

MINERAL INDUSTRY REPORT  
1977

YUKON TERRITORY

BY

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## INTRODUCTION

This report is a review of the Yukon mineral industry for 1977 by officers of the Geology Section, Yukon, Northern Affairs Program, Department of Indian and Northern Affairs. It includes descriptions of work conducted on mineral claims by individuals and mineral exploration companies and operating summaries of the several producing mines in the Yukon. Earlier records of mineral industry activities are presented in the Annual and Summary Reports of the Geological Survey of Canada (1898 to 1933), Memoirs of the Geological Survey of Canada (1934 to 1940), Papers of the Geological Survey of Canada (1960 to 1968) and Mineral Industry Reports of the Department of Indian and Northern Affairs (1969 to 1976).

Information in this report was obtained from visits to mineral properties, from personal communication with individuals and from technical reports, trade journals, newspapers, publications of the Geological Survey of Canada and the monthly reports of the District Mining Recorders. Considerable information was provided by exploration companies in completing and returning the questionnaires on each of the properties on which work was conducted. The cooperation of industry in this regard is gratefully acknowledged. A great deal of valuable information is contained in the geological, geochemical and geophysical reports accepted for credit as assessment work by the Department of Indian and Northern Affairs. A list of assessment reports, both confidential and those available for inspection, is included in the list of Technical Reports prepared by the Canada Center for Geoscience Data for the Department. These reports are listed by NTS locations and are produced annually. A bound edition of 'Index to Mining Assessment Reports' was produced in August of 1978. The assessment reports are currently released for public inspection six months after the claims (on which the work was carried out) have lapsed.

In this report, activities of the mineral industry are divided into lode mining and exploration, coal mining and exploration and placer mining. Each of these sections is further subdivided into the separate mining districts in the Yukon (see the frontispiece). Individual properties in the various mining districts are then listed in order of their occurrence based on the National Topographic System. The location of each property is given by its National Topographic System designation of the 1:50,000 map-sheet in which the property lies and by the latitude and longitude of the centre of the property. In cases where a property involves a large number of claims or covers more than one NTS sheet, several latitudes and longitudes and more than one NTS designation are given. The name or names given to a property are generally the names of the claims that constitute the property. However, if there is a name by which a property was originally or formerly known and which is commonly used at present, then this name takes precedence. Company addresses have been consolidated and placed in a section at the end of this publication.

During 1977 field season J.A. Morin spent one month mapping geology and logging drill core at Hart River Mines, a Proterozoic Cu-Zn massive sulphide deposit. Preliminary geological mapping was done in the Mississippian volcanic belt south of Ross River. In addition, he conducted property examinations of occurrences in the Mayo and Watson Lake Districts.

M. Marchand visited properties in the Whitehorse Mining District, and some uranium properties in the Dawson Mining District. The study of the rock geochemistry of the Anvil orebody continued during the year, and detailed investigations of the PMJ-Sunset properties of Welcome North Mines south of Faro were carried out. In addition, he organized and coordinated the production of this volume. D.B. Craig visited placer mining properties in the Yukon Territory, and lode mining and exploration properties in the Dawson Mining District. In addition to the above, geologists engaged in research activities wholly or partly supported by D.I.A.N.D. were as follows: Gary Delaney, a Ph.D. student, University of Western Ontario, studied the stratigraphy of the lowest sequence of Proterozoic rocks exposed in the Yukon Territory, in the region between the Wind and Bonnet Plume Rivers. Felice Chronic, a M.Sc. student at the University of British Columbia, studied the geology and geochemistry of rare earth bearing skarns in the Seagull Creek area. Greg Morrison, a Ph.D. student at the University of Western Ontario who is completing a thesis on the metallogeny of the Whitehorse Copper Belt, collected samples for age dating purposes. Research Projects partly and wholly funded by D.I.A.N.D. included age determinations of rocks from the MM deposit, in the Pelly Mountains, and a lamprophyre sill at Macmillan Pass, and studies of the trace element geochemistry of sphalerite from Pb-Zn carbonate deposits in the Yukon-N.W.T. Cordillera.

Ruth Debicki joined the Section in September 1978 as Staff Geologist and assisted in the final preparation of this volume.

### Facilities of the Geological Section

The Geology Office sells topographic, geological, aeronautical, and land-use maps, as well as Geological Survey of Canada publications, covering the Yukon and some adjacent parts of B.C. and the N.W.T. A library of G.S.C., B.C. Dept. of Mines, Alaska Bureau of Mines, U.S.G.S. Alaska publications, and other geological books and journals is available for consultation. Some open file reports on the Yukon are also available for viewing. A sizeable collection (25,000) of air photos covering the Yukon from Latitude 60° to 65° is available for use in the office as is the latest catalogue of Yukon Air Photos from the National Air Photo Library. An updated computer list of good quality photos of the 1972-1977 satellite [LANDSAT] imagery of the Yukon is included in the Air Photo catalogue. We also have a LANDSAT mosaic of the Cordillera on display and a collection of colour LANDSAT photos of the Yukon.

The H.S. Bostock Core Library, situated across the street from the Geology Office, contains drill core from various Yukon mining properties, some available for inspection and the remainder confidential. The core library also contains working quarters equipped with diamond saws, a core splitter, a vibrating polisher, rock staining facilities and fume hood. A petrographic microscope, with capabilities for both transmitted and reflected light, and a binocular microscope are also situated in the core library. The Geology Office presently has the following technical equipment: McPhar Spectra 44 (four channel) gamma-ray spectrometer, ultraviolet lamps and two GR-101A scintillometers. The equipment and instruments are avail-

able for use by industry personnel on arrangement with one of the geologists. We expect to have a Spillsbury and Tindall SBX-121 SSB Radiotelephone base station installed in our office by the 1979 field season. This will allow radio contact to be made more easily with us on 4441 MHz.

The office is staffed by four geologists who welcome visits by exploration personnel. The office is situated at 200 Range Rd. in the Takhini sub-division, about halfway between downtown Whitehorse and the airport, at the top of Two Mile Hill. The staff and their telephone extensions are listed below:

Doug Craig, Regional Geologist 136;  
 Jim Morin, District Geologist, Mayo, Watson Lake, 138;  
 Michael Marchand, District Geologist, Whitehorse, 139;  
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#### MINERAL PRODUCTION OF YUKON

The value of mineral production in Yukon increased from \$124,792,000 in 1976 to \$210,252,000 in 1977, an increase of 68.5%. The value of all minerals produced except cadmium increased. The value of lead and zinc produced increased by exceptional amounts of 190.6%, and 106.8%, respectively. The amounts of cadmium and asbestos produced in 1977 declined from 1976 levels.

The cause of the increases was primarily due to the absence of prolonged strikes at Yukon mines during 1977.

TABLE I  
 Mineral Production, Yukon Territory

	1976	1977
Gold \$	4,401,075	5,943,000
grams	1 111 949	1 182 000
ounces (Troy)	35,751	38,003
Silver \$	12,809,321	20,908,000
grams	92 697 630	132 283 000
ounces (Troy)	2,980,344	4,253,062
Lead \$	15,999,040	46,494,000
kg	32 035 681	67 698 000
lb	70,625,862	149,247,011
Zinc \$	39,233,926	81,187,000
kg	47 300 153	105 071 000
lb	104,277,917	231,639,527
Cadmium \$	13,220	11,000
kg	2 284	2 000
lb	5,035	4,409
Copper \$	16,045,963	18,062,000
kg	10 642 540	11 793 000
lb	23,462,544	25,998,848
Asbestos \$	35,310,723	37,180,000
tonnes	103 431	101 000
short tons	113,981	111,302
Coal		
tonnes	27 186	20 648
short tons	29,974	22,765

#### Mineral Exploration Highlights, Yukon Territory, 1977

The number of quartz claims staked in 1977 in Yukon increased by 18.4% to 12,266, while the claims in good standing increased by 14.1% to 39,177. Exploration expenditures were estimated at \$17.8 million, a slight increase over the \$16.5 million spent in 1976.

TABLE 2  
 Mineral Claims staked, Yukon Territory

Mining District	1973	1974	1975	1976	1977
Dawson	1,168	1,504	1,695	1,555	1,127
Mayo	2,587	6,038	2,086	4,390	2,749
Watson Lake	2,509	1,057	1,627	2,478	5,845
Whitehorse	3,119	4,867	3,454	1,934	2,545
Totals	9,383	13,466	8,559	10,357	12,266

Mineral exploration activity was strong in Yukon in 1977, being slightly greater than in 1976. Claims in good standing reached an all time high of approximately 45,000. The distribution of exploration attention over the past few years has shifted increasingly towards zinc-lead targets. Uranium exploration is important, but makes up only a small part of the total. Other exploration targets include tungsten, tin, copper, molybdenum and gold.

Much exploration in 1977 was directed toward shale-hosted lead-zinc-silver-barite deposits in the Selwyn Basin. Canex Placer continued work at their Howards Pass deposit. Work also continued at the TOM deposit of Hudson Bay Exploration and Development, and the JASON deposit of Ogilvie Joint Venture in the Macmillan Pass area. To test the interpretation that the TOM and JASON deposits are connected at depth, Ogilvie Joint Venture attempted to drill a deep hole using an oil well rig in July, 1977. Mechanical and ground problems forced the stopping of this operation at 500 feet. Overburden drilling to establish local stratigraphy and assess geochemical anomalies, and a further 4,600 feet of diamond drilling were also done.

Exploration for volcanogenic massive sulphides in the Seagull Creek area, Pelly Mountains, continued in 1977. Cyprus Anvil and Hudson Bay Oil and Gas did a further 5,500 feet of diamond drilling on the MM property. Stratiform, massive and interlayered sulphides (pyrite, sphalerite, pyrrhotite, galena and chalcopryrite) and metavolcanics associated with pyritic chert and barite beds are present. The complex structure of the deposit is still being unraveled. Dupont Explorations, Aquitaine and Rosario Resources did detailed property work and 1,500 feet of diamond drilling on the MAT property. There, shale containing stratabound galena, pyrite, sphalerite and arsenopyrite is underlain by pyritic rhyolite and intruded by a hypabyssal syenite stock. The stock contains phases high in rare earths. Amax, Utah Mining and Newmont Exploration also did work within the volcanic belt.

Several companies did regional reconnaissance for uranium in southern Yukon, but little ground was staked. Uranium occurrences have been staked in northern Yukon, however. Chevron Standard, Uran-gesellschaft and Archer-Cathro hold claims in the Tombstone Mountains on which pitchblende occurs in vein systems in small, Cretaceous alkaline syenites.

Mining Claims Recorded and Royalty Paid on Gold

Year		W.M.D.	D.M.D.	M.M.D.	WL.M.D.	Total	Year		W.M.D.	D.M.D.	M.M.D.	WL.M.D.	Total
1960	Q	902	43	71	N/A	1016	1970	Q	8609	849	768	1294	11520
	P	17	33	11	N/A	61		P	39	80	1	nil	120
	PL	19	32	11	N/A	62		PL	32	32	7	20	91
	R	4430	88638	-	-	-		R	1780	5674	998	nil	8452
1961	Q	1645	116	564	N/A	2325	1971	Q	4239	330	902	1245	6716
	P	8	51	28	N/A	87		P	28	77	32	nil	137
	PL	11	20	19	N/A	50		PL	23	14	3	2	42
	R	2908	78026	-	-	-		R	1161	4246	86	nil	5493
1962	Q	772	104	856	742	2474	1972	Q	1848	548	1861	2475	6732
	P	1	9	5	nil	15		P	74	129	3	nil	206
	PL	23	4	13	2	42		PL	20	26	3	nil	49
	R	2138	65180	-	nil	-		R	1042	3963	288	nil	5293
1963	Q	1052	251	317	1046	2666	1973	Q	3119	1168	2587	2509	9383
	P	27	35	12	3	77		P	55	313	31	8	407
	PL	22	10	28	1	61		PL	48	134	22	16	220
	R	2972	67106	-	-	-		R	2181	5948	380	nil	8509
1964	Q	1819	48	607	349	2823	1974	Q	4867	1504	6038	1057	13466
	P	34	92	46	nil	172		P	131	471	55	5	662
	PL	7	16	7	nil	30		PL	63	143	28	29	263
	R	1304	69108	-	nil	-		R	2668	8852	615	nil	12136
1965	Q	5073	441	894	507	6915	1975	Q	3462	1695	2086	1627	8870
	P	14	138	8	nil	160		P	124	511	27	12	674
	PL	10	19	8	1	38		PL	166	102	32	26	326
	R	1113	-	-	nil	-		R	4203	14642	513	20	19378
1966	Q	11666	728	718	4305	17417	1976	Q	1934	1555	4390	2478	10357
	P	19	89	37	nil	145		P	395	1141	90	11	1637
	PL	7	9	2	nil	18		PL	78	91	20	1	190
	R	711	51027	2433	nil	54171		R	6341	13733	1238	nil	21312
1967	Q	4295	235	680	2208	7418	1977	Q	2545	1127	2749	5845	12266
	P	25	59	5	nil	89		P	85	622	84	43	834
	PL	14	22	8	2	46		PL	27	74	20	2	123
	R	1108	8682	1963	nil	11753		R	9394	14750	1559	nil	25692
1968	Q	3960	434	2129	1920	8443	1978	Q	1555	1326	2777	4082	9740
	P	14	38	14	1	67		P	82	724	271	2	1079
	PL	18	16	5	6	45		PL	44	127	38	13	222
	R	778	6784	1900	nil	9462		R	9521	15791	468	nil	25780
1969	Q	12927	846	1489	962	16224							
	P	27	112	2	2	144							
	PL	20	11	3	8	42							
	R	2557	7335	743	nil	10635							

Q = Quartz Claims  
P = Placer Claims  
PL = Placer Leases  
R = Royalty paid - expressed as oz of gold

W.M.D. = Whitehorse Mining District  
D.M.D. = Dawson Mining District  
M.M.D. = Mayo Mining District  
WL.M.D. = Watson Lake Mining District

Aquitaine prospected radioactive showings on their claims in the Blow River area. Eldorado Nuclear drilled eight holes totalling 1,140 feet on the BOND claims north of Mayo, where uranium mineralization occurs in brecciated Proterozoic siltstone.

Work in the Anvil Range continued in 1977, with some companies conducting drilling programs and others re-examining ground that has been neglected since soon after the discovery of the Faro orebody in 1965. Cyprus Anvil drilled throughout the summer in an attempt to delineate the new DY zinc-lead deposit, discovered between the Vangorda and Swim deposits in the same graphitic phyllite horizon, but at a depth of 2,000 feet. Kerr Addison and Canadian Natural Resources undertook a feasibility study on the GRUM zinc-lead deposit which has 27 million tons of 10% combined zinc-lead and nearly 2 oz. per ton silver. Dupont of Canada Limited, MacMillan Joint Venture, Amax and Welcome North were also active in the area.

In the Whitehorse area, Whitehorse Copper Mines Limited continued exploration for other mineralized skarns in the Whitehorse Copper Belt. Magnetometer and I.P. surveys, and 18 diamond drill holes totalling 9,700 feet were completed without outlining further

ore zones. The skarns occur in Triassic limestone adjacent to granodiorite and diorite of the Coast Range Intrusions. Con Am Resources continued examination of their antimony prospect at Carbon Hill. The 1977 program included 17 diamond drill holes totalling 4,105 feet, surface trenching and mapping. The mineralization occurs as pyrite and stibnite with quartz gangue in irregular patches within a shear zone cutting altered rhyolite and dacite.

Elsewhere in Yukon, Archer-Cathro drilled 8 holes totalling 2,800 feet on the CASH property in the Dawson Range. Low-grade copper and molybdenum mineralization is associated with a small, irregular, early Tertiary felsic porphyry in which concentric zones of hydrothermal alteration are well developed. McIntyre Mines Limited continued work north of the Nadaleen River on their stratabound lead-zinc-silver prospect in brecciated and silicified dolomite of Upper Proterozoic age. During 1977, 15,756 feet of diamond drilling was done. Welcome North Mines and Getty Mining Pacific staked and explored several hundred claims southeast of Faro. Mapping, geochemical and E.M. surveys and limited diamond drilling were done.

2



Gossan on the West Zone of the CRAIG Pb-Zn-Ag property in the Nadaleen Range, Ogilvie Mountains, with discoverer, A.O. Birkeland of McIntyre Mines Limited at a drill site. Hadrynian rocks are at left and Paleozoic sedimentary rocks are in upper background.

**MINOR ELEMENTS IN SPHALERITE FROM CARBONATE-HOSTED  
ZINC-LEAD DEPOSITS, YUKON TERRITORY AND ADJACENT  
DISTRICT OF MACKENZIE, NORTHWEST TERRITORIES**

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**ABSTRACT**

Minor element concentrations in sphalerite from carbonate-hosted zinc-lead deposits in the Northern Cordillera have been determined to define the metallogeny of this remote region. Concentrations of Ag, Cd, Co, Cu, Fe, Mn, Ni, Pb and Hg, were analyzed in 166 specimens from 48 deposits; an additional 13 elements were investigated at a qualitative level. Analytical data is reported here. Analyses of variance indicate that minor element variations within single hand specimens, and analytical variations, are insignificant relative to between deposit variations. Furthermore, within deposit variations are small relative to between deposit variations; therefore, each deposit can be characterized by the minor elements in the sphalerite.

Probability graph analysis of all minor element contents define bi-modal distributions consisting of relatively 'high' and 'low' populations for most elements. Proterozoic and Lower Cambrian rocks host sphalerite 'high' in minor elements. Sphalerite 'low' in minor elements occurs mainly in Ordovician to Devonian hosts. These patterns are explained best by two ages of regional metallogeny, possibly reflecting two different mineralizing processes. A major shale basin, dewatering to produce metal-rich brines, is associated only with the younger hosts. Major unconformities and paleogeography suggestive of karst environments are associated with the older host rocks. A model of two metallogenic events, one during Middle to Late Cambrian and another during Late Devonian or later is proposed.

**INTRODUCTION AND ACKNOWLEDGMENTS**

Carbonate hosted lead-zinc deposits, found during the past five to six years to be widespread in the Northern Cordillera, have not been examined previously for zoning on a regional scale. Therefore, an investigation into the minor element contents of sphalerite specimens from these deposits was carried out with the intent of defining the geochemical nature of the sphalerite and the metallogeny of the carbonate-hosted deposits of this remote region of the Canadian Cordillera.

Similar studies have been undertaken in the Cordillera of the United States outlining metallogenic provinces based on minor element content (Rose, 1970; Burnham, 1959), and in the Canadian Cordillera south of 60° latitude (Evans et al, 1968; Warren and Thompson, 1945). Thus, the analysis of sphalerite appears to be a very useful tool in preliminary investigation in relatively poorly known regions.

Our research was undertaken at the University of British Columbia with assistance from the Department of Indian Affairs and Northern Development, and from Arctic and Alpine Research. Numerous mining company and government geologists provided the sphalerite samples which formed the basis for this study and their assistance is gratefully acknowledged. A.J. Sinclair provided assistance in the statistical analysis of the data and his constructive criticism at all stages of the research is appreciated.

**MINOR ELEMENT ANALYSIS**

A total of 166 sphalerite specimens from 48 deposits throughout the carbonate terrane of the Northern Cordillera (Fig. 1, Table 1) have been analyzed for silver, cadmium, cobalt, copper, iron, manganese, nickel, lead and mercury (Table 2, 3 and 4). An additional 13 elements have been investigated at a qualitative level (Tables 5 and 6).

**TABLE 3: REGIONAL SUMMARY OF QUANTITATIVE  
ATOMIC ABSORPTION SPECTROGRAPHIC ANALYTICAL RESULTS  
(Based on analyses of 166 samples)**

Element	Range (ppm)	Mean (ppm)	Standard Deviation (± ppm)
Silver	0* - 295	13.5**	30**
Cadmium	170 - 9424	1780	904
Cobalt	0 - 98	3.3	12
Copper	5 - 2100	172	312
Iron	92 - 35870	2750	3815
Manganese	0 - 230	30	34
Nickel	0 - 70	0.7	5.7
Lead	0 - 10750	644	1274
Mercury	0 - 300	33	64

\* 0 = not detected; refer to Table 4 for detection limits

\*\* Mean values and standard deviation are calculated using 0 as an analytical result.

**TABLE 4: ATOMIC ABSORPTION SPECTROSCOPY OPERATING  
CONDITIONS AND DETECTION LIMITS**

Element	Wave Length Å	Slit Width (µm)	Current (mA)	H <sub>2</sub> Lamp	Detection <sup>2</sup> Limits (ppm)
a <sup>1</sup> Ag	3280.7	1000	6	+	1
a Cd	2288	1000	6	+	50
a Co	2407.3	300	20	+	1
b Cu	3247.5	50	3		1
b Fe	2483	50	5		30
b Mn	2794	50	5		1
a Ni	2320	300	20	+	5
a Pb	2170	1000	14	+	4

<sup>1</sup> Instrument used: a - Perkin Elmer; b - Techtron

<sup>2</sup> Detection limits are determined from lowest values detectable above instrumental interferences at minimum dilution factor.

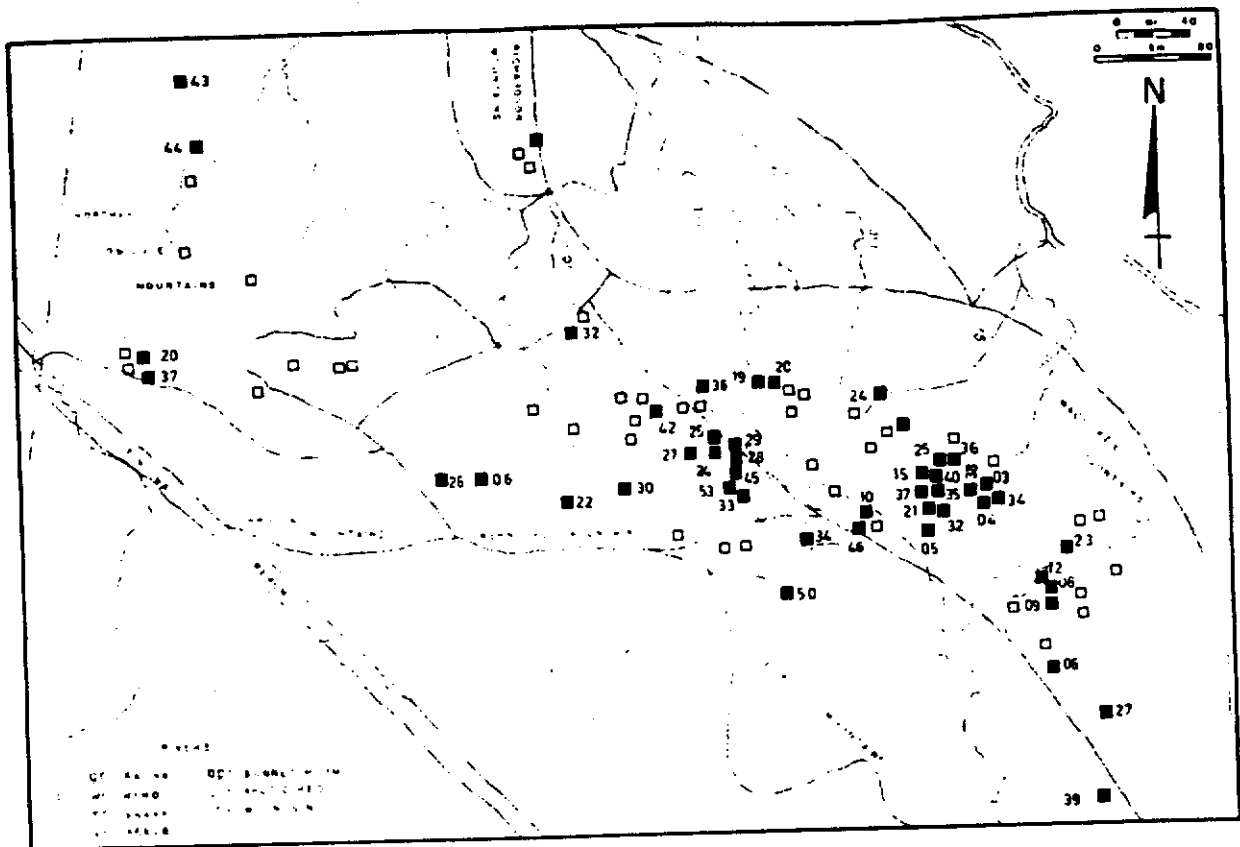


Fig. 1. Index map of zinc-lead deposits studied. Numbered locations (Table 1: fourth and fifth numbers in ID. No.) refer to solid squares and represent occurrences of sphalerite analysed. Open squares represent occurrences of sphalerite which were not analysed.

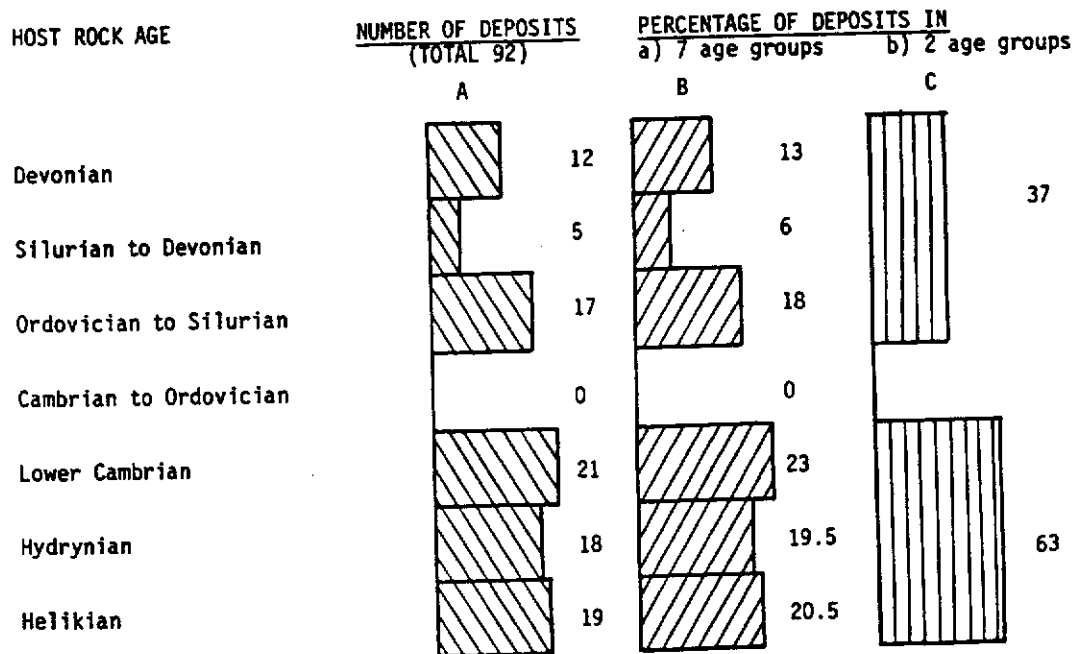


Figure 2: Bar graphs showing distribution of deposits relative to ages of host rocks. Data from 92 deposits. Column (A) defines the number of deposits in each age interval; (B) represents data from (A) as a percentage; (C) shows the general distribution of deposits between two principal age groups.



Fig. 3. Geographic distribution of host rock age groups. Circles are Devonian; squares are Silurian-Devonian; inverted triangles are Ordovician to Silurian; diamonds are Lower Cambrian; inclined squares are Hadrynian; upright triangles are Helikian. Closed symbols indicate location of sphalerite analysed in this study. Open symbols represent occurrences of sphalerite not analysed. The outlined, stippled area denotes the generalized distribution of Ordovician-Devonian host rocks. Cross-section of Fig. 4 is along the heavy line.

TABLE 6: REGIONAL SUMMARY OF EMISSION SPECTROGRAPHIC ANALYTICAL RESULTS (based on 162 sample analyses)

Element	Range (ppm)	Mean (ppm)	Standard Deviation ( $\pm$ ppm)	Percentage of Samples Represented
Antimony	0*- 3000	31**	85**	18
Arsenic	0 - 500	6	47	02
Barium	0 - 1500	28	163	05
Chromium	0 - 20	0.8	2.4	22
Gallium	0 - 400	16	35	79
Strontium	0 - 800	25	110	10
Tin	0 - 100	5	13	36
Titanium	0 - 2500	50	280	57
Vanadium	0 - 30	0.5	3.4	05
Beryllium	} not detected			
Bismuth				
Molybdenum				
Platinum				

\* 0 = not detected; refer to Table 7 for detection limits

\*\* Mean values and standard deviations are calculated using 0 as an analytical result.

TABLE 7: EMISSION ARC SPECTROSCOPY DETECTION LIMITS<sup>1</sup>

Sb - 100 ppm	As - 200 ppm
Ba - 200 ppm	Co - 2 ppm
Cr - 1 ppm	Cu - 1 ppm
Ga - 1 ppm	Mn - 1 ppm
Ni - 2 ppm	Pb - 1 ppm
Ag - 1 ppm	Sr - 100 ppm
Sn - 1 ppm	Ti - 1 ppm
V - 1 ppm	Be - 2 ppm
Bi - 2 ppm	Mo - 2 ppm

Fe - 0.1 wt.% FeO

Pt - no quantitative measure available  
- determinations purely qualitative

<sup>1</sup> Detection limits are determined from lowest values detectable above instrumental interferences at minimum dilution factor.



Sphalerites of the Northern Cordillera, in general, appear to be enriched in copper, lead and mercury, and depleted in iron, relative to sphalerite from other zinc-lead districts in North America (Table 9). Silver-rich sphalerite in veins from Keno Hill, Y.T., 100 to 200 km to the south and west of the carbonate belt, contain notably higher concentrations of most elements relative to the carbonate-hosted sphalerite analyzed in this study (Table 5).

#### CONCLUSIONS

Major conclusions concerning the character of sphalerite mineralization in the carbonate rocks of the Northern Cordillera are:

- 1) zinc-lead deposits can be individually characterized by minor element contents in sphalerite,
- 2) our sphalerite samples contain high copper, lead and mercury concentrations and low iron concentrations relative to other carbonate-hosted zinc-lead districts in North America,
- 3) two distinct populations of zinc-lead deposits, as determined from minor element in sphalerite can be defined; one is relatively 'high', the other, 'low',
- 4) two major age groups of host rocks, separated by a pronounced unconformity and a relatively barren age unit, contain most of the zinc-lead mineralization,
- 5) geographic distribution of minor element populations consistently correlate with the geographic distributions of host rock age groups, and,
- 6) a model of two independent processes of mineralization best explain the characteristics of the sphalerite deposits studied.

The cross-section in Fig. 4 (modified from Aiken et al, 1973; Douglas et al, 1970; and Cecile, 1972) illustrates how deposits occur either above (post Lower Ordovician) the Franklin Mountain Formation (fm) or below it (pre Upper Cambrian). Deposits hosted by the younger carbonate rocks have 'low' concentrations of minor elements and likely were formed from stratifugic (dewatering) solutions originating in the shales of the Selwyn Basin (SB). Deposits hosted by older carbonates generally 1) have 'high' concentrations of minor elements, and 2) occur in an area of abundant unconformities; therefore, karstic processes might be related significantly to formation of this group of deposits. Two metallogenic events, one during Middle to Late Cambrian, and another during Late Devonian or later are proposed. Each of these two events were marked by different ore forming processes that lead to distinctive minor element distributions.

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TABLE 1

GEOGRAPHIC AND GEOLOGIC INFORMATION  
FOR 166 SPECIMENS STUDIED

ID.NO.	NAME	NTS	LAT	LONG	HOST	LITH.	HOST AGE	COMMODITIES
10006002	NEWT	106D11	64.53	135.47	DCLM	BRXX	ORD-SIL	ZN PB
10006003	NEWT	106D11	64.53	135.47	DCLM	BRXX	ORD-SIL	ZN PB
10006005	NEWT	106D11	64.53	135.47	DCLM	BRXX	ORD-SIL	ZN PB
10010001	ECONOMIC	106B06	64.33	131.22	DCLM	(VN)	LOW CAMB	PB ZN
10020004	TART	116B13	64.83	139.83	DCLM	BRXX	HELIKIAN	PB ZN
10022004	WILL	106D07	64.40	134.70	DCLM	BRXX	HELIKIAN	PB ZN CU
10024001	COMINCO A+6	106C10	64.75	132.95	DCLM	BRXX	HADRYNIAN	PB ZN
10024002	COMINCO A+6	106C10	64.75	132.95	DCLM	BRXX	HADRYNIAN	PB ZN
10025001	COMINCO BC+5	106C10	64.70	132.95	DCLM	BRXX	HADRYNIAN	PB ZN
10025004	COMINCO BC+5	106C10	64.70	132.95	DCLM	BRXX	HADRYNIAN	PB ZN
10025006	COMINCO BC+5	106C10	64.70	132.95	DCLM	BRXX	HADRYNIAN	PB ZN
10026001	VUG	116A09	64.57	136.28	DCLM	BRXX	HELIKIAN	ZN PB
10027001	COMINCO 7+D	106C11	64.62	133.25	DCLM	BRXX	HADRYNIAN	PB ZN
10027002	COMINCO 7+D	106C11	64.62	133.25	DCLM	BRXX	HADRYNIAN	PB ZN
10027003	COMINCO 7-D	106C11	64.62	133.25	DCLM	BRXX	HADRYNIAN	PB ZN
10027004	COMINCO 7+D	106C11	64.62	133.25	DCLM	BRXX	HADRYNIAN	PB ZN
10027005	COMINCO 7+D	106C11	64.62	133.25	DCLM	BRXX	HADRYNIAN	PB ZN
10028003	COMINCO 1	106C10	64.58	132.58	DCLM	BRXX	SIL-DEV	PB ZN
10028007	COMINCO 1	106C10	64.58	132.58	DCLM	BRXX	SIL-DEV	PB ZN
10029002	TOPOROWSKI	106C10	64.70	132.65	LIMS	CONG	SIL-DEV	PB ZN
10029004	TOPOROWSKI	106C10	64.70	132.65	LIMS	CONG	SIL-DEV	PB ZN
10029005	TOPOROWSKI	106C10	64.70	132.65	LIMS	CONG	SIL-DEV	PB ZN
10029008	TOPOROWSKI	106C10	64.70	132.65	LIMS	CONG	SIL-DEV	PB ZN
10030001	COMINCO 3	106C05	64.50	133.83	DCLM		HELIKIAN	PB ZN
10032001	CLOE	106E02	65.20	134.70	SHAL	BRXX	HELIKIAN	ZN PB
10033001	GOZ	106C07	64.43	132.55	DCLM	BRXX	LOW CAMB	ZN PB CD AG
10033004	GOZ	106C07	64.43	132.55	DCLM	BRXX	LOW CAMB	ZN PB CD AG
10033005	GOZ	106C07	64.43	132.55	DCLM	BRXX	LOW CAMB	ZN PB CD AG
10033012	GOZ	106C07	64.43	132.55	DCLM	BRXX	LOW CAMB	ZN PB CD AG
10033013	GOZ	106C07	64.43	132.55	DCLM	BRXX	LOW CAMB	ZN PB CD AG
10033014	GOZ	106C07	64.43	132.55	DCLM	BRXX	LOW CAMB	ZN PB CD AG
10033015	GOZ	106C07	64.43	132.55	DCLM	BRXX	LOW CAMB	ZN PB CD AG
10033016	GOZ	106C07	64.43	132.55	DCLM	BRXX	LOW CAMB	ZN PB CD AG
10033017	GOZ	106C07	64.43	132.55	DCLM	BRXX	LOW CAMB	ZN PB CD AG
10033021	GOZ	106C07	64.43	132.55	DCLM	BRXX	LOW CAMB	ZN PB CD AG
10033022	GOZ	106C07	64.43	132.55	DCLM	BRXX	LOW CAMB	ZN PB CD AG
10033023	GOZ	106C07	64.43	132.55	DCLM	BRXX	LOW CAMB	ZN PB CD AG
10033024	GOZ	106C07	64.43	132.55	DCLM	BRXX	LOW CAMB	ZN PB CD AG
10033025	GOZ	106C07	64.43	132.55	DCLM	BRXX	LOW CAMB	ZN PB CD AG
10034001	BIRKELAND	106B04	64.15	131.92	DCLM	BRXX	HADRYNIAN	ZN PB
10034002	BIRKELAND	106B04	64.15	131.92	DCLM	BRXX	HADRYNIAN	ZN PB
10034009	BIRKELAND	106B04	64.15	131.92	DCLM	BRXX	HADRYNIAN	ZN PB
10035001	COMINCO 8	106L06	60.33	135.52	DCLM	BRXX	CAMBRIAN	PB ZN
10035002	COMINCO 8	106L06	60.33	135.52	DCLM	BRXX	CAMBRIAN	PB ZN
10036001	COMINCO 9	106C14	64.97	133.20	DCLM	BRXX	HELIKIAN	PB ZN
10036002	COMINCO 9	106C14	64.97	133.20	DCLM	BRXX	HELIKIAN	PB ZN
10037003	OZ	116B12	64.75	139.75	DCLM	BRXX	HELIKIAN	PB ZN
10037004	OZ	116B12	64.75	139.75	DCLM	BRXX	HELIKIAN	PB ZN
10037020	OZ	116B12	64.75	139.75	DCLM	BRXX	HELIKIAN	PB ZN
10037028	OZ	116B12	64.75	139.75	DCLM	BRXX	HELIKIAN	PB ZN

TABLE 1 cont'd

ID.NO.	NAME	NTS	LAT	LONG	HOST	LITH.	HOST AGE	COMMODITIES
10037030	02	116812	64.75	139.75	DOLM	BRXX	HELIKIAN	PB ZN
10037031	02	116812	64.75	139.75	DOLM	BRXX	HELIKIAN	PB ZN
10037032	02	116812	64.75	139.75	DOLM	BRXX	HELIKIAN	PB ZN
10042001	PROFEIT	106C14	64.82	133.55	DOLM	BRXX	HADRYNIAN	PB ZN AG 9A CJ
10042002	PROFEIT	106C14	64.82	133.55	DOLM	BRXX	HADRYNIAN	PB ZN AG BA CJ
10042003	PROFEIT	106C14	64.82	133.55	DOLM	BRXX	HADRYNIAN	PB ZN AG BA CJ
10042004	PROFEIT	106C14	64.82	133.55	DOLM	BRXX	HADRYNIAN	PB ZN AG BA CJ
10042008	PROFEIT	106C14	64.82	133.55	DOLM	BRXX	HADRYNIAN	PB ZN AG BA CJ
10042009	PROFEIT	106C14	64.82	133.55	DOLM	BRXX	HADRYNIAN	PB ZN AG BA CJ
10042010	PROFEIT	106C14	64.82	133.55	DOLM	BRXX	HADRYNIAN	PB ZN AG BA CJ
10042011	PROFEIT	106C14	64.82	133.55	DOLM	BRXX	HADRYNIAN	PB ZN AG BA CJ
10042015	PROFEIT	106C14	64.82	133.55	DOLM	BRXX	HADRYNIAN	PB ZN AG BA CJ
10042019	PROFEIT	106C14	64.82	133.55	DOLM	BRXX	HADRYNIAN	PB ZN AG BA CJ
10042023	PROFEIT	106C14	64.82	133.55	DOLM	BRXX	HADRYNIAN	PB ZN AG BA CJ
10042027	PROFEIT	106C14	64.82	133.55	DOLM	BRXX	HADRYNIAN	PB ZN AG BA CJ
10042031	PROFEIT	106C14	64.82	133.55	DOLM	BRXX	HADRYNIAN	PB ZN AG BA CJ
10042036	PROFEIT	106C14	64.82	133.55	DOLM	BRXX	HADRYNIAN	PB ZN AG BA CJ
10042040	PROFEIT	106C14	64.82	133.55	DOLM	BRXX	HADRYNIAN	PB ZN AG BA CJ
10042041	PROFEIT	106C14	64.82	133.55	DOLM	BRXX	HADRYNIAN	PB ZN AG BA CJ
10042042	PROFEIT	106C14	64.82	133.55	DOLM	BRXX	HADRYNIAN	PB ZN AG BA CJ
10042043	PROFEIT	106C14	64.82	133.55	DOLM	BRXX	HADRYNIAN	PB ZN AG BA CJ
10043004	FISHING BRCH	116J05E	66.33	139.67	DOLM	BRXX	ORD-SIL	ZN PB
10043005	FISHING BRCH	116J05E	66.33	139.67	DOLM	BRXX	ORD-SIL	ZN PB
10044001	WART	116J03W	66.07	139.47	DOLM	BRXX	ORD-SIL	ZN PB
10045001	AXF	106C10E	64.56	132.58	DOLM		SIL-DEV	ZN PB
10046001	GEB/19/75	106B04E	64.25	131.31	DOLM		CAMBRIAN	PB ZN
10046002	GEB/19/75	106B04E	64.25	131.31	DOLM		LAMBRIAN	PB ZN
10050001	DDO	105013W	63.91	132.00	DOLM	BRXX	HADRYNIAN	ZN
10053001	MT TILICUM	106C02W	64.42	132.86	DOLM	(VN)	HADRYNIAN	ZN PB
20003004	PALM	106A05	64.40	129.80	DOLM		LOW CAMB	ZN PB
20003005	PALM	106A05	64.40	129.80	DOLM		LOW CAMB	ZN PB
20004001	JUDE	106A05	64.37	129.87	DOLM	BRXX	ORD-SIL	ZN PB
20004002	JUDE	106A05	64.37	129.87	DOLM	BRXX	ORD-SIL	ZN PB
20004003	JUDE	106A05	64.37	129.87	DOLM	BRXX	ORD-SIL	ZN PB
20005001	SISCOE	106B01	64.18	130.38	LMST	BRXX	DEVONIAN	ZN PB
20005004	SISCOE	106B01	64.18	130.38	LMST	BRXX	DEVONIAN	ZN PB
20006001	PAM	105P11	63.52	129.12	DOLM	BRXX	LOW CAMB	PB ZN
20006005	PAM	105P11	63.52	129.12	DOLM	BRXX	LOW CAMB	PB ZN
20006004	PAM	105P11	63.52	129.12	DOLM	BRXX	LOW CAMB	PB ZN
20008007	BACKBONE	105P14	63.85	129.17	LMST	BRXX	DEVONIAN	ZN PB 8A
20008009	BACKBONE	105P14	63.85	129.17	LMST	BRXX	DEVONIAN	ZN PB 8A
20009004	WEATHER	105P14	63.97	129.28	DOLM	BRXX	DEVONIAN	ZN PB
20012001	TWITYA	106A03	64.03	129.37	DOLM	BRXX	SIL-DEV	ZN PB AG
20012002	TWITYA	106A03	64.03	129.37	DOLM	BRXX	SIL-DEV	ZN PB AG
20012003	TWITYA	106A03	64.03	129.37	DOLM	BRXX	SIL-DEV	ZN PB AG
20012004	TWITYA	106A03	64.03	129.37	DOLM	BRXX	SIL-DEV	ZN PB AG
20012005	TWITYA	106A03	64.03	129.37	DOLM	BRXX	SIL-DEV	ZN PB AG
20012006	TWITYA	106A03	64.03	129.37	DOLM	BRXX	SIL-DEV	ZN PB AG
20012007	TWITYA	106A03	64.03	129.37	DOLM	BRXX	SIL-DEV	ZN PB AG
20012008	TWITYA	106A03	64.03	129.37	DOLM	BRXX	SIL-DEV	ZN PB AG
20012010	TWITYA	106A03	64.03	129.37	DOLM	BRXX	SIL-DEV	ZN PB AG
20012011	TWITYA	106A03	64.03	129.37	DOLM	BRXX	SIL-DEV	ZN PB AG
20012013	TWITYA	106A03	64.03	129.37	DOLM	BRXX	SIL-DEV	ZN PB AG
20013001	ESSAU	106B15	64.75	130.53	LIMS	BRXX	HADRYNIAN	ZN PB AG
20015004	JIM	106B08	64.48	130.45	DOLM		DEVONIAN	ZN PB AG
20019004	GILDERSLEEVE	106C16	64.98	132.45	DOLM	BRXX	LOW CAMB	ZN PB AG
20020003	MOGUL	106C16	64.98	132.30	DOLM	BRXX	LOW CAMB	ZN PB
20021001	FC CLAIMS	106B08	64.36	130.20	DOLM	BRXX	DEVONIAN	ZN BA PB
20021002	FC CLAIMS	106B08	64.36	130.20	DOLM	BRXX	DEVONIAN	ZN BA PB
20023010	REV	106A03	64.13	129.33	DOLM	(VN)	ORD-SIL	ZN PB

TABLE 1 cont'd

ID.NO.	NAME	NTS	LAT	LONG	HOST	LITH.	HOST AGE	COMMODITIES
20023024	REV	106A03	64.13	129.33	DOLM (VN)	OKD-SIL		ZN PB
20023055	REV	106A03	64.13	129.33	DOLM (VN)	OKD-SIL		ZN PB
20023060	REV	106A03	64.13	129.33	DOLM (VN)	ORD-SIL		ZN PB
20023061	REV	106A03	64.13	129.33	DOLM (VN)	ORD-SIL		ZN PB
20023096	REV	106A03	64.13	129.33	DOLM (VN)	ORD-SIL		ZN PB
20023097	REV	106A03	64.13	129.33	DOLM (VN)	ORD-SIL		ZN PB
20023126	REV	106A03	64.13	129.33	DOLM (VN)	ORD-SIL		ZN PB
20023127	REV	106A03	64.13	129.33	DOLM (VN)	ORD-SIL		ZN PB
20023128	REV	106A03	64.13	129.33	DOLM (VN)	ORD-SIL		ZN PB
20023129	REV	106A03	64.13	129.33	DOLM (VN)	ORD-SIL		ZN PB
20023136	REV	106A03	64.13	129.33	DOLM (VN)	ORD-SIL		ZN PB
20023138	REV	106A03	64.13	129.33	DOLM (VN)	ORD-SIL		ZN PB
20023140	REV	106A03	64.13	129.33	DOLM (VN)	ORD-SIL		ZN PB
20023141	REV	106A03	64.13	129.33	DOLM (VN)	ORD-SIL		ZN PB
20023142	REV	106A03	64.13	129.33	DOLM (VN)	OKD-SIL		ZN PB
20023144	REV	106A03	64.13	129.33	DOLM (VN)	ORD-SIL		ZN PB
20023153	REV	106A03	64.13	129.33	DOLM (VN)	ORD-SIL		ZN PB
20023154	REV	106A03	64.13	129.33	DOLM (VN)	ORD-SIL		ZN PB
20023155	REV	106A03	64.13	129.33	DOLM (VN)	ORD-SIL		ZN PB
20024001	GAYNA	106B15	64.95	130.70	DOLM BRXX	HELIKIAN		ZN CO PB
20024003	GAYNA	106B15	64.95	130.70	DOLM BRXX	HELIKIAN		ZN CO PB
20024005	GAYNA	106B15	64.95	130.70	DOLM BRXX	HELIKIAN		ZN CO PB
20024007	GAYNA	106B15	64.95	130.70	DOLM BRXX	HELIKIAN		ZN CO PB
20024008	GAYNA	106B15	64.95	130.70	DOLM BRXX	HELIKIAN		ZN CO PB
20024011	GAYNA	106B15	64.95	130.70	DOLM BRXX	HELIKIAN		ZN CO PB
20025001	TEGART	106B09	64.53	130.17	DOLM BRXX	OKD-SIL		ZN PB
20025002	TEGART	106B09	64.53	130.17	DOLM BRXX	ORD-SIL		ZN PB
20025003	TEGART	106B09	64.53	130.17	DOLM BRXX	ORD-SIL		ZN PB
20025005	TEGART	106B09	64.53	130.17	DOLM BRXX	ORD-SIL		ZN PB
20025010	TEGART	106B09	64.53	130.17	DOLM BRXX	OKD-SIL		ZN PB
20025011	TEGART	069C9	64.53	130.17	DOLM BRXX	ORD-SIL		ZN PB
20025012	TEGART	06809	64.53	130.17	DOLM BRXX	ORD-SIL		ZN PB
20027003	CLIMAX	105P08	63.35	128.38	DOLM	HADRYNIAN		ZN PB
20027004	CLIMAX	105PC8	63.35	128.38	DOLM	HADRYNIAN		ZN PB
20032001	MNTN RIVER	106BC8E	64.37	129.73	DOLM BRXX	SIL-DEV		ZN PB
20034001	KIND	106AC8	64.37	129.73	DOLM BRXX	ORD-SIL		ZN PB
20034002	KIND	106AC8	64.37	129.73	DOLM BRXX	ORD-SIL		ZN PB
20034003	KIND	106A08	64.37	129.73	DOLM BRXX	ORD-SIL		ZN PB
20034005	KIND	106AC8	64.37	129.73	DOLM BRXX	ORD-SIL		ZN PB
20034011	KIND	106A08	64.37	129.73	DOLM BRXX	ORD-SIL		ZN PB
20035001	SEREM	106BC8E	64.40	130.13	DOLM BRXX	ORD-SIL		ZN PB
20035002	SEREM	106BC8E	64.40	130.13	DOLM BRXX	ORD-SIL		ZN PB
20035003	SEREM	106B08E	64.40	130.13	DOLM BRXX	ORD-SIL		ZN PB
20035006	SEREM	106B08E	64.40	130.13	DOLM BRXX	ORD-SIL		ZN PB
20036001	KWI	106BC9E	64.61	130.03	DOLM BRXX	LOWCAM		ZN PB
20036003	KWI	106BC9E	64.61	130.03	DOLM BRXX	LOWCAM		ZN PB
20036005	KWI	106B09E	64.61	130.03	DOLM BRXX	LOWCAM		ZN PB
20036006	KWI	106B09E	64.61	130.03	DOLM BRXX	LOWCAM		ZN PB
20037001	GJ7/30/75	106BC8E	64.40	130.25	DOLM BRXX	DEVJNIAN		ZN
20037002	GJ7/30/75	106B08E	64.40	130.25	DOLM BRXX	DEVJNIAN		ZN
20038001	GJ7/14/75	106A05W	64.40	129.80	DOLM BRXX	ORD-SIL		ZN
20039001	GUN	105I15E	62.88	128.55	LIMS	CAMBRIAN		ZN BA PB
20040001	GJ7/27/75	106B09E	64.42	130.20	DOLM BRXX	ORD-SIL		PB ZN
20040002	GJ7/27/75	106B09E	64.42	130.20	DOLM BRXX	ORD-SIL		PB ZN
20040003	GJ7/27/75	106B09E	64.42	130.20	DOLM BRXX	ORD-SIL		PB ZN

TABLE 2

ATOMIC ABSORPTION SPECTROGRAPHIC ANALYTICAL RESULTS  
 0 = NOT DETECTED; SEE TABLE 4 FOR DETECTION LIMITS  
 N.D. = NOT DETERMINED

ID.NO.	AG	CD	CO	CU	FE	MN	NI	PR	HG
100060C2	4.7	878	12.6	128	13840	26	0.0	217	3.00
10006003	13.2	1010	15.1	95	13280	26	0.0	3462	0.00
100C6005	3.4	575	10.5	61	10130	71	0.0	55	2.50
10010001	59.4	1110	0.0	10	120	155	0.0	1850	0.02
10020004	32.8	1460	5.4	394	6313	230	0.0	477	N.D.
10C22004	35.6	706	22.1	172	9180	32	0.0	3711	12.50
10024001	10.5	1548	9.7	26	4976	14	0.0	870	0.00
10024002	11.4	1593	0.0	229	1857	34	0.0	987	215.00
10025001	2.5	1785	0.0	15	3642	26	0.0	98	144.00
10C25004	2.6	1688	0.0	67	2004	5	0.0	83	10.50
10C25006	3.0	1740	0.0	56	1530	4	0.0	0	12.50
10026001	45.1	1425	8.4	412	6812	47	0.0	1279	9.00
10C27001	4.1	1584	0.0	164	1311	13	0.0	451	192.50
10027002	6.6	2065	0.0	140	749	11	0.0	132	0.00
10027003	22.6	2123	0.0	157	1245	13	0.0	594	295.00
10C27004	15.7	2359	0.0	222	2076	16	0.0	266	295.00
10027005	19.9	2274	0.0	209	2368	11	0.0	710	292.50
10028003	1.8	3445	0.0	13	1712	0	0.0	255	7.50
10C28007	2.8	4200	0.0	10	496	0	0.0	91	2.20
10029002	2.1	1135	0.0	13	2477	4	0.0	350	N.D.
10029004	10.9	2922	0.0	18	4554	7	9.5	1314	2.00
10029005	16.7	2963	0.0	21	1821	4	16.4	203	0.11
10C29008	0.0	2117	0.0	24	1884	3	0.0	570	0.05
10030001	45.5	172	27.5	513	12140	75	12.0	10750	60.00
10032001	6.8	1100	97.9	92	35870	83	0.0	3979	N.D.
10033001	6.3	1629	0.0	99	1159	7	0.0	218	52.50
10C33004	2.6	1529	0.0	18	1159	0	0.0	61	26.50
10033005	2.3	1226	0.0	21	986	0	0.0	42	26.50
10033012	23.9	1943	0.0	41	1775	8	0.0	839	120.50
10033013	93.3	1680	0.0	343	1848	2	0.0	142	267.00
10033014	295.9	2401	0.0	13	1701	0	0.0	29	0.00
10C33015	0.0	1222	0.0	31	1069	2	0.0	467	40.00
10033016	2.9	1202	0.0	13	1087	5	0.0	640	40.00
10033017	16.0	1612	0.0	123	1322	2	0.0	136	148.00
10033021	2.6	1460	0.0	26	1083	0	0.0	68	46.50
10033022	4.7	1234	0.0	37	1087	3	0.0	38	63.50
10033023	3.6	1515	0.0	18	1159	2	0.0	73	44.50
10033024	0.0	1570	0.0	21	1123	3	0.0	96	38.50
10033025	155.3	1622	0.0	160	1304	0	0.0	0	154.00
10034001	0.0	930	0.0	31	2500	13	0.0	229	10.50
10034002	0.0	930	0.0	13	2645	6	0.0	165	4.00
10C34009	0.0	719	7.3	8	1304	6	0.0	1587	2.00
10035001	15.2	2224	0.0	356	2500	32	0.0	110	3.50
10035002	14.3	2495	0.0	299	2193	57	0.0	87	3.00
10036001	27.4	1200	0.0	571	1739	11	0.0	23	82.50
10036002	28.2	1064	0.0	563	3260	18	0.0	50	0.00
10037003	11.7	2105	0.0	145	2873	103	0.0	177	12.00
10037004	37.6	1140	0.0	389	6654	16	0.0	326	5.00
10037020	32.7	2299	13.6	337	3781	25	0.0	180	N.D.

