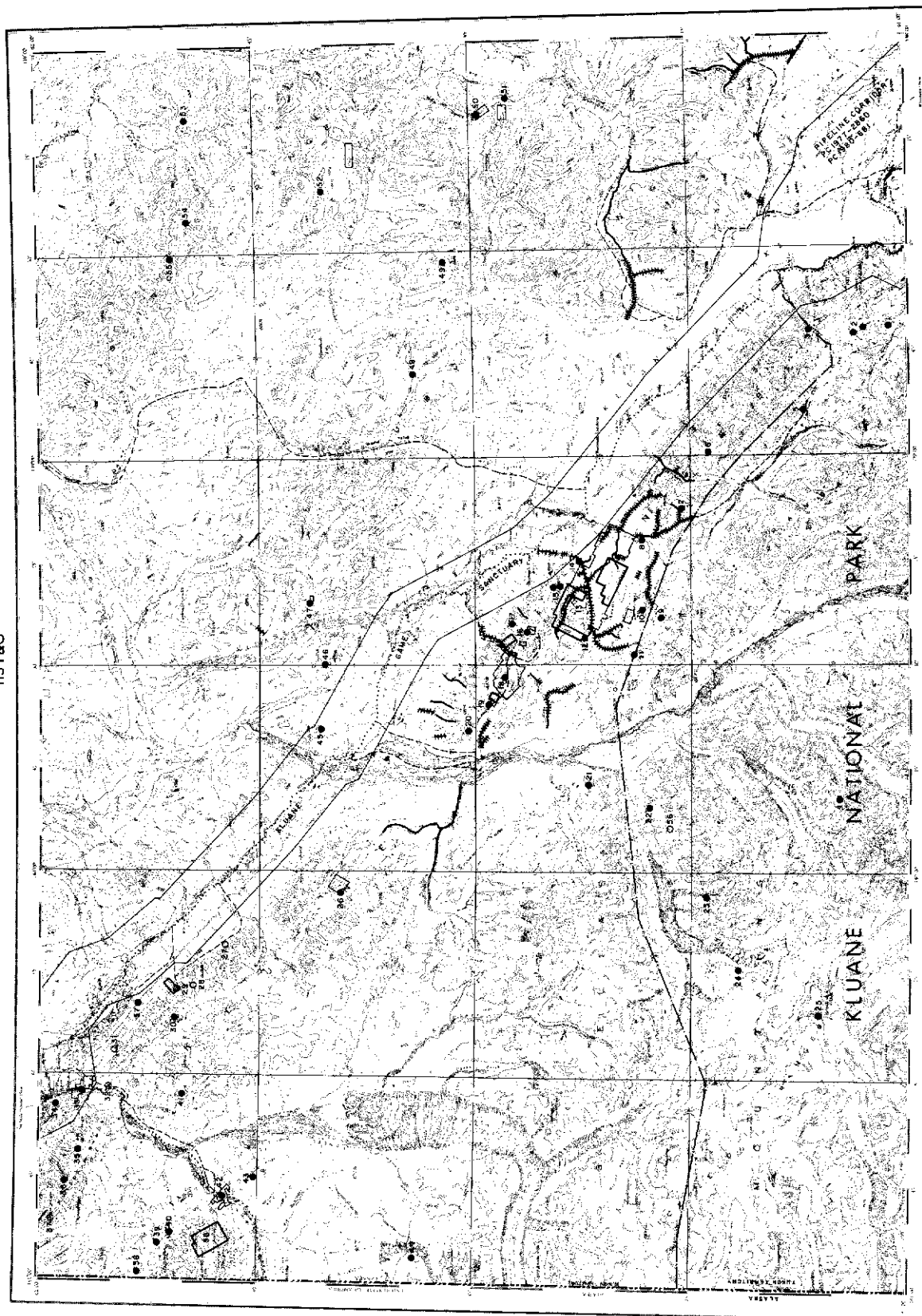
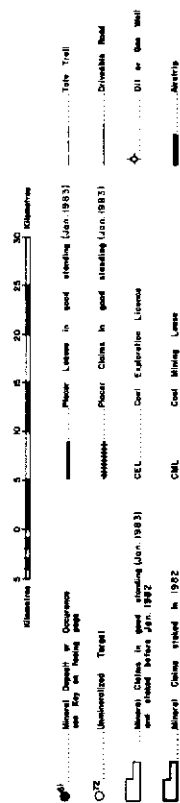
MOUNT ST ELIAS
CANADA, UNITED STATES OF AMERICA



MOUNT ST. ELIAS MAP-AREA (NTS 115 B-C)

General Reference: GSC Map 1143A by: J.O. Wheeler,
1963.
GSC Open File 830 by: R.B.
Campbell and C.J. Dodds, 1982.

NO. PROPERTY NAME	REFERENCE
1 PLUG	Copper-Silver Occurrence
2 KASKAWULSH	Copper-Silver Occurrence
3 KIMBERLEY	Kindle (1952, p. 58)
4 JARVIS	McConnell (1905, p. 1-18)
5 DULUTH	Nickel-Copper Magmatic
6 GIBBONS	Nickel-Copper Magmatic
7 TELLURIDE	Copper-Zinc-Silver-Gold-Nickel Massive
8 BULLION	Gypsum-Copper-Lead Stratabound
9 SHEEP	McConnell (1905, p. 1-18)

KLUANE LAKE
YUKON TERRITORY

KLUANE MAP-AREA (NTS 115 F-G)

General Reference: GSC Map 1177A and Memoir 340 by:
J.E. Muller, 1967.
GSC Open File 829 by: R.B.
Campbell and C.J. Dodds, 1982.

NO.	PROPERTY NAME	REFERENCE
1	METALLINE	McConnell (1905, p. 18)
2	STOVE	Muller (1967, p. 113-114)
3	CONGDON	Sinclair & Gilbert (1975, p. 66-67)
4	MULLER	Muller (1967, p. 112)
5	DICKSON	Nickel-Copper-Cobalt Magmatic
6	DESTRUCTION	Nickel-Copper Magmatic
7	WINDGAP	Craig & Laporte (1972, p. 153-154)
8	DUKE	Asbestos
9	HOGUE	Muller (1967, p. 113-115)
10	AMPHITHEATER	Muller (1967, p. 113-115)
11	WADE	Copper-Silver
12	CORK	D.I.A.N.D. (1981, p. 256)
13	GLEN	This Report
14	BURWASH	Cairnes (1915, p. 31)
15	JACQUOT	Craig & Laporte (1972, p. 103); Kirkham (1971, p. 85)
16	QUILL	Findlay (1969a, p. 70-72); Kirkham (1971, p. 85)
17	VERSLUCE	Findlay (1969a, p. 70-72)
18	WELLGREEN	Sinclair & Gilbert (1975, p. 64-65); Eckstrand (1972, p. 81-82)
19	AIRWAYS	Copper-Nickel Magmatic; This Report
20	MUSKETEER	Copper-Nickel Magmatic
21	CEMENT	McConnell (1906, p. 19-26); McConnell (1905, p. 18)
22	ST. ELIAS	Skinner (1961, p. 36)
23	SHARPE	Muller (1967, p. 112)
24	GALLOPING	Skinner (1961, p. 36)
25	ICEFIELD	Skinner (1961, p. 36)
26	GARLIC	This Report
27	LIBERTY	Copper-Nickel Occurrence
28	DUENSING	
29	CATS AND DOGS	Copper-Nickel Occurrence; This Report
30	MEXICO	Skarn Copper
31	PICKHANDLE	Kirkham (1971, p. 85)
32	SEVENSMA	
33	CANALASK	Findlay (1969b, p. 39); Sinclair & Gilbert (1975, p. 60-61); Eckstrand (1972, p. 81-82)
34	EPIC	Copper-Molybdenum Vein
35	TAYLOR	Skarn Copper-Molybdenum
36	SANPETE	Craig & Milner (1975, p. 37-38)
37	HUMP	Johnston (1915, p. 193)
38	MEMOIR	Cairnes (1915, p. 141)
39	MCLENNAN	Cairnes (1915, p. 141)
40	RABBIT	Cairnes (1915, p. 123-124)
41	LEP	Craig & Milner (1975, p. 38-39)
42	WHITERIVER	Sinclair et al (1975, p. 138-139); D.I.A.N.D. (1982, p. 210)

43	SHARE	
44	KLETSAN	Findlay (1969b, p. 42); Moffit & Knopf (1910, p. 51-57)
45	ELEVENTHIRTY	Bostock (1952, p. 40)
46	KENNEDY	Bostock (1952, p. 40)
47	TINCUP	D.I.A.N.D. (1981, p. 256)
48	BROOKS	Muller (1967, p. 112-113)
49	TALBOT	D.I.A.N.D. (1981, p. 256)
50	RAFT	D.I.A.N.D. (1981, p. 256)
51	ROCKSLIDE	Muller (1967, p. 112-113); D.I.A.N.D. (1982, p. 210)
52	DWARF	Sinclair & Gilbert (1975, p. 70-71)
53	BIRCH	Craig & Milner (1975, p. 83)
54	BRUMMER	Craig & Milner (1975, p. 85-86)
55	RHYOLITE	Craig & Milner (1975, p. 83,87)
56	NICK	Nickel Magmatic
57	KOIDERN (M)	Morin et al (1977, p. 165)
58	CAN	This Report

GLEN
Halferdahl and Associates
Ltd.

Geochemical Target
115 G 6 (13)
(61°22'N, 139°23'W)

References: D.I.A.N.D. (1982, p.209-210); Morin et al (1980, p.46).

Claims: JY (9); DEN (2); EL (2); (entire property consists of 261 claims)

Source: Summary by P. Watson from assessment report 091397 by L.B. Halferdahl.

Current Work and Results:

In 1982, 9 panned concentrate samples were collected from three tributaries of Burwash Creek. A five-gallon pail of sample was concentrated down to 200 g and the heavy minerals separated out using heavy liquids. Visible gold was seen in two samples and all creeks were anomalous in Au. Three diamond drill holes totalling 273 m were also completed in 1982.

GARLIC
Archer, Cathro and
Associates (1981) Limited

Gold
115 F 9 (26)
(61°40'N, 140°02'W)

References: D.I.A.N.D. (1982, p. 209,210).

Claims: NARNIA 1-16

Source: Summary by P. Watson from assessment report 091433 by W.D. Eaton.

History:

The NARNIA claims were staked in 1981 to cover

an area containing anomalous Au and As values in soil samples collected in the vicinity of a Cretaceous plug. The area was first staked in 1953 as the LARRY claims of Hudson Bay Mining and Smelting. In 1970, the GARLIC claims were staked by Quintana Minerals Corporation Limited as part of a regional porphyry copper project.

Description:

The property is located 13 km west of the Alaska Highway bridge over the Donjek River. It is underlain by volcanic and volcanoclastic rocks which are dominantly andesite and dacite flows of the Permian Station Creek Formation. A Cretaceous gabbro to granodiorite plug, one km in diameter, intrudes the volcanic units and is separated into two sections by a pendant of the older rocks. Cretaceous felsic dykes were also mapped on the property.

The Station Creek Formation rocks in the roof pendant and in a 50 to 150 m wide band peripheral to the pluton show widespread silicification and gossans with overprinted carbonate alteration.

Current Work and Results:

In 1982, 292 soil samples and 29 reconnaissance rock chip samples were collected. Rock samples contained lower values of Au than soil samples. The highest result reported was 438 ppb Au from a 10 m wide chip sample across a weakly malachite-stained quartz carbonate vein. The higher values found in soil samples may indicate the presence of hairline, carbonate-filled fractures in recessive-weathering rocks surrounding the more resistant silicified rocks that were sampled.

1982 MINERAL CLAIMS STAKED

CAN 115 F 15 (58)
S. Goodlife (61° 48'N, 140° 54'W)

Claims 1982: CAN 1-52

CATS AND DOGS 115 F 16 (29)
G. Harris (61° 51'N, 140° 17'W)

Claims 1982: FIFTY TWO 1-8

AIRWAYS
C. Smalley

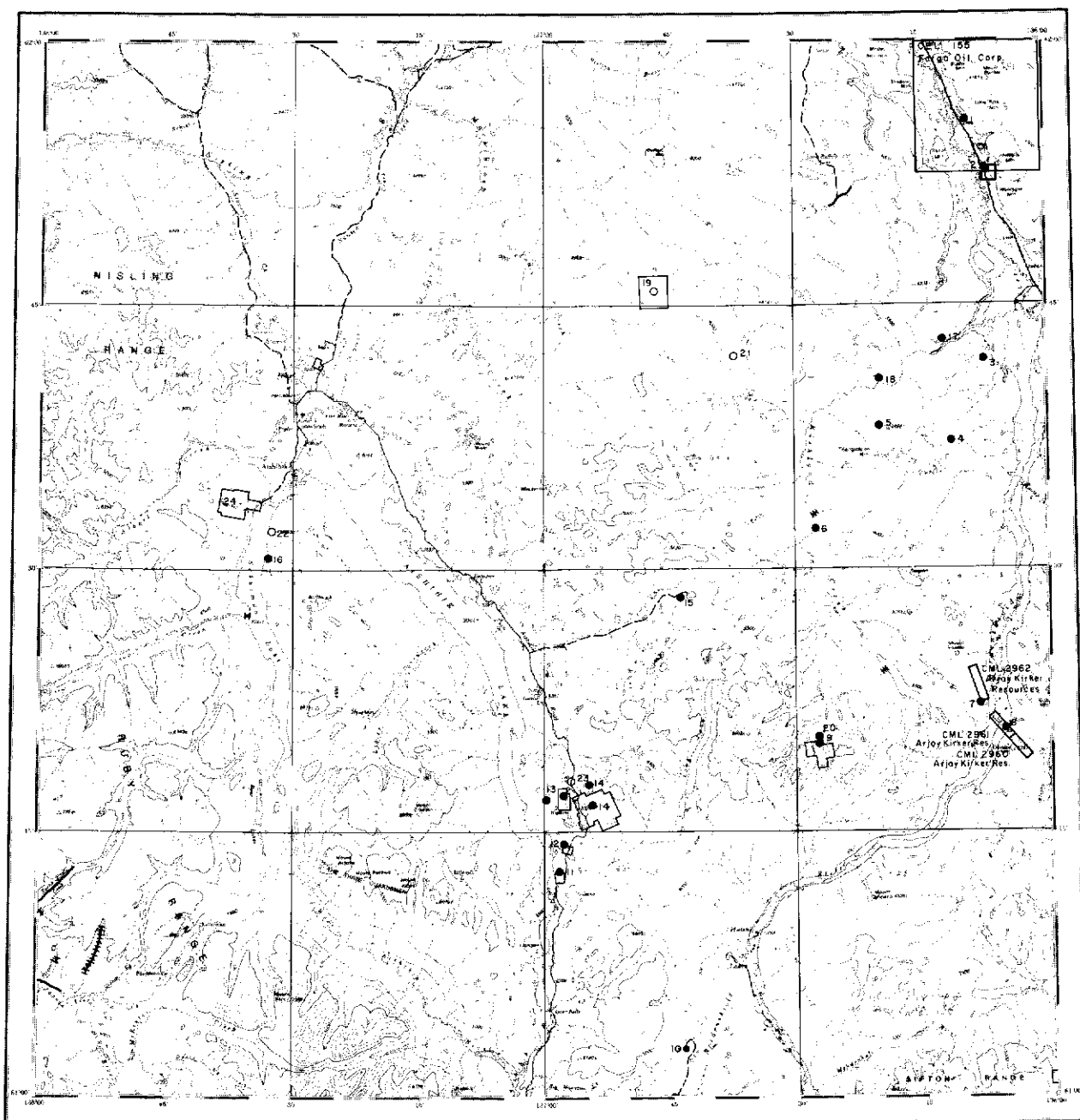
Claims 1982: DI 1-4

GLEN
G. Halferdahl

115 G 5 (19)
(61° 29'N, 139° 35'W)

115 G 6 (13)
(61° 20' - 61° 24'N,
139° 10' - 139° 26'W)

Claims 1982: JY 57-70; KAT 25-46; JO 9-10; WEN 9-10;
DEN 9-10; SUE 11-14; NAM 9-14; JAN 9-48
EL 1-8, 11-28



AISHIHIK LAKE YUKON TERRITORY

Kilometres 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|---|--------------------|
| ● ⁶¹ Mineral Deposit or Occurrence
see Key on facing page | ———— Placer Leases in good standing (Jan. 1983) | ———— Tail Trail |
| ○ ⁷² Unmineralized Target | ———— Placer Claims in good standing (Jan. 1983) | ———— Driveway Road |
| □ Mineral Claims in good standing (Jan. 1983)
and stated before Jan. 1982 | CEL Cool Exploration Licence | ★ Oil or Gas Well |
| □ Mineral Claims stated in 1982 | CML Cool Mining Lease | ———— Airstrip |

AISHIHIK LAKE MAP-AREA (NTS 115 H)

General Reference: GSC Map 17-1973 and Paper 73-41
by: D.J. Tempelman-Kluit, 1974.

NO. PROPERTY NAME	REFERENCE
1 LOSCH	Cairnes (1910, p. 49)
2 ANDESITE	Coal; This Report
3 AH	Copper Vein
4 MACK'S	Craig & Milner (1975, p. 80-81)
5 SNIPE	Copper Occurrence
6 KIRK	Copper Occurrence
7 VOWEL	Cairnes (1908, p. 10-15)
8 DIVISION	Coal
9 LION	Molybdenum-Lead Occurrence
10 MORaine	D.I.A.N.D. (1981, p. 258); This Report
11 GILTANA	D.I.A.N.D. (1981, p. 258)
12 AISHIHIK	Sinclair & Gilbert (1975, p. 69- 70); D.I.A.N.D. (1981, p. 258)
13 JANISIW	D.I.A.N.D. (1982, p. 213)
14 HOPKINS (ML)	Morin et al (1980, p. 46)
15 SATO	Craig & Milner (1975, p. 88-89)
16 SEKULMUN	
17 ORLOFF	Gold Occurrence; D.I.A.N.D. (1982, p. 213)
18 SHAD	Copper
19 BUFFALO	D.I.A.N.D. (1981, p. 258)
20 BUN	Morin et al (1977, p. 167)
21 TOSH	Morin et al (1980, p. 46)
22 SEK	Morin et al (1980, p. 47)
23 SIDE	D.I.A.N.D. (1982, p. 213)
24 HATCH	This Report

ANDESITE
Uranerz Exploration
and Mining Limited

Uranium, Coal
115 H 16 (2)
(61°52'N, 136°06'W)

MORaine
Hudson Bay Exploration and
Development Company Limited

Copper, Tungsten
Skarn
115 H 2 (10)
(61°02'N, 136°44'W)

Claims: GREAK (8)

References: D.I.A.N.D. (1982, p.213); D.I.A.N.D.
(1981, p.258).

Current Work and Results:

Low grade uranium mineralization was found
accompanying clay alteration in a minor shear or major
fracture system. Reconnaissance geological, geo-
chemical and geophysical programs were conducted in
1982.

Claims: COOT (4)

Current Work and Results:

Pyrrhotite, chalcopyrite, molybdenite and
molybdo-scheelite are erratically distributed in skarn
and in marble beds exposed by trenching over several
hundred metres along the contact of a quartz diorite
stock. The claims were soil sampled and EM-16 and
magnetometer surveys were conducted in 1982. Several
pits were hand excavated to bedrock and the claims
were then allowed to lapse.

HATCH
Canadian Occidental
Petroleum Limited

Molybdenum, Copper
Tungsten Skarn
115 H 12 (24)
(61°34'N, 137°37'W)

References: D.I.A.N.D. (1982, p.213); Craig and Milner (1975, p.82); Sinclair and Gilbert (1975, p. 68-69).

Claims: THATCH (17); HATCH (6); PATCH (16); MATCH (6)

Source: Summary by P. Watson from assessment report 091063 by R.M. Kuehnbaum.

History:

The THATCH claims were staked in 1971 and the HATCH added in 1972 following a Cu, Mo, Zn geochemical program. PATCH claims were added in 1981 and MATCH in 1982. No field work was done between 1973 and 1981, when the 1973 geochemical and magnetometer survey results were re-examined.

Current Work and Results:

In 1981, a sub-cropping magnetite(?) - pyrrhotite-bearing skarn with scheelite and molybdenite was located in an area where soil samples contained up to 90 ppm W. This was examined further by detailed geological, soil geochemical, magnetic and VLF-EM surveys.

The geophysical surveys indicate conductive, magnetic skarns surrounding and/or lying directly south of an intrusive body. W, Mo and Cu soil anomalies were found roughly coincident with the magnetic anomalies.

In 1982, 4 trenches totalling 380 m in length were excavated as part of a Joint Venture program with Eldorado Nuclear Ltd. Two of the trenches reached bedrock. In the trenches, 129 soil samples were collected at 3 m intervals and analyzed for Cu, Mo, W, and, in one trench, U. Total count radiometric and magnetic susceptibility readings were also taken at each site. Seventeen grab and 22 rock chip samples were collected and analyzed for Cu, Mo, Zn, W, Ag and Au.

Silicified Yukon Group quartzite, skarn and biotite quartz monzonite were mapped in the trenches. The quartzite appears to have been affected by metasomatism during skarnification of carbonate rocks. The skarn zones are highly variable and consist of varying proportions of garnet, quartz, diopside, actinolite, magnetite, pyrite and pyrrhotite with rare trace amounts of chalcopyrite and scheelite. Two distinctive skarn types are found; calc-silicate and magnetite-pyrite-pyrrhotite.

In one trench, two skarn zones approximately 3.2 m wide, containing pyrite, pyrrhotite and magnetite were exposed. No molybdenite or scheelite were noted, but trace chalcopyrite was found. The average grade of the two zones was 277 ppm Mo, 776 ppm Cu, 90 ppm Zn, 1.9 ppm Ag, 9 ppm W and 8 ppb Au. A 0.6 m exposure of calc-silicate skarn was found 6 m to the south of the main zone.

In the second trench, 4 skarn zones were mapped. A 1.7 m wide section and a 1.0 m wide section both returned low geochemical values. A 2.4 m wide zone showed modest geochemical enrichment and contained up to 20% magnetite. The fourth zone was approximately one metre wide and a chip sample contained 0.045% WO₃, 330 ppm Mo, 770 ppm Cu, 100 ppm Zn, 2.6 ppm Ag and 115 ppb Au.

Highly fractured quartz veins up to 0.6 m wide and occasionally containing trace to 3% disseminated pyrite and trace scheelite were also found in the trenches.

1982 MINERAL CLAIMS STAKED

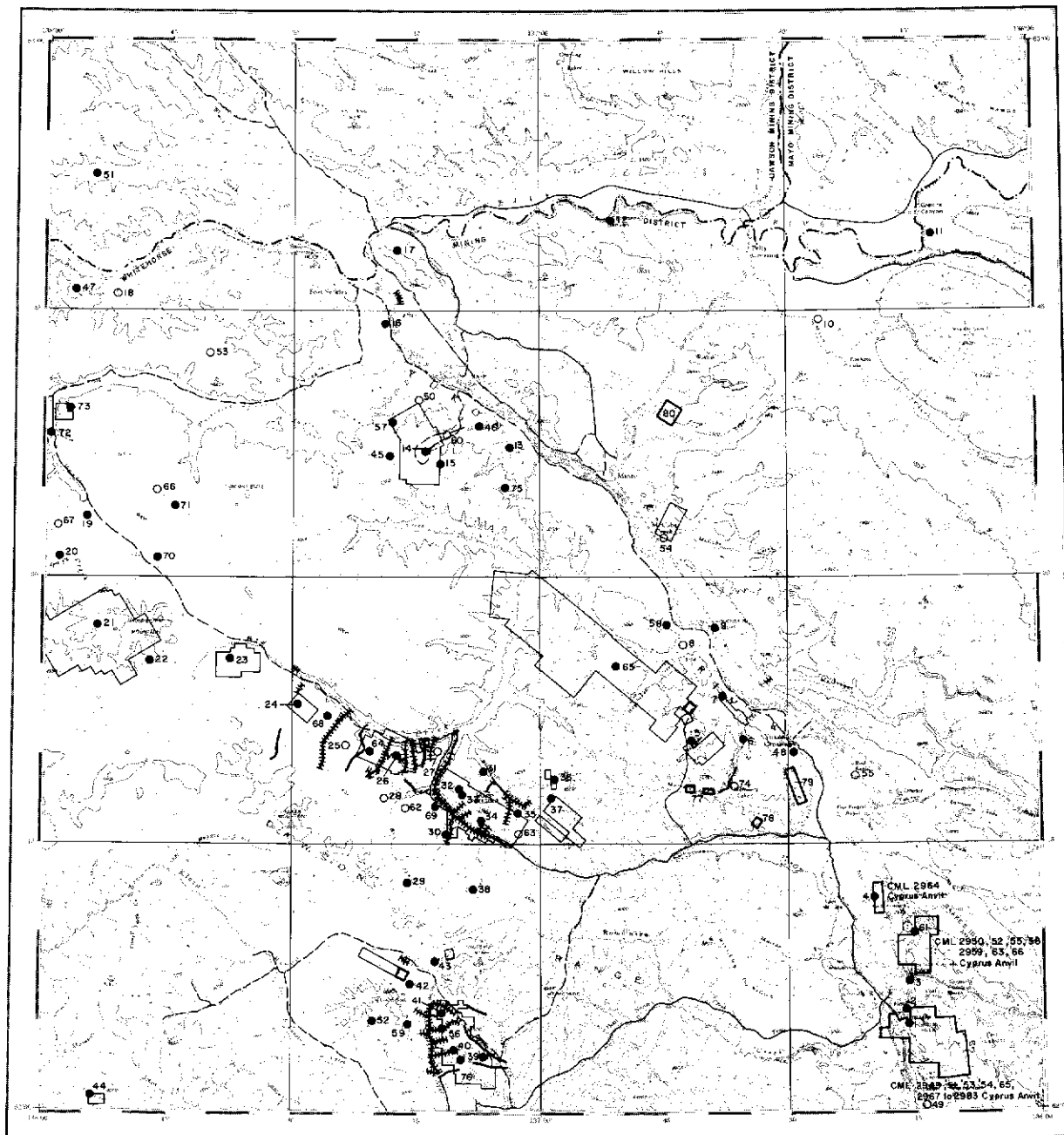
ANDESITE
Uranerz Exploration and Mining
Limited

115 H 16 (2)
(61° 52'N, 136° 06'W)

Claims 1982: GREAK 1-8

NOTES

115 I



CARMACKS YUKON TERRITORY

Kilometres 5 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|----------------------|
| ● 51 Mineral Deposit or Occurrence
see Key on facing page | — Placer Leases in good standing (Jan. 1983) | ----- Tote Trail |
| ○ 72 Unmineralized Target | ----- Placer Claims in good standing (Jan. 1983) | ----- Driveable Road |
| □ Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982 | CEL Coal Exploration Licence | ★ Oil or Gas Well |
| □ Mineral Claims staked in 1982 | CML Coal Mining Lease | — Airstrip |

CARMACKS MAP-AREA (NTS 115 I)

General Reference: GSC Open File 200 by: D.J.
Tempehman-Kluit, 1972.

