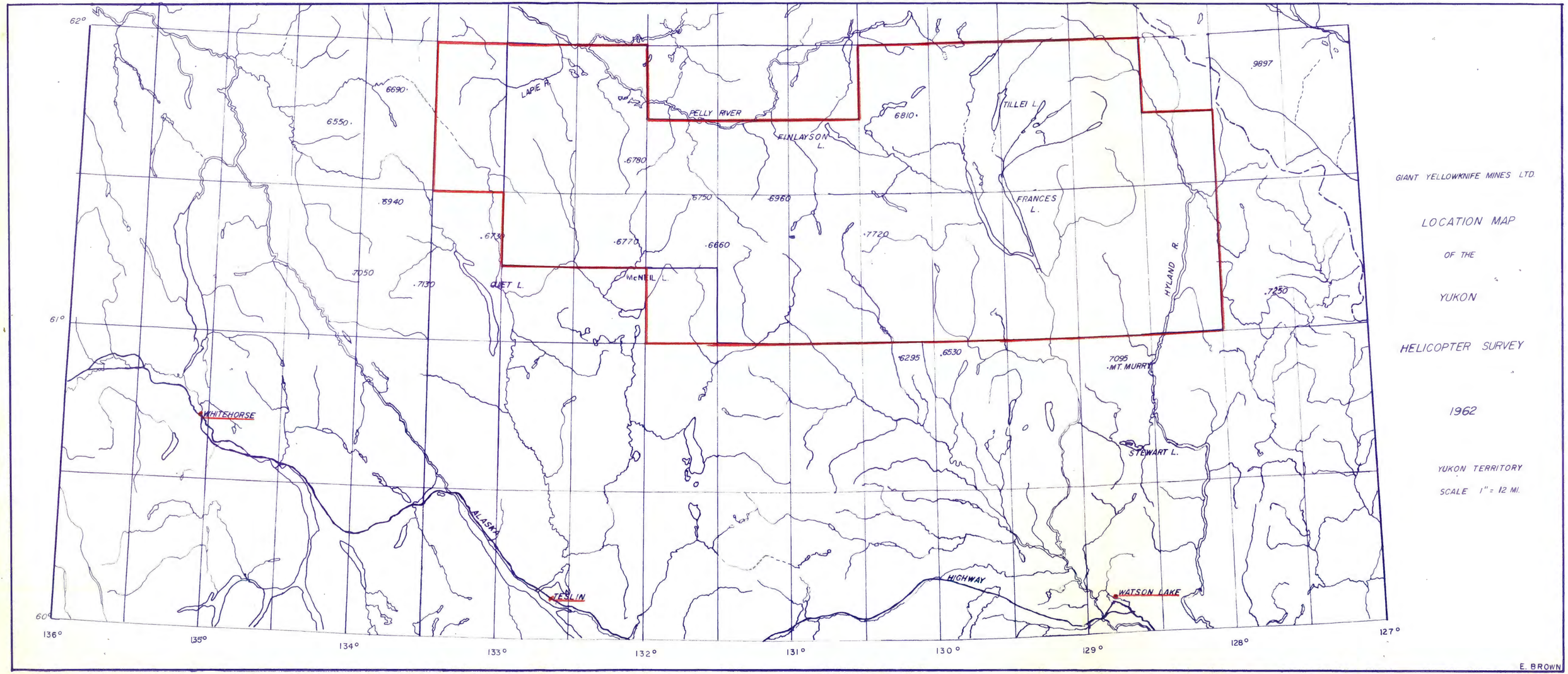
QE515 G53 1962

REPORT ON THE HELICOPTER SURVEY

S.E. YUKON TERRITORY - 1962.



GIANT YELLOWKNIFE MINES LTD.

LOCATION MAP

OF THE

YUKON

HELICOPTER SURVEY

1962

YUKON TERRITORY

SCALE 1" = 12 MI.

E. BROWN

SUMMARY: GEOLOGY AND MINERALIZATION OF THE QUIET LAKE-FRANCES LAKE AREA

YUKON TERRITORY

By: H. Squair

Data and Helicopter Operations:

The data for this report was gathered by a 13 man helicopter equipped prospecting party between June 1st and September 15th, 1962. Geological mapping was carried out above timberline by flying at elevations of 5,000 and 6,000 feet parallel to the contours. Stops were made to check sulphide gossans and quartz veins with periodic checks made on rock types. In a total area of 9,500 square miles, some 34,500 square miles of outcrop were mapped in this manner.