TABLE 2 cont'd

ID.NO.	AG	CO	CO	CU	FE	MN	NI	PB	HG
10C37028	15.8	1733	18.6	218	5255	46	0.0	95	8.80
10037030	40.3	2613	6.5	555	4234	74	0.0	2307	8.50
10037031	43.0	2375	5.4	524	5028	103	0.0	621	7.50
10037032	40.3	2835	C.C	501	5558	146	9.4	853	8.80
10042001	15.2	1599	0.0	280	2319	58	0.0	347	3.00
10042002	7.1	1815	0.0	335	1890	51	0.0	113	45.50
10042003	5.1	1448	0.0	171	2268	86	0.0	197	67.50
10042004	9.4	1668	0.0	356	1890	49	0.0	95	N.D.
10C42008	40.3	1489	0.0	535	1928	10	0.0	327	103.50
10042009	35.6	1318	0.0	271	2149	102	0.0	659	0.00
10042010	34.3	1439	0.0	73	3629	26	0.0	1601	124.50
10042011	24.2	1470	0.0	62	3478	29	0.0	700	117.70
10042015	13.8	1630	J.C	169	2268	3	0.0	353	135.50
10042019	13.2	1605	0.0	31	2760	14	0.0	99	163.00
10042023	4.5	1069	25.2	210	6578	83	0.0	44	71.00
10042027	14.8	1474	J.C	48	7311	16	0.0	36	8.00
10042031	4.4	1048	26.0	214	5321	51	0.0	21	7.50
10042036	56.6	2388	0.0	219	3062	116	0.0	4975	66.50
10042040	82.8	2827	0.0	317	2220	73	0.0	1307	61.00
10042041	41.2	2355	0.0	188	2794	99	0.0	3049	58.50
10042042	13.7	1231	0.0	45	3292	28	0.0	24	108.50
10042043	2.1	1394	5.4	45	2488	5	0.0	15	62.50
10C43004	0.0	1261	0.0	11	2603	0	0.0	183	2.00
10043005	0.0	1624	J.C	16	1837	3	C.0	116	0.22
10C44001	4.9	1760	0.0	722	4954	22	0.0	309	0.00
10045001	5.2	2676	0.0	29	2526	3	0.0	235	0.81
10046001	6.8	1465	0.0	560	3483	3	0.0	87	17.50
10C46002	22.9	1829	0.0	679	5895	29	0.0	1055	41.00
10050001	0.0	693	J.C	40	1011	15	0.0	473	N.D.
10C53001	4.3	1795	0.0	5	859	8	0.0	37	N.D.
20C03004	0.0	1427	0.0	60	14840	10	0.0	28	2.50
20003005	3.5	2384	0.0	96	401	2	0.0	1230	44.00
20004001	0.0	1138	0.0	8	720	15	0.0	263	0.36
20004002	0.0	1933	0.0	68	635	87	0.0	39	18.00
20004003	0.0	1201	0.0	2183	619	10	0.0	41	N.D.
20005001	0.0	4466	0.0	10	1863	8	0.0	481	N.D.
20C05004	3.7	4586	0.0	110	4174	24	0.0	870	0.00
20006001	2.6	1080	66.9	221	6630	9	0.0	2114	6.20
20006004	5.2	1594	7.0	1663	5935	13	0.0	148	6.50
20006005	2.6	1193	64.0	434	7893	10	0.0	2114	4.90
20C08007	0.0	755	0.0	8	1294	9	0.0	450	N.D.
20C08009	0.0	767	0.0	8	1590	18	0.0	336	0.00
20C09004	0.0	2398	J.C	10	1326	21	0.0	1831	0.49
20012001	0.0	1450	J.C	36	120	17	0.0	60	27.00
20012002	3.5	1560	0.0	29	124	50	0.0	84	0.00
20012003	0.0	1436	0.0	39	92	20	0.0	36	23.50
20012004	0.0	1441	0.0	44	114	14	0.0	24	27.50
20012005	8.7	1223	0.0	73	1042	22	0.0	2814	N.D.
20012006	0.0	1142	0.0	44	177	77	0.0	1230	220.50
20012007	5.5	1377	0.0	99	622	25	C.0	2067	N.D.
20012008	4.4	1385	C.0	110	1546	22	0.0	1132	N.D.
20012010	5.2	1389	0.0	110	1134	19	0.0	4837	12.00
20012011	3.8	1166	51.7	47	725	18	0.0	281	24.00
20C12013	18.3	1166	0.0	241	907	16	0.0	3284	41.00
20013001	3.5	1522	J.C	1732	203	2	0.0	271	N.D.
20015004	9.1	1453	0.0	1837	567	135	0.0	465	N.D.
20019004	5.8	868	0.0	37	1993	22	0.0	103	0.29
20020003	0.0	813	0.0	73	8076	51	0.0	101	N.D.
20021001	7.0	3076	0.0	184	873	51	0.0	368	1.12
20021002	8.8	3076	0.0	168	2096	40	0.0	105	1.83

TABLE 2 cont'd

ID.NO.	AG	CD	CO	CU	FE	MN	NI	PB	HG
20023010	2.6	2242	0.0	21	165	35	0.0	755	0.23
20023024	0.0	2040	0.0	37	175	30	0.0	252	0.23
20023055	0.0	1672	0.0	34	344	15	0.0	103	310.00
20023060	0.0	2555	0.0	18	254	46	0.0	205	3.40
20023061	0.0	2133	0.0	16	241	41	0.0	179	2.40
20023096	3.0	2040	0.0	5	421	53	0.0	463	0.00
20023097	0.0	1933	0.0	21	299	41	0.0	239	0.49
20023126	6.1	2511	0.0	12	411	46	0.0	573	0.00
20023127	0.0	2841	0.0	8	175	35	0.0	59	0.65
20023128	5.2	2841	0.0	131	288	40	0.0	766	0.48
20023129	3.0	2762	0.0	12	270	43	0.0	555	0.47
20023136	0.0	2114	0.0	15	179	36	0.0	303	0.44
20023138	4.9	2800	0.0	12	175	48	0.0	749	0.71
20023140	2.7	2724	0.0	13	259	43	0.0	386	0.54
20023141	0.0	2000	0.0	5	165	36	0.0	463	0.32
20023142	0.0	1945	0.0	6	183	34	0.0	323	0.19
20023144	0.0	2608	0.0	9	286	47	0.0	476	0.44
20023153	1.8	2114	0.0	4	185	36	0.0	760	0.23
20023154	0.0	2365	0.0	4	290	37	0.0	650	0.20
20023155	3.0	2477	0.0	9	458	36	0.0	222	0.61
20024001	50.0	1793	0.0	8	3572	28	0.0	281	2.20
20024003	58.6	1374	0.0	19	2157	36	0.0	793	N.D.
20024005	32.5	1615	0.0	40	1058	24	0.0	146	3.20
20024007	8.2	1574	0.0	525	117	46	0.0	30	0.00
20024008	19.1	1648	0.0	38	340	8	0.0	0	2.50
20024011	16.0	1629	0.0	8	516	19	0.0	62	1.00
20025001	0.0	1618	0.0	73	481	8	0.0	18	0.00
20025002	0.0	1752	0.0	20	340	3	0.0	0	14.50
20025003	1.8	1303	0.0	13	1449	9	0.0	17	18.50
20025005	1.8	1526	0.0	7	2022	8	0.0	0	12.00
20025006	6.1	1400	0.0	26	1988	8	0.0	21	N.D.
20025010	0.0	1416	0.0	26	1693	5	0.0	12	12.50
20025011	1.9	1820	0.0	100	1589	10	0.0	192	22.50
20025012	2.5	1641	0.0	60	1900	5	0.0	36	17.00
20027003	0.0	2099	12.4	18	1071	34	0.0	536	170.00
20027004	0.0	1937	0.0	45	5527	34	0.0	6545	157.00
20032001	69.4	1170	0.0	10	155	142	0.0	1512	2.40
20034001	0.0	1176	0.0	198	726	35	0.0	56	0.00
20034002	0.0	1381	0.0	29	4629	23	0.0	80	9.70
20034003	0.0	1134	0.0	21	5803	10	0.0	28	34.50
20034005	0.0	1584	0.0	50	5372	15	0.0	8	26.00
20034011	5.7	1015	0.0	68	5561	11	0.0	40	26.50
20035001	5.5	1184	0.0	366	290	28	0.0	29	0.00
20035002	0.0	1161	0.0	617	3143	4	0.0	1500	6.50
20035003	0.0	1709	0.0	331	245	22	0.0	0	5.70
20035006	0.0	1528	0.0	210	2487	5	69.9	22	N.D.
20036001	0.0	860	12.4	26	2729	8	0.0	0	4.50
20036003	6.7	1836	13.8	297	12435	5	0.0	36	7.80
20036005	0.0	1872	0.0	97	4421	46	0.0	16	4.00
20036006	0.0	2042	0.0	71	370	4	0.0	22	4.00
20037001	50.6	1964	0.0	281	725	31	0.0	175	0.03
20037002	2.5	1910	0.0	126	2763	10	0.0	20	0.12
20038001	0.0	1176	0.0	152	602	35	0.0	0	11.80
20039001	11.1	1196	0.0	13	6365	49	0.0	71	2.31
20040001	0.0	1682	0.0	21	3521	18	0.0	74	10.00
20040002	0.0	1604	0.0	21	3368	18	0.0	68	10.20
20040003	0.0	9424	0.0	87	406	18	0.0	13	9.20

TABLE 5

EMISSION ARC SPECTROGRAPHIC ANALYTICAL RESULTS  
 (ND) ANALYSES FOR DEPOSITS 10020, 10032, 10050, & 10053  
 0 = NOT DETECTED; SEE TABLE 7 FOR DETECTION LIMITS

ID.NO.	AG	CO	CU	MN	NI	PB	SB	AS	CR	SR	TI	V	BA	GA	SN	FE
10006002	5	40	800	20	8	80	0	0	0	0	0	0	0	2	15	8.0
10006003	15	80	600	30	8	1000	0	0	0	0	0	0	0	2	15	8.0
10006005	8	35	100	70	10	30	0	0	5	0	5	0	0	2	8	8.0
10010001	100	5	0	100	0	3000	0	700	0	0	2500	30	0	40	0	5.0
10020004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
10022004	60	150	600	35	40	3000	200	0	20	0	2500	30	0	40	0	6.0
10024001	15	50	50	35	5	600	100	0	0	0	5	0	0	1	8	3.0
10024002	15	0	1000	40	0	500	0	0	0	0	10	0	0	25	35	1.0
10025001	2	0	40	40	0	40	0	0	2	0	0	0	0	1	0	3.0
10025004	2	0	40	40	0	40	0	0	2	0	0	0	0	0	0	0.5
10025006	2	0	80	5	0	15	0	0	0	0	0	0	0	0	20	0.5
10026001	70	70	750	35	60	1000	0	0	0	0	30	0	0	35	0	5.0
10027001	7	0	1100	10	0	50	0	0	3	0	10	0	0	15	0	0.3
10027002	2	0	900	0	0	15	0	0	0	0	10	0	0	20	5	1.0
10027003	50	0	1000	15	0	100	100	0	0	0	10	0	0	20	15	1.0
10027004	40	0	2000	30	0	800	200	0	0	100	15	0	0	50	30	5.0
10027005	30	0	600	15	0	150	100	0	0	0	3	0	0	30	35	1.0
10028003	4	0	5	3	15	100	0	0	0	0	5	0	0	0	0	1.0
10028007	4	0	0	2	0	50	0	0	2	0	0	0	0	8	0	0.7
10029002	2	0	15	8	0	100	0	0	0	0	1	0	0	0	0	1.0
10029004	15	0	30	15	50	700	100	0	0	0	1	0	0	1	0	3.0
10029005	40	0	40	10	100	100	150	0	4	0	1	0	0	0	0	0.8
10029008	0	0	50	10	50	300	0	0	0	0	5	0	0	1	0	1.0
10030001	20	100	800	25	40	9000	0	500	8	100	20	8	0	0	0	5.0
10032001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
10033001	15	0	700	8	0	100	130	0	0	0	100	0	150	0	0	0.5
10033004	5	0	35	2	2	15	100	0	15	0	0	0	0	1	0	0.5
10033005	5	0	35	1	0	20	0	0	0	0	2	0	0	0	0	1.0
10033012	25	0	75	8	0	120	150	0	0	0	8	0	0	0	0	1.0
10033013	50	0	600	1	0	30	80	0	0	0	0	0	0	15	0	1.0
10033014	100	0	25	1	0	15	0	0	2	0	100	0	0	0	0	2.0
10033015	2	0	0	3	0	200	0	0	0	0	2	0	0	0	0	1.0
10033016	5	0	0	5	0	150	150	0	0	0	5	0	0	1	0	0.5
10033017	15	0	400	1	0	50	180	0	0	0	7	0	0	1	0	1.0
10033021	5	0	50	1	0	30	80	0	0	0	1	0	0	0	0	1.0
10033022	5	0	60	1	0	15	0	0	0	0	2	0	0	0	0	0.5
10033023	2	0	30	3	0	20	0	0	0	0	2	0	0	0	0	1.0
10033024	8	0	40	10	0	60	80	0	0	0	50	0	0	0	0	0.5
10033025	200	0	500	1	0	0	0	0	0	0	0	0	0	0	0	1.0
10034001	1	0	10	20	0	100	0	0	0	0	0	0	0	0	0	2.0
10034002	1	0	20	15	0	75	0	0	3	0	5	0	0	0	0	2.0
10034009	0	10	5	10	0	350	0	0	0	0	2	0	0	0	0	0.5
10035001	30	0	500	35	0	50	0	0	0	0	150	0	0	70	8	1.0
10035002	15	0	500	35	0	35	0	0	0	0	150	0	0	40	8	0.3
10036001	60	0	700	25	0	15	400	0	0	0	5	0	0	40	0	1.0
10036002	80	0	700	50	8	30	750	0	0	0	20	0	0	20	0	3.0
10037003	40	20	600	80	25	100	0	0	0	0	40	0	0	65	0	2.0
10037004	50	30	600	30	25	150	0	0	3	0	750	0	0	30	0	4.0
10037020	100	180	700	40	20	130	150	0	0	100	20	0	0	85	20	3.0

TABLE 5 cont'd

ID.NO.	AG	CO	CU	MN	NI	PB	SB	AS	CR	SR	TI	V	BA	GA	SN	FE
10037028	15	130	60C	30	20	40	0	0	5	130	2	0	0	50	0	2.0
10037J30	35	25	500	40	50	700	C	0	0	0	15	0	0	50	0	2.0
10037J31	40	15	700	60	20	150	0	0	0	0	20	0	0	50	0	3.0
10037032	40	10	700	40	30	200	0	0	0	J	1	0	0	40	0	1.5
10042001	15	0	700	40	0	100	80	0	0	0	5	0	0	50	4	1.0
10042002	10	C	400	40	0	20	80	0	0	0	5	0	0	50	0	0.5
10042003	10	0	200	40	4	50	0	0	0	0	5	0	0	40	10	1.0
10042004	15	0	400	30	0	30	100	0	0	0	8	0	0	50	0	1.0
10042008	25	C	600	10	0	75	200	0	0	J	2	0	0	50	100	0.5
10042009	25	0	300	50	C	150	150	J	0	0	0	0	0	20	50	J.5
10042010	05	0	150	15	0	300	0	0	0	0	3	0	0	8	5	1.0
10042011	35	0	70	10	0	500	0	0	0	0	2	0	0	8	0	1.0
10042015	20	0	300	5	0	80	C	0	0	0	1	0	0	8	0	1.0
10042016	25	0	200	15	C	30	0	0	J	0	2	0	0	2	2	1.0
10042023	18	0	100	10	J	10	0	0	0	0	1	0	0	8	2	3.0
10042027	10	100	300	30	10	20	0	0	0	0	0	0	0	40	2	2.0
10042031	10	150	300	40	10	20	C	0	1	J	0	0	0	40	10	2.0
10042036	50	0	300	40	0	2000	2JC	C	0	0	90	0	0	1	0	1.0
10042040	100	0	300	40	0	800	300	0	1	0	15	0	0	1	0	0.5
10042041	80	0	400	50	0	1200	200	0	J	0	40	0	0	1	0	2.0
10042042	15	0	100	20	0	15	0	0	0	0	0	0	0	0	2	0.2
10042043	3	30	50	2	0	0	C	0	0	J	0	0	0	0	10	1.0
10043004	5	0	30	2	J	80	0	0	J	J	30	0	0	15	0	1.5
10043005	3	0	40	1	0	60	0	0	2	0	15	0	0	25	0	0.8
10044001	4	0	900	20	0	100	0	0	J	0	20	0	0	0	0	J 1.0
10045001	8	0	80	5	40	120	C	C	2	0	10	0	0	0	0	1.0
10046001	15	10	800	5	C	100	0	0	0	0	5	0	0	35	0	3.0
10046002	50	0	700	40	0	1000	20C	C	0	0	20	0	0	5	0	5.0
10050001	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
10053001	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
20003004	0	0	40	10	0	10	0	0	0	0	2	0	0	10	0	5.0
20003005	4	0	500	2	0	700	0	J	2	750	0	0	0	20	10	J.0
20004001	0	J	0	10	0	60	J	J	2	0	0	0	0	0	0	0.2
20004002	3	0	100	60	0	20	0	0	0	0	0	0	0	2	0	0.3
20004003	0	0	4000	15	0	20	0	0	0	0	20	0	0	75	5	1.3
20005001	0	0	10	10	0	250	C	0	0	100	C	2	0	2	20	2.0
20005004	7	0	200	25	0	400	0	J	0	0	0	0	0	8	0	5.0
20006001	3	400	400	20	10	800	C	J	0	0	0	0	0	20	2	5.0
20006004	10	80	1500	15	30	100	0	0	2	150	300	1	0	40	8	4.0
20006005	3	300	400	10	10	800	0	0	0	0	20	0	0	20	2	5.0
20008007	0	0	15	10	0	150	C	0	0	0	10	C	0	2	0	0.5
20008009	0	0	15	10	0	100	0	0	0	0	0	2	0	2	0	0.5
20009004	8	0	15	25	0	500	0	0	0	0	0	0	0	2	5	0.0
20012001	0	0	30	10	0	15	0	0	0	0	0	0	0	5	0	0.0
20012002	10	0	50	30	0	25	C	C	0	0	0	0	0	8	5	0.0
20012003	0	0	70	20	0	15	0	0	0	0	0	0	0	8	5	0.0
20012004	5	0	200	20	0	100	100	0	3	0	80	0	0	0	0	0.3
20012005	15	0	200	20	0	100	100	0	3	J	80	0	0	0	0	0.3
20012006	2	0	150	70	C	700	0	0	0	0	5	0	0	15	0	0.1
20012007	15	J	300	40	0	1000	100	0	0	0	40	0	0	2	0	0.2
20012008	10	0	150	30	0	600	150	0	0	0	30	0	0	2	0	0.5
20012010	15	0	150	30	0	3000	0	0	0	0	30	0	0	2	0	0.5
20012011	15	300	70	15	0	100	C	0	3	0	40	0	0	2	8	0.3
20012013	15	0	20	8	0	700	0	0	0	0	5	0	0	5	10	0.1
20013001	3	0	700	0	0	80	0	0	0	0	0	0	0	30	15	0.0
20015004	10	0	700	50	0	100	0	0	1	100	40	8	0	400	100	0.1
20019004	5	0	40	10	0	40	0	0	0	100	20	0	0	1200	2	0.5
20020003	5	0	60	20	0	40	0	0	0	0	70	0	0	10	0	2.5
20021001	8	0	150	15	0	150	0	0	0	0	5	2	300	15	15	0.2
20021002	8	0	200	25	0	300	0	0	0	0	0	0	0	40	10	1.0

TABLE 5 cont'd

ID.NO.	AG	CO	CU	MN	NI	PB	SB	AS	CR	SR	TI	V	BA	GA	SN	FE
2C023010	2	0	30	15	0	150	0	0	0	0	0	0	0	1	0	0.0
2C023024	2	0	50	10	0	100	0	0	0	0	0	0	0	1	0	0.0
2C023055	2	0	40	15	0	15	0	0	0	0	0	0	0	5	2	0.1
2C023060	3	0	30	30	0	70	0	0	0	100	0	0	300	1	0	0.1
2C023061	5	0	30	40	10	40	0	0	5	0	0	0	0	1	0	0.2
2C023096	2	0	30	30	0	120	0	0	0	0	0	0	0	1	0	0.0
2C023057	2	0	30	30	0	70	0	0	0	100	0	0	0	2	0	0.1
2C023126	0	0	50	30	0	150	0	0	1	300	0	0	0	8	0	0.1
2C023127	0	0	10	30	0	15	0	0	0	0	0	0	0	3	0	0.0
2C023128	10	0	200	30	0	150	0	0	0	0	0	0	0	2	0	0.0
2C023129	10	0	400	30	0	300	0	0	0	0	0	0	10	2	0	0.2
2C023136	2	0	100	20	0	80	0	0	0	0	0	0	0	2	0	0.0
2C023138	5	0	200	10	0	150	0	0	0	100	0	0	0	5	0	0.0
2C023140	5	0	200	30	0	150	0	0	0	800	0	0	600	8	0	0.0
2C023141	3	0	40	30	0	100	0	0	0	0	0	0	0	2	0	0.0
2C023142	3	0	50	40	0	200	0	0	0	0	0	0	0	1	0	0.0
2C023144	5	0	100	50	0	500	0	0	0	100	0	0	0	8	0	0.0
2C023153	10	0	40	50	0	800	0	0	0	0	0	0	0	2	0	0.0
2C023154	3	0	40	15	0	300	0	0	0	0	0	0	200	10	0	0.1
2C023155	10	0	150	30	0	150	0	0	0	200	0	0	0	8	0	1.0
2C024001	60	0	150	25	0	100	0	0	0	0	0	0	0	25	0	1.0
2C024003	60	0	300	20	0	200	0	0	0	0	0	0	0	50	8	0.8
2C024005	50	0	500	20	0	80	0	0	0	0	0	0	0	50	10	0.0
2C024007	15	0	700	40	0	15	0	0	0	0	50	0	1500	2	0	0.0
2C024008	20	0	500	5	0	0	0	0	0	3	0	5	0	10	8	0.3
2C024011	30	0	150	25	0	30	0	0	0	0	0	0	0	10	8	0.3
2C025001	1	0	150	5	0	8	0	0	0	0	0	0	0	10	5	0.0
2C025002	0	0	200	1	0	0	0	0	0	0	0	0	0	15	0	1.0
2C025003	2	0	200	8	0	15	0	0	0	0	0	0	0	0	0	1.5
2C025005	0	0	100	10	0	2	0	0	1	0	0	0	0	0	5	1.5
2C025006	1	0	200	10	0	30	0	0	0	0	8	0	0	5	5	1.5
2C025010	0	0	100	5	0	5	0	0	0	0	50	0	0	2	0	1.0
2C025011	2	0	150	5	0	40	0	0	0	0	0	0	0	8	5	0.3
2C025012	2	0	80	2	0	2	0	0	0	0	0	0	0	5	0	0.3
2C027003	0	80	30	30	3	400	0	0	0	0	2	0	0	3	5	0.8
2C027004	0	0	70	15	0	300	0	0	0	0	15	0	0	3	25	2.0
2C032001	100	0	1	30	0	400	0	0	0	0	0	0	0	0	0	0.0
2C034001	0	0	700	15	0	15	0	0	0	0	30	0	0	40	20	3.5
2C034002	0	0	50	10	3	25	0	0	0	0	0	0	0	5	3	2.0
2C034003	0	0	60	10	0	30	0	0	0	0	0	0	0	7	0	4.0
2C034005	3	0	200	8	5	7	0	0	1	0	0	0	0	2	3	2.5
2C034011	2	0	200	8	0	20	0	0	0	0	0	0	0	8	3	2.0
2C035001	15	0	1000	20	0	10	0	0	0	0	0	0	0	80	5	0.0
2C035002	15	0	500	4	0	400	0	0	3	0	1	0	0	40	0	0.8
2C035003	0	0	600	20	0	8	0	0	0	0	0	0	0	35	30	0.0
2C035006	3	0	600	15	0	15	0	0	0	0	0	0	0	2	0	1.5
2C036001	0	40	30	5	5	2	0	0	1	0	300	0	0	0	0	0.8
2C036003	8	30	500	2	0	10	0	0	0	0	0	0	0	0	0	1.5
2C036005	0	0	500	30	0	15	0	0	1	0	40	0	0	25	3	2.0
2C036006	1	8	400	2	8	10	0	0	0	0	10	0	0	8	3	1.0
2C037001	200	0	500	30	0	100	0	300	8	0	40	0	0	25	5	0.0
2C037002	15	0	400	10	0	10	0	0	2	800	20	0	500	30	0	1.0
2C038001	0	0	500	20	0	0	0	0	0	0	25	0	0	30	15	0.0
2C039001	20	0	25	50	10	40	0	0	8	0	150	0	0	25	0	5.0
2C040001	0	0	40	20	10	20	0	0	0	0	10	0	0	5	15	1.0
2C040002	0	0	30	20	10	10	0	0	0	0	0	0	0	5	0	2.0
2C040003	2	0	750	30	0	3	0	0	0	0	0	0	0	30	0	0.0

TABLE 8

MEAN ATOMIC ABSORPTION ANALYTICAL RESULTS FOR 48 DEPCSITS  
 ID. NO. ENDING IN -999 DENOTES MEAN VALUE HAS BEEN CALCULATED  
 0 = NOT DETECTED; SEE TABLE 4 FOR DETECTION LIMITS  
 N.D. = NOT DETERMINED

ID.NO.	AG	CD	CO	CU	FE	MN	NI	PR	HG
1C006999	7.1	954	12.7	95	12416	41	0.0	1245	1.83
10010001	59.4	1110	0.0	10	120	165	0.0	1850	0.02
10C20004	32.8	1460	5.4	394	6313	230	0.0	477	N.D.
10022004	35.6	706	22.1	172	9180	32	0.0	3711	12.50
10024999	11.0	1770	4.9	128	3416	21	0.0	929	107.00
10025999	2.7	1738	0.0	46	2392	12	0.0	60	55.70
10C26001	45.1	1425	8.4	412	6812	47	0.0	1279	8.00
10C27999	13.8	2081	0.0	184	1550	13	0.0	430	215.00
10028999	2.3	3823	0.0	12	1104	0	0.0	173	4.85
10C29999	7.4	2284	0.0	19	2684	5	6.5	609	0.72
10030001	45.5	172	27.9	513	12140	75	12.0	10750	60.00
10032001	6.8	1100	97.9	92	35870	83	0.0	3879	N.D.
10033999	43.1	1560	0.0	69	1276	2	0.0	204	76.28
10034999	0.0	860	2.4	17	2150	8	0.0	660	5.50
10035999	14.8	2360	0.0	328	2320	45	0.0	99	3.25
10036999	27.8	1132	0.0	567	2500	15	0.0	37	41.25
10037999	31.6	2038	6.3	381	4769	73	1.3	651	8.43
10042999	24.8	1626	3.1	198	3203	50	0.0	775	70.60
10043999	0.0	1443	0.0	14	2220	2	0.0	150	1.11
10044001	4.9	1760	0.0	722	4954	22	0.0	309	0.00
10045001	5.2	2676	0.0	29	2526	3	0.0	235	0.81
10046999	14.9	1647	0.0	620	4689	16	0.0	571	29.25
10050001	0.0	653	0.0	40	1011	15	0.0	472	N.D.
10053001	4.3	1795	0.0	5	859	8	0.0	37	N.D.
20003999	1.8	1906	0.0	78	7620	6	0.0	629	23.25
20004999	0.0	1424	0.0	753	658	37	0.0	114	9.18
20005999	1.8	4526	0.0	60	3018	16	0.0	630	0.00
20006999	3.5	1289	45.9	773	6819	11	0.0	1459	5.86
20008999	0.0	761	0.0	8	1442	14	0.0	393	0.00
20009004	0.0	2393	0.0	10	1326	21	0.0	1831	0.49
20012999	4.5	1340	4.7	79	786	27	0.0	1441	53.64
20013001	3.5	1522	0.0	1732	203	2	0.0	271	N.D.
20015004	9.1	1453	0.0	1837	567	135	0.0	465	N.D.
20C20003	0.0	813	0.0	73	8076	51	0.0	101	N.D.
20019004	5.8	868	0.0	37	1993	22	0.0	103	0.29
20021999	7.1	3076	0.0	176	1485	46	0.0	237	1.47
20023999	1.6	2336	0.0	20	261	39	0.0	425	1.10
20024999	30.7	1606	0.0	166	1293	26	0.0	219	1.78
20025999	1.8	1560	0.0	4	1433	7	0.0	37	13.85
20027999	0.0	2018	6.2	32	3299	34	0.0	3541	163.50
20C32001	69.4	1170	0.0	10	155	142	0.0	1512	2.40
20034999	1.1	1258	0.0	73	4516	19	0.0	42	19.34
20035999	1.4	1396	0.0	381	1541	15	17.5	388	4.06
20C36999	1.7	1653	6.6	123	4989	16	0.0	19	5.07
20037999	26.6	1937	0.0	204	1744	21	0.0	98	0.07
20038001	0.0	1176	0.0	152	602	35	0.0	0	11.80
20039001	11.1	1156	0.0	13	6365	49	0.0	71	2.31
20040999	0.0	4237	0.0	43	2432	18	0.0	52	9.80

TABLE 9

TABULATION OF MEAN ANALYTICAL VALUES OF MINOR ELEMENTS IN SPHALERITE FROM DIFFERENT LOCATIONS AND TYPES OF DEPOSITS

Author	Location	Type of Mineralization	Number of Samples	Ag <sup>1</sup>	Elements									
					Cd	Co	Cu	Fe	Mn	Ni	Pb	Hg	Mean Analytical Value and Standard Deviation (in brackets)	
This paper	Northern Cordillera	Stratabound	166 (48) <sup>2</sup>	13 (30)	1780 (904)	3.3 (12)	172 (312)	2570 (3815)	30 (34)	0.7 (5.7)	644 (1274)	33 (64)		
A) Similar types of mineralization														
Evans et al., 1968	Western Canada	Stratabound	20	-	1800 (769)	-	-	23265 (11040)	353 (266)	-	-	-		
Sangster and Liberty, 1971	Ontario	Stratabound	12	2.0 (1.0)	2205 (470)	<6 (3.8)	5.7 (3.8)	5464 (3320)	19 (6.4)	4.5 (0.6)	80 (100)	-		
Hall and Heyl, 1968	Upper Mississippi Valley District	Stratabound	6	21 (17)	1678 (1321)	15.3 (8.9)	75 (58)	14133 (17150)	48 (55)	<4 (-)	-	-		
"	Illinois-Kentucky Fluorite District	Stratabound	5	5 (6.7)	6860 (4130)	11.2 (10.0)	-	25100 (24115)	6 (8)	-	-	-		
Jolly and Heyl, 1968	Upper Mississippi Valley District	Stratabound	7	-	-	-	-	-	-	-	-	0.36 (0.33)		
"	East Tennessee District	Stratabound	9	-	-	-	-	-	-	-	-	(1.1) (2.2)		
Jonasson and Sangster, 1974	All Canada	Stratabound	(18) <sup>2</sup>	-	-	-	-	-	-	-	-	3.7 (7.5)		
B) Similar location														
Boyle and Jambor, 1963	Yukon	Vein	10	1100 (2060)	8540 (1360)	<10 (-)	1360 (2100)	55080 (31100)	1500 (2430)	<20 (-)	360 (310)	-		
C) Other locations and types of mineralization														
Nash, 1975	Utah	Vein	7	49 (36)	3715 (380)	-	2310 (1120)	26280 (5730)	2186 (1145)	-	600 (650)	-		
Nishiyama, 1974	Japan	Kuroko-type	12	53 (50)	3433 (1926)	6.6 (6)	-	3090 (928)	293 (234)	22 (11)	-	13.8 (15.8)		
Halfon and Rosique, 1976	France	Vein	9	634 (285)	1961 (448)	33 (17)	2445 (555)	-	265 (271)	8.5 (8.5)	-	-		
"	"	Stratiform	"	317 (341)	2264 (527)	13.6 (8)	1528 (637)	-	1307 (1243)	15.6 (10)	1646 (1803)	-		
Rose, 1967	New Mexico, Central Mining District	Variable	130	23.5 (41.5)	1439 (452)	223 (187)	-	-	3700 (2595)	9.5 (7.2)	-	-		
"	Utah, Bingham Mining District	"	57	29 (39)	3415 (625)	2.5 (1.9)	-	-	3610 (1990)	6.7 (9)	-	-		

1. - = not determined; Values of 0 ppm are substituted for non-detected results in mean and standard deviation calculations

2. Number of deposits studied

A Preliminary Report on Hart River (116 A/10)  
- A Proterozoic Massive Sulphide Deposit

By  
J.A. Morin

### INTRODUCTION

In 1966, a conspicuous orange red gossan south of Hart River in the Wernecke Mountains was prospected and staked. The gossan is developed over a stratiform massive sulphide body of Proterozoic age. Subsequent to the discovery of the deposit, Hart River Mines Limited conducted a geological evaluation which included trenching, geological mapping, soil geochemical, magnetic and electromagnetic surveys and surface diamond drilling - all of which culminated in the driving of an adit in 1969 and 1970 and in extensive underground diamond drilling. Due to financial constraints, all work was discontinued in 1971, at which time a deposit of 0.5 to 0.6 million tons grading 0.04 oz/ton Au, 1.45 oz/ton Ag, 1.45% Cu, 0.87% Pb and 3.65% Zn had been proven.

This is a preliminary report which summarizes results gathered from four weeks of field work during summer 1977 and 1978. A more comprehensive report is planned for publication at a later date.

### LOCATION AND ACCESS

The Hart River deposit is located in the Wernecke Mountains at latitude 64°43'N, longitude 136°50'W. It is situated 20 km south of the Hart River on the east side of one of its northerly draining tributaries, 120 km northwest of Mayo and 140 km northeast of Dawson. Access is provided by helicopter, though an airstrip 2 km north of the deposit is serviceable by STOL aircraft. A 103 km winter road connects the property to Mile 49 on the Dempster Highway.

### PREVIOUS GEOLOGICAL INVESTIGATIONS

The first regional geological map of the area was provided by L.H. Green of the Geological Survey of Canada (Green, 1972). He considered the deposit to lie within his Unit 1 assemblage of fine grained clastic sedimentary rocks and dolomite. Subsequent to his work in the area, regional mapping by S.L. Blusson (Personal Communication, 1978) and local mapping by the author has agreed with Green's interpretation and placed the deposit in an argillaceous facies of the Gillespie Lake Group.

Several unpublished company geological reports have been written on the Hart River deposit. The most complete of these are by Usher and Macdonald (1968) and Guardia (1971). In addition, a BSc thesis concerning the geology and petrology of the deposit has been written (Olsson, 1973).

### GENERAL GEOLOGY

In this portion of the Wernecke Mountains, an east-southeast trending sequence of Proterozoic rocks is exposed in a window surrounded by much younger rocks of Lower Paleozoic age. The lenticular window is up to 80 km long and 32 km wide, and consists of two Proterozoic rock packages separated from each other by an angular unconformity - the younger Pinguicula Group and the older Wernecke Supergroup (Delaney, 1978). Numerous sills and dykes of diabase occur within the Wernecke Supergroup assemblage.

### Wernecke Supergroup

The Wernecke Supergroup here consists of a thick succession of argillite, argillaceous dolomite and dolomite which is highly folded and deformed. The argillite sequence outcrops along the north side of the window where its thickness is up to 2,400 m. It consists of typically black, thinly bedded, well cleaved argillite with minor interbedded dolomite.

Structurally overlying the argillite is the Gillespie Lake Group, here represented by flaggy orange weathering argillaceous dolomite that is up to 900 m thick. Minor thin argillite units are interbedded with the dolomite. Of note, are the voluminous diabase dykes and sills which have metamorphosed the adjacent country rock: dolomite to a serpentine-calcite ± talc assemblage and argillite to hornfels. The massive sulphide deposit is situated where the Gillespie Lake Group exhibits a facies change from dolomite to calcareous argillite and black argillite. It is not certain whether the argillaceous facies is stratigraphically near the base or the top of the Group. However, a lead isotope age of 1238±21 Ma (Cumming-Richardson model) or 1288±85 Ma (Stacey-Kramers model) was determined for layered galena from the massive sulphide body (W.D. Sinclair, 1978, Personal Communication).

### Pinguicula Group

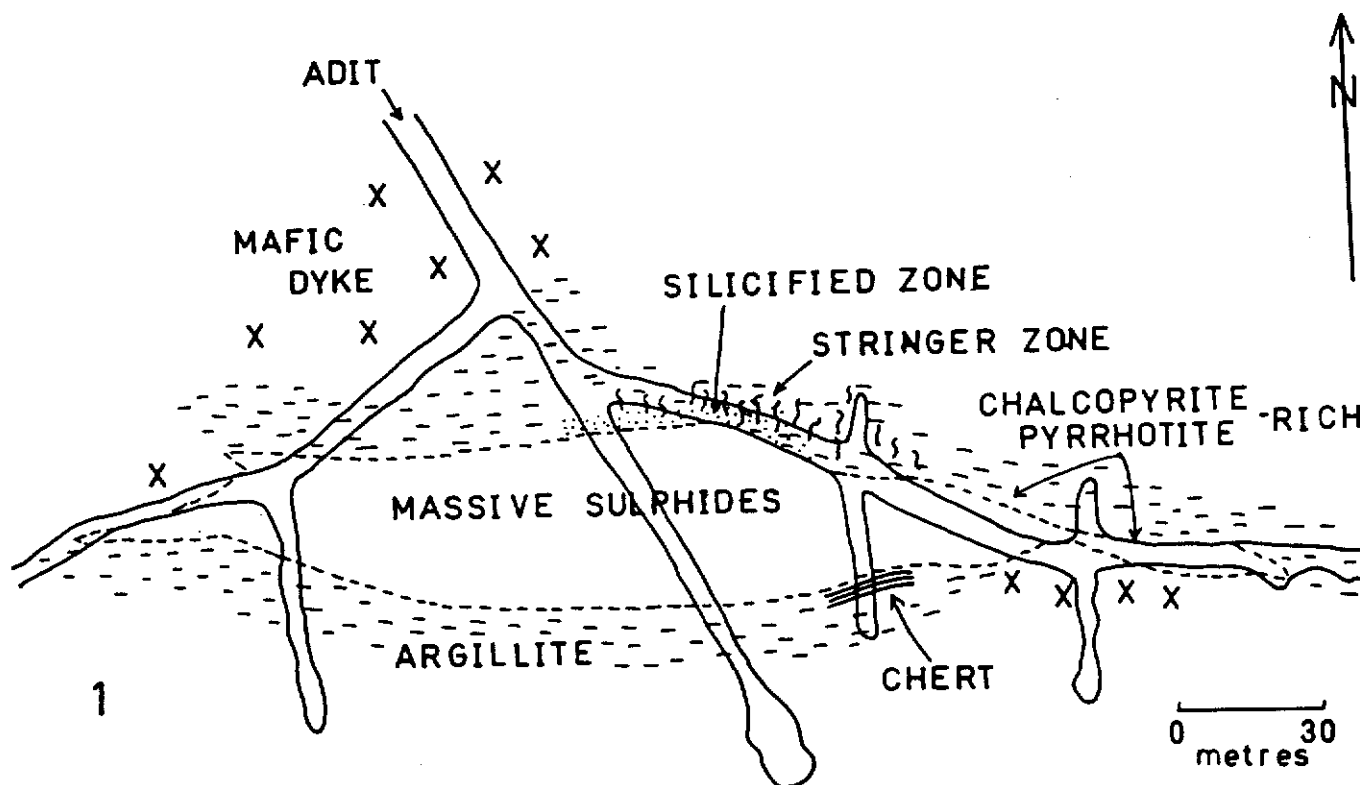
The Pinguicula Group is represented here by a moderately dipping southward facing homoclinal sequence that lies above an angular unconformity cut into the Wernecke Supergroup. It consists of mainly volcanic rocks at the base, carbonate rocks in the middle and clastic rocks near the top.

In the vicinity of the massive sulphide deposit several basalt flows with thin intercalated black argillite horizons occur at the base of the Group. The basalt is dark green, fine-grained, locally porphyritic, and heavily fractured. Dark green to black chlorite forms thin seams along these fractures. Columnar jointing is present in the lowermost flow, immediately above the argillite contact. Pillow structure is common in the upper portion of the topmost flow and consists of gently undulating, tubular masses of dark green basalt with surface bread-crust texture and tension gashes along the top of each pillow. In cross section, the basalt pillows display the typical teardrop shape and indicate the direction of tops is up. A mafic tuff unit, green and maroon argillite, and a thick unit of flaggy, thick-bedded, orange-weathering fine grained dolomite immediately overly the topmost flow in succession. Grey dolomite and limestone cap the orange dolomite and are overlain in succession by a dominantly clastic sequence consisting of black and maroon argillite, orange dolomite, hematitic argillite (maroon at base) and white to grey massive quartzose sandstone, hematitic and maroon coloured at the base. Unconformably capping the quartzite is a thick unit of pale grey fetid Paleozoic limestone.

### MINERALIZATION

The massive sulphide body is completely enclosed in black argillite of the Gillespie Lake Group. It has the shape of a vertical to moderately dipping southward facing tabular pod and has been traced from an elevation of 4,150 feet to 3,700 feet. At the 3,880 foot adit level, it is a lens in plan with m

# HART RIVER - SCHEMATIC GEOLOGY OF 3880 LEVEL



and minor axial dimensions of 124 m and 19 m respectively. On its north side (footwall), it is marked by a zone of silicified argillite and a stockwork of quartz-carbonate (dolomite?) - chalcopryite veinlets and on the south side (hangingwall) by a concordant layered chert-pyrite horizon.

Pyrite and pyrrhotite are the most common sulphide minerals and along with minor amounts of sphalerite, chalcopryite, galena and rare tetrahedrite, form about 90% of the massive sulphide. The latter four are commonly interstitial, the gangue being made up by white dolomite, quartz, calcite and chert. Sulphide layering is common and consists of thin layers ranging from less than 1 mm to 1 cm thick. Pyrite is the main layered sulphide, but locally alternating layers of chalcopryite and pyrrhotite, galena-sphalerite and pyrite, pyrite and sphalerite occur. Pyrite most commonly occurs as coarse, rounded, framboid-like aggregates of fine grained material with a matrix infilling of dolomite-quartz-calcite. Syn-sedimentary intraformational breccia is present consisting of brecciated sulphide layers, chert and argillite.

A crude metal zonation occurs within the deposit - lead and zinc are concentrated in the central and western portion, and copper-gold in the eastern portion. The distribution of the iron sulphides is

such that pyrite is commonest in the central and western portions and pyrrhotite in the eastern portion of the deposit.

## ORIGIN

The deposit is interpreted to be synsedimentary with proximal exhalative features. Evidence for this interpretation is the following:

- 1) sulphide layering conformable with interlayered chert and argillite;
- 2) synsedimentary breccias containing sulphide clasts in a chert or argillite matrix and chert and argillite clasts in a sulphide matrix;
- 3) a vein stockwork below and within a silicified footwall which may indicate the feeder channelway and associated alteration zone respectively;
- 4) a crude zonation with strong chalcopryite-pyrrhotite segregation in the eastern portion of the deposit.

## ACKNOWLEDGMENTS

The author gratefully acknowledges logistical support and cooperation of Jed Chinnek, Cordilleran Engineering. Accommodation at the Hart River Mines site was provided by Alec Briden, North Hart Resources, from whom much confidential data on the property has been acquired. Stimulating discussions about the geology of the Hart River Mines deposit were had with numerous geologists and particular contributions were made by S.L. Blusson, W. Goodfellow and P. Friske. The lead isotope age was calculated by W.D. Sinclair of the Geological Survey of Canada, Ottawa.

## REFERENCES

Blusson, S.L.  
1978: Personal Communication.

Delaney, G.D.  
1978: A progress report on stratigraphic investigations of the lowermost succession of Proterozoic rocks, Northern Wernecke Mountains, Yukon Territory; Dept. of Ind. Aff. and Northern Development, Open File Report EGS 1978-10, 12 pp., plus maps and sections.

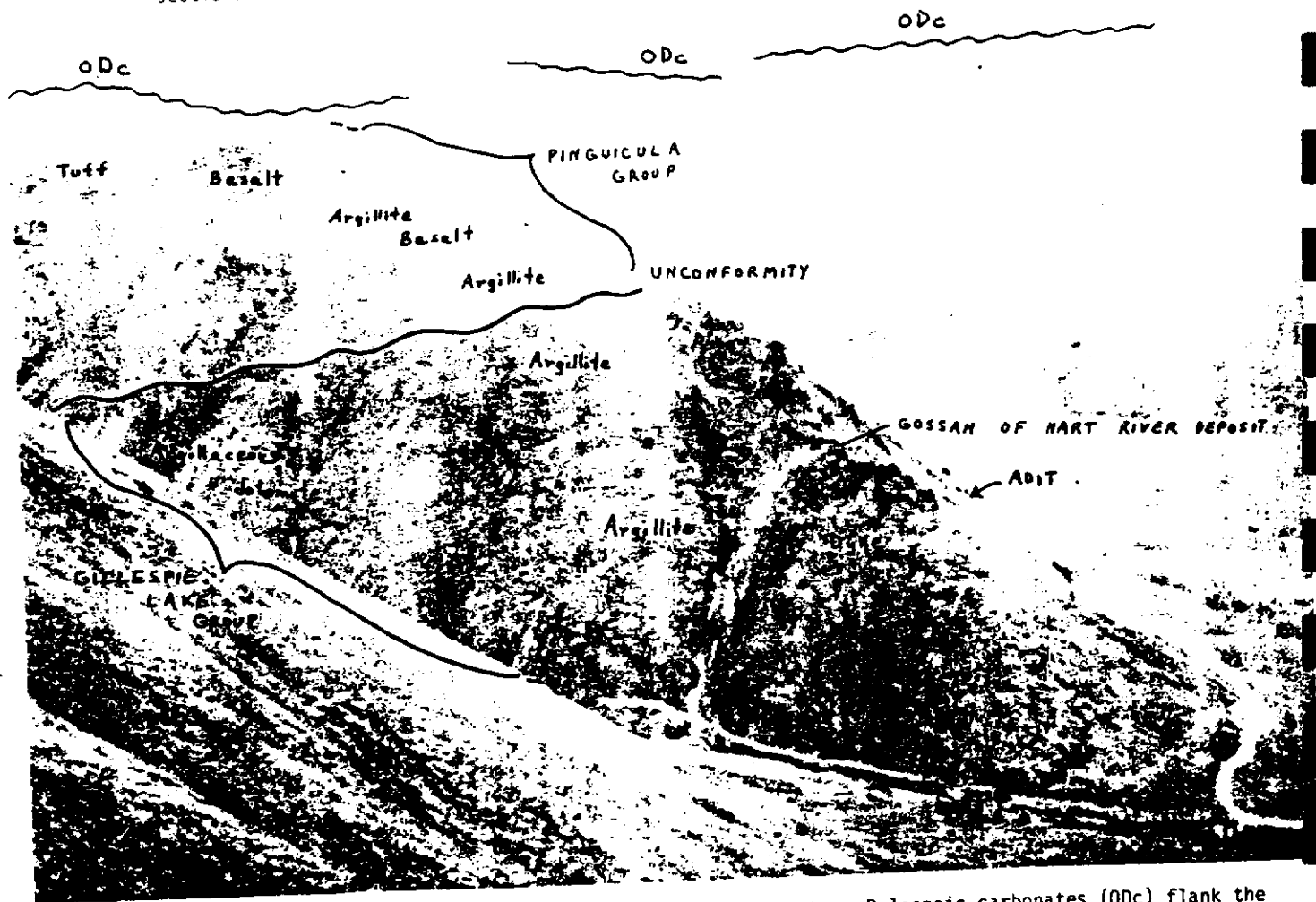
Green, L.H.  
1972: Geology of Nash Creek, Larsen creek and Dawson map-areas, Yukon Territory; Geol. Surv. Can., Mem. 364, 157 pp.

Guardia, F.J.L.  
1971: Report on MARK group claims, Hart River, Yukon Territory; confidential unpublished report for Hart River Mines Limited., 34 pp.

Olsson, W.J.  
1973: The geology and petrology of the MARK claims, Hart River Mines Limited, Yukon Territory; unpublished BSc thesis, Queen's University, 33 pp.

Sinclair, W.D.  
1978: Personal Communication.

Usher, J.L. and Macdonald, A.S.  
1968: The geology of Hart River Mines, Yukon Territory; confidential unpublished report for Hart River Mines Limited, 34 pp.



The general vicinity of the Hart River deposit, looking southwest, where Paleozoic carbonates (ODc) flank the window of Proterozoic rocks.

Rb/Sr ISOCHRON FOR METAVOLCANIC ROCKS  
FROM THE MM DEPOSIT, PELLY MOUNTAINS, Y.T.

MM Claims (MM 1 to 76)                      Zinc, Lead, Silver  
Cyprus Anvil Mining                        105 F 7  
Corporation                                (62°27'N, 132°40'W)

By: Mortensen, J.K., Godwin, C.I. and Armstrong, R.L.  
Department of Geological Sciences  
The University of British Columbia  
Vancouver, B.C. V6T 1W5

References:

Tempelman-Kluit, D.J., Gordey S.P. and Read, B.C.  
1976: Stratigraphic and structural studies in the  
Pelly Mountains, Yukon Territory; in  
Report of Activities, Part A., Geol. Surv.  
Can., Paper 76-1A, pp. 97-106.

Tempelman-Kluit, D.J.  
1977: Open File 486; Geol. Surv. Can.

The MM volcanogenic deposit is located about 58 km south of Ross River, immediately west of Seagull Creek. Access is by helicopter from Ross River or from points along the South Canal Road. A tote road (in generally poor condition) through Seagull Creek Valley and connecting with the South Canal Road at Ground Hog Creek ends approximately 5 km northeast of the claim group.

The MM claims were staked in 1973 by Anvil Mining Corporation Limited to cover a stratiform Zn-Pb occurrence formerly held by Spartan Explorations. Diamond drilling programs have been carried out during the 1973, 1974, 1976 and 1977 field seasons, along with soil geochemistry, geophysics and detailed surface mapping.

The claim group is underlain by a structurally complex sequence of intermediate to felsic metavolcanic rocks with intercalated pelitic and graphitic schists of Mississippian age (Tempelman-Kluit *et al.*, 1976). These rocks are host to stratabound massive sphalerite, galena, pyrite, chalcopyrite and barite lenses. The Mississippian package is overthrust by Lower Devonian platform carbonates and quartzites, and by Lower Cambrian limy phyllites. All units have undergone upper greenschist facies metamorphism.

We sought to obtain a Rb/Sr isochron from a suite of seven samples of intermediate to felsic metavolcanic rocks from the MM property. Sample types are listed in Table 1, along with measured Rb and Sr contents and isotopic ratios. All samples are from units My, Mva and Mv of Mississippian age (Tempelman-Kluit, 1977).

Rb and Sr concentrations were determined by replicate analysis of pressed powder pellets using X-ray fluorescence. U.S. Geological Survey rock standards were used for calibration; mass absorption coefficients were obtained from Mo K $\alpha$  Compton scattering measurements. Rb/Sr ratios have a precision of 2% (1  $\sigma$ ) and concentrations a precision of 5% (1  $\sigma$ ). Sr isotopic composition was measured on unspiked samples prepared using standard ion exchange techniques. The mass spectrometer (60° sector, 30 cm radius, solid source) is of U.S. National Bureau of Standards design, modified by H. Faul. Data acquisition is digitized and automated using a NOVA computer.

Experimental data have been normalized to a  $^{86}\text{Sr}/^{88}\text{Sr}$  ratio of 0.1194 and adjusted so that the NBS standard  $\text{SrCO}_3$  (SRM987) gives a  $^{87}\text{Sr}/^{86}\text{Sr}$  ratio of  $.71022 \pm 2$  and the Eimer and Amend Standard a ratio of  $0.70800 \pm 2$ . The precision of a single  $^{87}\text{Sr}/^{86}\text{Sr}$  ratio is 0.00013 (1  $\sigma$ ). Rb-Sr dates are based on a Rb decay constant of  $1.42 \times 10^{-11} \text{y}^{-1}$ . A computer-calculated line of best fit has been determined using a cubic linear regression method, and is shown in Figure 1.

Samples analysed do not define an isochron (Figure 1). The scatter is much larger than can be explained by analytical error, indicating open system behaviour at some time after deposition. A computed line gives a date of 174 Ma (Middle Jurassic), but the data points are widely scattered. The initial  $^{87}\text{Sr}/^{86}\text{Sr}$  ratio of 0.7240 is above the ratio expected from unaltered volcanic rocks in a geosynclinal setting (0.703 to 0.707). Increase of this ratio is usually a sensitive indicator of isochron resetting by chemical exchange among samples. Large Rb/Sr ratios for the entire suite of samples are favourable for calculation of single sample model dates using an assumed initial ratio. With an assumed initial  $^{87}\text{Sr}/^{86}\text{Sr}$  ratio of 0.705 the model dates range from 202 Ma (Late Triassic) to 452 Ma (Early Ordovician).

The minimum model date (202 Ma) obtained for the sample with highest Rb/Sr ratio (sample: 77-03-1275) is nearly coincident with the postulated date of emplacement of the Anvil-Campbell allochthon (Tempelman-Kluit, 1976). Prior experience has shown such high Rb/Sr samples to be most susceptible to resetting during low grade metamorphism and penetrative deformation.

Present data is not in conflict with a Mississippian age for the volcanic rocks (Tempelman-Kluit, 1976). It is not yet possible to favour any one of the model dates or to recompute a better isochron for an arbitrarily selected subset of the data to give the true age of the suite. Additional analyses are needed of less altered volcanic samples from nearby localities and for samples richer in Sr to better define the initial ratio. Those samples with high Rb/Sr ratios promise success if fresher samples can be found. Even now, however, the computed isochron (174 Ma) can be considered a minimum value for the age of these rocks.

The facilities of the Geochronology Laboratory, Department of Geological Sciences, U.B.C. were used for all geochronometric analyses. Assistance from K.L. Scott was particularly appreciated. Funds for the analyses were provided by the Department of Indian and Northern Affairs.

TABLE 1: DATA FOR WHOLE ROCK METAVOLCANIC SAMPLES FROM THE MM PROPERTY,  
PELLY MOUNTAINS, Y.T.

Sample Number	Description	Sr ppm	Rb ppm	$^{87}\text{Rb}/^{86}\text{Sr}$	$^{87}\text{Sr}/^{86}\text{Sr}$
A-27-A	amygdaloidal andesite	163	21.1	22.48 ±35	0.78910±11
77MM61	andesitic lapilli tuff	153	93.7	4.72 ±1	0.73170±12
C-24	massive andesite	168	46.3	10.550±4	0.75070±13
76-06-225	andesitic tuff	163	56.7	8.63 ±2	0.75880±11
C-22-A	rhyolitic tuff	130	39.9	9.42 ±3	0.74370±14
77-03-1275	rhyolitic tuff	262	22.9	33.37 ±44	0.80070±39
77-03-1022	massive trachyte	150	53.8	8.08 ±2	0.7336 ±35

All analyses done in the Geochronology Laboratory, Department of Geological Sciences, The University of British Columbia. Analytical error quoted is one standard deviation.

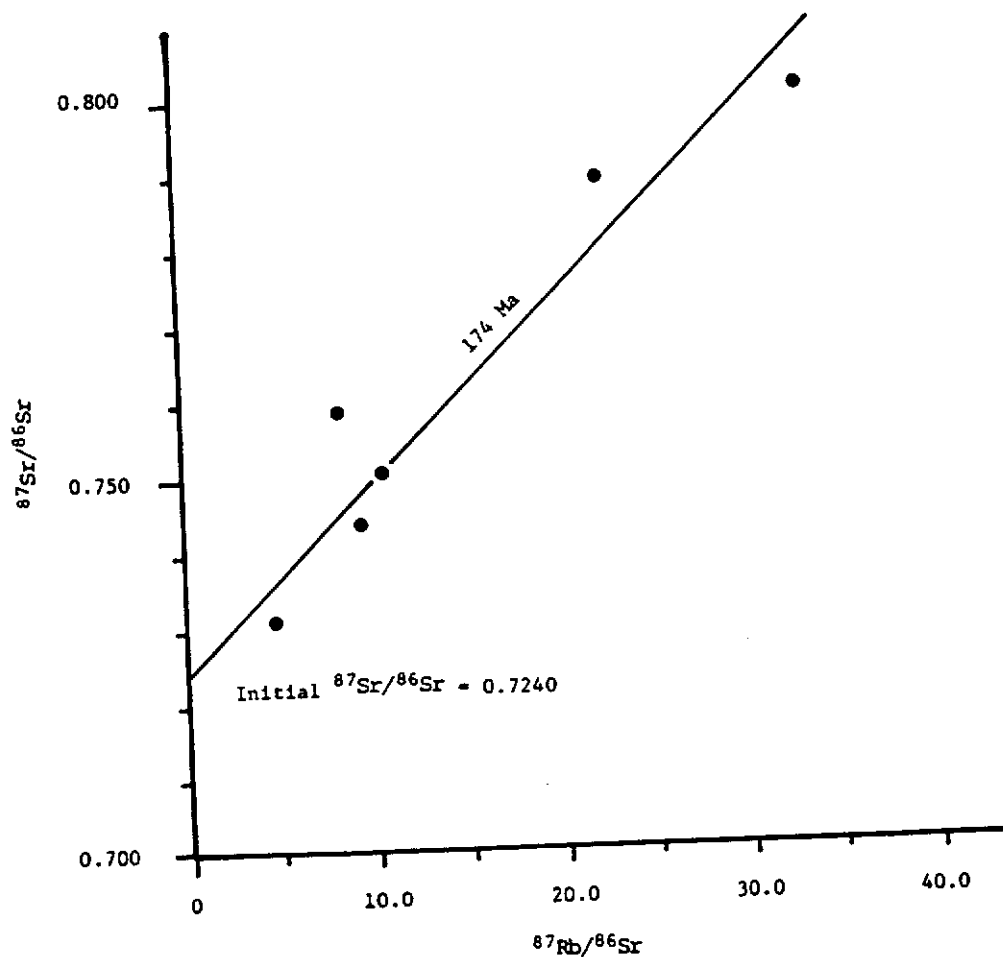


Figure 1. Whole-rock Rb/Sr isochron plot for metavolcanic rocks from the MM property, Pelly Mountains, Y.T.

GEOCHRONOMETRIC STUDY OF A TERTIARY LAMPROPHYRE,  
MACMILLAN PASS, Y.T.

MOONLIGHT Claim Group Lamprophyre sill  
Itsi Joint Venture 105 0 1  
c/o Archer, Cathro and (63°03'N, 130°13'W)  
Associates Limited

By: C. Godwin, J. Harakal, R. Carne and J. Mortensen  
Department of Geological Sciences  
The University of British Columbia  
Vancouver, B.C. V6T 1W5

References:

- Blusson, S.L.  
1974: Open File Report 205; Geol. Surv. Can.
- Cathro, R.J.  
1977: Report on geological mapping and geochemical surveys, MOONLIGHT 1-37 claims; Private report to Itsi Joint Venture by Archer, Cathro and Associates, Ltd., January, 11p.

During 1977 Archer, Cathro and Associates Limited noted a number of conformable or paraconformable sills, at least 30 cm thick, of locally vesicular porphyritic augite-hornblende-biotite lamprophyre. These sills are located about 1 km north of Mile Post 264 (Km 425) on the North Canal Highway about 10 km southwest of Macmillan Pass on the Yukon-N.W.T. border. The sill dated is poorly exposed in scattered outcrop and talus in the basal part of the "Black Clastic Group" the upper member of which is assigned tentatively (Cathro, 1977) to the Lower Mississippian and (?) later Imperial Formation (Blusson, 1974). Intruded rocks consist of vari-coloured shallow water siltstone, silty mudstone and silty shale which grades rapidly upward to deltaic, thick bedded, cross-laminated arkosic sandstone.

Phenocrysts with corroded and altered borders constitute 20 per cent of the rock and, in order of abundance, consist of augite, hornblende, biotite, and minor orthoclase and altered olivine. The matrix consists dominantly of labradorite laths, augite, feldspar, biotite and opaques. Minor epidote, chlorite and accessory apatite also occur in the matrix.

Potassium argon analyses of biotite and hornblende separates from the volcanic rock indicate a concordant Upper Eocene (Table 1: average 40.3 Ma) age. Rubidium strontium isotopic data in Table 2 indicates a  $^{87}\text{Sr}/^{86}\text{Sr}$  ratio of 0.7066. The calculated initial ratio, using a 40.3 Ma age, is 0.7065. This initial ratio is not unreasonable for alkaline igneous rocks in anorogenic settings. Tertiary igneous rocks have not been described previously from this area.

The writers thank T. Brenner, R.J. Cathro and E. Jensen for collecting samples for analysis. The facilities of the Geochronology Laboratory, Department of Geological Sciences, U.B.C., under the direction of R.L. Armstrong were used for all geochronometric analyses. Assistance from K. Scott was particularly helpful. Funds for analysis were provided by the Department of Indian and Northern Affairs.

TABLE 2: Rb-Sr ANALYTICAL DATA FOR TERTIARY LAMPROPHYRE (G77EJ-1) MACMILLAN PASS AREA, Y.T.

Sr ppm	Rb ppm	$^{87}\text{Rb}/^{86}\text{Sr}$	$^{87}\text{Sr}/^{86}\text{Sr}$
1049	51.5	0.141	0.7066 ± 0.0001

Analytical ERROR quoted is one standard deviation.

TABLE 1: K-AR ANALYTICAL DATA FOR TERTIARY LAMPROPHYRE (G77EJ-1) MACMILLAN PASS, Y.T.

Material	%K	$\text{Ar}^{40}_{\text{rad}}/\text{Ar}^{40}_{\text{tot}}$	$\text{Ar}^{40}_{\text{rad}}$ $\times 10^{-5} \text{ ml g}^{-1}$	$\text{Ar}^{40}_{\text{rad}}/\text{K}^{40}$	Calculated Age
Dated					
Biotite	5.92 ± 0.13	37.7%	1.009	2.500 × 10 <sup>-3</sup>	42.2 ± 1.6 Ma Upper Eocene
Hornblende	1.363 ± 0.02	37.6%	0.2213	2.273 × 10 <sup>-3</sup>	38.4 ± 1.4 Ma Upper Eocene

$\lambda_e = 0.585 \times 10^{-10} \text{ yr}^{-1}$ ;  $\lambda_b = 4.72 \times 10^{-10} \text{ yr}^{-1}$ ;  $^{40}\text{K}/\text{K} = 1.19 \times 10^{-4}$  atom ratio.

Errors quoted for Calculated Age represent one standard deviation.  
All analyses were done in the Geochronology Laboratory, Department of Geological Sciences, The University of British Columbia.

PROVISIONAL Rb/Sr DATES:  
CASH PORPHYRY COPPER MOLYBDENUM PROPERTY Y.T.

FOX, BEAR, CAR Claim Group  
Klotassin Joint Venture  
c/o Archer, Cathro and  
Associates Limited

Copper  
115 I 6  
(62°25'N, 137°36'W)

By: C. Godwin and J. Mortensen  
Department of Geological Sciences  
The University of British Columbia  
Vancouver, B.C. V6T 1W5

References:

- Jensen, M.  
1975: The CASH: A new copper-molybdenum porphyry target in the Dawson Range, Yukon Territory: unpub. B.A.Sc. thesis, University of B.C., 36 p.
- Cathro, R.J., Sinclair, W.D. and Jensen, E.M.  
1978: The CASH copper-molybdenum porphyry deposit, Dawson Range, Y.T.; in preparation.
- Tempelman-Kluit, D.J. and Wanless, R.K.  
1975: Potassium-Argon age determinations of metamorphic and plutonic rocks in the Yukon Crystalline Terrane; Can. Jour. E. Sci., v. 12, n. 11, pp. 1895-1909.

The CASH porphyry copper-molybdenum deposit is situated in the Dawson Range, Y.T. Ages and sample descriptions of three samples of drill core from the property are presented in Table 1.

Field relationships defined by Jensen (1975), and Cathro et al. (in preparation) show that the sample from drill hole W9 (240 ft.) is from batholithic, foliated granodiorite of possible Jurassic age (circa 165 Ma) (c.f. Tempelman-Kluit and Wanless, 1975). Samples K1 (260 ft.) and K3 (240 ft.), from drill holes located about 2 km northeast of hole W9, are from small, nonfoliated quartz monzonite stocks which are intrusive into rocks of the Yukon Metamorphic Complex. This quartz monzonite is thought (Cathro et al., *ibid.*) to be younger than the granodiorite.

Only tentative conclusions can be obtained from the data in Table 1 which is illustrated in Figure 1. The three samples do not appear to form a single isochron. The two samples of quartz monzonite taken together indicate a mid-Cretaceous age of about 105 Ma and an initial ratio ( $^{87}\text{Sr}/^{86}\text{Sr}$ ) of about 0.7048. Foliated granodiorite (W9) appears to represent an older granitic body. If the 0.7048 initial ratio is used to define an isochron through W9 a Middle Jurassic age of 165 Ma is indicated; this is in good agreement with Tempelman-Kluit and Wanless (*ibid.*). Additional analyses would be desirable.

The writers thank R.J. Cathro, M. Phillips and E. Jensen for collecting samples for analysis. The facilities of the Geochronology Laboratory, Department of Geological Sciences, U.B.C., under the direction of R.L. Armstrong were used for all geochronometric analyses. Assistance from K.L. Scott was particularly appreciated. Funds for analysis were provided by the Department of Indian and Northern Affairs.

TABLE 1: ANALYTICAL DATA FROM CASH PROPERTY, Y.T.

Sample	Depth ft.	Sr ppm	Rb ppm	$^{87}\text{Rb}/^{86}\text{Sr}$	$^{87}\text{Sr}/^{86}\text{Sr}$
G77CH-K1	260	441	116	0.765	0.70590±39
G77CH-K3	240	275	257	2.70	0.70880±15
G77CH-W9	240	353	102	0.838	0.70760±14

- G77CH-K1 - Lat. 62°26'N, Long. 137°37'W - Medium grained quartz monzonite porphyry.
- G77CH-K3 - Lat. 62°26'N, Long. 137°37'W - Very fine grained quartz monzonite porphyry.
- G77CH-W9 - Lat. 62°26'N, Long. 137°38.5'W - Foliated, medium grained granodiorite.

All analyses done in the Geochronology Laboratory, Department of Geological Sciences, The University of British Columbia. Analytical error quoted is one standard deviation.

Analytical technique and standardization are described in the paper on MM property (this volume).