NO. PROPERTY
NAME REFERENCE

1	SOUTH TANTALUS	Findlay (1967, p. 89)
2	TANTALUS MINE	Cairnes (1910, p. 59-63); Bostock (1936, p. 58-59)
3	TANTALUS BUTTE	Cairnes (1910, p. 52-53); Findlay (1969a, p. 114); Sinclair et al (1975, p. 168)
4	FIVE FINGERS MINE	Bostock (1936, p. 62-63)
5	WILLIAMS CREEK	Copper-Silver-Gold-Molybdenum Occurrence
6	MERRICE	Brock (1910, p. 14-26)
7	BONANZA KING	Green (1966, p. 42-44)
8	MAUD	
9	HOOCHKEOO	Dawson (1889, p. 145 B)
10	TOWHATA	Bostock (1936, p. 63)
11	NEEDLEROCK	McConnell (1903, p. 31,38)
12	BRADENS CANYON	Copper-Gold-Silver-Molybdenum Occurrence
13	COIN	Sinclair & Gilbert (1975, p. 48- 49)
14	MINTO	Sinclair et al (1975, p. 96-100)
15	PAL	Sinclair et al (1975, p. 100- 101)
16	GRENIER	Bostock (1936, p. 63)
17	PELLY	D.I.A.N.D. (1982, p. 216)
18	MINNESOTA	
19	TAD	Craig & Milner (1975, p. 77-79); D.I.A.N.D. (1982, p. 219)
20	PHELPS	Craig & Laporte (1972, p. 71-72)
21	FROG	This Report
22	STARBIRD	Craig & Milner (1975, p. 70-71)
23	CASH	Sinclair et al (1975, p. 111- 112)
24	KLAZAN	This Report
25	COM	
26	REVENUE	D.I.A.N.D. (1982, p. 217)
27	COMBO	Craig & Laporte (1972, p. 83-84)
28	BOW	Craig & Laporte (1972, p. 82-83)
29	LIL	Bostock (1939, p. 16)
30	CARIBOU CREEK	Bostock (1939, p. 15-16); Sinclair et al (1975, p. 118- 119)
31	KOOK (CAR)	Sinclair et al (1975, p. 117- 118)
32	RED FOX	D.I.A.N.D. (1981, p. 261)
33	GUDER	D.I.A.N.D. (1981, p. 261)

34	LAFORMA	D.I.A.N.D. (1981, p. 261)
35	EMMON	Johnston (1937, p. 19-20); Craig & Laporte (1972, p. 78-79)
36	GRANITE MOUNTAIN	Findlay (1969a, p. 34-35)
37	TINTA HILL	Sinclair et al (1975, p. 120- 121); Skinner (1961, p. 35-36); D.I.A.N.D. (1982, p. 219)
38	FOSTER	Bostock (1937, p. 10-11)
39	BROWN McDADE	Findlay (1969b, p. 23)
40	MT. NANSEN	Morin et al (1977, p. 167-168)
41	CYPRUS	D.I.A.N.D. (1981, p. 261)
42	ESANSEE	D.I.A.N.D. (1982, p. 217); This Report
43	DIVIDE	Sinclair et al (1975, p. 126)
44	MALONEY	Craig & Laporte (1982, p. 76-78)
45	COMANCHE	Sinclair et al (1975, p. 101- 102)
46	NORTHAIR (AL)	Sinclair et al (1975, p. 107)
47	TUF	Sinclair et al (1975, p. 95)
48	CROSSING	Copper Vein
49	EWING	
50	ORI (MAC)	Sinclair et al (1975, p. 108- 109)
51	KERR	Molybdenum-Copper Occurrence
52	LONELY	Copper Occurrence
53	SAM	Sinclair et al (1976, p. 146)
54	McCABE	
55	RINK	McConnell (1903, p. 37-52)
56	GOULTER	Gold-Silver Vein
57	GIANT (NAVAJO)	Sinclair et al (1975, p. 102- 103)
58	BLUFF	Sinclair et al (1975, p. 122- 123)
59	RUSK	Sinclair & Gilbert (1975, p. 38- 39)
60	BOYLEN (SUN)	Sinclair et al (1975, p. 103)
61	HLAVAY (TINTA)	Sinclair & Gilbert (1975, p. 120- 121)
62	LETA	D.I.A.N.D. (1981, p. 262)
63	DART	D.I.A.N.D. (1981, p. 262)
64	NUCLEUS	This Report
65	STU	This Report
66	MUT	D.I.A.N.D. (1981, p. 263)
67	NIT	D.I.A.N.D. (1982, p. 218,219)
68	ROC	Morin et al (1977, p. 172)
69	ZIT	D.I.A.N.D. (1982, p. 218,219)
70	PANTHER	Sinclair et al (1976, p. 142)
71	PITTS (RAINBOW)	Sinclair et al (1976, p. 143)
72	NADA	Sinclair et al (1976, p. 144)
73	SELKIRK	Sinclair et al (1976, p. 145)
74	ACE	D.I.A.N.D. (1982, p. 219)
75	FED	Morin et al (1977, p. 177)
76	DD	D.I.A.N.D. (1982, p. 219)
77	AL	This Report
78	POON	This Report
79	TOOT	This Report
80	DOME	This Report

FROG Silver, Lead Veins
Archer, Cathro and 115 I 5, J 8 (21)
Associates (1981) Limited (62°27'N, 137°57'W)

References: D.I.A.N.D. (1982, p.215,216,219);
D.I.A.N.D. (1981, p. 260,261).

Claims: LILYPAD 1-429; NEWT (161)

Source: Summary by P. Watson from assessment report
091435 by D.W. Eaton.

Current Work and Results:

In 1981, trenching and mapping located veins on the property which are generally narrow and erratically mineralized.

In 1982, 637 m were drilled in 7 holes and additional mapping was carried out. Mineralized zones are characterized by: lack of vegetation; colour change in rocks (bleached, earthy); smaller rock fragments; manganese, hematite and limonite on fractures; transparent, chalcedonic, cockade, drusy or massive quartz, often rusty, vuggy and pitted; sulphides such as galena or anglesite, chalcopryrite, sphalerite and pyrite; and malachite, azurite and rare arsenopyrite, barite, fluorite and witherite. Disseminated and massive tourmaline is found in some veins and in quartz-tourmaline breccia zones.

Vein zones grade from fresh, massive, unweathered wallrock into fractured, weakly bleached wallrock with limonite and/or manganese oxides on fractures and into bands of bleached gouge from a few m to 50 m wide. Oxidized sulphides and quartz, carbonate and/or barite gangue occurs as pods in the veins, usually within gouge zones or along vein margins.

Massive volcanic wallrock is rarely weathered below 10 m from surface, but the veins are weathered and leached(?) to at least 150 m depth.

NUCLEUS

Archer, Cathro and Associates (1981) Limited 115 I 6 (64)
(62°20'N, 137°20'W)

References: D.I.A.N.D. (1982, p.215,217,219);
D.I.A.N.D. (1981, p. 262).

Claims: NUCLEUS 1-50

Source: Summary by P. Watson from assessment report
091439 by W.D. Eaton.

Description:

The property is located near the western limit of a 100 Ma intrusive complex that includes felsic stocks, dykes and intrusive breccias. This material has intruded Paleozoic Yukon Metamorphic Complex schists and pre-Cretaceous foliated intrusive rocks. On the property, the oldest material includes chlorite schist, quartz biotite schist, quartz muscovite schist, amphibolite, impure quartzite and quartz feldspar granulite. A 100 m by 200 m gabbro-diorite mafic intrusion and non-foliated Cretaceous quartz monzonite and biotite monzonite have intruded the older rocks. A small, fine grained felsic microgranite plug and quartz feldspar porphyry dykes have also intruded in the area. A 100 m by 300 m breccia zone occurs in the microgranite.

Sulphide minerals are rare on surface. Old drill core contains oxidized material down to 15 to 40 m, below which pyrite, pyrrhotite and chalcopryrite occur disseminated and in veinlets.

Current Work and Results:

In 1982, 907 soil, 54 bulk rock and 24 grab rock samples were collected. Bulk samples were taken in old road cuts and trenches.

KLAZAN
Archer, Cathro and
Associates (1981) Limited

Gold, Copper,
Molybdenum
115 I 5,6 (24)
(62°23'N, 137°30'W)

Reference: D.I.A.N.D. (1982, p.217,219).

Claims: NITRO 1-24

Source: Summary by P. Watson from assessment report
091438 by W.D. Eaton.

Description:

The area is underlain by rhyolite tuff breccia and associated felsic intrusive rocks including rhyolite intrusive breccia with pervasive argillic alteration and quartz stockwork, feldspar porphyry dykes up to 20 m wide and rhyolite dykes. These rocks are exposed over a roughly elliptical area 4.0 km by 1.5 km, surrounded by pre-Cretaceous syenite.

The quartz stockwork associated with the felsic intrusive complex is found over 200 m by 700 m, in the area of the main gossan. Up to 50 quartz veinlets per metre were counted in some areas. These veinlets are generally less than 1 mm wide. Pyrite and trace molybdenite, galena and chalcopryrite were reported.

Current Work and Results:

Core drilled in 1970 assayed 0.17% Cu over 15 m and 0.16% Cu with 0.68% MoS₂ over 3 m.

Soil and rock chip samples were collected as part of the geochemical program and analyzed for Au, Ag and Pb. Soil samples were collected on a 100 m by 50 m grid, and rock chip samples were taken every 50 m in bulldozer cuts. A 700 m by 200 m area of anomalous Au soil values coincides with the quartz stockwork zone and the main gossan zone. Rock chip samples from the main gossan contained up to 212 ppb Au. Soil samples containing silver values of up to 10.7 ppm Ag clustered about the main gossan and are only partially coincident with the Au soil anomaly. This, and two other Ag soil anomalies, also contain 100 to 595 ppm Pb.

STU
United Keno Hill Mines Limited;
Falconbridge Limited

Copper
115 I 6,7 (65)
(62°21' - 62°30'N,
136°42' - 137°06'W)

References: D.I.A.N.D. (1982, p.215,217-218);

D.I.A.N.D. (1981, p.262-263).

Claims: STU; HI; FIL; NOON; MOON (658 claims)

Current Work and Results:

Fifteen bulldozer trenches were excavated on the HI claims in 1982. Ten trenches were also excavated on the FIL claims, 13 on the STU claims and 8 on the NOON claims. Malachite mineralization was discovered in bedrock in trenches on the HI and the STU claims. No mineralization was found in the trenches on the FIL or the NOON claims.

POON	Copper	
United Keno Hill Mines Limited	115 I 7	(78)
	(62°17'N, 136°35'W)	

Claims: POON 1-4

Source: Summary by P. Watson from assessment report 091087 by T. Canam.

History:

The claims were staked to cover copper mineralization located during a reconnaissance soil sampling program.

Description:

The property is located 195 km north-northwest of Whitehorse, 1.5 km north of the Freegold Road. It is underlain by porphyritic hornblende and biotite granodiorite to quartz monzonite cut by aplite dykes and a latite porphyry dyke. The granodiorite is non-foliated to weakly-foliated, except in the mineralized zones.

Current Work and Results:

Two mineralized zones of malachite staining in strongly foliated granodiorite were mapped. The first extends for 100 m northwest along strike and is up to 20 m in width. Malachite appears to be confined to biotite-rich sections. The second zone contains weak malachite mineralization over 10 m by 5 m.

During the geochemical program, 181 soil samples were collected and analyzed for Cu. Only 6 samples contained greater than 50 ppm Cu.

T00T	Copper	
United Keno Hill Mines Limited;	115 I 8	(79)
Falconbridge Limited	(62°18'N, 136°29'W)	

Claims: T00T 1-18

Source: Summary by P. Watson from assessment report 091085 by J.A. McFaul.

History:

The T00T claims were staked in 1982 to cover a series of 1981 Dighe II airborne geophysical anomalies which form a northwest striking linear trend over 1,400 m long. The group was expanded to cover malachite staining on strike with the geophysical anomalies.

Description:

The property is located 195 km north-northeast of Whitehorse and 6 km south of Yukon Crossing. The claims are near the southeast end of the Klotassin Batholith, west of the contact between the biotite hornblende (pyroxene) granodiorite and Triassic basalt. The granodiorite is generally non-foliated, with weakly foliated sections in the vicinity of the geophysical anomalies. Feldspar phenocrysts up to 30 mm long occur in widespread porphyritic sections. A plug of hornblende containing 70% hornblende in a matrix of feldspar and minor biotite is exposed over a 100 m to 200 m area.

Mineralization consists of malachite in fractures and in zones of biotite rich schlieren in weakly to non-foliated granodiorite. The 250 m by 50 m mineralized zone is on strike with the Dighe II anomalies and connected to them by a coincident airphoto lineation that extends at least 7,000 m.

Current Work and Results:

A total of 1,273 grid soil samples were collected from the claims and surrounding areas and analyzed for Cu. Of these, 196 collected on lines over the airborne anomaly, were also analyzed for Ag, Pb and Zn. No anomalous Ag, Pb or Zn values were noted coincident with the airborne geophysical anomalies.

Copper values were considered anomalous if greater than 50 ppm Cu. The main anomalous zone occurs in the area of known malachite mineralization and is probably due to traces of copper along the fault indicated on airphotos. Elsewhere on the property, several single point Cu anomalies were located.

1982 MINERAL CLAIMS STAKED

ESANSEE	115 I 3	(42)
BRX Mining and Petroleum Corporation	(62°07'N, 137°15'W)	

Claims 1982: TAWA 1-24

STU
United Keno Hill Mines Limited
Claims 1982: NOON 131-134

115 I 7 (65)
(62° 22'N, 136° 42'W)

T00T
United Keno Hill Mines Limited
Claims 1982: T00T 1-18

115 I 7, 8 (79)
(62° 18'N, 136° 29'W)

AL
A. Larson

115 I 7 (77)
(62° 18'N, 136° 41'W)

Claims 1982: AL 1-4

DOMÉ
J. Kemp

115 I 10 (80)
(62° 39'N, 136° 44'W)

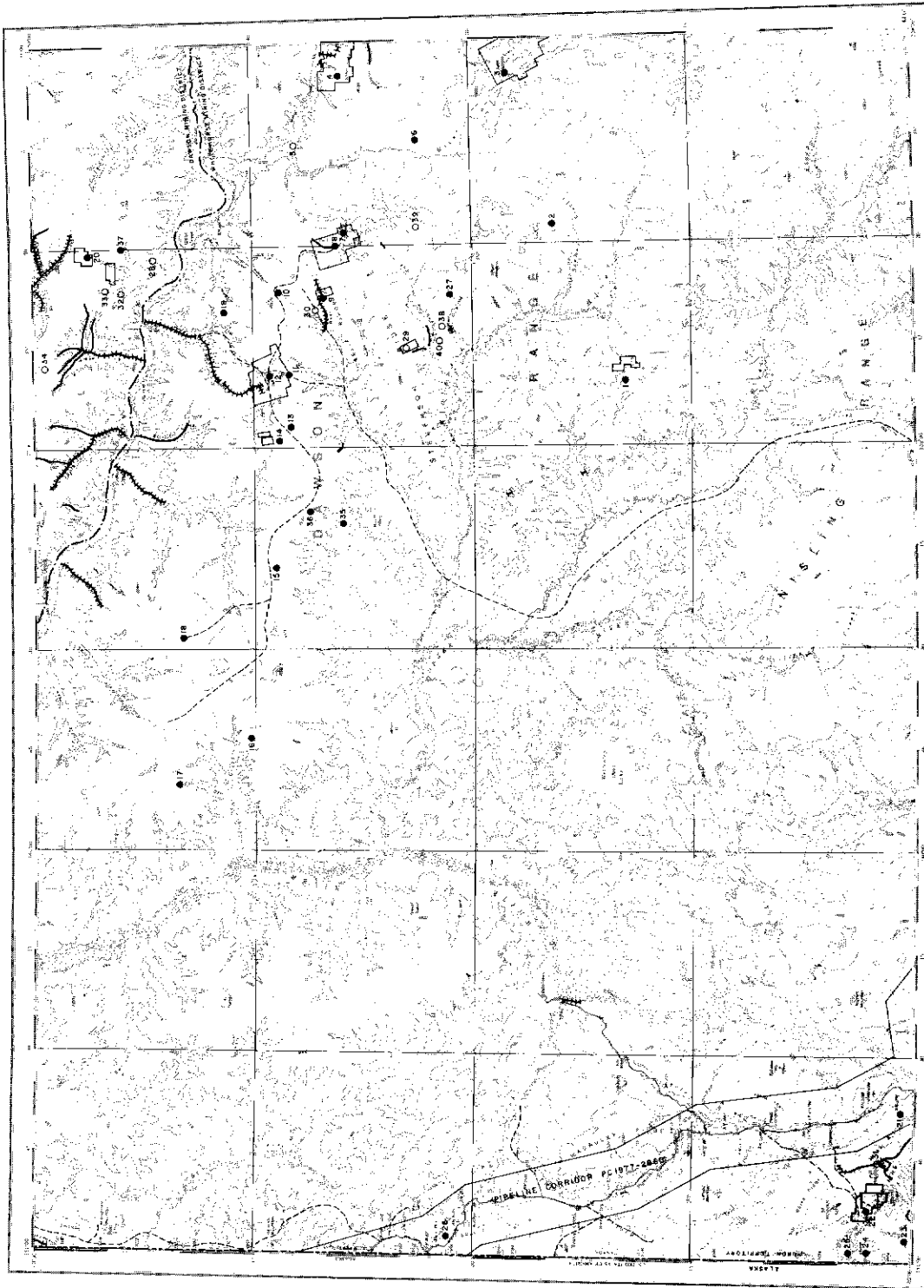
Claims 1982: DOMÉ 1-16

POON
United Keno Hill Mines Limited
Claims 1982: POON 1-4

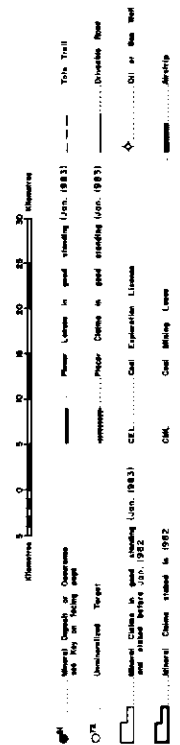
115 I 7 (78)
(62° 16'N, 136° 34'W)

NOTES

115 J&K



SNAG
YUKON TERRITORY



SNAG MAP-AREA (NTS 115 J-K)

General Reference: GSC Map 10-1973 and Paper 73-41
by: D.J. Tempelman-Kluit, 1973.

NO. PROPERTY
NAME

REFERENCE

1	KLOT	Morin et al (1978, p. 72)
2	SOMME	Craig & Laporte (1972, p. 72)
3	PRIDE	Copper Vein
4	HAYES (SWEDE)	D.I.A.N.D. (1982, p. 22)
5	SELWYN	Bostock (1944)
6	CROCK	Craig & Laporte (1972, p. 68)
7	COCKFIELD	D.I.A.N.D. (1981, p. 265)
8	CO	D.I.A.N.D. (1981, p. 266)
9	RUDE CREEK	Craig & Laporte (1972, p. 63); Cockfield (1928, p. 11-13)
10	NORDEX	Silver-Lead Vein
11	BOMBER	Findlay (1967, p. 32-34)
12	CASINO	Craig & Laporte (1972, p. 55-57)
13	AZTEC	Craig & Laporte (1972, p. 54-55)
14	ZAPPA	D.I.A.N.D. (1981, p. 266, 267)
15	BOREAL	Craig & Laporte (1972, p. 42-43)
16	BID	Craig & Laporte (1972, p. 38-39)
17	VINA	Craig & Laporte (1972, p. 35-37)
18	TONI TIGER	Craig & Laporte (1972, p. 40-41)
19	MARGUERITE	Craig & Laporte (1972, p. 51-52)
20	SCROGGIE	D.I.A.N.D. (1981, p. 266)
21	ONION	Nickel-Copper-Molybdenum Magmatic
22	NUTZOTIN	This Report
23	CALIFORNIA	Cairnes (1915, p. 123)
24	TRUDI	Copper-Molybdenum Porphyry
25	RIP	Cairnes (1915, p. 121-122)
26	BATRICK	Bostock (1952, p. 44-45)
27	PATTISON	Sinclair et al (1976, p. 146)
28	BRI	D.I.A.N.D. (1981, p. 267)
29	STEVENSON	D.I.A.N.D. (1981, p. 267)
30	LESLIE	D.I.A.N.D. (1981, p. 267)
31	CHAIR	D.I.A.N.D. (1981, p. 267); This Report
32	NEF	D.I.A.N.D. (1981, p. 267)
33	MK	D.I.A.N.D. (1981, p. 267)
34	HASL	D.I.A.N.D. (1981, p. 267)
35	DOYLE	Sinclair et al (1976, p. 147)
36	COFFEE	Sinclair et al (1976, p. 147)
37	3 2 MANY	Morin et al (1980, p. 26)
38	WHISKEY JOE	D.I.A.N.D. (1982, p. 221)
39	WOE	D.I.A.N.D. (1982, p. 221)
40	PAT	D.I.A.N.D. (1982, p. 221)

NUTZOTIN

Skagway Moly Incorporated

Copper Skarn

115 K 2 (22)
(62°03'N, 140°50'W)

References: D.I.A.N.D. (1982, p. 222); D.I.A.N.D.
(1981, p. 265, 267).

Claims: GOLD (36); RJ 1-16

Source: Summary by P. Watson from assessment report
091370 by A. Mullin and T. Kikuchi.

History:

In the late 1960's the property was examined and trenching and geophysical work programs were conducted. The GOLD claims were staked in 1980 and 1981 with the RJ claims added peripheral to the GOLD claims in 1982.

Description:

The property is located 10 km west of Milepost 1,175 on the Alaska Highway. It is underlain by Carbonaceous to Cretaceous shale, sandstone, conglomerate, limestone, andesite and dacite which have been intruded by a Cretaceous or younger granitic intrusion. Copper occurs in a calcareous epidote skarn, accompanied by magnetite and azurite, within chloritic rocks and serpentized andesites.

Current Work and Results:

A 12.2 m chip sample collected in a trench on one of the two old showings returned a value 0.06% Cu. Old results such as 0.95% Cu with some Pb and Ag values over 1.8 m of gossan containing chalcocopyrite were reported.

An EM-16 survey was conducted over 32.8 km of cut line. A medium to strong electromagnetic conductor up to 180 m long was reported over each showing, in the central part of the claim block.

1982 MINERAL CLAIMS STAKED

NUTZOTIN

Skagway Moly Inc.

115 K 2 (22)
(62°03'N, 140°52'W)

Claims 1982: GOLD 25-36; RJ 1-16

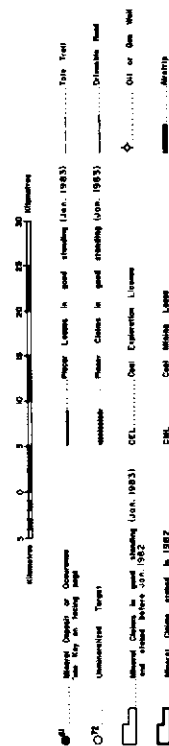
CHAIR

B. Hains

115 K 2 (31)
(62°02'N, 140°46'W)

Claims 1982: RAIN 1-4

STEWART RIVER
YUKON TERRITORY



STEWART RIVER MAP-AREA (NTS (115 N-0)

General Reference: GSC Map 18-1973 and Paper 73-41
by: D.J. Tempelman-Kluit, 1974.
GSC Map 711A by: H.S. Bostock,
1942 (for 115 O).

NO. PROPERTY NAME	REFERENCE
----------------------	-----------

1	TREVA	
2	NORTHERN LIGHTS	
3	BLACK FOX	Cairnes (1917, p. 33-34)
4	ARIES	Copper-Molybdenum Occurrence
5	MOOSEHORN	Morin et al (1977, p. 185)
6	LADUE	Copper-Molybdenum Occurrence
7	SANTA	Silver-Lead-Tin Vein
8	SVENN	Cockfield (1921, p. 52)
9	EXCELSIOR	Canada Dept. of Mines (1914, p. 121)
10	COMET	
11	TENMILE	McConnell (1902, p. 25-39)
12	LUBRA	Silver-Lead-Gold Vein
13	CONNAUGHT	D.I.A.N.D. (1982, p. 224)
14	PER	Cockfield (1921, p. 52); Green (1966, p. 26-28)
15	BUTLER	Cockfield (1919, p. 8); Craig & Laporte (1972, p. 32-34)
16	FIFTY	Skarn Copper
17	ENCHANTMENT	Tempelman-Kluit (1973, p. 48-49)
18	MONTE CHRISTO	
19	PICKERING	Canada Dept. of Mines (1914, p. 120)
20	INDIAN	Asbestos
21	BISHOP	
22	WOOD	Skarn Copper
23	BURMEISTER	D.I.A.N.D. (1981, p. 271)
24	HAYSTACK	Canada Dept. of Mines (1914, p. 205)
25	MCKINNON	Gold Stratabound
26	RAVEN	Morin et al (1980, p. 28)
27	FOTHERGILL	This Report
28	AIME	Gold Vein
29	GOLD RUN	Canada Dept. of Mines (1914, p. 83-85)
30	PORTLAND	Canada Dept. of Mines (1914, p. 101-104)
31	DOMINION	Canada Dept. of Mines (1914, p. 86-87)

32	LLOYD	Canada Dept. of Mines (1914, p. 76-82)
33	HUNKER DOME	This Report
34	MITCHELL	This Report
35	FAWCETT	Canada Dept. of Mines (1914, p. 107-111)
36	BUM	Gleeson (1970, p. 14-15); Craig & Milner (1975, p. 13)
37	BOX CAR	Canada Dept. of Mines (1914, p. 87-91); Gleeson (1970, p. 14)
38	LONE STAR	This Report
39	VIOLET	This Report
40	LEOTTA	
41	HILCHEY	D.I.A.N.D. (1981, p. 271,274)
42	BUCKLAND	Green & Godwin (1963, p. 19); Gleeson (1970, p. 16)
43	SUSTAK	Iron Vein
44	PROSPECT	Copper Occurrence
45	CRUIKSHANK	Coal
46	MCMICHAEL	Copper Occurrence
47	GOLDEN ROD	
48	HEFFRING	
49	TRILBY	
50	TORRANCE	
51	BALD EAGLE	
52	STEVO	D.I.A.N.D. (1981, p. 271)
53	FLUME	D.I.A.N.D. (1981, p. 274)
54	TYRRELL	D.I.A.N.D. (1981, p. 274)
55	SNIP	D.I.A.N.D. (1981, p. 274)
56	DOLE	D.I.A.N.D. (1981, p. 274)
57	THIS	D.I.A.N.D. (1981, p. 274)
58	MAISY	D.I.A.N.D. (1981, p. 274)
59	RUBY	D.I.A.N.D. (1981, p. 274)
60	HUNK	D.I.A.N.D. (1981, p. 274)
61	MT. BRONSON	D.I.A.N.D. (1981, p. 272,274)
62	JOVE	D.I.A.N.D. (1981, p. 272-273)
63	SON	D.I.A.N.D. (1981, p. 273)
64	CRAG	D.I.A.N.D. (1981, p. 273)
65	DOORMAT	D.I.A.N.D. (1981, p. 273)
66	BISMARCK	Morin et al (1977, p. 138-139)
67	HEC-TOR	Morin et al (1980, p. 27)
68	BORD	Morin et al (1980, p. 27)
69	LIL	Morin et al (1980, p. 27)
70	RON	Morin et al (1980, p. 28)
71	BUD	D.I.A.N.D. (1982, p. 224)
72	MT. HART	D.I.A.N.D. (1982, p. 224)
73	PYROXENE	D.I.A.N.D. (1982, p. 224)
74	CIM	D.I.A.N.D. (1982, p. 224)
75	HUNG	D.I.A.N.D. (1982, p. 224)
76	READFORD	D.I.A.N.D. (1982, p. 224)
77	EVING	D.I.A.N.D. (1982, p. 224)
78	ORO	D.I.A.N.D. (1982, p. 224)
79	LODE	This Report
80	DL	This Report

FOTHERGILL
Eldor Resources Limited
115 O 11 (27)
(63°38'N, 139°10'W)

References: D.I.A.N.D. (1982, p.224); Canada Dept. of Mines (1914, p.71-74).

Claims: HAY 1-97

Source: Summary by K. Grapes from assessment report

091406 by R.D. Cruickshank.

Description:

The HAY claims are underlain by Tertiary rhyolite, andesite and clastic sedimentary rock, which unconformably overly the Yukon Cataclastic Terrane.

Current Work and Results:

The 1982 program consisted of detailed stream-water and sediment sampling, reconnaissance soil and rock sampling, and geological mapping.

MITCHELL, HUNKER DOME	Gold Vein
Lindex Exploration	115 0 15 (33,34)
Limited	(63°52'N, 138°56'W)

References: Canada Dept. of Mines (1914, p.107-111); Gleeson (1970, p.16-17).

Claims: KING SOLOMON 1-36; DOMINION 1-4; SHEBA 1

Source: Summary by K. Grapes from assessment report 091384 by W.G. Stevenson.

History:

In 1915, a shaft was sunk approximately 1.6 km southeast of Solomon Dome. A tunnel was driven 457 m to the north to intersect mineralization reportedly exposed in the shaft. These workings are located near the southeastern part of the property. At about the same time the Mitchell Syndicate put down a shaft approximately 24.38 m deep, 0.8 km north of Sheba Dome. In 1967, a block of 33 claims was staked over the northeast slope of King Solomon Dome and acquired by the Thornburg Mining Company. In 1977, the claims were optioned by Orekon Limited, who mapped narrow discontinuous stringers and quartz veins containing silver-lead mineralization. In 1980 an airborne geophysical survey was conducted over the property. The claims lapsed and were restaked by Orekon/Lindex Exploration Limited in 1980.

Description:

The Lindex mineral claim group is located 41 km southeast of Dawson, on Sheba Dome, on the north-eastern slope of King Solomon Dome.

The property is underlain by fairly flat-lying quartz mica schist. Within the schist are quartz lenses, quartzite and limestone beds. Bulldozer trenching conducted since 1966 has revealed two northerly trending quartz vein systems which can be traced over a distance of 914 m. Some of these veins contain visible galena and other sulphides.

Current Work and Results:

In 1981, 36 rock samples were collected and assayed. Best values returned from samples of quartz-mica-schist were 1.57 g Au/t and 30.51 g Ag/t. Samples of quartz vein returned values of up to 6,000 g Ag/t across 0.31 m, and 3.22 g Au/t over 0.36 m. Samples from a small stockpile of handsorted material in the Sheba trench assayed 3.50 g Au/t, 12,783 g Ag/t, 1.43% Cu, 28.85% Pb and 0.65% Zn.

LONE STAR (RJ)	Gold Vein
Dawson Eldorado Gold	115 0 14 (38)
Explorations Ltd.	(63°54'N, 139°14'W)

References: D.I.A.N.D. (1982, p.223-224); Gleeson (1970, p.15-16).

Claims: RJ 1-32; AC 1-12; DE 1-14; ND 1-22; DN 1-33; VICTORIA; ESTHER EDNA; NEW BONANZA 1-2; NIOBE FRACTION; LONE STAR; ZULU CHIEF; SWASTIKA; UDAD; CATO; THISTLE

Source: Summary by K. Grapes from assessment report 091064 by P.S. White.