The helicopter was also used to support two prospecting and geochemical survey parties. The prospectors were placed in areas where sulphide mineralization was known to occur or along major structures such as granodiorite contacts. The geochemical parties carried out tests on water and stream sediment. Samples from creeks draining favorable areas were taken. All surface showings or anomalous readings found were checked by geologists.

The following tables give the days worked and helicopter hours allotted to various parts of the project.

Helicopter Data

Helicopter H.I.S. Hrs. Flown	June	July	August	Sept.	Totals	Percentage
Aerial Mapping	12	68:05	41:40	13	134:45	44.00%
Ground Mapping	13	29	15	3	60	19.70%
Prospectors	12	20	20	5	57	18.66%
Geochmen. Parties		21:05	15		36:05	11.86%
Ferry Time	2:35			6:40	9:15	3.16%
Staking				5:25	5:25	1.72%
Reconnaissance	2:45				2:45	.90%
	42:20	138:10	91:40	33:05	305:15	

SUMMARY: YUKON TERRITORY (Page 2).....

Operating Days:

	June	July	August	Sept.	Total	Percentage
Max.Possible Days	30	31	31	15	106	
Operating Days	10	27½	16	7½	61	57.50%
Days Lost-Weather	12	3½	9	5	29½	28.00%
Days Lost-Mech.				2½	2½	2.30%
Days Lost-Illness			3		3	2.80%
Days Lost Camp Move	7		3		10	9.40%

SUMMARY: YUKON PROJECT

Machine	CF-NIS
Possible Days	106
Operating Days	61
Total Hours	305:15
Av. Hours Per Day	5
Total Square Miles	9,500
Av. Square Miles Per Day	155.7
Av. Square Miles Per Hour	31.1
Cost Per Square Mile	

PREVIOUS WORK:

The geological survey has mapped part of the prospected area and some of the work of two other exploration companies was made available.

The Geological Survey of Canada mapped the Quiet Lake, Finlayson Lake sheets in 1956, 1958 and 1959. J. O. Wheeler, L. H. Green, and J. A. Roddick produced combined maps Nos. 8-1960 and 7-1960 on a scale of 1 inch to 4 miles. Geological work, done by Cantung Mines and Phelps Dodge Corporation as well as unpublished data by the Geological Survey of Canada on the Frances Lake Area, was obtained for the author by Mr. Gordon Brown.

Reference was made to the following authors in the compilation of this report:

3(1) Skinner, R. Mineral Industry of Yukon Territory and Southwestern District of Mackenzie.

1 Gabrielse, H. and Wheeler, J. O., Tectonic Framework of Southern Yukon and Northwestern British Columbia.

2 Poole, W. H., Green, L. H., and Wheeler, J. O. Geology Map Wolf Lake Area (with marginal notes.)

GENERAL:

Possible economic deposits of gold, lead, zinc, silver and copper occur within this area as indicated by assay and plans given in the following reoprt. The block contains 9,500 quare miles, bounded by latitudes 61° N - 62° N and longitudes 128° W - 134° W, located 80 to 90 air miles north of the Alaska Highway in the southeast Yukon Territory.

TOPOGRAPHY:

The area encompasses part of the Pelly and Logan Mountains which are separated by the relatively broad Frances River and Yusezyu River Valleys. The Pelly Mountains west of Frances Lake are generally smooth and rounded by erosion. Locally conical peaks rise to an elevation of 7,600 feet to produce a relief of 2,000 to 3,000 feet. The valleys are roughly U-shaped and glacial debris covers low hills and valley bottoms.

The Logan Mountains are more rugged than the Pelly and rise to a maximum elevation of 8,437 feet. Valleys are relatively narrow with steep walls and local relief reaches 4,500 feet. Alpine glaciation has produced deep cirques, some of which contain permanent glaciers.

GENERAL GEOLOGY:

Lithology and Structure

The area is underlain by Palaeozoic, Mesozoic, Cenozoic and possible Precambrian rocks which outcrop in six northwest trending structural belts. These so-called belts are partially due to erosion but each has distinctive features of lithology or structural geometry. The Palaeozoic sediments and volcanics along with the gneisses and schists received most attention from prospectors and geology parties for they are host rocks to the economic mineralization. Certain economic minerals were found to be associated with a definite age and type of rock. Lead, silver, zinc, for example, is found mainly in lower Cambrian limestone.