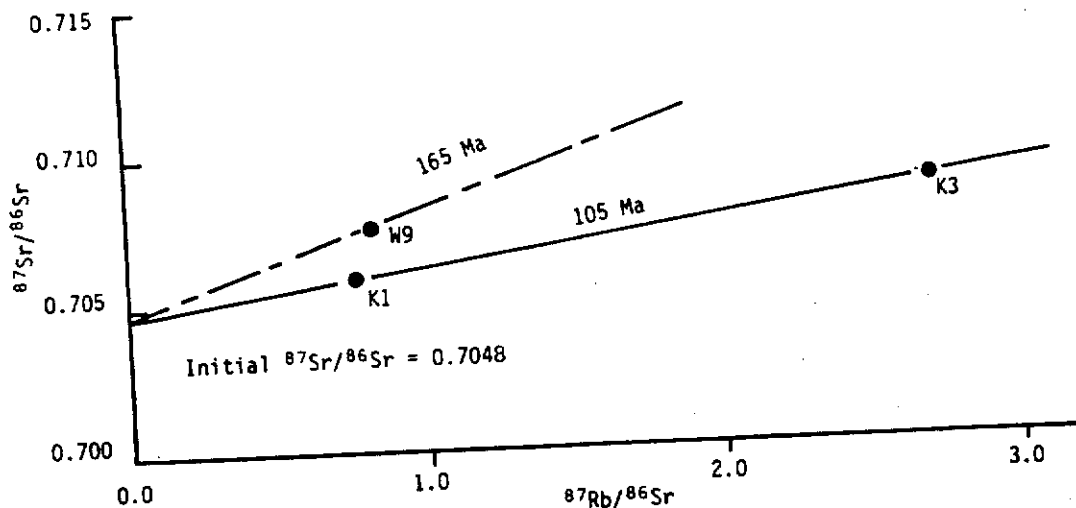
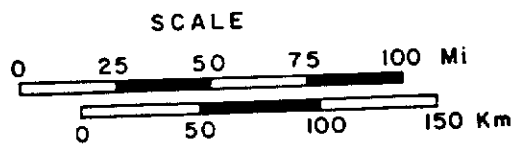
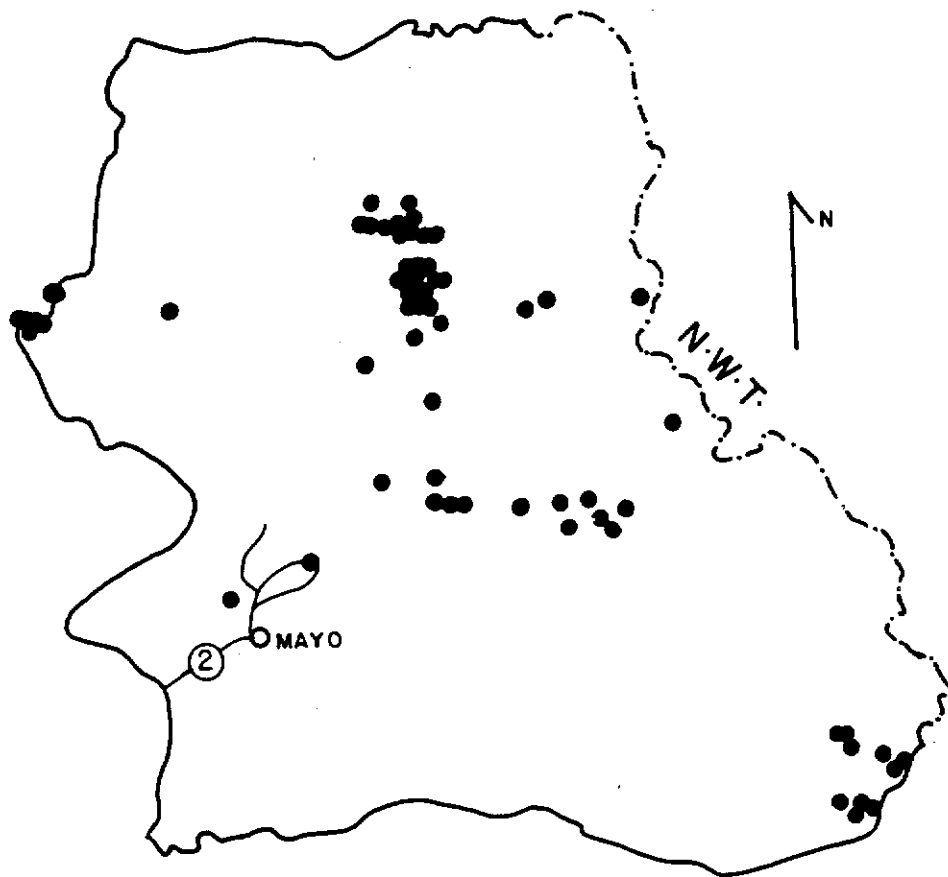


Figure 1. Plot of  $^{87}\text{Sr}/^{86}\text{Sr}$  vs.  $^{87}\text{Rb}/^{86}\text{Sr}$  for whole rock samples from CASH property.

# MAYO MINING DISTRICT



JOUMBIRA  
CCH Resources Limited

Tin  
105 M 13  
(63°51'N, 135°49'W)

References: Boyle (1965); Gleeson (1966, 1967).

Claims: JOUMBIRA 1-16

Location and Access:

The claims are located on the southeast slope of Mount Haldane, 30 km north of Mayo and 18 km southwest of Elsa.

History:

The claims JOUMBIRA 1 to 6 were staked in June 1977 and 7 to 16 in July 1977.

Description:

The property is underlain by the Keno Hill Quartzite Formation which has been intruded by lenses and sills of mafic 'greenstone' and thin granite and biotite-quartz porphyry dykes. Mineralization consists of arsenopyrite and minor cassiterite associated with fractures in quartzite and a greisen contact zone next to a granitic dyke.

Current Work and Results:

During summer 1977, prospecting and stream sediment geochemical sampling programs were conducted. Samples were analysed for Cu, Pb, Mo, Ag, Zn, As, W and Sn, and anomalous values in all these elements were reported.

\*\*\*\*\*

United Keno Hill  
Mines Limited

Silver, Lead, Zinc,  
Cadmium  
105 M 13, 14  
(about 63°55'N,  
135°29'W)

Selected References: Boyle (1957; 1965; 1968); Green and McTaggart (1960); Green (1966, pp. 10-17); Gleeson (1966; 1967); Findlay (1967, pp. 18-21; 1969a, pp. 20-24; 1969b, pp. 10-12); Tempelman-Kluit (1970); Craig and Laporte (1972, pp. 11-13); Craig and Milner (1975, pp. 28-29); Sinclair and Gilbert (1975, pp. 9-11); Sinclair *et al* (1975, pp. 10-12; 1976, pp. 23-25); Morin *et al* (1977, pp. 108-110); Blusson (1978).

Claims: 493 claims

Location and Access:

The properties situated mainly on Keno Hill and Galena Hill, are readily accessible by an all-weather road from Mayo, 52 km to the south. Ore concentrates are trucked 477 km to Whitehorse, then transferred to the White Pass and Yukon Route and shipped by rail to Skagway.

History:

Silver-bearing galena was first discovered on Galena Creek in 1906 and small tonnages of high-grade ore were shipped from 1913 to 1919. Following the discovery of the No. 9 vein by Louis Beauvette in 1919, which resulted in a stampede, numerous important prospects were located. Since then there has been almost continuous production from veins in the area, except for the period 1942 to 1946.

Description:

The area is underlain by graphitic and sericitic schist, phyllite and quartzite which have been divided into three units: a lower schist, a central quartzite, and an upper schist (Units 1, 2 and 3, Boyle, 1965). The age of the lower schist and central quartzite has been much debated. Formerly, they were considered to be Jurassic and Lower Cretaceous respectively, based on stratigraphic correlations (Tempelman-Kluit, 1970). However, recent work by Blusson (1978) demonstrates on the basis of lithological and structural similarities that the rocks are probably of Late Paleozoic age and may correlate with the Canol and Imperial Formations. The age of the upper schist is uncertain. Metadiorite and metagabbro, locally referred to as "greenstone", occurs as conformable lenses and sills in the lower schist and central quartzite. Granitic stocks of Cretaceous age outcrop northwest and southeast of Galena and Keno Hills and related quartz-feldspar porphyry dykes are present locally throughout the area.

The metasediments form the southern limb of a large, open anticline and dip gently to the southeast. There are two systems of steeply-dipping faults, one trending northeast and the other northwest.

The ore deposits consist of veins developed in dilatant zones in northeast-trending faults cutting thick-bedded quartzite and greenstone. The principal ore minerals are galena, sphalerite and freibergite. Gangue minerals include siderite and pyrite.

Current Work and Results:

In 1977, United Keno Hill Mines Limited operated five underground mines and two open pits in the Keno-Galena Hills area with a total production of 91,486 tons of ore averaging 35.49 ounces silver per ton, 4.57 per cent lead and 1.12 per cent zinc. Development work for 1977 is summarized below:

The following discussion of individual mine performance and summary of operations is extracted from the 1977 Annual Report of United Keno Hill Mines Limited:

Elsa Mine

Only minor development work was done in 1977 with the bulk of the remaining reserves being concentrated in one stope off the 200 level. All ore from this stope was being stockpiled at year end pending a decision on rehabilitating the cyanide section of the concentrator.

No Cash Mine

There were 871 feet of drifting and 905 feet of diamond drilling completed in 1977 resulting in the development of one additional stoping area.

Dixie Mine

Both active stopes at Dixie produced low silver, high zinc ore intermittently in 1977. Reserves were near exhaustion at year end.

Keno Mine

This mine produced 31% of the underground ore and 26% of the silver in 1977 with the bulk of production coming from the 18 vein. Lateral development totalled 1,046 feet and diamond drilling 2,137 feet. Drifting to the north on the 18 vein on 400 level encountered two ore shoots. The down dip extension of these shoots will be tested by a 1,400 foot extension of the 700 level adit.

## Husky Mine

The Husky operation contributed 42% of the underground tonnage and 52% of the silver production during 1977. A decline has been sunk to 455 level some 80 feet below the lowest level serviced by the shaft. This will permit development of a modest tonnage of high grade ore.

In 1977, 5,124 feet of diamond drilling was completed mostly to investigate downward extensions of the 1 and 2 veins. No major ore zones were discovered.

### Porcupine Pit

A small open pit was developed and 3,600 tons was mined out on the Porcupine vein.

The overburden drilling program resulted in the discovery of two small zones within the Keno system of veins. These will be mined from the Keno Mine. Considerable fill-in drilling was done on the Black Cap vein in order to permit better evaluation of the proposed open pit.

An extensive surface diamond drilling program was undertaken in 1977 and resulted in a potential ore zone of limited tonnage on the Ruby vein. A 2,500 foot adit has been started to investigate this zone. A high grade intersection on the Tick vein encountered late in the season will require more work during the 1978 season.

### SUMMARY OF OPERATIONS

	1977	1976	1975
Tons Milled	91,486	75,515	90,860
Daily Average (tons)	251	239*	249
Mill Heads:			
Silver (oz/ton)	35.49	35.49	34.96
Lead (%)	4.57	4.02	4.03
Zinc (%)	1.12	1.17	1.15
Metal Production:			
Silver (oz/ton)	2,784,000	2,369,770	2,917,920
Lead (lb)	5,911,000	4,909,101	6,407,368
Zinc (lb)	451,000	621,945	620,763
Cadmium (lb)	-	8,394	8,758
Metal Sales:	\$16,859,715	\$12,070,299	\$15,696,435
Ore Reserves (tons)	59,133	100,977	121,737
Silver (oz/tons)	39.0	41.2	39.3
Lead (%)	5.0	4.8	4.7
Zinc (%)	1.1	1.3	1.1

\*Adjusted for strike of 49 calendar days.

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JASON  
Ogilvie Joint Venture

Zinc, Lead, Barite  
105 0 1  
(63°10'N, 130°10'W)

Reference: Blusson (1974a); Carne (1976);  
Sinclair et al (1976, p. 28); Morin et al  
(1977, p. 114).

Claims: JASON; MIKE; ACE: total of 234 claims

### Location and access:

The claims are located about 16 km southwest of Macmillan Pass, about 209 km east of Ross River along the North Canol Road. Access is by vehicle along the Canol Road or by wheeled fixed-wing aircraft to an airstrip immediately north of the claim group.

### History:

The claims JASON 1-44 were recorded in August 1974 by Ogilvie Joint Venture, a consortium of Brinex, Mitsubishi and Ventures West. In July 1975, JASON 45-48 were recorded, as were also JASON 49-82, 84, 85-134, 141-160 in August 1975. JASON 135-136, 138-140 were recorded in March 1976; 161-176 in November 1975 and MIKE 1-2 in June 1976. Property work conducted in 1975 led to exploratory diamond drilling of seven holes for a total of 2,100 feet in October 1975 (Carne, 1976). In 1976, detailed geological mapping, geochemical soil sampling, geophysical and diamond drilling programs were conducted (total footage of 7,095 feet).

### Description:

The property is underlain by argillite of the Ordovician-Silurian Road River Formation and argillite, conglomerate, black shale and siltstone of Devonian-Mississippian age. A horizon consisting of bedded and spotty barite with associated lead-zinc mineralization occurs within the black shale unit at the same stratigraphic horizon as on the adjacent TOM property to the east. A more detailed account of the geology and mineralization is given in Carne (1976).

### Current Work and Results:

During summer 1977, detailed geological mapping (1:3,000) and gravity survey programs were conducted over the JASON claims. The diamond drilling program consisted of 6 holes with HQ core for a total footage of 4,609 feet. In addition, a rotary drilling program was conducted consisting of 82 holes with 4 1/4" bore for a total footage of 4,040 feet and 1 hole with 6 1/4" bore for a total footage of 547 feet.

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GARY  
Ogilvie Joint Venture

Barite  
105 0 1  
(63°04'N, 130°15'W)

References: Blusson (1974a); Carne (1976); Morin et al (1977, pp. 115-116).

Claims: GARY 1-3, 5-11, 13-21, 23, 25-27, 58, 63-75;  
NET 1, 58 Fr, 59 Fr, 60 Fr, 61 Fr, 77, 78, 80

### Location and Access:

The claims straddle the North Canol Road about 24 km south-southwest of Macmillan Pass. Access is provided by vehicle on the North canol Road.

### History:

The GARY 1-38 claims were staked in August 1974 to cover the probable extension of bedded barite that outcrops on the MOOSE claims. In 1974, a geochemical soil sampling program turned up some zinc anomalies. These anomalies were more accurately defined in 1975 by further soil sampling and a gravity survey. Additional prospecting located bedded barite on the north end of the property and claims GARY 58, 63-75 were staked and recorded in July 1975. Geological mapping (1:4,800) and geochemical soil sampling were conducted in 1976. The NET claims were staked in 1977 to secure ground within the GARY claim group that was cut by the boundary (North Canol Road) between the Mayo Mining District and the Watson Lake Mining District. The GARY, NET claim group is bounded to the west by the BASIN, FETCH claims and to the south by the MOOSE claims. In 1977, work was carried out by Cordilleran Engineering Limited for the Ogilvie Joint Venture whose claims are held in trust by British Newfoundland Exploration Limited.

### Description:

The area is largely covered by overburden, but the exposed outcrop indicates that clastic sedimentary rocks of the Road River and Besa River Formations underlie it. Carne (1976) provides a more detailed account of Besa River lithology. A stock of Cretaceous granodiorite to the east is intrusive to the sequence.

Mineralization consists of shale hosted bedded barite exposed in two showings in the northern part of the claim group. Bedded barite occurs in the GARY 67, 63 area and MOOSE 1-4, NET 88 Fr area. Detailed geological mapping indicates that the bedded barite sequences are not stratigraphically equivalent and that very similar depositional environments must have occurred at different periods in the Devonian-Mississippian sequence. No visible lead or zinc mineralization was encountered.

### Current Work and Results:

During summer 1977, detailed geological mapping (1:6,000), geochemical soil sampling and ground electromagnetic survey programs were conducted. Soil samples were collected at 200 foot intervals along lines spaced 500 feet apart and analyzed for lead, zinc and barium. Several zones anomalous in barium were determined which probably represent on strike extensions of outcropping barite. In the east portion of the property, a northward trending zone strongly anomalous in zinc was determined along strike of an anomalous barium zone. In general, lead values determined were low. The ground electromagnetic survey was conducted over 19.6 miles of grid line and a coil spacing of 400 feet and frequencies of 222 and 1777 Hz were used. Consulting geologists recommended further work to consist of detailed geochemical soil sampling over the anomalous zinc zone.

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MOONLIGHT 105 0 1  
Itsi Joint Venture (63°03'N, 130°13'W)

References: Blusson (1974a); Carne (1976).

Claims: MOONLIGHT 1-37

### Location and Access:

The property straddles the Canol Road in an east-west direction, 13 km south of MacMillan Pass airstrip. Access is provided by vehicle along the Canol Road from Ross River, 214 km to the southwest or by aircraft to the MacMillan Pass airstrip or to Jeff Lake, 8 km by road to the southwest.

### History:

The claims were staked by Itsi Joint Venture (Union Oil Company of Canada Limited, Aquitaine Company of Canada Limited and St. Joseph Exploration Limited) in July and September 1976 to cover a hydro-geochemical anomaly derived from the lower portion of the Canol Formation shale. The program was managed by Archer, Cathro and Associates Limited.

### Description:

The property is underlain by fine clastic rocks of Middle Devonian to Mississippian age, ie the Canol Formation and the Imperial Formation (for description, see Carne, 1976). In addition, a 6 m thick amygdaloidal sill or dyke that is intrusive into the lower portion of the Imperial Formation has recently been dated by C.I. Godwin (U.B.C.) as about 40 m yr (Upper Eocene).

### Current Work and Results:

During summer 1977, reconnaissance geological mapping was performed and a total of 105 rock, soil and silt samples and 101 water samples were collected. Samples were analyzed for a wide variety of metals, including pH and SO<sub>4</sub> for the water samples. A strong water anomaly in SO<sub>4</sub>, Zn, Pb, Mn, F and Fe was obtained that is difficult to interpret due to the complete lack of case history data and the somewhat experimental nature of the sampling. However, one of the possibilities is that the anomaly is derived from a bedded barite zone with some sphalerite and galena content at shallow to moderate depth. In 1977, a test EM line was run across the geochemical anomaly with a Max-Min II unit to determine if the method could be used to distinguish sulphide conductors from the background effect due to graphitic shale. A strong conductor was found coincident with the geochemical anomaly.

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ESS 105 0 1  
Itsi Joint Venture (63°05'N, 130°18'W)

References: Blusson (1974a); Carne (1976).

Claims: ESS 1-48

### Location and Access:

The claims are located in the Hess Mountains 165 km northeast of Ross River and 9 km southwest of the MacMillan Pass airstrip. Access is provided by helicopter from the airstrip.

### History:

The claims were staked in February 1977 by the Itsi Joint Venture (Union Oil Company of Canada Limited, Aquitaine Company of Canada Limited and St. Joseph Exploration Limited) managed by Archer, Cathro and Associates.

### Description:

The property is underlain by clastic sedimentary rocks of the Middle Devonian to Mississippian Canol and Imperial Formations typical of the MacMillan Pass area (Carne, 1976). Mineralization consists of finely disseminated grains and thin bands of pyrite parallel to bedding within black phyllitic shale of the Canol Formation. In addition, one 10 cm thick bed of massive finely bedded pyrite was also found. Horizons of black, carbonaceous shale and fetid limestone occur in proximity to the massive pyrite horizon. The pyrite mineralization is exposed in one of the few unleached shale outcrops in the area - a shallow bedrock canyon along Hess Creek.

### Current Work and Results:

During summer 1977, geological mapping (1 inch = 1/2 mile), reconnaissance prospecting, soil, stream sediment and water geochemical sampling and a test electromagnetic survey using a Max-Min II unit were conducted. A representative grab sample of the massive pyrite bed assayed 10 ppm Cu, 10 ppm Pb, and 40 ppm Zn. A total of 49 soil samples and 33 stream sediment samples were collected and analyzed for Pb, Zn, Cu and 45 stream water samples for pH, Zn and SO<sub>4</sub>. No major anomalies were determined by the surveys, although some extremely acidic waters are present. The short EM test line across the massive pyrite occurrence outlined a strong conductor that is probably caused by pyritic and graphitic shale. The manager recommended diamond drilling to investigate the stratigraphy of the lower part of the Canol shale unit and determine if mineralization is present.

FETCH, HASTEN, BASIN 105 0 1  
Canadian Nickel Company (63°06'N, 130°12'W)  
Limited

References: Blusson (1974a); Carne (1976).

Claims: FETCH 1-25; HASTEN 1-28F, 29-34; BASIN 1-24

Location and Access:

The claims are located in the Macmillan Pass area of the Selwyn Mountains, 168 km northeast of Ross River. Access is provided by way of the North Canal Road which transects the property and the Macmillan Pass airstrip is located 11 km north of the property. The claim group adjoins the south edge of the JASON property.

History:

Claims FETCH 1-20, HASTEN 1-24, BASIN 1-24 were staked in July 1976. Additional staking of FETCH 21-25 and HASTEN 25-34 was carried out during June 1977. The earlier staked 68 claims were acquired under option by Canadian Nickel from Welcome North Mines in 1977.

Description:

The property is underlain by the typical Devonian-Mississippian sedimentary succession in the Macmillan Pass area (Carne, 1976):

Orange to buff weathering siltstone and fine-grained sandstone

Silvery weathering carbonaceous to siliceous shale, local barite horizons

Chert pebble conglomerate

Siliceous to carbonaceous shale and silty argillite.

Structure is complex and the rocks are faulted, isoclinally folded and intruded by a stock of hornblende biotite granodiorite. No mineralization other than barite was found on the claim group.

Current Work and Results:

During summer 1977, geological mapping (1:2,400), geochemical soil sampling, magnetic and electromagnetic survey programs were conducted. Magnetometer readings were taken along 33.52 miles of grid, every 100 feet along lines spaced 800 feet apart. Geological mapping results and the electromagnetic survey suggested that the TOM Pb-Zn-Ag barite horizon may underlie the overburden covered central valley of the claim group, however, results of the magnetometer survey did not validate this. Diamond drilling is planned for 1978.

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CREE, SIOUX 105 0 1  
Canadian Nickel Company (63°10'N, 130°07'W)  
Limited

References: Blusson (1974a); Carne (1976).

Claims: SIOUX 1-24; CREE 1-20, 21F-28F

Location and Access:

The property is located in the Macmillan Pass area of the Selwyn Mountains, 179 km northeast of Ross River. Access is provided by the North Canal Road which crosses the northwest edge of the claim group. The claim group abuts the northeast edge of the TOM claims.

History:

Claims CREE 1-20 and SIOUX 1-24 were staked in July 1976 and were optioned by Canadian Nickel from Welcome North Mines in 1977. Additional staking of CREE 21F-28F was carried out during June 1977.

Description:

The property is underlain by the typical Devonian-Mississippian sequence of sedimentary rocks in the Macmillan Pass area (Carne, 1976). Mineralization consists of 0.1 to 3% disseminated pyrite in silvery weathering carbonaceous shale, disseminated nodular barite in shale in the southwest corner of the claim group and finely disseminated galena, sphalerite and stibnite on fracture surfaces within a granodiorite dyke on the southern portion of the SIOUX claims.

Current Work and Results:

During summer 1977, detailed geological mapping (1:2,400) and a magnetometer survey were conducted. Magnetometer readings were made along 28.33 line miles of grid at 100 foot intervals along lines spaced 800 feet apart, however, no significant anomalies were noted.

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ARGO 105 0 1  
Yumack Syndicate (63°10'N, 130°10'W)

References: Blusson (1974a); Carne (1976).

Claims: ARGO 1-66

Location and Access:

The property is located in the Macmillan Pass area of the Selwyn Mountains, immediately north of the Macmillan Pass airstrip. Access is provided by the North Canal Road which closely parallels the southeastern border of the claim group. Claim groups surrounding the ARGO claim group are the JASON to the south, NIDD to the west and TOM to the southeast.

History:

The claims were staked in July 1976 by the Yumack Syndicate (Giant Yellowknife Mines Limited, Highwood Resources, Nemco, Canada Southern, J.D. Murphy).

Description:

The property is underlain by grey- to orange-weathering black shale of the Road River Formation and chert pebble conglomerate and black shale from the lower portion of the Canal Formation, all of which are complexly folded about northeast trending axes.

Current Work and Results

During summer 1977, the property was subjected to geological mapping (1:12,000) and geochemical stream sediment sampling. Fifty stream sediment samples were collected at approximately 300 m intervals along the four main creeks and analyzed for Ag, Cu, Pb, Zn. Further work was recommended consisting of additional geochemical stream sediment and soil sampling.

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KOBUK, NIDD  
Cominco Limited

Barite  
105 0 2  
(63°13'N, 130°34'W)

References: Blusson (1974a; 1976); Carne (1976).

Claims: KOBUK 1-8; NIDD 1-40, 47-51, 55-58, 63-66, 70-73, 76-79, 81-85, 88-93, 95-101, 104-110, 115-122, 130-136, 138, 140, 142, 144-158, 160-161, 163, 165, 167, 169, 171, 173-179, 182-195, 198-237, 240-260, 275-278, 283-284, 300-346

Location and Access:

The claims form a 23 km long east-west trending block located 5 to 27 km west of Macmillan Pass airstrip and access is provided by helicopter from the airstrip. The KOBUK claim group is situated west of the central portion of the long NIDD group.

History:

The KOBUK claims were staked in August 1976, the NIDD 1-315 in October 1976 and the NIDD 316-346 in July 1977.

Description:

The property is underlain by the following sequence of rocks:

IMPERIAL GROUP

Shale and siltstone, grey-brown weathering, thickly laminated pyritic rhythmite

Canol Formation

Shale - black, carbonaceous, siliceous, partly pyritic and/or baritic; Barite - massive, buff weathering, light grey;

Shale - silty, grey brown weathering; minor intraformational chert pebble conglomerate; shaly, pyritic mudstone

Road River Formation

Dolostone - conglomeratic, orange weathering  
Limestone - black, silty, dark grey weathering (tentaculites and crinoids)  
Shale - black, siliceous (minor monograptus)

Within the black carbonaceous shale on the KOBUK claim group, a barite horizon up to 75 m thick occurs about 80 m below the base of the overlying shale-siltstone unit. Bedded pyrite mineralization was noted in the lower part of the barite horizon.

The structure of the area is complex and consists of a series of anticlines and synclines with sinuous but roughly east-west trending axial traces. Along trend, the folds vary in shape, changing from open to isoclinal and from upright to overturned. On the KOBUK claims the rocks occupy the north limb of a large east-plunging syncline overturned to the south, whose axial plane trends easterly and dips moderately to the south.

Current Work and Results:

During summer 1977, programs of detailed geological mapping (1:10,000), soil geochemistry and prospecting were conducted. Soil geochemistry was done over most of the overburden covered parts of the NIDD property with approximately 2,000 samples collected on the regional grid at 100 m intervals along lines spaced 200 m apart and on the detailed grid at 50 m intervals along lines spaced 100 m apart. All samples were analyzed for lead, zinc, silver and most of the samples for barium. Several coincident lead-

zinc-silver anomalies and two major barium anomalies were determined. No significant mineralization was encountered but the favourable stratigraphy led a company geologist to recommend further, more detailed geochemical work.

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HESS  
Cominco Limited

Barite  
105 0 7  
(63°17'N, 130°38'W)

Reference: Blusson (1974a).

Claims: HESS 1-48

Location and Access:

The claims are located in the Hess Mountains, 175 km northeast of Ross River. Access is provided by helicopter from the airstrip at Macmillan Pass, 20 km to the southeast. The HESS claim group surrounds the FAT, CITY, KAM, LORRAINE claims and abut on the southeast to the CHAS and CATHY claims.

History:

Claims HESS 1-8 were staked in August 1976, 9-24 in November 1976 and 25-48 in June 1977.

Description:

The property is underlain by sedimentary rocks of Ordovician to Devonian-Mississippian age:

DEVONIAN to MISSISSIPPIAN

Canol Formation Conglomerate, sandstone, carbonaceous shale

Middle to Upper SILURIAN

Carbonaceous shale and cherty siltstone barite

Road River Formation

Lower to Middle SILURIAN  
Flaggy mudstone and siltstone, chert, shale, dolomite, barite

Upper ORDOVICIAN to Lower SILURIAN  
Graptolitic shale and siltstone

Lower to Upper ORDOVICIAN  
Predominantly dolomitic siltstone and sandstone; minor limestone, chert and shale

The sedimentary rocks have been intensely deformed and intrusive to the sequence are dykes of porphyritic (quartz) rhyolite and basalt which have thicknesses in the order of 5 to 20 metres.

Mineralization consists of a barite-witherite bed interbedded with the Middle to Upper Silurian carbonaceous shale-siltstone horizon and several other barite beds lying at slightly lower stratigraphic horizons. No sulphide mineralization was found associated with any of the barite occurrences.

Current Work and Results:

During summer 1977, geological mapping (1:10,000), prospecting and soil geochemical sampling (Cu, Pb, Zn, Ag, Ba) programs were conducted. A total of 350 soil samples was collected with sample intervals every 75 metres along lines spaced 200 metres apart, and locally in areas of interest, 100 metres. Several anomalous zones of copper, lead, zinc, silver and barium were determined.

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CATHY, LORRAINE, CHAS, KAM,  
FAT, CITY, LES, WALT  
Baroid of Canada Limited

Barite  
105 0 7  
(63°16'N, 134°34'W  
to 130°39'W)

References: Blusson (1974a); Sinclair et al  
(1976).

Claims: CATHY 1-10; CHAS 2-5; FAT; CITY; KAM 1 Fr.,  
KAM 2 Fr, 3-6; LORRAINE 1-6; LES; WALT

Location and Access:

The claim groups are located 169 km northeast of Ross River and 19 km west of the Yukon-N.W.T. border. During 1976, access was provided by float plane to an unnamed lake on the southeastern flank of Keele Peak where a base camp was situated and from there by helicopter the remaining 19 km to the property.

History:

Claims CATHY 1-6, LORRAINE 1-6 were staked in February 1975, CHAS, LES, WALT, FAT, CITY, KAM 1 Fr., 2 Fr. in July 1975 and CATHY 7-10, CHAS 2-5, KAM 3-6 in August, 1976. During 1975, preliminary geological and geochemical work was conducted.

Description:

The property is underlain by an east-west trending sequence of Devonian-Mississippian sedimentary rocks. The lower part of the sequence, chert pebble conglomerate, is overlain in turn by black shale, a barite-rich unit and reddish shale and siltstone. The barite-rich unit consists of black shale with interbedded horizons of barite and limestone.

Current Work and Results:

During summer 1976, the property was subjected to detailed geological mapping and sampling and geochemical soil and stream sediment sampling for Cu, Pb, Zn, Ba, Ag. No work was done during 1977.

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EIRA  
Ortell Syndicate

106 C 1, 2  
(64°10'N, 132°30'W)

Reference: Blusson (1974a).

Claims: EIRA 1-150

Location and Access:

The property is situated in the Nadaleen Range, 180 km east-northeast of Mayo. Access is provided by float equipped fixed wing aircraft from Mayo to Ortell Lake and from there by helicopter to the property, 22 km to the east-northeast.

History:

Claims EIRA 1-140 were staked in November 1976 and 141-150 in August 1977 over potentially favourable ground east of the McIntyre silver-lead-zinc discovery on the CRAIG claims. In 1977, work on the property was performed by Precambrian Shield Resources Limited.

Description:

The property is underlain by the east-west trending Proterozoic Grit Unit which is thrust to the north over shale and limestone of the younger Road River Formation.

Current Work and Results:

During summer 1977, preliminary prospecting, geological mapping (1:3,000) and geochemical soil, stream sediment and rock sampling programs were conducted. A total of 650 soil samples and 85 stream

sediment and rock samples was collected and analyzed for silver, lead and zinc. Soil samples were collected at 100 foot intervals along lines spaced 500 feet apart. A few scattered anomalies were determined and a consulting geologist recommended further work to consist of more geochemical soil sampling to the south and more detailed soil sampling in the area of the already known anomalies.

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BLACK, IDA  
Dejour Mines Limited  
Nova-Co Explorations Limited

106 C 2  
(64°06'N, 132°37'W)

Reference: Blusson (1974a).

Claims: BLACK 1-32; IDA 1-32

Location and Access:

The property is situated in the Nadaleen Range, 170 km east-northeast of Mayo. Access is provided by fixed wing float equipped aircraft from Mayo to Ortell Lake and thence by helicopter to the property, 12 km to the northeast.

History:

The claims were staked in October 1976.

Description:

The property is underlain by the east-west trending Proterozoic Grit Unit which is thrust to the north over limestone and dolomite of the younger Road River Formation.

Current Work and Results:

During fall 1977, geochemical soil (254) and stream sediment (20) sampling programs for silver, lead and zinc were conducted. Soil samples were collected with sample intervals every 75 metres along north-south trending lines spaced generally 500 m apart. A few erratic lead and zinc anomalies were determined.

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LEAH  
Highhawk Mines Limited  
Envoy Resources Limited  
Hecate Gold Corporation  
Bow River Resources

Lead, Zinc, Mercury,  
Copper  
106 C 2, 3  
(64°06'N, 133°00'W)

Reference: Blusson (1974a).

Claims: LEAH 1-176, 175A, 176A, 177-206; SANDY 1-7

Location and Access:

The property is located 145 km east-northeast of Mayo, between the Nadaleen and Stewart Rivers. Access is provided by fixed wing float equipped aircraft from Mayo to Ortell Lake and from there by helicopter to the property, 10 km to the northwest.

History:

The LEAH claims were staked in October 1976 and the SANDY claims in July 1977. The ground was acquired because of its position between two adjacent McIntyre properties to the west and east.

Description:

The property is underlain by east-west trending rocks of the Hadrynian 'Grit Unit' (Unit Hs, Blusson, 1974a) which are thrust to the north over Ordovician carbonate and shale. A dolomite unit which is mineralized to the west is reported to extend onto the western portion of the LEAH group for about 4,000 metres before heavy overburden is encountered. Another dolomite unit occurs to the east of the 7,000 metres of covered area but the section there is considerably different from that to the west.

Mineralization consists of galena and sphalerite associated with the dolomite unit on the eastern portion of the claim group. Cinnabar and native mercury are exposed over one metre for a distance of about five metres on claim LEAH 3, on the west side of a small northerly flowing stream. In addition, tetrahedrite and associated azurite and malachite is sparsely disseminated in a red siderite-rich horizon above the dolomite unit in the western portion of the claim group.

Current Work and Results:

During summer 1977, programs of detailed soil geochemical sampling and prospecting were conducted. Over 4,400 samples were collected at 50 m intervals along north-south trending lines spaced 200 m apart and analyzed for copper, silver, lead and zinc. In general, anomalous lead-zinc values were determined in the overburden covered central portion of the claim group. Recommended further work consists of detailed geochemical soil sampling and prospecting of the anomalous central area.

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SIAN  
McIntyre Mines Limited

Zinc, Lead, Silver  
106 C 2  
(64°07'N, 132°47'W)

Reference: Blusson (1974a).

Claims: SIAN 1-104

Location and Access:

The property is situated in the Nadaleen Range, midway between the Nadaleen and Stewart River, 165 km northeast of Mayo. Access is provided by float equipped fixed wing aircraft to Tara Lake (an unnamed lake immediately east of Nadaleen Mountain) and from there by helicopter, 17 km south-southeast to the property.

History:

The claims were staked in September 1976, in which year, preliminary evaluation was carried out. They adjoin the BLACK claims to the east and the LEAH claims to the west.

Description:

The property is underlain by east-west trending clastic and carbonate sedimentary rocks of the Proterozoic 'Grit Unit' (Unit Hs of Blusson, 1974a) that are unconformably overlain to the north by Devonian limestone. In detail, the sequence consists of black, buff, maroon and green argillite with intercalated quartz-clast sandstone and conglomerate. Interbedded within this sequence are several limestone and dolomite horizons.

Mineralization consists of sphalerite and galena disseminated in a dolomite horizon and in barite veins and silicified breccias associated with the dolomite. In addition, galena and sphalerite occur associated with a sandstone unit.

Current Work and Results:

During summer 1977, geological mapping (1:12,000), prospecting, geochemical soil sampling and reconnaissance magnetic, electromagnetic and self potential survey programs were conducted. Grab samples from the mineralized zones are reported to assay up to several per cent combined Pb-Zn with very low Ag values. Several large barren surface zones were discovered which may be due to subsurface mineralization that is toxic to vegetation. Soil samples were collected at 100 foot intervals along lines spaced 400 feet apart for a total line length of 61,400 feet and analyzed for Pb, Zn, Ag. Several coincident and isolated Pb-Zn anomalies were determined. The minor geophysics employed determined no mineralization related anomalies.

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JAM  
McIntyre Mines Limited

Zinc, Lead, Silver  
106 C 2  
(64°10'N, 133°50'W)

Reference: Blusson (1974a).

Claims: JAM 1-32

Location and Access:

The claims are located in the Nadaleen Range, just south of the Nadaleen River and 163 km northeast of Mayo. Access is provided by float equipped fixed wing aircraft to Tara Lake (unnamed lake on east flank of Nadaleen Mountain) and from there by helicopter 13 km to the southeast.

History:

The claims were staked in July 1977.

Description:

The property is underlain by an east-west trending sequence of shale, dolomite and limestone of the Proterozoic 'Grit Unit' that is overlain unconformably to the south by Ordovician-Devonian limestone and dolomite.

Mineralization consists of smithsonite, sphalerite and galena in brecciated light grey dolomite.

Current Work and Results:

During summer 1977, reconnaissance geological mapping (1:12,000), prospecting and geochemical soil and stream sediment sampling programs were conducted. A total of 25 stream sediment and 122 soil samples were collected and analyzed for Pb, Zn, Ag. Soil sample intervals were 200 feet along lines spaced 400 feet apart. A major coincident Pb-Zn-Ag anomaly 1,200 feet long and 400 feet wide was determined and further work consisting of geological mapping and prospecting was recommended by a company geologist.

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STAR  
Prism Resources Limited

106 C 3  
(64°08'N, 133°05'W)

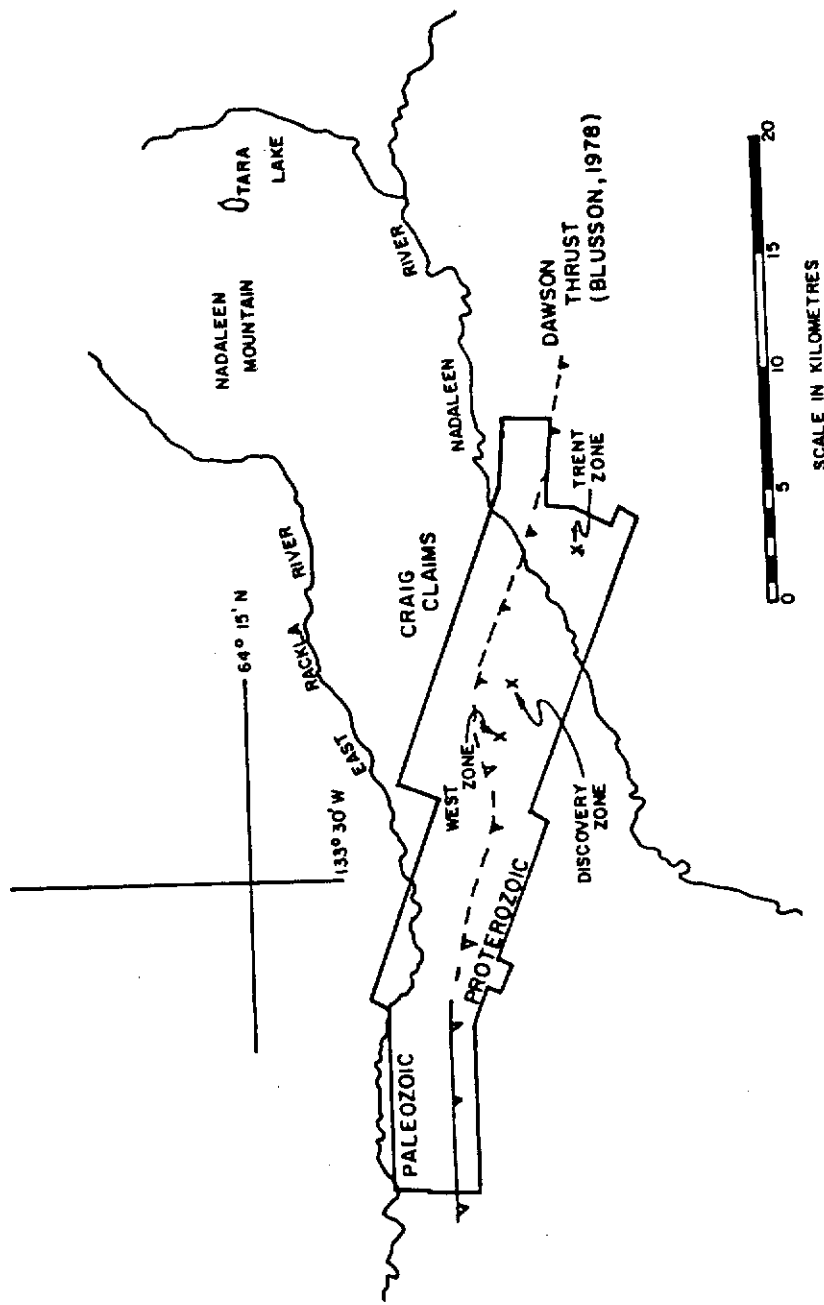
Reference: Blusson (1974a).

Claims: STAR 1-32

Location and Access:

The property is situated in the Nadaleen Range 153 km northeast of Mayo and 15 km northwest of Ortell Lake. Access is provided by helicopter.





CRAIG PROPERTY, 106C LOCATION MAP

ROD  
McIntyre Mines Limited

Silver, Lead, Zinc  
106 C 4, D 1  
(64°10'N, 134°00'W)

References: Green (1972); Blusson (1978).

Claims: ROD 1-100

Location and Access:

The property is located in the Nadaleen Range, south of the East Rackla River, 112 km northeast of Mayo. Access is provided by float equipped, fixed wing aircraft to Kathleen Lakes and then by helicopter the remaining 10 km southeast to the property. During 1977, access was via Tara Lake by plane and then by helicopter to the property, 52 km to the west-southwest.

History:

The claims were staked in June 1977 to cover several mineralized showings located by prospecting.

Description:

The property overlies the Dawson Thrust which separates an east-west trending sequence of the Proterozoic 'Grit Unit' to the south from Paleozoic clastics and carbonates to the north (Blusson, 1978). The 'Grit Unit' here consists of sandstone, limestone dolomite and minor volcanics (locally with mariposite). In addition, a diabase dyke and a dyke-like body of uncertain composition with minor smithsonite, sphalerite, galena and possibly realgar and orpiment occur intrusive to the 'Grit Unit'. The Paleozoic rocks are represented by black shale with interbedded argillite and chert.

Mineralization consists of galena and tetrahedrite (?) in the cherty facies of the black shale and sphalerite-smithsonite in quartz veins.

Current Work and Results:

During summer 1977, geological mapping (1:12,000), prospecting and geochemical soil and stream sediment sampling programs were conducted. Soil samples were collected along ridge tops at 200 foot intervals and analyzed for Pb, Zn, Ag. Several anomalies related to mineralization were determined in addition to others related to high background Ag-Zn values in black shale. Stream sediment samples were taken at 1,000 foot intervals along all creeks draining the property but no major anomalies were determined. Further work consisting of geological mapping, geochemical soil sampling, trenching and diamond drilling was recommended by a company geologist.

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REP  
Welcome North Mines Limited  
(Arctic Red Joint Venture)

Zinc, Lead  
106 C 8  
(64°28'N, 132°05'W)

Reference: Blusson (1974a); Morin *et al* (1978).

Claims: REP 1-48

Location and Access:

The property is located 3 km south of Duo Lake in the Bonnet plume Range of the Wernecke Mountains. Access is provided by float equipped fixed-wing aircraft from Mayo, 216 km to the southwest.

History:

The claims were recorded in August 1976. During summer 1976, reconnaissance and detailed geological mapping and geochemical rock and soil sampling programs were conducted. In addition to several geo-

chemical targets, the prospecting program located several occurrences of sphalerite and minor galena.

Description:

The property is underlain by rocks of the Besa River, Road River, Franklin Mountain and Sekwi Formations of Paleozoic age. Forming the Besa River Formation is non-calcareous shale and siltstone, commonly rusty-weathering; the Road River Formation - black, platy, argillaceous limestone and calcareous argillite with common interbeds of cherty crinoidal limestone; the Franklin Mountain Formation - light grey locally silicified dolomite, commonly with chert breccia; the Sekwi Formation - light grey dolomite with upper orange-weathering sandy dolomite and conglomerate.

Mineralization has been located in three zones:

A-Zone - (see map) a) sphalerite and quartz along fractures in the uppermost Franklin Mountain Formation dolomite, b) pyrite, sphalerite, galena, calcite, dolomite veins and crackle breccias and c) red sphalerite along laminations in black graphitic, graptolitic limestone of the Road River Formation. In this limestone, the mineralization is reported to be erratically exposed over a thickness of 1.5 to 3 m at the top of the outcrop and along a strike length of 30 m. Chip sampling over a 3 m interval across this zone yielded 3.56% Zn and 0.12% Pb.

B-Zone - Sphalerite as matrix and disseminations in black chert breccia and dolomite respectively and hydrozincite associated with siliceous fracture fillings. The breccia may represent an unconformity.

C-Zone - hydrozincite coatings along partings in platy black limestone.

In addition, a 150 m long travertine deposit with minor zinc values is located along the south side of Rep Creek (see map).

Current Work and Results:

During summer 1977, programs of geochemical soil sampling and diamond drilling were conducted. Soil samples were collected along lines spaced 400 feet apart at 200 foot intervals and analyzed for zinc. A 100 foot diamond drill hole (BQ core) was drilled on the A-Zone with negative results and no further work was recommended by company geologists.

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CORD  
Rio Tinto Canadian  
Exploration Limited

Zinc, Lead  
106 C 13, D 16  
(64°52'N, 134°00'W)

References: Blusson (1974b); Green (1972); Bell and Delaney (1977); Morin *et al* (1977, p. 123).

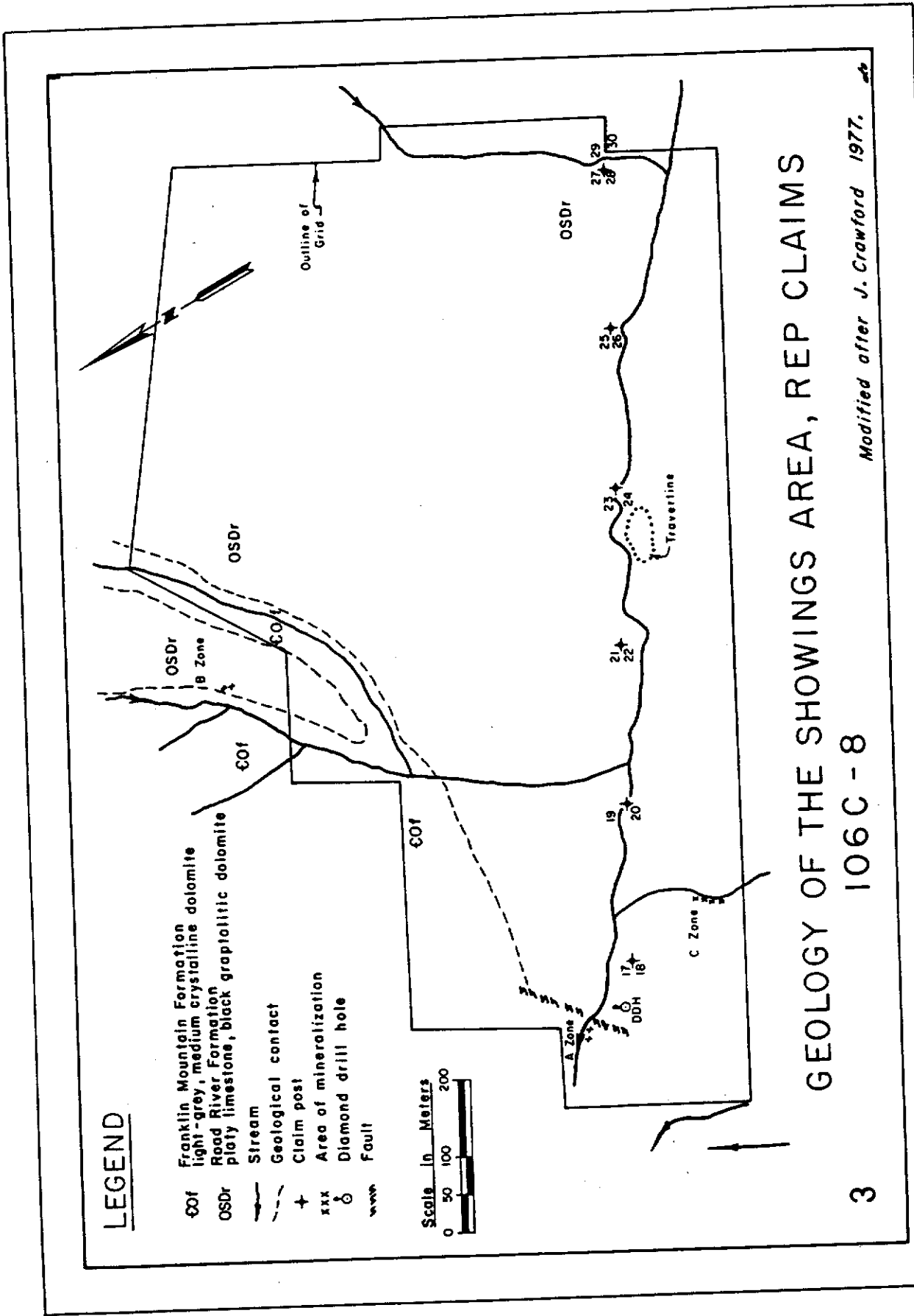
Claims: CORD 1-72

Location and Access:

The property is located in the Wernecke Mountains, 164 km northeast of Mayo, 8 km north of Gillespie Lake and 18 km southwest of Fairchild Lake. Access is provided by float equipped fixed wing aircraft to Fairchild Lake or Gillespie Lake and from there by helicopter to the property.

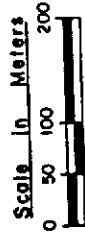
History:

The claims were staked in June 1975 and during summer 1976, the property was subjected to detailed stream sediment sampling and reconnaissance soil geochemical sampling programs for Ag, Co, Cu, Pb, Zn



**LEGEND**

- COF Franklin Mountain Formation  
light-grey, medium crystalline dolomite
- OSDr Road River Formation  
platy limestone, black graphitic dolomite
- Stream
- Geological contact
- Claim post
- xxx Area of mineralization
- o Diamond drill hole
- Fault



**GEOLOGY OF THE SHOWINGS AREA, REP CLAIMS**

106C - 8

Modified after J. Crawford 1977.

and Ni. Several Pb-Zn anomalies were determined (Morin et al, 1977).

#### Description:

The area is underlain by clastic and carbonate rocks of Proterozoic age - Units 1 and 2 of Green, (1972), Hs and Hsc of Blusson (1974b) and Units B and C of Bell and Delaney (1977) that have been intruded by several breccia bodies. The sedimentary rocks are made up of a lower unit of commonly carbonaceous and locally siliceous black mudstone and siltstone that is overlain by well bedded to massive grey dolostone with local chert lenses.

Mineralization has two modes of occurrence: 1) several mm to several cm thick horizons of stratabound pyrite, dark brown sphalerite galena and trace chalcopyrite within iron sulphide and carbon-rich siltstone or within quartz-rich lenses in such a siltstone sequence; 2) sphalerite, galena and trace chalcopyrite in dolomite veinlets cutting the siltstone.

#### Current Work and Results:

During summer 1977, detailed geological mapping (1:5,000), prospecting and geochemical talus fine or soil sampling programs were conducted. The best chip sample assay obtained was 0.99% Pb and 1.20% Zn across 2.1 m of dolostone, siltstone and pyritic siltstone. A total of 1,706 talus fine or soil samples was collected with sample intervals every 20 m along lines spaced 250 m apart and analyzed for Pb-Zn. However, only sporadic small isolated anomalies were determined and a company geologist recommended no further work.

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ELK	Uranium, Copper
Mountaineer Mines Limited	106 C 14
Pan Ocean Oil Limited	(64°53'N, 133°20'W)

References: Blusson (1974b); Bell and Delaney (1977); Laznicka (1977a,b).

Claims: ELK 1-90

#### Location and Access:

The property straddles Dolores Creek in the Bonnet Plume Range, 190 km northeast of Mayo and 22 km southeast of Fairchild Lake. Access is provided by wheel equipped fixed wing aircraft to the Dolores Creek airstrip and then by helicopter or foot the remaining 4 km southwest to the property.

#### History:

The claims were staked in November 1976.

#### Description:

The property is underlain by fine-grained clastics and carbonates of Proterozoic age termed Units A, B, C by Bell and Delaney (1977) and Hs, Hsc by Blusson (1974b). Unconformably overlying these rocks is a thick sequence of younger Proterozoic sedimentary rocks. Intrusive to the older rocks are several breccia bodies similar to the bodies described by Laznicka on the adjoining Bonnet Plume River Mines property to the north (Laznicka, 1977 a,b).

Mineralization consists of fine-grained chalcopyrite and brannerite disseminated throughout a small breccia body with siltstone and dolomite fragments.

#### Current Work and Results:

During summer 1977, reconnaissance geological mapping (1:50,000), prospecting and reconnaissance water geochemical sampling programs were undertaken. Company geologists recommended further work consisting of more detailed stream sediment and water geochemical sampling programs.

\*\*\*\*\*

RAM	Uranium, Copper,
Mountaineer Mines Limited	Cobalt
Pan Ocean Oil Limited	106 C 14
	(64°58'N, 133°11'W)

References: Blusson (1974a); Bell and Delaney (1977); Laznicka (1977a,b).

Claims: RAM 1-48

#### Location and Access:

The claims are located in the Wernecke Mountains, 200 km northeast of Mayo and 25 km east of Fairchild Lake. Access is provided by fixed wing float plane to Fairchild Lake or by fixed wing wheeled craft to the Dolores Creek airstrip and from there, 8 km north to the property by helicopter.

#### History:

The claims were staked in November 1976.

#### Description:

The property is underlain by fine-grained clastics and carbonates of Proterozoic age that have been intruded by several breccia bodies. The older sedimentary rocks have been termed Units A, B, C by Bell and Delaney (1977) and Units Hs, Hsc by Blusson (1974a). Unconformably overlying these is younger Proterozoic green and maroon shale.

Numerous small and podiform zones of uranium mineralization occur. They consist of varying amounts of pitchblende, brannerite and secondary uranium minerals associated with the breccia bodies and adjacent altered rocks. Chalcopyrite, malachite and rarely cobaltite and erythrite occur associated with the uranium mineralization. A similar style of copper mineralization at the headwaters of Dolores Creek has been described by Laznicka (1977a,b).

#### Current Work and Results:

During summer 1977, geological mapping (1 inch = 1/2 mile and 1:12,000), prospecting and preliminary water geochemical sampling programs were conducted. Company geologists recommended further work to consist of detailed geological mapping, prospecting, sampling, geophysical surveying and trenching.

\*\*\*\*\*

CAB	Zinc, Lead
Welcome North Mines Limited	106 C 15, 16
	106 F 1, 2
	(64°59'N, 132°27'W)

References: Blusson (1974a); Norris (1975); Sinclair et al (1975).

Claims: CAB 1-60, 223-279, 324-351, 363-369

#### Location and Access:

The property is located in the Backbone Ranges of the MacKenzie Mountains, 219 km northeast of Mayo. Access in 1976 was by float equipped fixed wing aircraft to Guildersleeve (Border) Lake which lies within 1000 m of the property.

### History:

The CAB claims were staked in July 1974 during a program of reconnaissance exploration conducted by Arctic Red Joint Venture, a consortium consisting of Welcome North Mines Limited, Bethlehem Copper Corporation, International Mogul Mines Limited, Getty Mines, Dupont of Canada Limited and Utah Mines Limited. Geological mapping, prospecting, sampling and minor soil geochemistry were carried out in 1974 on the CAB 1 and 2 showings and in September 1974, 1,134 feet of diamond drilling. In 1976, soil geochemical sampling, regional geological mapping and measuring of stratigraphic sections were conducted.

### Description:

The following stratigraphic section is exposed on the property:

	<u>Formation</u>	<u>Lithology</u>
Silurian to Devonian	Road River	platy, bioclastic limestone
Ordovician to Silurian	Franklin Mountain	calcareous shale, chert
Cambrian to Ordovician	Sekwi	vuggy dolomite
Lower Cambrian	Backbone	sandstone, siltstone, quartzite, dolomite
	Sheepbed	sandstone, quartzite conglomerate
Hadrynian	Keele	shale
	Rapitan	sandy dolomite, conglomerate, dolomite
		shale, siltstone

Mineralization occurs within the Sekwi dolomite as open space filling of vugs, fractures and veins and as replacement of sedimentary structures and disseminations along bedding planes. It consists of varying amounts of sparry dolomite, calcite, barite, quartz, pyrite, sphalerite and minor galena.

### Current Work and Results:

During summer 1976, detailed geological mapping and a reconnaissance geochemical soil sampling program for Pb-Zn were conducted. Samples were collected at 200 foot intervals along lines spaced 400 feet apart. Several coincident lead-zinc anomalies were determined and were interpreted to be related to low grade fracture mineralization in the Franklin Mountain Formation and the Road River Formation. A limited program of further work consisting of follow-up mapping and sampling on previously unworked showings was recommended by a company geologist.

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BAG  
Prism Resources Limited  
Lead, Zinc  
106 D 1  
(64°10'N, 134°07'W)

References: Green (1972); Blusson (1978).

Claims: BAG 1-80

### Location and Access:

The property is located in the Nadaleen Range south of the Rackla River 120 km northeast of Mayo and 6 km southeast of Kathleen Lakes. Access is provided by helicopter.

### History:

The claims were staked in April 1977.

### Description:

The property is underlain by an east-northeast trending sequence of sedimentary rocks. In the southeast portion of the claim group, rocks of the Upper Proterozoic "Grit Unit" are thrust to the north over younger rocks of the Paleozoic Canol and Road River Formations. The "Grit Unit" here consists of lithic sandstone, dark grey micritic limestone, quartzite, ankeritic and "zebra" textured dolomite and green and maroon shale. A body of fibrous serpentine occurs along the thrust contact. Black and carbonaceous shale with interbedded chert form the Canol and Road River Formations here and mineralization consists of several quartz veinlets with galena and sphalerite within black shale.

### Current Work and Results:

During summer 1977, geological mapping (1:10,000), prospecting, geochemical soil sampling and geophysical survey programs were conducted. The claim group was covered by a grid and soil samples were collected at 100 m intervals along lines spaced 250 m apart and analyzed for lead, zinc and silver. Several anomalous areas were determined. In addition, test lines were run across parts of the BAG claims with a CEM electromagnetic unit.

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EL, DEE  
Prism Resources Limited  
106 D 2, 7  
(64°15'N, 134°40'W)

References: Green (1972); Blusson (1978).

Claims: EL 1-70; DEE 65-68, 85-90, 105-110, 125-128

### Location and Access:

The claims are located on the Beaver River, about 95 km northeast of Mayo and 55 km northeast of Elsa. Access to the property is by helicopter from Mayo or Kathleen Lakes, 20 km to the east. A winter road from Keno City crosses the north part of the property.

### History:

Claims EL 1-40 were staked in October 1976, DEE 1-48 in April 1977 and EL 41-70, DEE 65-68, 85-90, 105-110, 125-128 in July 1977.

### Description:

The property is underlain by Ordovician-Devonian dolomite and limestone and by black shale of the Road River Formation. Mineralization consists of a gossan in the dolomite and a galena-bearing quartz vein.

### Current Work and Results:

During summer 1977, the property was subjected to programs of detailed geological mapping (1:10,000), prospecting, trenching, soil geochemical sampling and reconnaissance electromagnetic surveys. A total of 582 soil samples were collected at 100 metre intervals along lines spaced 250 m apart, and over the gossan area at 50 metre intervals. Samples were analyzed for Pb, Zn, Ag and a coincident zinc-lead-silver anomaly was determined in the area of the gossan. However, a series of test pits across the gossan did not uncover any mineralization. In addition, a coincident lead-silver anomaly was determined over a distance of 500 metres and test pits in this material resulted in high silver-lead values also. An electromagnetic survey was conducted along several test lines and an anomalous zone roughly coincident with the lead-silver anomaly was determined.

BUD, DAGO  
Pan Acheron Resources Limited

Zinc, Silver, Lead  
106 D 8  
(64°17'N, 134°10'W)

Reference: Green (1972).

Claims: BUD 1-24, 33-48; DAGO 3, 5; PAN 1-24

Location and Access:

The property is located in the Wernecke Mountains 115 km northeast of Mayo and 5 km north of Kathleen Lakes. Access is provided by helicopter from Mayo or by float plane to Kathleen Lakes and then by trail on foot.

History:

The mineral showings were first staked by Gordon Dickson in September 1951 as the DONALD claim. The property was explored in 1953 by Leitch Gold Mines Limited and then optioned to Prospectors Airways Limited in 1954. The latter company did extensive hand trenching and sampling, geological mapping and some soil sampling.

The property was restaked in 1959 by G. Dickson as the DAGO claim. In 1966, it was optioned to Atlas Explorations Limited and a regional geochemical survey was completed. In 1968, Rackla River Mines Limited was formed to develop the property, which now consisted of the BUD and DAGO claims. Geological mapping and surface sampling were done in 1968 followed by bulldozer trenching in 1969. The claims were then optioned to Casino Silver Mines Limited in August 1969. Casino conducted an induced polarization survey in 1969, and in 1970, completed four diamond drill holes aggregating 1,904 feet before relinquishing the property.