History:

The property was discovered by placer miners in 1897 and from 1898 to 1908 the property was prospected, pitted and staked. In 1909-1914 Lone Star Ltd. developed the property and went into production until World War One, averaging 5.14-6.86 g Au/t. Consolidated Lone Star Limited explored near the old mine from 1929 to 1936. During 1946 and 1947, churn drilling and underground work was conducted by Yukon Consolidated Gold Corporation. Little else was done until 1960-1962 when Klondike Lode Gold Mines Ltd. trenced and soil panned the property. A shallow drill program was unsuccessful. In 1979 Dawson Eldorado Gold Explorations Ltd. began additional exploration work on the property.

Description:

The Lone Star property is located on the Lone Star Ridge between Bonanza and Eldorado Creeks, 35 km south of Dawson. It is underlain by Klondike Schist, mainly quartz-feldspar-sericite schist with micaceous quartzite interbeds, chlorite-muscovite rich layers and quartz lenses.

Current Work and Results:

During the summer of 1981, 58 quartz claims were staked and 70 line-km of grid were cut. The property was prospected, geochemically sampled (soil and rock) and trenced. Road and building rehabilitation programs were also undertaken. The property was photographed from two altitudes and orthophotographic base maps were made.

Five hundred soil samples were collected and analyzed for gold, silver, lead and antimony. Nine gold anomalies (25 ppb Au) were delineated.

Ten bulldozer trenches were excavated and sampled for future analysis. Fine visible gold was reported in samples taken from a trench in the area of the Eldorado Dome workings.

VIOLET

Ebony Resources Ltd.

Gold Vein

115 0 4 (39)
(63°51'N, 139°17'W)Reference: D.I.A.N.D. (1982, p.223-224); Gleeson
(1970, p.17).

Claims: VI 1-15

Source: Summary by K. Grapes from assessment report
091399 by P.S. White.

History:

The VIOLET, RUTH, PEACOCK and HOMESTAKE claims were staked in 1901 by Violet Mining Co. Ltd. By 1907 the company had completed a 23.4 m adit on the PEACOCK claim and two shafts on the HOMESTAKE claim. Sixty thousand dollars was spent on the VIOLET claims for development work which included three shafts, 91.44 m of drifting, an open cut and a 1,067 m long tramway to a cyanide mill on Ophir Creek. In 1905, 4.54 tonnes of ore were treated at the mill and in 1906, 1.36 tonnes in 1906.

The claim group was leased by Ophir Mining Syndicate around 1906. It was restaked as the OPHIE claims in 1947 and as the VI claims in 1981.

Description:

The claims are located approximately 16 km southeast of Dawson City, southeast of Eldorado Creek, 1.6 km southwest of the mouth of Gay Gulch. The property covers an assemblage of barite, gold and minor pyrite-galena bearing quartz veins cutting siliceous sericite-schist. The largest vein, 1.2-1.8 m wide, has been traced for several hundred metres.

Sampling of the surface trenches and dumps indicate low grade values with occasional exceptions. Samples from the main shaft dump analyzed in 1914 returned values such as 1.37 g Au/t with 3.43 g Au/t and 10.29 g Ag/t with 3.43 g Ag/t.

Current Work and Results:

The property was examined by P. White in 1979, 1980 and 1981. In 1981, aerial photographs were taken of the property.

1982 MINERAL CLAIMS STAKED

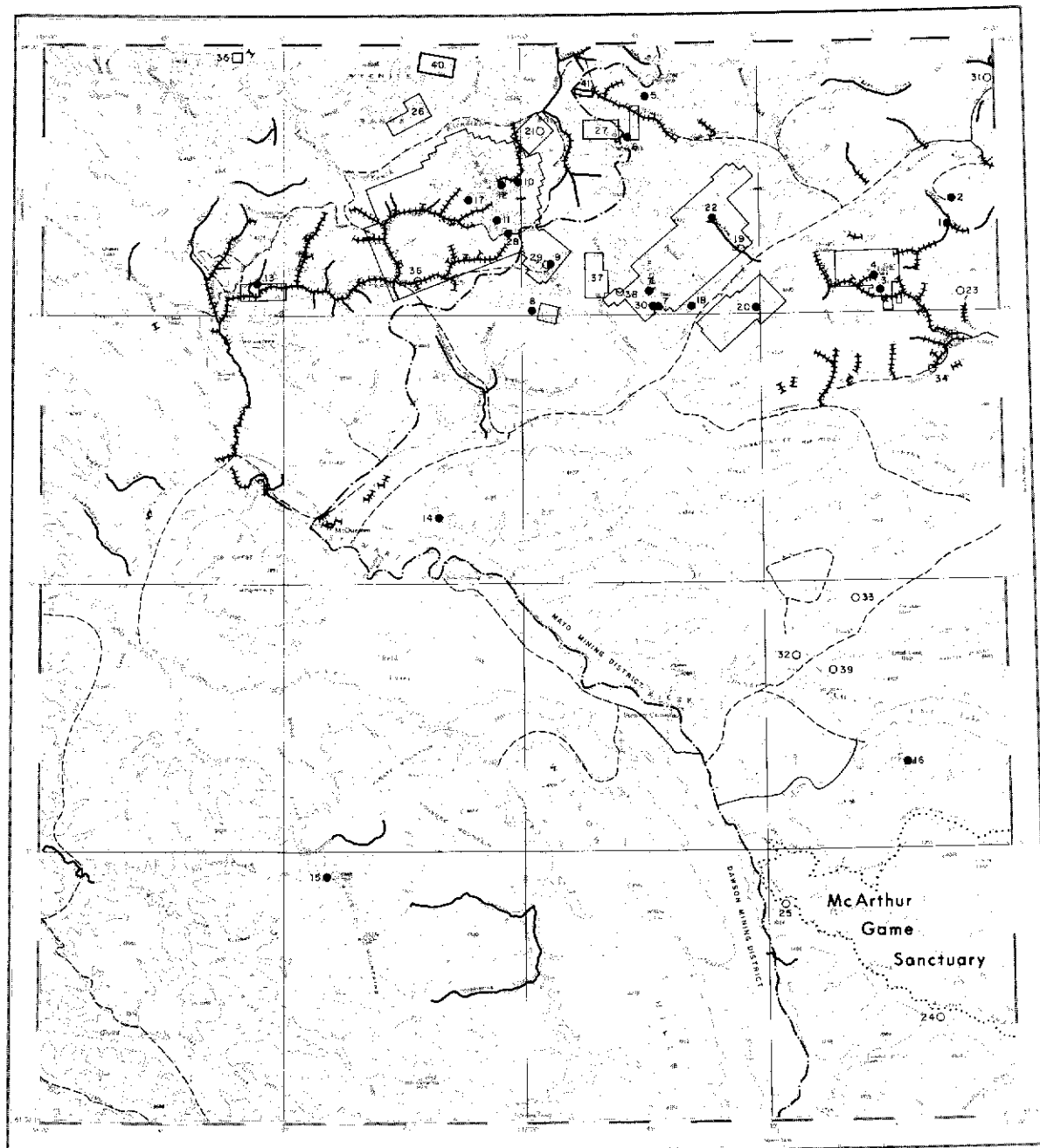
LODE	115 N 2 (79)
R. Jury	(63°01'N, 140°59'W)

Claims 1982: LODE 1-6

DL	115 0 2 (80)
M. Woods	(63°04'N, 138°58'W)

Claims 1982: DL 1-72

NOTES



McQUESTEN YUKON TERRITORY

Kilometres 5 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|-------------------|
| ● ⁸¹ Mineral Deposit or Occurrence
see Key on facing page | — Placer Leases in good standing (Jan. 1983) | --- Total Trail |
| ○ ⁷² Unmineralized Target | ----- Placer Claims in good standing (Jan. 1983) | — Drivable Road |
| □ Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982 | CEL Coal Exploration Licence | ◇ Oil or Gas Well |
| ▭ Mineral Claims staked in 1982 | CML Coal Mining Lease | — Airstrip |

McQUESTEN MAP-AREA (NTS 115 P)

General Reference: GSC Map 1143A by: H.S. Bostock,
1942.

NO. PROPERTY NAME	REFERENCE
1 JAYBEE	Silver-Lead Vein
2 SEATTLE	Green & Godwin (1964, p. 16)
3 HAWTHORNE	Green (1966, p. 20-21); Bostock (1941, p. 33-34)
4 SCHEELITE DOME	This Report
5 HOB0	D.I.A.N.D. (1981, p. 227)
6 SPRAGUE	Bostock (1948, p. 11)
7 EAST RIDGE	This Report
8 LUGDUSH	This Report
9 RIDGE	D.I.A.N.D. (1981, p. 278)
10 JOSEPHINE	This Report
11 RHOSGOBEL	This Report
12 PUKELMAN	This Report
13 CLEAR CREEK	Lang (1951, p. 14)
14 MOOSE RIDGE	Silver-Lead-Iron Occurrence
15 ROSEBUD	Bostock (1948, p. 12)
16 SETHER	
17 LEWIS	This Report
18 BOULDER	Bostock (1948, p. 11)
19 TOTH	
20 EPD	This Report
21 MOZI	D.I.A.N.D. (1981, p. 279)
22 SP	This Report
23 BEN	D.I.A.N.D. (1981, p. 279-280)
24 WOODBURN	D.I.A.N.D. (1981, p. 280)
25 CROOKED	D.I.A.N.D. (1981, p. 280)
26 FIONA	D.I.A.N.D. (1982, p. 229)
27 MAHTIN	D.I.A.N.D. (1982, p. 229-230)
28 JUBJUB	D.I.A.N.D. (1982, p. 228)
29 JABBERWOCK	D.I.A.N.D. (1982, p. 230)
30 MAY CREEK	Morin et al (1980, p. 23)
31 SECRET CREEK	Morin et al (1980, p. 23)
32 WINSLOW	D.I.A.N.D. (1982, p. 231)
33 PAN	D.I.A.N.D. (1982, p. 231)
34 SAVY	D.I.A.N.D. (1982, p. 231)
35 ACE	This Report
36 MARY	This Report
37 BANDER	D.I.A.N.D. (1982, p. 230)
38 SNATCH	D.I.A.N.D. (1982, p. 231)
39 LJB	This Report
40 OMEGA	This Report
41 NIC	This Report

SCHEELITE DOME
Aber Resources Limited

Tungsten Skarn
115 P 16 (4)
(63°47'N, 136°15'W)

Current Work and Results:

Nine trenches over a strike length of 190 m were stripped and blasted to an average depth of 0.8 m. The trenches were sampled and assayed for gold and tungsten. The best values reported were 5.4 g Au/t over 3 m and 6.32 g Au/t over 1.5 m. Assays over 1.5 m also returned up to 4,800 ppm W.

Reference: D.I.A.N.D. (1981, p.277).

Claims: SUN 1-106

Source: Summary by K. Grapes from assessment report
091024 by R.V. Beavon.

EAST RIDGE
 Bittiton Canada Limited;
 Campbell Resources
 Incorporated;
 Inco Limited

Tin, Lead, Zinc,
 Silver
 115 P 15 (7)
 (63°47'N, 136°44'W)

Reference: D.I.A.N.D. (1982, p.227-228).

Claims: SNARK 1-252; TEE 1-8

Source: Summary by K. Grapes from assessment report
 091018 by B. Paul and D. Rota.

Current Work and Results:

A wide area of anomalous (greater than 50 ppm) tin values in soil was outlined on the TEE claims in 1979 and 1980. In 1981 these anomalies were followed-up with detailed prospecting and mapping. Several additional occurrences of cassiterite were discovered including one showing in outcrop. All of these occurrences appear to be spatially associated with the Molar Granodiorite.

LUGDUSH
 Canada Tungsten Mining
 Corporation Limited

Tungsten Skarn
 115 P 15 (8)
 (63°45'N, 136°56'W)

Reference: D.I.A.N.D. (1982, p.135,227,231).

Claims: SPUD 1-16

Source: Summary by K. Grapes from assessment report
 091082 by R.H. Rainbird.

History:

In 1971, the North Stewart River Joint Venture (Canada Tungsten Mining Corporation Limited and Chevron Standard Ltd.) staked the property as the LUGDUSH 1-16 claims. A program of stream sediment and soil sampling outlined a zone of tungsten-bearing skarn. No further work was conducted and the claims were allowed to lapse. The area was restaked as the HOP 1-30 claims in 1979 by Amax of Canada Ltd. The ground came open in 1980. In 1981 the SPUD claims were staked by Canada Tungsten Mining Corporation Limited.

Description:

The SPUD claims are located at the headwaters of Vancouver Creek, about 60 km west of Mayo. The property is underlain by a thick sequence of Lower Cambrian "Grit Unit" phyllite, argillite, quartzite and minor marble. These rocks have been intruded by quartz monzonite, quartz diorite, quartz-feldspar porphyry and andesite. The metasedimentary rocks have been altered to quartz-biotite-rich hornfels and tungsten bearing calc-silicate hornfels adjacent to intrusions.

Current Work and Results:

The 1982 program focused on 1:5,000 scale geological mapping and selected soil, rock and heavy mineral sampling to outline the extent, structure and economic potential of tungsten bearing calc-silicate skarns.

Skarn assemblages in the area include: pyroxene-quartz-calcite, garnet-epidote, pyroxene-garnet and wollastonite-quartz-calcite skarn. Mineralization is confined primarily to tungsten bearing skarns within calc-silicate hornfels. The garnet bearing skarns contain little or no tungsten.

The largest and most prominent skarn on the property is about 800 m long with an apparent thickness of between 150-200 m, and a grade of less than 0.1% WO₃ which increases slightly, further from the intrusive contact. Higher grade samples, containing up to 2.18% WO₃, were obtained from a 0.2 m thick bed of scheelite bearing biotite-quartz hornfels. Galena bearing quartz vein material has been found in talus within 500 m of the intrusive contact.

A total of 17 soil, 5 rock and 4 panned heavy mineral concentrate samples were collected. Soil and heavy mineral geochemistry indicate a possible bedrock source for tungsten and possibly tin in a 200-300 m wide band of calc-silicate skarn trending northeast from the intrusive contact. Rock chip samples returned low values (less than 0.05% WO₃) except for a sample of coarse biotite skarn (2.18% WO₃). One of the two showings of galena-bearing quartz assayed 8% Pb and 644.55 g Ag/t.

CLEAR CREEK EAST (WEST RIDGE)
 (LEWIS, RHOSGOBEL, JOSEPHINE,
 PUKELMAN, MARY)
 Canada Tungsten Mining
 Corporation Limited

115 P 14, 15
 (10,11,12,17,36)
 (63°47' - 63°56'N,
 136°57' - 137°20'W)

Reference: D.I.A.N.D. (1982, p.8,127,228,231).

Claims: CC 1-919; SLUGGO 1-20; RAIN 1-30; BEE 1-14

Source: Summary by K. Grapes from assessment report
 091368 by R.H. Rainbird.

Current Work and Results:

The 1982 exploration program on the CC 782-919 claims involved 1:10,000 scale geological mapping and geochemical soil, rock, and heavy mineral sampling. A total of 170 soil samples and one heavy mineral sample were collected and analyzed for W, Sn, and Au. All samples returned low values.

EPD
 BTL Ilton Canada Limited;
 Campbell Resources
 Incorporated;
 Inco Limited

Tin Breccia
 115 P 10,15,16
 (20)
 (63°45' - 63°47'N,
 136°27' - 136°30'W)

Reference: D.I.A.N.D. (1982, p.227,229), Emond (This Report).

Claims: EPD 1-84; LAMB 1-26; FLAG 1-12

Source: Summary by K. Grapes from assessment report 091015 by D. Rota.

Current Work and Results:

During 1981, eight HQ drill holes totalling 1,525.3 m were drilled. All holes intersected mineralization. The best intersections assayed 0.94% Sn and 11.83 g Ag/t over 3.70 m and 2.45% Sn and 2.10 g Ag/t over 0.95 m. Mineralization occurs as cassiterite and sphalerite in quartz-chlorite breccias and dark green chlorite-actinolite "greenstones".

SP
 Pacific Ridge Resources
 Corporation

Tin Target
 115 P 15 (22)
 (63°50'N,136°35'W)

Reference: D.I.A.N.D. (1981, p.279).

Claims: A 1-128; SP (63)

Source: Summary by K. Grapes from assessment report 091070 by T.G. Hawkins.

Current Work and Results:

In the fall of 1981, 33 pan concentrate samples were collected and analyzed for gold, tin, tungsten with selected samples analyzed for copper, lithium, cobalt and tantalum. Results of the survey indicate generally low values in gold, (0.069 g Au/t or less) and tin values of up to 0.26%.

ACE
 L. Doey

115 P 13 (35)
 (63°59'N,137°36'W)

Reference: D.I.A.N.D. (1982, p.227,231)

Claims: ACE 1-4

Source: Summary by K. Grapes from assessment report 090940 by L. Nagy and L. Doey.

Current Work and Results:

In 1982, twenty-five soil, one rock and one rock chip sample were collected and analyzed for Cu, Pb, Zn, and Ag. Soil values range from 10 - 91 ppm Cu, 7 - 25 ppm Pb, 45 - 755 ppm Zn and 0.2 - 2.6 ppm Ag. A sample of black argillite contained 40 ppm Cu, 9 ppm Pb, 340 ppm Zn and 0.7 ppm Ag. A rock chip sample of black carbonaceous shale returned values of 385 ppm Cu, 22 ppm Pb, 7,800 ppm Zn and 9.0 ppm Ag over 3 m.

1982 MINERAL CLAIMS STAKED

LJB
 L.J. Brown

115 P 8 (39)
 (63°25'N,136°21'W)

Claims 1982: LJB

OMEGA
 Noranda Exploration Company
 Limited

115 P 14 (40)
 (63°59'N,137°10'W)

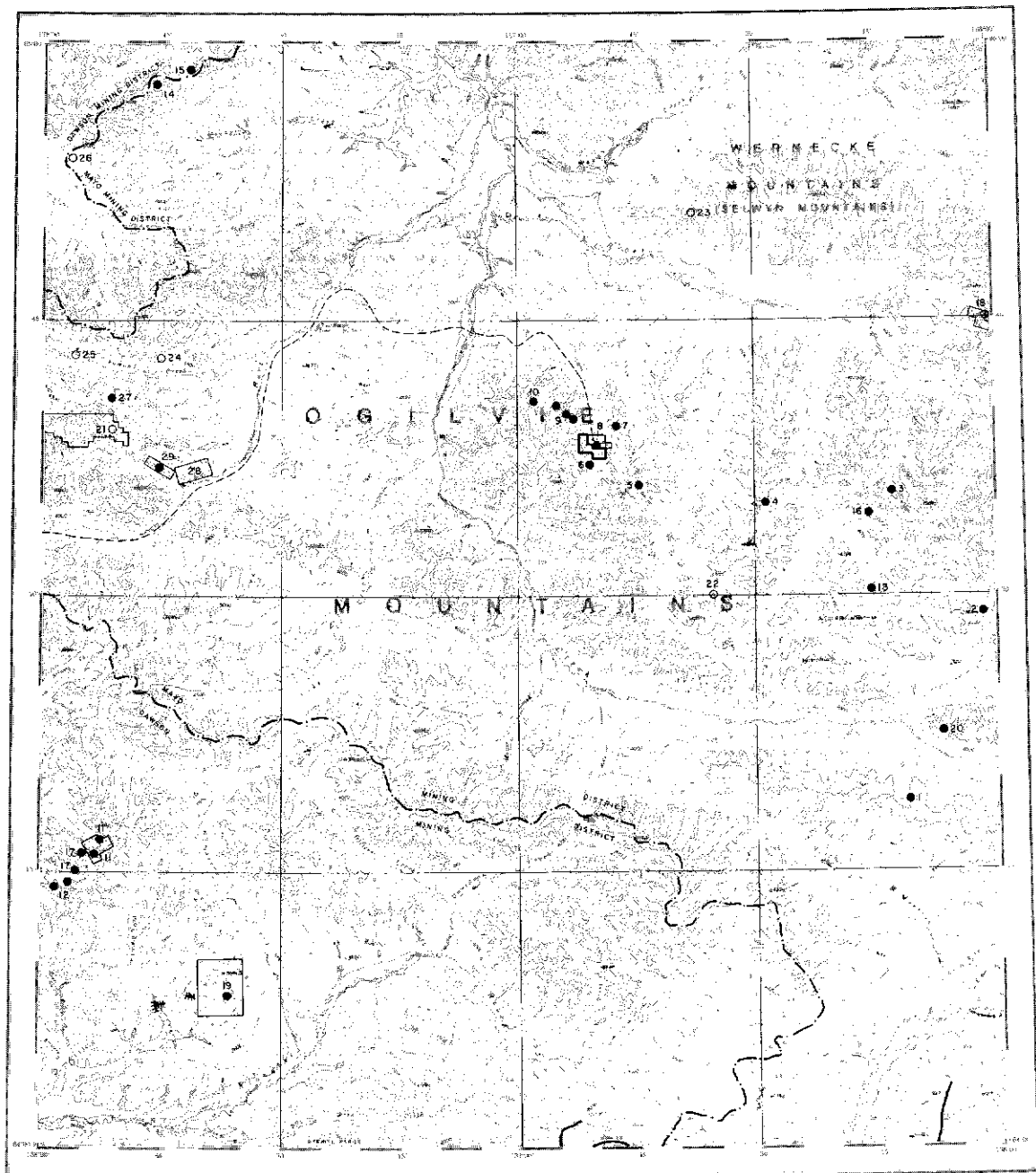
Claims 1982: OMEGA 1-32

NIC
 E. Wiesz

115 P 15 (41)
 (63°57'N,136°51'W)

Claims 1982: NIC 1-4

116 A



LARSEN CREEK YUKON TERRITORY

Kilometres 5 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|-------------------|
| ● ⁶¹ Mineral Deposit or Occurrence
see Key on facing page | — Placer Leases in good standing (Jan. 1983) | --- Tote Trail |
| ○ ⁷² Unmineralized Target | ----- Placer Claims in good standing (Jan. 1983) | — Drivible Road |
| □ Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982 | CEL Coal Exploration Licence | ◆ Oil or Gas Well |
| □ Mineral Claims staked in 1982 | CML Coal Mining Lease | — Airstrip |

LARSEN CREEK MAP-AREA (NTS 116 A)

General Reference: GSC Map 1283A and Memoir 364 by:
L.H. Green, 1972.

NO. PROPERTY NAME	REFERENCE
1 TIMBERWOLF	Copper Vein
2 WORM	Copper Vein
3 RAMA	Copper-Silver-Lead Vein
4 MATTSON	Copper Vein
5 SOUP	Copper Vein
6 REINDEER	Copper-Lead
7 GRACE	Craig & Laporte (1972, p. 26-27)
8 HART RIVER	Morin et al (1979, p. 22-24); This Report
9 BELCARRA	Copper-Lead-Zinc Vein
10 ZEBRA	Green (1972, p. 140); Craig & Laporte (1972, p. 23-25)
11 HAMILTON (MIKE)	This Report
12 RIMROCK	D.I.A.N.D. (1982, p. 233)
13 AUSTON	Green (1972, p. 140)
14 HOT	Sinclair et al (1976, p. 82)
15 MICHELLE	Sinclair et al (1975, p. 71)
16 BRUK (VUG)	Sinclair et al (1976, p. 74)
17 PHILP	Morin et al (1977, p. 139-140)
18 DALE	D.I.A.N.D. (1982, p. 233); This Report
19 IDA	D.I.A.N.D. (1982, p. 234)
20 STROKER	D.I.A.N.D. (1982, p. 234)
21 ST. BRIDGET	This Report
22 SUMI	Morin et al (1977, p. 135)
23 WERN	Morin et al (1977, p. 135-136)
24 TIM	Morin et al (1979, p. 50)
25 SHAY	Morin et al (1979, p. 50)
26 LEP	Morin et al (1979, p. 50)
27 LOMOND CREEK	Morin et al (1979, p. 49)
28 BOYLE	This Report
29 MILK UM	This Report

HAMILTON (MIKE)
S. Young

Gold, Silver,
Cobalt
116 A 5 (11)
(64°15'N, 137°55'W)

CAN claims by Canalta Resources Limited. The property was explored by trenching and diamond drilling which delineated two easterly trending gold mineralized zones. The claims were allowed to lapse. The AINE claims were staked in 1981 to cover known showings.

References: D.I.A.N.D. (1982, p.222-224); Morin et al (1977, p.139-140).

Claims: AINE 1-24

Source: Summary by K. Grapes from assessment report 091446 by D.P. Taylor.

History:

In 1975 the property was staked as the MIKE and

Current Work and Results:

The two mineralized zones delineated by Canalta Resources were further investigated and sampled in 1982. Samples from the north zone returned values ranging from 0.103 g Au/t to 15.02 g Au/t and 0.27% Co.

DALE
Noranda Exploration Limited

Copper
116 A 9,16,
106 D 12,13 (18)
(64°45'N,135°58'W)

ranged from 6 to 20 ppm Pb, zinc from 675 to 1,050 ppm Zn and barium from 450 to 1,475 ppm Ba. None of the lead or zinc samples had values greater than the regional threshold values.

Reference: D.I.A.N.D. (1982, p. 233).

Claims: MELA; DALE; (66)

Current Work and Results:

The eastern part of the claim block was mapped at 1:10,000 scale in 1982. Chalcopyrite-bearing quartz-siderite veins were found cutting Precambrian phyllites.

BOYLE
Cominco Ltd.

Barite Stratiform
116 A 12 (28)
(64°37'N,137°40'W)

Reference: D.I.A.N.D. (1982, p.233-234).

Claims: BOYLE (32)

Source: Summary by K. Grapes from assessment report 091040 by E.G. Olfert.

History:

The BOYLE claims were staked in August 1981 to cover an area of stratiform barite mineralization in outcrop and talus.

Description:

The property is located on the West Hart River, 34 km east of the Dempster Highway and 240 km northwest of Mayo. The claims are underlain by a 500-1,000 m thick sequence of graptolitic shale, silty mudstone and basic volcanic rock of the Road River Formation. This unit is structurally bounded by two sections of massive, grey Cambro-Ordovician carbonate rock. The Dawson Thrust occurs along the northern edge of the property with an echelon thrusts and associated drag folds occurring further south on the property.

Current Work and Results:

Geological mapping on a scale of 1:10,000, and soil, stream sediment and rock geochemical sampling were carried out.

A total of 125 soil, rock and stream sediment samples were collected and analyzed for Pb, Au and Ba. Half the samples were also analyzed for Cu and Ag.

MILK UM
Milchem Canada Limited

Barite
116 A 12 (29)
(64°37'N,137°45'W)

Reference: D.I.A.N.D. (1982, p.234. see NO BEAVER).

Claims: MILK UM (15)

Source: Summary by K. Grapes from assessment report 091381 by T.G. O'Neill.

ST. BRIDGET
Milchem Canada Limited

Barite
116 A 12 (21)
(64°38'N,137°48'W)

Reference: D.I.A.N.D. (1982, p. 233-234).

Claims: ST. BRIDGET (114)

Source: Summary by K. Grapes from assessment report 091366 by T.G. O'Neill.

History:

The ST. BRIDGET claims were staked in 1981 to cover an 11 km long trend of barite mineralization. Of the 135 claims originally staked, 21 were not renewed.

Description:

The claims are located 25 km east of Kilometre 93 on the Dempster Highway, 100 km northeast of Dawson. The property is underlain by Road River Formation and Upper and Lower Earn Group rocks.

Current Work and Results:

During July 1982 the claims were geologically mapped.

Twelve outcrops of grey, bedded barite and two areas of mineralized float were located, along a distance of 2.5 km. The barite mineralization occurs in black siliceous shales of the Canol Formation (Lower Earn Group). Mineralization occurs in zones of up to three beds varying in thickness from 0.51 m to 4.6 m and pinching out altogether in some areas. Individual barite beds range from 0.05 m to 3.0 m in thickness.

The barite is usually light to dark grey, and inter laminated with chert beds less than 1 mm thick. Witherite often occurs as discrete inter laminations with barite, and occasionally in pods up to 1.25 m long and 0.9 m wide. Specific gravity of the barite varies from 2.90 to 4.25.

Fourteen stream sediment samples were collected and tested for lead, zinc and barite. Lead values

History:

The MILK UM claims were staked in August 1981 to cover part of a 16.5 km long barite trend. Of the 55 claims originally staked, 41 have lapsed.

The 10 stream sediment samples collected were tested for Pb, Zn, and Ba. Lead values ranged from 8-20 ppm Pb, zinc from 375-2,140 ppm Zn and barium from 200-2,350 ppm Ba.

Description:

The MILK UM claims are located 105 km northeast of Dawson City, 30 km east of the Dempster Highway. The claims are underlain by rocks of the Selwyn Basin ranging in age from late Proterozoic to early Mississippian.

1982 MINERAL CLAIMS STAKED

Current Work and Results:

The claims were geologically mapped and 10 stream sediment samples were collected in July 1982.