The table of formations below gives a summary of the lithology as found on the maps accompanying this report.

TABLE OF FORMATIONS

Cenozoic	Tertiary 11	Dark brown and black basalt
	Paleocene 10	Shale, sandstone & conglomerates

TABLE OF FORMATIONS

Mesozoic	Jurrassic Red	Biotite granodiorite, granite and diorite
Palaeozoic	Mississippian 8	grey current bedded limestone and dolomite
	7(hatched)	hornblende, syenite & diorite
	6	6a altered andesite & ash 6b greywacke 6c felsic breccia & tuff
	5	5a grey slate & limestone
	Silurian- Devonian	4a buff dolomite & limestone
	Ordovician Silurian	3a grey phyllite 4 grit and shale
	Middle Cambrian	2a grey & buff phyllite 2b limestone
	Lower Cambrian	1a grey phyllite 1b limestone 1c quartzite
	A	quartzite biotite gneiss & schist
	B	limestone
	C	granitoid gneiss & biotite gneiss
	D	ultrabasic rocks, peridotite pyroxenite & serpentinite

The structural belts mentioned above trend roughly northwest parallel or subparallel to the Tintina Fault zone. They can be listed from west to east through the centre of the map area as:

(1) The belt of faulted and folded Palaeozoic rocks between Lapie Lakes and the Tintina Fault.

(2) A band of gneisses and schists between the Tintina fault and a line passing through Wolverine Lake.

(3) A relatively undeformed belt of Mississippian volcanics and sediments between Wolverine Lake and the Logan Mountains.

(4) A curved belt of intrusives with patches of sediment extending from McEvoy Lake into the mountains east of Frances Lake.

(5) The thrusted and folded Cambro-Mississippian belt northeast of the Hyland River.

Two map sheets extend westward to cover part of the gneissic terrain of the Pelly Mountains.

The most important belts for economic mineralization are composed of Palaeozoic sediments intruded by bodies of granitic and basic rocks. The Logan Mountains and the Lapie Lakes-Tintina fault belts are therefore the most favorable areas.

Belt 1

The Palaeozoic rocks southwest of the Tintina fault can be related to two zones separated by the Porcupine thrust. The structure southwest of the Porcupine is characterized by low angle thrusts directed toward the northeast. The relatively competent Silurian-Devonian strata have been subject to early overthrusting, whereby they now overlie the Cambrian and Mississippian phyllites. Subsequent folding and block faulting have produced a flexural type fold structure modified by NW and NE trending normal faults. Elongated blocks of Silurian and Devonian sediments are the only remnants of the overthrust sheets.

Northeast of the Porcupine thrust the structures are characterised by steep dips, tight folds, and fault slices. A secondary foliation has obliterated the bedding so that structures are difficult to trace on surface. Structures of this type extend along the Tintina fault from Black Lakes in the southeast to the northwest boundary near the settlement of Ross River.

Intrusive into the Palaeozoic sediments and volcanics are a number of stocks of granodiorite and hornblende syenite which make up about 5% of the exposure. These intrusives appear to be a major control of sulphide mineralization in the belt for significant showings of lead, zinc, silver and molybdenite occur in the sediments at their margins.

Belt 4

Granodiorite intrusions of batholitic proportions form a core for the Logan Mountains - McEvoy Lake belt. Palaeozoic sediments and metasediments outcrop in irregular patches at the margins and within the granodiorite, save for the northwest end of the belt. Northwest of McEvoy Lake an elongated intrusive of granodiorite forms the core of an arch. Relatively narrow bands of Cambrian, Silurian and Mississippian sediments outcrop parallel to the axis of the arch. The sediments in the belt generally show a flexural type of folding but faulting on a large scale is generally absent.

Belt 2

Biotite gneisses, schists and quartzite rank second in importance as hosts of economic mineralization. The 16 mile wide belt northeast of the Tintina fault which extends from Ross River in the northwest to the Tuchitua River in the southeast represents the largest block of gneiss in the map area. The rocks generally have a high quartz-feldspar content and show minor shearing and fracture. Recumbent and isoclinal folds display no definite pattern and appear to originate at the margins of granodiorite intrusions.