Rackla River Mines Limited conducted extensive soil surveys and some packsack diamond drilling in 1972. In 1974, the property was optioned to Anvil Mining Corporation, which conducted further geochemical soil surveys, ground magnetometer surveys and geological mapping over selected areas followed by the diamond drilling of two holes aggregating 750 feet.

In 1977 the property was optioned by Pan Acheron Resources Limited as a result of increased interest in the area following the discovery in 1976 by McIntyre Mines Limited of lead-zinc-silver mineralization about 40 km to the east-southeast.

Description:

The property is underlain by a west-northwest trending sequence of orange weathering platy grey dolomite and dolomitic shale of Proterozoic age that is overlain by grey weathering, thick bedded limestone and dolomite of probable Ordovician age (Green, 1972).

Two mineralized zones have been determined in the orange weathering dolomite - the main zone which has been traced intermittently for at least 700 metres with an east-northeast trend and a steep dip to the south and a second sub-parallel zone about 400 m south of the main zone that has been traced by trenching for at least 500 metres. The main zone consists of fine-grained sphalerite and calcite in carbonate breccia with very minor galena.

Current Work and Results:

During summer 1977, hand trenching and soil geochemical sampling programs were conducted. Ten trenches showed the main zone to consist of about 1 to 6% Zn, 0.5% Pb and 0.3 oz Ag/ton across a 10 to 15 metre interval. The best assay reported was from a 9 metre interval in Trench No. 8 - 32.7% Pb, 11.8% Zn

and 14.31 oz Ag/ton. Most of the assays from three old trenches across the second zone were low, except for a grab sample across 10 metres in Trench No. 14 - 0.3% Pb, 6.6% Zn and 2.97 oz Ag/ton. A total of 206 soil samples was collected with sample intervals every 50 m along lines spaced 100 m apart and analyzed for Pb, Zn, Ag. Anomalous zones determined in the survey corresponded with the known mineralized zones. A consulting geologist recommended further work to consist of detailed geological mapping, further geochemical soil sampling and some diamond drilling.

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JAZ  
Prism Resources Limited  
Copper  
106 D 9  
(64°38'N, 134°03'W)

References: Green (1972); Morin et al (1977, pp. 101-107).

Claims: JAZ 1-8

Location and Access:

The claims are located in the Rackla Range of the Wernecke Mountains, 148 km northeast of Mayo and 46 km north of Kathleen Lakes. Access is by helicopter.

History:

The claims were staked in September 1976.

Description:

The property is underlain by fine-grained clastics and orange weathering dolomite of Proterozoic age that are intruded by a breccia body. A 50 metre wide contact aureole in dolomite surrounds the breccia and mineralization consists of specular hematite, chalcopyrite and brannerite. Brannerite mineralization occurs in breccia matrix and along clast borders and was found in talus boulders only.

Current Work and Results:

During summer 1977, a ground radiometric survey was conducted with readings taken at 25 metre intervals along four lines totalling 7,400 metres in length. Several anomalous areas were determined in the breccia and a company geologist recommended further work consisting of trenching, more detailed radiometric surveys and geological mapping.

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BOND  
Eldorado Nuclear Limited  
Uranium  
106 D 10  
(64°40'N, 134°57'W)

References: Green (1972); Sinclair et al (1976); Morin et al (1977, pp. 101-107, 124).

Claims: BOND 1-96

Location and Access:

The claims are located about 128 km northeast of Mayo in the vicinity of the headwaters of Bond Creek. Access was provided by float equipped fixed-wing aircraft to Hart Lake, 120 km north of Mayo and then by helicopter to the property 6 km to the northeast.

History:

The claims were staked in June and September, 1975. During 1975, detailed geological mapping, geochemical soil sampling and a radiometric survey were conducted by Wernecke Joint Venture (managed by Archer, Cathro and Associates). In 1976 the property was optioned to Eldorado Nuclear Limited who diamond

drilled three holes for a total of 391.5 feet, two of them intersecting uranium mineralization (Morin et al, 1977).

#### Description:

The property is underlain by a window of Proterozoic rocks which are surrounded by unconformably overlying Ordovician and Silurian limestone and dolomite. Siltstone with an intrusive breccia body constitutes the older rocks. Where chloritic alteration and bleaching associated with the breccia are intense, the rocks resemble pale green metavolcanics. The sequence has been complexly folded and the rocks are foliated in an east-west direction.

Two areas of uranium mineralization have been located. The first (BOND I) consists of a vein occurrence of siderite-quartz ( $\pm$ ) barite with accompanying minor chalcopryrite, pyrite and pyrrhotite and the second (BOND II) consists of several radioactive, iron and manganese stained, lensoid zones in the breccia body. The matrix of the breccia consists largely of chlorite-carbonate material and is crudely foliated. Lenses and pods of sulphides occur locally and where in concentration, tend to correspond with radioactive zones. Magnetite occurs as disseminated euhedral to subhedral crystals in the matrix and also as fracture fillings. Clasts are mainly made up of barite and quartz-feldspar-rich rock and exhibit a pink to purple hue in the radioactive zones.

#### Current Work and Results:

During summer 1977, ground magnetometer survey and diamond drilling programs were conducted. Magnetic anomalies were found to correspond with areas of breccia and 8 short holes were drilled for a total footage of 1,140 feet. The program verified that uranium mineralization was restricted to the breccia body.

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URSUS	Uranium, Copper
Mountaineer Mines Limited	106 D 16
Pan Ocean Oil Limited	(64°55'N, 134°15'W)

References: Green (1972); Bell and Delaney (1977); Morin et al (1977, pp. 101-107).

Claims: URSUS 1-24

#### Location and Access:

The property is located in the Wernecke Mountains, 168 km north-northeast of Mayo. Access is provided by wheeled fixed wing aircraft to the Bear River airstrip, or by float equipped fixed wing aircraft to Quartet Lakes or Gillespie Lake, and then by helicopter the remaining respective 10 km to the north, 27 km to the south and 22 km to the north.

#### History:

The claims were staked in August 1976.

#### Description:

The property is underlain by fine-grained clastics and carbonates of Proterozoic age termed Units 1 and 2 by Green (1972) and Units A and C by Bell and Delaney (1977). Several breccia bodies are intrusive to the sequence (Morin et al (1977, pp. 101-107).

Mineralization consists of chalcopryrite and brannerite disseminated within breccia matrix and adjacent altered country rock and also associated with quartz-feldspar veinlets in fractured country rock.

#### Current Work and Results:

During summer 1977, geological mapping (1:12,000), and prospecting programs were conducted. Consulting geologists recommended further work to consist of detailed stream sediment and water geochemical sampling.

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ARCTOS	Uranium, Copper,
Mountaineer Mines Limited	Cobalt, Barium
Pan Ocean Oil Limited	106 D 16
	(64°56'N, 134°21'W)

References: Green (1972); Bell and Delaney (1977); Morin et al (1977, pp. 101-107).

Claims: ARCTOS 1-16

#### Location and Access:

The property is situated in the Wernecke Mountains on a small tributary of the Bear River, 165 km northeast of Mayo. Access is provided by wheeled fixed wing aircraft to the Bear River airstrip or by float equipped fixed wing aircraft to Gillespie Lake or Quartet Lakes and then by helicopter the respective remaining 13 km south, 27 km north or 23 km south to the property.

#### History:

The claims were staked in September 1976.

#### Description:

The property is underlain by fine-grained clastics and carbonates of Proterozoic age termed Units 1a, 2 by Green (1972) and Units B, C by Bell and Delaney (1977). Several breccia bodies are intrusive to the sequence that are probably responsible for much of the metasomatism that affects the black shale of Unit B.

Mineralization consists of several vein and pod-type occurrences of uranium, copper, cobalt and barium mineralization in the breccias and the Unit B metasilstone. Copper occurs as disseminated and podiform chalcopryrite, disseminated bornite and secondary malachite, cobalt as finely disseminated cobaltite and secondary erythrite and barium as coarse crystalline barite. The uranium bearing mineral was not identified.

#### Current Work and Results:

During summer 1977, geological mapping (1:12,000), prospecting and reconnaissance water geochemical sampling programs were conducted. Company geologists recommended further work to consist of detailed stream sediment, water and soil geochemical sampling, hand trenching and detailed geological mapping and assay sampling of showing areas.

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PITCH	Copper, Cobalt
Prism Resources Limited	106 D 16
	(64°50'N, 134°20'W)

References: Green (1972); Morin et al (1977, pp. 101-107).

Claims: PITCH 41-56

#### Location and Access:

The claims are situated in the Wernecke Mountains near the headwaters of Slats Creek, 170 km northeast of Mayo and 20 km south of Quartet Lakes. Access is provided by helicopter from Mayo.

History:

The claims were staked in August 1976.

Description:

The property is underlain by Proterozoic fine-grained clastic rocks and orange-weathering dolomite. Units 1 and 2 respectively of Green (1972) that have been intruded by a breccia body (Morin et al, 1977, pp. 101-107).

Mineralization consists of very minor amounts of malachite, chalcopryrite and erythrite associated with the breccia and its contact with the dolomite.

Current Work and Results:

In 1976, an airborne reconnaissance scintillometer survey located an anomaly associated with the breccia body. However, no anomalies were determined in summer 1977 during a follow-up preliminary ground scintillometer survey and the airborne anomaly was ascribed to bedrock change in lithology.

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SER  
Prism Resources Limited

Uranium, Copper  
106 D 16  
(64°54'N, 134°10'W)

References: Green (1972); Morin et al (1977, pp. 101-107).

Claims: SER 1-36

Location and Access:

The property is located in the Wernecke Mountains, 165 km northeast of Mayo and 18 km north of Gillespie Lake. Access is by helicopter.

History:

The claims were staked in September 1976.

Description:

The property is underlain by black argillite and orange dolomite of Proterozoic age that have been intruded by two breccia bodies. Mineralization is located along the contact of the argillite and breccia and consists of brannerite disseminated within the breccia matrix and along clast borders. In addition, minor chalcopryrite is associated with the breccia.

Current Work and Results:

During summer 1977, a ground radiometric survey was conducted with readings taken at 50 metre intervals along three lines totalling 15,000 metres in length. One anomalously radioactive area with brannerite mineralization was determined. Thirteen rock chip samples from selected areas of higher than background radioactivity were analyzed for Cu, Au, U, Pb, Zn and the highest value determined was 248 ppm U. Company geologists concluded that mineralization was of a sporadic nature only.

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TET  
Thor Explorations Limited

Copper, Uranium  
106 E 1  
(65°05'N, 134°30'W)

Reference: Norris (1975); Morin et al (1977, pp. 129-130).

Claims: TET 1-54

Location and Access:

The property is located in the Wernecke Mountains, 180 km north-northeast of Mayo and 4 km south of Quartet Lakes. Access is provided by float plane to Quartet Lakes from Mayo and then by foot to the property.

History:

The claims were staked in January 1976 by A. Harman and subsequently acquired by Thor Explorations Limited. During summer 1976, a geochemical soil sampling program located several coincident copper-uranium anomalies.

Description:

The property is underlain by fine-grained clastic sedimentary rocks of Norris' Lower Proterozoic unit HO (1975) that have been intruded by a north-south trending breccia body. Alteration zones of quartz-carbonate veinlets and silicification are peripheral to part of the breccia body.

Several types of mineralization are present. Chalcopryrite with minor bornite, pyrite, hematite or magnetite occurs within lenticular quartz pods and chalcopryrite also occurs disseminated within the breccia and adjacent hornfels. Brannerite occurs in silicified and hematized country rocks adjacent to the northeast side of the breccia. Significant mineralization is restricted to two showings - the west showing in TET #37, 40 and the north showing in TET #8 (Morin et al, 1977, pp. 129-130).

Current Work and Results:

During summer 1977, detailed geological mapping (1:10,000), prospecting and geophysical survey programs were conducted. The west showing was mapped at 1:2,000 scale and copper mineralization is reported to occur over a length of 600 metres. The average copper values reported for both the north and west showings are much lower than those determined in 1976 (Morin et al, 1977, p. 130). A combined magnetometer-scintillometer survey was conducted in the area of the north showing and the presence of a dyke-like magnetic body was determined.

\*\*\*\*\*

ORION  
Nuspar Resources Limited

106 E 1  
(65°02'N, 134°20'W)

References: Norris (1975); Bell and Delaney (1977).

Claims: ORION 1-52

Location and Access:

The property is located 172 km north of Mayo and 13 km southwest of Quartet Lakes. Access is provided by float equipped fixed wing aircraft to Quartet Lakes and from there by helicopter to the property.

History:

The claims were staked in January 1976 and subsequently optioned to Nuspar Resources Limited by A. Harman. During summer 1976, reconnaissance geological mapping and geochemical stream sediment sampling were carried out. Five silt samples were taken and analyzed for Cu, U, all values falling within the normal background range.

### Description:

The property is underlain by thinly bedded, black argillite of Lower Proterozoic Unit HO of Norris (1975) or Unit A of Bell and Delaney (1977). North-east trending isoclinal folds occur within the argillite. No mineralization was encountered.

### Current Work and Results:

During summer 1977, geological mapping (1:12,000), prospecting and reconnaissance stream sediment and water geochemical sampling were conducted. Only slightly anomalous uranium values were determined and consulting geologists did not recommend further work.

\*\*\*\*\*

GSTD 106 E 1  
Golden Standard Mines Limited (65°05'N, 134°23'W)

Reference: Norris (1975).

Claims: GSTD 1-33

### Location and Access:

The property is located 180 km north of Mayo and 5 km south of Quartet Lakes. Access is provided by float equipped aircraft to Quartet Lakes from Mayo and by foot trail the remaining distance.

### History:

The claims were staked in January 1976 and acquired by Golden Standard Mines in February 1976.

### Description:

The claims are largely overburden covered but are probably underlain by clastic rocks of Lower Proterozoic age, Unit HO of Norris (1975).

### Current Work and Results:

During summer 1976, a geochemical soil sampling program was conducted for uranium. A total of 225 samples were collected at 400 foot intervals along lines spaced 750 feet apart. Two weak anomalous areas were determined by the survey and further work consisting of copper geochemical analyses was recommended by consulting geologists.

\*\*\*\*\*

BON, QUA 106 E 1  
Hesca Resources Limited (65°05'N, 134°23'W)

References: Norris (1975); Morin et al (1977, pp. 101-107).

Claims: BON 1-31; QUA 1-34

### Location and Access:

The property covers the southern portion of the Quartet Lakes area in the Wernecke Mountains, 184 km north-northeast of Mayo. Access is provided by float equipped fixed wing aircraft to Quartet Lakes from Mayo.

### History:

The claims were staked in January 1976 by A. Harman and Associates and subsequently acquired by Hesca Resources Limited.

### Description:

The property is almost completely overburden covered, though minor outcrop of breccia occurs along the northeast corner of the BON group. The overburden is probably underlain by fine-grained clastics of

Proterozoic age intruded by breccia bodies (Morin et al, 1977). Mineralization in the breccia consists of specular hematite and minor malachite and chalcopryrite. No radioactive mineralization was noted.

### Current Work and Results:

During summer 1977, a soil geochemical sampling program for copper and uranium was conducted. A total of 187 samples were collected at 500 foot intervals along lines spaced 750 feet apart. One weak uranium anomaly was determined.

\*\*\*\*\*

THOR Uranium, Copper  
Aries Resources Limited 106 E 1  
(65°03'N, 134°30'W)

References: Norris (1975); Morin et al (1977, p. 128).

Claims: THOR 1-32

### Location and Access:

The property is located 8.1 km south of Quartet Lakes in the Bonnet Plume River area. Access is provided by float plane to Quartet Lakes, 185 km northeast of Mayo, and then by foot or helicopter to the property.

### History:

The claims were recorded in February 1976. They were staked by A. Harman to cover rock units favourable to copper and uranium mineralization and were later acquired by Great Bear Mining Limited. In 1976, preliminary exploration demonstrated the presence of uranium mineralization which assayed up to 1.14 lb U<sub>3</sub>O<sub>8</sub>/ton. Subsequently, the property was acquired by Aries Resources Limited.

### Description:

The property is underlain by rocks of Unit HO (Norris, 1975), i.e. dark grey, grey green and black thin-bedded argillite, slate and phyllite, minor grey quartzite, orange weathering dolomite and conglomerate. The rocks are isoclinally folded about a northeast striking axial plane dipping 52° to the northwest. In addition, an intrusive breccia body trends in a southwesterly direction across the south end of the property. The breccia body is approximately 31 m thick and has been traced for a minimum length of 465 m. Breccia fragments are angular to rounded and consist of thinly laminated carbonate, jasperoidal chert, mudstone and argillite. The matrix is sparry calcite with some specular hematite and particle size ranges from microscopic to one foot in diameter.

Mineralization consists of pods of brannerite and specular hematite within chloritized and feldspathized fractured argillite in contact with the breccia body (THOR 11, 13, 14). The degree of fracturing and the grade of mineralization increases near the contact. In addition, chalcopryrite locally occurs in quartz veins within argillite (THOR 2) and malachite occurs along bedding planes within argillite (THOR 27, 29).

### Current Work and Results:

During summer 1977, the property was subjected to detailed geological mapping (1:10,000), prospecting, magnetometer and radiometric surveys. The area of best mineralization was found to contain only sporadic concentrations of uranium and chip samples across it yielded low values only, eg. 0.002% U<sub>3</sub>O<sub>8</sub>, 0.04% Cu

across 10 feet of mineralized breccia. Geophysical measurements were taken at 50 foot intervals on lines spaced 200 feet apart along a total line length of 11,000 feet. No anomalies were determined that were due to mineralization and further work was not recommended by consulting geologists.

\*\*\*\*\*

POLARIS  
Harman Management Limited

106 E 1  
(65°02'N, 134°17'W)

Reference: Norris (1975).

Claims: POLARIS 1-30

Location and Access:

The claims are located 180 km north of Mayo and during summer 1976, access was provided by float equipped fixed wing aircraft to Quartet Lakes and from there by helicopter to the property, 15 km to the southwest.

History:

The claims were staked in January 1976.

Description:

The property is underlain by phyllite and slate of Lower Proterozoic Unit H0 (Norris, 1975). Locally, a swarm of quartz veinlets ranging in width from 3 mm to 6 mm is intrusive to the slate.

Current Work and Results:

During summer 1976, preliminary geological mapping was conducted and two silt samples were taken. An anomalous uranium value was determined and detailed prospecting and geochemical soil sampling programs were recommended by a company geologist.

\*\*\*\*\*

LOON, WOLF  
Mountaineer Mines Limited  
Pan Ocean Oil Limited

Uranium  
106 E 1, E 8  
(65°14'N, 134°28'W)

References: Norris (1975); Bell and Delaney (1977); Morin et al (1977, pp. 101-107).

Claims: LOON 1-12; WOLF 1-60

#### Location and Access:

The property is located in the Wernecke Mountains, 195 km north-northeast of Mayo and 10 km north of Quartet Lakes. Access is provided by float plane to Quartet Lakes and then by helicopter to the property.

History:

The LOON claims were staked in September 1976 and the WOLF claims in November 1976.

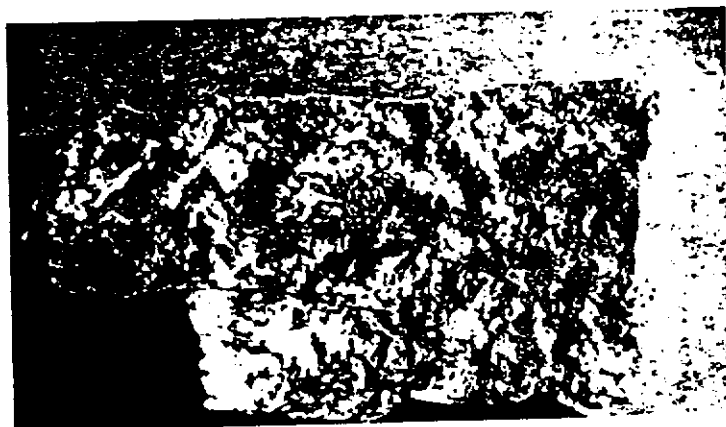
Description:

The property is underlain by a succession of Proterozoic fine-grained clastics and carbonates termed Unit A by Bell and Delaney (1977) and Unit H0 by Norris (1975). Green chloritic phyllite with interbedded siltstone and dolomite and feldspathic quartzite are intruded by several small breccia bodies.

Mineralization on the LOON claims consists of brannerite associated with quartz-feldspar veins that are intrusive to the quartzite and green phyllite. The brannerite occurs in greatest concentration within the pink feldspathic contact alteration zone between the veins and the country rock. In addition, brannerite occurs as minor disseminated grains in feldspathic quartzite (see Figure).

Current Work and Results:

During summer 1977, geological mapping (1 inch = 1/2 mile), prospecting, trenching and reconnaissance stream water geochemical sampling programs were conducted. One trench was dug with a length of 82.5 feet and over 22 feet of this, uranium mineralization occurred sporadically. Company geologists recommended further work to consist of more detailed geological mapping, stream sediment and soil geochemical sampling and trenching.



Specimen of feldspathic quartzite from the LOON property with red alteration haloes around fine-grained disseminated brannerite and magnetite. Specimen size, 10 cm x 5 cm.

RAD  
Mountaineer Mines Limited  
Pan Ocean Oil Limited

Uranium  
106 E 1, 106 D 16  
(65°00'N, 134°22'W)

References: Green (1972); Norris (1975); Bell and Delaney (1976).

Claims: RAD 1-24

Location and Access:

The claims are located in the Wernecke Mountains, 17 km northeast of Mayo and 13 km south-southeast of Quartet Lakes. Access is provided by float plane from Mayo to Quartet Lakes and then by helicopter to the property.

History:

The claims were staked in August 1976 to cover uranium showings discovered during a regional prospecting program by Harman Management Limited for Mountaineer Mines Limited. Pan Ocean Oil Limited acquired majority interest in the claims in late 1976 and in 1977, work was carried out by Pamicon Developments Limited.

Description:

The property is underlain by fine-grained clastics of Proterozoic age that have been intruded by a breccia body. The clastics correspond to map Unit A of Bell and Delaney (1976) and Unit 1 of Green (1972). Mineralization consists of minor disseminated brannerite associated with a felsic pegmatite dykelet swarm in dark green phyllitic mudstone and minor brannerite associated with a fault in light grey siltstone.

Current Work and Results:

During summer 1977, the property was subjected to programs of geological mapping (1 inch = 1/2 mile), detailed prospecting, and preliminary geochemical water sampling. Company geologists recommended further work to consist of detailed geochemical soil sampling, detailed geological mapping and assay sampling.

\*\*\*\*\*

BREAK  
Mountaineer Mines Limited  
Pan Ocean Oil Limited

Copper  
106 E 1, D 16  
(65°00'N, 134°19'W)

References: Green (1972); Norris (1975); Bell and Delaney (1977); Morin et al (1977, pp. 101-107).

Claims: BREAK 1-32

Location and Access:

The property is located in the Wernecke Mountains on the east side of the Bonnet Plume River valley, 175 km northeast of Mayo. Access is provided by float equipped fixed wing aircraft to Quartet Lakes and from there by helicopter, 15 km south.

History:

The claims were staked in September 1976 and adjoin the RAD group to the west.

Description:

The property is underlain by fine-grained clastics of Proterozoic age that have been termed Unit H0 by Norris (1975), Units 1a, 1 by Green (1972) and Units A, B by Bell and Delaney (1977). Mineralization consists of chalcopyrite, malachite and azurite in thin quartz-calcite-dolomite veins within heavily fractured argillite and chert.

Current Work and Results:

During summer 1977, geological mapping (1 inch = 1/2 mile) and prospecting programs were conducted. Company geologists recommended further work to consist of detailed stream sediment and water geochemical sampling and detailed prospecting.

\*\*\*\*\*

RIN, KID, RIOX, MS  
Rio Alto Exploration Limited

106 E 1, 2  
(65°10'N, 134°28'W)

Reference: Norris (1975).

Claims: RIN 1-24, KID 1-18, RIOX 1-30, MS 1-12

Location and Access:

The property is located 191 km north of Mayo and covers the northern half of Quartet Lakes. Access is provided by float equipped aircraft to Quartet Lakes.

History:

The KID, RIOX and MS claims were staked in February 1976 and the RIN claims in November 1976.

Description:

The property is mainly overburden covered but is indicated by Norris (1975) to be underlain by argillite of Lower Proterozoic Unit H0.

Current Work and Results:

During summer 1976, the property was subjected to a preliminary ground scintillometer survey and a 20 cup 70 Track Etch cup placement program. No anomalies were determined with the scintillometer survey but a radon anomaly was located with the Track Etch survey in the area covered by RIOX 9 and 10 and RIN 5, 6, 7, 8, 9 and 10. Further work consisting of more detailed ground scintillometer and Track Etch surveys was recommended by a consulting engineer.

\*\*\*\*\*

MTR  
New Minex Resources

106 E 1  
(65°09'N, 134°21'W)

References: Norris (1975); Morin et al (1977, p. 131).

Claims: MTR 9-16, 25-32, 39-48

Location and Access:

The property is located 6.5 km northeast of and immediately west of the Bonnet Plume River. Access is provided to Quartet Lakes by float plane from Mayo, 185 km to the southwest and then by helicopter to the property.

History:

The claims were recorded in February 1976. They were staked by A. Harman and Associates on the basis of proximity to the WERNECKE claim group where uranium mineralization is known to occur. Subsequently in August 1976, the property was acquired by New Minex Resources Limited. During summer 1976, a geochemical soil sampling program for copper-uranium determined two areas of weakly anomalous uranium values and one coincident copper-uranium anomaly.

Description:

The property is largely overburden covered and the minor outcrop present consists of fine-grained clastics and carbonates of Proterozoic age.

### Current Work and Results:

During summer 1977, geological mapping (1:12,000), soil geochemical (Cu, U) sampling and ground radiometric programs were conducted. A total of 21 soil samples and radiometric measurements were taken at 100 foot intervals along three lines over the coincident anomaly determined in 1976. No anomaly was conclusively outlined and consulting geologists recommended no further work.

\*\*\*\*\*

RAPI  
Great Bear Mining Limited

106 E 1  
(65°09'N, 134°30'W)

Reference: Norris (1975).

Claims: RAPI 1-36

### Location and Access:

The property is located 185 km north of Mayo and is accessible by float equipped fixed wing aircraft to Quartet Lakes and from there by trail, 3 km northwest to the property.

### History:

The claims were staked in January 1976.

### Description:

The property is underlain by argillite of Lower Proterozoic Unit HO (Norris, 1975).

### Current Work and Results:

During summer 1977, the property was subjected to a preliminary geochemical stream sediment sampling program for copper and uranium (20 samples). Several copper and uranium anomalies were determined, two of which are coincident. Programs of detailed prospecting and geological mapping were recommended by a company geologist but the property was dropped.

\*\*\*\*\*

FOX  
Mountaineer Mines Limited  
Pan Ocean Oil Limited

106 E 2  
(65°11'N, 134°47'W)

References: Norris (1975); Bell and Delaney (1977).

Claims: FOX 1-36

### Location and Access:

The property is located on Illtyd Creek in the Wernecke Mountains, 185 km north-northeast of Mayo and 7 km southwest of Kiwi Lake (unnamed lake 11 km northwest of Quartet Lakes). Access is provided by float plane to Kiwi Lake and from there by helicopter to the property.

### History:

The claims FOX 1-32 were staked in November 1976.

### Description:

The property is underlain by fine-grained clastics of Proterozoic age termed Unit HO by Norris (1975) and Units A and B by Bell and Delaney (1977). These rocks are unconformably overlain by Cambrian carbonates and clastics. No mineralization was encountered on the property.

### Current Work and Results:

During summer 1977, stream sediment, soil and water geochemical sampling programs were conducted. Company geologists recommended further work consisting of detailed geological mapping, prospecting, geochemical sampling, ground radiometrics and trenching.

\*\*\*\*\*

OWL  
Mountaineer Mines Limited  
Pan Ocean Oil Limited

106 E 2  
(65°13'N, 134°44'W)

References: Norris (1975); Bell and Delaney (1977).

Claims: OWL 1-20

### Location and Access:

The property is situated in the Wernecke Mountains, 190 km north-northeast of Mayo. Access is provided by float equipped fixed wing aircraft to Kiwi Lake (an unnamed lake 13 km northwest of Quartet Lakes) and from there by foot to the property, 3 km to the west.

### History:

The claims were staked in November 1976.

### Description:

The property is underlain by fine-grained clastics of Proterozoic age termed Unit HO by Norris (1975) and Unit A by Bell and Delaney (1977). No mineralization was encountered on the property.

### Current Work and Results:

During summer 1977, geological mapping (1 inch = 1/2 mile), prospecting, stream sediment and water geochemical sampling programs for uranium were conducted. Consulting geologists recommended further work to include detailed geological mapping, prospecting, geochemical sampling, ground radiometric survey and possible trenching.

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Lomond Creek Property  
Getty Mining Pacific Limited

116 A 12, B 9  
(64°40.5'N-64°44'N  
137°47'W-138°12'W)

Reference: Green (1972).

Claims: HPZ 1-54, 59-83; TBO 1-54, 59-77

### Location and Access:

The claims are located on the south side of Lomond Creek in an east-west trending rectangular block 18 km long. Access is provided by helicopter from Dawson, 100 km to the south.

### History:

The property was claimed in order to cover an area of Paleozoic shale from which stream sediment samples anomalous in zinc, copper and uranium were collected. Claims HPZ 1-28, 45-54, 59, 76-83 and TBO 1-32, 59 were staked in July 1976 and claims HPZ 29-44, 60-75, TBO 33-54, 60-77 in September 1976.

### Description:

The property is underlain by Paleozoic shale, limestone and chert (Units 9, 12 and 13, Green, 1972). Siliceous argillite of Devon-Mississippian age occurs as thin beds alternating with very thin shale beds and interbedded with beds of baritiferous

limestone. These are underlain by black, calcareous, fissile shale which contains "Mono-Twist" graptolites indicative of Lower Middle Devonian time. Thrust to the north over this sequence is massive, green to black chert of the Road River Formation. Sills or flows of andesite (Unit 20, op. cit.) occur within the chert unit. Only minor and trace amounts of mineralization were encountered - copper mineralization (chalcocite, malachite, sulvanite) in widely scattered quartz veins and hydrozincite associated with two fault zones.

#### Current Work and Results:

During summer 1976 and 1977, detailed geological mapping (1:25,000), soil geochemical sampling and prospecting programs were conducted. Soil samples (616) were collected at 200 to 250 foot intervals along claim lines and analyzed for copper, lead, zinc and uranium (239). Small, scattered zones of anomalous zinc, lead and copper values were determined, some of which are coincident.

\*\*\*\*\*

TIM  
Union Miniere Exploration  
and Mining Corporation Limited

116 A 12  
(64°43'N, 137°46'W)

Reference: Green (1972).

Claims TIM 1-18

#### Location and Access:

The property is located 53 km northeast of Dawson, on the south side of Lomond Creek. Access is provided by helicopter from Dawson.

#### History:

The claims were staked in June 1976.

#### Description:

The property is underlain by Devonian to Carboniferous fine-grained clastic sedimentary rocks (Green, 1972) which are folded into an east-west trending sequence of anticlines and synclines.

#### Current Work and Results:

During summer 1977, the property was subjected to a geochemical soil sampling program for lead. A total of 186 soil samples were collected at 200 foot intervals along lines spaced 1,500 feet apart. No areas of anomalous lead values were determined.

\*\*\*\*\*

SHAY  
Union Miniere Explorations  
and Mining Corporation Limited

116 A 12  
(64°43'N, 137°56'W)

Reference: Green (1972).

Claims: SHAY 1-127, 129-160, 162-171

#### Location and Access:

The claims are located in the Ogilvie Mountains, 100 km northeast of Dawson and 30 km southeast of Chapman Lake on the Dempster Highway. Access to the property is by helicopter.

#### History:

The claims were staked in June and July 1976.

#### Description:

The property is underlain by interbedded chert, argillite, quartzite and chert pebble conglomerate of the Road River Formation that are thrust to the north over black shale, limestone and chert of Middle Devonian to Carboniferous age (Green, 1972). The sequence dips uniformly to the south and is interpreted to lie on the southern limb of a large regional east-west trending anticline.

#### Current Work and Results:

During summer 1977, 2,007 geochemical soil samples were collected over the property. Samples were collected at 200 foot intervals along lines spaced 1,000 feet apart and analyzed for lead and four anomalous areas in lead were determined. Prospecting and geological mapping late in the 1977 field season indicates that the lead anomalies are related to very minor galena - (sphalerite-chalcopyrite) vein mineralization associated with and peripheral to diorite intrusive sheets that have penetrated thrust zones.

\*\*\*\*\*

LEP  
Union Miniere Explorations  
and Mining Corporation Limited

116 A 13  
(64°54'N, 137°54'W)

Reference: Green (1972).

Claims: LEP 1-28

#### Location and Access:

The claims are located 21 km east of Chapman Lake on the Dempster Highway. Access is provided by helicopter from Dawson, 125 km to the southwest.

#### History:

The claims were staked in August 1976.

#### Description:

Rocks mapped as Unit 13 by Green (1972) underlie the area, ie. Middle Devonian to Carboniferous black shale, argillite and slate, platy black limestone and chert. They have a regional east-west trend and are folded into a series of predominantly east-west trending anticlines and synclines.

#### Current Work and Results:

During summer 1977, a geochemical soil sampling program for total lead was conducted over the property. A total of 294 soil samples was collected at 100 foot intervals along lines spaced 1,000 feet apart. No anomalies were determined and further analyses for other elements were recommended by a company geologist.

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LAST  
Union Miniere Exploration and  
Mining Company Limited

Copper  
116 A 15  
(64°51'N, 136°38'W)

Reference: Green (1972); Morin et al (1977, p. 135).

Claims: LAST 1-8

#### Location and Access:

The property is located in the Wernecke Mountains, 80 km east of Chapman Lake. Access is by helicopter from Mayo or Dawson, both about 153 km to the south. During summer 1977, company access was by helicopter from a camp at Mile 68 on the Dempster Highway, 84 km west of the property.

### History:

The claims were recorded in August 1975 and staked as part of the UMEX-Shell 'Blackstone Project' joint venture. Work in 1976 included geological mapping and geochemical soil sampling which outlined two Cu-Co-Ag anomalies.

### Description:

The claims are underlain by clastic rocks of the Lower Proterozoic (Unit 1, Green, 1972). Unit 1 consists of mainly dark grey, grey-green and black, thin-bedded argillite, slate and phyllite with minor grey quartzite, orange-weathering dolomite and conglomerate. Mineralization consists of minor amounts of chalcopryrite disseminated within a dolomite (Unit 1, Green 1972) that has been possibly 'skarnified' by nearby dioritic plugs and sills.

### Current Work and Results:

During summer 1977, the property was subjected to prospecting, additional geological mapping (1:12,000) and geochemical soil sampling. No additional copper mineralization or evidence for a skarn environment were noted.

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SHYNE  
Union Miniere Explorations  
and Mining Corporation Limited

116 B 9  
(64°42'N, 138°10'W)

Reference: Green (1972).

Claims: SHYNE 1-100

### Location and Access:

The property is located 96 km northeast of Dawson, 13 km south-southeast of Lomond Lake and 13 km east of the Dempster Highway. It lies immediately south of the Lomond Creek property and access is provided by helicopter.

### History:

The claims were staked in October 1976.

### Description:

The property is underlain by an east-west trending sequence of rocks of the Road River Formation which are overthrust to the north over younger rocks of Middle Devonian to Carboniferous age (Green, 1972). The older rocks are described by Green as consisting of interbedded black chert and black argillite, grey-green, olive green and grey chert and grey-green argillite; minor quartzite and chert-pebble conglomerate. Forming the younger rocks are black shale, argillite and slate, black platy limestone, chert and minor chert-pebble conglomerate and quartzite. Regional east-west folding is predominant and expressed by a series of anticlinal and synclinal structures.

### Current Work and Results:

During summer 1977, a geochemical soil sampling program for lead was conducted with a total of 1,422 soil samples collected. Samples were collected at 200 foot intervals along north-south trending lines spaced 1,000 feet apart. Three anomalous areas were determined in the southeastern portion of the claim group. Prospecting and geological mapping late in the 1977 field season indicates that the lead anomalies are related to very minor galena - (sphalerite-chalcopyrite) vein mineralization associated with and peripheral to diorite intrusive sheets that have penetrated thrust zones.

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REIN  
Union Miniere Explorations  
and Mining Corporation Limited

Lead, Zinc  
116 B 9  
(64°43'N, 138°11'W)

Reference: Green (1972).

Claims: REIN 7-60

### Location and Access:

The property is located 95 km northeast of Dawson and 10 km east of the Dempster Highway. Access is provided by helicopter from Dawson.

### History:

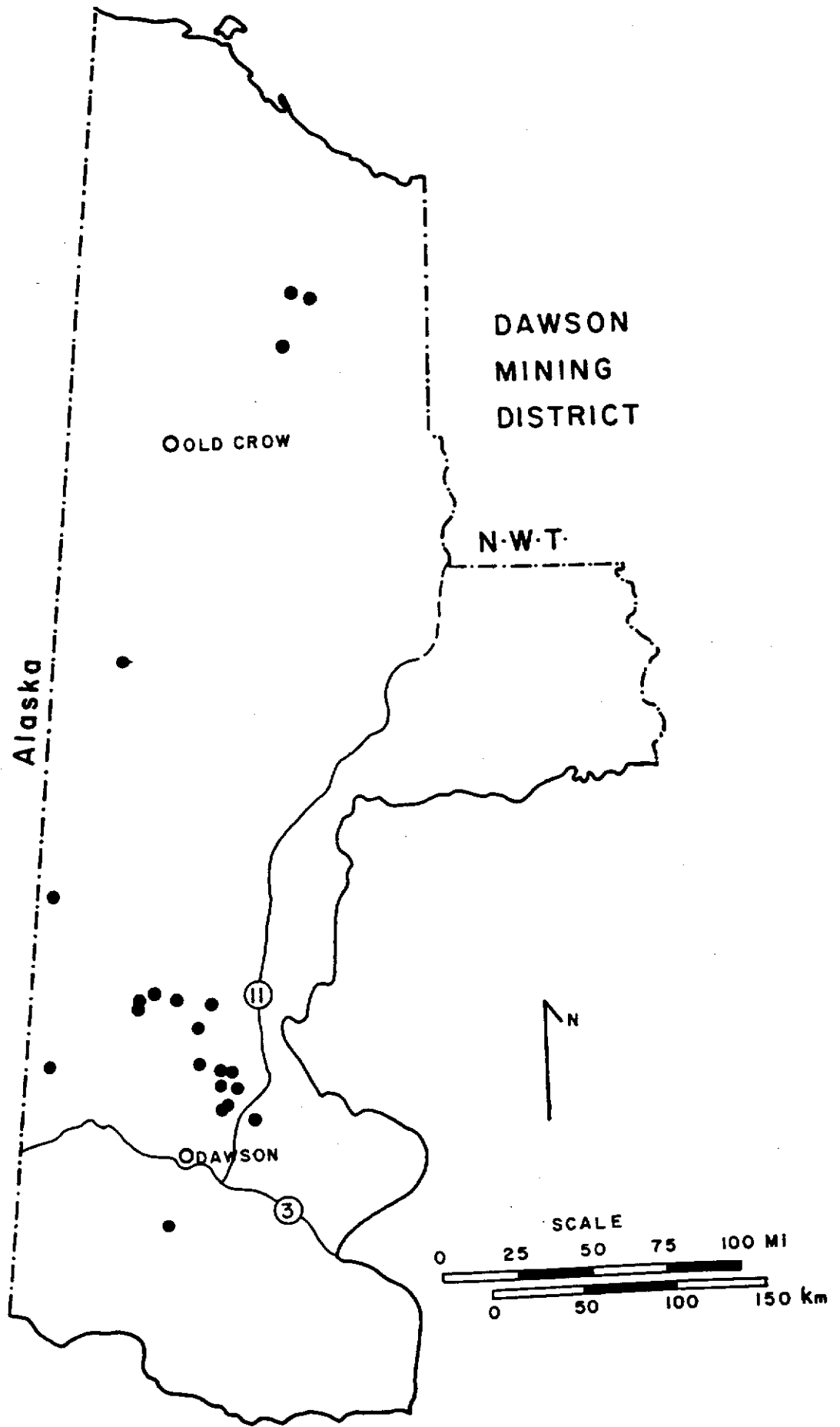
Claims REIN 7-50 were staked in June 1976 and REIN 51-60 in August 1976.

### Description:

The property is underlain by a thick, folded sequence of shale and argillite belonging to the Road River Formation and Middle Devonian to Carboniferous fine-grained clastic sedimentary rocks (Green, 1972). In the southern portion of the property, the older rocks are overthrust onto the younger rocks.

### Current Work and Results:

During summer 1977, a geochemical soil sampling program for lead and electromagnetic surveys were conducted. Soil samples were collected at 200 foot intervals along lines spaced 1,500 feet apart and 400 to 500 feet apart in areas of interest and several areas of anomalous lead values were determined. Vein mineralization in situ and float containing minor amounts of galena, sphalerite, pyrite and rare chalcopyrite in a quartz-carbonate-barite gangue was found in the vicinity of the strongest anomaly. The electromagnetic survey indicated several conductors thought to be caused by faults, graphitic shale horizons and conductive overburden. A company geologist concluded that no potential areas for economic base metal mineralization were outlined by the programs.



LUCKY JOE  
Rio Tinto Canadian  
Exploration Limited

Copper, Molybdenum  
115 0 11, 12  
(63°35'N, 139°30'W)

References: Bostock (1942); Sinclair et al (1975, pp. 80-81); Morin et al (1977, p. 139).

Claims: B 1-16; SUNEP 1-14, 18-34; BJB 1-17; ASH 1-44; PAX 1-10

Location and Access:

The property, situated near the headwaters of Lucky Joe Creek, is 6 miles (10 km) east of the Yukon River and roughly 30 miles (50 km) south of Dawson City. Access during 1977 was by helicopter based in Dawson City. A 22-mile (35 km) winter road extends from near the mouth of Quartz Creek, up McKinnon Creek and southwest past Haystack Mountain and Reindeer Mountain to the claims.

History:

The B claims were staked in the summer of 1970 over a copper showing by Silver Standard Mines Limited who carried out soil sampling, geological mapping and trenching that year. In 1971 Silver Standard diamond drilled 3 AX holes totalling 140 m. After optioning the property in 1975 Rio Tinto Canadian Exploration Limited staked an additional 101 claims peripheral to the B group. During 1975 the company completed further geological mapping, soil sampling and geophysical surveys as well as 425 m diamond drilling in two holes. The 1976 program consisted of 1 219 m diamond drilling on Claims B 1 and B 2 in five holes.

Description:

The property is underlain by Yukon Group metasediments which here consist of biotite schist, quartz-muscovite schist and amphibolite (Unit E, Bostock, 1942). These metasediments are flanked to the east and west by bodies of gneissic granite (Unit A, op. cit.) which is exposed on the west and northwest portions of the claim groups. Chalcopyrite and pyrite with minor amounts of molybdenite occur as disseminations and in fractures paralleling foliation in biotite and quartz-muscovite schists below an amphibolite horizon.

Current Work and Results:

The 1977 field work consisted of additional geochemical soil surveys over the northern and north-western portion of the property and a test horizontal loop EM survey over part of the ground covered in 1975.

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HOT  
Mountain Minerals  
Company Limited

Uranium  
116 B 7  
(64°23'N, 138°00'W)

References: Cockfield (1920); Tempelman-Kluit (1970); Green (1972).

Claims: HOT 1-6, 8

Location and Access:

The claims are located in the Tombstone Mountains about 49 km northeast of Dawson.

History:

The claims were staked in 1976.

Description:

Rocks of Cretaceous alkali syenite underlie the claims.

Current Work and Results:

A reconnaissance scintillometer survey was conducted. It is possible that some of the coarse-grained tinguaitite unit is found on the property.

\*\*\*\*\*

TING, NOTING, PROSPECTING  
Archer, Cathro and  
Associates Limited

Uranium  
116 B 7  
(64°23'N, 138°38'W)

References: Cockfield (1920); Tempelman-Kluit (1970); Green (1972); Goodfellow and Jonasson (1977); Morin et al (1977, p. 140).

Claims: TING 1-50, 85-94, 95-96 Fr; NOTING 51-76; PROSPECTING 77-84

Location and Access:

The claims are located 49 km northeast of Dawson. Access in 1976 was by helicopter from a camp at Mile 45 (Km 72) of the Dempster Highway.

History:

The claims were staked in the spring and summer of 1976 for the Ukon Joint Venture managed by Archer, Cathro and Associates Limited.

Description:

The TING, NOTING and PROSPECTING claims are located on the Tombstone Stock. The stock is composed of coarse-grained alkaline plutonic rocks of Lower Cretaceous age, ranging from alkali syenite, tinguaitite, nepheline syenite and monzonite to silica-saturated rocks of granodioritic and quartz dioritic composition. The major minerals observed are orthoclase, plagioclase, nepheline, cancrinite, calcite, biotite, hornblende pyroxene and quartz. Accessory minerals identified so far include sphene, zircon, apatite, melanite garnet, fluorite, apatite and opaques. Trachytic dykes are found in the area of the stocks cutting the country rocks. Radioactivity is associated with the tinguaitite and dykes at the eastern margin of the stock near Mt. Monolith. The stock is intrusive into orthoquartzite, (Keno Hill Quartzite) and diabase and xenoliths of the country rocks are common in the stock.

Current Work and Results:

The 1977 work consisted of grid radiometric surveys and three hand trenches dug into bedrock in an uranium bearing zone on the TING claims.

\*\*\*\*\*

BETA  
Urangesellschaft Canada  
Limited

Uranium  
116 B 7  
(64°25'N, 138°31'W)

References: Cockfield (1920); Tempelman-Kluit (1969; 1970); Green (1972); Goodfellow and Jonasson (1977).

Claims: BETA 1-26

Location and Access:

The claims are located 50 km northwest of Dawson in the Tombstone Mountains. Access is by helicopter from Dawson.

History:

The claims were staked in April 1977.

### Description:

The claims are underlain by an alkaline syenite intrusion of Middle Cretaceous age. The rocks have been divided into four units described as follows: Unit 1: a broad unit of various rock types found as xenoliths, fine-grained mafic rocks and older sediments, quartzites and calc-silicates; Unit 2: syenites of various types, mainly with porphyritic orthoclase; Unit 3: a white alkali granite containing 60-80% alkali feldspar, 15-30% quartz and 10-15% mafic minerals; Unit 4: a pink alkali granite as dykes and dyke-like segregations which contain smoky quartz.

### Current Work and Results:

A geological map of the claims was produced. A grid scintillometer survey was conducted and rocks were analysed geochemically for uranium and thorium. Radioactive boulders were located in various parts of the scree traced from a dyke of unit 4. This dyke is anomalous in uranium and thorium with geochemical assays indicating 0.11 to 0.31 lbs U/ton and 1.7-1.9 lbs Th/ton.

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TETA Urangesellschaft Canada Limited	Uranium 116 B 7 (64°24'N, 138°42'W)
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References: Cockfield (1920); Tempelman-Kluit (1969; 1970); Green (1972); Goodfellow and Jonasson (1977).

Claims: TETA 1, 3-24

### Location and Access:

The claims are located 50 km northeast of Dawson in the Tombstone Mountains. Access is by helicopter from Dawson.

### History:

The claims were staked in August 1976 to cover an airborne radiometric anomaly.

### Description:

The claims are situated on the southeast rim of the Tombstone Stock, an alkali syenite intrusion of Middle Cretaceous age. The southwest portion of the claim block is underlain by a dark grey fine-grained orthoquartzite (Keno Hill Quartzite). The rest of the property is underlain by the intrusion which consists predominately of medium- to coarse-grained, pink and grey porphyritic syenite. Pegmatitic and aphanitic phases are found but are of limited extent. The mineralogy, in decreasing abundance, consists of orthoclase, plagioclase, pyroxene, and hornblende with accessory magnetite and fluorite. A large zone of hybrid rocks is found on the property. This zone contains a variety of rock types which contain up to 10% pyrite and are predominately siliceous in character, with some calc-silicate skarns. This zone is probably one of assimilation of the country rocks, which are predominately quartzites in this instance.

The host to most of the uranium mineralization is a pseudoleucite tinguaitite unit that forms a band in the intrusive along the northeast edge of the property for one a length of 1 800 m and across a width of 45 m. Shearing is pervasive in this unit and its contact with the syenite is known to be both sharp and gradational. The unit is a dark grey white-spotted rock containing white phenocrysts of pseudoleucite (40%) (nepheline-orthoclase intergrowths in trapezohedral form) and tabular clear orthoclase set in an aphanitic

groundmass of biotite, calcite, melanite and sphene, as well as sparse cancrinite. Fluorite and magnetite are commonly found as accessory minerals in the rock.

### Current Work and Results:

Geological mapping, scintillometer surveys and gamma-ray spectrometer surveys were carried out on the claim groups. Several mildly radioactive anomalies were located in magnetite-bearing pseudoleucite tinguaitite. One sheared outcrop, measuring 9 m x 12 m, ran 2-3 times background and assayed 630 ppm uranium. A significant radioactive zone was found in talus scree comprised principally of sheared pseudoleucite tinguaitite. Significant molybdenite was found in one highly radioactive sample. A magnetometer and EM survey were conducted. An intermediate magnetic high correlates well with the radioactive zone but no EM response was evident.

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SUMTING Archer, Cathro and Associates Limited	Uranium 116 B 7 (64°27'N, 138°38'W)
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References: Cockfield (1920); Tempelman-Kluit (1970); Green (1972); Goodfellow and Jonasson (1977).

Claims: SUMTING 1-22

### Location and Access:

The claims are located approximately 59 km northeast of Dawson in the Tombstone Mountains.

### History:

The claims were staked in 1976 to cover an area of radioactive float.

### Description:

The property is underlain by a zone of tinguaitite as well as several roof pendants of sedimentary rock within the Tombstone syenite stock.

### Current Work and Results:

The northern accessible portion of the claim block was mapped. Seven roof pendants composed of limestone, schist and "Keno Hill Quartzite" were located. The limestone is recrystallized to marble. Isolated spots of anomalous radioactivity are associated with tinguaitite but no strong anomaly was located on the 350 m by 250 m radiometric grid.

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NEBULOUS Archer, Cathro and Associates Limited	Uranium 116 B 7 (64°28'N, 138°46'W)
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References: Cockfield (1920); Lambert (1966); Tempelman-Kluit (1970); Green (1972).

Claims: NEBULOUS 1-33

### Location and Access:

The claims are located 49 km northeast of Dawson in the Cloudy Range between the Chandindu and Blackstone Rivers. Access is by helicopter from Dawson.

### History:

The claims were staked in the summer of 1976.

### Description:

The claims are located on the Lower Cretaceous Mt. Brenner stock which has a core of porphyritic

quartz monzonite and is concentrically zoned successively by porphyritic hornblende monzonite, monzonite porphyry, a thin band of pyroxenite and augite-biotite porphyry (Lambert, 1963). The stock is surrounded mainly by a Lower Cretaceous orthoquartzite (Keno Hill quartzite) and diabase.

#### Current Work and Results:

Several bedrock trenches were dug in an area where secondary uranium mineralization is occurring in widely spaced joints. A 10 m long trench from the best area averaged 0.0105% U<sub>3</sub>O<sub>8</sub>, of which 0.0082% was contributed by the porphyritic monzonite and 0.0023% by the secondary enrichment. An 80 m x 100 m grid radiometric survey over an airborne radiometric anomaly to the northwest located a slightly anomalous area of monzonite float, chip sampling of a small outcrop returned 50 ppm U and 220 ppm Th. No secondary oxides were seen in this area.

\*\*\*\*\*

C	Uranium
Chevron Standard Limited	116 B 8 (64°17'N, 138°13'W)

References: Cockfield (1920); Tempelman-Kluit (1970); Green (1972); Morin *et al* (1977, p. 142).

Claims: C 1-14, 27, 28

#### Location and Access:

The property is located on Antimony Mountain 61 km east-northeast of Dawson. Access was by helicopter from Dawson.

#### History:

The claims were staked in 1975. In the past, interest has been shown in the stock for gold, copper and antimony mineralization.

#### Description:

The claim group is underlain by unit 21b (Green, 1972) which is an intrusive stock of Cretaceous age named the "Antimony Stock". The stock consists of hornblende and hornblende/biotite syenite.

#### Current Work and Results:

The claims were mapped geologically at a scale of 1:12,000. Geochemical surveys utilizing soil, rock and stream silt samples and ground radiometric surveys were conducted on all the claims. Results were not favourable and much of the original 69 claims were allowed to lapse with only 16 claims being retained.

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A, B, AB	Uranium
Chevron Standard Limited	116 B 11 (64°32'N, 139°07'W)

References: Cockfield (1920); Tempelman-Kluit (1970); Green (1972); Morin *et al* (1977, p. 143).

Claims: A 1-16; B 1-4, AB 1-76; WAD 1-48

#### Location and Access:

The property is located near Deadman's Gulch about 56.3 km north of Dawson. Access in 1977 was by helicopter from Dawson.

#### History:

The claims were staked in 1975.

#### Description:

The claim groups are underlain by unit 21b of Green (1972) which is an intrusive stock of Cretaceous age. The intrusive, which is called the 'Deadman Stock', is a multiphase pluton in which the four main phases are; 1) pink and grey equigranular hornblende biotite syenite, 2) pseudolucite-tinguaite, 3) nepheline monzonite and 4) black and white, porphyritic to equigranular hornblende-garnet syenite. Uranium and thorium mineralization is found associated with the intrusion.

#### Current Work and Results:

The claims were mapped geologically at a scale of 1:12,000. Stream sediments, soil, and rocks were analysed geochemically. Ground and airborne radiometrics cover the claim groups. Blasting and hand trenches were dug on nine claims, A 1, 9, 10; AB 15, 60; WAD 23, 24, 25, 44. Winkie drilling (AX) for a total of 225 m in seven holes took place on A 1, 9, 10 and WAD 44. Minor mineralization was outlined.

\*\*\*\*\*

BRX	116 B 11
Prism Resources Limited	(64°44'N, 139°08'W)

Reference: Green (1972).

Claims: BRX 1-8

#### Location and Access:

The claims are located approximately 80 km north of Dawson City. Access is by helicopter.

#### History:

The claims were staked in September 1976.

#### Description:

The claims are underlain by dolomite, maroon and green shales and quartzites of Units 2a and 2b of Green (1972).

#### Current Work and Results:

Two reconnaissance lines 400 m long were surveyed with a Crone CEM electromagnetic unit. Results were inconclusive. Two types of sulphide mineralization was observed in float; (1) massive pyrite in quartz boulders, and (2) dolomite breccia containing quartz, pyrite and honey-coloured sphalerite.

\*\*\*\*\*

ID	Copper, Lead, Zinc
Union Miniere Explorations and Mining Corporation Limited	116 B 13 (64°50'N, 139°40'W)
Shell Canada Resources Limited	

Reference: Green (1972).

Claims: ID 1-26, 61-64, 66-67, 69-72

#### Location and Access:

The claims are situated 19 km north of Mount Harper. Access to the claims was by helicopter from a base camp at Mile 68 on the Dempster Highway, distances of about 48-72 km.

#### History:

All claims were staked in 1975 as part of the Blackstone Project - a UMEX-Shell joint venture.

#### Description:

The ID, claims are underlain by a sequence of Proterozoic clastic sediments

### Current Work and Results:

A soil geochemical survey for copper and cobalt was conducted on the claim group. Four soil anomalies for copper were outlined as well as several widespread high cobalt values. Copper mineralization is found related to minor veins that are spatially related to diorite sills and dykes.

\*\*\*\*\*

OD  
Union Miniere Explorations and  
Mining Corporation Limited  
Shell Canada Resources Limited

Copper, Lead, Zinc  
116 B 13  
(64°49'N, 139°38'W)

Reference: Green (1972).

Claims: OD 1-78

### Location and Access:

The claims are situated within 15-30 km north of Mount Harper. Access to the claims was by helicopter from a base camp at Mile 68 on the Dempster Highway, distances of about 48-72 km.

### History:

All claims were staked in 1975 as part of the Blackstone Project - a UMEX-Shell joint venture.

### Description:

The OD claims are underlain by limestone and stromatolitic dolomites.

### Current Work and Results:

The OD claims are underlain by a thick conformable sequence of Proterozoic sediments which can be sub-divided into several units. Unit 1 contains shales and siltstones, orange-weathering dark grey dolomite (locally stromatolitic), bedded black chert, and brown to maroon mottled shales and siltstones. This unit has been correlated with Unit 1 of Green (1972). Conformably overlying Unit 1 is a thick (1,300 feet (?)) sequence of massive, grey-weathering dark grey stromatolitic dolomites. The Proterozoic sequence is capped by laminated, flaggy to blocky orange-weathering, grey to dark grey dolomite, dolobreccia and minor black shale (Unit 4) and maroon and light brown shales and siltstones (Unit 5). Units 3, 4 and 5 are correlated with Unit 2b of Green (1972). Several widespread but minor sulphide occurrences are found within Units 3 and 4.

Four holes for a total of 1,088 feet (332 m) were drilled on the OD 27 and 39 claims. No significant mineralization was intersected.

\*\*\*\*\*

DAS, LALA  
Union Miniere Explorations and  
Mining Corporation Limited  
Shell Canada Resources Limited

Copper, Lead, Zinc  
116 B 13, 14  
(64°49'N to 64°55'N,  
139°15'W to 139°50'W)

Reference: Green (1972).

Claims: DAS 1-42; LALA 1-60

### Location and Access:

The claims are situated within 15-30 km north of Mount Harper. Access to the claims was by helicopter from a base camp at Mile 68 on the Dempster Highway, distances of about 48-72 km.

### History:

All claims were staked in 1975 as part of the Blackstone Project - a UMEX-Shell joint venture.

### Description:

The DAS and LALA claims are underlain by a sequence of Proterozoic clastic sediments.

### Current Work and Results:

Geological mapping indicates that the area is underlain by a thick unconformable sequence of Proterozoic sediments which have been sub-divided into 3 main units. The basal unit is a dark weathering folded and sheared formation of highly contorted black and green slates, phyllites and siltstones. It is at least 2,000 feet thick. Unconformably overlying these slates is a thick (1,500 feet) Helikian (?) formation containing; purple-grey hematitic breccia, purple siltstones and shale, and brown weathering dolomites grading to quartzites; interbedded green and black shales with jasper bands; interbedded purple shales and siltstones, purple and green mottled shales and siltstones, breccias and quartzites. Overlying the Helikian (?) sediments is a thick succession of interbedded black and maroon shales, siltstones, minor quartzites and limestones. This unit is possibly a basal Hadrynian unit. Copper mineralization is sparse and seems to be associated with Helikian (?) siliceous dolomites and quartzite units and the green and black shales with jasper bands.

Two diamond drill holes were drilled to test a low order copper soil anomaly by 615 feet (187 m) on the LALA 5 and 8 claims. No mineralization was found in the holes.

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ROB  
Union Miniere Explorations  
and Mining Corporation  
Shell Canada Resources Limited

Copper, Uranium  
116 B 14  
(64°51'N, 139°17'W)

Reference: Green (1972).

Claims: ROB 1-12

### Location and Access:

The claims are situated approximately 16 km west of Kit Lake. Access is by helicopter from the Dempster Highway, 45 km to the east.

### History:

The claims were staked in June 1977.

### Description:

Mineralization occurs as sparse chalcopyrite and traces of uraninite in thin (6-30 cm) quartz-ankerite veins within a series of Unit 1 (Green, 1972).

### Current Work and Results:

The claims were mapped geologically at a scale of 1:2,400. A soil geochemical survey was conducted on the claims, ground scintillometry on the ROB 1-6 and ground EM on ROB 3-4. Representative grab and chip samples assay from less than 0.001% U<sub>3</sub>O<sub>8</sub> to 0.004% U<sub>3</sub>O<sub>8</sub>.

\*\*\*\*\*

DAWG  
Union Miniere Exploration  
and Mining Corporation Limited  
Shell Canada Resources Limited

116 B 15  
(64°50'N, 138°51'W)

Reference: Green (1972).

Claims: DAWG 1-48

OPERATING SUMMARY, 1975-1977

Location and Access:

The claims are situated approximately 27 km west of Chapman Lake. Access was by helicopter from a base camp at Mile 68 of the Dempster Highway.

History:

The claims were staked on August 5, 1976 for the Blackstone Project, a Umex-Shell joint venture.

Description:

The claims are underlain by a sequence of Middle Paleozoic sediments (Units 8 and 13, Green 1972). These are Cambrian-Ordovician massive grey, crystalline dolomite (Unit 8) unconformably overlain by Devonian to Carboniferous black shale, argillite, black limestone chert, chert pebble conglomerate and quartzite.