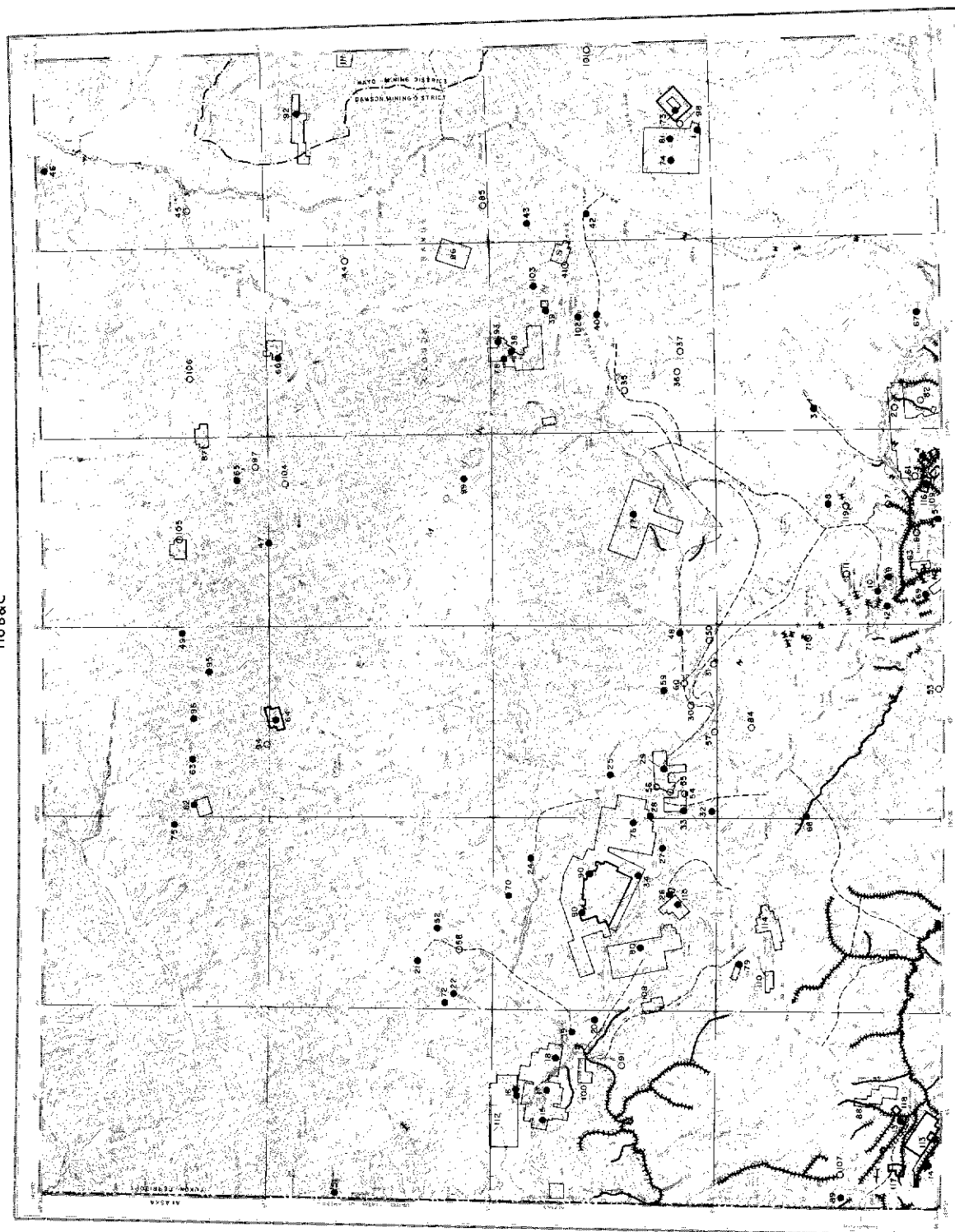
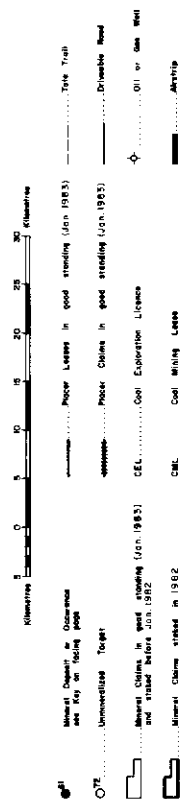
One barite outcrop occurs on the claims. The barite is massive with no laminations or witherite inclusions. The outcrop measures 3 m long by 1 m thick. A sample of the barite bed had a specific gravity of 4.0.

HART RIVER
North Hart Resources Ltd.

116 A 10 (8)
(64°38'N, 136°50'W)

Claims 1982: GEN 1-16

116 B&C

DAWSON
YUKON TERRITORY

DAWSON MAP-AREA (NTS 116 B-C)

General Reference: GSC Map 1284A and Memoir 364 by:
L.H. Green, 1972.

NO. PROPERTY NAME	REFERENCE		
1 INDEX	Green (1972, p. 142)	44 CRAWFORD	Copper Vein
2 GERMAINE	Green (1965, p. 64-65)	45 BLACKSTONE	Coal
3 COLLIERY	Bostock (1938, p. 13-14); Green (1972, p. 27); Dowling (1915)	46 CHAPMAN	Sinclair et al (1975, p. 76); Green (1972, p. 138)
4 UNEXPECTED	D.I.A.N.D. (1982, p. 238)	47 FIFTEEN MILE	Copper-Silver Vein
5 VIRGIN	Canada Dept. of Mines (1914, p. 41-49); D.I.A.N.D. (1981, p. 293)	48 CHANDINDU	McConnell (1903, p. 39-41)
6 MacLEAN	Canada Dept. of Mines (1914, p. 125)	49 SHAND	Morin et al (1977, p. 144)
7 BOYLE		50 JEROME	Coal
8 LEPINE	Canada Dept. of Mines (1914, p. 114-115); D.I.A.N.D. (1981, p. 293)	51 PAULA	Owen (1968, p. 8)
9 FIBRE	Asbestos	52 KRAUSE	Iron Stratabound
10 MIDNIGHT DOME	Asbestos	53 MASTADON	
11 BROAD-LEDGE	Brock (1910, p. 15)	54 RISCO	
12 WEST DAWSON	Copper-Lead-Silver Skarn, Vein	55 WINAGE	
13 HUNGRY	Cockfield (1921, p. 52)	56 HEALY	
14 MILLER	Cockfield (1921, p. 51-52); D.I.A.N.D. (1981, p. 293)	57 LAWRENCE	
15 SPHERE	This Report	58 LEDUC	Coal
16 FOXY	Green (1964, p. 27)	59 BARETTE	Coal
17 CLINTON CREEK	This Report	60 THANE	Coal
18 ACHERON (RG)	Morin et al (1977, p. 144)	61 HATTIE	Canada Dept. of Mines (1914, p. 124-125)
19 CONE HILL	Silver-Lead-Gold Vein; D.I.A.N.D. (1981, p. 242)	62 MONSTER (OG)	Sinclair et al (1976, p. 88)
20 MICKEY CREEK	Asbestos	63 TART	Zinc-Lead
21 SHELL CREEK	Gross (1969, p. 111)	64 OZ	Sinclair et al (1975, p. 74-75); This Report
22 CLIFF	McConnell (1904, p. 39-41)	65 SEELA	Lead-Zinc Vein
23	Dowling (1915)	66 KIWI	Sinclair et al (1975, p. 75)
24 SOURDOUGH MINE	McConnell (1904); Green (1972, p. 146)	67 MORRISON	G.S.C., Map 711A (1942)
25 FIF	McConnell (1903, p. 39-41)	68 LOWNEY	
26 CALEY	Green (1964, p. 27-28)	69 HALIFAX	D.I.A.N.D. (1981, p. 293)
27 SUBMARINE	Cockfield (1928, p. 9)	70 CHAIN	Coal
28 ROAL	Cockfield (1928, p. 9)	71 HALE	
29 SILVER CITY	Green (1966, p. 23-24); Craig & Milner (1975, p. 15)	72 JEPHSON	Coal
30 OGILVIE		73 O'BRIEN (A.J.)	This Report
31 KEYSTONE		74 SANDOW	Green (1972, p. 142)
32 ASS	Asbestos	75 UGLY	Zinc-Lead Vein
33 WOODCHOPPER	D.I.A.N.D. (1982, p. 238-239, 242)	76 TJOP	This Report
34 ETHELDA	Copper Skarn	77 STYX	D.I.A.N.D. (1982, p. 239)
35 HAY MEADOW		78 MARN	This Report
36 JECKELL		79 CLIP	D.I.A.N.D. (1981, p. 288)
37 SNYDER		80 PLUTO	This Report
38 FIREWEED	Tempelman-Kluit (1965, p. 36)	81 THOR	D.I.A.N.D. (1981, p. 289-291)
39 GRAVE	D.I.A.N.D. (1981, p. 285)	82 ETC	D.I.A.N.D. (1981, p. 293)
40 SPOTTED FAWN	Cockfield (1919, p. 15-17); Green (1972, p. 137-138); Sinclair et al (1975, p. 73-74)	83 FROGGY	D.I.A.N.D. (1981, p. 293)
41 SUBTRACT	D.I.A.N.D. (1981, p. 285)	84 FRESNO	D.I.A.N.D. (1981, p. 293)
42 ROBERT SERVICE	Tempelman-Kluit (1965, p. 36)	85 RIKI	D.I.A.N.D. (1982, p. 240)
43 MULTIPLY	Tempelman-Kluit (1965, p. 36)	86 TAK	This Report
		87 KITL	D.I.A.N.D. (1982, p. 240)
		88 GUCH	D.I.A.N.D. (1982, p. 241)
		89 BALDY	D.I.A.N.D. (1981, p. 292)
		90 RAIL	This Report
		91 MAIDEN (TING)	D.I.A.N.D. (1981, p. 292)
		92 REIN	D.I.A.N.D. (1981, p. 292)
		93 NEBULOUS	D.I.A.N.D. (1981, p. 293)
		94 DEM	Sinclair et al (1976, p. 85)
		95 OD	Sinclair et al (1976, p. 86)
		96 ID	Sinclair et al (1976, p. 87)
		97 KIMI	Sinclair et al (1976, p. 88)
		98 MONY	Morin et al (1977, p. 142)
		99 GULCH	Morin et al (1977, p. 143)
		100 ROSE	D.I.A.N.D. (1982, p. 242)
		101 HOT	Morin et al (1979, p. 53)
		102 TETA	Morin et al (1979, p. 54)
		103 SUMTING	Morin et al (1979, p. 54)
		104 BRX	Morin et al (1979, p. 55)
		105 ROB	Morin et al (1979, p. 56)
		106 DAWG	Morin et al (1979, p. 56)
		107 PUB	Morin et al (1980, p. 29)
		108 MICKEY	D.I.A.N.D. (1982, p. 241-242)

109	SPEC	This Report
110	SWEDE	D.I.A.N.D. (1982, p. 242)
111	GRAPS	D.I.A.N.D. (1982, p. 242)
112	TURK	This Report
113	WY	This Report
114	HOLLY	
115	TIZA	This Report
116	JOE "1"	This Report
117	CEDAR	This Report
118	PINE	This Report
119	SPEC-2	This Report

SPHERE	Asbestos
Teslin Joint Venture	116 C 7 (15)
Archer, Cathro and Associates (1981) Limited	(64°26'N, 140°48'W)

References: D.I.A.N.D. (1982, p.237,242); Sinclair and Gilbert (1975, p.31).

Claims: TARTZHART 25,27-28.

Source: Summary by K. Grapes from assessment report 091401 by J.S. Murray.

History:

The area now covered by the TARTZHART claims was first staked as the BILL claims by Cassiar Asbestos Corp Ltd. around 1970. Cassiar performed geological mapping and a ground magnetic survey in 1971. The claims were allowed to lapse in 1972. The TARTZHART claims were staked in 1981 by the Teslin Joint Venture to cover anomalous asbestos fibre concentrations in soil.

Description:

The property is located approximately 3 km southwest of the Clinton minesite, on the south side of Clinton Creek. The claims are underlain by low grade metamorphic and cataclastic rocks of the Nasina Suite and Anvil Allochthon, respectively. Exposures are mainly of graphitic schist, chlorite schist and limestone. No ultramafic rocks have been located yet, however the Johnny asbestos showing is located 500 m beyond the claim boundary. The TARTZHART claims may be underlain by the same ultramafic body or by a separate ultramafic body which has not yet been identified.

Current Work and Results:

In 1981, field work consisted mainly of excavator pitting with some grid soil sampling, linecutting and geological mapping.

Approximately 1,400 soil samples and 54 silt samples were collected and 22 km of baseline were cut. Three anomalies were outlined by the sampling, two of which were investigated by 24 excavator pits. It was shown that the two anomalies are underlain by schist and sample contamination by airborne dispersion from the mill is suspected.

CLINTON CREEK	Asbestos
Archer, Cathro and Associates (1981) Limited	116 C 7 (17)
	(64°27'N, 140°41'W)

References: D.I.A.N.D. (1983, p.237,242).

Claims: TATER 1-28.

Source: Summary by K. Grapes from assessment report 091050 by J.S. Murray.

History:

The TATER claims were staked in 1981 for the Teslin Joint Venture on the northeast side of Clinton Creek, approximately 1.5 km east of the Clinton minesite. They cover an area that was first staked in 1963 by Cassiar Asbestos Corp. Ltd. as the ROSA, JOE, CRIPPLE and CAROL claims. Cassiar performed geological mapping, magnetometer surveys and bulldozer trenching in 1964 and 1970 over a large serpentinite body that is cut by the Clinton mine access road. However, the potential of the overburden-covered portions of this body was not thoroughly explored.

Current Work and Results:

In 1981, field work consisted of grid soil sampling, fibre dispersion surveying, linecutting and geological mapping. Exposure in the area is poor, but the claims appear to be underlain by a large ultramafic body. At surface, the serpentinite is barren and weathered, similar to the serpentinite that forms the sheared foot wall waste rock of the Porcupine Pit, 3 km to the west.

TJOP	Asbestos
Teslin Joint Venture,	116 B 5,
Archer, Cathro and Associates (1981) Limited	116 C 8 (76)
	(64°22'N, 140°00'W)

References: D.I.A.N.D. (1982, p.237,244);
D.I.A.N.D. (1981, p.284-285).

Claims: TJOP (29)

Source: Summary by K. Grapes from assessment report 091059 by R.J. Cathro and J.S. Murray.

Current Work and Results:

The 1981 field work consisted of excavator pitting, soil sampling, fiber dispersion surveying and geological mapping. One hundred and nineteen pits were excavated near nine showings discovered in 1980 by fiber dispersion surveys, and beneath three large soil anomalies. The pits were up to 5 m deep and spaced at approximately 50 m intervals across the target areas.

Chrysotile mineralization grading up to 4% of group 5 fibre (20% of fibres exceed 6.5 mm in length) occurs at two of the showings. The best fibre is

confined to lenses of blocky serpentinite less than 25 m across. Surrounding rocks are mainly barren, fish scale serpentinite.

MARN
Noranda Exploration 116 B 7,10 (78)
Company Limited (64°29'N,138°48'W)

References: D.I.A.N.D. (1982, p.237,239); D.I.A.N.D. (1981, p.2,284,287-288,293).

Claims: MARN 1-108

Source: Summary by K. Grapes from assessment report 091432 by J. Biczok.

Current Work and Results:

A limited program of geological mapping was undertaken on the southern MARN claims in 1982.

PLUTO
Cominco Ltd. Molybdenum,
Tungsten
116 C 8 (80)
(64°20'N,140°22'W)

Reference: D.I.A.N.D. (1982, p.3,8,12,237,239).

Claims: PLUTO 1-74,76-166

Source: Summary by K. Grapes from assessment report 091398 by I.A. Paterson.

Current Work and Results:

One NQ size diamond drill hole totalling 709.27 m was drilled on the PLUTO 26 claim.

RAIL
Noranda Exploration Tungsten Skarn
Company Limited 116 C 8 (90)
(64°23'N,140°10'W)

Reference: D.I.A.N.D. (1982, p.237,241-242).

Claims: RAIL 1-214; ROAD 1-4; TRACK 1-28; TIE 1-40; SPIKE 1-156

Source: Summary by K. Grapes from assessment report 091413 by R.S. Rogers.

Current Work and Results:

Minor tungsten mineralization was intersected in one of three diamond drill holes drilled on the property in 1982. In total, 208.80 m were drilled on the RAIL 1 and 2 claims. Best mineralization occurs in garnet diopside skarn containing moderate amounts of disseminated pyrrhotite. On the RAIL 181 claim a 300 m trench was excavated over a 1980 airborne magnetometer anomaly. Unmineralized quartz feldspar porphyry was uncovered.

TURK
Archer, Cathro and Asbestos
Associates (1981) Limited 116 C 7 (112)
(64°29'N,140°47'W)

Reference: D.I.A.N.D. (1982, p.238,242).

Claims: TURK 1-156

Source: Summary by K. Grapes from assessment report 090959 by J.S. Murray.

History:

The TURK claims were staked for Teslin Joint Venture (Brinco Mining Ltd, Cominco Limited and Exploram Minerals Ltd.) in 1981 to cover several poorly exposed ultramafic bodies and areas of anomalous asbestos fibre concentration. Although the property is close to the Clinton Mine, its potential had never been thoroughly explored. Trenching was done by Voels International Development Ltd. around 1967 and a ground magnetic survey was conducted in 1970 by Cassiar Asbestos Corporation Ltd.

Description:

The TURK claims are located northwest of the Clinton airstrip, 5 km northwest of the Clinton Mine. They are underlain by low grade metamorphic rock of the Nasina Suite and cataclastic and alpine type ultramafic rock of the Anvil Allochthon. The ultramafic rock consists of partially to highly sheared serpentinite bodies, which are enveloped by graphitic schists of the Nasina Suite.

Current Work and Results:

The 1981-1982 exploration program consisted of grid soil sampling, linecutting, geological mapping and trenching.

Approximately 2,400 soil and stream sediment samples were collected and evaluated for their asbestos fibre content. The survey has shown that fibres up to 5 mm long are dispersed in soils throughout the area although outcroppings are rare and very few fibre veins have been seen. Four anomalies were outlined containing fibres up to 11.5 mm in length. One of the anomalies was investigated with two bulldozer trenches, which uncovered a weakly mineralized zone within sheared serpentinite. Two of

the anomalies are thought to be caused by wind-blown fibre from the Clinton millsite located nearby. Two old showings on the TURK property are also being investigated.

WY

Territorial Gold Placers 116 C 2 (113)
(64°00'N, 140°49'W)

Reference: D.I.A.N.D. (1982, p.238,242)

Claims: WY 1-3; GLAC 1-62

Source: Summary by K. Grapes from assessment report 091385 by G.C. Gutrath.

Current Work and Results:

The WY claims, staked in 1981, are located on Miller Creek. In 1982 a road was cut through claim WY 2 and an area totalling 27,181.8 m³ was stripped, exposing bedrock in a number of locations. The bedrock exposures were examined in an attempt to locate the source of cinnabar found in placer operations in the area.

Three types of economic metals occur in the area - tungsten, mercury and gold. Strong hydrothermal alteration and intense shearing with carbonate, pyrite and silica mineralization occur in bedrock exposures on the WY 2 claim. Cinnabar crystals, barite nodules, scheelite and wolframite are found in placer concentrates on the WY 2 claim, but bedrock mineralization has not been found.

TAK

Noranda Exploration 116 B 9,10 (86)
Company Limited (64°33'N, 138°32'W)

Reference: D.I.A.N.D. (1982, p.237,240).

Claims: TAK 1-48

Source: Summary by K. Grapes from assessment report 091417 by B. Jago.

Current Work and Results:

During 1982, detailed stream sediment and rock geochemical sampling, and mapping on a scale of 1:10,000 were conducted.

Twenty-three stream sediment samples were collected. Twenty rock samples of the shale unit were barren of base and precious metal mineralization.

TIZA
Tustin Joint Venture;
Archer, Cathro and
Associates (1981) Limited

Asbestos
116 C 8 (115)
(64°18'N, 140°15'W)

Reference: Tempelman-Kluit (1979).

Claims: TIZA (28)

Source: Summary by K. Grapes from assessment report 091402 by J.S. Murray.

History:

The Caley deposit was first staked in 1931 as the ISABELLE and MARIO claims. It was restaked as the BROWNIE, SKIP etc. in 1955 and optioned in 1956 to Conwest Exploration Ltd. The property was trenched in 1956 and transferred to Cassiar Asbestos Corp Ltd. in 1978 who explored with more trenching and 360 m of drifting in two adits, then dropped the option. The property was optioned and explored in 1963-65 by Canadian Johns-Manville Co. Ltd. They conducted ground magnetometer and mapping surveys, and diamond drilled 610 m in 12 holes. In 1966-67 Sphere Development Corp. Ltd. added more claims, flew an aeromagnetometer survey, and in 1971 did some trenching. The property was sold in 1972 to Anglo Western Minerals Ltd. Further geophysical surveying and trenching were conducted in 1972. In 1977 the Caley deposit was restaked as the PET claims. Approximately 300,000 tonnes of preconcentrated ore was trucked to the Clinton mill. When the Clinton Mine shut down in 1978 all but two of the claims were allowed to lapse. In 1981 the TIZA claims were staked to the southwest of the two PET claims covering the Caley Mine.

Description:

The claims are underlain by several small to medium sized ultramafic bodies of the Anvil Allochthon containing small dyke-like bodies of diorite. Most ultramafites have been totally altered to serpentinite enveloped by quartz-carbonate and soapstone. The surrounding rocks are predominantly chlorite and graphite schists of the Nasina Series.

Current Work and Results:

One thousand two hundred and ninety (1,290) soil samples and 31 stream sediment samples were collected in 1981. Three anomalies were outlined and investigated with 130 excavator pits. Best mineralization occurs at the Knob Hill showing in weathered blocky serpentinite. Mineralization is similar to that at the Caley Mine.

SPEC-2
C. Ashley et al

116 B 3 (119)
(64°07'N,139°12'W)

OZ

116 B 12, 13 (64)
(64°44'N,139°44'W)

References: D.I.A.N.D. (1981,p.293); D.I.A.N.D.
(1982, p.237).

Claims: SPEC 1-52

Claims 1982: HARP 1-24

WY
Territorial Gold Placers

116 C 2 (113)
(64°01'N,140°48'W)

Source: Summary by K. Grapes from assessment report
091023 by C. Ashley.

Claims 1982: GLAC 1-62

Current Work and Results:

CEDAR

116 C 2 (117)
(64°03'N,140°54'W)

The SPEC claims were mapped on a reconnaissance
scale, stream sediment sampled, and geophysically
surveyed (VLF, CEM) in the 1980 field season.

Claims 1982: CEDAR 1-6; BIRCH 1-4; DART 1-2

PINE

116 C 2 (118)
(64°03'N,140°44'W)

Claims 1982: PINE 1-4

1982 MINERAL CLAIMS STAKED

SPEC
C. Ashley

116 B 3 (109)
(64°00'N,139°07'W)

CLINTON CREEK
Archer, Cathro and
Associates (1981) Limited

116 C 7 (17)
(64°27'N,140°41'W)

Claims 1982: SPEC 1-8; JOE 1-4

Claims 1982: TATER 29-38, 41-86

JOE "1"
L. Morrison

116 B 3 (116)
(64°02'N,139°09'W)

TURK
Archer, Cathro and
Associates (1981) Limited

116 C 7 (112)
(64°29'N,140°47'W)

Claims 1982: JOE "1" 1-8

Claims 1982: TURK 97-156

O'BRIEN (A.J.)

116 B 8 (73)
(64°17'N,138°10'W)

RAIL
Noranda Exploration Company
Limited

116 C 8 (90)
(64°22'N,140°13'W)

Claims 1982: AJ 1-36

Claims 1982: SPIKE 1-156

OGILVIE MAP-AREA (NTS 116 F-G)

General Reference: GSC Open File 715 by: D.K. Norris,
1980.
GSC Map 1526A by: D.K. Norris,
1982.

NO.	PROPERTY NAME	REFERENCE
1	BURGOYNE (KEPT)	Sinclair et al (1976, p. 90)
2	SIT DOWN	Norris (1976, p. 459)
3	DYKE	Norris (1976, p. 344)
4	NUCLEAR	Sinclair (1975, p. 77-78)
5	GIG	Lead Vein
6	COOT	Lead Vein
7	BIBLO	D.I.A.N.D. (1981, p. 295)
8	MILCH	D.I.A.N.D. (1982, p. 245)
9	PL	Morin et al (1980, p. 30-31)
10	TIN	Morin et al (1980, p. 30)
11	ELBOW	Morin et al (1980, p. 31)
12	KZ	This Report
13	BANG ON	D.I.A.N.D. (1982, p. 245); This Report

KZ
Noranda Exploration
Company Limited
116 G 1,8 (12)
(64°15'N, 138°33'W)

Reference: D.I.A.N.D. (1982, p.245).

Claims: KZ 1-24

Source: Summary by K. Grapes from assessment report
091416 by B. Jago.

History:

The KZ claims were staked in 1981 to cover a
kill zone and high stream sediment geochemical
values. A soil geochemical survey was conducted the
same year.

Description:

The claim group is located 130 km north of
Dawson City and 4 km west of Kilometre 180 on the
Dempster Highway. It is underlain by a broadly folded
sequence of Ordovician to Devonian clastic and
chemical sedimentary rocks.

Current Work and Results:

Geological mapping failed to locate the source
of the kill zone. The 128 soil samples collected
indicate that the metal enrichment in soils is erratic
and lead values are low. Six, one metre deep pits did
not confirm anomalies at depth.

BANG-ON
Noranda Exploration Limited

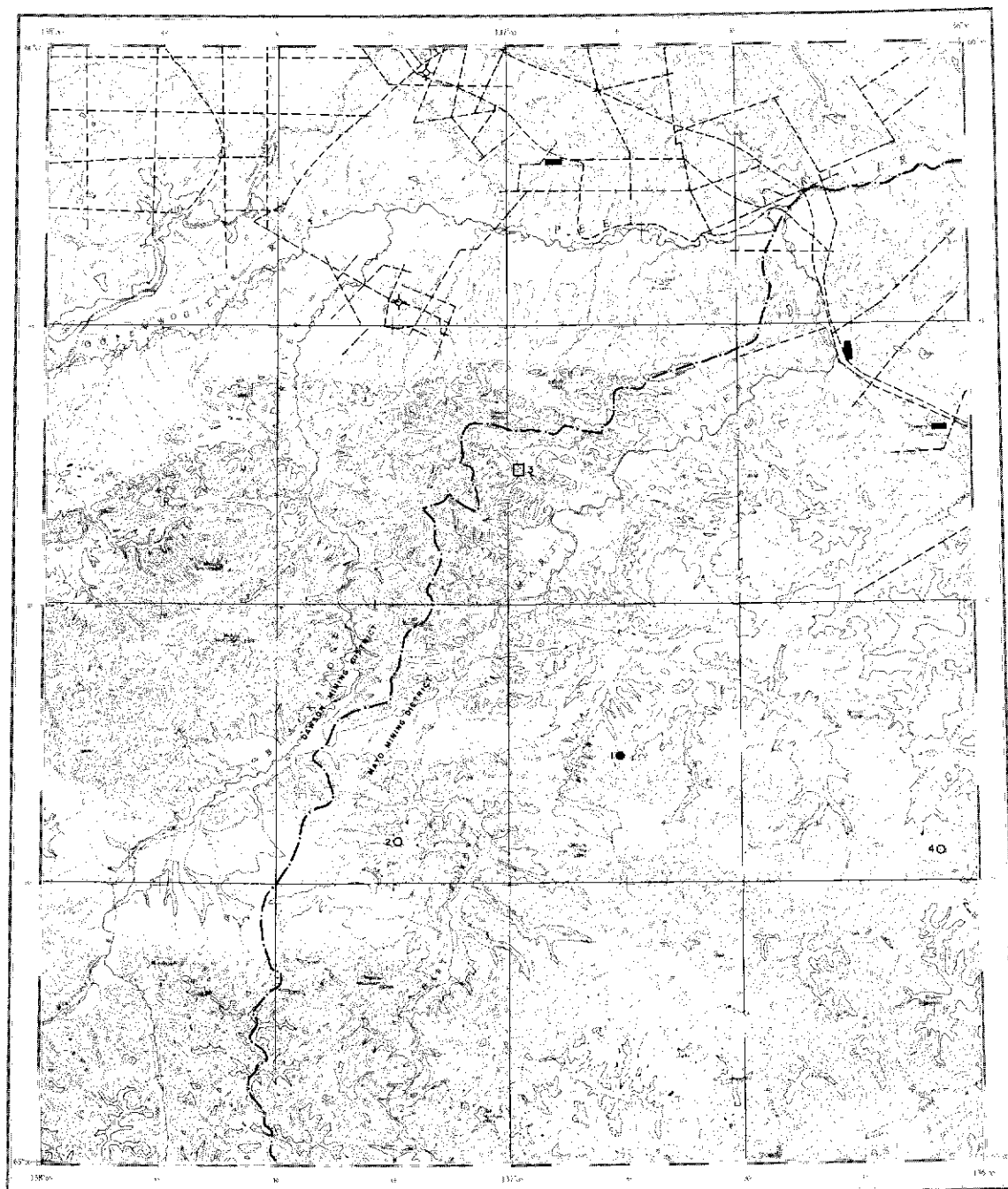
Barite Veins
116 G 8 (13)
(65°26'N, 138°01'W)

Claims: BANG-ON (24)

Current Work and Results:

In 1982, the claims were prospected and
scattered barite veins cutting Road River Formation
limestone were located.

116 H



HART RIVER YUKON TERRITORY

Kilometres 5 0 5 10 15 20 25 30 Kilometres

- | | | |
|--|--|-------------------|
| ● ⁶¹ Mineral Deposit or Occurrence
see Key on facing page | —— Placer Leases in good standing (Jan. 1983) | --- Tail Trail |
| ○ ⁷² Unmineralized Target | ----- Placer Claims in good standing (Jan. 1983) | —— Driveable Road |
| □ Mineral Claims in good standing (Jan. 1983)
and staked before Jan. 1982 | CEL Coal Exploration Licence | ✦ Oil or Gas Well |
| ▭ Mineral Claims staked in 1982 | CML Coal Mining Lease | ▬ Airstrip |

HART RIVER MAP-AREA (NTS 116 H)

General Reference: GSC Open File 715 by: D.K. Norris,
1980.
GSC Map 1527A by: D.K. Norris,
1982.