Secondary alteration such as carbonitization, chloritization or sericitization is minor compared to similar rocks in the Canadian sheild. Chlorite schist is the host of copper mineralization northeast of Fire Lake and several sericite and talc bodies were found in the belt. However, such bodies are confined only to rocks which have been subjected to faulting and are an exception rather than of widespread occurrence.

The granodiorites within the gneisses and schists is at least partially of metasomatic origin. The plutons weather a dirty grey and contain patches of biotite gneiss in contrast to intrusives in the Palaeozoic which weather grey-white and are generally massive.

Ultra basic rocks are confined to the gneiss and schist belt. Several stocks and sills of pyroxenite, peridotite and serpentinite are exposed around Fire Lake and northwest. Chrysotile and fibrous pyroxenes are present in only small amounts where the ultrabasics have been sheared.

The Fox Creek and Lapie Lakes sheets are underlain by similar gneissic terrain at the west end of the area.

Belt 3

Mississippian volcanics and sediments underlie a broad area between the Logan Mountains and the Tintina gneiss and schist belt. This belt of Mississippian extends from Frances Lake in the southeast to the settlement of Ross River in the northwest. The rocks generally show low dips to the southwest and are believed to lie unconformably on the gneisses and schists. Little secondary alteration and no significant economic mineralization was found in the block.

Belt 5

Northeast of the Hyland River the Palaeozoic sediments have been subjected to severe thrusting. Contorted thrust sheets of Cambrian 4 or 5 miles long outcrop on the Upper Hyland River sheet. In spite of this intense deformation the grade of regional metamorphism is below the chlorite facies. Little secondary alteration is evident and no economic mineralization was found in the belt.

Regional Faulting

The Tintina fault is the most prominent structural feature in the map area. It is marked by a linear trench-like valley which enters the area near the northwest corner and extends southeast towards Watson Lake where it is believed to join the Rocky Mountain trench. The fault is believed to be of the transcurrent type for Palaeozoic rocks of the same age appear on either side of the fault but not directly opposite each other. More work will have to be done along the fault before its exact nature is understood.

The St. Cyr and Porcupine faults are probably related to a later period of movement than that which formed the Tintina trench. The Porcupine thrust is exposed northeast of Porcupine Creek where Devonian limestones have been thrust over the Mississippian. The St. Cyr fault is marked by fractured bands of red Cambrian phyllite. Neither fault shows economic mineralization along strike.

The Seagull fault and the normal northeast trending faults in the Palaeozoic were probably formed after the Porcupine thrust due to release of pressure. Small faults with similar strikes are found associated with mineralization at the Tintina Mines Silver property and also on a copper property northeast of Fire Lake.

Mineralisation

Iron sulphide gossans are quite common in the sediments and metasediments especially at the margins of granodiorite masses. Disseminated pyrite and/or pyrrhotite generally contain 1 - 2% iron sulphides which replace a variety of host rocks.

Veins of massive pyrrhotite and pyrite are confined mainly to gneiss and schist terrains. Both types of sulphide body have a capping of red-brown limonite due to leaching. It was found that bodies in which pyrrhotite predominates weather chocolate brown while those with a high percentage of pyrite weather a red-brown. The gossan cappings are generally thinner and more widely disseminated than those in the Canadian Shield due to rapid erosion.

Amphibole and pyroxene skarns with pyrrhotite form most readily from impure limestones of Cambrian age. Most of the skarn bands lie within phyllite at the margins of granodiorite intrusives. Near Canol Mines on the McConnell River sheet limestones show progressive metamorphism from impure carbonates to skarn. These skarns are the host of minor molybdenite mineralization. In the Logan Mountains and at Tintina Silver Mines similar skarns are the host of lead zinc silver mineralization. No skarn bodies were noted in relatively pure Mississippian and Silurian limestone, even at the margins of granodiorites.

Secondary alteration zones around sulphide gossans and skarn are generally confined to those bodies which contain economic sulphides. Pyritization and silicification of phyllite has taken place adjacent to lead zinc silver skarn bodies. Chloritization of phyllite and metasediments was noted adjacent to chalcopyrite bearing bodies northeast of Fire Lake.

Gold
Ketza River:

Significant gold values are present in flat lying lenses of massive pyrrhotite and arsenopyrite on the Fury Claim Group in the Upper Ketza River. Arsenopyrite has replaced pyrrhotite in the lenses which are generally less than 1 foot thick. The sulphide bodies have a length of 800 feet on strike and have been diamond drilled by Conwest Exploration.