Current Work and Results:

A total of 481 soil samples were collected over 33.5 km of line and were analyzed for total lead. Four small anomalies were outlined. The lead anomalies occur in swampy areas characterized by highly organic soil. The anomalies are not thought to be caused by lead mineralization but rather by adsorption of lead to organics from circulating groundwaters.

\*\*\*\*\*

CLINTON CREEK MINE	Asbestos
Cassiar Asbestos	116 C 7
Corporation Limited	(64°27'N, 140°42'W)

References: Green and Godwin (1964, pp. 19-21); Green (1965, pp.25-27; 1966, pp. 25-26); Christian (1966); Findlay (1967, pp. 27-29; 1969a, pp. 31-32; 1969b, pp. 18-20); Craig and Laporte (1972, pp. 30-31); Green (1972, pp. 143-144); Craig and Milner (1975, pp. 14-15); Sinclair and Gilbert (1975, pp. 29-30); Sinclair et al (1975, pp. 72-73).

Claims: 147 claims

Location and Access:

The Clinton Creek Mine is 81 km northwest of Dawson and can be reached by a 42-km, all-weather road from Mile 33 of the Sixtymile-Boundary Road. Asbestos fibre is shipped by truck to Whitehorse, a distance of 631 km, and then by rail to the port of Skagway.

History:

The property was staked in 1957 and brought into production 1967.

Description:

The Clinton Creek asbestos deposits occur in serpentized ultrabasic rocks (Unit E, Green, 1972) associated with metamorphic rocks of the Nasina series (Unit A, op. cit.). The asbestos fibre occurs almost entirely as cross-fibre veinlets, one quarter inch or less in width.

Current Work and Results:

In 1977, five HQ diamond drill holes were sunk for a total depth of 449 m. These holes confirmed the previously established ore boundaries for the Snowshoe Creek ore body.

	1977	1976	1975
Tons Milled	1,331,466	1,390,525	1,385,648
Rate (tons.day)	4,423	4,594	5,039
Grade (% recovery)	6.18%	6.08%	5.85%
Reserves	770,000	3,848,000	4,773,000

During 1977, an additional 1,099,682 tons of ore reserves were lost due to deterioration and subsequent instability of the pit walls. Mining terminated in July 1978 due to exhaustion of ore reserves.

\*\*\*\*\*

PL	Zinc, Lead
BP Minerals Limited	116 F 7
	(65°21'N, 140°52'W)

Claims: PL 1-28

Location and Access:

The claims are located on the west side of Ettrain Creek, 4.8 km east of the Yukon-Alaska border. Access is by helicopter from Dawson City, 128 km to the southwest.

History:

The claims were staked in July 1976.

Description:

Pre-Cambrian quartzites, in places interbedded with silty and micaceous shales, form the upper plate of a thrust which overlies Devonian carbonates. These consist of grey to light grey limestones and dolomites. A narrow, northwest trending zone of fracturing, parallel to the thrust, contains silicified and vuggy sections, including "two hole" crinoids and therefore suggests that the carbonates may be equivalent to the Mid Devonian Ogilvie Formation.

Current Work and Results:

A geochemical survey of soils, silts and rocks for lead, zinc, silver and cadmium was conducted on the property. Sulphide mineralization occurs in the carbonates below the major thrust fault.

\*\*\*\*\*

RUSTY SPRINGS PROSPECT	Lead, Zinc, Silver,
Rio Alto Exploration Limited.	Copper
	116 K 8, 9
	(66°30'N, 140°22'W)

Claims: RIO 1-60, NATE 3-14, CARB 3-16

Location And Access:

The property is in northwestern Yukon 5 miles (8 km) south of the Arctic Circle, 20 miles (35 km) east of the Alaska border and 70 miles (112 km) south of the Village of Old Crow. Usual access is by helicopter from Dawson City 170 (280 km) air miles to the south. Fuel and equipment are trucked to a convenient point on the Dempster Highway 95 miles (160 km) south-east of the property and taken in from there by helicopter.

Description:

The area is within Porcupine Ranges of northern Yukon. The area was unglaciated during the Pleistocene and present topography is dominated by rounded mountain tops with ridges following the northerly trends of resistant formations. Elevations on the property range from 1,700 feet (500 m) to 3,500 feet (1 000 m).

The stratigraphic section in the region consists of sediments ranging from Proterozoic to Lower Cretaceous. On the property a north trending anticline or elongate domal structure has late Paleozoic sediments on the west limb with late Paleozoic, Jurassic and Cretaceous rocks exposed on the vertical to overturned east limb. In the breached core of the anticline occurs silicified, brecciated dolomite of mid-Devonian age. Elsewhere in the district the mid-Devonian strata are typically fossiliferous limestone. The mid-Devonian is overlain by black, cherty shales of probable late Middle or Upper Devonian age.

An iron deposit occurs in the near vertical Jurassic-Lower Cretaceous beds of the east limb. It consists of a resistant, north trending ridge 1,200 feet (366 m) long and approximately 150 feet (46 m) thick which disappears beneath the muskeg at both ends. The deposit consists of bedded, blue-black, massive oolitic magnetite, free of shale interbeds, which on the basis of surface sampling grades 55%-58% Fe.

The silicified, brecciated dolomites of the core of the structure is host to lead-zinc-silver-copper occurrences. Quartz veins in association with calcite and breccia zones with vugs carry the sulphide minerals.

#### Current Work And Results:

During the 1976 field season geological mapping, geochemistry, trenching and prospecting were carried out on the property with the recognition of more occurrences of mineralized float.

During 1977 additional prospecting and geochemical sampling were done. Eleven diamond drill holes were completed; 5 on the TIM showing in an attempt to determine the cause of the high geochemical results and the source of the mineralized float and 6 on the ORMA showing 4,400 feet (1 340 m) to the east. On the ORMA, one drill hole intersected a well mineralized fault zone which returned significant grades in silver, lead and copper with minor zinc. Core recoveries in the zone, however, were poor. The company plans an expanded drilling program in 1978.

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NET Uranium  
Aquitaine Company of 117 A 3, 116 O 16  
Canada Limited (68°02'N, 138°10'W)

Reference: Norris *et al* (1963, 1978).

Claims: NET 290-301, 319-331, 342-352, 357-360

#### Location and Access:

The NET claims are located about 170 km southwest of Inuvik in the Bonnet Lake area. Access is by float plane from Inuvik to Bonnet Lake and thence by helicopter.

#### History:

The claims were staked in November 1976.

#### Description:

The claims are underlain by the Road River Formation and the Kingak Formation (Norris, 1978).

#### Current Work and Results:

Airborne gamma-ray spectrometry was used as a reconnaissance tool to locate areas of anomalous uranium radioactivity. Ground scintillometry was used as a follow-up.

BON Uranium  
Aquitaine Company of 117 A 7  
Canada Limited (68°17'N, 137°50'W)

Reference: Norris *et al* (1963, 1978).

Claims: BON (various)

#### Location and Access:

The BON claims are located about 170 km southwest of Inuvik in the Bonnet Lake area. Access is by float plane to Bonnet Lake and thence by helicopter.

#### History:

The claims were staked in August 1977.

#### Description:

The claims are underlain by rocks of the Ordovician Road River Formation, the Mississippian Kekikutuk Formation and Kayak Formation, and the Jurassic-Cretaceous Kingak Formation. Rock types recognized include white chert, white siltstone, shale, iron-rich sandstone, quartzite, grey sandstone and white sandstone.

#### Current Work and Results:

Airborne gamma-ray spectrometry was the reconnaissance tool used to outline the radioactive anomalies, which were surveyed by scintillometer. One area was gridded and surveyed using scintillometers and radon detectors. One showing was trenching and mapped geologically. Correlation with the regional geologic units as mapped by Norris (1978) is not yet possible.

\*\*\*\*\*

BOU Uranium  
Aquitaine Company of 117 A 6  
Canada Limited (68°20'N, 138°09'W)

Reference: Norris *et al* (1963, 1978).

Claims: BOU 37-50, 77-82, 118, 120, 122

#### Location and Access:

The BOU claims are situated in the Bonnet Lake area, about 170 km southwest of Inuvik. Access is by float plane from Inuvik to Bonnet Lake and thence by helicopter.

#### History:

The claims were staked in August and October 1976.

#### Description:

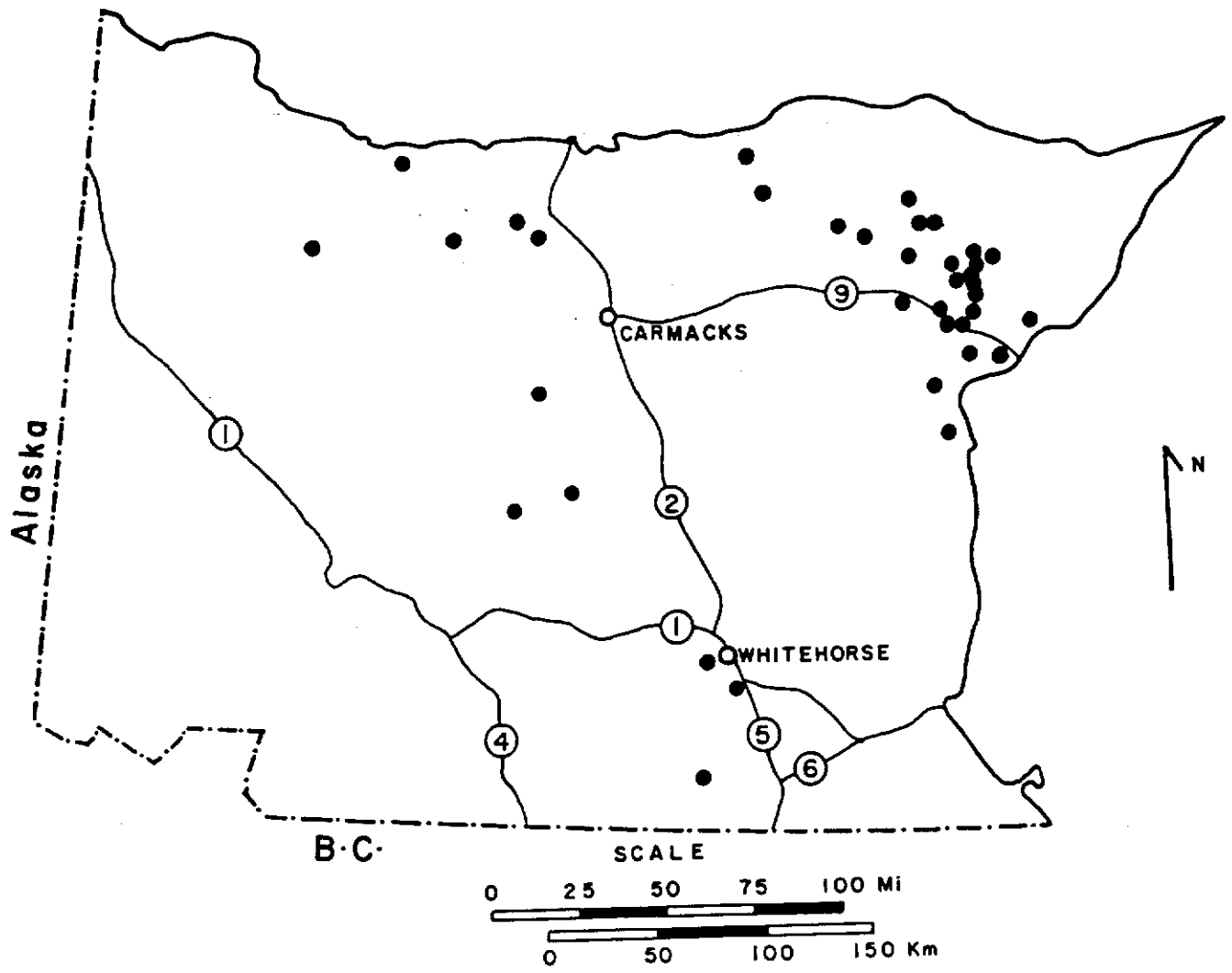
The claims are underlain by a sequence of folded and faulted sediments ranging in age from Ordovician to Cretaceous.

#### Current Work and Results:

Primary reconnaissance of the claims utilized airborne gamma-ray spectrometry followed up by ground scintillometry on anomalies. Geological mapping and trenching was carried out on two uranium anomalies.

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# WHITEHORSE MINING DISTRICT



BECKER-COCHRAN PROPERTY  
Con-Am Resources Limited

Antimony  
105 D 3  
(60°11'N, 135°13'W)

References: Cairnes (1910, p. 48; 1916, p. 45);  
Bostock (1941, p. 35); Wheeler (1961, p. 132);  
Green (1965, p. 42; 1966, pp. 52-55); Findlay  
(1967, p. 43; 1969a, p. 57); Sinclair et al  
(1975, pp. 147-148); Morin et al (1977, pp.  
149-150).

Claims: POP 1-14; DIANE 1-8; CARBON 1-4; BANG 1-8;  
WHIZ 1-14

Location and Access:

The property is situated west of Becker Creek on the north side of Carbon Hill at elevations above 5,000 feet. Access is presently by helicopter from Whitehorse, 61 km to the north or by a 40 km gravel road via Annie Lake connects the property with the Carcross Road. The company built a new bridge across the Wheaton River in the spring of 1977.

History:

The property is an old one, originally discovered in 1893 and explored intermittently since then. The POP claims were staked in 1973 and re-examined briefly in 1974. In 1976 VLF-EM surveys and geological mapping was carried out on the property.

Description:

Granitic rocks of the Coast Intrusions (Unit 8, Wheeler, 1961) underlie most of the property. Antimony occurs in a five-foot wide shear zone, trending 130° and dipping 75° southwest in a small body of altered acidic volcanic rocks (Unit A, op. cit.) contained with the granitic rocks. Fine-grained stibnite and pyrite, and massive knots of coarse stibnite crystals occur with quartz gangue as irregular patches and lenses within the shear zone.

Current Work and Results:

A total of 17 diamond drill holes were drilled on the property for a total of 1 255.5 metres. The stibnite occurs in late structures, primarily along gouge filled faults and in veins in altered rhyolite and welded tuff. A poorly consolidated quartz pebble conglomerate was found to overlie the rhyolite. This rock contains subrounded quartz pebbles 0.5-2.5 cm in size with a few feldspar pebbles in a 30-40% quartz matrix.

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Whitehorse Copper  
Mines Limited

Copper, Gold, Silver  
105 D 10, 11  
(60°33'N to 60°45'N,  
134°53'W to 135°10'W)

References: Kindle (1964); Green and Godwin  
(1964, pp. 33-39); Green (1965, pp. 40-41;  
1966, pp. 50-51); Findlay (1967, pp. 41-43;  
1969a, pp. 49-54); Hilker (1967); Craig and  
Laporte (1972, pp. 110-111); Sinclair and  
Gilbert (1975, pp. 74-76); Sinclair et al  
(1975, pp. 142-143); Sinclair et al (1976, pp.  
99-101); Morin et al (1977, p. 150).

Claims: Approximately 714 claims in the Whitehorse  
Copper Belt

Location and Access:

The properties are located along a north- to northwest-trending belt, up to four miles (7 km) wide and 20 miles (35 km) long, lying west of Whitehorse. Access to the property is provided by various mine roads connected to the Alaska Highway. Copper concentrates are shipped by rail to Skagway.

History:

Copper showings in the Whitehorse area were known at least as early as 1897 and most of the known occurrences were staked in the period 1898 to 1899 by miners enroute to the Klondike. Some production took place up to 1920 and subsequent exploration on the Copper Belt included diamond drilling by Richmond Yukon Company Limited in 1927 and Noranda Exploration Company Limited in 1947 and 1948.

In 1955, Imperial Mines and Metals commenced exploration in the area and started drilling on the Best Chance prospect in 1956. In 1957, the company was renamed New Imperial Mines Limited. By 1965, the company had outlined roughly 4.6 million tons of ore grading 1.17 per cent copper and milling began in 1967. Since then, there has been production from six open pits: Little Chief, Arctic Chief East and West, Black Cub, Keewenaw and War Eagle.

Production was suspended in June 1971 due to low metal prices and was resumed in December 1972 from underground mining of the Little Chief ore body. The company was renamed Whitehorse Copper Mines Limited in September 1971.

Description:

Copper occurrences of the Whitehorse Copper Belt are in calc-silicate-magnetite skarns developed along the irregular contact between Triassic Lewes River sediments (Unit 3c, Wheeler, 1961) and Cretaceous granodioritic to dioritic intrusions of the Coast Intrusions (Unit 8, op. cit.). The skarns are best developed in massive limestone of the Lewes River Group and consist of varying amounts of diopside, epidote, tremolite-actinolite, garnet, serpentinite, magnetite and/or hematite and, occasionally, asbestos. The primary ore minerals are bornite and chalcocite with minor amounts of chalcocite and native copper. Valleriite, a relatively rare copper sulphide, is locally abundant but mill recovery is poor because of its physical properties.

Current Work and Results:

Exploration work in the Copper Belt consisted of an IP survey on the ORO 3 claim and magnetic surveys on ORO 3, PETER 2, and IT 2-3. Eighteen holes were drilled with BQ size core for a total depth of 2 952.9 Metres. Only weakly mineralized skarn zones in eleven holes were located and none considered of sufficient size or grade to warrant further work.

Production in 1977 was 901,459 tons grading 1.65 per cent copper, mainly from the Little Chief 1730 level. A slight increase in calculated ore reserves resulted because of the inclusion of Little Chief North Fault for the first time and some addition to Middle Chief and Little Chief by further diamond drilling.

OPERATING SUMMARY, 1974-1977

	1977	1976	1975	1974
Ore Milled (tons)	901,459	800,836	738,062	626,541
Cu Produced (lbs.)	26,340,682	34,364,262	20,062,161	20,810,768
Gold Produced (oz)	24,058	18,550	18,630	17,731
Silver Produced (oz)	249,672	241,159	217,397	209,512
Grade (% Cu)	1.65	1.77	1.83	1.84
Ore Reserves (tons)	3,189,847	2,727,913	3,145,330	3,610,571

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TOP  
L.A. Patnode

Copper, Lead, Zinc,  
Silver  
105 D 11  
(60°42'N, 135°15'W)

AU, BRIE  
Utah Mines Limited

Lead, Zinc, Copper  
105 F 14  
(61°51'N, 133°14'W)

Reference: Wheeler (1961).

Claims: TOP 1-8

Location and Access:

The claims are located on the road to Fish Lake, about 11 km from Whitehorse.

History:

The claims were staked in November 1976.

Description:

The claim group is situated in an area of overburden cover.

Current Work and Results:

A reconnaissance gravity survey of 36 stations along two lines was conducted over a portion of the property. Interpretation of the maps indicates that the trend of the rocks is north at this location. The residual gravity map indicates a positive gravity anomaly.

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LAP  
Utah Mines Limited

Copper  
105 F 11  
(61°38'N, 133°10'W)

Reference: Tempelman-Kluit (1977b).

Claims: LAP 1-24

Location and Access:

The claims are situated 4.8 km west of Lapie Lakes on the South Canal Road. Access is by helicopter from the road.

History:

The claims were staked in 1977.

Description:

A conformable sequence of limestone, gneiss and schist that has been intruded by several diorite dykes. Minor pyrite and chalcopyrite occur in the diorite.

Current Work and Results:

The claims were mapped at a scale of 1:5,000. A soil geochemical and a magnetic survey was conducted on the property. Copper, lead and zinc soil geochemical anomalies were located but no significant magnetic anomaly was located.

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Reference: Gabrielse (1963); Sinclair *et al* (1976, pp. 112-113); Tempelman-Kluit *et al* (1976); Norman *et al* (1977); Morin *et al* (1977, p. 153).

Claims: AU 1-6; BRIE 1-238

Location and Access:

The AU and BRIE lie within the St. Cyr Range of the Pelly Mountains on the south side of Fox Creek, roughly 26 miles (41.6 km) southwest of Ross River. The area is characterized by high relief with elevations on the property ranging from 4,000 to 7,000 feet. Access to the claims is by helicopter from Ross River, or from the Canal Road, 9 miles (14 km) to the east. The claims can also be reached by foot from a cat trail on the north side of Fox Creek.

History:

The property was originally staked as the TUB claims by P. Risby in 1971. Arrow Inter-America Corporation optioned the claims and carried out prospecting and geochemical surveys in 1972. The property was restaked as the AU claims by Mr. Risby in 1975 and subsequently optioned to Utah Mines Limited who carried out some prospecting and geochemical surveys later in the year.

Description:

The property lies within a miogeoclinal succession of shale, sandstone, carbonate and volcanic rocks ranging from Proterozoic to Triassic in age (Tempelman-Kluit *et al*, 1976). This succession is cut by post-Triassic imbricate thrust faults directed to the northeast and intruded by mid-Cretaceous granitic batholiths.

According to Norman *et al* (1977), the property is underlain mainly by up to one thousand metres of Cambro-Ordovician strata equivalent to the Kechika Group of Gabrielse (1963). They consist of calcareous, orange-weathering phyllite with numerous volcanic tuff lenses. Phyllitic limestone and thin beds of dolomite also occur within the phyllite. A thin unit comprised of argillite, dolomitic siltstone and tuff of Lower to Middle Silurian age conformably overlies Kechika Group phyllite on the northern part of the property.

Intrusive rocks on the property consist of hornblende diorite and andesite dykes. The dykes generally trend 020° and vary from one to 5 m in width. They are probably related to mid-Cretaceous hornblende granodiorite which outcrops south of the property.

The phyllitic rocks are structurally complex and at least three phases of deformation have been recognized. The best developed deformation fabric is a crenulation foliation ( $F_2$ ) which strikes northwest and dips 20-30° to the north. The crenulation foliation is superimposed on transposed bedding ( $F_1$ ) which appears to have a random orientation. Foliation has also been observed striking north and dipping steeply to the east ( $F_3$ ).

Mineralization was originally discovered in boulders in Brie Creek, a northflowing tributary of Fox Creek on the western side of the property. Mineralized boulders were subsequently found in Brie Creek from the 4,700-foot elevation down to Fox Creek, size and angularity of the boulders increasing upstream. Two types of mineralized boulders are present:

- 1) Dark brown limonitic boulders composed mainly of quartz with minor carbonate. Mineralization consists of pyrite and minor chalcopryite occurring in bands and in cross-cutting fractures.
- 2) White siliceous boulders containing banded sphalerite and traces of galena.

The best mineralization in outcrop occurs south of a west-flowing tributary of Brie Creek. It consists of galena, sphalerite and hydrozincite in a siliceous lens in phyllite, three to four feet thick and dipping 50° north. Small showings of pyrite and chalcopryite also occur in siliceous lenses in phyllite and tuff. The sulphides are typically concentrated in the noses of small folds.

#### Current Work and Results:

Geological mapping, soil geochemistry, rock geochemistry, EM, magnetic and gravity surveys were conducted on the property. Blasting and hand trenching were carried out on AU 6 and BRIE 59 and 234. A 1-1.5 metre thick quartz sulphide horizon containing variable amounts of sphalerite, galena, chalcopryite and pyrite was outlined by the hand trenching. Two diamond drill holes for a total depth of 260 m were drilled on BRIE 63 and 79.

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ANGIE, EEL 105 F 15  
Welcome North Mines Limited (61°55'N, 132°40'W)

Reference: Tempelman-Kluit (1977a,b).

Claims: ANGIE 315-356, 359-362, 365-394, 419-426, 453-458, 487-496, 675 Fr; EEL 1-19

#### Location and Access:

The claims are located about 8 km south of Ross River and north of the Canal Road. Access is by helicopter from Ross River or from the Canal Road.

#### History:

The claims were staked in June 1977 to cover some lead-zinc-silver mineralization discovered by company prospectors.

#### Description:

The claims are underlain by limestone, phyllites, quartzites, siltstones and cherts ranging in age from Upper Cambrian to Mississippian.

#### Current Work and Results:

The claims were partially mapped for geology and structure.

Five units have been identified. Unit 1, Cambro-Ordovician in age, consists of brown weathering, thin bedded shales, calcareous siltstones and argillaceous limestones. Conformably overlying this unit are black Ordovician-Silurian graphitic phyllites (Unit 2). Unit 3 consists mainly of Siluro-Devonian platy grey quartzite and phyllitic grey siltstone. The Devonian rocks (Unit 4) are resistant weathering, platy, grey to sooty black limestone and calcareous grey phyllite. Unit 5 is a relatively thin, pale green tuffaceous Mississippian chert.

Mineralization is primarily associated with the fine-grained black sooty Devonian limestone unit. Visible sulphides were observed. A reaction to zinc solution was the primary technique for finding the showings.

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WIMP Lead, Zinc, Silver  
Utah Mines Limited 105 F 15  
(61°57'N, 132°54'W)

Reference: Tempelman-Kluit (1977b).

Claims: WIMP 1-20

#### Location and Access:

The claims are located 2.4 km north of Mt. Cook. Access is by helicopter from Ross River, 24 km north-east of the claims.

#### History:

The claims were staked in 1976.

#### Description:

Four thin (20-30 cm), flat-lying zones of fine-grained galena, sphalerite and tetrahedrite in a quartz-carbonate gangue occurs in a grey phyllite.

#### Current Work and Results:

The claims were mapped geologically at scales of 1:10,000 and 1:5,000. EM surveys and geochemical soil sampling were carried out over the claims. The geochemical surveys outlined two small anomalies and the EM survey failed to locate any conductive bodies of economic interest. The claims were dropped subsequent to the field season.

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T, MAT, BAR, TENAS, 105 K 1  
WOP, BELL (62°03'N, 132°21'W)  
Du Pont of Canada  
Exploration Limited

References: Roddick and Green (1961a); Tempelman-Kluit (1972).

Claims: T 1-357; BAR 1-18; MAT 1-44; TENAS 1-41; WOP 1-66; WOP 500-501 Fr; TENAS 100-101 Fr; BELL 15, 16 Fr

#### Location and Access:

The claims straddle the North Canal Road approximately 10 km north of Ross River. Access is by road or by helicopter from Ross River.

#### History:

The MAL, BAR and TENAS blocks were staked in 1974 by Welcome North Mines and subsequently optioned to Boliden-Preussag Explorations Limited in 1975. The claims were staked by Du Pont in late 1976 and early 1977. The present project is operated by Du Pont under agreements with Welcome North Mines Limited,

Teck Mining Corporation, R.E. Chaplin, and Western Mines Limited.

Description:

The claim group is underlain by a sequence of metasediments and metavolcanics, most probably of Lower Paleozoic age and part of the same stratigraphic package found in the Anvil area. Quartz monzonite intrusives of probable Cretaceous age occur in the norther portion of the claims.

Current Work and Results:

A large portion of the claims were mapped geologically and the main rock types described briefly below were identified:

A package of red chert, green volcanics ranging from rhyolite to basalt, and conglomerate have been identified as the youngest in the stratigraphic section and assigned a Jurassic age. However, this unit is probably of Mid-Devonian to Upper Pennsylvanian age and possibly correlative with the Earn Group.

Various facies of volcanic rocks have been identified, including hypabyssal medium-grained andesite in volcanic domes, flow-type greenstones, and tuffaceous andesite units intercalating with rhyolite, rhyolite tuffs and proximal phyllitic sediments on the flanks of the dome. Chlorite and some carbonate development is common throughout the unit.

Rhyolites have been identified as a mappable unit. These occur as members of a proximal sedimentary package and are gradational and intercalate with both andesites and the more distal grey phyllites. Rocks of rhyolitic composition are sporadic in occurrence and are found as localized bands or pods.

A sedimentary unit consisting of two major rock types, a medium to very fine-grained laminated dark grey turbiditic phyllitized greywacke and a dark grey argillaceous phyllite, are found as distal units to the andesitic domes. They are found intercalated with the rhyolites in many places. The phyllite commonly contains an appreciable amount of graphite.

Intrusives of quartz monzonite, probably related to a large Cretaceous batholith to the north, intrude the sediments and volcanics. Along the contact dykes of aplitic, porphyritic and pegmatitic character are common. Blue kyanite is developed in the contact metamorphic aureole in places.

Numerous pieces of massive sulphide float were found in a creek on the south side of the Ross River. These consisted of varying proportions of pyrite, pyrrhotite, galena, sphalerite, chalcopyrite and arsenopyrite. No source for this float has been found though thin sulphide bands, 5-10 cm thick occur within phyllites on the canyon walls of the creek bed. At the mouth of the creek, an outcrop of highly silicified quartz rich rock, discordant with the nearby phyllites, contains some sulphide mineralization.

A detailed gravity survey of 162.5 line-km was conducted on the claims to detect areas of excess mass. Two Lacoste and Romberg Model G gravity meters accurate to  $\pm 0.01$  mgal were used. These were tied into base stations at 3 hour intervals. Five base stations that were tied into the National Network Base Station No. 9807-69 in Whitehorse were used. Stations were leveled to an accuracy of  $\pm 0.03$  m relative to one another.

A broad gravity high, 1-2 km wide and 12 km-long is indicative of the andesitic unit. Gravity gradient areas are interpreted to indicate presence of phyllitic rocks since there is a density contrast between the andesites (density = 2.8-2.9) and the phyllites (density = 2.7-2.8). Broad gravity lows indicated the presence of unconsolidated material (density = 2.0). Four confirmed gravity highs which may indicate the presence of massive sulphides were located.

A soil geochemistry survey of 1,400 samples was conducted on the property. Some pH determinations were made with the pH of the hillsides ranging from 6.5-8.0 and the soils near the river mostly 6.8-7.0. Lead and zinc were the elements analyzed. No major geochemical anomalies were indicated but the higher values tended to be coincident with the gravity anomalies, particularly the one where the sulphide float was found.

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TAR  
Welcome North Mines Limited  
Getty Mining Pacific

105 K 2  
(62°08'N, 132°58'W)

Reference: Tempelman-Kluit (1972).

Claims: TAR 1-24

Location and Access:

The claims are situated 25 km south of the town of Faro along the Pelly River at the mouth of Moose Creek. Access is by helicopter from Ross River.

History:

The claims were staked in October 1976.

Description:

The northern portion of the claim group is underlain by predominately green, but red in places, massive to thinly laminated tuffaceous chert with some intermixed basalt, and by a unit of green gabbroic basalts. An irregularly shaped serpentinite body is found within the basalts just west of Moose Creek. The rest of the property is underlain by a dark-grey poorly sorted pebble conglomerate.

Current Work and Results:

The property was mapped and an area of pyrite mineralization in a large pod of highly sheared quartzite breccia in a matrix of impure limestone was located. Black shale and limestone outcrop close to the breccia. A geochemical soil survey was conducted along two lines on the property. No significant anomalies were detected.

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MN  
Welcome North Mines Limited  
Getty Mining Pacific  
Claymore Resources Limited

105 K 2  
(62°14'N, 132°54'W)

Reference: Tempelman-Kluit (1972).

Claims: MN 1-35

Location and Access:

The claims are located 3 km north of Swim Lakes. Access is by helicopter from Swim Lakes.

History:

The claims were staked in July 1974 and are owned by Claymore Resources Limited.

Description:

No outcrop is exposed on or near the property. It is believed to be underlain by phyllites of Unit 3 (Tempelman-Kluit, 1972).

Current Work and Results:

A program of grid soil sampling and a magnetometer survey were conducted on the claims.

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RACHEL 105 K 2  
Welcome North Mines Limited (62°14'N, 132°58'W)  
Getty Mining Pacific

References: Roddick and Green (1961a); Tempelman-Kluit (1972); Sinclair et al (1976, p. 116).

Claims: RACHEL 1-43

Location and Access:

The claims are located 3 km north of Swim Lakes and access is by helicopter from Swim Lakes.

History:

The claims were staked in 1975 and cover the old SINK and JERRY claims.

Description:

There is no surface exposure on the claims. Drill results indicate that the property is underlain by chlorite-graphite and chlorite-biotite-graphite phyllites and by interlayered greenstones, all believed to be part of Unit 3 (Tempelman-Kluit, 1972). The graphite phyllite contains up to 20% pyrite and pyrrhotite.

Current Work and Results:

Two diamond drill holes were drilled on RACHEL 9 and 21 for a total depth of 300 metres. No lead-zinc mineralization was found but several thick graphitic horizons containing up to 20% pyrite and pyrrhotite were encountered.

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ANVIL MINE Lead, Zinc, Silver  
Cyprus Anvil Mining 105 K 2, 3, 6, 7  
Corporation (62°21'N, 133°22'W)

References: Chisholm (1957); Roddick and Green (1961a); Green and Godwin (1964, pp. 31-32); Green (1965, pp. 36-37; 1966, pp. 47-50); Findlay (1967, pp. 35-39; 1969a, pp. 43-45; 1969b, pp. 29-30); Tempelman-Kluit (1972); Craig and Laporte (1972, pp. 94-96); Brock (1973); Sinclair and Gilbert (1975, pp. 50-52); Sinclair et al (1975, pp. 128-129); Sinclair et al (1976, pp. 115-116); Morin et al (1977, pp. 156-157).

Claims: FARO, GAL, ED, SUN, RICH, DY, GALE, DEA, LEA, PEA, SEA, SB, DP, KAY, MOR, SINK, LO, TIE, ROCK, BILL, CAPA, DELTA, ECHO, JANICE, KIT, GAL: approximately 1,600 claims

Location and Access:

The Anvil Mine is situated 230 km northeast of Whitehorse in the Anvil Range. Ore concentrates are trucked to Whitehorse via roughly 402 km of all-weather roads and then transferred to the White Pass and Yukon Route for shipment by rail to Skagway.

History:

The mine was brought into production late in 1969 and, except for brief shutdowns due to labour problems, has been in continuous production since. In 1975, Anvil merged with Dynasty Explorations Limited to form Cyprus Anvil Mining Corporation.

Description:

The host rocks on the property consist of pelitic schist which are overlain by calc-silicate phyllite (Unit 2, Tempelman-Kluit, 1972). The regional trend of the schist and phyllite is to the northwest, with dips averaging 20° to the southwest. Locally, the structure is complex, with at least five stages of deformation recognized by company geologists. The ore occurs in a series of massive sulphide zones along a 6,600 foot strike length. The ore zones are tabular in longitudinal section and lenticular in cross section and are generally conformable to the enclosing schist and phyllite host rocks. Galena and sphalerite, associated with pyrite and pyrrhotite, are the principal sulphide minerals.

Current Work and Results:

The new discovery on the DY group, situated 19 km southeast of the Anvil Mine and 14.5 km by road from the town of Faro, continued to be drilled during 1977. Eleven holes were drilled in addition to the 1976 discovery hole and eight of these intersected a sequence of banded and massive sulphide horizons with lead-zinc-silver mineralization varying in thickness between 6 and 61 metres. This deposit occurs on a moderately dipping limb of a major antiform at between 549 and 733 metres below surface. Mineralization extends in excess of 1 524 metres along strike and varies in width up to 457 metres. Six drill holes encountered sections 3 to 25.6 metres thick of greater than 10% lead-zinc combined. The best continuous assay is 25.6 metres of 6.37% lead, 11.85% zinc and 115 gm/metric ton silver.

Gravity and Turam surveys were conducted on the CAPA, DELTA, ECHO, JANICE KIT and SEA claims. A Turam survey was conducted on the GAL claims.

OPERATING SUMMARY - 1974-1977

	1977	1976	1975	1974
Tons Milled - Dry short tons (000s)	3,435	1,675	3,225	2,925
Daily rate (short ton)	9,410		8,983	8,865
Mill Heads:				
Lead (%)	2.74	2.66	9.44	10.11
Zinc (%)	4.88	5.48	comb.	comb.
Silver (oz/ton)	1	1	1	1
Ore reserves (million tons)	41.3	44.7	46.4	49.7

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SUNSET Zinc, Lead  
Welcome North Mines Limited 105 K 3  
Getty Mining Pacific Limited (62°03'N, 133°04'W)

References: Tempelman-Kluit (1977b; 1978).

Claims: PMJ 1-70; MONI 1-10, 23-32, 45-54

Location and Access:

The claims are located in the Pelly Mountains approximately 26 km southeast of Faro. Access is by helicopter.

### History:

These claims were staked in 1977 and cover an old showing consisting of the former claims AL, KIRK and FARGO that were evaluated by the Sunset Mining Corporation in 1968-69. Some geological mapping, and geochemical soil sampling and trenching carried out at that time outlined lead-zinc mineralization in discordant vein structures. It should be pointed out that the report by P.H. Sevensma did mention a possibility of concordant stratabound mineralization.

### Description:

The property is underlain by rocks of probable Cambrian to Ordovician age of the Selwyn Basin (Tempelman-Kluit, 1977b; 1978). Two types of mineralization have been noticed; bands of fine to coarse sphalerite and galena in biotite-rich, thinly laminated calcareous siltstone, and as fine-grained sphalerite, galena, and siderite associated with skarn zones within black argillites at the contact with calcareous siltstones.

### Current Work and Results:

Detailed geological mapping at a scale of 1 inch = 500 feet was carried out on the claims. A detailed soil geochemical program was conducted over selected areas of the claims. A Max-Min EM survey was carried out on claims PMJ 9-14 and a magnetometer survey was carried out on PMJ 9-14, 51-54. 173.7 metres of drilling by X-ray drill in six holes was carried out on claims PMJ 9-12. Some lead-zinc mineralization was intersected in thinly laminated calcareous siltstones and skarny black argillite.

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Sir John A	Zinc, Lead
Welcome North Mines Limited	105 K 3
Getty Mining Pacific Limited	(62°04'N, 133°09'W)

References: Tempelman-Kluit (1977a; 1978).

Claims: MONI 11-22, 33-44, 55-60; TELE 1-4, 13-16

### Location and Access:

The claims are located in the Pelly Mountains approximately 19 km southeast of Faro. Access is by helicopter.

### History:

The claims were staked in 1977.

### Description:

Mineralization occurs in thinly laminated, calcareous, phyllite (calcareous siltstone) and schist of probable Cambro-Ordovician age. It is conformable with the lamination and occurs as sphalerite-rich laminae between others that are barren. The sulphide laminae are composed almost entirely of sphalerite with minor galena, biotite and quartz. Thickness of the laminae range from a few millimetres to several centimetres and individual laminae can be traced for many metres along strike (Tempelman-Kluit, 1978). Mineralized and unmineralized laminae alternate irregularly over nearly a hundred metres of stratigraphic-structural section (Tempelman-Kluit, 1978). Metamorphism of the units is at upper greenschist facies.

### Current Work and Results:

Detailed geological mapping at a scale of 1 inch = 500 feet was carried out over the claims as was a soil geochemical survey. Hand-trenching and X-ray diamond drilling were undertaken on MONI 18 and 20. A total of 107 m were drilled in 5 holes. Zinc

mineralization in thin laminated calcareous siltstones was located.

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PUG  
John Graham

Zinc, Lead  
105 K 3  
(62°06'N, 133°13'W)

Reference: Craig and Milner (1975, p. 103).

Claims: PUG 1-24

### Location and Access:

The claims are 13 km southwest of Faro, within 3 km of the Robert Campbell Highway. Access is usually by helicopter from Ross River or Faro.

### History:

The PUG claims were staked in March 1977 over the old LYN claims which had been drilled by Cyprus Explorations in 1972 and by Kerr Addison Mines in 1971. Best mineralization intersected in the 1972 drilling was in a somewhat discordant breccia matrix of calcite, barite (?), siderite, resinous sphalerite and galena. The best assay was 10 feet from 150-160 feet of 5.77% lead, 3.02% zinc and 0.54 oz/ton silver.

### Description:

The claims are underlain by a sequence of meta-sediments. These include calcareous siltstone, calcareous slates, phyllites, graphitic-quartz schist, and impure marble.

### Current Work and Results:

A 177.3 metre hole was drilled on the PUG 4 claim. Rock types intersected were primarily argillite and shale with minor beds of greywacke and limestone. A carbonaceous section containing pyrite and sphalerite was intersected but no significant mineralization was located.

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DEV

Welcome North Mines Limited  
Getty Mining Pacific Limited

Lead, Zinc  
105 K 4  
(62°10'N, 133°32'W)

References: Tempelman-Kluit (1972, 1977b).

Claims: DEV 1-83

### Location and Access:

The claims are located along the Magundy River approximately 9.6 km southwest of Faro. Access is by helicopter.

### History:

The claims were staked in 1977.

### Description:

Galena and sphalerite are found in brown siderite bands within interbedded shales, limestones and cherts. Extrapolation of the geology from Tempelman-Kluit (1977b) indicate these rocks may be a portion of the Selwyn Basin and Cambrian to Silurian in age.

### Current Work and Results:

All the claims were mapped geologically on a regional scale of 1 inch = 1,000 feet and a soil geochemical survey was conducted over the claim block. Hand trenching was carried out on DEV 51 and two holes for a total depth of 49.7 m were drilled by X-ray drill on DEV 75. Galena was found disseminated within massive siderite.

LOWER ANVIL CREEK  
Cyprus Anvil Mining  
Corporation  
Preussag Canada Limited

105 K 5  
(62°27'N, 133°48'W)

References: Roddick and Green (1961a); Tempelman-Kluit (1972); Sinclair and Gilbert (1975, p. 56); Morin et al (1977, p. 158).

Claims: LORNA 1-40; ARO 1-40 50, 59; GRAN 1-6, 13-24; ROTO 17-50

Location and Access:

The claims are located along lower Anvil Creek about 24 km northwest of Faro. Access is by helicopter from Faro.

History:

The claims were staked in 1970 following airborne magnetic and EM surveys. The claims have been mapped and one 576 foot hole was drilled.

Description:

The claims are situated in the same stratigraphic package that contains the Faro-Vangorda deposits. In particular, the claims are underlain by calcareous phyllite and calc-silicate unit rocks with some graphitic conductors indicated. A large scale D<sub>1</sub> fold, also found at the Faro Deposit, locally repeats the stratigraphic section in this area.

Current Work and Results:

All the claims were mapped at a scale of 1 inch = 1,000 feet and Turam, IP, and gravity surveys were conducted on all the claims. On GRAN 15, a diamond drill hole tested a gravity anomaly and cut 152 m of Anvil Batholith. On ARO 24, a drill hole testing a coincident gravity and turam anomaly intersected 337 metres of barren Anvil Mine stratigraphy.

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GRUM  
Kerr Addison Mines Limited  
Canadian Natural Resources

Lead, Zinc, Silver  
105 K 6  
(62°15'N, 133°10'W)

References: Chisholm (1957); Green and Godwin (1964, p. 31); Tempelman-Kluit (1972); Sinclair et al (1975, pp. 130-131; 1976, pp. 122-123); Morin et al (1977, p. 159).

Claims: JACK 1-5; SALLY 1-4; ROCKY 1-8; CHAMP 1-8; ELLE MAY 1-4; BIX 2, 3; WYNNE 1-8; ALICE 1-8; HIF fr 1-4; HANK fr 1-8; FIRTH 6, 8; GRUM 1-3, 5; CHUCK 1, 2, 5-8; MAC 1-2; TIM 1-3; 6, 7, 6 fr; BLAKE h fr

Location and Access:

The property lies roughly 19.5 km northeast of Faro and straddles the Vangorda-Swim Lakes Road which provides ready access.

History:

The property was originally staked and explored in the period 1953-55 at which time two small sulphide zones designated the Champ and Firth were discovered west of the Vangorda deposit. In 1973, AEX Minerals Corporation optioned the property and drilled four holes, one of which intersected a section of massive sulphides carrying lead and zinc. In 1974, Kerr Addison drilled 60 holes totalling 55,784 feet, outlining a massive sulphide zone containing a minimum of roughly 30 million tons of 10 per cent combined lead-zinc and nearly 2 ounces of silver per ton. Late in 1974, AEX Minerals Corporation merged with 79902 Resources to form Canadian National Resources.

Description:

Although outcrop in the immediate area of the deposit is lacking, the property is generally underlain by chlorite-muscovite schist and phyllite assigned to Unit 3 of probable Cambrian age by Tempelman-Kluit (1972). Detailed mapping by Cyprus Anvil geologists in the area of the Faro ore body indicates that the host rocks for the massive sulphides belong to Unit 2 of Cambrian age or older.

The host rocks of the GRUM deposit consist of black, graphitic phyllite and white, sericite-quartz phyllite. The latter has a tendency to form haloes around sulphide zones. These rocks are overlain by green, chlorite-sericite-quartz phyllite and grey, sericite-quartz phyllite which form the hanging wall of the deposit. The footwall rocks consist of biotite-muscovite phyllite, probably in fault contact with underlying garnet-biotite-staurolite schist. The host rocks are characterized by complex internal deformation dominated by pervasive foliation trending northwest and dipping 20° to the southwest.

The deposit is roughly elliptical in shape with a gently northwest-plunging axis over 5,000 feet long and a gently southwest-dipping axis of 1,200 feet. In gross aspect, the deposit appears to be generally conformable to the dominant foliation of the host rocks. The ore zones consist of a series of massive sulphide lenses and mineralized phyllite separated by weakly to non-mineralized host rocks. Individual ore zones vary from a few feet up to 300 feet thick.

The principal ore minerals are sphalerite and galena with minor chalcopyrite, generally associated with pyrite. Minor amounts of pyrrhotite, magnetite and arsenopyrite are present in massive sulphide sections. White barite is in sections of rich ore and appears to increase to the northwest. The massive sulphides tend to be finely banded and very fine-grained, although texture and grain size are variable.

Current Work and Results:

A series of 18 drill holes of 3 7/8 inch diameter were drilled on various claims. These holes were to test the soil and bedrock for engineering purposes. Total depth for these holes was 482 metres.

An announcement in the spring of 1978 indicated the suspension of all further feasibility studies and a decision not to bring the property into production at this time. The decision will be reviewed in several years time when metal prices are improved. The mine was being allowed to flood in May 1978.

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RAZ  
Welcome North Mines Limited  
Getty Mining Pacific

Zinc, Lead, Silver  
105 K 6  
(62°19'N, 133°02'W)

References: Roddick and Green (1961a); Tempelman-Kluit (1972); Sinclair et al (1976, p. 116).

Claims: RAZ 1-182

Location and Access:

The claims are located 19 km northeast of Faro at an elevation of 5,500 feet and 1.6 km northeast of Mt. Mye. Access to the claims is by helicopter from Faro or Ross River.

History:

The claims were staked in 1975.

Description:

The claims are underlain by granitic rocks of the Anvil Batholith and gently dipping roof pendants (?) of biotite-muscovite schist and calc-silicate gneiss which are the prime exploration target.

Current Work and Results:

Soil samples and silt samples from streams and seeps were analysed for lead and zinc. These results extended those of 1976 and expanded a zone of high lead values to approximately 3 200 m by 3 658 m which is still open to the north. This area is partially underlain by granitic rocks of the Anvil Batholith and indicates a zone of high lead in the granite. However, granitic rocks to the south and east of the schist pendent are not anomalous in lead. A zinc anomaly is coincident with the lead anomaly but not as intense or extensive.

Mineralized float was found in boulder trains and in the creek bed in the central part of the RAZ 1-20 claims. The source of this mineralization has not been found. A 30 cm thick vein containing massive coarse-grained galena and intrusive fragments was found in the north reaches of the property close to outcrops of granite and quartz-feldspar porphyry dykes.

Two diamond drill holes, BQ size, were drilled for a total of 256 m on RAZ 2 and 120 claims. Biotite-muscovite schist was intersected in the holes, up to 3% pervasive pyrite in one of the holes but no lead-zinc mineralization.

A MaxMin II EM survey was conducted on the RAZ 1-20 claims. A reconnaissance coil spacing of 122 m and frequencies of 222 Hz and 3555 Hz were used for the survey. There is a prominent flat-dipping conductive zone on the property with a probable width of 90-150 m. The major part of the zone is poorly conductive but it contains two "thin" units with more conductivity. The thin conductive zones may be due to loosely interconnected stringers of sulphides or graphite.

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URN  
Cyprus Anvil  
Mining Corporation

Barite  
105 K G  
(62°22'N, 133°30'N)

Reference: Tempelman-Kluit (1972).

Claims: URN 1-131

Location and Access:

The claims are situated on the north slope of Rose Mountain, 6.5 km west of the Anvil open pit. Access is by helicopter from the mine site.

History:

The claims were staked in 1977.

Description:

Two barite horizons occur in the Devonian to Mississippian Earn Group.

Current Work and Results:

The claims were mapped geologically at a scale of 1 inch = 1,000 feet.

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NORTH ANVIL RANGE  
Cyprus Anvil  
Mining Corporation  
Metallgesellschaft  
Canada Limited

Lead, Zinc, Silver  
105 K 6, 7  
(62°20'N, 133°00'W)

References: Tempelman-Kluit (1972); Morin et al (1977, p. 162).

Claims: AM, FAT, FIN, JET, LISA, MX, SARK, TAF, TIM, ZAN, MYE: A total of 400 claims

Location and Access:

The claims are situated north of the Anvil Batholith about 13 km from the Anvil Mine. Access is by helicopter from Faro.

Description:

The claims are underlain by a variety of rock types which include, from oldest to youngest, a high grade metamorphic schist of siliceous to pelitic composition lying adjacent to the Anvil Batholith, the Faro sequence, a calc-silicate unit, and pelitic phyllites with marked graphitic horizons. Overlying this sequence of rocks is the KD volcanic package of rocks.

Current Work and Results:

A gravity survey was conducted on the MYE-SARK and FAT-FIN groups. All the claims were remapped at a scale of 1 in. = 1,000 ft.

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KD  
Giant Yellowknife  
Mines Limited

Zinc, Lead, Copper  
105 K 6  
(62°30'N, 133°10'W)

References: Tempelman-Kluit (1972); Craig and Milner (1975, p. 93).

Claims: KD 1-26

Location and Access:

The claims are located north of Mt. Mye about 25 km north of the town of Faro. Access is by helicopter from Faro.

History:

The claim group has an extensive history going back to 1966. (See Craig and Milner, 1975, p. 93). In 1970 Kangaroo Exploration Corporation optioned the claims and in 1971 drilled four holes totalling 2,064 feet (629 m).

Description:

The claims are partially underlain by a late Silurian (?) package of volcanics that lie unconformably (?) on schists, calc-silicate gneisses and phyllites. This volcanic package contains pillowed and fragmental volcanics with some interbedded tuffs and sediments. One hole gave over 61 metres of 2.28% zinc in the volcanics. Mineralization is probably of the volcanogenic type.

Current Work and Results:

A VLF and horizontal loop EM survey was conducted on the KD 1, 2, 3, 4, 7, 11, 12, 20 and 24. Several conductors were outlined.

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CAT 105 K 7  
Preussag Canada Limited (62°15'N, 133°00'W)

Reference: Tempelman-Kluit (1972).

Claims: CAT 1-64; PUSS 1-8 Fr

Location and Access:

The claims are located on Blind Creek about 14.5 km above its confluence with the Pelly River. Access is by helicopter from Faro, 19 km to the west.

History:

In the 1964-65 staking rush in the Anvil District the area of the CAT claims was covered by the LUK group. Airborne magnetic and EM surveys were carried out in 1966. The present claims were staked in 1974 for Norex Developments Limited (NPL) and limited line-cutting and trenching was carried out in 1975. In 1975 the claims were optioned to Afrex Gas and Oil Limited who re-optioned the claims to Preussag Canada Limited.

Description:

Glacially-derived material covers most of the claim block except for some ridges and steep hill-sides. The claims are underlain by the Anvil series of schists and phyllites with the contact between the biotite schist unit and chlorite phyllite unit transecting the claim group. The valley of Blind Creek follows the trace of a normal fault.

Current Work and Results:

During the spring and summer of 1977 a gravity survey and an IP-Resistivity survey were carried out. The surveys totalled 30.5 line-km of gravity and 14.5 line-km of IP. Gravity measurements were made every 30.5 m (100 feet) along picket lines. Elevations were measured at each station using a rod and transit and loop errors were less than 1.0 feet per loop. Further refinement of the gravity data to eliminate terrain effects was suggested prior to further work.

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DOT 105 K 7  
Welcome North Mines Limited (62°22'N, 132°47'W)  
Getty Mining Pacific Limited

References: Tempelman-Kluit (1972).

Claims: DOT 1-42

Location and Access:

The claims are located west of Blind Creek near its headwaters north of the old ACE airstrip. Access is by helicopter, winter tote road up Blind Creek or by fixed wing aircraft to the old airstrip.

History:

The claims were staked in August 1976 and cover the old TEL showing.

Description:

The property is underlain by Cambro-Ordovician phyllite of Unit 3 and in the northeast by rusty black chert of Unit 7 (Tempelman-Kluit, 1972).

Current Work and Results:

The claims were mapped geologically and soil sampled on a reconnaissance scale. DOT 9-14, 23-28 were further investigated by grid soil sampling, a Max-Min EM survey and a magnetometer survey. In the southeast corner of DOT 26 a diamond drill hole (BQ) was sunk to a depth of 101.5 metres. No significant mineralization was found.

CON Lead, Zinc, Copper  
Olympian International 105 K 11  
Resources Limited (62°30'N, 133°14'W)

References: Roddick and Green (1961a);  
Tempelman-Kluit (1972).

Claims: CON 1-24

Location and Access:

The property is situated in the Anvil Range at an elevation of 4,500 feet approximately 24 km northeast of the Anvil Mine.

History:

The claims were staked in August 1975.

Description:

The property is underlain by Unit 8 (Roddick and Green, 1961a) consisting of andesitic and basaltic flows and tuffs, argillite and quartzite. The property is largely covered by overburden but outcrops of siliceous volcanics (?) containing disseminated sulphides are present.

Current Work and Results:

A geochemical soil survey on the property failed to outline any anomalous areas of lead or zinc but three zones anomalous in copper were found in the southeastern portion of the property.

\*\*\*\*\*

IRMA Lead, Zinc  
Cyprus Anvil Mining 105 K 11  
Corporation (62°36'N, 133°24'W)

References: Findlay (1967, p. 39); Tempelman-Kluit (1972); Sinclair and Gilbert (1975, pp. 59-60); Sinclair et al (1975, p. 133; 1976, p. 125).

Location and Access:

The property is situated about 37 km north of Faro. Access is by helicopter from Faro.

History:

Airborne magnetic and EM surveys, ground magnetic surveys, Turam EM and gravity surveys were previously conducted on the property.

Description:

There is no outcrop on the property.

Current Work and Results:

Two lines of IP were run over a previously detected gravity anomaly on claims 8, 9 and 24. A strong anomaly coincident with a gravity anomaly was outlined.

\*\*\*\*\*

AM, PM Lead, Zinc  
Amax Potash Limited 105 L 8, 9  
(62°31'N, 134°05'W)

Reference: Campbell (1967).

Claims: AM 1-176; PM 1-8 Fr

Location and Access:

The claims are situated on the southwest flank of Tay Mountain on the north side of the Pelly River. Access is by helicopter from Faro, 50 km to the southeast.

### History:

The claims were staked in June 1976 and are known as the Fishhook Creek Property.

### Description:

A series of SW dipping thrust slices of Anvil-type phyllites are intruded by a Cretaceous quartz-monzonite. Graphitic phyllite and calc-silicate gneiss containing pyrite and pyrrhotite are exposed on the property.

### Current Work and Results:

The NE third of the claim block had approximately 48 line-km of gravity survey conducted over it. Readings were taken with a Lacoste Romberg Model G gravimeter at 30.4 m (100 foot) intervals. Stations were surveyed by transit and stadia.

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SUE 105 L 10, 14, 15  
MacMillan Joint Venture (62°48'N, 135°00'W)

References: Campbell (1967); Findlay (1967, p. 34); Sinclair et al (1976); Morin et al (1977, p. 164).

Claims: SUE - a total of 688 claims

### Location and Access:

The claims form a single west-northwest trending block between the Pelly and MacMillan rivers, centred roughly 38.6 km east of their junction. Access is by fixed wing aircraft to Oz Lake from Whitehorse, 238 km to the south, or from Mayo, 96.5 km to the northwest. During the winter, supplies may be hauled in over a winter tote road from Pelly Crossing. This road, originally constructed in 1966 to Detour Lakes, was extended in 1975 to the main base camp at Oz Lake in the north central part of the claim group.

### History:

Parts of the current property were staked by Conwest Exploration Company Limited in 1966 following the Anvil discovery. Work in 1966-1967 consisted of airborne magnetic and electromagnetic surveys followed up by ground magnetic and electromagnetic surveys and some diamond drilling. The property was restaked by Conwest in August 1974 as the SUE claims. The claims are currently held by the MacMillan Joint Venture, a consortium between Conwest and Essex Minerals Company Limited.

### Description:

Outcrop on the property is scarce and geological data is generally lacking. According to Campbell (1967) the property straddles the Tintina Fault which strikes roughly northwest. Northeast of the fault the property is underlain by volcanics and sediments of the Proterozoic to Paleozoic Anvil Range Group (Unit 15, Campbell, 1967). Silurian (?) and Devonian (?) sediments (Unit 15, op. cit.) occur southwest of the fault on the southwestern boundary of the property. Although occurrences of copper mineralization have been reported from the general area, no showings have been described on the property itself.

### Current Work and Results:

The gravity survey of the property was completed in 1977. The data for all the surveys, 1975, 76 and 77 were processed or re-processed in such a manner so that all the data could be combined into a homogeneous data set. This set of data was directly transmitted to a large computer for regional-residual separation

and computer plotting and contouring of the gravity values.

Maps were produced at a scale of 1 in. = 400 feet and 1 in. = 0.5 miles. A residual anomaly map was computed by subtracting the regional gravity effect from the Bouger map. The results were evaluated with the results of the previous horizontal-loop EM and magnetometer surveys. The anomalies were then rated in a priority system for future work.

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Hopkins Lake  
Whitehorse Copper Mines  
Limited

Copper, Gold, Silver  
115 H 7  
(61°16'N, 136°55'W)

Claims: ACME 1-11; HOP 1-69

### Location and Access:

Access is by a 1.6 km 4-wheel drive road from km 53 of the Aishihik Road.

### History:

The HOP claims were staked in 1977.

### Description:

A magnetite, pyrrhotite, diopside, tremolite, garnet skarn containing chalcopyrite occurs on the contact of quartz mica schist and marble of the Yukon Group metasediments. Mineralization is conformable to the dip of the sediments which strike northwesterly with dips of approximately 10° to the northeast. The skarn zone is within 610 metres of a Cretaceous (?) granite intrusion to the north.

### Current Work and Results:

The ACME 1, 12 claims were mapped geologically at a scale of 1 inch = 1,000 feet. A magnetic survey was conducted on the ACME 1, 12-14 claims. Eleven holes of BQ size core were drilled for a total of 1 089 metres on ACME 12 claim.

Results of the drilling indicate a gently dipping layer of skarn mineralized with chalcopyrite over an area of 244 metres by 305 metres. Representative mineralized sections outlined by drilling are:

Hole	Dip	Depth Metres	Mineralization Metres	Cu %
TH-2	-60	77.1	18.59	1.94
TH-4	-70	77.1	8.96	1.36
TH-6	-80	97.5	4.63	1.72
TH-8	-80	96.7	4.30	1.27
TH-9	-80	88.4	0.94	3.06

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BUN  
Archer-Cathro and  
Associates Limited

Uranium  
115 H 8  
(61°20'N, 136°28'W)

Reference: Tempelman-Kluit (1974b).

Claims: BUN 1-24

### Location and Access:

The claims are located about 104 km northwest of Whitehorse, 13 km east of Long Lake. Access was by helicopter from Whitehorse or Haines Junction.

### History:

The claims were staked in May and June 1976 for Ukon Joint Venture, managed by Archer-Cathro and

Associates Limited.

Description:

The BUN showing is located near the upper edge of a steep (30 m) high overburden covered creek bank cut through a wide glacial-till-covered ancient river valley now occupied by a chain of narrow lakes.

The property is underlain by a Triassic quartz monzonite with local zones of weak hydrothermal alteration and quartz veining that contain abundant disseminated pyrite, traces of chalcopyrite and molybdenite and uranium values in the 5-20 ppm range. The stock is capped on the northern portion of the property by younger (Eocene?) fine-grained andesitic (?) volcanics with some pale green to white rhyolitic flows and tuffs.

In 1976 an area of 10 m by 20 m along the quartz monzonite-volcanic contact had a strong radioactive soil anomaly.

Current Work and Results:

Work in 1977 was limited to seven drill holes for a total depth of 116 m.

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TAH 115 H 15  
Noranda Exploration (61°46'N, 136°46'W)  
Company Limited

Reference: Tempelman-Kluit (1974b).

Claims: TAH 1-42

Location and Access:

The claims are located at the headwaters of Tahte Creek about 42 km southwest of Carmacks. Access is by helicopter from Carmacks.

History:

The claims were staked in August 1977.

Description:

The claims are entirely underlain by intrusive rocks. The oldest rocks are a biotite-hornblende granodiorite equivalent to the Klotassin Batholith granodiorite suite. It is a regionally homogeneous foliated fresh rock. Sulphides and hydrothermal alteration are absent in this unit. A coarse-grained leucocratic quartz monzonite of Triassic (?) age intrudes the granodiorite.

Feldspar porphyry and hornblende feldspar porphyry intrude both the granodiorite and quartz monzonite. It forms a plug approximately 1 097 m by 1 829 m in the southwestern half of the claim group and also occurs as dykes. It typically has a medium-green fine-grained to aphanitic groundmass with crowded feldspar phenocrysts up to 3 mm in length. The porphyry displays propylitic alteration in places and is thought to be Tertiary (Eocene?) in age.