NO. PROPERTY NAME	REFERENCE
1 CUNG	Sinclair et al (1975, p. 69-70)
2 JANE	Sinclair et al (1976, p. 75); D.I.A.N.D. (1982, p. 247); This Report
3 CYLINDER	Morin et al (1980, p. 24)
4 HEIDI	D.I.A.N.D. (1982, p. 247); This Report

JANE
Noranda Exploration Limited

Geochemical Target
116 H 6 (2)
(65°17'N, 137°15'W)

HEIDI
Noranda Exploration Limited

Barite Vein
116 H 8 (4)
(65°16'N, 136°04'W)

Claims: WENDY (24)

Claims: HEIDI (4)

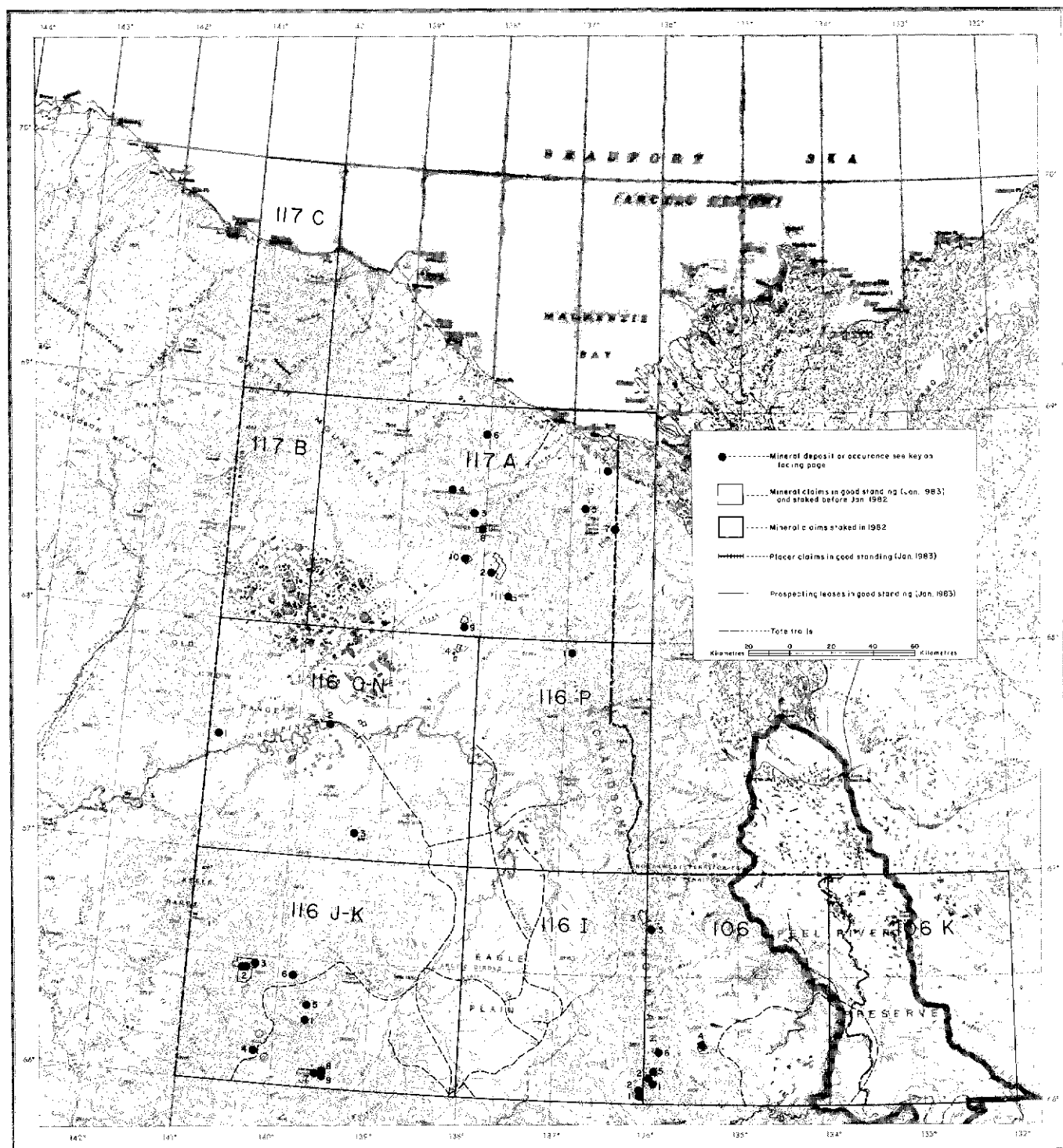
Current Work and Results:

Current Work and Results:

The claims were mapped at a scale of 1:13,000 in 1982 and a grid soil geochemistry program was completed over the central claims. A Zn soil anomaly is underlain by Permian shales.

The claims were mapped at 1:50,000 scale in 1982. Barite veins occur within Road River Formation limestone.

106 K,L,
116 I,K, N/O,P
117 A



MARTIN HOUSE MAP-AREA (NTS 106 K)

General Reference: GSC Open File 715 by: D.K. Norris, 1980.
GSC Map 1525A by: D.K. Norris, 1981.

NO. PROPERTY NAME	REFERENCE
-------------------	-----------

1 CARIBOU BORN	Coal
----------------	------

TRAIL RIVER MAP-AREA (NTS 106 L)

General Reference: GSC Open File 715 by: D.K. Norris, 1980.
GSC Map 1524A by: D.K. Norris, 1981.
GSC Open File 875 by: M.P. Cecile, I.F. Hutcheon, V. Gardner, 1982.

NO. PROPERTY NAME	REFERENCE
-------------------	-----------

1 PILON	Sinclair et al (1975, p. 88-89)
2 TWICE	Sinclair et al (1975, p. 90-91)
3 TOUCHE	This Report
4 NOR	D.I.A.N.D. (1981, p. 300-301)
5 RAS	Sinclair et al (1976, p. 78)
6 PETE	Sinclair et al (1976, p. 79)

EAGLE RIVER MAP-AREA (NTS 116 I)

General Reference: GSC Open File 715 by: D.K. Norris, 1980.
GSC Map 1523A by: D.K. Norris, 1981.
GSC Open File 875 by: M.P. Cecile, I.F. Hutcheon, V. Gardner, 1982.

NO. PROPERTY NAME	REFERENCE
-------------------	-----------

1 LLOD	Sinclair et al (1975, p. 87-88)
2 HARIVAL	Sinclair et al (1975, p. 87-88)
3 TOUCHE	This Report

PORCUPINE RIVER MAP-AREA (NTS 116 J-K)

General Reference: GSC Open File 715 by: D.K. Norris, 1980.
GSC Map 1522A by: D.K. Norris, 1981.

NO. PROPERTY NAME	REFERENCE
-------------------	-----------

1 PEACH	Sinclair et al (1975, p. 81-82)
2 RUSTY SPRINGS (TERMJENDE)	This Report
3 ALTO	Norris (1976, p. 461)
4 BERN	Sinclair et al (1975, p. 79-81)
5 FISHING BRANCH	Sinclair et al (1975, p. 81-82)
6 MOKO	Sinclair et al (1975, p. 81-82)
7 WART	Sinclair et al (1975, p. 84)
8 YUM	Sinclair et al (1975, p. 83-84)
9 BULLIS	Sinclair et al (1975, p. 85)

OLD CROW MAP-AREA (NTS 116 N-O)

General Reference: GSC Open File 715 by: D.K. Norris, 1980.
GSC Map 1518A by: D.K. Norris, 1981.

NO. PROPERTY NAME	REFERENCE
-------------------	-----------

1 SUNAGHUN	Green & Godwin (1964, p. 18)
2 TACK	McConnell (1890, p. 127-128)
3 SALEKEN	Sinclair et al (1975, p. 85-86)
4 BEAR	

BELL RIVER MAP-AREA (NTS 116 P)

General Reference: GSC Open File 715 by: D.K. Norris, 1980.
GSC Map 1519A by: D.K. Norris, 1981.

NO. PROPERTY NAME	REFERENCE
-------------------	-----------

1 NORRIS	Norris (1974, p. 348)
----------	-----------------------

106 K,L
116 I,K, N/O,P
117 A

BLOW RIVER MAP-AREA (NTS 117 A)

General Reference: GSC Map 1516A by: D.K. Norris,
1981.

NO. PROPERTY REFERENCE

- | | | |
|----|---------------|---------------------------|
| 1 | MOOSE CHANNEL | Bostock (1953, p. 30) |
| 2 | BONNET | Jeletsky (1960) |
| 3 | HOIDAHL | Vokes (1963) |
| 4 | WELCOME | Bostock (1953, p. 26) |
| 5 | RAPID | Young (1972, p. 232) |
| 6 | SHINGIE | Norris (1972, p. 97) |
| 7 | STRADDLE | Young (1972, p. 232) |
| 8 | MAM | D.I.A.N.D. (1981, p. 304) |
| 9 | NET | Morin et al (1979, p. 58) |
| 10 | BOU | Morin et al (1979, p. 58) |
| 11 | LIN | Morin et al (1980, p. 31) |

TOUCHE
Noranda Exploration
Company Limited

Barite
106 L 13,
116 I 16 (3)
(66°51'N, 136°02'W)

Reference: D.I.A.N.D. (1982, p.249-250).

Claims: TOUCHE 1-56

Source: Summary by K. Grapes from assessment report
091403 by B. Jago.

Current Work and Results:

A detailed mapping and soil, rock, stream sediment sampling program was conducted in 1982. Approximately 100 rock, 400 soil and 20 stream sediment samples were collected.

Mapping defined a thick sequence of intensely altered and folded Cambrian to Silurian clastic and chemical sedimentary rocks. The soil, stream sediment and rock geochemical survey defined several zones of metal enrichment, though none regarded as significant.

Two EM-16 geophysical surveys conducted on the property in 1982 gave inconclusive results due to permafrost conditions.

RUSTY SPRINGS (TERMUENDE)
Kenton Natural Resources
Corporation

116 K 8,9 (2)
(66°30'N, 140°25'W)

Reference: D.I.A.N.D. (1981, p.301-304), D.I.A.N.D.
(1982, p. 48-50).

Claims: RIO 1-104; NATE 3-14; JP 1-54; CARB 1-16;
HG 1-146; MOOSE 1-48.

Source: Summary by K. Grapes from assessment report
091410 by J.W. Davis and C.H. Aussant.

Current Work and Results:

In 1982, soil geochemical sampling, geophysical (VLF-EM) surveying, detailed geological mapping, trenching and diamond drilling were carried out on the property.

A total of 1,300 soil samples was collected and analyzed for Cu, Zn, Pb and Ag. A strong north-trending Ag-Cu-Pb anomaly has been outlined on Orma Hill, with a Pb-Au-Cu-Ag anomaly outlined to the south. These anomalies appear to be associated with a steeply dipping, north-south trending, epithermal vein system.

High zinc values predominate on Mike Hill. Two Cu-Pb-Au-Ag anomalies trending east-west transect the top of Mike Hill.

A VLF-EM survey indicates the downward continuation of the vein system on Orma Hill. On Mike Hill the VLF-EM response was not as strong, but direct correlation between conductors and known mineralization can be made.

Three previously excavated trenches were re-opened and deepened and three new trenches were cut. Two of the older trenches uncovered galena/tetrahedrite veins. The mineralized zones were channel sampled and assayed for Cu, Pb, Au, Ag, and Au. The values returned range from 1,781 g Ag/t over 0.6 m to 458.05 g Ag/t over 0.1 m. A grab sample of massive tetrahedrite yielded 13,260 g Ag/t. Two of the new trenches reached bedrock and mineralization. One of the trenches uncovered a massive, one metre wide galena/tetrahedrite vein in a seven metre wide mineralized gossan with abundant secondary copper mineralization. Assay results of the vein ran 1,444 g Ag/t over one metre.

Eight NQ or HQ diamond drill holes totalling 509.9 m were drilled on Orma Hill. Two of the holes, drilled on the same vein system, encountered significant mineralization, with 5 other holes intersecting minor amounts of mineralization. Mineralized zones assayed 63.77 g Ag/t and 5.92% Pb over 0.93 m and 129.60 g Ag/t and 3.54% Pb over 7.3 m.

LIST OF REFERENCES

- ABBOTT, J.G. 1982. Structure and Stratigraphy of the Macmillan Fold Belt; Evidence for Devonian Faulting. pp. 22-27, in D.I.A.N.D. 1982: YEG 1981, Dept. of Indian Affairs and Northern Development, 282 pp.
- BLUSSON, S.L. 1966. Frances Lake map-area; Geol. Surv. Can., Preliminary Map 6-1966.
- BLUSSON, S.L. 1971. Sekwi Mountain map-area; Yukon Territory and District of Mackenzie; Geol. Surv. Can., Paper 71-22 (Including Map 1333A).
- BLUSSON, S.L. 1974. Operation Stewart (northern Selwyn Basin): Mount Eduni (106 A), Bonnet Plume Lake (106 B), Nadaleen River (106 C), Lansing (105 N) and Nidderly Lake (105 O); Geol. Surv. Can., Open File 205.
- BLUSSON, S.L. 1976. Selwyn Basin, Yukon and District of Mackenzie; Geol. Surv. Can., Paper 76-1A, p. 131-132.
- BOSTOCK, H.S. 1936. Preliminary report - prospecting possibilities of Teslin - Quiet Lake - Big Salmon area, Yukon; Geol. Surv. Can., Paper 36-2.
- BOSTOCK, H.S. 1936. Mining industry of Yukon, 1935; Geol. Surv. Can., Mem. 193.
- BOSTOCK, H.S. 1937. Mining industry of Yukon, 1936; Geol. Surv. Can., Mem. 209.
- BOSTOCK, H.S. 1938. Mining industry of Yukon, 1937; Geol. Surv. Can., Mem. 218.
- BOSTOCK, H.S. 1939. Mining industry of Yukon, 1938; Geol. Surv. Can., Mem. 220.
- BOSTOCK, H.S. 1941. Mining industry of Yukon, 1939 and 1940; Geol. Surv. Can., Mem. 234.
- BOSTOCK, H.S. 1942. Ogilvie, Yukon Territory; Geol. Surv. Can., Map 711A.
- BOSTOCK, H.S. 1947. Mayo, Yukon Territory; Geol. Surv. Can., Map 890A.
- BOSTOCK, H.S. 1948. Preliminary map, McQuesten, Yukon Territory (Map and descriptive notes); Geol. Surv. Can., Paper 48-25 (Including Preliminary Map 48-25A).
- BOSTOCK, H.S. 1953. Potential mineral resources of Yukon Territory; Geol. Surv. Can., Paper 50-14 (Revised Edition).
- BOSTOCK, H.S. 1957. Yukon Territory, Selected Field Reports of the Geological Survey of Canada 1898 to 1933, Yukon Territory; Geol. Surv. Can., Mem. 284.
- BOYLE, R.W. 1965. The geochemistry of arsenic, Keno Hill - Galena Hill area, Yukon, Canada; Pages 757-770 In Dr. D.N. Wadia Commemorative Volume. Mining, Geol. and Metall. Inst. of India. Calcutta, India.
- BROCK, R.W. 1910. Work of the Director - Yukon Territory; Geol. Surv. Br., Summ. Rept. for 1909, p. 14-26.
- CAIRNES, D.D. 1908. Whitehorse and Tantalus regions; Geol. Surv. Br., Summ. Rept. for 1907, p. 10-15.
- CAIRNES, D.D. 1910. Preliminary memoir on the Lewes and Nordenskiöld Rivers coal district; Geol. Surv. Can., Mem. 5.
- CAIRNES, D.D. 1912. Wheaton district, Yukon Territory; Geol. Surv. Can., Mem. 31 (Including Map 60A).
- CAIRNES, D.D. 1915. Upper White River district, Yukon; Geol. Surv. Can., Mem. 50 (Including Map 123A).
- CAIRNES, D.D. 1915. Exploration in southwestern Yukon; Geol. Surv. Can., Summ. Rept. for 1914, p. 10-33.
- CAIRNES, D.D. 1916. Wheaton District, southern Yukon; Supplement to Geol. Surv. Can., Mem. 31. Geol. Surv. Can., Summ. Rept. for 1915, p. 36-49.
- CAIRNES, D.D. 1917. Scroggie, Barker, Thistle and Kirkman Creeks, Y.T.; Geol. Surv. Can., Mem. 97.
- CAMPBELL, R.B. 1967. Geology of the Glenlyon map-area; Geol. Surv. Can., Mem. 352 (Including Maps 1221-A and 1222-A).
- CAMPBELL, R.B., DODDS, C.J. 1982. Geological map of the S.W. Klutane map-area 115 F and G, Geol. Surv. Can., Open File 829.
- CAMPBELL, R.B., DODDS, C.J. 1982. Geology of Mount St. Elias map-area 115 B and C. Geol. Surv. Can., Open File 830.
- CAMPBELL, R.B., DODDS, C.J. 1982. Geology of S.W. Dezadeash map-area 115A. Geol. Surv. Can., Open File 831.
- CAMSELL, C. 1907. Report on the Peel River and tributaries, Yukon and Mackenzie; In Annual Report, 1904 Vol. XVI, Part CC.
- CANADA DEPT. OF MINES, 1914. The Canadian Mineral Industry 1913; Mines Branch Publication 222.
- CECILE, M.P. 1980. Generalized Geological Map in the area of the Northern Selwyn and Mackenzie Mountains; Geol. Surv. Can., Open File 710.
- CECILE, M.P. (COMP) 1980. Geology of Northeast Nidderly Lake Map Area, Yukon (105 O); Geol. Surv. Can., Open File 765.
- CECILE, M.P., HUTCHEON, I.F., GARDNER, V. 1982. Geology map of the Northern Richardson Anticlinorium 106 L 12,13, 116 I 9,16 Geol. Surv. Can., Open File 875.

- COCKFIELD, W.E. 1919. Explorations in Yukon Territory; Geol. Surv. Can., Summ. Rept. for 1917 B, p. 1-8.
- COCKFIELD, W.E. 1919. Silver-lead deposits of the Twelve Mile area, Yukon; Geol. Surv. Can., Summ. Rept. for 1918 B, p. 15-17.
- COCKFIELD, W.E. 1921. Sixty Mile and Ladue Rivers area, Yukon; Geol. Surv. Can., Mem. 123.
- COCKFIELD, W.E. 1922. Silver-lead deposits of Davidson Mountains, Mayo District, Yukon; Geol. Surv. Can., Summ. Rept. for 1921 A, p. 1-6.
- COCKFIELD, W.E. 1924. Silver-lead deposits of Beaver River area, Yukon; Geol. Surv. Can., Summ. Rept. for 1923 A, p. 22-28.
- COCKFIELD, W.E. 1925. Upper Beaver River area, Mayo District, Yukon; Geol. Surv. Can., Summ. Rept. for 1924 A, p. 1-8. (Includes Map No. 2064).
- COCKFIELD, W.E. 1928. Silver-lead deposits of Fifteen Mile Creek, Yukon; Geol. Surv. Can., Summ. Rept. for 1927 A, p. 8-10.
- COCKFIELD, W.E. 1928. Silver-lead deposits of Rude Creek, Yukon; Geol. Surv. Can., Summ. Rept. for 1927 A, p. 11-13.
- CRAIG, D.B., LAPORTE, P.J. 1972. North of 60 - Mineral Industry Report 1969 and 1970. Vol. 1 - Yukon Territory and southwestern sector, District of Mackenzie; Canada, Dept. of Indian Affairs and Northern Development, Northern Economic Development Branch, Report EGS 1972-1.
- CRAIG, D.B., MILNER, M.W. 1975. North of 60 - Mineral Industry Report 1971 and 1972, Yukon Territory; Vol. 1 of 3. Canada, Dept. of Indian Affairs and Northern Development, Northern Natural Resources and Environment Branch, Report EGS 1975-76.
- DAWSON, G.M. 1889. Rept. on an exploration in the Yukon District, N.W.T., and adjacent northern portion of B.C.; Geol. and Nat. Hist. Surv. Can., Annual Rept. for 1887-1888, Vol. 3 (Pt. 1); Rept. B, p. 5-261 (Including Maps 275, 276, 277). See also Geol. Surv. Can., Pub. No. 629 (Including Maps 274-277 incl.), pub. in 1888.
- DAWSON, K.M. 1975. Carbonate-hosted zinc-lead deposits of the northern Canadian Cordillera; Pages 239-241 In Rept. of activities, Pt. A: April to October 1974. Geol. Surv. Can., Paper 75-1A.
- D.I.A.N.D. 1971. Mines and Mineral Activities, 1971; Dept. of Indian Affairs and Northern Development, p. 73.
- D.I.A.N.D. 1981. Yukon Geology and Exploration, 1979-1980; Dept. of Indian Affairs and Northern Development, Geology Section Publication, 364 pp.
- D.I.A.N.D. 1982. Yukon Exploration and Geology 1981; Dept. of Indian Affairs and Northern Development, Geology Section Publication, 282 pp.
- DOUGLAS, R.J.W. 1976. Geology, La Biche River, District of Mackenzie; Geol. Surv. Can., Map 1380A.
- DOWLING, D.B. 1915. Coal Fields and Coal Resources of Canada, Geol. Surv. Can., Mem 59.
- ECKSTRAND, O.R. 1972. Geology of Canadian Nickel Deposits; Pages 81-82 In Rept. of activities, Pt. A: April to October, 1971. Geol. Surv. Can., Paper 72-1A.
- FINDLAY, D.C. 1967. The mineral industry of Yukon Territory and southwestern District of Mackenzie, 1966; Geol. Surv. Can., Paper 67-40.
- FINDLAY, D.C. 1969a. The mineral industry of Yukon Territory and southwestern District of Mackenzie, 1967; Geol. Surv. Can., Paper 68-68.
- FINDLAY, D.C. 1969b. The mineral industry of Yukon Territory and southwestern District of Mackenzie, 1968; Geol. Surv. Can., Paper 69-55.
- GABRIELSE, H., et al. 1973. Geology of the Flat River, Glacier Lake and Wrigley Lake map-areas (95 E, L, M), District of Mackenzie and Yukon Territory; Geol. Surv. Can., Mem. 366 (Includes Maps 1313A, 1314A, 1315A).
- GARRETT, R.G. 1971. Regional geochemical census of plutonic rocks in eastern Yukon Territory; Pages 72-73, Geol. Surv. Can., Paper 71-1A.
- GLEESON, C.F. 1970. Heavy mineral studies in the Klondike area, Yukon Territory; Geol. Surv. Can., Bull. 173.
- GORDEY, S.P. 1980. Nahanni Map Area, Yukon Territory and Northwest Territories (105 I); Geol. Surv. Can., Open File Report 689.
- GORDEY, S.P. 1981. Structural Cross Section, Northern Selwyn and Mackenzie Mountains; Geol. Surv. Can., Open File 807.
- GREEN, L.H. 1965. The mineral industry of Yukon Territory and southwestern District of Mackenzie, 1964; Geol. Surv. Can., Paper 65-19. 94 pp.
- GREEN, L.H. 1966. The mineral industry of Yukon Territory and southwestern District of Mackenzie, 1965; Geol. Surv. Can., Paper 66-31.
- GREEN, L.H. 1968. Lode mining potential of Yukon Territory; Geol. Surv. Can., Paper 67-36.
- GREEN, L.H. 1971. Geology of Mayo Lake, Scougale Creek and McQuesten Lake map areas, Yukon Territory (105 M 15, 106 D 2, 106 D 3); Geol. Surv. Can., Mem. 357 (Includes Maps 1270A, 1269A, 1268A).
- GREEN, L.H. 1972. Geology of Nash Creek, Larsen Creek and Dawson map-areas, Yukon; Geol. Surv. Can., Mem. 364 (Includes Maps 1282A, 1283A, 1284A).
- GREEN, L.H., GODWIN, C.I. 1963. The mining industry of Yukon Territory and southwestern District of Mackenzie, 1962; Geol. Surv. Can., Paper 63-38.

- GREEN, L.H., GODWIN, C.I. 1964. The mineral industry of Yukon Territory and southwestern District of Mackenzie, Northwest Territories, 1963; Geol. Surv. Can., Paper 64-36.
- GROSS, G.A. 1969. Geology of iron deposits in Canada; northern Ontario, Yukon, Queen Charlotte Islands (41, 116 C, 103 F); Pages 111-112 In Rept. of activities, Pt. A: April to October, 1968. Geol. Surv. Can., Paper 69-1A.
- JELETZKY, J.A. 1960. Uppermost Jurassic and Cretaceous rocks, east flank of the Richardson Mountains between Stony Creek and Lower Donna River, Northwest Territories -- 106 M and 107 B (Pt. of); Geol. Surv. Can., Paper 59-14.
- JOHNSTON, J.R. 1936. A reconnaissance of Pelly River between MacMillan River and Hoole Canyon, Yukon; Geol. Surv. Can., Mem. 200 (Includes Map 394A).
- JOHNSTON, J.R. 1937. Geology and mineral deposits of Freegold Mountain, Carmacks District, Yukon; Geol. Surv. Can., Mem. 214 (Includes Map 450A).
- JOHNSTON, R.A.A. 1915. A list of Canadian mineral occurrences; Geol. Surv. Can., Mem. 74.
- KEELE, J. 1910. A reconnaissance across the Mackenzie Mountains on the Pelly, Ross and Gravel Rivers, Yukon and Northwest Territories; Canada, Dept. of Mines, Geol. Surv. Br., Publication No. 1097.
- KINDLE, E.D. 1945. Geological reconnaissance along the Canol Road, from Teslin River to Macmillan Pass, Yukon; Geol. Surv. Can., Paper 45-21 (Including Preliminary Map 45-21A).
- KINDLE, E.D. 1953. Dezadeash map-area; Geol. Surv. Can., Mem. 268 (Includes Map 1019A).
- KIRKHAM, R.V. 1971. Geology of copper and molybdenum deposits; Page 85 In Rept. of activities, Pt. A: April to October, 1970. Geol. Surv. Can., Paper 71-1A.
- LEES, E.J. 1936. Geology of Teslin-Quiet Lake area, Yukon; Geol. Surv. Can., Mem. 203.
- LITTLE, H.W. 1959. Tungsten deposits of Canada; Geol. Surv. Can., Econ. Geol. Series. No. 17.
- LORD, C.S. 1944. Geological reconnaissance along the Alaska Highway between Watson Lake and Teslin River, Yukon and B.C.; Geol. Surv. Can., Paper 44-25 (Includes Preliminary Map 44-25A).
- McCONNELL, R.G. 1890. Report on an exploration in the Yukon and Mackenzie Basins, N.W.T.; Geol. and Nat. Hist. Surv. Can., Annual Report 1888-89, Vol. 4D, p. 5-144.
- McCONNELL, R.G. 1902. Report on the Klondike gold fields; Geol. Surv. Can., Annual Report (n.s.) for 1901, Vol. 14B, p. 1-71 (Includes Maps 772, 885, 886). Or Geol. Surv. Can., Publication No. 884.
- McCONNELL, R.G. 1903. The MacMillan River, Yukon District; Geol. Surv. Can., Annual Report for 1902-1903, Vol. XV-A, p. 22-38.
- McCONNELL, R.G. 1903. Exploration of the Stewart River from its mouth to Fraser Falls, the Yukon between Stewart and Cliff Creek and the Whitehorse Copper deposits, Yukon; Pages 38-52A In Dawson, G.M. Summary report of the Geol. Surv. Dept. for the year 1900, by the Director; Pages 1-38 In Bell, R. Annual Report for 1900. Geol. Surv. Br., Annual Report for 1900, Vol. 8A.
- McCONNELL, R.G. 1904. Klondike District, Yukon Territory; Geol. Surv. Can., Summ. rept. for 1903. Vol. XV-AA, p. 34-42.
- McCONNELL, R.G. 1905. The Kluane mining district; Geol. Surv. Can., Annual (or summary) Rept. for 1904, Vol. XVI-A, p. 1-18 (Includes Map 894).
- MOFFIT, F.H., KNOPE, A. 1910. Mineral resources of the Nabesna-White River District, Alaska; U.S. Geological Survey, Bulletin 417, p. 51-57. (See also U.S.G.S. Bulletin 379, p. 161-180).
- MORIN, J.A., SINCLAIR, W.D., CRAIG, D.B., MARCHAND, M. 1977. North of 60 - Mineral Industry Report, 1976, Yukon Territory; Canada, Dept. of Indian Affairs and Northern Development, Report EGS 1977-1.
- MORIN, J.A., MARCHAND, M., CRAIG, D.B., DEBICKI, R.L. 1979. North of 60 - Mineral Industry Report, 1977, Yukon Territory; Canada, Dept. of Indian Affairs and Northern Development, Report EGS 1978-9.
- MORIN, J.A., MARCHAND, M., DEBICKI, R.L. 1980. Mineral Industry Report, 1978, Yukon Territory; Canada, Dept. of Indian Affairs and Northern Development.
- MULLER, J.E. 1967. Kluane Lake map-area, Yukon Territory (115 G, 115 F (East half)). Geol. Surv. Can., Mem. 340 (Includes Maps 1177A and 1178A).
- MULLIGAN, R. 1963. Geology of Teslin map-area, Yukon Territory (105 C); Geol. Surv. Can., Mem. 326 (Including Map 1125A).
- MULLIGAN, R.H. 1975. Geology of Canadian tin occurrences; Geol. Surv. Can., Geol. Rept. No. 28, 155 pp.
- NORRIS, D.K. 1974. Structural and stratigraphic studies in the northern Canadian Cordillera; Pages 343-349, Geol. Surv. Can., Paper 74-1A.
- NORRIS, D.K. 1975. Hart River (116 H), Wind River (106 E) and Snake River (106 F) geology maps; Geol. Surv. Can., Open File Rept. 279.
- NORRIS, D.K. 1976. Structural and stratigraphic studies in the Northern Canadian Cordillera; Pages 457-466, Geol. Surv. Can., Paper 76-1A.
- NORRIS, D.K. 1977. Geological maps of Yukon Territory and Northwest Territories, (117 A,B,C,D); Geol. Surv. Can., Open File 499.