No other significant occurrences of gold were found in the map area.

Lead, Zinc, Silver

Two showings of lead, zinc, silver mineralization in the map area and one outside the area at the JP claims, were examined during this survey.

Tillie Lake Sheet:

The VAN Group consisting of 48 contiguous mineral claims, covers several skarn bodies, from which samples have assayed as high as .47% copper, 2.81% lead, 5.11% zinc, 2.93 oz./ton silver and a trace of gold. The skarns are situated at an elevation of 6,000 feet adjacent to a contact between granodiorite and Cambrian sediments. The sulphide bodies examined on surface are small but they may be surface expression of a larger replacement body.

Junkers Lake Sheet:

Galena, sphalerite and tetrahedrite replace impure Cambrian limestone near a contact with granodiorite on Tintina Silver Mines EAGLE Group. Ten percent lead, zinc and 400 oz./ton of silver were reported from surface showings. The sulphide bodies are lens-like and have a rather irregular distribution along strike.

An adit driven to intersect two of the sulphide lenses at depth showed only minor sulphides. However, subsequent mapping has revealed new mineralization which may be of interest.

Stewart Lake:

On the PJ and JP Claim groups 10 miles southwest of Stewart Lake several skarn bands contain lead-zinc sulphides. Ten percent galena and 25% sphalerite have replaced calc silicates and carbonates in bands up to 5 ft. wide. The host rock of the skarns is a dark grey phyllite.

Stripping has exposed the lenses for 170 ft. on strike but little is known of the regional setting for overburden covers 80% of the area.

Copper

No significant copper mineralization was discovered during the season outside of minor showings on the VAN Group. However, significant occurrences were examined on the Ketza River and Fire Lake map sheets.

Fire Lake Sheet:

Chalcopyrite and pyrite occur in chlorite schist along a fault

zone on the TOP Group at Fire Lake. The mineralization is at least 4 feet wide and extends for 900 ft. on strike. Assays from core and surface show that up to 1.44% copper is present in the zone. Only minor iron sulphide gossans indicate the position of the surface showing.

Ketza River Sheet:

Chalcopyrite and pyrrhotite replace impure Cambrian limestone on the Penguin group at the head of the Ketza River. The sulphides occur in lenses which are generally less than 15 ft. thick and have an exposed length of 500 ft. Chalcopyrite makes up less than 1% of the sulphides in hand specimen.

Molybdenum and Tungsten

Molybdenite and scheelite are disseminated in skarn and granodiorite on the TIME Claims at the north end of the McConnell River sheet. Five to eight percent molybdenite is localized along fractures in both host rocks. Mineral-light tests show that 1 - 2% scheelite is present in the skarn.

The body has been explored by at least 1,500 feet of adit plus surface trenches.

CONCLUSIONS:

The alteration zones around granodiorite intrusions encompass most of the economic mineralization in the area. However, these zones are not extensive and contain only minor amounts of impure Cambrian limestone which is the main host for replacement bodies. Although there are several interesting showings of the replacement type in contact zones none are large enough to be mined.

Furthermore there is a general lack of secondary alteration and mineralization along fault zones that could be the hosts of economic deposits.

Of the mineralized showings found and examined during the season only those on the VAN Group warrant further surface prospecting and mapping.

FOX CREEK SHEET By H. Squair

DATA:

1 Mile Sheet 105 F - NW
Lat. 61° 45'N - 62° N

½ Mile Sheet 105 F - 14
Long. 133° W - 133° 30' W

Outcrop Area 45%

Claim Groups Nil

GENERAL GEOLOGY

(1) Lithology and Structure

The sheet is situated between the northeast Pelly Mountains and the Tintina Fault zone. 70% of the map is underlain by faulted and folded Palaeozoic sediments, while the remaining 30% is biotite, gneiss, quartzite and schist with accompanying granitic intrusives.

Approximately half of the Palaeozoic rock is Cambrian limestone and phyllite which is concentrated in the southeast corner of the map. The Cambrian appears to be thrust over the gneisses and schists to the west, but show little internal deformation.