Current Work and Results:

The claims were mapped geologically (see above). IP and magnetometer surveys were carried out on the claims. There is considerable magnetic relief on the property. Both IP and magnetic anomalies occur within the feldspar porphyry unit.

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CASH  
Klotassin Joint Venture

Molybdenum, Copper  
115 I 5  
(62°23'N, 137°37'W)

References: Craig and Laporte (1972, p. 75);  
Tempelman-Kluit (1974a); Sinclair et al (1975,  
p. 111; 1976, pp. 132-136); Jensen (1975);  
Sinclair (1978).

Claims: BEAR 1-8; FOX 1-8; CAR 57-72

Location and Access:

The FOX and BEAR claims straddle Big Creek roughly 9.6 km east of Prospector Mountain and completely surround the CAR 57-72 claims. Access is by helicopter from Carmacks, 80 km to the east-southeast and from a rough airstrip on the property.

History:

The property was originally staked in 1969 as part of the CASH claims to cover a weak silt anomaly discovered in 1965 by Coranex. The claims were optioned in 1969 by Atlas Explorations Limited which carried out soil and stream sediment sampling in 1970. An anomalous copper value in stream silt was found in the central portion of the area now covered by the CAR claims but was not investigated. The CAR 57-72 claims were staked in March 1974 to cover an aeromagnetic anomaly shown on Geological Survey of Canada Aeromagnetic map 3297 G and thought to be related to a magnetite outcrop located by Atlas in 1970. Staking was prompted by the work of Dynasty Explorations Limited on a potentially gold-bearing magnetite skarn in the Freegold Mountain area, about 32 km to the southeast. The CAR group was optioned in 1974 by Cream Silver Mines Limited, Belmoral Mines Limited and Western Mines Limited and a soil geochemical survey was subsequently carried out. Although the CAR claims actually missed the magnetite outcrop found by Atlas, the geochemical survey outlined a copper-molybdenum anomaly 1 524 m by 1 219 m on the southeast portion of the claims.

The CAR claims cover the old JOHNNY and CASH claims, originally staked in 1969 by E. Schiller and explored by Atlas Explorations Limited in 1969 and 1970. The claims subsequently lapsed and were re-staked in 1974 by Klotassin Joint Venture, a consortium of Newconex Canadian Exploration Limited and Marietta Resources International. Soil sampling in 1974 outlined a significant copper and molybdenum anomaly extending onto the FOX and BEAR claims from the CAR claims. Hand trenching in the area of the anomaly revealed traces of chalcopyrite and pyrite associated with float of feldspar porphyry and quartz monzonite. In 1975 Western Mines drilled 12 holes and encountered minor copper and molybdenum mineralization (Sinclair et al, 1976).

Description:

The CASH property hosts an extensive low-grade copper-molybdenum deposit. Mineralization is associated with small and irregular felsic porphyry bodies and coeval volcanic flows and breccias of Early Tertiary age that intrude a large Paleozoic meta-sedimentary roof pendent within a complex intrusive terrane. At least three and possibly four intrusive stages have been recognized on the property that are older than the mineralized porphyry.

Both hydrothermal alteration and sulphide mineralization are concentrically zoned in the classical pattern around porphyry bodies and are superimposed in many places on older metasedimentary and intrusive host rocks. Alteration is dominated by a strong

potassic facies surrounded by a propylitic zone. Phyllic alteration is locally intense but does not form an obviously concentric pattern and could be interpreted as a separate event superimposed or overprinted on the potassic alteration. Argillic facies is rare. Sulphide mineralization consists of a simple assemblage of pyrite, chalcopyrite and molybdenite, with a molybdenum/copper ratio that is higher than usual in the Canadian Cordillera. Pyrite abundance is near normal for calc-alkaline porphyry deposits in the Canadian Cordillera.

Most of the deposit occurs beneath alluvial and glacial till, up to 72.5 m thick, in the lower portion of the Big Creek valley. Above the level of thick overburden, outcrop is virtually absent because of the shattering of outcrops to residual felsenmeer by frost action. The surrounding area has not been glaciated in the late Pleistocene except possibly for slight scouring of the valley floor by a local alpine glacier from Prospector Mountain or by the front of a tongue from the continental glaciation to the east. Higher on the hillside near the south edge of the deposit, leaching and weak supergene mineralization have penetrated to depths of up to 55 m below bedrock surface. However, no significant supergene enrichment has been found to date.

Two drilling programs in 1975 and 1977 have resulted in a cumulative total of 1 867.8 m in 20 holes. Nineteen of these holes have been drilled on a semi-grid pattern within a crudely rectangular area 2 591 m long and 1 066.8 m wide, the long axis of which trends northeast. Ignoring the other hole, which intersected unmineralized volcanic rock a further 610 m northwest, and three holes along the northwest side of this block that are outside the mineralized zone, the other 16 drill holes have an arithmetic average hypogene grade of 0.17% Cu and 0.018% MoS<sub>2</sub>. The magnitude of the size of the property can be better appreciated when it is realized that this block has a volume of about 2.5 billion tons to a depth of 305 m and an average hypogene grade of over 4 pounds CuE per ton.

Journey Zone - This zone lies at the southwest end of the deposit, mainly within the CAR claim group. It suboutcrops at its southwest end and is covered by up 18 m feet of residual and alluvial overburden. Mineralization is best developed in metasediments with weak to moderate potassic and phyllic alteration and is possibly underlain at shallow depth by an extension of the southwesterly feldspar porphyry body. This zone has been well outlined by drilling and has a maximum geological reserve of about 40 million tons. The best intersection in this zone, in hole W3, assayed 0.28% Cu and 0.035% MoS<sub>2</sub>, across 79 m.

Jensen Zone - This is a new zone of unknown extent that was discovered in the most northeasterly hole of the 1977 program (K4), which averaged 0.20% Cu and 0.054% MoS<sub>2</sub>, across 57.3 m. It is a blind zone, covered by over 61 m of overburden, in which moderate to intense potassic alteration is associated with weakly brecciated quartz-feldspar porphyry. Mineralization and alteration appear to increase towards Sharon Fault, and perhaps towards its intersection with the Big Creek Fault. These strong faults might produce the extra fracturing of host rocks required to increase the frequency of sulphide veinlets and improve grades to a commercial level, or alternatively, could represent a zone of crustal weakness along which explosive diatremes would tend to occur if they accompanied the emplacement of the porphyry bodies.

#### Current Work and Results:

In the spring of 1977 eight holes for a total of 858 metres were drilled on the FOX 1, 3; BEAR 2, 3, 4, 5, 6 and CAR 70 claims. Results outlined more mineralization and are included in the 'Description' section above.

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HI	Copper
United Keno Hill	115 I 6
Mines Limited	(62°29'N, 137°03'W)

Reference: Tempelman-Kluit (1974a).

Claims: HI 1-78

#### Location and Access:

The HI claims are located on the west side of Big Creek 15 km southwest of Minto and 224 km north of Whitehorse. Access is by helicopter.

#### History:

The claims were staked in 1976.

#### Description:

The property is underlain primarily by the Triassic Klotassin Batholith. These rocks are of granodioritic composition with some smaller areas of diorite. In a few restricted areas biotite and quartzo-feldspathic gneisses belonging to the Yukon Group are found.

#### Current Work and Results:

The claims were mapped and a soil geochemistry survey was conducted for copper, lead, zinc, silver and molybdenum. Samples were collected at 100 foot intervals along lines 300 feet apart. Malachite staining and a copper geochem anomaly are associated with the gneissic rocks of the Yukon Group.

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STU	Copper
United Keno Hill	115 I 7
Mines Limited	(62°25'N, 136°50'W)

References: Tempelman-Kluit (1974a, b).

Claims: STU 1-122

#### Location and Access:

The claims are located 47 km north of Carmacks along Hoochekoo Creek. Access is by helicopter from Carmacks.

#### History:

The claims were staked in January 1977 to cover anomalies obtained in a 1976 geochemical reconnaissance program.

#### Description:

Most of the claim block is underlain by intrusive rocks. These include a medium- to coarse-grained porphyritic granodiorite and a foliated variety of the granodiorite which may be somewhat richer in mafic minerals. Other units include the copper-bearing quartz-feldspar-biotite gneiss unit, fine- to medium-grained, exhibiting a range of biotite content from 0 to 50 per cent; a fine- to medium-grained gabbro and diorite unit; the Carmacks Group volcanics, which are found in a few outcrops of flows and tuff breccias; and a group of aplitic, micro-granite and pegmatite dykes.

### Current Work and Results:

Geological mapping outlined copper mineralization in the gneissic unit. Malachite is associated with biotite or occurs in fracture zones. Three zones containing malachite were outlined. Selected grab samples assayed from 0.01 to 0.58% Cu.

A soil geochemical survey was conducted on the claims. Samples were collected at 100 foot spacings along lines perpendicular to the base line at 300 foot intervals. A total of 8,958 samples were analyzed for copper. Results of the soil survey outlined the three zones mentioned above as well as several small isolated anomalies.

Magnetometer and EM-16 surveys outlined a number of shears, faults, and contacts as well as some volcanic outliers.

\*\*\*\*\*

K	Uranium
Union Oil Company of	115 J 7
Canada Limited	(62°20'N, 138°51'W)

References: Tempelman-Kluit (1974b); Craig and Milner (1975, p. 75); Gleeson and Brummer (1976).

Claims: K 1-40

### Location and Access:

The claims are located 40 km east of Wellesly Lake and are accessible by helicopter from Burwash Landing 113 km to the south.

### History:

The claims were staked in August 1976 and cover ground previously held by Canadian Occidental Petroleum Limited, as the KLOT and CHRIS claim groups, which conducted grid soil sampling and geological mapping for copper and molybdenum mineralization.

### Description:

The property is underlain completely by the Nisling Range alaskite, which is a miarolitic leucocratic granite. The rock is texturally very inhomogeneous.

### Current Work and Results:

A geochemical soil survey was conducted over the central portion of the claim group. Uranium and organic content were determined on these samples. A "Spectra 44" spectrometer with a 3 inch crystal detector was used to measure radioactivity at selected grid locations. The instrument was operated in a digital mode with a 30 second counting time. Total counts, K, U and Th were recorded at each location. Nearly all the uranium values in the soil were between 1-8 ppm with the U/Th ratio usually just over 1. No patterns or anomalies were obvious but such high values indicate that the rock unit contains a geochemically high value of uranium.

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SAM	Copper, Gold
Anglo American Corporation	115 J 9
of Canada Exploration, Limited	(62°39'N, 138°05'W)

References: Bostock (1944); Tempelman-Kluit (1974b); Sinclair et al (1975, pp. 95-96); Morin et al (1978, pp. 178-179).

Claims: SAM 1-98

### Location and Access:

The claims are situated in the Dawson Range 65 miles (105 km) northwest of Carmacks. They are bordered by Hayes Creek to the north and east and by Butterworth Gulch to the south. Elevations on the property range from 2,000 to 3,500 feet. Access to the property is normally by helicopter.

### History:

Placer gold was discovered in Klines Gulch as early as 1898 and placer mining has been carried out intermittently since then. Quartz veins were discovered around Klines Gulch in 1899 and an 80-foot adit was driven in the early 1900's. The area was staked as the HAYES claims in 1965 by Coranex Limited and subsequently as the DP claims in 1969 by Dawson Range Joint Venture and the NADA claims by D.C. Syndicate in 1974. Anglo American Corporation of Canada Exploration, Limited staked the SAM claims in October 1975.

### Description:

The property is underlain primarily by metamorphic rocks of the Yukon Group which are intruded to the southwest by Triassic granodiorite of the Klotassin Batholith (Tempelman-Kluit, 1974b). Trace amounts of chalcopyrite and molybdenite are associated with disseminated pyrite and pyrrhotite in a small quartz monzonite stock intruding Yukon Group rocks. Traces of chalcopyrite and molybdenite also occur with disseminated pyrite in the bleached, quartz-veined contact zone within the Yukon Group rocks.

### Current Work and Results:

Soil sampling in 1977 "filled-in" and extended the 1976 coverage. A total of 524 samples collected at 100 foot intervals along north-south lines spaced 200 and 400 feet apart. The samples were analysed for silver, lead and copper. Anomalous metal values were confined to the rhyolite porphyry and Yukon Group metasediments.

An EM-16 survey was carried out over 6.25 line-miles (10 line-km). Only one distinct conductor was located. This is probably the contact with the 'Coffee Creek' granite and enclosing rocks.

Geological mapping was carried out through the examination of the residual soil since there were no outcrops of consequence, even along the ridge tops. Rock fragments in the "C" soil horizon in the pits dug for geochemical sampling were examined. The rock units recognized were: (1) 'Coffee Creek' granite, (2) a rhyolite porphyry intrusive; (3) the Yukon Group metamorphics.

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# COAL REPORTS

**BIG SALMON COAL PROJECT**  
 Kerr Addison Mines Limited  
 Canadian Natural Resources Limited

Coal  
 105 E 15  
 (61°56'N, 134°52'W)

Coal Exploration Licences: 58, 59, 60

Location and Access:

The area of exploration lies near Walsh Creek, 130 km north of Whitehorse and 80 km east of Carmacks. Access is by helicopter from Carmacks, float plane or riverboat.

Description:

Thinly layered shaly coal in 1-5 cm seams, occurs within a 100-200 metre thick shale unit. This unit, identified as the Tantalus Formation (?), is found within a basin (?) composed mainly of sandstone and conglomerate.

Current Work and Results:

The licence areas were mapped geologically at a 1:12,500 metric scale. An airborne electromagnetic VLF survey, a ground Crone J.E.M. survey and a ground Ronka EM survey were conducted on licence 59. The airborne survey results were not interpretable and the Ronka EM unit malfunctioned. The Crone J.E.M. unit gave up to a -35° frequency (3600 cps) anomaly over the shaly coal member.

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**TANTALUS BUTTE MINE**  
 Cyprus Anvil Mining Corporation

Coal  
 115 I 1  
 (62°15'N, 136°07'W)

References: Bostock (1936a, pp. 59-62); Green (1966, pp. 121-124); Findlay (1967, p. 88; 1969a, p. 15; 1969b, pp. 66-67); Craig and Laporte (1972, pp. 155-156); Sinclair and Gilbert (1975, pp. 121-122); Sinclair *et al* (1975, p. 168; 1976, p. 172); Morin *et al* (1977, p. 218).

Lots and Leases: 2959; Lot 23

Location and Access:

The mine is situated on the north bank of the Yukon River, 6.4 km north of Carmacks and 1 km from the Whitehorse-Mayo Road.

History:

The Tantalus Butte Mine began operation in 1923, supplying coal to Carmacks and Dawson and later the mill at United Keno Hill Mines, Elsa, until 1967. In 1969, the mine began supplying coal to the Anvil Mine where it is used for plant heating and concentrate drying.

Description:

The coal occurs in the Tantalus Formation of Upper Jurassic (?) and Lower Cretaceous age, consisting of conglomerate with lesser amounts of sandstone, shale and a few coal seams. The main seam ranges from 0 to 14 feet thick, strikes north and dips 45° to 70° west. The seam is displaced by steeply-dipping, northeast- to northwest-trending faults. Although fault displacement is only on the order of a few feet or more, mining is rendered difficult. The coal is a high volatile, bituminous coal with calorific value ranging from 11,000 to 12,700 BTU. Samples are agglomerating with a swelling index of 1 (ASTM)

and are not suitable for metallurgical grade coke (Green, 1966, p. 124). There is also another coal horizon near the top of the Laberge Group (Lower to Middle Jurassic).

Current Work and Results:

On the Carmacks North Coal leases, adjacent to the mine, geophysical surveys consisting of Resistivity, IP, gravity, EM-16 and down-hole logging were conducted. Six trenches were dug by bulldozer and 20,000 tons of coal were stripped by bulldozer and scraper. A program of 42 holes of 5 1/2 inch rotary-percussion drilling totalled 3 476.8 metres. Further ore reserves were outlined.

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**CARMACKS SOUTH LEASES**  
 Cyprus Anvil Mining Corporation  
 Teslin Exploration Limited

Coal  
 115 I 1  
 (62°04'N, 136°15'W)

Lots and Leases: Leases 2949, 2954, 2965, 2967, 2776-2980

Location and Access:

The leases are situated 1.6 km southeast of Carmacks and are accessible by trails from the town.

Description:

Coal occurs as a seam in the mid-Jurassic Laberge Group.

Current Work and Results:

Resistivity, IP, gravity and EM-16 geophysical surveys were conducted on the leases and resulted in the definition of drill targets.

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**FIVE FINGER COAL LEASES**  
 Cyprus Anvil Mining Corporation  
 Teslin Exploration Limited

Coal  
 115 I 1  
 (62°12'N, 136°19'W)

Lots and Leases: Lease 2964; Lots 4, 5, 6

Location and Access:

The lease and lots are located 12.9 km north of Carmacks. Access is by boat on the Yukon River or by helicopter from Carmacks.

Description:

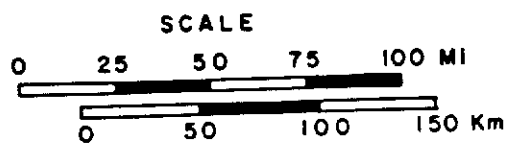
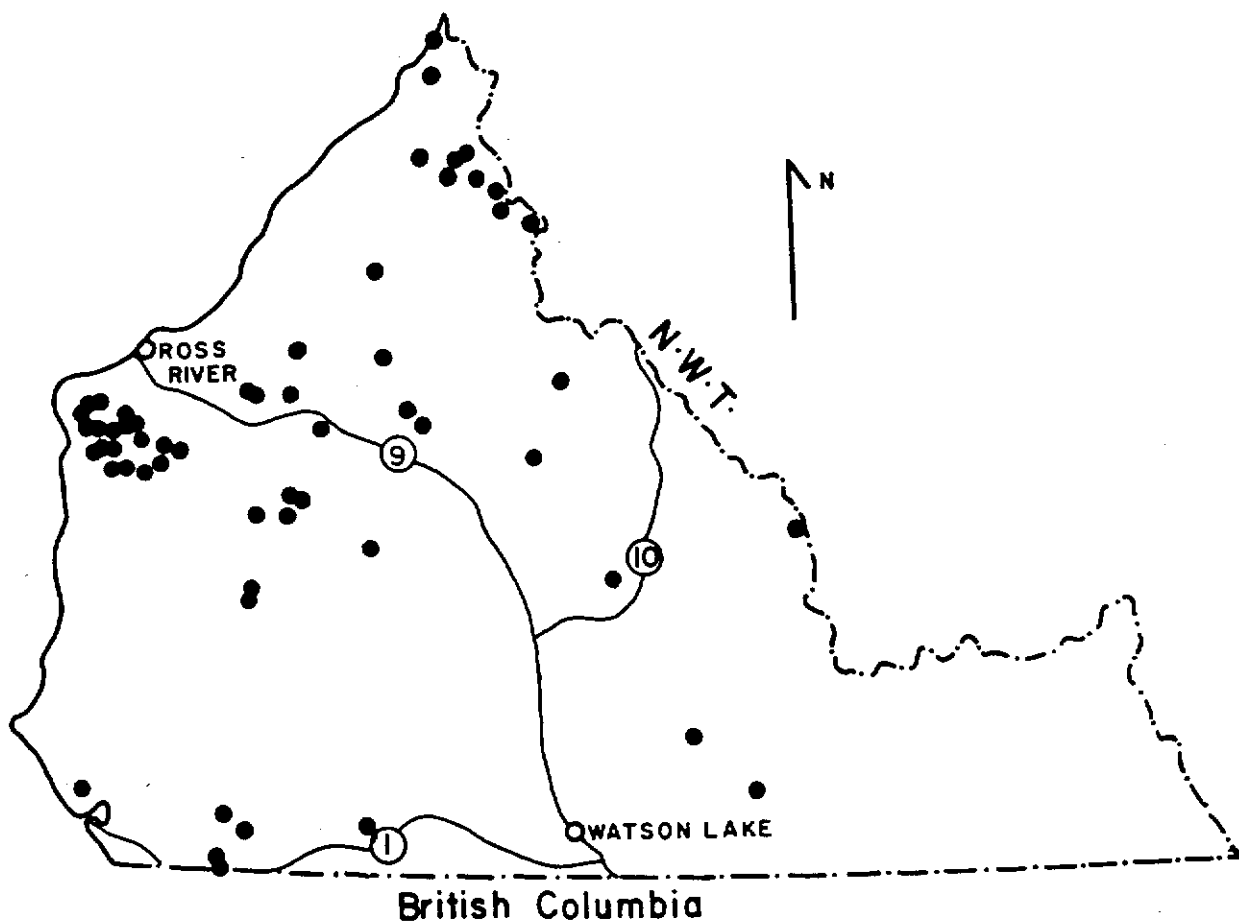
Coal occurs as seams within the mid-Jurassic Laberge Group.

Current Work and Results:

The leases and lots were mapped geologically at a scale of 1:50,000.

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# WATSON LAKE MINING DISTRICT



MEL  
St. Joseph Explorations  
Limited

Lead, Zinc, Barite  
95 D 6  
(60°21'N, 127°24'W)

References: Gabrielse and Blusson (1969);  
Sinclair and Gilbert (1975, pp. 82-83);  
Sinclair et al (1975, pp. 152-153); Carne  
(1976).

Claims: JEAN 1-21; MEL 11-16; WET 1-16, 25-32

Location and Access:

The property is located in the Hyland Plateau, 80.5 km east-northeast of Watson Lake and access is provided by STOL float equipped aircraft to Otter Lake (2.8 km north) or by helicopter from Watson Lake. A winter tote road, 46 km in length, connects the property with the Alaska Highway.

History:

The property was originally staked by J. Melynchuk and T. Flint in 1967 and since then has been optioned to several companies in succession who have done varying amounts of work, including trenching and diamond drilling. In 1976, R.C. Carne mapped and reported on the property for the Department of Indian and Northern Affairs. During the winter of 1976/77, St. Joseph Explorations Limited entered an agreement with Granby Mining Corporation Limited and Sovereign Metals Corporation Limited to conduct further exploration work on the property.

Description:

The property is underlain by Cambro-Ordovician carbonates and argillaceous sediments which form the overturned west limb of a broad syncline. The west part of the property is underlain by massive grey limestone with interbedded shale bands of Lower Cambrian age (Unit 5, Gabrielse and Blusson, 1969). To the east, the property is underlain by calcareous brown phyllite and silty, wavy banded limestone of Ordovician age (Unit 8, op. cit.). The contact between the Lower Cambrian and Ordovician sediments appears to be conformable, striking roughly north and dipping steeply to the west.

Drilling to date has indicated a mineralized zone 10 to 40 feet wide located at the contact of massive grey limestone on the hanging wall and limy, pyritic phyllite on the footwall. The mineralized zone consists of disseminated sphalerite and galena within baritic host rocks. Host rocks consist of white coarse-grained barite with clasts and thin beds of pale brown shale (mudstone) and some grey chert. Drilling has shown the deposit is thickest in the centre and decreases in thickness both north and south where grey chert becomes predominant and barite content is low. Pale grey chert, up to 8 feet thick, was also intersected in several drill holes at the stratigraphic top of the zone. Drill hole intersections (1974-75) average 7.3% combined Pb-Zn and 56% barite over a strike length of about 2,600 feet.

Current Work and Results:

During summer 1977, geological mapping (1:5,000), geochemical soil and stream sediment sampling, gravity and induced polarization survey programs were conducted. Soil samples were collected at 25 m intervals along lines spaced 200 m to 400 m apart and analyzed for lead, zinc and copper. Geophysical measurements were also made at 25 m intervals along much of the grid. Three lead-zinc anomalies were determined, one of which lies south of the main mineralized zone and is nearly coincident over a 600 metre length with induced polarization and gravity anomalies. The two

remaining anomalies were not interpreted to be significant. A company geologist recommended further work to consist of diamond drilling to evaluate the possible southern extension of the mineralized zone.

\*\*\*\*\*

McMillan Property (Quartz Lake) Lead, Zinc, Silver  
Noranda Exploration 95 D 12  
Company Limited (60°31'N, 127°56'W)

References: Gabrielse and Blusson (1969); Morin  
et al (1977, p. 188).

Claims: SOUTH NAHANNI (45); M (24); PIC Fr (3); QTZ  
(8); STRAT (95) - 175 in total

Location and Access:

The property is located 64 km northeast of Watson Lake and immediately south and west of Quartz Lake. Access is by means of helicopter or float plane from Watson Lake.

History:

The McMillan showing was known to prospectors as early as 1892 and since 1948 has been worked on by several interests - notably Asarco and Noranda. The last major diamond drilling effort was in 1975 - 27 holes totalling 8,400 feet. In addition geophysical surveys and geochemical sampling programs were conducted in 1975 and 1976 which indicated an electromagnetic conductor extending north of the known mineralized zone.

Description:

The property is underlain by Hadrynian sedimentary rocks consisting of maroon and green argillite with intercalated quartzite and limestone (Unit 1, Gabrielse and Blusson, 1969). They have a general northwest trend and dip gently to the northeast and are cut by a number of steeply-dipping, north-trending faults and by thrust faults dipping gently to the east.

The McMillan deposit is a zone of massive sulphides up to 15 metres thick that is generally conformable with the enclosing calcareous argillite and limestone host rocks. Mineralization consists mainly of pyrite with galena, sphalerite and minor arsenopyrite, boulangerite, tetrahedrite and chalcocopyrite. A more detailed description is available in the 1975 M.I.R. (Sinclair et al, 1976).

Current Work and Results:

During summer 1977, two diamond drill holes (BQ) were drilled with a total footage of 870 feet.

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NEIL, FOX Copper, Silver, Lead  
La Teko Resources Limited Zinc  
95 E 6  
(61°17'N, 127°03'W)

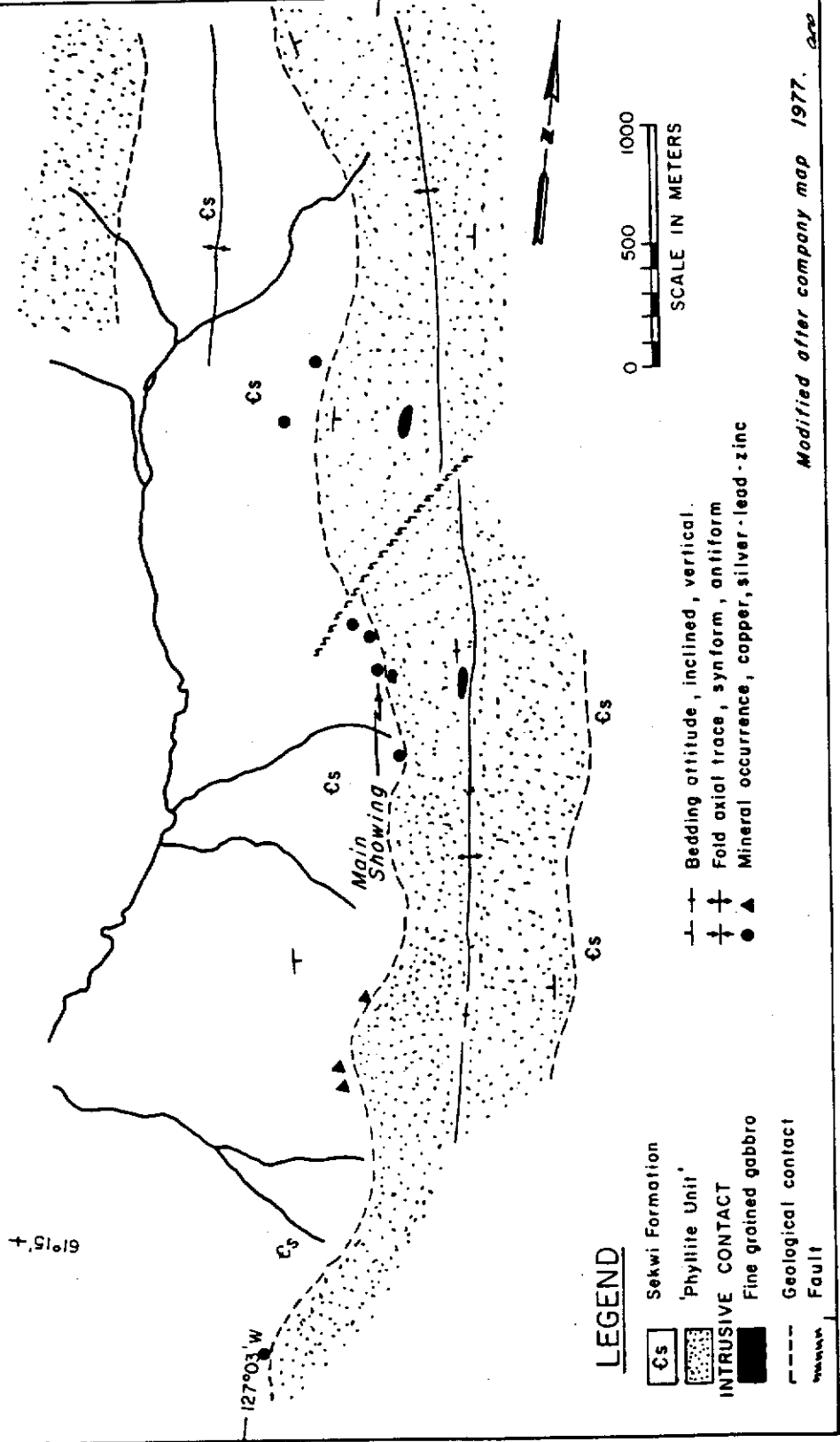
Reference: Gabrielse et al (1973).

Claims: NEIL 1-8; FOX 1-16

Location and Access:

The property is located in the Selwyn Mountains, 160 km north-northeast of Watson Lake, immediately west of the Yukon-NWT border. Access is provided by float equipped fixed wing aircraft to the northern lake of Twin Lakes, and from there 8 km north to the property by helicopter.

# 2 GEOLOGY OF THE NEIL, FOX CLAIMS 95E-6



## LEGEND

- Cs Sekwi Formation
- · · · · 'Phyllite Unit'
- INTRUSIVE CONTACT**
- Fine grained gabbro
- Geological contact
- Fault

- Bedding attitude, inclined, vertical.
- Fold axial trace, synform, antiform
- Mineral occurrence, copper, silver-lead-zinc

Modified after company map 1977. *gpc*

### History:

The NEIL claims were staked in June 1976 and the FOX claims in November 1976. They cover ground that had been held under several different claim names since the late 1950's: RAM, DELL, SUNSET. An airborne magnetic survey was conducted in 1968 and a 900 m long magnetic anomaly was determined 150-300 m east of the main showing and parallel to the argillite-dolomite contact.

### Description:

The property is underlain by north-south trending argillite, quartzite and slate of the Upper Proterozoic 'Phyllite Unit' and buff dolomite and grey limestone of the Lower Cambrian Sekwi Formation. Small, sill-like bodies of medium-grained gabbro occur intrusive to the 'Phyllite Unit' (see map). On the property, the rocks are folded into an antiform and synform.

Mineralization consists of copper and silver-lead-zinc showings located in proximity of the contact between the buff dolomite unit and the structurally overlying Phyllite Unit (see map).

Most of the mineralization is reported to be associated with vertical to steeply dipping fracture systems having trends nearly perpendicular to the trend of the units. A minor amount appears to be controlled by primary layering. Numerous showings occur sporadically along a 4+ kilometre distance within the buff dolomite. The main showing is made up of chalcopyrite, bornite and very minor pyrite and galena in brecciated and silicified dolomite. A chip channel sample across 5.4 metres assayed 2.13 oz Ag/ton, 4.41% Cu, 0.004 oz Au/ton. Several showings in the southern portion of the trend consist of galena veinlets 1 to 3 cm wide in brecciated and intensely silicified dolomite. A grab sample from the latter assayed 5.04 oz Ag/ton, 7.87% Pb, 0.21% Zn over 0.65 metres.

### Current Work and Results:

During summer 1977, prospecting, geological mapping (1:10,000), trenching and sampling programs were conducted. A consulting geologist recommended further work consisting of ground magnetic and electromagnetic surveys, detailed prospecting and geochemical soil sampling programs.

\*\*\*\*\*

A & B  
Serem Limited

Lead, Zinc, Silver,  
Tungsten  
105 B 1  
(60°07'N, 130°27'W)

References: Little (1959, p. 37); Poole et al (1960); Green and Godwin (1963, pp. 31-32); Green (1966, pp. 80-82); Craig and Laporte (1972, pp. 134-137); Craig and Milner (1975, p. 106); Sinclair et al (1975, p. 159).

Claims: A & B 1-4, 7,-32, Fr 3, Fr 4; BUG 5-8; BNA 1-6

### Location and Access:

The claims are situated in the Cassiar Mountains 98 km west of Watson Lake. They straddle the main branch of Boulder Creek, approximately 5 km from its junction with the Rancheria River at Mile 701.6 on the Alaska Highway. Access is provided by a 4 km gravel road from the Alaska Highway.

### History:

The property was first explored for tungsten in 1943 and has been explored several times since, but little work has been done on the showings since 1962. A more detailed account is available in Craig and Laporte (1972) and Craig and Milner (1975) under the LUCK group. In 1975, geochemical soil sampling and trenching programs were conducted. A 10 foot chip sample assayed 3.06% Zn, 0.29% Pb, 0.64 oz Ag/ton. Subsequently, the property was optioned by Serem Limited from Delphi Resources.

### Description:

The property is underlain by Post Lower Cambrian recrystallized and altered limestone and limy phyllite. Mineralization consists of calcite, dolomite and quartz veins with accompanying galena, sphalerite and pyrite.

### Current Work and Results:

During summer 1977, detailed geological mapping (1:6,000) and gravity survey programs were conducted on the property. No discernable excess mass anomaly was indicated over the area of known mineralization. However, one gravity anomaly was determined and a consulting geophysicist recommended further detailed geological mapping and rock density measurements to evaluate it.

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MUN  
D.C. Syndicate

Tungsten, Zinc  
105 B 3  
(60°08'N, 131°21'W)

Reference: Poole et al (1960).

Claims: MUN 1-80

### Location and Access:

The property is located on the south side of Munson Lake in the Dorsey Range of the Cassiar Mountains, 215 km east-southeast of Whitehorse, 145 km west of Watson Lake and 15 km northwest of Swift River on the Alaska Highway. Access is provided by float equipped fixed wing aircraft to Munson Lake.

### History:

The claims were staked in March 1977.

### Description:

The property is underlain by a sequence of siltstone, limestone, tuffaceous sediments and tuff intruded by a granitic body of Cretaceous age, the Seagull Batholith. Small zones of limy sediments have been altered to calc-silicate skarns, some of which contain one or more of pyrrhotite, sphalerite and scheelite.

### Current Work and Results:

During summer 1977, geological mapping (1:6,000), prospecting, soil geochemical sampling and reconnaissance rock and talus fine geochemical sampling programs were conducted. All material was analyzed for tungsten and zinc and some for tin. A total of 166 soil samples was collected along five lines with sample intervals every 500 feet and in the areas of most interest, every 100 feet. Several tungsten, zinc and tin anomalies were determined. The highest assay reported is from a chip sample across four feet of sphalerite-garnet diopside skarn - 6.52% Zn, 0.04% WO<sub>3</sub>. Company geologists recommended further work to consist of detailed soil geochemical sampling.

TOP 105 B 4  
Climax Molybdenum (60°02'N, 131°40'W)  
Corporation of B.C. Limited

Reference: Poole et al (1969).

Claims: TOP 1-54

Location and Access:

The claims are located in the Dorsey Range of the Cassiar Mountains, 162 km west of Watson Lake and 205 km southeast of Whitehorse. During extremely dry weather, access is possible via a summer tote road which takes off from M.P. 759 of the Alaska Highway. Access is provided by helicopter from Teslin, 65 km to the west-northwest. To the south, the claims adjoin the BARB and LOG claims.

History:

The claims were staked in October 1976 to cover a possible northern extension of the molybdenum-tungsten mineralized skarn zone discovered on the LOG claims.

Description:

The property is underlain by a granitic stock which is intrusive to black shale and limy sediments (metamorphosed to skarn). Mineralization consists of disseminated scheelite in skarn.

Current Work and Results:

During summer 1977, preliminary geological mapping (1:6,000), prospecting and geochemical soil and stream sediment heavy mineral sampling programs were conducted. The geochemical samples were analyzed for lead, zinc and tungsten. A company engineer recommended further work consisting of more detailed geological mapping and geochemical sampling.

\*\*\*\*\*

CAN Tungsten, Zinc, Tin  
D.C. Syndicate 105 B 4  
(60°13'N, 131°32'W)

Reference: Poole et al (1960).

Claims: CAN 1-56

Location and Access:

The property is situated in the Cassiar Mountains, 27 km northwest of Swift River on the Alaska Highway. Access is provided by helicopter.

History:

The claims were staked in June 1977 following discovery of a scheelite bearing skarn as part of a stream sediment tungsten anomaly followup.

Description:

The property is underlain by quartz monzonite of the Cretaceous Seagull Batholith that is intrusive to sedimentary and volcanoclastic rocks of Upper Devonian and Lower Mississippian age - limestone, cherty argillite and lapilli tuff. Mineralization consists of several bodies (undetermined size) of skarnified limestone containing variable amounts of magnetite, scheelite, bornite, chalcopyrite, fluorite, sphalerite, calc-silicate minerals and an undetermined tin mineral.

Current Work and Results:

During summer 1977, geological mapping (1:6,000), prospecting and geochemical stream sediment sampling (Cu, Zn, W) programs were conducted. In addition, 26 samples were analyzed for tin in early 1978. Several anomalies were determined.

LOGTUNG Tungsten, Molybdenum  
Amax Potash Limited 105 B 4  
(60°00'N, 131°36'W)

Reference: Poole et al (1960).

Claims: LOG 1-19, 21, 23, 25, 44-47, 52-72, 81-89, 91, 93-132, 134-138, 153-156, 165-167

Location and Access:

The property is located in the Cassiar Mountains along the B.C.-Yukon border, 50 km east of Teslin Lake. Access is provided by road, 13 km north of KM 1213 on the Alaska Highway.

History:

The LOG claims were staked in September and October 1976 on behalf of a prospecting syndicate headed by W.J. Coulter. Amax Potash Limited optioned the property in March 1977 and ownership was transferred from the prospecting syndicate to Logtung Resources Limited.

Description:

The property is underlain by late Paleozoic fine-grained clastic and carbonate metasediments which are flanked to the east and west by northerly elongate diorite bodies. A nearby younger quartz monzonite stock, 2 km by 800 m has related off-shoot dykes of granite porphyry. Sedimentary rocks have been altered to hornfels, light or dark green skarn or calc-silicate near the quartz monzonite and granite porphyry. Scheelite and molybdenite occur in quartz vein stockwork in and near granite porphyry dykes and the contact of the quartz monzonite stock. Minor disseminated scheelite is locally associated with discontinuous beds of skarn. Fluorite, beryl, sphalerite, galena, rare chalcopyrite, wolframite and cosalite occur as accessory vein minerals.

Current Work and Results:

During summer 1977, detailed geological mapping (1:5,000), geochemical soil sampling and magnetometer survey programs were conducted. The diamond drilling program consisted of 9 holes with NQ and BQ core for a total length of 2 365 m. According to the Northern Miner (1978, vol. 64, No. 4), the 1977 drill results indicate near surface reserves of 214 million tons grading 0.12% WO<sub>3</sub> and 0.051% MoS<sub>2</sub>.

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STARTIP 105 C 7  
Aquitaine Company of (60°18'N, 132°45'W)  
Canada Limited

Reference: Mulligan (1963).

Claims: STARTIP 1-16

Location and Access:

The claims are located near the headwaters of Tenmile Creek in the Big Salmon Range, 15 km north of Teslin on the Alaska Highway. Access is provided by helicopter from Teslin.

History:

The claims were staked in February 1977 by C.R. Eastman over a reported radioactive occurrence. Mr. Eastman subsequently allowed Aquitaine to examine and explore the property.

### Description:

The property is underlain by Cretaceous granitic rocks near their contact with metasedimentary and metavolcanic rocks of the Big Salmon Complex of Mississippian or earlier age (Mulligan, 1963). Much of the property is covered by overburden.

### Current Work and Results:

During summer 1977, airborne gamma-ray spectrometry, prospecting and geochemical stream sediment sampling programs were conducted. The spectrometer survey was conducted at a ground speed of 60 miles per hour and an average terrain clearance of 150 feet. Line spacing was approximately 500 feet and two sets of flight lines at right angles to each other were completed. No anomalous airborne response was observed. Six stream sediment samples were collected and analyzed for  $U_3O_8$ , but no anomalously high values were determined.

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MM  
Cyprus Anvil Mining Corporation  
Zinc, Lead, Silver,  
Copper  
105 F 7  
(61°27'N, 132°40'W)

References: Sinclair et al (1975, p. 159);  
Tempelman-Kluit (1977b); Morin et al (1977, pp. 83-97).

Claims: MM (76); JJ (81); DD (32) - a total of 189

### Location and Access:

The property is located in the Pelly Mountains on the west side of Seagull Creek. Access is provided by helicopter from Ross River, 60 km to the north.

### History:

The MM and JJ claims were staked in 1973 on ground that previously had been staked as the ARNOLD and ZINC claims. The DD claims were subsequently staked in August 1976. Property work including geological mapping, geochemical soil and stream sediment sampling, a gravity survey and diamond drilling was carried out from 1973 to 1977. The drilling program involved two holes in 1973 (805 feet), two holes in 1974 (2,010 feet) and seven holes in 1976 (5,505 feet).

### Description:

The property is underlain by an upside down sequence of metamorphosed Mississippian volcanic, volcanoclastic and exhalite rocks overlain by equally metamorphosed Siluro-Devonian quartzite, dolomite and graphitic schist and Lower Cambrian calc-silicate schist and phyllite. The Mississippian rocks are isoclinally folded and have suffered extensive deformation.

Mineralization consists of three separate lenses of baritic quartzite with associated horizons of massive sulphide material (mainly pyrite with subordinate sphalerite, galena and chalcopyrite). These lenses are each in the order of several tens of metres long and several metres thick and probably coalesce below surface to form one horizon (see Morin et al, 1977 for more detail).

### Current Work and Results:

During summer 1977, geochemical soil sampling, ground magnetic and electromagnetic survey programs were conducted. Four diamond drill holes (BQ) were drilled for a total footage of 5,388 feet and several

narrow zones of sulphide mineralization were encountered.

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Stormy Prospect  
P.S. White and Associates  
Molybdenum, Tungsten  
105 F 7  
(61°30'N, 132°48'W)

References: Tempelman-Kluit (1977b); Archer, Cathro (1977).

Claims: PM 1, 5-8

### Location and Access:

The property is located in the Pelly Mountains, 14 km east of the South Canal Road and 58 km south of Ross River. Access is provided by helicopter from Ross River.

### History:

The property was first staked as the ANN claims in August 1955 and has been the object of intermittent work since then including 1,050 feet of drifting, 3,460 feet of underground drilling and extensive bulldozer trenching (Archer, Cathro, 1977). The property was restaked as the PM claims in September 1975 and 1976.

### Description:

The property is underlain by Lower Paleozoic sedimentary rocks intruded by a stock of porphyritic quartz monzonite. A skarn zone has developed at the contact of the stock with Lower Cambrian limestone and mineralization consists of molybdenite and scheelite.

### Current Work and Results:

During summer 1977, the property was subjected to a reconnaissance stream sediment geochemical sampling program by Noranda Explorations Limited for Cu, Pb, Zn, Mo and W. No major anomalies were determined by the survey.

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SUN, DM  
M. Sherman and  
Welcome North Mines Limited  
Lead, Silver, Gold  
Zinc  
105 F 7, 10  
(61°32'N, 132°35'W)

References: Tempelman-Kluit (1977b); Morin et al (1977, p. 96, 193-196).

Claims: SUN 1-16; DM 1-12; S 1-7, 9-12; D 1-8; MAT 1-64; M 1-20; GULL 1-24 - total of 152

### Location and Access:

The property is located in the Pelly Mountains on the east side of Seagull Creek about 40 km south of Ross River and 26 km east of the Canal Road. Access is provided by four wheel drive vehicle along a road starting from the junction of the South Canal and Groundhog Creek.

### History:

The MAT claims 1-4 were recorded in August 1974 and since then, substantial additions have been made in 1975, 1976 and 1977. First staked in 1963 by Conwest Exploration, the ground has been dropped and restaked several times since then, the exploration work consisting mainly of geological mapping and trenching. In 1977, M. Sherman and Welcome North Mines Limited optioned the ground to the Seagull Joint Venture made up by DuPont of Canada Exploration Limited, Rosario Resources Limited and Aquitaine of Canada.

### Description:

The property is underlain by Mississippian volcanic and associated volcanoclastic and sedimentary rocks. A rhyolite dome on the east-central part of the property has related intercalated distal and proximal volcanoclastic and sedimentary rocks: tuff breccia, lapilli tuff, tuff, argillite, sandstone, dolostone and limestone. The main showing consists of a massive sulphide pod (pyrite, galena, chalcopyrite) enclosed within a sequence of graphitic slate and foliated quartz-eye tuff (see Morin *et al.*, 1977, p. 194).

### Current Work and Results:

During summer 1977, geological mapping (1:10,000 and 1:2,000), geochemical soil sampling, ground electromagnetic survey, bulldozer trenching and diamond drilling programs were conducted. A total of 1,800 soil samples were collected at 50 m intervals along lines spaced 200 m apart and analyzed for Cu, Pb, Zn. Two bulldozer trenches were dug near the main showing on MAT #4 but bedrock was not encountered. Five diamond drill holes (BQ) were drilled for a total footage of 1,500 feet. No indications of further mineralization were encountered.

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MUMS  
Utah Mines Limited

Copper  
105 F 8  
(61°27'N, 132°15'W)

Reference: Tempelman-Kluit (1977b).

Claims: MUMS 1-6

### Location and Access:

The property is located in the Pelly Mountains near the headwaters of the McNeil River. Access is provided by helicopter from Ross River, 60 km to the north.

### History:

The claims were staked in July 1976.

### Description:

The property is underlain by Lower Paleozoic volcanic and sedimentary rocks that have been intruded by a stock of porphyritic granodiorite. Mineralization consists of a zone of pyrrhotite-bearing rocks with trace amounts of chalcopyrite along the contact between volcanic and calc-silicate rocks within the contact aureole of the stock.

### Current Work and Results:

During summer 1977, geological mapping (1:50,000) and geochemical rock sampling programs were conducted. No significant mineralization was encountered.

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NOKLUIT  
Archer, Cathro and  
Associates Limited

Rare Earths  
Thorium, Niobium  
105 F 8  
(61°29'N, 132°11'W)

References: Tempelman-Kluit (1977b); Morin *et al.* (1977, pp. 190-191).

Claims: NOKLUIT 1-8

### Location and Access:

The claims are located immediately south of the headwaters of the Ketz River, 58 km south of Ross River. Access is provided by helicopter from Ross

River or Whitehorse (176 km to the southwest). In addition, a tote road follows the Ketz River valley to within 6.5 km of the property.

### History:

The claims NOKLUIT 1-8 were recorded in August 1976. In 1976, the property was geologically mapped and subjected to preliminary prospecting and radiometric surveys.

### Description:

The property is underlain by Cambrian carbonates and Mississippian volcanic, volcanoclastic, clastic sedimentary and hypabyssal syenitic rocks.

Eight areas of anomalous radioactivity were determined in discontinuous, linear, siliceous occasionally gossaned zones up to 10 m wide within felsic volcanics on the southeast side of the claim block. Assays of the most radioactive specimens ranged from 200 to 3200 ppm Th and 0.5 to 74 ppm U and limited assaying for rare earths and niobium returned values up to 2000 ppm Ce, 2000 ppm La, 2000 ppm Nd, 2000 ppm Y and 0.95 per cent  $Cb_2O_5$ .

### Current Work and Results:

During summer 1977, detailed geological mapping (1:10,000), airborne radiometric survey, detailed prospecting and reconnaissance soil geochemical sampling programs were conducted. The contour airborne radiometric survey was flown at 150 m elevation intervals over a 6 km by 7 km area over the claims. A gamma-ray spectrometer with an 1853 cc crystal was maintained at a 50 m height above the ground and total count, uranium and thorium were measured. An anomaly mainly due to thorium was determined within and immediately peripheral to the claim block. No uranium anomalies were determined by the geochemical soil sampling program.

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CPA, GAG  
United Keno Hill  
Mines Limited

Silver, Lead, Zinc  
105 F 8  
(61°28'N, 132°27'W)

References: Craig and Milner (1975, p. 115); Morin *et al.* (1977, p. 96); Tempelman-Kluit (1977b).

Claims: CPA 1-12; GAG 1-24

### Location and Access:

The property is located in the Pelly Mountains, 55 km south of Ross River, 33 km east of the South Canal Road and 163 km northeast of Whitehorse. Access is provided by helicopter from Ross River, though a tote trail from the South Canal Road along Groundhog Creek and Seagull Creek passes within 5 km of the western claim boundary.

### History:

The CPA claims were staked by R.G. Hilker and optioned by United Keno Hill Mines Limited in June 1977 and the GAG claims were staked by United Keno in July 1977. In 1971, the CPA claims were subjected to programs of geological mapping, geochemical soil sampling for copper and lead and a ground magnetic survey.

### Description:

Felsic volcanic rocks, chert and intrusive syenite of probable Mississippian age underlie the property. The volcanic rocks consist of felsic lapilli tuff and tuff breccia with interbedded felsic flows,

phyllite, intermediate to mafic tuff and fine grained dioritic rocks. The chert is light grey and cream with well developed layering. Syenite forms a major stock and several plugs intrusive to the sequence.

Mineralization consists of sphalerite, galena and rare chalcopyrite.

Current Work and Results:

During summer 1977, detailed geological mapping (1:4,800), prospecting, trenching and geochemical soil sampling programs were conducted. A total of 2,968 soil samples was collected and analyzed for copper, lead, zinc and silver. Sample intervals were 100 feet along lines spaced 300 feet apart.

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TREE 105 F 9  
Utah Mines Limited (61°38'N, 132°25'W)

References: Tempelman-Kluit (1977b); Morin et al (1977, pp. 83-97).

Claims: TREE 1-40

Location and Access:

The claims are located in the Pelly Mountains, 39 km south of Ross River. Access is by helicopter from Ross River.

History:

The claims were staked in June 1977.

Description:

The property is underlain by an interbedded sequence of felsic to andesitic volcanic and volcanoclastic rocks and black shale, all of Devon-Mississippian age. Mineralization consists of varying amounts of disseminated pyrite within most rock types. Strongly coloured orange and yellow gossans in the central part of the claim group are due to disseminated pyrite in a trachyte unit.

Current Work and Results:

During summer 1977, detailed geological mapping (1:5,000), prospecting and geochemical soil and rock chip sampling programs were conducted. A total of 91 soil samples were collected and analyzed for Ag, Cu, Pb, Zn. Several anomalies were determined but were not interpreted to be related to significant mineralization. Fourteen rock chip samples were analyzed for Cu, Pb, Zn, Ag, Au and Ba. Company geologists recommended no further work on the claim group.

\*\*\*\*\*

DROC Copper  
Utah Mines Limited 105 F 9  
(61°35'N, 132°25'W)

Reference: Tempelman-Kluit (1977b).

Claims: DROC 1-20

Location and Access:

The property is situated in the Pelly Mountains near the headwaters of McConnell and Cloutier creeks. Access is provided by helicopter from Ross River, 44 km to the north.

History:

The claims were staked in August 1976.

Description:

The property is underlain by phyllite and carbonate rocks of Lower Paleozoic age that form the basal portion of the Pelly Cassiar Platform. Mineralization consists of minor chalcopyrite in quartz veins within phyllite of the Kechika group.

Current Work and Results:

During summer 1977, geological mapping (1:5,000) and geochemical soil sampling programs were conducted. No significant mineralization was encountered.

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CHZERPNOUGH Lead, Zinc, Barite  
Cyprus Anvil Mining 105 F 9  
Corporation Limited (61°36'N, 132°26'W)

References: Tempelman-Kluit (1977b); Morin et al (1977, p. 192).

Claims: CHZERPNOUGH 1-16

Location and Access:

The property is located at the head of Cloutier Creek, immediately south of Peak 7001. Access is by helicopter from Ross River 48 km to the north.

History:

The claims were recorded in August 1976, during which summer geochemical soil sampling and detailed prospecting were carried out. A large area of anomalous Pb-Zn response was determined to be partially coincident with the known showings.

Description:

The property is underlain by felsic volcanoclastic rocks of Mississippian age. A lapilli tuff with abundant carbonate in the matrix is the most common rock unit and the one which hosts the mineralized showings. Mineralization consists of talus occurrences of a sugary textured barite unit with disseminated sphalerite, galena and fluorite.

Current Work and Results:

During summer 1977, geological mapping (1:4,800), and ground electromagnetic and magnetic survey programs were conducted. No significant anomalies were detected.

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HOWRU Lead, Zinc, Silver  
Cyprus Anvil Mining Corporation 105 F 9, G 12  
(61°35'N, 132°05'W)

Reference: Tempelman-Kluit (1977b).

Claims: HOWRU 1-88

Location and Access:

The property is situated in the Pelly Mountains, 5 km east of the Ketz River and 20 km south of Tintina Trench. Access is provided by helicopter from Ross River, 48 km to the northwest.

History:

HOWRU claims 1-40, 49-88 were staked in July 1977 and 41-48 in August 1977.

Description:

The property is underlain by shale, sandstone and carbonates of Upper Cambrian to Triassic age (Tempelman-Kluit, 1977b).

Mineralization is of three types: 1) small copper-bearing sphalerite-galena veins; 2) disseminated galena in quartzose sandstone and 3) stratiform pyrite with traces of galena and sphalerite in Mississippian shale.

Current Work and Results:

During summer 1977, reconnaissance stream sediment and soil geochemical sampling (Pb, Zn) and geological mapping (1 inch = 1,320 feet) programs were conducted. Several geochemical anomalies were determined which correlated well with known showings and mineralized float occurrences.

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EROS 105 F 9  
Cyprus Anvil Mining Corporation (61°36'N, 132°21'W)

Reference: Tempelman-Kluit (1977b).

Claims: EROS 1-8

Location and Access:

The property is located 44 km south of Ross River, about 5 km southeast of Peak 7001. Access is provided by helicopter from Ross River. A serviceable summer road is present in the Ketz River valley, 8 km to the east.

History:

The claims were staked in August 1976.

Description:

The property is underlain by Upper Cambrian to Ordovician phyllite that is in fault contact with volcanic and volcanoclastic rocks of Mississippian age (Tempelman-Kluit, 1977b).

Current Work and Results:

During summer 1977, the property was subjected to geochemical soil sampling, magnetic and electromagnetic surveys. Sixty-six soil samples were collected at 200 foot intervals along lines spaced 800 feet apart and analyzed for Cu, Pb, Zn. Several anomalous values were determined, some of which may be related to surficial limonite enrichment. No anomalies were determined by the magnetic survey, but a strong flat-lying conductor close to a shale-volcanic contact was determined by the electromagnetic surveys. Further work consisting of hand trenching and short hole diamond drilling was recommended by a company geologist.

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NOT Lead, Zinc, Silver  
United Keno Hill Mines Limited 105 F 10  
(61°37'N, 132°40'W)

References: Tempelman-Kluit (1977); Morin et al (1977, p. 96).

Claims: NOT 1-4

Location and Access:

The property is located in the Pelly Mountains between Seagull Creek and McConnell River. Access is provided by helicopter from Ross River 43 km to the north.

History:

Claims NOT 1-4 were recorded in August 1977.

Description:

The property is underlain by Mississippian felsic volcanic rocks and mineralization consists of veinlets of minor galena and sphalerite.

Current Work and Results:

During summer 1977, geological mapping (1:4,800) and geochemical soil sampling (Cu, Pb, Zn, Ag) programs were conducted. No significant anomalies or mineralization were determined.

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JD Copper, Lead, Zinc,  
United Keno Hill Silver  
Mines Limited 105 F 10  
(61°32'N, 132°35'W)

References: Tempelman-Kluit (1977b); Morin et al (1977).

Claims: JD 1-24, 25-180

Location and Access:

The claims are located in the Pelly Mountains, 50 km south of Ross River and 25 km east of the South Canal Road. Access is provided by helicopter from Ross River. In addition, a tote trail from the South Canal Road along Groundhog and Seagull Creeks comes within 1.5 km of the western border of the claim group.

History:

The JD claims 1-12 were staked in August 1976 and JD 13-24 in December 1976 by M. Sherman. United Keno Hill Mines Limited optioned the property from Mr. Sherman in May 1977 and subsequently staked 160 additional claims: JD 25-180 in June 1977.

Description:

The property is underlain by felsic volcanic rocks of Mississippian age - volcanoclastics, flows, hypabyssal syenite stock and shale. The volcanoclastics consist of tuff, tuff breccia, quartz-feldspar crystal tuff and phyllitic to schistose tuff. The flows consist of fine grained trachyte, locally porphyritic to amygdaloidal. Black, well cleaved, thinly bedded shale forms a very minor amount of the sequence. Intrusive to the sequence is coarse equigranular grey syenite which forms an elongate northwest trending stock. A gradational contact was noted at one locality between the syenite and a trachyte flow.

Mineralization occurs within veins in syenite and in the volcanic rocks. A grab sample of the vein material gave the following assay: 28.53% Pb, 6.51% Zn, 7.6 oz Ag/ton and trace Au.

Current Work and Results:

During summer 1976, geological mapping (1 inch = 400 feet), prospecting and geochemical sampling programs were conducted. A total of 752 soil and 25 stream sediment samples were collected and analyzed for copper, lead, zinc and silver. Soil samples were collected at 100 foot intervals along lines spaced 300 feet apart.

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RAM 105 F 10  
Utah Mines Limited (61°41'N, 132°38'W)

References: Tempelman-Kluit (1977); Morin *et al*  
(1977, pp. 83-97).

Claims: RAM 1-48

Location and Access:

The claims are located in the Pelly Mountains, 35 km south of Ross River. Access is provided by helicopter from Ross River.

History:

The claims were staked in June 1977.

Description:

The property is underlain by a sequence of felsic to andesitic volcanic flows, volcanoclastics, black and grey shale, limestone and dolomite, all of Devonian to Mississippian age. The rocks have been gently folded into northwest trending anticlines and synclines and are also displaced by several vertical faults.

Mineralization is minor and consists of small lenses of massive pyrrhotite and pyrite with blebs of chalcopyrite within the carbonate unit and disseminated fine-grained pyrite in rhyolite. In addition, hydrozincite occurs sporadically in black shale near the contact with the carbonate unit.

Current Work and Results:

During summer 1977, detailed geological mapping (1:5,000), prospecting and geochemical soil (51) and stream sediment (48) sampling programs were conducted. The samples were analyzed for copper, lead, zinc and silver and several anomalies were determined, most of them related to known mineral occurrences.

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ANISE 105 F 10  
Cyprus Anvil Mining Corporation Limited (61°40'N, 132°45'W)

References: Tempelman-Kluit (1977); Morin *et al*  
(1977).

Claims: ANISE 1-64

Location and Access:

The property is located in Seagull Creek Valley immediately south of Seagull Lakes. Access is provided by helicopter or float plane from Ross River, 48 km to the north. A tote road passable by 4 wheel-drive vehicles passes through the claim group and connects it with the South Canal Road at Groundhog Creek, 19 km to the west.

History:

ANISE claims 1-48 were recorded in July 1976 and 49-64 in August 1976. The claims were staked to cover geochemical anomalies and float occurrences of galena, sphalerite and pyrrhotite found as a result of a regional prospecting program by the Pelly Project, a joint venture exploration program carried out by Cyprus Anvil Mining Corporation and Hudson Bay Oil and Gas. During summer 1976, geochemical soil sampling and prospecting programs were carried out.

Description:

The property lies in an overburden covered valley bottom area and little bedrock is exposed. Those rocks which do outcrop are black, pyritic shale and schistose greyish-green volcanics of intermediate

composition and probable Mississippian age. The linear nature of the valley suggests that it marks the site of a NW-SE trending fault, the "Seagull Fault". West of Seagull Valley, shale and limestone of the Kechika Formation of Cambrian to Ordovician age occur whereas east of the Valley, Mississippian volcanic rocks of intermediate composition occur.

Current Work and Results:

During summer 1977, the property was subjected to more detailed geochemical soil sampling for Cu, Pb, Zn, magnetic and VLF electromagnetic surveys and locally, shootback and horizontal loop EM surveys. A strong EM conductor was located along with several non-coincident magnetic anomalies. The EM conductor was ascribed to graphitic phyllite and the magnetic anomaly to magnetite-bearing volcanic rocks. Further work consisting of Turam EM, IP or gravity surveys was recommended by a company geologist.

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BNOB Lead, Barite  
Cyprus Anvil Mining Corporation 105 F 10  
(61°35'N, 132°30'W)

References: Tempelman-Kluit (1977); Morin *et al*  
(1977).