- NORRIS, D.K. (COMP.) 1980. Geology, Northern Yukon Territory and Northwestern District of Mackenzie; Geol. Surv. Can., Open File Rept. 715.
- NORRIS, D.K. 1981. Geology, Ogilvie River map-area, northern Yukon Territory, (116 F, E 1/2); Geol. Surv. Can., Open File 783.
- NORRIS, D.K. 1981. Geology of Blow River map-area, Yukon Territory (117 A); Geol. Surv. Can., Map 1516A.
- NORRIS, D.K. 1981. Geology of Old Crow map-area, Yukon Territory, (116 N,O); Geol. Surv. Can., Map 1518A.
- NORRIS, D.K. 1981. Geology of Bell River map-area, Yukon Territory, (116 P); Geol. Surv. Can., Map 1519A.
- NORRIS, D.K. 1981. Geology of Porcupine River map-area, Yukon Territory, (116 J,K); Geol. Surv. Can., Map 1522A.
- NORRIS, D.K. 1981. Geology of Eagle River map-area, Yukon Territory (116 I); Geol. Surv. Can., Map 1523A.
- NORRIS, D.K. 1981. Geology of Trail River map-area, Yukon Territory (106 L); Geol. Surv. Can., Map 1524A.
- NORRIS, D.K. 1981. Geology of Martin House map-area, Yukon Territory (106 K); Geol. Surv. Can., Map 1525A.
- NORRIS, D.K. 1982. Geology of Ogilvie River map-area, Yukon Territory (116 F,G); Geol. Surv. Can., Map 1526A.
- NORRIS, D.K. 1982. Geology of Hart River map-area, Yukon Territory (116 H); Geol. Surv. Can., Map 1527A.
- NORRIS, D.K. 1982. Geology of Wind River map-area, Yukon Territory (106 E); Geol. Surv. Can., Map 1528A.
- NORRIS, D.K. 1982. Geology of Snake River map-area, Yukon Territory (106 F); Geol. Surv. Can., Map 1529A.
- PADGHAM, W.A. 1976. North of 60 - Mineral Industry Report 1973, Northwest Territories; Dept. of Indian Affairs and Northern Development. Report EGS 1976-9.
- POOLE, W.H. et al. 1960. Geology, Wolf Lake, Yukon Territory; Geol. Surv. Can., Preliminary Map 10-1960.
- READ, P.B., MONGER, J.W.H. 1976. Geology and mineral deposit maps of Klutane and Alsek ranges, Yukon Territory (parts of 115 A,B,G); Geol. Surv. Can., Open File Report 381.
- RODDICK, J.A., GREEN, L.H. 1961. Geology, Tay River, Yukon; Geol. Surv. Can., Preliminary Map 13-1961.
- RODDICK, J.A., GREEN, L.H. 1961. Geology, Sheldon Lake, Yukon; Geol. Surv. Can., Preliminary Map 12-1961.
- SINCLAIR, W.D., GILBERT, G.W. 1975. North of 60 - Mineral Industry Report 1973, Yukon Territory; Canada, Dept. of Indian Affairs and Northern Development, Northern Natural Resources and Environment Branch, Report EGS 1975-7.
- SINCLAIR, W.D., et al. 1975. North of 60 - Mineral Industry Report 1974, Yukon Territory; Canada, Dept. of Indian Affairs and Northern Development, Northern Natural Resources and Environment Branch, Report EGS 1975-9.
- SINCLAIR, W.D., et al. 1976. Mineral Industry Report 1975, Yukon Territory; Canada, Dept. of Indian Affairs and Northern Development, Report EGS 1976-15.
- SKINNER, R. 1961. Mineral industry of Yukon Territory and southwestern District of Mackenzie, 1960; Geol. Surv. Can., Paper 61-23.
- SOUTHER, J.G., STANCIU, C. 1975. Operation Saint Elias, Yukon Territory: Tertiary volcanic rocks; Pages 63-70 In Rept. of activities, Pt. A: April to October, 1974. Geol. Surv. Can., Paper 75-1A.
- TEMPELMAN-KLUIT, D.J. 1965. Tombstone River (116 B 7) map-area; Pages 35-36 In Rept. of activities: Field, 1964. Geol. Surv. Can., Paper 65-1.
- TEMPELMAN-KLUIT, D.J. 1972. Geology and origin of the Faro, Vangorda, and Swim concordant zinc-lead deposits, central Yukon Territory; Geol. Surv. Can., Bull. 208.
- TEMPELMAN-KLUIT, D.J. 1974. Reconnaissance geology of Aishihik Lake, Snag and part of Stewart River map-areas, west central Yukon; Geol. Surv. Can., Paper 73-41 (Includes Maps 16-1973, 17-1973, 18-1973).
- TEMPELMAN-KLUIT, D.J. 1974. Geology of Carmacks area, Yukon Territory; Geol. Surv. Can., Open File 200.
- TEMPELMAN-KLUIT, D.J. 1974. Geology, Quiet Lake, Finlayson Lake, Sheldon Lake and Tay River map-areas, Yukon Territory (105 F,G,J and K); Geol. Surv. Can., Open File 212.
- TEMPELMAN-KLUIT, D.J. 1977. Geology of Quiet Lake (105 F), and Finlayson Lake (105 G) map-areas, Yukon Territory; Geol. Surv. Can., Open File Report 486.
- TEMPELMAN-KLUIT, D.J. 1978. Geological map of the Laberge map-area (105 E), Yukon Territory; Geol. Surv. Can., Open File Rept. 578.
- TEMPELMAN-KLUIT, D.J. 1979. Transported cataclasite, ophiolite and granodiorite in Yukon: evidence of arc-continent collision; Geol. Surv. Can., Paper 79-14.
- TEMPELMAN-KLUIT, D.J., ABBOTT, J.G., READ, B. 1974. Stratigraphy and structure of Pelly Mountains; Pages 43-44 In Rept. of activities, Pt. A., Geol. Surv. Can., Paper 74-1A.

TENNEY, D. 1981. The Whitehorse Coper Belt: Mining, Exploration and Geology (1967-1980). Bulletin 1, Dept. of Indian Affairs and Northern Development, Geology Section Publication, 29 pp.

VOKES, F.M. 1963. Molybdenum deposits of Canada; Geol. Surv. Can., Economic Geology Rept. No. 20.

WHEELER, J.O. 1961. Whitehorse map-areas; Geol. Surv.Can., Memoir 312 (Includes Map 1093A).

WHEELER, J.O. 1963. Geology, Kaskawulsh (Mount St. Elias, East half) Yukon Territory; Geol. Surv. Can., Map 1134A.

WHEELER, J.O., et al. 1960. Geology, Quiet Lake, Yukon Territory; Geol. Surv. Can., Preliminary Map 7-1960.

YOUNG, F.G. 1972. Cretaceous stratigraphy between Blow and Fish Rivers, Yukon Territory; Pages 229-234 In Rept. of activities, Pt. A: April to October, 1971. Geol. Surv. Can., Paper 72-1A.

INDEX

A (105 B).....	101	ANDY (106 B).....	173
A (105 D).....	118	ANGIE.....	123
A (115 P).....	217	ANGLO.....	175
ABBA.....	13,105,106,109	Anglo Western Minerals Ltd.....	226
ABBEY.....	135	ANISE.....	123
Abbott, G.....	2,3,18,67	ANNE.....	96
A+B,C+D.....	112,118	ANNI.....	95,98,101
Aberford Resources Limited.....	8,164,168	Annie Lake.....	118
Aber Resources Limited.....	215	Anniv.....	11
ABI.....	111	ANT.....	15,95,101
ABRAHAM.....	141	ANVIL.....	142
AC.....	211	Anvil Range.....	144
ACE (105 D).....	111	APE.....	15,175,176
ACE (105 L).....	8,10,149,150	APEX.....	151
ACE (105 O).....	164	ARC.....	14
ACE (115 I).....	201	Archer, A.R.....	84,85,86,91
ACE (115 P).....	215,217	Archer, Cathro and Associates Limited....	4,8,10,12,14
ACHERON.....	223	 15,18,79,81,84,86,87,89,91,116,125,128,129,176	
ADAMSON.....	141	 180,181,183,184,185,194,201,202,224,225,226,227	
ADDY.....	123	Archibald, D.....	89,133
ADUB.....	179	ARCTIC.....	111
AGIP Canada Limited.....	4,10,13,14,71,114,116,117	Arctic Red Resources.....	14
..... 118,124,139,163,164,168,169		ARCTOS.....	179
AH.....	197	ARGENT.....	151
AHEARNE.....	179,181	ARGO.....	163
AIME.....	210	ARIES.....	210
AINE.....	219	ARKELL.....	111
AIRBORNE.....	127	ARMSTRONG.....	161
AIRSTRIPE.....	175	ARO.....	141
AIRWAYS.....	193,195	ARROWHEAD.....	163
AISHIHIK.....	197	Arscott, D.....	91
Aishihik Lake.....	13	ART.....	111
Aishihik Lake map-area.....	196-198	A.S.....	10,101
AJ.....	227	Ashley, C.....	227
A.J.....	223,227	ASKIN.....	123
AKEL.....	121	ASS.....	223
AL (106 C).....	175	ATHES.....	112
AL (115 I).....	201,204	Atlantic Energy Corp.....	108
ALBATROS.....	112	Atlas Exploration.....	149
ALBERT.....	91	ATOM.....	95
Aldis Creek.....	156	AUP.....	12,91,92
ALE.....	175	AUREOLE.....	161
ALEC.....	12,180	AURIER.....	121
ALGAE.....	175	AURORA (105 B).....	95,101
ALLIGATOR.....	111	AURORA (105 H).....	131
ALLISON.....	111	Aurun Mines Ltd.....	108
ALM.....	131	Aussant, C.H.....	234
ALMOST.....	95	AUSTON.....	219
ALP.....	163,168	AVENUE.....	151
ALTA.....	143	AYDUCK.....	123
ALTO.....	233	AXE.....	127
AM.....	15,137,138,139	Ayres, L.D.....	71
Amax of Canada Limited.....	4,8,10,11,12,16,97,124	AZTEC (105 M).....	151
..... 129,157,165,166,169,216		AZTEC (115 J-K).....	207
AMBROSE.....	123	B.....	118
AMN.....	112	B.A. Resources Ltd.....	101
Amoco Canada Petroleum Limited.....	4,13,106	BACHUS.....	112
A.M.P. Exploration and Mining Limited.....	14,97,101	BACON.....	121
AMPHITHEATER.....	193	BAG.....	179
AM-PM.....	147	BAK.....	175
Anaconda Canada Exploration Limited....	8,10,11,16,144	BALD EAGLE.....	210
..... 148,149,150		BALDY.....	223
AND.....	12,144	BAND.....	121
ANDESITE.....	197,198	BANDER.....	215
ANDREA.....	161	BANG ON.....	16,229
ANDY (105 O).....	163	BAR (105 B).....	95,101

BAR (105 C).....	11,105	BINGY.....	95
BAR (105 D).....	112	BIRR.....	135
BAR (105 O).....	8,163,167	BIRCH (115 F-G).....	194
BARB (105 B).....	97,101	BIRCH (116 B).....	227
BARB (105 F).....	124	BIRKELAND.....	173
BARETTE.....	223	BISHOP.....	210
Barite Mountain.....	124,144	BISMARCK.....	210
BARITE MOUNTAIN.....	123,124	BLACK.....	91
BARKER.....	179	BLACKCAP.....	154
Barlow Creek.....	50	BLACK FOX.....	210
BAS.....	105	BLACK IDA.....	175
Bastien, N.....	101	BLACKIE.....	12,157
BASIN (105 O).....	8,164	BLACK JACK.....	131
BASIN (106 E).....	183	BLACK ROCK.....	95
BASTILLE.....	96	BLACKSTONE.....	223
BATES.....	189	BLACKWOOD.....	141
BATRICK.....	207	Blanchflower, J.D.....	83
BBOB.....	163,168,169	Bland, P.....	125
BE NO. 1,2,3,4.....	151	BLIND.....	141
BEA (105 B).....	10,95,101	BLOOM.....	161
BEA (105 K).....	141	Blow River map-area.....	232,234
BEAR (105 C).....	108	BLUE.....	141
BEAR (116 N-O).....	233	BLUEBERRY.....	127
BEAU.....	10	BLUE LITE.....	179
BEAUCHAMP.....	163	BLUFF.....	201
BEAV.....	81	Blusson, S.L.....	89,131,161,163,171,173,175
BEAVERCROW.....	81	BNOB.....	123
Beavon, R.V.....	215	BOB (105 F).....	123
BECKER-COCHRAN.....	111	BOB (105 G).....	127
BEE (105 E).....	121	BOB (106 C).....	175
BEE (105 I).....	135	BOB (106 D).....	180
BEE (115 P).....	216	BOB CAT.....	141
BELCARRA.....	219	BOB NOB.....	163
Belleview Point.....	50	BOBO.....	111
Bell River map-area.....	232,233	BOJO.....	137
BELOUD.....	189	BOM.....	95,96
BEMA INDUSTRIES.....	10	BOMBER.....	207
BEN (105 D).....	111	Bonanza Creek.....	17,211
BEN (105 O).....	163	BONANZA KING.....	201
BEN (115 P).....	215	BOND (105 E).....	121
Bendiyan, R.....	139	BOND (106 D).....	179
Bennett Lake.....	115	BONNET (106 C).....	175
BE NO. 1.....	151	BONNET (117 A).....	234
BE NO. 2.....	151	Bonnet Plume map-area.....	172-173
BE NO. 3.....	151,157	BOOM.....	123
BE NO. 4.....	151,157	BOOT.....	128
BERESFORD.....	111	BORD (105 O).....	163,169
BERN.....	233	BORD (115 N-O).....	210
BERNEY.....	111	BORDER.....	95
BERT.....	144	BOREAL.....	207
BERYL.....	95	BOSTOCK.....	111
BESSEY.....	95	Bostock, H.S.....	151
BETA.....	141	BOT.....	127
BEV.....	183	BOU.....	234
BEXI.....	112	BOUDETTE.....	111
BIBBER.....	175	BOULDER.....	215
BICZOK, J.....	225	Boulder Creek.....	27
BID (105 F).....	123	BOW (105 G).....	128
BID (115 J-K).....	201	BOW (115 I).....	201
BIG.....	10,13,124,125,128	BOX.....	123
BIG OX.....	123	BOX CAR.....	210
BIG SAM.....	123,124,125	BOY.....	95
Big Salmon Complex.....	13	BOYLE (116 A).....	219,220
Big Salmon River.....	121	BOYLE (116 B-C).....	223
BIG THING.....	111	BOYLEN.....	201
BILBO.....	229	BOZ.....	83
BILL.....	137,224	BOZO.....	179
Billiton Canada Ltd.....	2,26,32,156,216,217	BR.....	131
BINGO.....	128	B.R.....	123

BRAB.....	141	Caley Pit.....	25
BRADENS CANYON.....	201	CALGAL.....	123
BRAINE.....	179	CALIFORNIA.....	207
BRANDY.....	147	CAMERON.....	179
BREFAULT.....	179	CAMPBELL.....	127,147
BRENDON.....	175	Campbell, K.V.....	175
BRI.....	207	Campbell, R.B.....	107,189,191,193
BRICK.....	14,164	Campbell Resources Incorporated.....	216,217
BRIDEN.....	141	CAN (105 B).....	95
BRIE.....	123	CAN (115 G-F).....	10,194,195
Brinco Mining Limited.....	15,85,164,225	CAN (116 A).....	219
BROAD-LEDGE.....	223	Canada Reserve Oil and Gas Limited.....	180
BROCK.....	163	Canada Tungsten Mining Corporation Ltd.....	4,10,12,14
Brock, J.S.....	145		157,158,180,216
BROD.....	131	Canadian Johns-Manville Co. Ltd.....	226
BRODELL.....	161	Canadian Nickel Company Limited.....	8,13,14,114,121
Broeren, J.....	3	Canadian Occidental Petroleum Limited.....	198
BROMADROSIS.....	175	Canadian Superior Exploration Limited.....	8,180
BROOKS.....	194	CANALASK.....	193
BROTEN.....	131	Canalta Resources Limited.....	219
BROWNIE.....	226	Canam, T.....	203
Brown, G.R.....	164	CANUSA.....	123
Brown, L.J.....	217	CANWEX.....	175
BROWN-McDADE.....	201	CANYON.....	131,132
Brown, P.....	106	CAR.....	201
BRUCE LAKE.....	123	CARB.....	234
BRUK.....	219	CARCROSS.....	111
BRUMMER.....	194	CARIBOU.....	95
BRX (105 B).....	10,95,101	CARIBOU BORN.....	233
BRX (116 B-C).....	223	CARIBOU CREEK.....	201
BRX Mining and Petroleum Corp. Ltd... 10,11,96,101,203		Carleton University.....	2,26
BS.....	141	CARLICK.....	95
BUCHANAN.....	111	Carmacks map-area.....	200-204
BUCKLAND.....	210	CARNE.....	175
BUCONJO.....	154	CAROL (105 A).....	91
BUD.....	210	CAROL (116 C).....	224
BUFFALO (105 D).....	111	CAROLYN.....	137
BUFFALO (115 H).....	197	CARPENTER.....	179
BUG (105 C).....	13,106	CASCA.....	141
BUG (106 D).....	181	CASH.....	201
BUH.....	187	CASHBOX.....	91
BULLION.....	191	CASINO.....	207
BULLIS.....	233	Cassiar Asbestos Corporation Limited.....	18,85,224
BUM (105 L).....	10,11,147,150		225,226
BUM (115 N-O).....	210	CASSIAR BAR.....	121
BUN.....	197	Cassiar Creek.....	25
BUR.....	15	Cassiar Mountains.....	11,98
BURGOYNE.....	229	CAT.....	141
BURMEISTER.....	210	Cathro, R.J.....	85,89,224
Bur Syndicate.....	15	CATO.....	211
BURWASH.....	193	CATS AND DOGS.....	193,195
Burwash Creek.....	194	CAVE (105 L).....	148
BUS.....	131	CAVE (115 A).....	189
BUSH.....	8,149,150	CC.....	12,216
BUT.....	179	CCH Minerals Limited.....	156
BUTLER.....	210	Cecile, M.P.....	151,161,163,171, 173,175,179,233
Butte Creek.....	69,70	CEDAR.....	224,227
Butterworth, L.....	3	CELESTIAL.....	91
C.....	118	CEMENT.....	193
CAB (105 F).....	12,124	Central Electricity Generating Board of London.....	15
CAB (106 C).....	175	CER.....	10,95,101
CABIN (105 B).....	95	CESSNA.....	141
CABIN (105 O).....	165,169	CHAIN.....	223
CADET.....	175	CHAIR.....	207
CAESAR.....	89	CHAMP.....	4,11
CAL.....	10,15,106,109	CHANCE.....	151
CALEY.....	223	CHANDINDU.....	223
Caley Mine.....	226	CHAP.....	131

CHAPLIN..... 141
 CHAPMAN..... 223
 CHAPPIE..... 183
 CHAR..... 124
 CHARLESTON..... 111
 CHARLIE (95 E)..... 89
 CHARLIE (115 A)..... 189
 Chevron Canada Limited..... 105
 Chevron Standard Ltd..... 11,216
 CHICKALOON..... 189
 CHIEF..... 10,13,116,118
 Chieftain Hill..... 116
 CHLOE..... 183
 CHOW..... 127
 Chretien, F..... 118
 CHRIS..... 105
 CHRISTAL..... 151
 CHRISTINE..... 151
 CHU..... 83
 CHUCK..... 141,142
 CHUNG..... 123
 CHUNGO..... 83
 CHZERPNOUGH..... 123
 CIM..... 210
 Cima Resources Limited..... 14
 CIRQUE..... 175
 CIVI..... 141,143
 CJ..... 91
 C.J..... 180
 CLAIRE..... 121
 CLARE..... 8,149,150
 CLARK..... 179
 Clarke Peak..... 12
 CLEAR CREEK..... 215,216
 Clear Creek..... 2,12,50,51,52,53
 CLEAR LAKE..... 147,148
 Clear Lake..... 148
 CLEAVES..... 151
 Clemmen, S..... 143
 CLIFF..... 223
 CLINGON..... 137
 CLINTON CREEK..... 223,224,227
 Clinton Creek..... 2,16,18,21,22,23,25,224
 Clinton Mine..... 5,16,225,226
 CLIP..... 223
 CLO..... 123
 CLOUTIER..... 179
 CLYDE..... 137
 CMC..... 96
 CO (105 B)..... 95
 CO (115 J-K)..... 207
 COAL RIDGE..... 111
 Coal River..... 12,85
 Coal River map-area..... 2,82-87
 COAST..... 175
 COB..... 175
 COBALT..... 151
 COCKFIELD..... 207
 COFFEE..... 207
 COIN..... 201
 COLLEGE GREEN..... 111
 COLLEEN..... 179
 COLLIERY..... 223
 COLT..... 141,143
 COM (105 B)..... 95,100
 COM (115 I)..... 201
 COMANCHE..... 201
 COMBO..... 201

COMBS..... 111
 COMET..... 210
 Cominco Limited..... 4,8,11,13,97,112,118
 132,148,164,220,225
 COMSTOCK..... 151,156
 CON..... 141
 CONE HILL..... 223
 CONGDON..... 193
 CONNAUGHT..... 210
 CONNELL..... 123
 CONWEST..... 147
 Conwest Exploration Ltd..... 226
 COOKER..... 175
 COOT (115 H)..... 13,197
 COOT (116 F-G)..... 229
 Copland, H.J..... 115,117
 CORD..... 179
 Cordilleran Engineering..... 11,97,98
 CORDUROY..... 121
 CORK..... 193
 CORN CREEK..... 175
 CORRIE..... 131
 Corsair Petroleum Ltd..... 108
 COSTIN..... 137
 COWARD..... 141
 COXALL..... 123
 CPA..... 123
 CRAG..... 210
 CRAIG..... 175
 Craig, M..... 71
 CRAWFORD..... 223
 Crawford, W.J..... 145
 CRE..... 10,95,101
 CREAM..... 89
 CREAM AND JEAN..... 151
 CREE..... 163
 CREST..... 187
 CRIPPLE..... 224
 CRO..... 111
 CROCK..... 207
 CROMWELL..... 111
 CROOKED..... 215
 CROSSING..... 201
 CROST..... 121
 CROWN..... 141
 CRUIKSHANK..... 210
 Cruikshank, R.D..... 210
 CUB..... 141
 CUB Joint Venture..... 85,89
 Cukor, J..... 118
 Cukor, V..... 96
 CUNG..... 231
 CUS..... 183
 CUTOFF..... 111
 CUZ..... 12,83,84
 Cygnus Mines Limited..... 11
 CYLINDER..... 231
 CYPRUS..... 201
 Cyprus Anvil Mining Corporation Ltd..... 4,5,6,11,132
 142,144,183,184
 CYR (105 F)..... 123
 CYR (105 G)..... 128

 D..... 118
 DALE (105 B)..... 95,96,100
 DALE (116 A)..... 15,219,220
 DALTON..... 189
 DAN..... 175

DANA.....	141	DOME (105 B).....	95
DANGER.....	123	DOME (115 I).....	201,204
DART (115 I).....	201	Dome Petroleum Ltd.....	144
DART (116 B).....	227	DOMINION.....	210,211
DAVE (105 B).....	100	Donjek River.....	194
DAVE (106 D).....	180	DONKEY.....	111,118
DAVID.....	12,157	Donnelly, J.....	180
Davis, J.W.....	234	Dool, N.....	118
DAWG.....	223	DOOLY.....	118
DAWN.....	111	DOORMAT.....	210
Dawson Eldorado Gold Explorations Ltd.....	211	DOPE.....	151,157
Dawson map-area.....	2,222-227	DOT (105 D).....	112
Dawson Range.....	2,38	DOT (105 K).....	141
DAYIR.....	112,116	DOUG.....	131
Dayton Creek Silver Mining Limited.....	100	Douglas, R.J.W.....	81
DB.....	105,106	Doyle, P.J.....	133
D.BURKE.....	179	DOYLE.....	207
DC.....	131	DOWSER.....	175
D.C. Syndicate.....	4,13,15,97,106,107	DRAGON.....	137
DD.....	201	DRESEN.....	179
DE.....	211	DRILL.....	12,151,157
DEA.....	175	DROC.....	123
DEADMAN.....	105	Dromedary Mountain.....	8,150
DEAL.....	179	DRURY.....	147,148
DEAN.....	161	DRY.....	105
DEB.....	111,114	D'Silva, B.....	3
Debicki, E.J.....	114	DTS.....	183
Debicki, R.L.....	2,4	DU.....	95
DECOELI.....	189	DUB.....	127
DEEK.....	10,81	DUBLIN GULCH.....	12,27,179,180
DEER.....	183	DUENSING.....	193
DELAY.....	141	DUGDALE.....	111
Delta Petroleum Ltd.....	108	DUFFY.....	81
DEM.....	223	DUKE.....	193
DEMON.....	15,183,185	DULUTH.....	191
DEN.....	194,195	Dumouchel, J.....	164
Denton, A.S.....	108	DUNCAN.....	151
DESTRUCTION.....	193	DUNE.....	175
DEV.....	141	DUNK.....	111,115
DEVILHOLE.....	189	DUO (105 L).....	147
Dezadeash map-area.....	188-189	DUO (105 O).....	163
DF.....	175	Du Pont of Canada Exploration Limited.....	96,101,108
DG.....	141		115,116,117,118,121
D.G.....	180	Duval Mining Limited.....	96
DI.....	195	DWARF.....	194
DIAMOND.....	151	DWONK.....	128
DIANNE.....	135	DY.....	4,143
Dickey, B.....	101	DYAK.....	137
DICKSON.....	193	DYKE.....	229
DIM.....	131	Dyson, C.V.....	105
DIRK.....	123		
DIVIDE.....	201	EAGLE (105 G).....	11,127,128,129
DIVISION.....	197	EAGLE (105 M).....	151
DJ.....	175	Eagle River map-area.....	232-234
DK.....	83,85,86	EARN.....	8,149
DL.....	210,212	Earn Lake.....	4,149
D.L. (115 O).....	10	Easter Creek.....	15
DN.....	211	Eastmure, D.....	118
DOBBY.....	175	EAST RIDGE.....	215,216
Dodds, C.J.....	189,191,193	EATON.....	179,180
DODGE.....	131	Eaton, W.D.....	116,176,180,183,184,194,201,202
DODY.....	123	Ebony Resources Ltd.....	212
Doey, L.....	217	ECONOMIC.....	173
Doherty, R.A.....	71,116	EDY.....	83
DOL.....	127	EFFIE.....	111
DOLE.....	210	EG.....	175
DOLORS.....	175	EIRA.....	175
Dolores Creek.....	15	EKO.....	131

EL (105 G)..... 127
 EL (115 G)..... 10,194,195
 ELBOW..... 229
 Eldorado Creek..... 211,212
 Eldorado Dome..... 211
 Eldorado Nuclear Ltd..... 16,198
 Eldor Resources Limited..... 210
 ELECTRIC..... 127,128,129
 ELEVENTHIRTY..... 194
 ELGEA..... 175
 ELGIN..... 189
 ELLE..... 95
 ELLIOT RIDGE..... 179
 ELLIS..... 179
 Ellis, G..... 91
 ELSA..... 6,156
 EMERA..... 163
 EMERALD..... 163
 Emerald Creek..... 14
 Emerald Lake..... 13,164
 EMILY..... 91
 EMMON..... 201
 EMMY..... 14,163,166
 Emond, D.S..... 2,26
 EMPTY..... 137
 ENCHANTMENT..... 210
 END..... 147
 Energex Minerals Limited..... 175
 England, T..... 63
 ENOF..... 121
 Enterprise Exploration..... 16
 ENVOY..... 175
 EPD..... 2,26,27,30,32,215,217
 EPIC..... 193
 ERGE..... 112
 ERIN..... 179
 EROS..... 123
 ESANSEE..... 201,203
 Esperanza..... 145
 ESS..... 163
 Essex Minerals Canada Ltd..... 10,148
 Esso Resources Canada Ltd..... 128
 ETC..... 223
 ETHELDA..... 223
 Ethel Lake..... 12
 ETZEL (105 N)..... 161
 ETZEL (105 O)..... 14,163,167
 EVA (105 F)..... 123
 EVA (105 K)..... 141
 EVEN..... 115
 EVENING..... 116
 EVIEW..... 112,117
 EVING..... 210
 EWING..... 201
 EXCELSIOR..... 210
 Exploram Minerals Ltd..... 15,225
 FACE..... 179
 FAIR..... 175
 FAIRCHILD..... 175
 Fairchild Creek..... 175,176
 FAITH..... 151
 FAL..... 8,163,167
 Falconbridge Limited..... 202,203
 FALL..... 10,95,101
 FALSE..... 91
 FAN..... 8,163,166
 FAR..... 85