Silurian limestone and Mississippian shale in the northeast corner of the map appear as linear slices in fault contact. Internal deformation in the shale is intense while the dolomites appear as rigid blocks with little internal folding. All formations however, are deformed by thrust and normal faults, which can be divided into two systems. In general the thrust faults strike northwest and dip northeast at a low angle, while normal faults are steep dipping and strike northeast.

Axial traces of folds are difficult to recognize due to superposition of faults. The Palaeozoic sediments show no alteration such as sericitization or iron staining except at the margins of the granodiorite stock.

One small stock of granodiorite intrudes the Cambrian near the east margin of the sheet. The metamorphic aureole associated with the sheet contains several small pyrite gossans.

The structure of the gneisses and schists at the west margin of the sheet is controlled by granodiorite intrusions some of which are of batholithic proportions. The gneisses adjacent to the granodiorite generally dip steeply while those in contact with the Palaeozoic have dips of 50° or less.

The quartzites and gneisses show little fracturing or shearing. Sulphide mineralization, where present, follows the foliation or remnants of bedding.

The granodiorite stocks and batholiths are in part concordant bodies and may be partially metosomatic in origin. Unlike the Junkers Lake stock they contain remnants of biotite gneiss and quartzite. No porphyritic phases were encountered. The granodiorite underlies 15% of the total area and usually stands out as topographic highs.

MINERALIZATION

Most of the mineralization on the sheet is situated adjacent to granodiorite bodies in gneiss and schist. At Stop 45 a lens-like gossan 400 x 2 ft. follows the foliation of the gneiss. The gossan is due to the weathering of pyrrhotite which makes up 2% of the total mineral present. A sample from the gossan assayed 0.24 copper. Other gossans and stains in the gneiss were found to be due to the weathering of pyrite and large flakes of biotite.

At stop 51 a small dike of granodiorite with attendant quartz veins shows gossan stain at its margin. The gossan which measures 200 x 10 feet is due to the weathering of pyrrhotite. A 0.19% copper assay was obtained from this gossan. Near Barite Mountain a prospecting party found float containing white barite. However, no barite bearing beds were noted from the air.

RECOMMENDATIONS

No further work is recommended on the sheet for the 1963 field season.

APPENDIX: Assay Results for Fox Creek Sheet

Stop #	Assay No.	Assay Cu	Au	Ag	Mineralization	Dimensions	Strike	Host Rock
45	3785	.24			1% Pyrrhotite	400x2 ft.	N40N 70NE	Bio Gneiss
51	3789	.19			2% Pyrrhotite	120x5 ft.	N50N 40NE	Limestone

LAPIE LAKES SHEET

By H. Squair

DATA:

1 Mile Sheet 105 F - NW
Lat. 61° 30' N - 61° 45' N

½ Mile Sheet 105 F - 11
Long. 133° W - 133° 30' W

Outcrop Area - 45%

GENERAL GEOLOGY:

(1) Lithology and Structure

The sheet is situated on the northeast side of the Pelly Mountains along the Canol Road. The geology is divided by a zone of faulting into two distinct geological terrains.

Sixty-five percent of the outcrop is made up of gneisses, schists and quartzite with attendant granitic intrusions. The remaining 30% of outcrop is cambrian limestone, phyllites and volcanics.

The cambrian is in fault contact with the gneisses and schist to the west but little direct evidence of thrusting was noted. Internal deformation in the cambrian is not as intense as it is in the adjacent sheet to the north which contains the Tintina Fault zone. There is little change in strike and dip of beds across the sheet. However, faulting again makes it difficult to determine actual traces of folds.

Bands of limestone designated ld on the accompanying maps appear as competent blocks within the phyllite and volcanics.

The structure of the schist and gneisses is controlled by batholitic granodiorite intrusions as on the Fox Creek sheet. The dips of the foliation are as a rule much steeper than in the Palaeozoic sediments. The change in strike and dip of foliation and the difference in grade of metamorphism between the two terrains is the best evidence of the existance of a fault contact between them. The gneisses and quartzites are generally devoid of shearing and fracturing. Gossan zones, where present, are concordant with the dip and strike or bedding remnants.

The granodiorites are in part concordant and weather a dirty grey in contrast to those around Tillie Lake or the Junkers Lake stock. Remnants of gneiss and schist are present within the granodiorite as on the Fox Creek sheet.

The Mississippian shale recorded by the Geological Survey in the south-west corner of the sheet could not be recognized from the air due to overburden which covers the south slopes adjacent to the Salmon River.