Claims: BNOB 1-24

Location and Access:

The property is located in the valley of the McConnell River, 48 km south of Ross River. Access is provided by helicopter from Ross River.

History:

Claims BNOB 1-16 were recorded in July 1976 and BNOB 17-24 in September 1976. The claim group was staked as a result of a regional prospecting program carried out by the Pelly Project, a joint venture exploration program of Cyprus Anvil Mining Corporation and Hudson Bay Oil and Gas. In 1976, a detailed geochemical soil sampling and prospecting program was conducted.

Description:

The property is underlain by a Mississippian volcanic and volcanoclastic sequence which overlies medium to dark grey limestone of Silurian age. Forming the basal portion of the Mississippian sequence here is a siliceous, medium to dark grey phyllite. Overlying this is a unit of pyritic, felsic tuff and lapilli tuff, within which occurs a bed of layered barite about 9 m thick. Thin layers of pyrite and very sparsely disseminated galena occur within the barite. Capping the felsic tuff unit is a blocky weathering, medium-grained, felsic flow. The flow is brownish-grey, non-pyritic and contains white plagioclase phenocrysts in an aphanitic matrix.

Current Work and Results:

During summer 1977, magnetic and shootback electromagnetic surveys were carried out over the grid on the property. In addition, a small part of the grid was surveyed by Radem VLF electromagnetic methods. A large magnetic anomaly was determined which probably corresponds to a subcrop of ultramafic rocks. An EM conductor was determined and found to be coincident with the magnetic anomaly. No significant conductors were detected by the Radem survey and no geophysical anomalies at all were detected within or along strike of the barite horizon. No additional work was recommended by a company geologist.

BID 105 F 10  
Cyprus Anvil Mining Corporation (61°36'N, 132°40'W)

Reference: Tempelman-Kluit (1977b).

Claims: BID 1-24

Location and Access:

The property is located on the east side of Seagull Creek in the Pelly Mountains, 45 km south-southwest of Ross River. Access is provided by helicopter from Ross River or by a tote road along Groundhog Creek from the South Canal Road, 19 km to the west.

History:

The claims were staked in May 1977 by J.M. Graham, J.B. O'Neill and J.B. Rolis and optioned to Cyprus Anvil Mining Corporation in July 1977.

Description:

The property is underlain by a sequence of shale, chert magnetite-siderite iron formation, and volcanoclastic rocks of Mississippian age that have been intruded by a hypabyssal syenite stock of probable contemporaneous age. Several boulders of sulphide-rich float were discovered on the claim group. They consist of two types: coarse-grained sphalerite and galena in a quartz-carbonate matrix and fine-grained massive pyrite. A grab sample of the former type is reported to assay 9.60% Zn, 47.6% Pb, 35.5 oz Ag/ton and the latter type 8.60% Pb, 2.20% Zn, 2.2 oz Ag/ton.

Current Work and Results:

During summer 1977, geological mapping (1:4800), prospecting, geochemical soil and stream sediment sampling, ground magnetic and electromagnetic surveys were conducted. A total of 148 stream sediment and soil samples were taken at 400 foot intervals from the two streams draining the claim group. In addition, 97 soil samples were collected over an area of anomalous response at 200 foot intervals along lines spaced 400 feet apart. A coincident Cu-Pb-Zn anomaly was determined over the cherty tuff unit. The geophysical surveys were conducted on the same grid as the detailed geochemical soil sampling survey, but no electromagnetic conductors were determined. A company geologist recommended no further work be done on the property.

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PEAK Lead  
Noranda Exploration 105 F 10  
Company Limited (61°37'N, 132°48'W)

References: Tempelman-Kluit (1977b); Morin et al (1977, p. 196).

Claims: PEAK 1-16

Location and Access:

The claims are located in the St. Cyr Range of the Pelly Mountains, 45 km south-southwest of Ross River and 13 km east of the South Canal Road. Access is provided by helicopter, though a tote road from the South Canal Road along Groundhog Creek passes 1.6 km north of the property.

History:

Claims PEAK 1-8 were staked in August 1976 and PEAK 9-16 in May 1977. Preliminary reconnaissance geological mapping, soil and stream sediment geochemical sampling and an EM survey were conducted in 1976.

Description:

The property is underlain by an autochthonous assemblage of Upper Cambrian to Mississippian carbonate, shale and phyllite forming part of the Pelly Cassiar Platform and flanking Selwyn Basin (Tempelman-Kluit, 1977b).

The following sequence is exposed on the property:

Mississippian	uDMs	'Black Clastic' unit - slate, shale, chert pebble conglomerate and sandstone;
Silurian, Devonian	SDd	Medium grey to buff dolomite;
	SDc	Medium grey limestone
	Sq	Light grey to buff quartzite

UNCONFORMITY

Silurian, Ordovician, Upper Cambrian	OSsl	Graptolitic black slate and phyllite with minor intercalated lenses of andesite and sericite phyllite
	uEOslv	Greenish-grey chlorite-muscovite-quartz phyllite and greenstone lenses

Structure is fairly complex and consists of low angle thrusts in the competent dolomite and quartzite and foliation, transposition layering and recumbent folds in the incompetent shaley and phyllitic units. High angle faulting occurs in the northwest portion of the claim group.

Mineralization consists of minor galena disseminated in dolomite breccia at the 5,800 foot elevation level near the boundary of PEAK 3 and PEAK 5 claims. In addition, a boulder of massive galena and several boulders of arsenopyrite, pyrite and quartz were found on the property.

Current Work and Results:

During summer 1977, further detailed geological mapping (1:4,800), geochemical soil sampling and ground electromagnetic survey programs were conducted. Soil samples were collected at 200 foot intervals along lines spaced 800 feet apart and analyzed for copper, molybdenum, lead and zinc. Several Cu-Mo and Zn anomalies were located in addition to a coincident Zn-Pb anomaly probably related to a dolomite-shale contact. The C.E.M. survey employed the Horizontal Shootback Method at a frequency of 5,000 Hz (detailed at 1,830 Hz), coil separation of 200 feet with readings at 100 foot intervals along 52,200 feet of line. None of the electromagnetic responses were attributed to sulphide mineralization.

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Fyre Lake Property Copper, Zinc  
Amax Potash Limited 105 G 2  
(61°14'N, 130°31'W)

References: Skinner (1961, p. 42; 1962, pp. 39-40); Findlay (1967, pp. 59-60; 1969a, pp. 78-79); Tempelman-Kluit (1977b).

Claims: FYRE 1-40

Location and Access:

The claims are located in the Simpson Range of the Pelly Mountains, 133 km southeast of Ross River and 163 km northwest of Watson Lake. Access is provided by float equipped fixed wing aircraft to Fire Lake and from there by helicopter or walking to the property, 3 km to the northeast.

History:

The claims were staked in June 1976 to cover a known occurrence of Cu-Zn sulphides in an oxide iron formation enclosed by quartz-chlorite mica schist. Previous work on the property by several companies included geological mapping, trenching, geophysical surveys and diamond drilling (Skinner, 1961, 1962; Findlay 1967, 1969a).

Description:

The property is underlain by a sequence of meta-volcanic rocks of uncertain age - chlorite schist and grey mica-quartz schist with interbedded quartzite and felsic tuff beds, all intruded by a Mesozoic quartz-monzonite stock.

Mineralization consists of magnetite-quartz-chlorite iron formation and massive to bedded pyrite.

The main showing is exposed in two stream beds on Claim #25 and consists of massive and bedded pyrite approximately 3 m thick within a chlorite schist. In the northern showing on Claim #28, a 3.6 m thick section of flat lying dark green siliceous magnetite-chlorite iron formation is enclosed in chlorite-quartz schist. Chalcopyrite and sphalerite occur disseminated within the iron formation. Selected float samples of oxide-sulphide iron formation assayed up to 1.6% Cu.

Current Work and Results:

During summer 1977, detailed geological mapping (1:12,000) and prospecting programs were conducted.

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PAT 105 G 3  
Tintina Silver Mines Limited (61°03'N, 131°24'W)

Reference: Tempelman-Kluit (1977b).

Claims: PAT 1-24

Location and Access:

The property is located 117 km southeast of Ross River, 204 km east of Whitehorse and is situated in the southern St. Cyr Mountains at the headwaters of the Liard River. Access is provided by wheeled fixed wing aircraft to an airstrip 8 km east of the property and from there by helicopter to the property. The program was managed by R.G. Hilker and the claim group is neighbored to the north, west and south by the BOW claims.

History:

The claims were staked in September 1976.

Description:

The property is entirely overburden covered. Tempelman-Kluit (1977b) has interpreted the bedrock to be part of a northeast trending rock unit of Silurian (?) age (Sdq) consisting of white and light grey weathering, medium to thick bedded, light buff, medium-grained, mature orthoquartzite, commonly with dolomite cement and minor interbedded sandy dolomite.

Current Work and Results:

During summer 1977, a ground magnetic survey was conducted over the property. Magnetometer readings were made at 100 foot intervals along lines spaced 400 feet apart. In general, the magnetic data is uniform with very little intensity difference across the claim block, the majority of the magnetic values lying between 550 and 700 gammas. A general north-south bedrock trend is suggested by the data. A consulting geologist recommended further work to consist of an EM-16 electromagnetic survey.

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BOW 105 G 3  
Hudson Bay Exploration and Development Company Limited (61°00'N, 131°25'W)

Reference: Tempelman-Kluit (1977); Morin et al (1977, p. 198).

Claims: BOW 1-48, 49-66, 67-70, 71-79, 80-109, 110-118, 119-128, 129-143, 144-175, 176-281, 282-288

Location and Access:

The property consists of eleven different claim groups situated near the north end of the Liard River Valley, about 130 km southeast of Ross River. Access is provided by helicopter from Ross River or by fixed-wing aircraft to the Tintina Silver airstrip (115 km southeast of Ross River) and then by helicopter to the property.

History:

The claims were recorded in December 1975, during which year an airborne EM survey was carried out. In 1976, follow-up ground EM and minor magnetic surveys, geological mapping and geochemical soil sampling programs were conducted.

Description:

The western claim groups are underlain by dolomite and dolomitic siltstone of Silurian age and lesser Ordovician-Silurian black shale. East of Junkers Lake phyllite and quartz phyllite of Upper Cambrian and Ordovician age are dominant, although some of the metasediments may be of Proterozoic and/or Lower Cambrian age. Minor gabbro bodies are also present.

Current Work and Results:

During summer 1977, geological mapping (1:4,800), soil geochemical sampling, geophysical survey and drill programs were conducted. About 125 line miles of ground electromagnetic surveys and 35 line miles of ground magnetic surveys were done. The overburden drill program resulted in 43 holes with a total footage of 782 feet while the diamond drill program resulted in 5 holes for a total footage of 419 feet.

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NOLE  
Cominco Limited

Zinc, Lead  
105 G 6  
(61°19'N, 131°11'W)

Reference: Tempelman-Kluit (1977b).

Claims: NOLE 1-9

Location and Access:

The property is situated in the Pelly Mountains along the southwest edge of the Tintina Trench, 100 km southeast of Ross River. Access is provided by helicopter from Ross River.

History:

The claims were staked in July 1977 over ground that had been staked several times in the past - RED (1961), TINTINA (1966), HERB (1971) and JEN (1974).

Description:

The claims are underlain by Cambro-Ordovician calcareous phyllite and platy limestone, Siluro-Devonian red-weathering sandy dolomite, Devonian black limestone and Upper Devonian-Mississippian graphitic shale and grit.

Mineralization consists of patches of fracture controlled sphalerite, galena and pyrite in a sandy dolomite unit up to 15 m in thickness. The poorly exposed unit is brecciated and sporadically mineralized for about 2 km along strike.

Current Work and Results:

During summer 1977, geochemical stream sediment and soil sampling (Pb, Zn) and geological mapping (1:2500) programs were conducted. Zinc and lead geochemical anomalies 1 300 m and 700 m long respectively were determined over the mineralized zone.

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JOE  
Newmont Exploration of  
Canada Limited

Zinc, Copper  
105 G 6  
(61°20'N, 131°30'W)

References: Tempelman-Kluit (1977b); Morin et al (1977, p. 96).

Claims: JOE 1-18, 19F, 20, 21, 22F, 23-42

Location and Access:

The claims are located in the St. Cyr Range of the Pelly Mountains, 85 km southeast of Ross River and 18 km east of McNeil Lake. Access is provided by float equipped fixed wing aircraft to McNeil Lake and from there by helicopter to the property.

History:

The JOE 1-10 claims were staked in August 1976, JOE 11-34 in July 1977 and JOE 35-42 in August 1977. Previously, the area of the JOE claims had been staked in 1966 by Newmont as the FH claim group (Morin et al, 1977, p. 96).

Description:

The property is underlain by Mississippian felsic volcanic rocks, predominantly trachytic flows and volcaniclastics with some intercalated andesite flows and minor tuff. Mineralization consists of two massive sulphide horizons located within andesitic tuff near an underlying contact with pyritic cherty tuff. The layered massive sulphide horizons (pyrite, sphalerite, galena, pyrrhotite, chalcopyrite) are separated from each other by 2-3 m of andesitic tuff, range from 0.3 m to 1.3 m thick and can be traced for over a 100 metre distance. On trend with the miner-

alization about 750 metres to the southeast is a massive to poorly layered barite horizon with minor disseminated galena and pyrite.

Current Work and Results:

During summer 1977, trenching, geochemical soil sampling, electromagnetic and magnetic survey programs were conducted on the property. Soil samples (564) were collected at 30 metre intervals along lines spaced 100 m apart and analyzed for copper, lead, zinc. Several lead and zinc anomalies were determined which were interpreted to be related to the pyritic cherty tuff unit. No copper anomalies were determined. The geophysical surveys were conducted along the same grid with stations at 30 metre intervals. A total of 10 trenches were blasted across the mineralized horizons.

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BOOT  
Archer, Cathro and  
Associates Limited

Tungsten  
105 G 6  
(61°24'N, 131.07'W)

Reference: Tempelman-Kluit (1977b).

Claims: BOOT 1-35, 38, 39

Location and Access:

The property is located in the Pelly Mountains, 10 km north of the Hoole River and 37 km south of the Robert Campbell Highway. Access is provided by helicopter from Ross River, 95 km to the northwest.

History:

The claims were staked in August 1977.

Description:

The property is underlain by a sequence of Paleozoic (?) metasedimentary rocks intruded by a porphyritic quartz monzonite stock of Cretaceous age.

Current Work and Results:

During late summer 1977, geological mapping (1 inch = 1/2 mile), prospecting, geochemical soil sampling and chip sampling programs were conducted.

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TOKE  
Archer, Cathro and  
Associates Limited

Uranium  
105 G 7  
(61°23'N, 130°59'W)

Reference: Tempelman-Kluit (1977b).

Claims: TOKE 1-36

Location and Access:

The property is located in the Pelly Mountains on the southeast side of Grass Lakes, 100 km southeast of Ross River. Access is provided by float equipped fixed wing aircraft from Ross River to Grass Lakes and then by foot to the property.

History:

The claims were staked in July 1977.

Description:

The property is underlain by a coarse-grained porphyritic biotite quartz monzonite stock intrusive to a sequence of metasedimentary rocks of Paleozoic (?) age. Aplitic dykes occur intrusive to the stock and micaceous quartzose gneiss locally occurs as a xenolith in the stock. Locally in the monzonite, calcite and fluorite occur along fractures and minor

tourmaline-bearing quartz veins and quartz-feldspar-tourmaline pegmatites also occur. The minor mineralization exposed on the property consists of radioactive aplite.

#### Current Work and Results:

During summer 1977, geological mapping (1:5,000), geochemical rock, soil, stream sediment and water sampling, and ground radiometric survey programs were conducted. Soil samples were collected at 150 m intervals along lines spaced 150 m apart and locally at 50 m intervals to further outline anomalies. In addition, a ground radiometric survey was performed with a scintillometer and readings were recorded at 25 m intervals along lines spaced 75 m apart. Along with the other surveys, reconnaissance geochemical rock, stream sediment and water sampling determined only several sporadic uranium anomalies. A local concentration of radioactive aplite float downhill from the only mineralized occurrence assayed as high as 0.153% U<sub>3</sub>O<sub>8</sub>.

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TIL	Zinc
Mountaineer Mines Limited	105 G 9 (61°42'N, 130°05'W)

References: Tempelman-Kluit (1977b); Morin *et al* (1977, p. 204).

Claims: TIL 1-24

#### Location and Access:

The property is situated in the Pelly Plateau, 125 km east-southeast of Ross River and 13 km south of McEvoy Lake. Access is provided by truck along the Campbell Highway to Finlayson Lake, and from there by helicopter the remaining 10 km north to the property.

#### History:

The claims were staked in March 1975 and acquired by Mountaineer Mines in August 1976, in which year the property was subjected to preliminary geological mapping and geochemical soil sampling programs. These efforts resulted in the determination of a large anomalous area of coincident high Pb-Zn values overlying limestone in the south central portion of the claim group.

#### Description:

The property is underlain by sedimentary rocks of the Nasina Facies (Tempelman-Kluit, 1977b) of Siluro-Devonian age that have been intruded by a granodiorite stock of Cretaceous age. The sedimentary rocks are largely overburden covered and consist of black graphitic shale, light grey and rusty weathering quartzite, interbedded shale and dolomite, and massive light grey weathering limestone. The only exposed mineralization consists of a minor secondary zinc mineral (hydrozincite?) disseminated along fractures in limestone.

#### Current Work and Results:

During summer 1977, detailed geological mapping (1:4,800), geochemical soil sampling and a ground electromagnetic survey were conducted over the property. Fifty-three soil samples were collected at 400 foot intervals along lines spaced 500 feet apart and analyzed for Pb, Zn, Ag. Together with data gathered in 1976, a coincident Pb, Zn, Ag anomaly was determined with dimensions of approximately 2,800 feet by 1,600 feet. The anomaly overlies graphitic

shale, interbedded dolomite, limestone, shale and fossiliferous mudstone and limestone. The electromagnetic survey was partial only and results were inconclusive. Consulting geologists recommended further work to consist of electromagnetic surveying and more detailed prospecting, geological mapping and soil geochemical sampling.

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BOT	Asbestos
Cyprus Anvil Mining Corporation	105 G 10 (61°40'N, 130°55'W)

Reference: Tempelman-Kluit (1977b).

Claims: BOT 1-10

#### Location and Access:

The claims are located on Big Campbell Creek, 8 km south of the Robert Campbell Highway. Access is provided by a tote road from the Highway.

#### History:

The claims were staked in September 1976 to cover showings of asbestos which outcrop on Big Campbell Creek. The showings were originally discovered and staked in 1969 by Atlas Explorations Limited who carried out line cutting, geological mapping and magnetic surveys on the property.

#### Description:

The property is underlain by a sequence of Mississippian sedimentary and volcanic rocks that have been metamorphosed into chlorite sericite phyllite (Unit PPPk3, Tempelman-Kluit, 1977b). These rocks have been intruded by a dyke of serpentinized peridotite that trends easterly and ranges from 60 m to 150 m in width. Asbestos fibre occurs in narrow veinlets within the dyke.

#### Current Work And Results:

During summer 1977, the property was subjected to a ground magnetic survey along the old grid, with stations at 100 foot intervals along lines spaced 400 feet apart. Several linear northwest trending magnetic highs were determined along the east side of Big Campbell Creek. Recommended further work consists of cat trenching with a ripper to evaluate the main magnetic anomalies.

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NEW	Lead, Zinc
Newmont Mines Limited	105 G 12 (61°32'N, 131°55'W)

Reference: Tempelman-Kluit (1977b).

Claims: NEW 1-6

#### Location and Access:

The property is located in the Pelly Mountains near the headwaters of Starr Creek. Access is provided by helicopter from Ross River, 57 km to the northwest.

#### History:

The claims were recorded in September 1976.

#### Description:

The property is underlain by Silurian and Lower Devonian sedimentary rocks - grey massive dolomite, graphitic shale, limestone and quartzite. The units trend west-northwest and dip moderately to the south.

Mineralization consists of galena and sphalerite as stringer veinlets and disseminated along the foot-wall of a brecciated dolomite unit that is in contact with limestone.

Current Work and Results:

During summer 1977, geological mapping (1:2,500), geochemical soil sampling, ground electromagnetic survey and trenching programs were conducted. No significant mineralization was encountered.

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GEM Yukon Revenue Mines Limited	Zinc, Copper 105 G 13, 14 (61°50'N, 131°30'W)
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References: Tempelman-Kluit (1977); Morin et al (1977, p. 206).

Claims: GEM 1-17; BB 1-68; LAKE 1-17; JADE 1-12; WATER 1-20 - a total of 139

Location and Access:

The property is located in the Pelly Plateau, 55 km east of Ross River and 16 km north of the Robert Campbell Highway. Access is provided by helicopter or by foot from the highway.

History:

The claims were recorded in 1976, during which year geological mapping, geochemical soil sampling, trenching and reconnaissance magnetic survey programs were conducted.

Description:

The property is underlain by phyllite, graphitic shale and greenstone of uncertain age. The former two have been tentatively assigned an Upper Devonian age by Tempelman-Kluit (Unit DCK, Tempelman-Kluit, 1977), though their age is masked by regional metamorphism and they may be correlative with the older Road River Formation.

Leached boxwork structures in graphitic phyllite have been interpreted as being residual after disseminated sphalerite. In addition, minor sphalerite is reported to occur in acidic metavolcanic rocks and minor chalcopyrite in greenstone.

Current Work and Results:

During summer 1977, prospecting and diamond drill (8Q) programs were conducted. Four holes totalling over 1,200 feet were drilled. No economic mineralization was encountered.

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DWONK Cyprus Anvil Mining Corporation	105 G 14 (61°57'N, 131°10'W)
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Reference: Tempelman-Kluit (1977b).

Claims: DWONK 1-90

Location and Access:

The property is situated in the valley of the Pelly River in the area of Slate Rapids, 115 km east of Ross River. Access is provided by helicopter from Ross River.

History:

The DWONK claims were staked in August 1977.

Description:

The property is underlain by sedimentary and minor volcanic rocks of Silurian to Mississippian age and outcrop is exposed only along the banks of the Pelly River. The 'black clastic' assemblage of chert pebble conglomerate, black shale, chert and turbidite contains an interbedded horizon of cream weathering, light grey massive bedded barite. Mineralization consists of pyrite in disseminations and thin beds within the east-west trending barite and black shale.

Current Work and Results:

During late summer 1977, geological mapping (1:12,000) and preliminary geochemical soil sampling (Cu, Pb, Zn) programs were conducted. No geochemical anomalies were determined, a result possibly due to the thick overburden cover. During spring 1978, ground magnetic and electromagnetic (horizontal loop) surveys were run. No magnetic anomalies were determined, but several electromagnetic conductors were located.

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SHALE Pelly Banks Syndicate	105 G 14 (61°47'N, 131°10'W)
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Reference: Tempelman-Kluit (1977b).

Claims: SHALE 1-70

Location and Access:

The property is located 3 km north of the Campbell Highway at the confluence of Pelly River and Big Campbell Creek. Access to the property in 1977 was by use of a river boat.

History:

Claims SHALE 1-32, 41-48 were staked in January 1977, 33-40 in November 1976, 49-64 in March 1977 and 65-70 in April 1977. A. Carlos of Whitehorse managed the Syndicate in 1977.

Description:

The property is underlain by an east-west trending unit mapped as Klondike schist (PPK3) by Tempelman-Kluit (1977b). This unit consists of pale green muscovite chlorite quartz phyllite and medium green amphibole chlorite phyllite. It also includes minor black marble and is generally strongly sheared with a well developed, slightly recrystallized, cataclastic texture.

Mineralization is so far restricted to a large float boulder of sphalerite and galena within gravel along a creek. Assays are reported to be up to 30% combined lead-zinc and 3 oz silver per ton.

Current Work and Results:

During fall 1977, geochemical soil sampling and prospecting programs were conducted. Approximately 615 soil samples were taken at 250 foot intervals along lines spaced 750 feet apart. Closer spaced sampling was done later over areas of interest. Several anomalies were determined which were interpreted to not reflect bedrock mineralization and further work consisting of a geophysical survey was recommended.

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LEACH, FAULT 105 G 14  
Brendex Resources Limited (61°47'N, 131°29'W)

References: Tempelman-Kluit (1972); Stammers (1977).

Claims: LEACH 1-96; FAULT 1-18

Location and Access:

The claims are located about 55 km southeast of Ross River and 5 km north of the Campbell Highway. Access is by helicopter from Ross River.

History:

The claims were staked in 1976 by Allen Carlos. Previously in 1966, Kerr Addison Mines located a geochemical anomaly to the northwest of the claim block.

Description:

The property is heavily covered by overburden. Quartz-muscovite-biotite schists of probable meta-sedimentary origin trend across the property with a northwest strike and northeast dips.

Current Work and Results:

The property was mapped but only seven outcrops were located due to the heavy cover of overburden. The rocks are banded schists composed of variable proportions of quartz-muscovite and biotite. Some of the bands are carbonaceous.

A soil geochemical survey consisted of 945 samples analyzed for copper, lead and zinc. Two zinc anomalies were located. Rock geochemistry indicated some geochemically high values of zinc and copper.

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BOB Lead, Zinc, Copper  
Ogilvie Joint Venture 105 G 15  
(61°57'N, 130°30'W)

References: Wheeler et al (1960b); Tempelman-Kluit (1977b).

Claims: BOB 1-56

Location and Access:

The claims are situated on the west shore of Fortin Lake, 108 km east of Ross River. Access is by helicopter or float plane from Ross River or by tracked vehicle over 32 km of winter road.

History:

The property was originally staked as the ZH and PHIL claims to cover zinc-lead mineralization discovered in 1967. In 1967 and 1968, Atlas Explorations Limited carried out bulldozer trenching on the showing and geophysical and geochemical surveys over the property. The BOB claims were staked in August 1974.

Description:

Rocks in the vicinity of the main showings consist of quartz-sericite phyllite of probable Cambrian or Ordovician age, striking approximately east-west and dipping 25° to 55° to the south.

Two showings are present on the property. The first consists of one-quarter- to one-inch quartz veins containing small amounts of chalcopryrite, galena and sphalerite. These mineralized quartz veins occur at roughly one-foot intervals over a distance of 32 feet. The second showing consists of a vein one and one-half feet wide and 20 feet long containing 30 to 40 per cent dark brown sphalerite with minor galena and chalcopryrite.

Current Work and Results:

A soil geochemical survey for copper, lead and zinc outlined an elongate lead-zinc anomaly.

A MaxMin II EM survey and magnetometer survey was conducted on the property. The MaxMin II was used in coplanar mode with the transmitting and receiving coils held parallel to the mean slope of the terrain. The slope was determined by secant chaining. This produces a "noise-free" survey and allows equal station spacings on a horizontal plane. The EM results indicated three anomalies with potential for mineralization. The magnetic survey did not produce any anomalies of interest.

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IRENE Zinc  
Mountaineer Mines Limited 105 G 16  
(61°47'N, 130°15'W)

References: Tempelman-Kluit (1977); Morin et al (1977, pp. 206-207).

Claims: IRENE 1-24

Location and Access:

The property is located three km south of McEvoy Lake and 16 km north of the Robert Campbell Highway. Access is provided by float plane to McEvoy Lake from Ross River, 153 km to the southeast.

History:

The claims were staked in August 1972, by A. Harman, later acquired and worked on by Vestor Explorations in 1973 and by Mountaineer Mines Limited in August 1976. During summer 1976, a geochemical soil sampling program was conducted which delineated a coincident Pb-Zn anomaly (Morin et al, 1977).

Description:

The property is underlain by sedimentary rocks of Silurian and Lower Devonian age that have been intruded by a granodiorite stock to the south. They have been termed the Masina Facies by Tempelman-Kluit (1977) and consist of recessive, dark grey to black weathering, thin bedded and platy, calcareous and dolomitic graphitic siltstone with minor black graphitic slate. These rocks are gradational with and contain lenses of limestone and dolomite, both light and dark grey colored.

Mineralization consists of traces of sphalerite and secondary zinc minerals within a buff weathering white limestone in the southeast portion of the claim group.

Current Work and Results:

During summer 1977, a geochemical soil sampling program was conducted for lead and zinc. A total of 130 soil samples was collected with sample intervals every 400 feet along lines spaced 2,000 feet apart. Two east-west trending coincident zinc-lead anomalies were determined to be associated with two carbonate bearing units. The anomalies are each in the order of 1 km long and consulting geologists recommended further work to consist of more detailed geochemical soil sampling, geological mapping, prospecting and an electromagnetic survey.

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MTB 105 H 2  
Cominco Limited (61°08'N, 128°40'W)

Reference: Blusson (1966).

Claims: MTB 1-18

Location and Access:

The claims are located 120 km north of Watson Lake and 19 km west of the Cantung Road. Access is provided by helicopter from Watson Lake.

History:

The claims were staked in August 1976.

Description:

The property is underlain by carbonate and pelitic sedimentary rocks of Upper Paleozoic age. These form a large 6 km wide, north trending embayment within a granitic massif of Mesozoic age.

Current Work and Results:

During summer 1977, an induced polarization apparent resistivity and total field magnetics survey was conducted over a portion of the claim group and several coincident anomalies were determined.

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MAXI Zinc, Lead, Silver  
Welcome North Mines Limited 105 H 11  
(61°39'N, 129°11'W)

Reference: Blusson (1978).

Claims: MIDI 1-120; MAXI 1-351; AK 1-227; BARK 1-115; PARK 1-68

Location and Access:

The property is located in the Logan Mountains, about 20 km northeast of Frances Lake and 90 km south of Howards Pass. Access is provided by fixed wing aircraft from Ross River (173 km to the east) or Watson Lake (180 km to the south) to a lake situated between the Thomas River and Anderson Creek and from there by foot, 1 km to the showing area.

History:

In late August 1977, zinc mineralization was discovered in float along Anderson Creek by Arthur John, a prospector working for Welcome North Mines.

Host rock for the mineralization was tentatively identified as metamorphosed Road River shale and a total of 378 claims were staked in late summer and fall of 1977.

Description:

The property is underlain by metamorphosed sedimentary rocks of Proterozoic and Lower Paleozoic age which are overlain by fossiliferous shale and carbonate of lower-middle Devonian age (Blusson, 1978).

Mineralization consists of 1 mm to 1 m thick layers and lenses of sphalerite and/or galena and magnetite lying conformably along the foliation of a black phyllite from the basal part of the Road River Formation. Most of the showings occur along the steep walls of Anderson Creek where the mineralized zones are up to several metres thick.

Current Work and Results:

During late summer and fall 1977, preliminary soil (Pb, Zn), stream sediment (Pb, Zn) and rock (Ag, Cu, Pb, Zn, Mo, Y, Mn) geochemical sampling, geological mapping, prospecting, showing sampling and ground

magnetometer survey programs were conducted. Several geochemical anomalies were determined with the sampling programs and a diamond drill program was recommended by a company geologist.

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Shannon Creek Lead, Zinc, Tungsten  
Noranda Exploration 105 H 15  
Company Limited (61°52'N, 128°59'W)

References: Roots et al (1966); Findlay (1969b).  
Morin et al (1977, p. 211).

Claims: LOG 3-12

Location and Access:

The property is located 43 km west of Tungsten, N.W.T. Access is provided by helicopter.

History:

The claims were recorded in September 1976 over ground formerly held as the ZEUS claims by Spartan Explorations Limited in 1967 (Findlay, 1969b). In 1976, reconnaissance geological mapping, prospecting, geochemical soil sampling and a VLF-EM survey were conducted. Several weakly mineralized skarn zones were located and several soil anomalies determined.

Description:

The property is underlain by sedimentary rocks of Upper Proterozoic age that are contact metamorphosed by a Cretaceous granodiorite stock. The sediments are locally at least 900 m thick and dip steeply to the north. Original carbonate horizons have been metamorphosed to two types of skarn:

- Garnet-diopside-epidote (+ wollastonite) skarn containing 0 to 20% of some, all or none of the following - galena, sphalerite, chalcopyrite, scheelite;
- Cherty grey-green (wollastonite?) skarn with occasional diopside crystals and 1 to 5% finely disseminated pyrite.

At least ten distinct mineralized skarn zones have been located on the property. They vary in width from 5 cm to 1.5 m and are exposed discontinuously for 600 m.

Post-skarnification faults are common and generally have a northeasterly strike, approximately vertical attitude and a left-lateral sense of displacement in the order of several metres.

Current Work and Results:

During summer 1977, the property was subjected to detailed geological mapping (1 inch = 400 feet), chip sampling and a ground magnetic survey. The highest values obtained were 0.21% Cu, 1.91% Pb, 1.26% Zn, 0.04% W, 1.68 oz Ag/ton over a 60 m interval along strike, but as a whole, chip sample values were low. Ground magnetic measurements were made at 50 foot intervals in the central area of showings and 100 foot intervals elsewhere along lines spaced 400 feet apart. Several magnetic anomalies were determined which coincided with some of the skarn zones.

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RITZ  
Cominco Limited

105 I 5, 12  
(62°31'N, 129°32'W)

Reference: Green et al (1967).

Claims: RITZ 1-80

Location and Access:

The property is located in the Logan Mountains, 23 km west-northwest of the Howards Pass deposit and 160 km northeast of Ross River. Access is provided by helicopter.

History:

The claims were staked in July 1977.

Description:

The property is covered by much overburden, but the few exposed outcrops indicate it to be underlain by calcareous shale, carbonaceous shale and black chert of the Road River Formation that are intruded by aplite dykes of Cretaceous age. Mineralization consists of disseminated pyrite in shale and minor barite. In addition a float boulder of galena was found on the property.

Current Work and Results:

During summer 1977, geological mapping (1:12,000), geochemical soil sampling and test geophysical surveys were conducted. Preliminary soil sampling was conducted at 150 foot sample intervals along pace and compass traverses and was followed up by a more detailed survey with samples collected at 150 foot intervals along lines spaced 300 feet apart. They were analyzed for Cu, Pb, Zn, Ag and Ba and several anomalies were determined. Two weak VLF conductors were determined which were coincident with Pb-Zn geochemical anomalies, but no magnetic anomalies were determined.

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HOWARDS PASS	Lead, Zinc
Canex Placer Limited	105 I 6, 11, 12
United States Steel Corporation	(62°27'N, 129°11'W)

References: Green et al (1967); Blusson (1968); Gabrielse et al (1973); Craig and Milner (1975, p. 124); Sinclair and Gilbert (1975, pp. 85-90); Ludvigsen (1975); Sinclair et al (1975, pp. 159-160, 1976, pp. 168-169); Morin et al (1977, pp. 211-212); Gordey (1978).

Claims: DON; OP; R; X; Y; ANNIV: total of 700 claims

Location and Access:

The property is situated in the Selwyn Mountains along the Yukon-Northwest Territories border, 161 km east-northeast of Ross River and 260 km north of Watson Lake. The main showings on the property are at elevations of 1,500 to 1,800 metres. Access in 1977 was primarily by fixed wing aircraft from either Ross River or Watson Lake to a 545 metre airstrip on the property. Heavy equipment can be brought to the property via a winter tote road which leaves the Nahanni Range Road at Mile 101 (Km 162.5).

History:

High grade showings of lead and zinc were discovered by Canex Placer following geochemical surveys carried out in 1968 and 1971. From 1973 to 1976, the company carried out extensive surface exploration including 121 diamond drill holes totalling over 64,000 feet.

Description:

The property is underlain by Paleozoic sediments consisting of, from oldest to youngest: Upper Cambrian and (?) Ordovician limestone, locally referred to as the "wavy-banded" limestone, (Unit 7b, Green et al, 1967); up to 300 metres of black, graphitic and graptolitic shales of the Ordovician Road River Formation (Unit 10, op. cit.); and over 900 metres of siliceous shale, sandstone and chert-pebble conglomerate of Devonian-Mississippian age (Unit 18, op. cit.). Extremely fine-grained galena and sphalerite occur in thin, conformable laminae in a black, graphitic horizon in the Road River Formation, roughly 60 metres above the lower contacts with the "wavy-banded" limestone. Secondary lead-zinc minerals such as smithsonite, cerussite and particularly hydrozincite have been observed in surface showings.

Current Work and Results:

During summer 1977, detailed geological mapping, geochemical soil sampling and bulldozer trenching programs were conducted. The diamond drilling program consisted of 5 holes with NQ core for a total footage of 7,857 feet and 8 holes with HQ core for a total footage of 8,249 feet. In addition, 1 hole with HQ core was hammer drilled to a depth of 515 feet.

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DHNO	105 I 12
Itsi Joint Venture	(62°36'N, 129°35'W)

Reference: Green et al (1967).

Claims: DHNO 1-24

Location and Access:

The property is located in the Selwyn Mountains, immediately west of the Yukon-N.W.T. border and 165 km east-northeast of Ross River. Access is provided by float plane from Ross River to a small lake unofficially known as Wishbone or Wise Lake that is situated at 62°37'N, 129°28'W, and from there by helicopter the remaining 6 km west.

History:

The claims were staked in August 1977 and partially cover ground previously staked in 1972 as the NOR group of Vestor Exploration Limited.

Description:

The property is largely overburden covered and the few outcrops available indicate that black shale, mudstone and cherty argillite of the Road River Formation underlie it. These rocks form a northwest trending belt and are interpreted to occur either within the core of a syncline or as part of a tilted fault block. The southeast end of this belt lies within 3 km of the ANNIV deposit.

Current Work and Results:

During summer 1977, preliminary geological mapping, prospecting and geochemical soil and silt sampling programs were conducted. Samples were analyzed for copper, lead and zinc but no anomalous values were determined. Detailed geological mapping, geochemistry and geophysics were recommended.

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TANG  
Ogilvie Joint Venture

Barite  
105 I 12  
(62°37'N, 129°45'W)

Reference: Green et al (1967); Morin et al  
(1977, p. 212).

Claims: TANG 3-16

Location and Access:

The claims are located in the Selwyn Mountains, near the headwaters of the Pelly River, 159 km north-east of Ross River, 58 km south of Macmillan Pass and 38 km north-northwest of Howards Pass. Access is provided by helicopter.

History:

The claims were recorded in August 1975 and they adjoin the ORO property to the northwest. In 1976, reconnaissance geological mapping and geochemical stream sediment sampling programs were conducted. Work in 1977 was conducted by Cordilleran Engineering for Ogilvie Joint Venture whose claims are held in trust by British Newfoundland Exploration Limited.

Description:

The property is underlain by sedimentary rocks of the Devono-Mississippian and Cambrian age which are intruded by a Cretaceous quartz porphyry dyke. Cambrian wavy banded limestone is in fault contact with the Devono-Mississippian sequence - from bottom to top: black shale, black siliceous argillite with interbedded sandstone and conglomerate and bedded barite. The bedded barite ranges from 30 to 45 metres in thickness and is impure, medium to dark grey and thinly to thickly laminated. The Devono-Mississippian rocks have been folded into a northwest trending syncline overturned to the southwest with both limbs dipping to the northeast. No visible lead or zinc mineralization was discovered.

Current Work and Results:

During summer 1977, detailed geological mapping (1:6,000) and geochemical soil sampling programs were conducted. Soil samples were collected at 200 foot intervals along lines spaced 1,000 feet apart and analyzed for Pb, Zn, Ba. A linear zone of anomalous barium values was determined to extend to the west along trend of the barite horizon on the ORO property. Lead values were low but several anomalous zinc values were determined, especially over the black siliceous argillite underlying the barite horizon. A consulting geologist recommended no further work on the property.

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ROOK  
Cominco Limited  
105 I 13  
(62°45'N, 129°55'W)

Reference: Green et al (1967).

Claims: ROOK 1-27

Location and Access:

The claims are located in the Logan Mountains, 157 km northeast of Ross River and 48 km south of Macmillan Pass. Access is provided by float equipped fixed wing aircraft to Fuller Lake and from there by helicopter, 26 km southeast to the property.

History:

The claims were staked in August 1976.

Description:

The property is underlain by sedimentary rocks of Upper Cambrian to Lower Devonian age:

Black siliceous mudstone with minor disseminated pyrite and thin (local) limestone beds or lenses, medium to light grey weathering (Lower Devonian);

Road River Formation Light grey siliceous siltstone, streaky texture and pyrite balls, buff to orange weathering;

Medium grey to rusty weathering hornfels, black, carbonaceous, siliceous mudstone and black cherty mudstone; pyrite nodules towards top of bed and calc-silicate (tremolite) beds (0.3-1.0 m) near base of unit, disseminated pyrite throughout;

Siliceous and tremolitic mudstone with disseminated pyrite towards top of unit, dark grey weathering (Lower Ordovician);

Light grey to white weathering calc-silicate (tremolite), and light grey weathering silty limestone (Upper Cambrian);

Isoclinal folding, normal and thrust faulting have deformed the sequence. No outcropping mineralization was noted on the property.

Current Work and Results:

During summer 1977, geological mapping (1 inch to 1/4 mile), prospecting and geochemical sampling programs were conducted. Stream silt, soil and heavy mineral samples were collected and analyzed for Cu, Pb, Zn, Ag, Ba. Several geochemical anomalies were determined for zinc and barium.

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CLEA  
Canex Placer Limited  
Tungsten  
105 I 13  
(62°46'N, 129°52'W)

Reference: Green et al (1967).

Claims: CLEA 1-60, 61F-64F, 65, 66, 67F-70F, 71, 72, 73F, 74F, 75, 76, 77F, 78F, 79-108; OMO 3, 4

Location and Access:

The property is located in the Logan Mountains, within the headwaters of the Pelly and Prevost Rivers, 160 km northeast of Ross River, 50 km south of Macmillan Pass and 47 km north-northwest of Howard's Pass. Access to the property during summer 1977 was provided by truck to Kilometre 161 on the North Canal Road and then by helicopter 35 km to the southeast.

History:

In 1976, during a reconnaissance program oriented towards finding lead-zinc mineralization, a Canex Placer geologist discovered scheelite mineralization in skarn float on the present CLEA claims. Shortly thereafter, claims CLEA 1-46 were staked in August 1976, and the remainder staked during March 1977 to November 1977. Claims OMO 3 and 4 were purchased in July 1977.

Description:

The property is underlain by pelitic and carbonate rocks of Lower Silurian age and younger. These rocks have all undergone intense contact metamorphism which formed a large metamorphic aureole around a

small quartz-monzonite plug. Within the aureole, the rocks have been altered to black hornfels, meta-argillite, light grey hornfels, and a calc-silicate unit made up of marble, siliceous calc-silicate and skarn.

Three main types of skarn are present: tremolite-actinolite-garnet skarn, quartz-biotite-diopside-garnet skarn, and quartz-biotite-diopside-garnet-pyrrhotite-chalcopyrite-scheelite skarn which occurs in a roof pendant configuration.

The intrusive rocks consist of equigranular quartz monzonite as plug and dyke rock and quartz monzonite porphyry (40% phenocrysts) as a minor phase of the plug.

The structure is very complex with at least four synform-antiform sets of isoclinal folds causing repetition of the major 50 metre thick calc-silicate unit at least eight times. Axial planes trend 120°-140° and dip 40°-60° to the southwest and the fold axes plunge 30° to the northwest.

Mineralization consists of disseminated scheelite in skarn. Of the two tungsten bearing skarns, the dark green quartz-biotite-diopside-garnet-scheelite skarn is the lower in grade and the less common quartz-biotite-diopside-garnet-pyrrhotite-scheelite-chalcopyrite skarn higher in grade.

#### Current Work and Results:

During summer 1977, detailed geological mapping (1:10,000; 1:2,500), prospecting, trenching and chip sampling programs were conducted. Six trenches were dug on several skarn outcrops and 150 chip samples were taken over one metre intervals from mineralized skarn outcrops and assayed for Cu and WO<sub>3</sub>.

\*\*\*\*\*

PIG, KATE Copper, Lead, Zinc  
Cyprus Anvil Mining 105 J 2  
Corporation (62°14'N, 130°36'W)

References: Roddick and Green (1961); Sinclair et al (1976, p. 169); Morin et al (1977, p. 214).

Claims: PIG 1-50; KATE 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 33-60, 65-92

#### Location and Access:

The property is located in the Pelly Plateau, 18 km northwest of Traffic Mountain and 97 km east-northeast of Ross River. Access in 1977 was provided by float equipped fixed wing aircraft to Pike Lake (unnamed lake 10 km to the south) and from there by helicopter to the property.

#### History:

The KATE claims were staked in January 1975 by Welcome North Mines over a previously known property discovered in 1956 by Kennco Explorations Limited (Sinclair et al, 1976). Geochemical soil sampling in 1975 determined several coincident lead and zinc anomalies and several discontinuous lead anomalies. Cyprus Anvil staked the adjoining PIG claims in July 1976 and through a geochemical soil sampling program, determined two east-west trending irregular zones anomalous in lead. In 1977, Cyprus Anvil optioned the adjoining KATE group from Welcome North Mines.

#### Description:

The property is underlain from oldest to youngest by the following sequence of rocks:

- calc-silicates, commonly quartz-diopside-actinolite-biotite skarn with minor bands of marble limestone and amphibolite

- shale, black and siliceous and black to silvery-grey weathering (contains Monograptus)

- light grey to black weathering, black thick bedded chert (graptolitic)

- thick to thin bedded, dark to vari-coloured weathering, black, light grey, white, green and red chert

- light grey weathering, interbedded grey to greenish-grey shale with lenses, pods and thin beds of grey limestone.

Intrusive to this sequence are dykes and sills of diorite thought to be Tertiary in age.

Mineralization consists of discontinuous bands, irregular patches, small blebs, fracture fillings and disseminations of varying amounts of pyrite, pyrrhotite, chalcopyrite, galena and sphalerite within the calc-silicate unit. In addition, float boulders of layered sphalerite and galena in black shale and quartz-arsenopyrite-galena veins have been discovered on the KATE ground.

#### Current Work and Results:

During summer 1977, geological mapping (1:4,800), geochemical soil sampling, rock chip sampling, ground magnetic and electromagnetic survey programs were conducted. A total of 830 soil and 114 rock samples were collected and analyzed for Cu, Pb, Zn. Soil samples were collected at 200 foot intervals along lines spaced 800 feet apart and in areas of interest, at 100 foot intervals along lines spaced 400 feet apart. Several elongate soil lead anomalies were determined within interbedded black shale and chert and grey shale and chert. Anomalous lead values obtained from the rock chip sampling program occur in quartz-arsenopyrite veins, fracture fillings and light grey chert. Electromagnetic measurements were taken every 100 feet (50 feet in anomalous areas) along lines spaced 400 feet apart. Magnetic measurements were taken at 50 foot intervals (25 feet in anomalous areas) along the same lines. The electromagnetic survey outlined conductors interpreted to be largely due to graphite coatings on sheared surfaces within the black graphitic chert horizon. Two magnetic anomalies were interpreted to outline intrusions at depth which may be responsible for the quartz-arsenopyrite mineralization. No further work was recommended by a company geologist.

\*\*\*\*\*

ABBEY 105 J 9, I 12  
Itsi Joint Venture (62°42'N, 130°00'W)

References: Green et al (1967); Blusson (1974a).

Claims: ABBEY 1-216

#### Location and Access:

The claims are located in the Selwyn Mountains near the headwaters of the Prevost River, 170 km northeast of Ross River. Access is provided by float plane from Ross River to Cominco Lake (62°39'N, 129°52'W) at the west end of the property or by helicopter.

#### History:

Claims ABBEY 1-200 were staked in June 1977 and ABBEY 201-216 in July 1977 by Itsi Joint Venture. The

Venture consists of Union Oil Company of Canada Limited, Aquitaine Company of Canada Limited and St. Joseph Exploration Limited and is managed by Archer, Cathro and Associates Limited. The southeast end of the property was previously staked in 1973 as the LAD group of Serem Limited and the DOG group of Sonesta Resources Limited.

#### Description:

The property is underlain by sedimentary rocks of Lower to Middle Paleozoic age: wavy banded limestone of the Rabbitkettle Formation, shale and chert of the Road River Formation and shale, cherty argillite chert pebble conglomerate and bedded barite of the Canol Formation. These rocks trend in a northwest direction and dip generally to the southwest. No mineralization was observed on the property.

#### Current Work and Results:

During summer 1977, geological mapping (1:12,500), detailed prospecting and geochemical soil (1,570), stream sediment (100) and water (43) sampling programs were conducted. Soil samples were collected at 50 m intervals along 1 600 to 2 200 m long lines spaced 400 m apart across the trend of the Road River Formation and along with the stream sediment samples were analyzed for copper, lead, zinc. Copper and lead responses were flat but several zinc anomalies were outlined. The water samples were analyzed for pH, Zn and SO<sub>4</sub> and no significant anomalies were determined other than one in Zn and SO<sub>4</sub> from a stream draining two prominent limonite gossans. One weak lead soil anomaly near the centre of the property that occurs in gentle terrain and is underlain by Road River shale was recommended for detailed geochemical and geophysical investigation.

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Itsi Lake	Zinc, Lead
Rio Tinto Canadian	105 J 9, 16
Exploration Limited	(62°43'N, 130°15'W)

References: Blusson (1974a); Morin et al (1977).

Claims: ITSI 1-48; PRE 1-24; VOST 1-24; RIVER 1-24

#### Location and Access:

The property is located in the Logan Mountains, about 32 km east of Mount Shelcon and 8 km south of Itsi Lake. Access is provided by helicopter from Ross River, 193 km to the southwest or by helicopter from MacMillan Pass airstrip (22 km to the north).

#### History:

The ITSI and VOST claims were staked in July 1975, the PRE claims in August 1975 and the RIVER claims in September 1975. In early 1977, the property was optioned from Trident Resources Inc. by Rio Tinto.

#### Description:

The property is underlain by sedimentary rocks of the Road River and Canol Formations that have been intruded by quartz monzonite dykes and sills of Cretaceous age. Forming the Road River here is grey mudstone, grey to grey-green tuff, minor limestone and dolomite of the lower "Wispy Marker" unit and well bedded, black, siliceous mudstone and interbedded barite of an upper "Siliceous Mudstone" unit. Black shale and chert pebble conglomerate form the overlying Canol Formation.

These rocks have been deformed into NNW-SSE trending isoclinal folds that have subsequently been

modified by NE-SW trending gentle open folds. Axial plane cleavage is pervasive in the fine grained clastics.

Mineralization at the discovery showing in the upper "siliceous" unit consists of smithsonite, hydrozincite and cerussite within a stockwork of white quartz and calcite along the fracture cleavage.

#### Current Work and Results:

In spring 1977, 354 soil samples taken the previous year were reanalyzed for Ag, Co, Cu, Mo, Ni and Pb. A lead anomaly was determined to be coincident with a previously determined zinc anomaly.

During summer 1977, detailed geological mapping (1:5,000), prospecting, geochemical soil and stream sediment sampling and trenching were conducted. A total of 2,492 soil and 88 stream sediment samples were collected at 20 m intervals along lines spaced 200 m apart. Numerous scattered anomalies were determined in addition to several in the vicinity of the discovery showing. A 36 m long trench was dug along the discovery showing with chip samples yielding erratic Pb and Zn values all in non-sulphide form. Company geologists recommended no further work.

\*\*\*\*\*

PETE	Barite, Lead, Zinc
Ogilvie Joint Venture	105 O 1
	(63°00'N, 130°04'W)

References: Blusson (1974a); Morin et al (1977, p. 116).

Claims: PETE 1-56

#### Location and Access:

The property is located in the Selwyn Mountains, 166 km northeast of Ross River and 27 km south of Macmillan Pass. During summer 1977, access was provided by helicopter from the Macpass airstrip adjacent to the Canol Road, 21 km to the north.

#### History:

Claims PETE 1-32 were recorded in August, 1975, and PETE 33-48 in June 1976, and 49-56 in July 1976. In 1976, gravity and geochemical soil sampling surveys were conducted and coincident barium-zinc and gravity anomalies were determined. In 1977, work on the property was conducted by Cordilleran Engineering Limited for the Ogilvie Joint Venture, the claims being held in trust by British Newfoundland Exploration Limited.

#### Description:

Underlying the property are sedimentary rocks of the Road River and Besa River Formations which are flanked to the north and south by intrusive granitic stocks of Cretaceous age. The property is largely overburden covered but in the northwest portion of the claim group, two horizons of bedded barite occur interbedded within a sequence of metamorphosed siliceous and carbonaceous shale of Devonian-Mississippian age. The lower barite horizon consists of creamy white, saccharoidal barite, 1 to 2 metres thick. Approximately 60 metres higher in the section, a similar barite horizon occurs with a thickness of 1.5 to 5 metres that is immediately overlain by a 0.6 to 1.5 metre thick limestone bed. Minor mineralization consisting of hydrozincite, sphalerite, galena and pyrite occurs within the upper barite horizon. Grab samples assayed between 0.12% and 8.25% combined Pb-Zn.

### Current Work and Results:

During summer 1977, detailed geological mapping (1:6,000), geochemical soil sampling and ground electromagnetic survey programs were conducted. Soil samples were collected at 200 foot intervals along lines spaced 500 feet apart and analyzed for lead, zinc and barium. Two subparallel zones anomalous in lead, zinc and barium occur along strike from the outcropping upper barite horizon. In addition, coincident anomalous lead and zinc values occur adjacent to a barium anomaly in the eastern portion of the claim group. The electromagnetic survey was conducted over 21.4 miles of line using a coil spacing of 400 feet and frequencies of 222 and 1777 Hz. Several conductive zones were determined. Consulting geologists recommended further work to consist of more detailed geochemical soil sampling of the two main anomalous zones and resampling of locations strongly anomalous in lead and zinc at greater depths in order to distinguish between transported and residual anomalies.

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TOM	Lead, Zinc, Silver,
Hudson Bay Exploration and	Barite
Development Company Limited	105 0 1
	(63°10'N, 130°10'W)

References: Blusson (1974a); Carne (1976; 1979).

Claims: TOM, 144 under lease

### Location and Access:

The property is located in the Hess Mountains along the Canol Road, 160 km by road northeast of Ross River. A gravel surfaced 600 m airstrip is located on the north part of the property.

### History:

Mineralization was discovered in 1951 by prospectors working off the Canol Road for Hudson Bay Exploration and Development Company Limited. Intensive property work ensued with geological mapping, sampling, trenching and diamond drilling from 1951 to 1953.

The property lay idle until 1966 when further work resulted in the discovery of additional nearby mineralization - the East Zone. During 1970 and 1971, the two mineralized zones were further explored by an adit and underground drilling and reserves of 8,645,000 tons averaging 8.4% Zn, 8.1% Pb and 2.75 oz/ton Ag.

### Description:

The property is underlain by argillite of the Ordovician-Silurian Road River Formation, argillite, chert pebble conglomerate and black shale of the Upper Devonian-Mississippian Canol Formation and siltstone and mudstone of the Mississippian Imperial Formation.

Mineralization consists of stratiform barite, galena, sphalerite, pyrite, chert and argillite hosted within the lower portions of the Canol Formation (see Carne, 1976, 1979 for details).

### Current Work and Results:

During summer 1977, an electromagnetic survey and minor soil geochemical sampling and geological mapping were conducted.

3



Photograph of the eastern portion of the TOM claims. The exposed section shows argillite of the Road River Formation at the base, overlain by ledge-forming chert pebble conglomerate and recessive silvery-weathering black shale of the Canol Formation. The topmost unit is siltstone of the Imperial Formation.

# PLACER REPORTS

MAYO-MCQUESTEN

- (1) Bardusan Placers Limited 105 M 14  
Thunder Gulch (63°55'N, 135°15'W)

Reference: Morin et al (1977, p. 233).

Bardusan Placers, owned and operated by H. Barchan, presently hold 1 1/2 miles on Lightning Creek and 2 miles (18 claims) on the left limit tributary, Thunder Gulch, which drains the Bunker Hill area. During 1977 Mr. Barchan continued mining the deep ground of the narrow gulch as he has for the past several years, working on Claims 7 and 8, three-quarters of a mile up from the mouth. The section, deepening upstream, consists of 20 feet of stream gravels and slide rock overlain by up to 30 feet of moraine and slide rock.

Ground sluicing and bulldozing the top 30 feet moves the gold contained in this material progressively downwards, to be recovered when the lower 20 feet of material is sluiced. During the season, with a D-7 and 3 yard rubber tired front end loader the operator completed a cut 50 feet wide by 300 feet long, processing approximately 20,000 cubic yards of material.

\*\*\*\*\*

- (2) E. and L. Bleiler 115 P 16  
Hight Creek (63°44'N, 136°08'W)

Reference: Morin et al (1977, p. 235).

Bleilers hold a group of 26 claims from a point about one mile below a pronounced canyon on Hight Creek upstream to near where a tributary, McRae Creek, enters.

Hight Creek has a long history of mining dating from 1903 when it was first staked. Prior to and into the time of World War I mining was partly done with a steam driven claim shell bucket used to move material as well as a monitor to feed the sluice boxes. In 1920 and 1921 a dredge mined 1,200 feet up the centre of the creek, the skeleton presently resting on Claim 3720.

Mr. E. Bleiler, who has worked the creek for many years, used a gravity driven monitor to move gravel into the sluice until 1974. They presently operate a D-8 bulldozer, 1 3/4 yard tracked front end loader and a 4 cubic yard rubber tired front end loader.

During 1977 they mined 1,000 feet of creek in a series of left limit cuts on all of Claim 3710 and most of Claim 3709 at the upper end of their property, totalling 50,000 cubic yards sluiced and 50,000 cubic yards stripped; the section being some 20 feet deep. Farther downstream, on Claims 3714 and 3715 they put in a further 4 cuts, 3 on the left, 1 on the right, each about 60 feet wide. The section here is roughly 30 feet deep, part of it tailings from the old workings. Some 15,000 cubic yards was stripped and 15,000 cubic yards of pay gravels sluiced.

\*\*\*\*\*

- (3) C., D. and H. Klippert 115 P 15  
Johnson Creek (63°47'N, 136°21'W)

Reference: Morin et al (1977, p. 236).

Klipperts hold 10 claims on Johnson Creek on the west side of Scheelite Dome. This portion of the creek was mined from 1959 to 1967 by Barduson Placers Limited. The valley bottom is up to 200 feet wide in this portion and the Klipperts test mined at several places along the margins of these earlier workings, using a rubber tired front end loader.

\*\*\*\*\*

- (4) F. Taylor and J. Brooks 105 M 14  
Duncan Creek (63°52'N, 135°27'W)

Reference: Morin et al (1977, p. 233).

In 1977 these operators mined on claims 3 and 4, advancing upstream from the 1976 workings. Three left limit cuts were put in, each approximately 180 feet long by 60 feet wide and 7 to 8 feet deep, totalling approximately 15,000 cubic yards. Where a section of ditch, used by earlier miners, was sluiced, the mining width increased to 90 feet.

Equipment and technique are as before: a 3 1/2 yard rubber tired front end loader discharges onto a steep grizzly having 6 inch square openings over the dump box to reject oversize material. Larger boulders are stacked or pushed aside when the pay gravels are picked up.

\*\*\*\*\*

- (5) M. Alexander 105 M 14  
Duncan Creek (63°52'N, 135°15'W)

Reference: Morin et al (1977, p. 233).

M. Alexander continued mining in 1977 on upper Duncan Creek as he did in 1976, operating with a D-8 bulldozer and front end loader, re-working previously hand mined gravels.

\*\*\*\*\*

- (6) Fred Taylor 105 M 14  
Keystone Creek

Mr. Fred Taylor holds 4 miles (40 claims) up from the mouth (Mayo Lake) of Keystone Creek. He staked a 5-mile lease in 1975, later converting most of this to claims. During 1976 and 1977 Mr. Taylor built 13 miles of road from the Duncan Creek road to the property.

Exploration work consists of a channel cut for 500 feet along the creek bed by front end loader. The section consists of 8 feet of bouldery gravel overlying a limonite cemented gravel and a bedrock of interbedded muscovite-talc schist and micaceous quartzite.