FARGO..... 141
 FARO..... 141,143
 FAST..... 10,135
 FAWCETT..... 210
 FED..... 201
 FEEBLE..... 151
 FELIX..... 147
 FENTON..... 189
 FER..... 123
 FERGUSON..... 189
 FETCH..... 8,163,164
 FETISH..... 127,128,129
 FF..... 13,108
 F.F. Slaney and Company Limited..... 79
 FH..... 127,129
 FIBRE..... 223
 FIDDLER..... 95
 Fierro, H..... 100
 FIF..... 223
 FIFTEEN MILE..... 223
 FIFTY..... 210
 FIFTY TWO..... 195
 FIL..... 15,203
 FIN..... 11,131,132
 FINGER..... 111
 Finlayson Joint Venture..... 128
 Finlayson Lake map-area..... 126-129
 FIONA..... 215
 FIRE..... 10,13,163
 FIREWEED..... 223
 FIRST..... 123
 FIR TREE..... 131
 FISHER..... 151
 FISHHOOK..... 141
 FISHING BRANCH..... 233
 FISH LAKE..... 111
 Fish Lake..... 116
 FIVE FINGERS MINE..... 201
 FLAG..... 217
 FLAGSTONE..... 141
 FLASH..... 8,180
 FLAT (105 D)..... 112
 FLAT (106 E)..... 15,184,185
 FLATASA..... 161
 Flat River map-area..... 88-89
 FLEMING..... 111
 FLIN..... 127
 FLIP..... 131
 FLO (105 B)..... 101
 FLO (105 M)..... 151,157
 FLOAT..... 121
 FLON..... 127
 FLUKE..... 131
 FLUME..... 210
 FLUNK..... 183
 FM..... 114
 FOG (105 G)..... 127
 FOG (105 O)..... 163
 FOG MOUNTAIN..... 121
 FOHU..... 179
 FOOD..... 141,144
 FORBES..... 179
 FORD..... 179
 FORMO..... 151
 FORSTER..... 183
 FORSURE..... 105
 FOSTER..... 201
 FOTHERGILL..... 210

FOTO.....	141	GLEN (115 F-G).....	193,194,195
FOUND.....	179	GLENLIVET.....	10,14,112,117,118
FOXY.....	223	GLENLYON LAKE.....	147
FRAN.....	179	Glenlyon map-area.....	146-150
FRANCES.....	131	GLENNA.....	131
Frances Lake.....	11	GNUCKLE.....	179
Frances Lake map-area.....	130-133	GOAT.....	95
Frances River.....	91	GODDELL.....	111
Fraser, G.....	165,166,167	Godwin, C.....	32,76
FRED (105 G).....	128	GOLCONDA.....	111
FRED (105 M).....	157	GOLD.....	207
Freegold Mountain.....	14	GOLD HILL.....	111
FREGERG.....	127	Gold (Placer).....	17,34,50
FRESNO.....	223	GOLD QUEEN.....	151
FREISEN.....	151	GOLD REEF.....	111
C.W. Friday Contracting.....	124	GOLD RUN.....	210
FRIGSTAD.....	175	GOLDEN DUKE.....	151,158
FROG.....	201	GOLDEN ROD.....	210
FROGGY.....	223	Gold Run Investors.....	16
FRONT.....	147	Golden Slipper Resources Ltd.....	14
FULLER.....	137	Goldex Resources Inc.....	102
FUN (105 O).....	163,165	Goldmark Minerals.....	16
FUN (106 C).....	175	GOLF.....	161
FUR.....	95	GONZO.....	128
Furniss, R.....	181	Goodlife, S.....	195
FURY.....	123	GOODMAN.....	175
FYIQ.....	89	GOPHER.....	123,124
FYRE.....	127	Gordey, S.P.....	135,163,171
		GORDON.....	151
GABE.....	83	GOULTER.....	201
Gabrielse, H.....	83,89,91	GOZ CREEK.....	175
GAL.....	175	G.P.....	101
Galena Hill Mine.....	154	GRACE.....	219
GALLOPING.....	193	GRAF.....	147
GAMBLER.....	151	GRANITE MOUNTAIN.....	201
GAMMON.....	14,111,114	Grapes, K.....	2,3,4
Garagan, T.....	163,164	GRAPS.....	224
Gardener, V.....	233	GRASS.....	127
GARLIC.....	193,194	GRAVE.....	223
Gay Gulch.....	212	GRAY (105 F).....	123
GE (105 A).....	10,12,91,92	GRAY (106 D).....	179
GE (105 L).....	147	GRAYLING.....	123
GEE (105 D).....	111	Grayling Creek.....	2,34
GEE (105 G).....	127	GREAK.....	15,197,198
GEL.....	131	Green, L.H.....	95,137,141,179,219,223
GEM (105 B).....	95	GREEN STUFF.....	131
GEM (105 E).....	121	GREG.....	161
GEN.....	221	GREGGIE.....	137
General Resources Ltd.....	10,121	GREMLIN.....	183,185
GENTRY.....	175	GRENIER.....	201
GEORDIE.....	175	GREW.....	11,123,124
George R. Kent and Associates Ltd.....	12	GREY COPPER HILL.....	179
GERLITZKI.....	151	GRIZZLY.....	105,108,109
GERM.....	121	GRONK.....	111
GERMAINE.....	223	GROUNDHOG.....	123
GET.....	148	GROUSE.....	111
Getty Canadian Metals Ltd.....	4,10,98,99,143,148,149	GRUM.....	4,11,141,142,143
Getty Minerals Ltd.....	184	GSTD.....	183
GIANT.....	201	GUANO.....	123
GIBBONS.....	191	GUB.....	106
GIG.....	229	GUCH.....	223
GILDERSLEEVE.....	175	GUDER.....	201
GILLESPIE.....	175	GULCH.....	223
GILTANA.....	197	GULL (105 B).....	95,101
GK.....	123	GULL (105 F).....	123
GLAC.....	10,226,227	GUM BEE.....	91
GLEN (105 B).....	95,102	GUN.....	137
GLEN (106 C).....	175	GUNSIGHT.....	105

GUS..... 175
 GUSTAVUS..... 151
 GUSTY..... 83
 Gutrath, G.C..... 226
 GUY..... 131
 GWAIHIR..... 179
 GYP..... 127

H..... 123,125
 HACHEY..... 147
 Hacienda Oil and Minerals Limited..... 180
 HADYN..... 123
 HAIL..... 179
 Hains, B..... 207
 HAL (105 E)..... 121
 HAL (105 K)..... 141
 HALE..... 223
 Halferdahl and Associates Ltd..... 10,15,194
 Halferdahl, G..... 195
 Halferdahl, L.B..... 194
 HALIFAX..... 223
 Hall, R..... 148
 HAM..... 123
 HAMILTON..... 219
 HANK..... 147
 Hanson Lake..... 181
 HARDTACK..... 95
 HARIVAL..... 233
 HARMAN..... 127
 HARNIAK..... 111
 HARP..... 10,227
 Harris, F.R..... 165,166
 Harris, G..... 195
 HARRISON..... 175
 Hartree, R..... 48
 HART RIVER..... 219,221
 Hart River..... 15,56,184
 Hart River map-area..... 230-231
 HARVEY..... 147
 HASL..... 207
 HASTEN..... 8,164
 HATCH..... 197,198
 HATTIE..... 223
 HAWK..... 131
 Hawkins, T.G..... 217
 HAWTHORNE..... 215
 HAY..... 210
 HAYES..... 207
 HAYES PEAK..... 105
 Hayes Peak..... 108
 HAYMEADOW..... 223
 HAYSTACK..... 210
 HAZEL..... 169
 HEALY..... 223
 HEART..... 151
 HEATHER (95 E)..... 89
 HEATHER (106 D)..... 8,180
 HEC-TOR..... 210
 HECTOR..... 154
 HEFFRING..... 210
 HEIDI..... 16,231
 HEK..... 141
 HELEN..... 131
 HENCH..... 137
 HENDRY..... 183
 Hepner, K..... 181
 HERPES..... 83,85
 HESS..... 163

Hess Mountains..... 14
 HG..... 234
 HI..... 15,203
 HIDDEN (105 B)..... 95
 HIDDEN (105 F)..... 123
 HIG..... 121
 Highland Crow Resources Limited..... 85
 HILCHEY..... 210
 Hilker, R..... 108
 Hills, L.V..... 36
 HITCH HIKER..... 131
 HL (105 B)..... 95
 HL (106 D)..... 179
 H.L..... 180
 HLA VAY..... 201
 HOB0..... 215
 HODDER..... 147
 Hodson, T.W..... 132
 HOEY..... 123
 HOGAN..... 151
 HOGGE..... 193
 HOGG..... 123
 HOGIE..... 89
 HOIDAHL..... 234
 Holland, R.T..... 98
 HOLLIDAY..... 95
 HOLLY (105 K)..... 141
 HOLLY (116 B-C)..... 224
 Holmgren, L.D..... 116,117
 HOME..... 187
 HOMESTAKE (105 M)..... 151
 HOMESTAKE (115 O)..... 16,212
 HOO..... 127
 HOOCHKOO..... 201
 HOOLEO..... 123
 HOOT..... 121
 HOOTALINQUA..... 121
 HOPKINS..... 197
 Horae, G..... 118
 HORN..... 163
 HOSE..... 83
 HOSER..... 83
 HOT (105 B)..... 95
 HOT (116 A)..... 219
 HOT (116 B-C)..... 223
 HOT SPRING..... 151
 HOWARD'S PASS..... 135
 HOWDEE..... 128
 HOWRU..... 123
 HUB..... 147,150
 Hudgeon Lake..... 21,22
 HUDSON..... 127
 Hudson Bay Exploration and Development Co. Ltd..... 8
 10,11,12,14,16,100,102,124,125,128
 129,135,163,165,166,167,168,197
 Hudson Bay Mining and Smelting Co. Ltd..... 113,194
 Hudson Bay Oil and Gas Co. Ltd..... 107
 HUGH..... 147
 Hulstein, N..... 98,149
 HUMP..... 193
 Humphreys, N..... 165
 HUNDERE..... 91
 HUNG..... 210
 HUNGRY..... 223
 HUNK..... 210
 Hunker Creek..... 17
 HUNKER DOME..... 210,211
 HUSKY..... 46,156,189

Hutcheon, I.F..... 233
 Hureau, A..... 112
 Hyde, W..... 96
 HYLAND..... 91
 Hyland River..... 73
 Hylands, J.J..... 98

 I..... 95
 ICE (105 B)..... 95
 ICE (105 O)..... 13,163,164
 ICEFIELD..... 193
 ICHIE..... 112
 ID..... 223
 IDA..... 219
 IDAHO..... 95,101
 IGLE..... 123
 IGOR..... 15,183,184
 Ikona, C.K..... 175
 ILLIA..... 112
 ILLUSION..... 121
 IMP..... 111
 INCA..... 163
 INCO..... 111
 Inco Limited..... 156,216,217
 INDEX..... 223
 INDIAN..... 210
 Indian River..... 35,36
 Individual Mines..... 156
 INGRAM..... 111
 INGS..... 127
 IOLA..... 123,124
 Iola Mines Ltd..... 124
 Iona Industries Inc..... 14
 IOTA..... 15,176
 IRENE (105 G)..... 128
 IRENE (106 E)..... 183
 IRMA..... 141
 IRONCLAD..... 151
 IRON CREEK..... 105
 IRVINE..... 95
 Irvine Creek..... 98
 ISABEL..... 151,158
 ISABELLE..... 226
 ISO #1 and #2..... 89
 Iso Mines Ltd..... 89
 ITSI..... 137
 IVAN..... 141
 IVO..... 89

 J..... 118
 JA..... 10
 JABBERWOCK..... 215
 JACK..... 8,180
 JACKALOO..... 105,106,109
 JACKPOT..... 189
 JACKSON..... 111
 JACOLA..... 141
 JACQUOT..... 193
 Jago, B..... 226,229,234
 JAKE..... 127
 Jalna Resources..... 150
 JAM..... 175
 James, D.H..... 133,165,166,167
 JAN (105 H)..... 10,131
 JAN (115 G)..... 195
 JANE..... 231
 JANISIW..... 197
 JAR (105 B)..... 13,98,101
 JAR (105 L)..... 147,149

JARVIS..... 191
 JASON..... 8,163,164,168
 JAVA..... 111
 JAYBEE..... 215
 JAZ..... 179
 J.C..... 4,95,97
 JD..... 123
 JDX..... 123
 JEAN (95 D)..... 83
 JEAN (105 D)..... 111
 JEANETTE..... 183
 JECKELL..... 223
 JEE..... 179
 JEFF (105 O)..... 163
 JEFF (106 D)..... 180
 Jenkins, T..... 169
 Jennings, D.S..... 144
 JEPHSON..... 223
 JERI..... 83
 JEROME..... 223
 JILL..... 109
 Jilson, G.A..... 132
 J.K..... 163,168
 JO..... 15,195
 JOCK..... 154
 JOE (105 G)..... 127
 JOE (105 K)..... 141
 JOE (116 C)..... 224
 JOE "1"..... 224,227
 JOE PETTY..... 112
 Johnson, L..... 150
 JOHOB..... 189
 JOLLY..... 175,176
 JONI..... 12,83
 JOSE..... 89
 JOSEPHINE..... 215,216
 JOUMBIRA..... 151,156
 JOVE..... 210
 JOY..... 161
 JP..... 234
 JT (95 D)..... 83,84
 J.T. (106 D)..... 179,181
 JUBILEE..... 14,111,118
 JUBJUB..... 215
 JULIA..... 131
 JUMPONT..... 147
 JUNE..... 158
 Jury, R..... 212
 JY..... 194,195

 KAL..... 8,11,148
 Kalzas Mountain..... 12,150
 KAM..... 169
 KANE..... 189
 KANGAROO..... 141,145
 Kapusta, J.D..... 168
 KASKAWULSH..... 191
 KAT..... 10,195
 KATHLEEN..... 179
 KATHY..... 179
 KAY..... 123
 KD..... 141
 KEELE..... 163
 KEGLOVIC..... 141
 KEL..... 189
 KELI..... 83
 KELLY..... 147
 Kemp, J..... 204

KEN (105 O)..... 163
 KEN (106 F)..... 187
 KENNEDY..... 194
 KENO..... 6,156
 Keno Hill..... 8,14,157
 Kenton Natural Resources Corporation..... 234
 KEPT..... 229
 KERNS..... 95
 KERR..... 201
 Kerr Addison Mines Ltd..... 10,12,91,92,149
 Kerrich, R..... 76
 KET..... 123
 KETZA RIVER..... 123
 Ketza River..... 14
 KEY MOUNTAIN..... 175
 KEYSTONE..... 223
 KEY 18..... 14
 KEY 3..... 14,123
 KID..... 10,189
 KIDD..... 161
 Kidd Creek Mines Limited..... 10,11,12,16,81
 KIDNEY..... 175
 Kikuchi, T..... 207
 KIM..... 141
 KIMBERLEY..... 191
 Kimberley Gold Resources Inc..... 132
 KIMI..... 223
 Kinai Resources Corp..... 131
 Kindle, E.D..... 189
 KING (105 H)..... 133
 KING (105 K)..... 143
 KING ARCTIC..... 131
 KING LAKE..... 111
 KING SOLOMON..... 211
 King Solomon Dome..... 211
 KINK..... 128,129
 KIRK..... 197
 KISS..... 179
 KITCHEN..... 105
 KITL..... 223
 KIWI..... 223
 Klaver, V..... 3
 KLAZAN..... 201,202
 KLETSAN..... 194
 Klondike Lode Gold Mines Ltd..... 211
 Klondike Silver Mines..... 15
 KLOD..... 189
 KLOT..... 207
 Klotassin River..... 34,38
 Kluane Lake..... 15
 Kluane map-area..... 192-195
 KLUKSHU..... 189
 KLUNK..... 91
 KNEIL..... 131,132
 KNOB HILL..... 111
 Knob Hill..... 226
 KOHSE..... 175
 KOIDERN..... 194
 KODIAK..... 95,100
 KOMISH..... 89
 KON..... 123
 KOOK..... 201
 KOPINEC..... 123
 Korenic, J.A..... 116
 Koser, R..... 150
 Kowalchuk, J.M..... 96
 KPO..... 154
 KRAUSE..... 223

Kreft, E..... 114,118
 KUBIAK..... 95
 Kuehnbaum, R.M..... 198
 KUKU..... 13,112,116,118
 KULAN..... 141
 KUSAWA..... 189
 KZ..... 8,229
 L..... 96
 LABE..... 111
 LABELLE..... 89
 LABERGE..... 121
 Laberge map-area..... 120-121
 La Biche River..... 12
 La Biche River map-area..... 80-81
 LAD..... 141
 LADUE..... 210
 Ladue River..... 34
 LADUE FRACTION..... 151
 LADY DI..... 11,141,145
 LaFleur, J..... 48
 LAFORMA..... 201
 Lajoie, J.J..... 132
 LAKE (105 B)..... 101
 LAKE (105 D)..... 112,118
 Lake Laberge..... 2,63
 Lakeview Mountain..... 117
 LAN..... 131
 Lansing map-area..... 160-161
 LAMB..... 217
 LAP..... 123
 LAP 10..... 123
 LAPIE..... 123
 LARRY..... 194
 Larsen Creek map-area..... 218-221
 Larson, A..... 204
 LAST (95 D)..... 83
 LAST (105 F)..... 123
 LATREILLE..... 111
 LAURA..... 187
 Laurier Creek..... 63
 LAVALEE..... 111
 LAWRENCE..... 223
 LAYSIER..... 151
 LEACH..... 128,129
 LEAH..... 175
 LEARY..... 175
 LEE..... 131
 Lee, G.C..... 107
 LEEN..... 179
 LEETEE..... 151
 LEDUC..... 223
 LEGAL TENDER..... 111
 Legare, J..... 101
 LENA..... 95
 LEOTTA..... 210
 LEP (115 F-G)..... 193
 LEP (116 A)..... 219
 LEPINE..... 223
 LESLIE..... 207
 LETA..... 201
 LEWES RIVER..... 111
 LEWIS..... 215,216
 Lewis, B..... 3
 LFV..... 175
 LH..... 137
 Liard River..... 91
 LIBERTY..... 193

LICK..... 95
 LIL (115 I)..... 201
 LIL (115 N-O)..... 210
 LILYPAD..... 14,201
 LIME..... 111
 Lime Peak..... 2,63,65-67
 Limion, H..... 107
 LIN..... 234
 LINCOLN..... 105
 LIND..... 131,133
 LINDA..... 145
 Lindex Exploration Limited..... 211
 LINDSAY..... 105
 LING..... 91
 LINGHAM..... 179
 LION..... 197
 LISA..... 105
 Little Chief..... 4,113
 LITTLE MOOSE..... 95
 Little Mountain..... 74
 LITTLE SALMON..... 147
 LJB..... 215,217
 LLOD..... 233
 LLOYD..... 210
 Loam Silver Mines..... 96,100
 LOBO (95 D)..... 83,86
 LOBO (105 L)..... 147
 LODE..... 210,212
 LOG (105 B)..... 97
 LOG (106 C)..... 175
 LOGAN..... 11,95,98
 Logan Mines Ltd..... 14
 LOGJAM..... 14,95,97,101
 LOGTUNG..... 4,95
 LOKKEN..... 147
 LOKO..... 141
 LOLA..... 96
 LOLO..... 141
 LOMOND CREEK..... 219
 LONE STAR..... 210,211
 Lone Star Ltd..... 211
 Lone Star Ridge..... 211
 LONELY..... 201
 LOON..... 121
 LOOTZ..... 12,83,84
 LOPSTICK..... 183
 LORD..... 95
 LORI (105 B)..... 101
 LORI (105 E)..... 121
 LORNA..... 141
 LORNE (105 D)..... 111
 LORNE (105 F)..... 123
 LOSCH..... 197
 LOST..... 95
 LOST WERNECKE COPPER..... 151
 LOU..... 141
 LOUIE..... 179
 Lovett Gulch..... 17
 Lowey, G.W..... 2,34
 Lowey, J.F..... 34
 LOWNEY..... 223
 LU..... 141
 LUBRA..... 210
 LUCK..... 95
 LUCKY STRIKE..... 179
 LUGDUSH..... 215,216
 LULU..... 111
 LUSCAR..... 111

LWR..... 183,184,185
 LYDIA..... 95,101
 LYN..... 141
 Lynch, G.V..... 2,32,38
 LYNX (105 H)..... 131
 LYNX (106 D)..... 179

 M..... 118,194
 MAC (105 B)..... 95,101
 MAC (105 O)..... 8,163,165
 MAC (106 C)..... 175
 MAC (115 I)..... 201
 MACARTHUR..... 147,148
 Macdonald, G..... 114
 MACK'S..... 197
 MACLEAN..... 223
 MacLeod, G..... 114
 Macmillan Pass..... 116
 MACTUNG..... 4,163
 MAD..... 135
 MAGIC..... 183
 MAGUNDY..... 123
 Maheux, G..... 118
 MAHTIN..... 215
 MAIDEN..... 223
 Main, C.A..... 85,89
 MAISY..... 210
 MALONEY..... 201
 MAM..... 234
 MAMMOTH..... 175
 Manson, W.O..... 114
 MAP..... 127
 MAPEL..... 131
 MAR..... 10,12,95,101,180
 MARBEE..... 121
 MARG..... 8,179,180,181
 MARGUERITE..... 207
 MARIO..... 226
 MARION..... 89
 MARK..... 91
 MARLIN..... 105
 MARN..... 15,223,225
 MARS..... 10,12,81
 MARSH..... 111,114
 MARSHALL..... 175
 Marsh Lake..... 14
 Martel B..... 101
 MARTET..... 183
 MARTIN..... 91
 Martin House map-area..... 232,233
 MARY..... 215,216
 MASTADON..... 223
 MASTIFF..... 154
 MATCH..... 198
 Matson Creek..... 34
 Mattagami Lake Exploration..... 8,15,16
 MATT BERRY..... 131
 MATTSO..... 219
 MAUD..... 201
 MAX..... 131
 MAXI..... 131
 MAY (105 H)..... 131
 MAY (105 K)..... 141
 May Creek..... 121
 MAY CREEK..... 215
 MAYBE..... 121
 MAYBRUN..... 151
 Mayo map-area..... 151,158

McCABE..... 201
 McCann, A.M..... 124
 McCASH..... 123
 McCLEERY..... 105,106,109
 McClintock Lakes..... 117
 McCLUSKY..... 179
 McCOWAN..... 147
 McCrory Holdings..... 96
 McFaul, J..... 203
 McKay Hill..... 179
 McKELVIE..... 175
 McKIM..... 151
 McKINNON..... 210
 McLaren, G..... 157
 McLELLAN..... 193
 M'CLINTOCK..... 111
 McMICHAEL..... 210
 McMILLAN..... 83,84
 McMillan, K..... 73
 McNEE..... 123
 McNEIL..... 127
 McQuesten map-area..... 214-217
 McQuesten River..... 2,26,27
 MEHITABEL..... 171
 MEI..... 10,95,101
 MEILECKE..... 179
 MEISTER..... 11,95
 Meister Lake..... 98
 MEL..... 12,83,84
 MELA..... 15,220
 MEL-EAST..... 83,84
 MEL-HOSER..... 83
 MEMOIR..... 193
 MERRICE..... 201
 Metallgesellschaft Canada Ltd..... 144
 METALLINE..... 193
 MEXICO..... 193
 MF..... 114
 MICH..... 105
 MICHELLE..... 219
 MICHIE..... 111
 MICKY..... 223
 MICKY CREEK..... 223
 MID (105 B)..... 96,98
 MID (106 C)..... 175
 MIDAS..... 131
 MIDGETT..... 111
 MIDNIGHT..... 95,96
 MIDNIGHT DOME..... 223
 MIDWAY..... 11,95,96
 MIKE..... 164,219
 Mike Hill..... 234
 MIKO..... 131
 MILCH..... 229
 Milchem Canada Ltd..... 220
 MILK UM..... 219,220,221
 MILLER..... 223
 Miller Creek..... 226
 Miller, D.C..... 83
 MILLET..... 111
 MILLHAVEN..... 111
 MILL HOUSE..... 189
 MINDY..... 10,105,107,109
 Mine Creek..... 73
 MING..... 141
 MINK..... 112,118
 MINNESOTA..... 201
 MINTO..... 201

Minto Lake..... 27
 Misty Creek..... 16
 MITCHELL..... 210,211
 Mitchell Syndicate..... 211
 Mitex Mining..... 164
 MJM..... 91
 MK..... 207
 ML..... 197
 MM (105 F)..... 123
 MM (105 G)..... 127
 MMM..... 123
 M&M..... 112
 MN..... 141,143,144
 MO..... 151
 MOBS..... 123
 MOGUL..... 175
 MOLE..... 180
 MOLY..... 124
 MOLLY (105 A)..... 91
 MOLLY (105 F)..... 123
 MOKO..... 233
 MONEY..... 128
 MONSTER..... 223
 MONT..... 127
 MONTANA..... 111
 MONTE CHRISTO..... 210
 MONTSE..... 131
 MONY..... 223
 MOON..... 151,203
 MOONLIGHT..... 163
 Moore, J.M., (Jr.)..... 55
 MOOSE (105 B)..... 95
 MOOSE (105 O)..... 163
 MOOSE (116 K)..... 234
 MOOSE CHANNEL..... 234
 MOOSE HILL..... 105
 MOOSEHORN..... 210
 MOOSELICK..... 95
 MOOSE RIDGE..... 215
 MORaine..... 197
 Morin, J.A..... 2,3,4,32,48,71
 Morison, S..... 2,3,50
 MORNING..... 111,116
 MORRISON..... 223
 Morrison, L..... 227
 MOULE..... 147
 Mount Byng..... 14,114,117
 Mountaineer Mines Limited..... 8,180
 Mt. ALBERT..... 151
 Mt. ANDERSON..... 111
 Mt. BRONSON..... 210
 Mt. BUSH..... 111
 Mt. COOK..... 11,123,124
 Mt. GRANT..... 105
 Mt. HALDANE..... 27,151
 Mt. Harper..... 2,55-61
 Mt. HART..... 34,210
 Mt. HINTON..... 151
 Mt. Hundere..... 14
 Mt. MISERY..... 123
 Mt. NANSEN..... 68,201
 Mount Menzie..... 145
 Mt. REID..... 111
 Mt. ROSS..... 123
 Mt. St. Elias map-area..... 190-191
 Mt. SHELDON..... 137
 Mt. Skukum..... 2,4,13,68,70,71
 Mt. STEVENS..... 111

Mt. WHEATON.....	111	NESS.....	135
MOUSE.....	175	NEST.....	175
MOX.....	123	NET.....	234
MOZI.....	215	NEVE.....	14,163,164
MR.....	11,95,98,99	NEW.....	128
MS.....	137	NEW BONANZA.....	211
MST.....	183	New Imperial Mines Ltd.....	113
MT.....	158	NEW JERSEY.....	179
MTB.....	131	Newmont Exploration of Canada Ltd.....	10,107,109
MTR.....	183	NEWRY.....	151
MUD.....	111	NEWT.....	179,201
MUELLER.....	175	NIC.....	215,217
MUIR.....	147	NICK.....	194
MULLER.....	193	NIDD.....	8,163,164
Muller, J.E.....	193	Nidderly Lake.....	16,166
Mulligan, R.....	105	Nidderly Lake map-area.....	162-169
Mullin, A.....	207	NIGHT.....	96
MULTI.....	141	NIOBE FRACTION.....	211
MULTIPLY.....	223	NIP.....	111
MUMBO.....	83	Nisling River.....	38
MUMS.....	123	NIT.....	201
MUN.....	4,13,95,96	NITE.....	95
MUNG.....	95	NITRO.....	14,202
MUNROE.....	111	NMT.....	128
MUNSON.....	95	NO BEAVER.....	220
MUR.....	141	NO CASH.....	6,156
Murchy, B.....	36	NOD.....	135
MURPHY.....	123	NOKLUIT.....	123
MURRAY.....	91	NOLE.....	127
Murray, J.S.....	224,225,226	NOM.....	135
Murray, S.....	18	NOON.....	15,203,204
Murrell, M.R.....	164	NOR.....	233
MUSH.....	189	Noranda Exploration Co. Ltd. 2,10,11,13,87,145,161,189	217,220,225,226,227,229,231,234
MUSKATEER.....	193	NORD.....	151
MUSTARD.....	121	NORDEX.....	207
MUT.....	201	NORK.....	141
MV.....	163	NORKEN.....	137
MW.....	95	NORRIS.....	233
MYDA.....	127	Norris, D.K.....	183,187,229,231,233,234
NABOB #2.....	151	NORTHAIR.....	201
NADA.....	201	Northern Cordillera Mineral Inventory.....	79
NADALEEN.....	175	NORTHERN LIGHTS.....	210
Nadaleen River map-area.....	174-176	North Hart Resources Ltd.....	221
Nagy, L.G.....	97,112,217	North Star.....	4,15,113
Nahanni map-area.....	134-135	North Stewart River Joint Venture.....	216
NAIAD.....	14,112,116	NOT.....	123
NAN.....	195	NOTT.....	91
NANCY.....	179,181	NOW.....	179
NAR.....	135	NOWA.....	89
NARCHILLA.....	131	NUCLEAR.....	229
NARNIA.....	14,194	NUCLEUS.....	14,201,202
Nash Creek map-area.....	178-181	Nugget Drilling.....	16
NASTY.....	141	NUT.....	163,169
NAT.....	179	NUTZOTIN.....	207
NATE.....	234	NW.....	105,107
NAVAJO.....	201		
NAZO.....	91	OAKE.....	95
NC.....	121	O'BRIEN.....	223,227
NCC.....	123	O'Brien, J.....	63
ND.....	211	OBVIOUS.....	123,125
NEBULOUS.....	223	O'CONNOR.....	141
NECO.....	173	OD.....	223
NEEDLE ROCK.....	201	ODD (105 D).....	112,115
Neelands, J.T.....	108,115,117,118,121	ODD (105 O).....	163
NEF.....	207	OG.....	223
NERO.....	151	OGILVIE.....	223
NESBITT.....	141	Ogilvie Joint Venture.....	8,164