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# MAYO-MCQUESTEN AREA

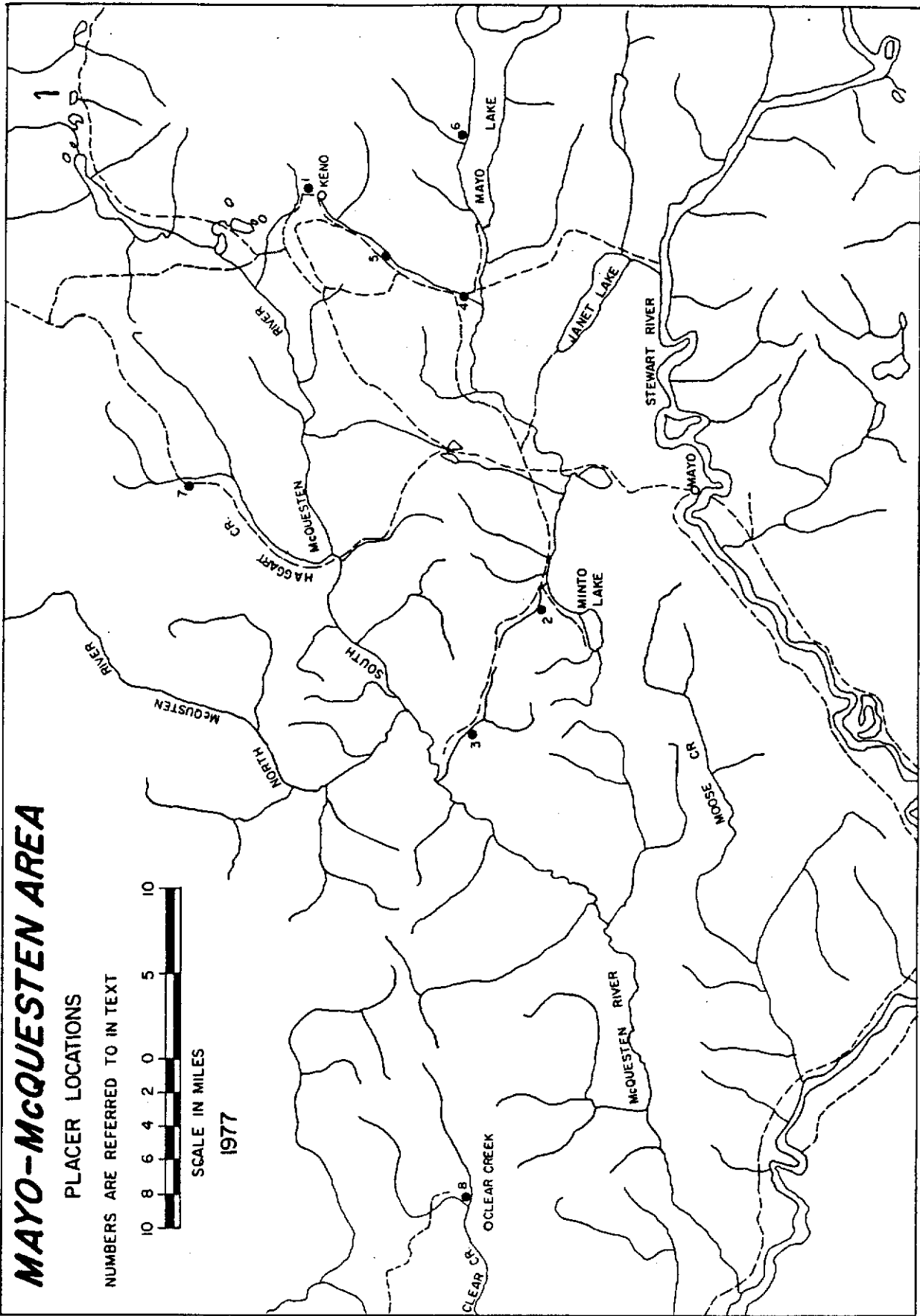
PLACER LOCATIONS

NUMBERS ARE REFERRED TO IN TEXT



SCALE IN MILES

1977



(7) Darron Placers 106 D 4  
Dublin Gulch (64°02'N, 135°50'W)

Reference: Morin et al (1977, p. 233).

R. Holway and D. Duensing, with a crew of 3 men, continued mining the Dublin Gulch property. They completed one cut of 10,000 cubic yards on the right limit of Claims 3 and 4 and one of 30,000 cubic yards on the left limit of Claim 3. Waste on the high side of the left limit cut, consisting of silty muck and glacial till, is up to 60 feet thick. Pay gravels to 25 feet thick are sluiced. A bouldery layer near the top of this 25-foot section has good grades.

The equipment used is the same as previously: one D-7, one 955 Traxcavator and two front end loaders (a 4 yard and a 3 1/2 yard). A spring mounted grizzly above the dump box of the sluice rejects boulders.

An innovation in the recovery system is a subsidiary sluice positioned near the lower end of the main sluice which receives heavy fines not caught in the main riffles. An upward pulse or jigging action is applied to the fabric bottom of this box from a cam drive below. Improved gold recovery and effective separation of gold and scheelite are achieved, with 6 tons of scheelite being recovered in 1977.

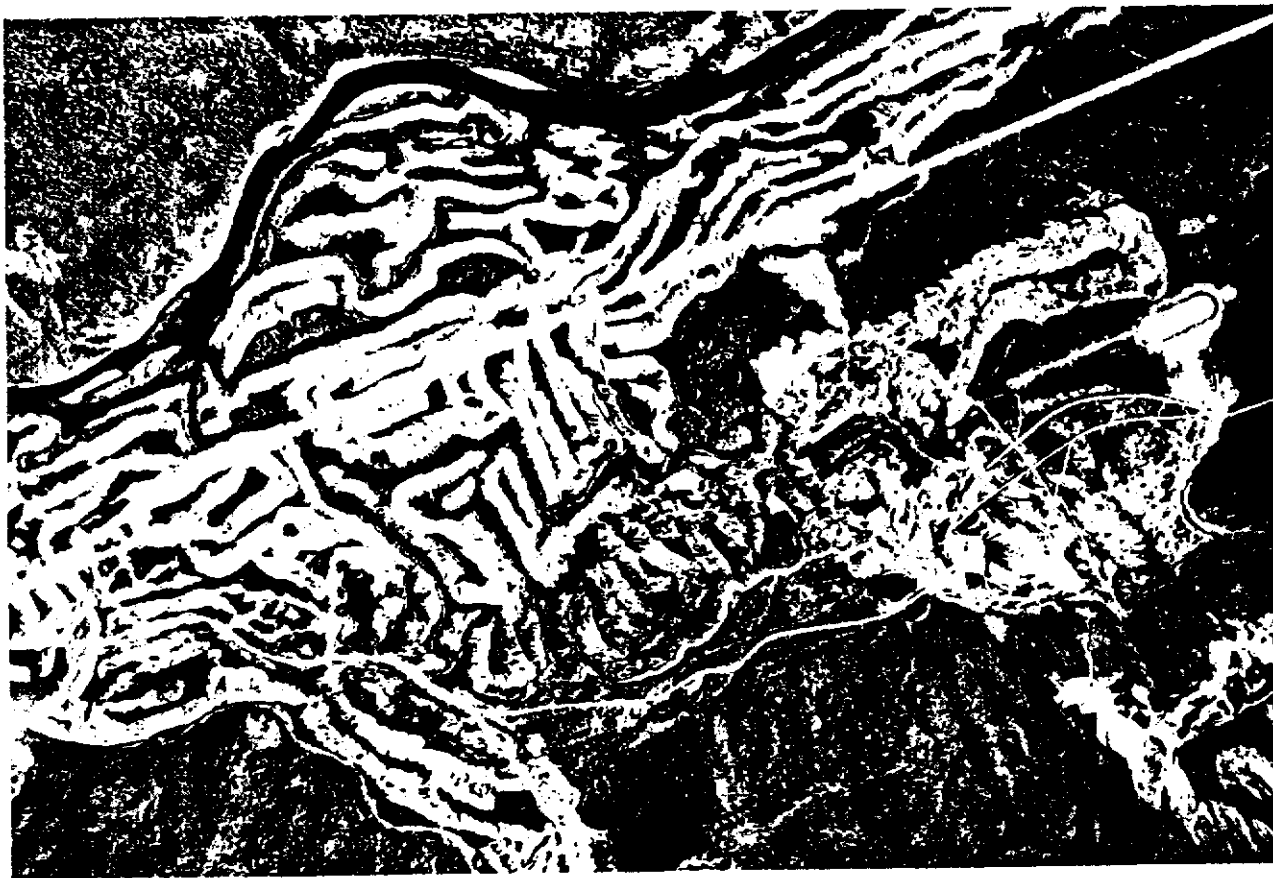
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(8) Clear Creek Gold Mines 115 P 14  
W. Scott and L. Logie (63°45'N, 137°16'W)  
Clear Creek

Reference: Morin et al (1977, p. 236).

During 1977, Clear Creek Gold Mines completed one cut 30 feet wide by 300 feet long by 10 feet deep on the left limit of Barney Creek where it enters Clear Creek. Their second cut was on the left limit of Clear Creek, 600 feet long by 60 feet wide, the upper end of which was 1,000 feet downstream from the mouth of Barney Creek. They also ground sluiced 2 to 3 feet of overburden on Barney Creek in preparation for future mining, starting 1,000 feet above the mouth and extending for 1,500 feet along the creek with a width of 400 feet. Equipment used was 1 D-8 bulldozer with 1 D-6 part time.

\*\*\*\*\*



Dredge Tailings, Klondike River with Lower Bonanza Creek in centre foreground

KLONDIKE

- (1) K. and J. Tatlow 116 B 3  
Hunker Creek (64°01'N, 139°09'W)

Reference: Morin et al (1977, p. 225).

Tatlow's mined a strip 500 feet long on the extreme left limit of lower Hunker Creek where they hold claims 12, 14, 16 and 18. The cut, about 50 feet wide at the downstream end widens to 150 feet at the upper end. Four feet of pay gravel lies on bedrock and is overlain by some 70 feet of grey silt containing abundant ice; the silt section getting markedly thicker against the valley side. A D-8 bulldozer is used for moving gravel and a pump driven monitor is used very effectively for removing most of the silt muck.

\*\*\*\*\*

- (2) Miben Mining Limited 116 B 3  
Hunker Creek (64°00'N, 139°06'W)

Reference: Morin et al (1977, p. 225).

M. Stutter and B. Warnsby continued mining the high level White Channel gravels on Dago Hill, left limit Hunker Creek, as in the previous year. A high pressure pump and monitor system is used to bring down the bank which averages 70 feet in height but locally exceeds 100 feet. Gravel is moved to the boxes by monitor with support from one D-6, one D-7 and one Model 824 rubber-tired bulldozer. Long flumes from the two sluice boxes convey the tailings gravel to the edge of the hill for discharge over the side. Throughput during the 1977 season was between 120,000 and 130,000 cubic yards.

\*\*\*\*\*

- (3) J. Hanulik 116 B 3  
Hunker Creek (64°00'N, 139°06'W)

J. Hanulik mined Miben Mining Company ground on a lease basis on the left limit of lower Hunker Creek, working creek gravels; the Miben operations being on the high White Channel bench above. He put in two cuts with a D-7 bulldozer, each about 200 feet wide. The creek side of each cut has about 5 feet of gravel, thickening to a 20-foot section on the valley wall side. Bedrock is a chlorite schist with abundant quartz pods and veins.

\*\*\*\*\*

- (4) I. and G. Bremner 116 B 3  
Last Chance Creek (64°00'N, 139°07'W)

Reference: Morin et al (1977, p. 225).

Bremners continued to mine on Bryan Bench, left limit of Last Chance Creek. During 1977 they put in a cut roughly 30 by 100 feet, the White Channel section with some yellow-brown gravel on top is some 35 feet thick here. The material is monitored from the hill into the sluice. The coarser material, consisting of quartz boulders about 1 foot in diameter, is broken by sledge hammer and sent through the sluice also. A holding reservoir for this monitor operation has been excavated on the top of the bench.

\*\*\*\*\*

- (5) A. Kosuta 116 B 3  
Eighty Pup (64°00.5'N, 139°05'W)

Reference: Morin et al (1977, p. 225).

Mr. Kosuta mined the 1977 season on Claim 2 of Eighty Pup, a left limit tributary of Hunker Creek. He advanced with a cut 140 feet long by 50 feet wide, the full width of the narrow pup. The technique is largely one of monitoring the 35 to 40 feet of fine, grey-brown silt and bulldozing the two feet of pay gravels from the andesite bedrock. This ground was extensively hand mined in the earlier history of the Klondike with removal of gravel through drifts and shafts such that in places no gravel remains; the silt resting directly on bedrock. 1977 production was 200 crude ounces gold.

\*\*\*\*\*

- (6) O. Juuso 115 O 15  
Hunker Creek (63°54'N, 138°59'W)

Reference: Morin et al (1977, p. 226).

O. Juuso prospected and test cut in 1976 and staked near the mouth of Gold Bottom Creek where it joins Hunker Creek. He spent 2 weeks on the ground in 1977 in preparation for future mining.

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- (7) O. and M. Lunde 115 O 15  
Gold Bottom Creek (63°57'N, 138°59'W)

Reference: Morin et al (1977, p. 226).

Lundes mined on Gold Bottom Creek below the mouth of Soda Pup, on Claim 14 and the lower part of Claim 15. They put in a left limit cut 150 by 150 feet and one on the right limit 120 feet long by 130 feet wide. The highly organic black muck, an irregular layer several feet thick, is stripped largely by directing the stream over it. The top few feet of gravel is stripped; the lower 4 to 5 feet sluiced, with as much as 3 feet of the strongly decomposed muscovite schist bedrock as well.

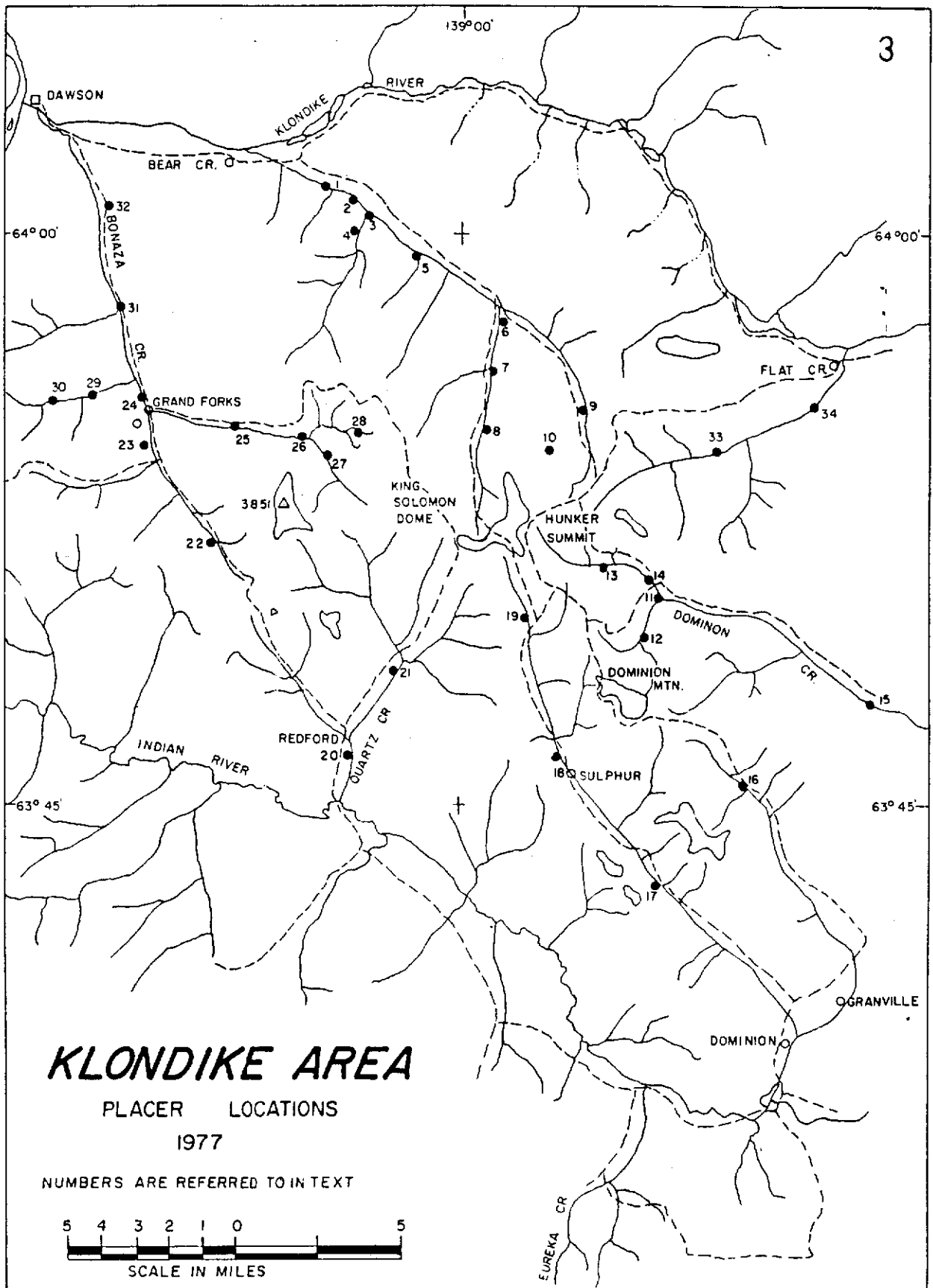
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- (8) M. and D. Crockett 115 O 15  
Gold Bottom Creek (63°55'N, 138°59'W)

Reference: Morin et al (1977, p. 226).

Crocketts hold Claims 32 to 38 and 40, a total of 8, on the extreme upper part of Gold Bottom Creek, a left limit tributary of Hunker Creek. During 1977 they mined the full 500 feet of Claim 38 in 5 cuts, each 160 feet wide across the full width of the valley bottom. Equipment in use was 2 D-8 bulldozers. In the fall, after completion of sluicing, Mr. Crockett prepared ground on upper Sulphur Creek, stripping 15 feet of overburden from part of one claim.

\*\*\*\*\*



(9) J. Erickson, H. Liedtke 115 0 15  
Hunker Creek (63°54'N, 138°53'W)

These men mined 18,000 bedrock square feet on Claim 1 Above Discovery during the 1977 season using a D-8 bulldozer and monitor. They also prepared ground on Claim 3 Below Discovery for mining in 1978. The section on Claim 1 Above Discovery consists of 3 to 4 feet of gravel with 20 feet of overlying muck. That this portion of Hunker Creek was originally very rich is indicated by the intensity of the early hand workings. Old shafts are as little as 6 feet apart on some of this ground. A striking indication of grade was the discovery and mining of about 5 square feet of remnant virgin ground early in the 1977 season. Although the contribution to the overall mining venture was modest, values were greater than \$1,000 per bedrock square foot on this tiny remnant. A considerable proportion of the gold was very coarse; the largest nugget weighed 1 1/4 ounces.

\*\*\*\*\*

(10) P. Erickson, D. Gritzka 115 0 15  
Hunker Creek (63°54'N, 138°53'W)

Reference: Morin et al (1977, p. 226).

P. Erickson and D. Gritzka hold Claims 26 to 30A Fraction Above Discovery on the right fork of Hunker Creek. During 1977, working largely with a D-4 Traxcavator, Erickson mined 16,000 bedrock square feet on 30A Fraction in a cut 160 feet long by 100 feet across the full width of the narrow valley bottom. The section is approximately 10 feet thick; most of which is stripped with only the lower foot of gravel and top foot of mica schist bedrock being sluiced.

D. Gritzka put in a cut of 5,000 bedrock square feet (60 by 80 feet) on the right limit of Claim 27. Here the section consists of 3 feet of gravel overlain by 15 feet of muck. Abundant timbered drifts from the early hand mining are present.

\*\*\*\*\*

(11) A. and N. Burgelman 115 0 15  
Dominion Creek (63°50'N, 138°49'W)

Reference: Morin et al (1977, p. 227).

Mr. and Mrs. Burgelman, although they did not sluice, did some stripping on Claims 1 and 2 on Caribou Creek at the mouth where it joins Dominion Creek as a right limit tributary. They removed 10 to 12 feet of black silty muck from an area 300 feet by 300 feet using bulldozer and ground sluicing. They sold their property at the end of 1977 to J.E. Brown and W. Israel.

\*\*\*\*\*

(12) J. and K. Stewart 115 0 15  
Caribou Creek (63°49'N, 138°50'W)

Stewarts hold 10 claims on Caribou Creek, a right limit tributary of Dominion Creek, and 2 claims on Lion Creek, off Caribou. Following mining on Allgold Creek in 1976, they moved to Caribou in 1977. During the season, operating with 1 D-8 and 1 TD-15B they mined 20,000 bedrock square feet on Claim 21 on the left limit of Caribou Creek.

\*\*\*\*\*

(13) I. and E. Hamilton 115 0 15  
Dominion Creek (63°52'N, 138°52'W)

Reference: Morin et al (1977, p. 227).

Mr. and Mrs. Hamilton mine at the junction of Little Dominion and Dominion creeks. They started work there in 1973, bringing in a D-7 bulldozer in 1977, but had extensive preparatory work to do, particularly the digging of a drain and extensive stripping. Part of the material from the drain was sluiced in 1976 but 1977 was the first full year of sluicing. They put in one cut 300 feet long by 25 feet wide, at bedrock, on Dominion Creek. The section consists of 25 feet of brownish black, ice rich muck and 5 to 6 feet of pay gravel.

\*\*\*\*\*

(14) Gem Resources 115 0 15  
Dominion Creek (63°47'N, 138°43'W)

Leverman, with partners Dittbrender, Bowman and Tepaske began mining on the left limit of upper Dominion Creek in May 1977, immediately downstream from the mouth of Remington Pup and 1,500 feet upstream from Caribou Creek. The property consists of 17 optioned claims. They put in a cut 100 by 200 feet, sluicing 17,000 cubic yards of gravel. On the creek side of the cut are old dredge tailings, on the valley side slope 10 to 12 feet of largely slide rock makes up the section, this being strongly decomposed quartz mica schist. A considerable proportion of the gold produced was coarse nuggets.

Two D-2 and 1 D-4 bulldozers were used with a 6 inch by 8 inch pump delivering water from the creek.

\*\*\*\*\*

(15) A. and N. Sailer 115 0 15  
Dominion Creek (63°48'N, 138°36'W)

Reference: Morin et al (1977, p. 227).

Mr. and Mrs. Sailer continued operations on Dominion Creek in 1977, mining some 80,000 bedrock square feet; the section consisting of approximately 20 feet of brown silts and 5 to 15 feet of gravel. From 6 to 9 feet is sluiced, including the upper 2 to 3 feet of bedrock. Workings are on Claim 89 and Nazareno Claim - a left limit bench claim opposite Number 81 on the Creek. Equipment in use was 2 D-8 bulldozers.

\*\*\*\*\*

(16) D. Rintoul 115 0 15  
Gold Run Creek (63°46'N, 138°43'W)

Mr. Rintoul holds 23 claims on upper Gold Run Creek, upstream from earlier dredging operations. During the 1977 season he stripped muck, locally to 40 feet of fine silt, on the steeply rising left limit of the creek, by monitor. The gravel, locally to 12 feet, is largely broken bedrock rubble with a few quartz boulders.

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(17) J. Krueger 115 0 15  
Sulphur Creek (63°43'N, 138°54'W)

Mr. Krueger holds 6 claims on lower Sulphur Creek and 1500 feet on a right limit pup. He began his placer prospecting on Sulphur in 1975. During 1976 he brought in a Model 955 tracked loader and in 1977 added a D-7 bulldozer. His plans are to mine a right limit bench adjacent to creek dredge tailings. The section consists of about 8 feet of White Channel cobble gravel followed upward by 4 feet of yellow schist fragment gravel, 4 feet of sand with some boulders and above which is 14 to 16 feet of muck with abundant tree remains. Adjacent to his test cut Krueger has put down a shaft 35 feet to bedrock.

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(18) R. and B. Gibson 115 0 15  
Sulphur Creek (63°47'N, 138°54'W)

Reference: Morin et al (1977, p. 228).

Mr. and Mrs. Gibson continued mining in 1977 on Friday Gulch, a left limit tributary of Sulphur Creek, as they have for the past several years. Using a D-7 bulldozer, they mined approximately 20,000 bedrock square feet on Sulphur Bench, stripping the top 10 feet of silty muck and sluicing the lower 3 feet of gravel and top 2 feet of slabby, quartz-muscovite schist bedrock.

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(19) K. Djukestein 115 0 15  
Sulphur Creek (63°50'N, 138°55'W)

Reference: Morin et al (1977, p. 228).

Mr. Djukestein, working with 2 - 12 yard highway scrapers, a D-7 and a D-8, as in previous years, sluiced 5 feet of gravel from 40,000 bedrock square feet during the last 10 days of June, recovering 300 crude ounces gold. The material had remained frozen in 1976 and this brief 1977 work completed the sluicing on Sulphur Creek of ground originally prepared 20 years ago by Yukon Consolidated Gold Corporation for dredging.

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(20) Ballarat Mines Limited 115 0 14  
Quartz Creek (63°47'N, 139°06'W)

Reference: Morin et al (1977, p. 228).

The Schmidts continued mining the deep gravels of the right limit of lower Quartz Creek, putting in one cut 170 feet long by 120 feet wide on Claim 21. Some 35 feet of gravel overburden is stripped and the lower 15 feet is sluiced. The mining method involves use of a D-8 tractor-mounted elevating conveyor feeding onto a raised sluice box. The conveyor is fed and tailing are stacked with 2 D-8 bulldozers.

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(21) R. and L. Mining Company 115 0 14  
Quartz Creek (63°48'N, 139°04'W)

Reference: Morin et al (1977, p. 228).

W. Rasmusson, working mostly alone, continued operating on lower Quartz Creek, mining an area 200 feet long by 300 feet wide (60,000 bedrock square feet) on the left limit of the creek. The ground, stripped previously, has a deep muck and gravel section; some 25 feet of muck and 20 feet of gravel are removed, with the lower 6 feet of gravel being sluiced. Rasmusson stripped ground in preparation for 1978 mining which he tested in 1976 with a 6-inch churn drill. A pattern of holes 100 feet apart on lines 300 feet apart along the creek was drilled along 1,500 feet of this left limit of Quartz Creek.

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(22) D. Johnson 115 0 14  
Eldorado Creek (63°52'N, 139°16'W)

Reference: Morin et al (1977, p. 229).

D. Johnson did his last mining on upper Eldorado in 1977 and will move to elsewhere in the district. From just below the mouth of Gay Gulch where he mined in 1975 and 1976, he moved to the mouth of the gulch. A small cut of 3,500 cubic yards produced only 38 crude ounces gold. He then put a cut up the gulch, also with disappointing results.

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(23) Beron Placers 115 0 14  
R. and B. Johnson  
Eldorado Creek (63°53'N, 139°20'W)

Reference: Morin et al (1977, p. 229).

The Johnson brothers worked part time on their Eldorado No. 11 Bench on the left limit, 130 to 140 feet above the creek. Effort was mostly dead work in preparation for 1978, stripping some 20 feet of brown gravel and dirt from the 5 feet of white quartz cobbles and schist fragments which overlie the chlorite-talc schist bedrock. The bench slopes about 6° towards Eldorado Creek.

\*\*\*\*\*

(24) A., M. and D. Fry 115 0 14  
Eldorado Creek (63°55'N, 139°18'W)

Reference: Sinclair et al (1976, p. 180).

During the early part of the 1977 season A. Fry sluiced on King Solomon Hill, opposite Claim 29 on Bonanza, catching the spring snow melt run-off. D. Fry sluiced a small amount on Gold Hill with the small amount of run-off available. During most of the season A. Fry mined on the low, left limit bench of 29 Bonanza with a D-7 bulldozer. D. Fry mined their No. 3 Eldorado claim with a D-8 bulldozer.

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(25) B. Bryant 115° 0' 14"  
Upper Bonanza Creek (63°55'N, 139°16'W)

Reference: Morin et al (1977, p. 230).

B. Bryant mined at the junction of Gauvin Gulch and Upper Bonanza Creek, 1977 operations being on Claims 20 and 21 with both the Bonanza and Gauvin pay streaks being worked. Gravels moved are locally greater than 50 feet deep; the upper 30 feet or so being old hydraulic tailings. There is some 4 to 6 feet of mud and 14 to 18 feet of pay section which includes as much as 5 feet of quartz-mica schist bedrock. His 3 cuts made a total mined area about 250 feet long (along Upper Bonanza) by 325 feet wide.

Equipment used was a D-8H bulldozer, a 977 tracked front end loader and a 988 rubber tired front end loader.

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(26) Francois Perret 115° 0' 14"  
Bonanza Creek (63°55'N, 139°13'W)

Reference: Morin et al (1977, p. 230).

Mr. Perret, working alone, did some preparation of his ground on upper Bonanza Creek, down from the mouth of Victoria Gulch. He normally operated with a TD-18 bulldozer and an automatic gate system for stripping.

Mr. Perret died in his cabin on Bonanza Creek in December 1977. He was 75. Francois came to the western Yukon in 1937, trapping on the Ladue River. He later worked on the Henderson Creek dredge and then mined privately on Henderson before coming to Victoria Gulch on upper Bonanza Creek in the early 1960's.

\*\*\*\*\*

(27) J. and M. Langevin 115° 0' 14"  
Victoria Gulch (63°54'N, 139°12'W)

Mr. and Mrs. Langevin hold Claims 1, 7 and 8 on Victoria Gulch, a left limit tributary of Upper Bonanza Creek. They mine part time, using a small John Deere Model 1010 tractor for stripping. In earlier preparation, during 1976, they hired a D-7 bulldozer to clean out the creek at their mining location.

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(28) D. Coombs 115° 0' 14"  
Bonanza Creek (63°48'N, 139°08'W)

Reference: Morin et al (1977, p. 230).

D. Coombs continued mining on Upper Bonanza Creek where he started in 1974. He worked in 1977 on the second claim below the mouth of Ready Bullion Gulch, putting in a left limit cut into the stream bank, 100 feet wide by 300 feet long. The section mined consists of the upper two feet of platy muscovite-chlorite-quartz schist bedrock overlain by 3 to 4 feet of angular schist and gneiss fragments above which is 5 feet of brown silty soil with slide rock fragments. There appears to be very little transported stream gravels and the gold is rough and coarse.

The mining technique is slightly different from the typical sluicing arrangement. Unconsolidated material and broken bedrock (commonly with gold in the cracks along foliation planes) is pushed to an elevated sluice by TD-18 bulldozer, then raised 15 feet to the dump box by a 3/4 yard dragline. Mr. Coombs has a

steep upper wooden section consisting of 8 feet of dump box and 15 feet of sluice. Punch plate in the bottom of the sluice allows fines to drop through via a 10 inch diameter pipe to a steel under sluice 15 feet long by 2 feet wide set at a gentler gradient than the box above. Water is recirculated from the settling pond by a truck mounted pump.

\*\*\*\*\*

(29) H. Yoder 115° 0' 14"  
Adams Gulch (63°56'N, 139°23'W)

Reference: Morin et al (1977, p. 230).

Mr. H. Yoder holds Claims 8, 10 and 11 on Adams Gulch, a left limit tributary of Bonanza Creek. During the 1977 season he mined for approximately one month using the light International Model 3444 front end loader-backhoe which he purchased in 1976. Gold, including some fairly coarse nuggets, is often in the foliation cracks of the contorted chlorite schist.

\*\*\*\*\*

(30) G. Caley 115° 0' 14"  
Adams Gulch (63°56'N, 139°24'W)

Reference: Morin et al (1977, p. 230).

Mr. Caley holds Claims 6 and 12 to 19 inclusive on Adams Gulch. He started working the ground in 1975 using a D-7 bulldozer and added a Caterpillar 950 -3 1/2 yard rubber tired front end loader in 1977. Prior to 1977 he put in a series of centre cuts through Claims 13, 14 and 15. During the 1977 season he mined the left limit of parts of these same claims, putting in cuts about 50 feet wide in the narrow valley. He strips the entire unconsolidated section - nearly 20 feet of black muck with 3 feet of nearly barren gravel at the bottom. The gold lies largely in the top 1 to 2 feet of schist bedrock. On part, a few feet of gravel is sluiced.

\*\*\*\*\*

(31) J. and R. Archibald 115° 0' 14"  
Bonanza Creek (63°58'N, 139°20'W)

Reference: Morin et al (1977, p. 231).

During the 1977 season Archibald Brothers completed mining on their Bonanza Creek Poplar Bend No. 3 Claim opposite 39 Below Discovery. Here, 150 feet above the creek, they completed one cut of approximately 30,000 bedrock square feet and a second of about 20,000 bedrock square feet, using 2 D-6 bulldozers and water pumped from Bonanza Creek. Five feet of gravel and slabby quartz-chlorite schist bedrock is sluiced.

During the fall they moved their equipment to Eldorado Bench Claim No. 16, immediately below the mouth of French Gulch, where they will begin operations in 1978.

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(32) C. Nicholson 116 B 3  
Lovett Hill (64°02'N, 139°23'W)

Reference: Morin et al (1977, p. 231).

During 1977 Mr. Nicholson mined on Lovett Hill opposite Bonanza Creek Claim 86. Mining was on Lovett Discovery during 1974 to 1976. The cut has an amphitheatre form, facing Bonanza Creek with the gravel section up to 30 feet thick on the high side. The bottom 5 feet of gravel and top 1 to 2 feet of quartz-chlorite schist is sluiced. Nicholson pumps water from Bonanza Creek through 200 vertical feet to a pond, then a further 40 feet to the sluice. Water from the tailings filters back to the pond for recirculation. Equipment consists of a D-6 bulldozer and Cat 920 Series front end loader. However, for the deep stripping, Mr. Nicholson rented a D-9 bulldozer. During the season 35,000 cubic yards of gravel was moved.

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(33) A. and E. Aud 115 O 15  
Allgold Creek (63°55'N, 138°44'W)

Mr. and Mrs. Aud hold 3 1/2 miles on Allgold Creek upstream from K and S Placers' (Kinakin) ground. Access is by road leading northeast from Hunker Summit. They did initial work in 1976. During 1977 they did testing and stripping with a D-7 bulldozer on a left limit bench 200 feet above the creek at about the middle of the claim group. Gravel on this bench is fairly shallow, 6 to 10 feet deep, with only a foot or so of soil cover and vegetation.

\*\*\*\*\*

(34) K. and S. Placers 115 O 15  
Allgold Creek (63°56'N, 138°37'W)

Reference: Morin et al (1977, p. 227).

During 1977 the Kinakins put in two and one-half cuts on Claim 10 above the mouth of Allgold Creek, mining an area 100 feet wide by 250 feet long on the right limit of the creek. They operate with two D-8 bulldozers, sluicing the entire 9-foot gravel section. Clay at the bedrock surface locally makes the washing operation difficult.

\*\*\*\*\*

(35) Territorial Gold 115 O 6, 7  
Placers Limited (62°27'N, 138°50'W)  
Black Hills Creek and (63°24'N, 139°07'W)  
Henderson Creek

Reference: Morin et al (1977, p. 231).

This company continued a full season of mining on the two creeks, employing 20 men in the operations. On Henderson Creek they mined below the 4-mile section of valley which was dredged from 1949 to 1956. Here, 4 to 6 feet of gravel is overlain by 1 to 2 feet of sand which is in turn overlain by 6 to 8 feet of black, organic muck with abundant woody fragments and peat. Mining was also done upstream from the 1976 workings, above the present camp.

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## SIXTYMILE

- (1) J. Lynch 116 C 2  
Glacier Creek (64°02'N, 140°53'W)

Reference: Morin et al (1977, p. 221).

Mr. J. Lynch in 1977 operated with 2 D-7 bulldozers and a pump driven monitor. He put in a right limit cut 190 feet long by 140 feet wide on the lower end of Guimard Discovery claim on upper Glacier Creek. 27,000 bedrock square feet with an average depth of 5 feet were sluiced. Waste or overburden, on this ground, locally to 25 feet thick, was stripped in 1975 and 1976 by bulldozer and monitor. The centre and left limit of the creek were mined during the 1950's by early bulldozer-sluice operators, H. Schmidt and G. Franklin.

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- (2) Glacier Creek Placers 116 C 2  
Glacier Creek (64°02'N, 140° 49'W)

Reference: Morin et al (1977, p. 221).

L. Guimard and E. Faucher, with one employee, completed 3 cuts, each of approximately 10,000 bedrock square feet on the left limit of Glacier Creek adjacent to their workings of the past several years. Overburden of fine, uniform, brown-grey silt 20 to 30 feet thick overlies 10 to 12 feet of gravel. They also made one cut 200 feet long by 70 feet wide on deeper gravels between Glacier and Big Gold creeks; this being on the right limit of Big Gold Creek. Here, 4 to 5 feet of muck and most of the 25-foot gravel section is stripped, with only the bottom few feet being sluiced.

The operation is constantly plagued by a shortage of water; sluicing time in some cases being less than one hour per day. The operators worked in part of both 1976 and 1977 to construct a ditch from Big Gold Creek to their workings to lessen their dependence on the flow of Glacier Creek. They intend to operate partly with water from Big Gold in 1978. Their equipment consists of 2 D-6 bulldozers with part time rental of a D-8 from Gillespie Equipment Ltd. of Dawson City.

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- (3) Cogasa Mining 116 C 2  
Corporation Limited (64°01'N, 140°42'W)  
Sixtymile River

Reference: Morin et al (1977, p. 221).

This company, or its parent, BEL Yukon Limited, holds some 44 miles of placer ground on the Sixtymile River, 5 miles each on the lower ends of Sixtymile tributary creeks California, Fish, Enchantment, Boucher and Fiftymile, as well as the Canadian portion of the Fortymile River and ground on Indian River.

The 1977 operations were on ground adjacent to the 1975 and 1976 workings - the broad Sixtymile Valley at and upstream from where Glacier Creek enters. The pay gravels are 800 feet or more wide; the section consisting of 2 to 3 feet of silty black muck above 9 to 12 feet of gravel. Upstream from the camp and shop area, 60,000 cubic yards were put through a 4-foot wide sluice. Downstream from camp a 6-foot wide sluice having a capacity of 5,000 cubic yards per day was operated for 45 days starting in late July. The total production of Cogasa in 1977 was

between 250,000 and 300,000 cubic yards representing approximately 800,000 bedrock square feet.

Equipment used in mining comprised 9 Caterpillar 641 scrapers, each of 35 cubic yards capacity, 5 D-9 and 3 TD-25C bulldozers and 2 rubber tired front end loaders. Not all of this equipment was deployed at any one time due to maintenance and the sluice boxes being unable to process the amount of gravel which could be delivered. The operating technique at the 6-foot sluice was to drive the scrapers over a steel ramp, discharging the gravels directly into the dump box of the sluice. Scrapers, push-loaded by bulldozer, carried tailings to the disposal areas.

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- (4) Fellhawk Placers 116 C 2  
J. and W. Fellers (60°01'N, 140°41'W)  
Sixtymile River

Reference: Morin et al (1977, p. 221).

Mr. and Mrs. J. Fellers continued mining in 1977 on their Sixtymile River property. Operations were similar to those of previous years. Of the total section, the top few feet of muck and most of the 20 feet of gravel is stripped; the lower 3 to 6 feet of gravel with a foot of andesite bedrock is sluiced. Two cuts were put in on Claim 9 of the 11 claims held on the Sixtymile left limit bench.

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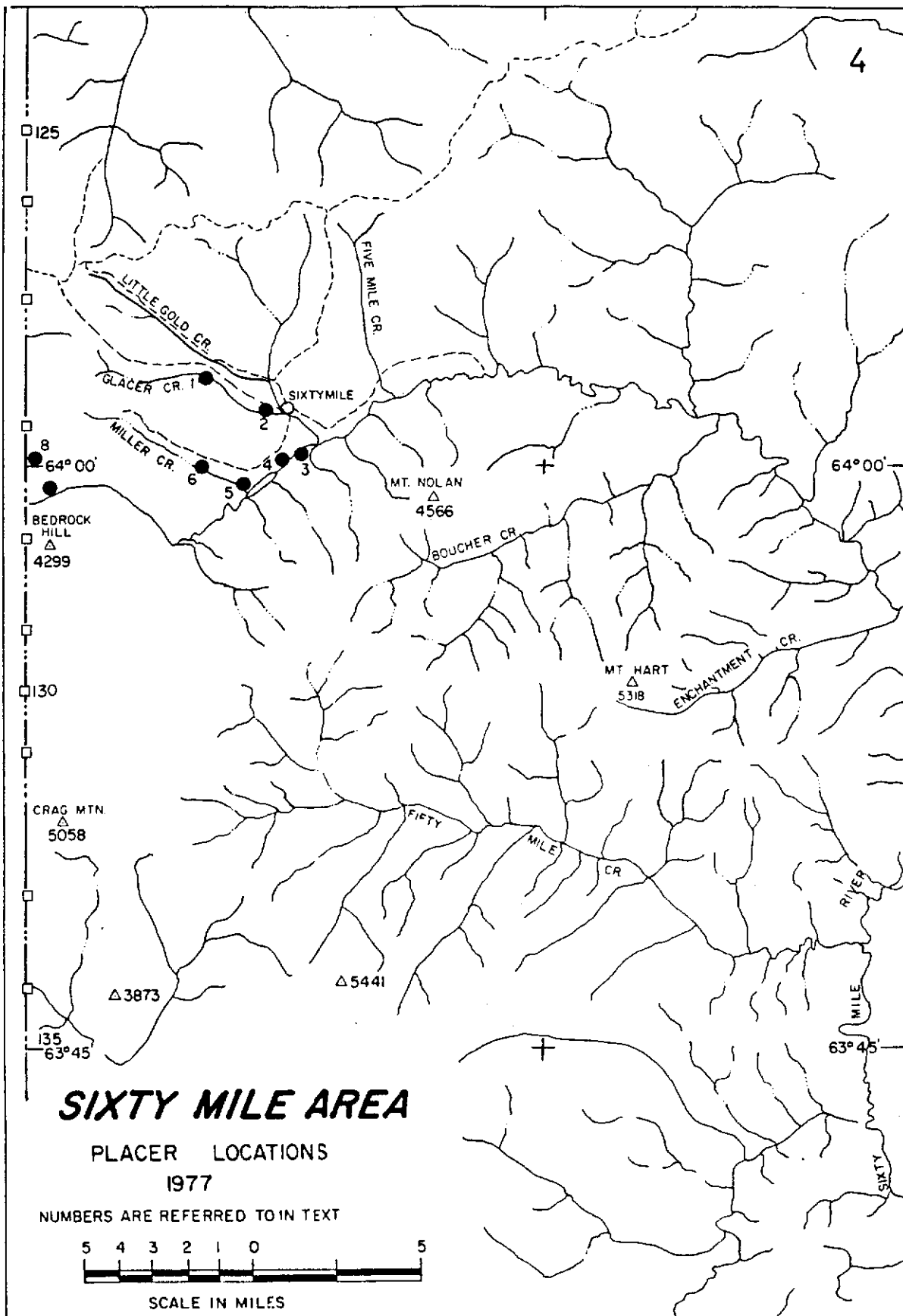
- (5) A. and C. Brisboise 115 N 15  
Sixtymile River (63°59'N, 140°49'W)

Reference: Morin et al (1977, p. 222).

These operators hold Discovery Claim and No. 1 and No. 2 B/D at the junction of Miller Creek and Sixtymile River, where they mine the Sixtymile left limit bench. During 1977 they mined on Claim 1 B/D, putting in a cut similar to those of previous years, the deep side being 50 to 60 feet and the area 7,200 bedrock square feet. One cut of 4,000 bedrock square feet was made farther upstream, on Discovery Claim. They operated with 2 D-9 bulldozers and a small Case 1150 tractor, sluicing the bottom 6 to 10 feet of the section. Clay must be allowed to dry before sluicing, for gold recovery.

The gravels here, although poorly sorted for the most part, are more clearly stratified than in most of the placer workings of the district. The section from the bottom upwards is as follows: porphyritic andesite bedrock, in part a breccia, variably decomposed; 1 foot brown mud; 4 to 6 feet of pay gravel; 2 feet of cemented gravel; 6 feet blue clay, locally with sandy gravel; 25 feet gravel, plus 6 feet organic muck with vegetation cover. Gravel pebbles and cobbles are quartz, banded quartzite, quartz-graphite schist and quartz-muscovite schist.

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- (6) Sixtymile Enterprises Limited 115 N 15  
Sixtymile River (63°59' 140°47'W)

Reference: Morin et al (1977, p. 222).

Mr. Yaremcio, during 1977, mined on Claim 10 of Miller Bench, putting in two narrow cuts each approximately 200 feet long by 20 feet wide. The deep section consists of about 15 feet of muck with abundant roots followed by more than 25 feet of gravel. He strips all but the bottom 5 feet of gravel. The paystreak here is narrow but rich, as indicated by a 45-foot prospecting shaft which Mr. Yaremcio sank in 1969. He has been doing the open cut mining largely with a D-7 bulldozer and monitors.

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- (7) S. Prohaszka 115 N 15  
Bedrock Creek (63°59'N, 140°55'W)

Reference: Morin et al (1977, p. 222).

Mr. Prohaszka holds 2 miles of leases downstream from his cabin on Bedrock Creek and 10 claims upstream from the cabin. Bedrock Creek is a headwaters tributary of the Sixtymile River.

During 1977, working with a D-7 bulldozer, Prohaszka put in a left limit cut at the lower end of the 10-claim group, 200 feet by 200 feet. The section, about 10 feet thick, consists of limonite stained gravel of angular quartzite and biotite-quartz schist fragments with lenses of sericitic clay. The working area is also wet from abundant groundwater seepage.

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- (8) B. Stone 115 N 15  
Bedrock Creek (63°59'N, 140°57'W)

B. Stone holds 21 claims, purchased from B. Gagnon in 1976, on upper Bedrock Creek, above Prohaszka and immediately adjacent to the Yukon-Alaska border. Early hand workings, probably dating from the 1890's, when the area was active, consist of shafts and stacked rock piles and rock walled cuts. J. Lamontagne, a miner from Dawson City, put in a narrow centre cut in the 1950's.

In 1976, with an HD 60 loader, Stone put in a pie-shaped test cut of about 600 bedrock square feet below old workings where a left limit pup drops steeply into the creek. During 1977 he put in a second left limit test cut 100 feet long by 15 feet wide, 10 to 12 feet deep, about 200 feet downstream from his 1976 work. At this locality, bedrock drops sharply, putting gravel below the level of bedrock in the creek bed. This irregular bedrock is a fissile quartz-muscovite schist which dips moderately downstream. The unconsolidated section consists of a variable thickness of gravel up to 5 feet, largely biotite-quartz schist fragments, above which is 2 feet of muck with wood fragments, 3 feet of irregular gravel containing fine sand lenses, less than 1 foot of wood bearing muck, 1 foot of gravel, locally rusty, topped by 6 feet of muck.

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- (9) Oak Bay Manor and Ten Mile Mining Limited 115 N 8  
Ten Mile Creek (63°35'N, 140°05'W)

Reference: Morin et al (1977, p. 223).

Oak Bay Manor and Ten Mile Mining Limited, owned by N.B. Cook Corporation, continued their bulldozer-slucing operation on lower Ten Mile Creek, a right limit tributary of the Sixtymile River. They run 2 sluice boxes with 3 D-8K bulldozers and 1 - 5 1/2 yard capacity 980B front end loader. During the season they operated 22 hours per day with 2 shifts and a crew of 15. A GM diesel driven 10 inch by 12 inch pump with 10 inch diameter pipeline is used for recirculating process water from the settling pond back up to the reservoir behind the dam on Claim 8. A new airstrip, 2,000 feet long, was built near the mouth of the creek at the beginning of the season, equipment and fuel then being brought in by Single and Twin Otter.

During the season the company mined the left limit of Claims 3 and 4 and Claims 6, 7 and 8 right limit. Pay over the limestone bedrock at the mouth of a small right limit pup was particularly good, then considerably lower for the next 300 feet or so below this tributary.

The total unconsolidated section is up to 25 feet thick; the top 6 to 8 feet of muck and similar amount of barren gravel is stripped; the lower 10 feet of gravel sluiced.

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- (10) Treris 115 N 8  
Ten Mile Creek (63°35'N, 140°09'W)

Treris mined on Ten Mile Creek off the Sixtymile River during 1976 and 1977 working a centre strip 100 feet wide by 600 feet long, the upper end being where Flume Creek enters Ten Mile. The gold is coarse in Ten Mile Creek below the mouth of Flume Creek and markedly finer just above this tributary. The section consists of up to 30 feet of intercalated muck, gravel and clay where exposed in the cut at the mouth of Flume Creek.

Equipment used was one D-8 bulldozer.

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## KLUANE

- (1) Burwash Mining Company Limited 115 G 6  
Burwash Creek (61°23'N, 139°17'W)

Reference: Morin et al (1977, p. 238).

Mr. Henry Besner, owner and operator of this company, working with two employees, mined on the 3rd claim up from the downstream end of the property. They had completed one clean-up in July, with 1 D-8 bulldozer and dragline.

In August 1977 Mr. Besner was killed while operating the bulldozer on the mining operation. Henry was 77 years old and had mined on Burwash and Tetamagouche creeks since 1945.

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- (2) Mr. and Mrs. W. Jones 115 G 6  
Burwash Creek (61°23'N, 139°19'W)

Reference: Morin et al (1977, p. 238).

Mr. and Mrs. W. Jones completed their mining on Burwash Creek in 1977 which they started in 1975. They worked on the right limit low bench across from the mouth of Tetamagouche Creek and upstream from there, on the upper 2 claims of Burwash Mining Company ground. Using a D-8 and rubber tired front end loader they sluiced the area of 200 feet by 300 feet along the bench, from which they had stripped the overlying muck in 1976.

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- (3) R. Muller 115 G 6  
Burwash Creek (61°23'N, 139°18'W)

Reference: Sinclair et al (1976, p. 188).

R. Muller, operating alone, mined a right limit cut 200 feet long by 50 feet wide and 10 feet deep, on Burwash Creek, near the upper end of Burwash Mining Company ground, 500 feet upstream from his 1975 workings, on a bedrock bench slightly above the creek channel. The creek itself has been extensively mined previously. The gravels here are characterized by abundant, large boulders.

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- (4) S. Tremblay 115 G 6  
Burwash Creek (61°23'N, 139°17'W)

Reference: Morin et al (1977, p. 238).

S. Tremblay did test mining for a few weeks on Thirty Pup, a small, steep, right limit tributary which enters Burwash Creek near the lower end of Burwash Mining Company ground. A pay streak a few feet wide occurs on the left side of this pup. A 6-inch diameter aluminum pipeline and small monitor are used to move the gravel. Near the mouth of the pup, at Burwash Creek, The section displayed is as follows: diroite bedrock is followed successively upward by one foot of coarse, rounded cobbles, a thin peat layer a few inches thick, a thin layer of angular and rounded gravel all capped by 6 feet of glacial till.

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## MOOSEHORN RANGE

- Claymore Resources Limited 115 N 2  
Ladue River (63°03'N, 140°57'W)

Reference: Morin et al (1977, pp. 33-54).

Claymore Resources have extensive placer holdings in the creeks of the Moosehorn Range, including 34 claims on Kenyon Creek, where the placers were first discovered. Kenyon Creek flows southwest across the Yukon-Alaska border to join a north flowing right limit tributary of the Ladue River on the Alaska side. A thorough description of the bedrock and surficial geology is contained in the above reference. Following discovery and staking in 1975, test pitting was done that summer followed by rotary drilling in November and December. During 1976 a full season of test mining involved the sluicing of 12,000 cubic yards of gravel with recovery of some 1,935 crude ounces gold grading approximately 800 fine.

During 1977 the mining operation sluiced 30,000 cubic yards of material, recovering 3,000 crude ounces gold grading approximately 800 fine.

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## MOUNT NANSEN

- J. Yaklin 115 I 6  
Nansen Creek (62°06'N, 137°10'W)

Reference: Morin et al (1977, p. 240).

Mr. Yaklin continued mining at the headwaters of Nansen Creek, on Claim 7 above the mouth, sluicing some 3,000 square feet, using a D-4 with overshot bucket. The section, upwards from bedrock, consists of barren gravel, a thin clay horizon followed by about 10 feet of gravel in which the gold is distributed. The gold bearing gravel is apparently washed from the hillside on the north side of the creek.

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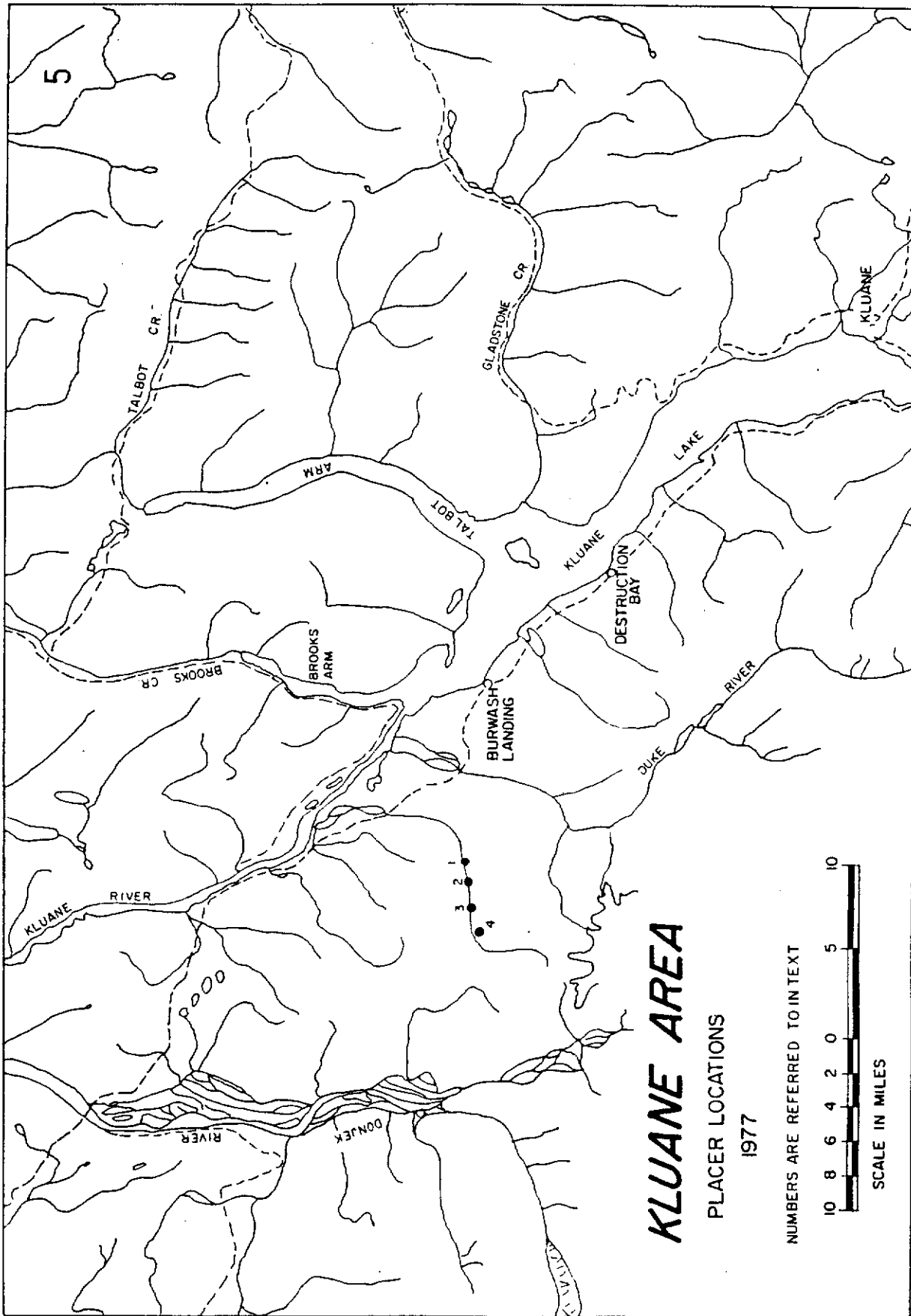
## LIVINGSTONE CREEK

- Constellation Mines 105 E 8  
Livingstone Creek (61°22'N, 134°20'W)

Reference: Morin et al (1977, p. 239).

Mr. Fuerstner mined on Livingstone Creek in 1977 with best results near his 1974 workings. The gravity flow ditch and pipeline system prepared in 1975 and 1976 broke down due to thawing with resulting slumping and leaking of the ditch. Using one D-7 and one Terex C-6 he put in one cut of 20,000 cubic yards on the lower end of the property (Discovery Claim) and one of 20,000 cubic yards on the upper end. Testing in between indicates that the creek was thoroughly mined earlier.

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## CORE STORED IN LIBRARY

COMPANY	PROPERTY	N.T.S.	No. of HOLES	REMARKS
Sovereign Metals Ltd.	Mel	95-D-6	8	C
Archer Cathro Hyland Joint Venture	Porker Claims	95-D-5, 12	4	C
Serem Ltd.	A&B	105-B-1	9	C
Archer Cathro	Nite Claims	105-B-7	6	C
Hudson Bay Exploration and Development Ltd.	Rancheria Angie Claims	105-B-11	7	
Boswell River Mines	Boswell River	105-C-13		parts of 11 holes other unid'd core
Joe Lindsay	Quiet Lake	105-C-14	3	C
Arctic Gold & Silver Mines Limited	Arctic Mine	105-D-2	15	C
International Mine Services	Peerless Claims Arctic Mine Area	105-D-2	14	C
Venus Mines	Montana Mt.	105-D-2	64	C
M. Nichiporich	Polar	105-D-9	2	C
Whitehorse Copper	Valerie	105-D-10, 11	1	C
United Keno Hill	King Lake	105-D-14	1	C
Archer Cathro & Assoc. (DC Syndicate)	Bond	105-E-7	3	
Marvin Sherman (Dupont of Canada Expl. Co. Ltd.)	Mat (Seagull Creek)	105-F-7, 10	5	C
Atlas Exploration	Dob	105-G-2	3	
Cassiar Asbestos	Dob	105-G-2	1	
Conwest Exploration	Pack	105-G-7	2	
Finalyson Joint Venture-Archer Cathro	Fetish	105-G-8	4	C
Hudson Bay Exploration and Development Ltd.	Bev	105-G-11	12	C
Pelly Banks Syndicate	Shale-Reno-Fred	105-G-14	4	C
Cyprus Explorations	Lyn	105-K-3	4	
John Graham	Pug	105-K-3	1	C
Welcome North Mines Limited	Sunset (PMJ)	105-K-3	1	C
Cyprus Anvil	Rose Creek	105-K-6	11	C
Northern Homestake	Hal Claims	105-K-11	2	C
Inco Metals Co.	Hasten, Basin, Fetch	105-O-1	6	C

COMPANY	PROPERTY	N.T.S.	No. of HOLES	REMARKS
Archer Cathro and Associates Ltd.	Ess	105-0-1	2	C
Hudson Bay	Tom	105-0-8	61	C
McIntyre Mines	Tom	106-B-4	1	C
Barrier Reef Resources	Goz Creek	106-C-7	5	C
Norcen Energy Res. (Great Plains)	Harrison Creek	106-C-7	3	C
Magni Management Company Limited	Fair	106-C-13	2	C
Bonnet Plume River Mines	Dolores Creek (Mammoth)	106-C13-14	3	C
Archer Cathro Ogilvie Joint Venture	Pterd	106-C-14	5	C
Welcome North Mines Limited	Cab	106-C-16	3	C
Archer Cathro and Associates Ltd.	Bond	106-D-10	3	C
Eldorado Nuclear Ltd.	Bond	106-D-10	10	C
Pacific Giant Steel		106-D-16	1	C
Archer Cathro Ogilvie Joint Venture	Flunk	106-E-2	3	C
Archer Cathro Ogilvie Joint Venture	M.S.T.	106-E-3	3	C
Canex Placer	Panther Claims B.C.	114	6	C
Jackpot Copper	Tatshenshini	115-A-3	4	
Phelps Dodge	Green Eagle, Joy	115-A-8	1	
Canalask Nickel Syndicate	Micro	115-F-15, 16	9	C
Hudson Bay	Quill Creek	115-G-5	46	C
Hudson-Yukon Mining Company Limited	Wellgreen	115-G-5	65	C
Imperial Oil	Cork	115-G-6	10	
M. Nichiporich	Sekulman (CAD)	115-H-5-12	11	
Teslin Expl. Ltd.	Teslin	115-H-8	1	C
Arjay Kirker Resources Ltd. (Archer Cathro)	Division Mtn.	115-H-8	6	C
Archer Cathro and Assoc.	Lion (Bun)	115-H-8	7	C
Arsenault/Verslucce	Mack's Copper	115-H-9	1	
Tantalus Butte Mine Anvil Mining Corp.	Tantalus Butte	115-I-1	5	C
Cyprus Explorations	Mt. Hansen	115-I-3	10	C

COMPANY	PROPERTY	N.T.S.	No. of HOLES	REMARKS
Area Explorations	Mt. Nansen	115-I-3	2	C
Cyprus Explorations	Mt. Nansen	115-I-3	3	C
Kangaroo (Cyprus)	Mt. Nansen	115-I-3	5	C
Archer Cathro	Cash (Fox, Bear, Car)	115-I-5, 6	20	C
Rayrock Mines	Laforma Property	115-I-6	2	C
Dawson Range Joint Venture (Archer Cathro)	Williams Creek (Boy)	115-I-7	18	C
Canex Aerial Expl.	March (Granite Mtn.)	115-I-7	7	C
Dawson Range Joint Venture (Archer Cathro)	Possibly Ben, Pal Kap, Neb	115-I-11	10	C
United Keno Hill	Minto	115-I-11	1	C
Kerr Addison	Won	115-I-13	6	C
Occidental Petroleum	Pelly & Dary Claims	115-I-14	3	C
Beach Gold Mines	Ura	115-P-13, 14	4	
Chevron Standard Ltd.	Rackla (A, AB, B, Wad)	116-B-11	6	C
UMEX	Od	116-B-13	4	
UMEX	Lala	116-B-14	2	C
Clinton Creek Asbestos	Mine	116-C-7	1	C

C in Remarks indicates that core is confidential and permission of company is required for viewing.

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Olympian International Resources Ltd.  
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Tintina Silver Mines Ltd.  
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