Ogilvie Mineral Corp..... 164
 Ogilvie Map-area..... 228-229
 Ogilvie Mountains..... 2,8,15,35,55,61
 Ogilvie River..... 16
 OHNO..... 135
 OJ..... 112
 OLD..... 165
 OLD CABIN..... 14,163,165,169
 Old Cabin Creek..... 14
 Old Crow map-area..... 232-233
 Olfert, E.G..... 220
 OLD GOLD..... 95
 OLGIE..... 141
 OLIVER CREEK..... 26
 OLLIE..... 112,118
 OMEGA..... 10,215,217
 OMO..... 135
 ON..... 131
 ONCE..... 183
 ONE HUMP..... 147,149,150
 O'Neill, T.G..... 220
 ONION..... 207
 OPHIE..... 212
 Ophir Creek..... 212
 Ophir Mining Syndicate..... 212
 OPULENCE..... 111
 OPERATION..... 123
 ORE..... 151,158
 Orekon Ltd..... 211
 Orekon/Lindex Exp. Ltd..... 211
 ORI..... 201
 ORION..... 183
 ORK..... 15,105,107,109
 ORLOFF..... 197
 Orma Hill..... 234
 ORO (105 I)..... 135
 ORO (115 N-O)..... 210
 Orssich, C..... 180
 OSCAR..... 91
 OTH..... 10,95,101
 OTIS..... 183
 OTT..... 83
 OTTER..... 175
 OUDDER..... 83,85
 OULETTE..... 95,101
 Overland Exploration Ltd..... 143
 OVOAS..... 121
 OWL (105 E)..... 10,121
 OWL (105 K)..... 141
 OXO..... 123
 OXY..... 123
 OZ..... 223,227

 Pacific Ridge Resources, Corp..... 217
 PACK..... 127
 PACKERS..... 131
 PADDY..... 151
 PAGISTEEL..... 179
 PAL..... 201
 Pamicon Developments Ltd..... 96
 PAN..... 215
 Pan Ocean Oil Ltd..... 8
 PANTHER..... 201
 Panther Mines Ltd..... 14
 Paradise Hill..... 17
 PARENT..... 151
 PARK..... 10,95,101
 PART..... 111

PARTRIDGE..... 95
 PAT (105 A)..... 91
 PAT (105 G)..... 128
 PAT (115 J-K)..... 207
 PAT (105 M)..... 12, 157
 PATCH..... 198
 Paterson, I.A..... 148,225
 PATRICIA..... 131
 PATTISON..... 207
 PAUL..... 179
 PAULA..... 223
 Paul, B..... 156,216
 PAY..... 127
 Payne, C.W..... 143,145,148
 PDM..... 137
 PEACH..... 233
 PEACOCK..... 212
 PEAK..... 123
 PEBBLE..... 161
 Peel, G..... 118
 PEGASEUS..... 91
 PELLY..... 147,201
 Pelly Mountains..... 14,18,23
 Pelly River..... 11
 PEN..... 141
 PER..... 210
 PESO..... 179
 PET..... 226
 PETE (105 O)..... 163
 PETE (106 L)..... 233
 PETER..... 147,169
 Peter Kiss Oil Field Construction Ltd..... 16
 Pezzot, E.T..... 98
 PHELPS..... 201
 PHIL..... 127
 PHILP..... 219
 PHOTO..... 189
 PICK..... 127
 PICKERING..... 210
 PICKHANDLE..... 193
 PIG..... 137
 PIK..... 179
 PIKE..... 15,137,180
 PILON..... 233
 PIM..... 123
 PIMA..... 151
 PINE..... 224,227
 PINESOL..... 95
 PING..... 175
 PISA..... 123
 PIT..... 127
 PITCH..... 179
 PITTS..... 201
 PL..... 229
 Placer Developments Ltd..... 11,135
 Placer Gold..... 17,34,50
 PLAINS..... 187
 PLATA..... 161
 PLAY..... 83,87
 PLEASANT..... 161
 PLUG (105 B)..... 95
 PLUG (115 B-C)..... 191
 PLUMB..... 127
 PLUTO..... 223,225
 PM..... 123
 POG..... 95
 POLAR..... 111
 POLARIS..... 183

POMPEI..... 111
 POND..... 96,100
 PONT..... 95
 PONT B..... 95
 PONY..... 123
 POO..... 175
 POCK..... 118
 POOL..... 81
 Poole, W.H..... 95
 POOLY..... 112,118
 POON..... 16,201,203,204
 PORCUPINE..... 6,95,156
 Porcupine Pit..... 18,19,21,22,224
 Porcupine River map-area..... 232-234
 PORKER..... 83,84,87
 PORPHYRY..... 175
 PORTER..... 111
 PORTLAND..... 210
 POTATO HILLS..... 179
 Potter, A..... 86
 Poulin, B..... 101
 POW..... 111
 PPR..... 137
 PR..... 173
 PRIDE..... 207
 Pride, C..... 2,38,48
 PRIMROSE..... 111,112,118
 Primrose Lake..... 13,115
 PRINCESS..... 131
 Prism Resources..... 14
 PRO..... 157
 Procan Exploration..... 11,97
 PROFEIT..... 175
 PRONGS..... 183
 PROSE..... 111,112,114
 PROSPECT..... 210
 Prospectors Airways Ltd..... 148
 Prospector Mountain..... 4
 PROVOST..... 137
 PTARMIGAN..... 111
 PTERD..... 175
 PUB..... 223
 PUKELMAN..... 215,216
 PUP..... 127
 Pure Silver..... 14
 PY..... 127
 Pyrite Creek..... 73
 PYROXENE..... 210

 QUANDARY..... 127
 Quartz Creek..... 73
 Quartz Lake..... 2,73-77
 Queenstake Resources Ltd..... 180
 Queen's University..... 89,133
 Quiet Lake map-area..... 122-125
 QUILL..... 193
 QUINALTA..... 111
 Quintara Minerals Corp. Ltd..... 194
 QUIVER..... 10,12,84,87
 QUO..... 12,83,86

 RAB..... 10,11,128,129
 RABBIT (105 L)..... 8,147,149
 RABBIT (115 F-G)..... 193
 RACHEL..... 141,143,144
 RACICOT..... 163
 RAD..... 179
 RAPE..... 175,181

RAFT..... 194
 RAGS (105 J)..... 137,139
 RAGS (105 K)..... 141
 RAIL..... 13,223,225,227
 RAILROAD..... 14,111
 RAIN..... 131,207,216
 Rainbird, R.H..... 216
 RAINBOW (105 B)..... 95
 RAINBOW (115 I)..... 201
 RALPHO..... 83
 RAM (105 D)..... 13,111,114,115
 RAM (105 F)..... 123
 RAM (105 N)..... 161
 RAM (106 C)..... 175
 RAMA..... 219
 RAMBLER..... 179
 RAMING..... 111
 RANKL..... 121
 RAPI..... 183
 RAPID..... 234
 RAS..... 233
 RAVEN (105 D)..... 112,118
 RAVEN (115 N-O)..... 210
 RAY..... 91,101
 RAY GULCH..... 179
 Ray Gulch..... 4,12
 RAZ..... 141
 R.B..... 139
 R.D..... 180
 REA..... 131
 Read, W.S..... 144
 READFORD..... 210
 REBEL..... 141
 RED..... 101
 RED FOX..... 201
 RED MOUNTAIN..... 105,106
 Red Mountain..... 4,13,107,108
 Regional Resources Ltd..... 4,11,97,98
 Reid, P..... 2,63
 REIN..... 223
 REINDEER..... 219
 REN..... 121
 RENO..... 11,128
 REP..... 175
 RESERVE..... 141
 REVENUE..... 201
 REX (106 D)..... 179
 REX (115 A)..... 189
 RG..... 223
 R.H..... 107
 Rhodes, D.R..... 164
 RHYOLITE..... 194
 RHOSGOBEL..... 215,216
 RIBA..... 105
 Richardson Mountains..... 15
 RIDDELL..... 137
 RIDGE (105 K)..... 141
 RIDGE (115 P)..... 215
 Ridgeway, S..... 101
 RIKI..... 223
 RILEY..... 127
 RIMROCK..... 219
 RIN..... 183
 RINGO..... 101
 RINK..... 201
 RIO (95 E)..... 89
 RIO (116 K)..... 234
 RIP..... 207

RIS..... 127
 RISBY..... 123,124
 RISCO..... 223
 RITCO..... 91
 RITZ..... 135
 RIVIERA..... 127
 RJ (115 K)..... 207
 RJ (115 O)..... 211
 ROAD (105 B)..... 13,96
 ROAD (105 H)..... 131
 ROAD (116 C)..... 225
 ROAD RIVER..... 85
 ROAL..... 223
 ROB (105 G)..... 127
 ROB (116 B-C)..... 223
 ROBERT SERVICE..... 223
 Roberts, D..... 32
 Robertson, R..... 163
 ROC..... 201
 ROCK RIVER COAL..... 16,83,86
 ROCKSLIDE..... 194
 ROCKY..... 123
 ROD..... 179
 Roddick, J.A..... 89,95,137,141
 ROG..... 137,150
 Rogers, R..... 144,225
 Rogue Range..... 14
 Rogue River..... 168
 RON (105 H)..... 131
 RON (115 N-O)..... 210
 ROOK..... 135
 ROOP..... 151
 Roots, C..... 2,32,55
 ROSA..... 224
 ROSE (95 E)..... 89
 ROSE (105 D)..... 111,112,114,118
 ROSE (105 H)..... 133
 ROSE (116 B-C)..... 223
 ROSEBUD..... 215
 Rosequist, M..... 133
 ROSS (105 I)..... 135
 ROSS (105 M)..... 151
 ROSS (105 O)..... 14,163,168
 ROSS RIDGE..... 141
 ROSY..... 105
 Rota, D..... 32,156,216,217
 Rowe, J.D..... 98
 ROYAL..... 179
 RPP..... 123
 RSVP..... 147
 RUBY..... 4,6,154,156,210
 RUDE CREEK..... 207
 RUDY..... 137,139
 RUM..... 175
 RUNER..... 151
 RUSH..... 12,81
 RUSK..... 201
 RUSTY..... 179
 Rusty Mountains..... 14
 RUSTY SPRINGS..... 15,233,234
 RUTH..... 141,212
 Ryback-Hardy, V..... 96
 Ryder, D.L..... 118

 SAB..... 10,95,101
 SADIE LADUE..... 154
 ST. BRIDGET..... 219,220
 ST. ELIAS..... 193

SAINVILLE..... 183
 SAL..... 123
 SALEKEN..... 233
 SALMON..... 148,149
 Salmon, K..... 3,32
 SALUTATION..... 175
 SAM (105 F)..... 13,124,125
 SAM (106 D)..... 179
 SAM (115 I)..... 201
 Samovar..... 4
 Sanguinetti, M.H..... 98
 SANDERS..... 127
 SANDOW..... 223
 SANPETE..... 193
 SANTA..... 210
 SAP..... 147
 SAS..... 128
 Saskatchewan Mining and Development Corp..... 138
 SATO..... 197
 SAVOYA RESOURCES CORP..... 10,121
 SAVY..... 215
 SAWMILL..... 91
 SAYEH..... 105,108
 SBS..... 121
 SCHEELITE DOME..... 27
 Schellenberg, D..... 101
 SCOT..... 10,163
 Scott, A.R..... 144,148,149,150
 Scott, P.M..... 164
 Scott, T.C..... 96
 SCROGGIE..... 207
 SCYLLA..... 183
 SEA (105 B)..... 10,95,101
 SEA (105 K)..... 141
 SEAFORTH..... 105
 SEARFOSS..... 147
 SEATTLE..... 215
 SEATU..... 123
 SECRET CREEK..... 215
 SEELA..... 223
 SEGSWORTH..... 151
 SEK..... 197
 SEKULMUN..... 197
 Sekwi Mountain map-area..... 16,170-171
 SEL..... 135
 SELKIRK..... 201
 SELWYN..... 207
 Selwyn Basin..... 221
 SEMENOF..... 121
 SER..... 179
 Seraphim, R.H..... 84,85
 R.H. Seraphim Engineering Ltd..... 84,85,86
 SEREM Limited..... 10,12,13,16,84,86,100,169
 SETHER..... 215
 SETTLEMEIR..... 179
 SEVENSMA..... 193
 SHAD..... 197
 SHAFT..... 189
 SHALE..... 11,128,129
 SHAND..... 223
 SHANNON..... 141
 SHARE..... 194
 SHARON (105 F)..... 123
 SHARON (106 D)..... 179
 SHARPE..... 193
 SHANGHAI..... 151
 SHAW..... 111
 Shaw, D..... 105

SHAY..... 219
 SHEBA..... 211
 Sheba Dome..... 211
 SHEEP..... 112,191
 SHEELITE DOME..... 215
 Sheldon Lake map-area..... 136-139
 SHELL CREEK..... 223
 SHEPPARD..... 179
 SHERPA..... 137
 SHIELD..... 135
 SHILSKY..... 95
 SHINGIE..... 234
 SHORTY..... 189
 SHRIMP..... 141
 SIAN..... 175
 SIDE..... 197
 SIDESLIP..... 151
 SIDNEY..... 105
 SIFTON..... 189
 SIHOTA..... 179
 SILVER..... 132
 SILVER BASIN..... 151
 SILVER CITY..... 223
 SILVER DUKE..... 158
 SILVER HILL..... 179
 Silver Springs Mines Ltd..... 180
 Silver Tusk Mines Ltd..... 14
 SIM..... 13,163,166
 SIME & BIRMINGHAM..... 156
 SIN (95 D)..... 83
 SIN (105 B)..... 95
 SINISTER..... 151,158
 SIR JOHN A..... 141
 SIROLA..... 141
 SIT DOWN..... 229
 Sixtymile River..... 2,34,35,36
 Skagway Moly Inc..... 124,207
 SKATE..... 179
 SKIN..... 95
 SKIP..... 226
 SKUKUM..... 111,116
 Skukum Creek..... 69
 SKULL..... 132
 SLAB..... 179
 SLAM..... 127
 SLATE..... 105
 Slate Creek..... 25
 SLATER..... 183
 SLATS..... 179
 SLEWE..... 112
 SLINE..... 121
 SLOUCE..... 95
 SLUGGO..... 216
 SM..... 105,106
 Smalley, C..... 195
 SMD Mining Co. Ltd..... 15,139
 SMEG..... 105
 Smillie, P..... 3
 Smith, M.J..... 2,68
 SMOKEY..... 163,169,180
 Snag map-area..... 206-207
 SNAKE..... 175
 Snake River map-area..... 186-187
 SNARK..... 216
 SNATCH..... 215
 SNEET..... 89
 SNERD..... 123
 SNIP..... 210

SNIPE..... 197
 SNOWDRIFT..... 4,154
 Snowshoe Pit..... 8,19,23
 SNOWSTAR..... 179
 SNYDER..... 223
 SOCK..... 141,145
 SOLO..... 141
 Solomon Dome..... 211
 SOMME..... 207
 SON..... 210
 SONNY..... 123
 SOUP..... 219
 SOURCE..... 13,95,100
 SOURDOUGH MINE..... 223
 SOUTHER..... 189
 SOUTH TANTALUS..... 201
 SOV..... 83
 SP..... 215,217
 SPE..... 10
 SPEARHEAD..... 137
 SPEC..... 224,227
 SPEC-2..... 224,227
 SPECTROAIR..... 175
 SPHERE..... 223,224
 Sphere Development Corp. Ltd..... 226
 SPIKE..... 10,225,227
 SPIS..... 161
 SPORK..... 83
 SPOTTED FAWN..... 223
 SPRAGUE..... 215
 SPRING (106 D)..... 179
 SPRUCE..... 10,16,83,86
 SPUD..... 127,216
 SPUR..... 141
 SQUANGA..... 105
 Squaw Creek..... 50
 SS..... 10,158
 Stallabrass, I..... 3
 Stammers, M.A..... 84,100
 STAND TO..... 179
 STANDARD..... 163
 STAR (95 D)..... 83
 STAR (106 C)..... 175
 STARBIRD..... 201
 STARR..... 128
 STARTIP..... 105
 STEELE..... 131
 Stephen, J.C..... 97,106,107,108
 J.C. Stephen Explorations Ltd..... 10,13,15,96,97
 98,101,106,107,109
 STERLING..... 95
 STEVENSON..... 207
 Stevenson, W.G..... 211
 STEVO..... 210
 Stewart River map-area..... 208-212
 STONEAXE..... 95
 STONEMARTEN..... 83
 STORMY..... 123
 STOVE..... 193
 STQ..... 95
 STRADDLE..... 234
 Strain, D.M..... 118,121
 Stratham, R..... 101
 STREBCHUCK..... 151,156
 STRIDE..... 189
 STRIP..... 175
 STROKER..... 219
 Stroshein, R..... 128,165

STU (105 H)..... 131
 STU (115 I)..... 15,201,202,203,204
 Stubenbergl..... 81
 STUMP..... 123
 STYX..... 223
 SUBMARINE..... 223
 SUBTRACT..... 223
 SUDGEN..... 189
 SUE..... 10,11,147,148,150,195
 SUITS..... 111
 Sulpetro Minerals Ltd..... 12,16,83,86
 SUMI..... 219
 SUMTING..... 223
 SUN (105 F)..... 123
 SUN (105 O)..... 8,13,163,166
 SUN (106 C)..... 175
 SUN (115 I)..... 201
 SUN (115 P)..... 215
 SUNAGHUN..... 233
 SUNDOWN..... 151
 SUNSET..... 89
 SURETHING..... 15,106
 SUSAN..... 131
 SUSTAK..... 210
 SUZANNE..... 131
 SVENN..... 210
 SWASTIKA..... 211
 SWEDE (115 J-K)..... 207
 SWEDE (116 B-C)..... 224
 SWIFT..... 95
 SWIFT BANANAS..... 151
 SWIM..... 4,141,143
 SYLVIA..... 121

TAC..... 137
 TACK..... 233
 TAD..... 201
 TAI..... 131
 TAK..... 16,223,226
 TAKHINI..... 121
 TAKU (105 F)..... 123
 TAKU (105 K)..... 141
 TALBOT..... 194
 TALLY-HO..... 111
 TANG..... 135
 TANTULUS BUTTE..... 201
 TANTALUS MINE..... 201
 TANYA..... 131
 TAPIN..... 175
 TAR..... 141,183
 TARA..... 175
 TARFU..... 105
 TART..... 223
 TARTZHART..... 224
 TATER..... 10,15,16,224,227
 TAWA..... 10,203
 Tay River map-area..... 8,16,140-145
 TAYLOR..... 193
 Taylor, D.P..... 219
 TEA..... 4
 TEAM..... 95
 Teck Corporation..... 16
 TED..... 131
 TEDDY..... 141
 TEE..... 216
 TEL..... 141
 TELLURIDE..... 191

Tempelman-Kluit, D.J.... 18,67,121,123,127,137,141,197
 201,207
 TENAS..... 11,141
 TENMILE..... 210
 Tenmile Creek..... 34
 TER..... 141
 TERMUENDE..... 233,234
 Territorial Gold Placers..... 16,226,227
 TERRY..... 131
 TES..... 14,121
 Teslin Joint Venture..... 224,225,226
 Teslin Lake..... 108
 Teslin map-area..... 104-109
 Teslin Mountain..... 14
 TETA..... 223
 TETRAHEDRITE CREEK..... 175,176
 Texaco Resources Canada Ltd..... 15,176
 THANE..... 223
 THATCH..... 198
 THIS..... 210
 THISTLE..... 111,211
 THOMAS..... 141
 THOR (95 C)..... 81
 THOR (105 H)..... 131
 THOR (116 B-C)..... 223
 THORIUM..... 183
 Thornburg Mining Co..... 211
 THRALL..... 95,99
 3 2 MANY..... 207
 TIE..... 225
 TIER..... 123
 TIKA..... 112
 TIL..... 128
 TILL..... 91
 TILLEI..... 131
 TIM (105 F)..... 123
 TIM (105 H)..... 131
 TIM (116 A)..... 219
 TIMBERWOLF..... 219
 Timmons, W.G..... 180
 TIN (105 H)..... 131
 TIN (116 F-G)..... 229
 TINCUP..... 194
 TING (95 C)..... 81
 TING (116 B-C)..... 223
 TINTA..... 201
 TINTA HILL..... 201
 Tinta Hill..... 14
 TINTINA..... 127
 Tintina Mines Ltd..... 4,13,106
 Tintina Trench..... 35
 TINY..... 131
 TIPY..... 112
 TIZA..... 224,226
 TJOP..... 223,224
 TOD..... 10,13,95,100,102
 TOKE..... 127
 TOM (105 B)..... 10,101
 TOM (105 F)..... 123
 TOM (105 O)..... 8,163,165
 TOMI..... 83
 TOMMY..... 91
 TONGUE..... 161
 TONI TIGER..... 207
 TONY..... 14
 Toohy, J..... 133
 TOOT..... 16,95,201,203,204
 TOOTS..... 123

TOP (105 D).....	111	University of Calgary.....	2,34,36
TOP (105 G).....	127	University of Manitoba.....	2,68,71
TOPAZIOS.....	111	University of Miami.....	2,63
TOPOROWSKI.....	175	University of Ottawa.....	2,38,48
TORRANCE.....	210	University of Western Ontario.....	2,73,76
TOSH.....	197	UNTILL.....	111
TOTH.....	215	UR.....	151
TOUCHE.....	15,233,234	Uranerz Exploration and Mining Ltd.....	15,16,197,198
TOW.....	175	Urangesellschaft Canada Ltd.....	106
TOWER PEAK.....	123	URANUS.....	42
TOWHATA.....	201	URN.....	141,144
TOWNSITE.....	154	URNIE.....	144
TOY.....	131	URSA.....	163
TRACK.....	225	URSUS (105 B).....	95
TRAFFIC.....	137	URSUS (106 D).....	179
Trail River map-area.....	232-234	UTAH MINES.....	10,16
TRANZ.....	12,81	UTSHIG.....	112,117
TREDGER.....	147	Vaillancourt, P.....	2,73
TREE.....	123	VAL (105 B).....	96,97,101
TREMAR.....	111	VAL (105 D).....	111
TRENCH.....	123	VAL (106 C).....	175
TREVA.....	210	VAL A.....	95
TRILBY.....	210	VAL B.....	95,96
TROLL.....	112	Van Angeren, P.D.....	114,124
TROPICAL.....	81	Vancouver Creek.....	216
TROUT.....	95	Vanderhorst, R.....	148
TROY.....	95	VANGORDA.....	4,141,143
TRUDI.....	207	VANGUARD.....	151
TRUITT.....	147	VARISCITE.....	137
TRYALA.....	163,169	VENUS.....	111
TSS.....	141	VERA.....	14,15,158,175
TUB.....	123	Verley, C.G.....	98
TUCHITUA.....	131	VERSLUCE.....	193
TUDL.....	8,10,180,181	VH.....	95
TUF (105 M).....	151	VI.....	212
TUF (115 I).....	201	VICTORIA.....	211
TUKU.....	183	VIKING.....	131
Tully, D.W.....	131,132	VINA.....	207
TUM.....	147	VINCENT.....	127
TUMMEL.....	147	VIOLA.....	95,97
TUNA.....	131,133	VIOLET.....	210,212
TUNG.....	95	Violet Mining Co. Ltd.....	212
TURK.....	10,15,224-227	VIRGIN.....	223
TUSTLES.....	131	VNER.....	89
TUV.....	121	VODKA.....	123
TWICE.....	233	Voels International Development Co.....	225
TWIN.....	89	VOLE.....	187
TWO.....	143	VOWEL.....	197
TWO BUTTES.....	151	VUG.....	219
TYER.....	131	VULCAN.....	175
Tykajlo, R.....	116	VYE.....	187
TYRO.....	123	W.....	151
TYRRELL.....	210	WABONA.....	111
UDAD.....	211	WAD.....	141,144
UGLY.....	223	WADE.....	193
UKHM.....	4	WALCOTT.....	111
UNCER.....	112	Walker, T.....	138
UNDAL.....	112	WALL.....	169
UNEXPECTED.....	223	WALSH.....	121
Union Carbide Canada Ltd.....	4,12,14,85,133,157	WALT.....	163
.....	165,166,167,169	WARBURTON.....	91
UNION.....	118	WART.....	233
UNION MINES.....	111	WATERS.....	127
UNITED KENO HILL.....	151,154	WATERFALL.....	123
United Keno Hill Mines Ltd.....	4,5,6,8,15,16,114,154	WATSON.....	91
.....	155,156,180,202,203,204	Watson Lake.....	14,16,73,84,86,91,92,98,100
University of British Columbia.....	63,67		

Watson Lake map-area..... 90-92
 Watson, P..... 2,3,38,48
 WAY..... 85
 WAYNE..... 151
 WEASEL..... 151,180
 Webster, M.P..... 108
 WELCOME..... 234
 Welcome North Mines Ltd..... 8,11,145,180
 Wellesley Lake..... 38
 WELLGREEN..... 193
 WEN..... 15,179,195
 WENDY (105 J)..... 139
 WENDY (116 H)..... 8,231
 WERN..... 219
 WERNECKE (105 M)..... 14,151
 WERNECKE (106 E)..... 183
 Wernecke Joint Venture..... 15,176,180,183,184
 Wernecke Mountains..... 15,55,56
 WEST..... 111
 WEST-DAWSON..... 223
 WEST RIDGE..... 216
 Westfort Petroleum Ltd..... 108
 WET..... 83
 W.G. Timmons Expl. & Dev. Ltd..... 180
 WHEELER..... 111
 Wheeler, J.O..... 111,191
 WHIP..... 147
 WHISKEY JOE..... 207
 WHISKEY LAKE..... 123
 WHISTLER..... 125
 White Channel Gravel..... 17,50
 White, G.E..... 98
 White, P.S..... 211,212
 WHITE HILL..... 179
 WHITEHORSE COAL..... 111
 WHITEHORSE COPPER..... 111,112
 Whitehorse Copper Mines Ltd..... 4,5,6,15,112,113
 Whitehorse map-area..... 110-118
 WHITE RIVER..... 193
 Wiez, E..... 216
 WILLIAMS CREEK..... 201
 Wilman, C..... 101
 Wilman, P..... 101
 WILSON..... 137
 WIMP..... 123
 WINAGE..... 223
 WINDGAP..... 193
 Wind River map-area..... 182-185
 WINDY..... 183
 WING..... 111
 Wing, B.J..... 180
 WINKIE..... 135
 WINSLOW..... 215
 WISE..... 135
 Witham, J..... 150
 WOAH..... 131
 WOE..... 207
 WOLF (95 D)..... 83

WOLF (105 B)..... 95
 WOLF (105M)..... 12,157
 Wolfe, Resources..... 181
 Wolf Lake map-area..... 94-102
 Wolverine Creek..... 18,21,23
 WOOD..... 210
 WOODBURN..... 215
 WOODCHOPPER..... 223
 Woods, M..... 212
 WOOF..... 10,13,116,118
 WOPUS..... 123
 Worbets, T..... 112
 WORM..... 219
 WREN..... 189
 Wright, J.L..... 86
 WX..... 175
 WY..... 224,226,227
 WYNNE..... 145

X..... 96
 XY..... 11,107

YANG..... 83
 YETI..... 123
 YOGI..... 183
 YONO..... 151
 Young, S..... 219
 Youngman, B.A..... 98
 YR..... 107
 YUK..... 187
 Yukon Barite..... 4
 Yukon Consolidated Gold Corp..... 211
 Yukon Land Resources and Inventory Atlas..... 79
 Yukon Revenue Mines Ltd..... 107
 YUM..... 233
 YUSEZYU..... 131

ZAC..... 95
 ZAP (105 G)..... 129
 ZAP (105 M)..... 14,151
 ZAP (106 D)..... 179
 ZAPPA..... 207
 ZEBRA..... 219
 ZED..... 141
 ZEUS..... 131
 ZIELINSKI..... 127
 ZINC..... 95
 Zinc Creek..... 50
 ZIT..... 201
 ZIMMER..... 127
 ZOG..... 175
 ZOO..... 10,129
 ZULPS..... 179
 ZULU CHIEF..... 211
 ZX Joint Venture..... 8,12