(2) Mineralization

Sulphide mineralization is generally confined to the gneisses and schists adjacent to granodiorite intrusives. The gossans are lens-like bodies of

disseminated pyrite and pyrrhotite which parrallel the foliation of the gneisses. These hosts however, appear to be too massive and unfractured for extensive sulphide replacement.

At Stop 11A a vein of massive pyrrhotite-pyrite with minor chalcopyrite measures 20 x 2 feet. Assays from the vein gave 0.06% copper.

At Stop 41 a white quartz vein 200 x 2 feet intrudes cambrian andesite and phyllite. Pyrite, 1% chalcopyrite and malachite are visible in hand specimens. One assay from the vein shows 0.06% copper and 0.80 ozs. of silver.

RECOMMENDATIONS

No further work is recommended on this sheet in 1963.

APPENDIX: Assay Results Lapie Lakes Sheet

Stop #	No.	Assays Cu	Au	Ag	Mineralization	Dimensions	Strike/ Dip	Host Rock
41	3704	.06	.01	.00	Chalcopyrite 2% Pyrite	200x2	N80W 40SW	Qtz. Vein
43	3786	.24			Pyrite 2%	75x4	N60W 72NE	Biotite Gneiss
11A	3787	.06			Chalco Pyrrhotite Pyrite	20x2		Biotite Metased
44	3786	.02	-	-	Pyrrhotite			Biotite Gneiss

LAPIE RIVER SHEET

By H. Squair

DATA:

1 Mile Sheet 105 F - NE
Lat. 61° 45 N - 62° N

½ Mile Sheet 105 F - 15
Long. 132° 30 W - 133° W

Outcrop Area 40 %

Claim Groups: Fox, Lapie

GENERAL GEOLOGY

(1) Lithology and Structure

Ninety percent of the sheet is underlain by Cambrian, Silurian and Mississippian sediments which make up part of a highly deformed belt paralleling the southwest side of the Tintina fault. Most of the remaining area is underlain by gneisses, schists and palaocene shales which are poorly exposed.

Cambrian, ordovician and Mississippian shales and phyllites account for one-half the rock types on the sheet. They outcrop in linear belts which roughly parallel the northwest trending Tintina Fault. Shearing and thrusting are the most notable forms of deformation in the belts. Bedding plane movements can be recognized on a minor scale by slickenside structures. Major faulting can generally be recognized by bands of red phyllite which parallel their margins. The red phyllites show intense shearing and a trellis fracture pattern. Jet black phyllites which as a rule lie within the fault zone show intense shearing. Black and red phyllites not associated with faulting show only weak shear deformation.

Only minor folding could be recognized within the phyllites along the Tintina fault.

The shales and phyllites show a low grade of metamorphism and a general lack of alteration such as iron stain or carbonatization.

Silurian devorian dolomites and limestone occur as more competent slices within the shales and phyllites. Folds within the dolomite are of the flexure type with gentle dips on the limbs. A good example of this type of folding can be seen northeast of Porcupine Creek. The block of Silurian dolomite which lies on Mississippian shale has been warped to an open syncline, of which axial trace can be followed for six or eight miles.

Thrust and tear faults generally occur at the margins of the dolomite. The Porcupine Thrust which lies just north of Porcupine Creek separates the Silurian dolomite from Mississippian shale. Isolated patches of dolomite northeast of the Porcupine Thrust possibly represent autochothenous blocks from the thrust.

One small patch of Mississippian greywacke lies on top of shale at thesouth boundary of the sheet. The greywacke is massive, thick bedded and shows minor iron stain.

One small stock of granodiorite pierces the Cambrian sediments near the west boundary of the sheet. The associated metamorphic aureole contains several pyrite gossans but no economic mineralization was found.

(2) Mineralization

The lead mineralization noted on the sheet by the Geological Survey of Canada could not be located from the air or on the ground. The only sulphide mineralization encountered was in the metamorphic-aureole adjacent to the granodiorite stock. Several gossans up to 100 feet in length parallel the foliation of biotite gneiss. The gossans are due to the weathering of pyrite and pyrrhotite. Ultra-violet light tests showed no scheelite to be present.

At the old Gordon Shirley claim group on the Canol Road several white quartz veins follow the bedding of a black phyllite. The veins are generally less than 10 feet long and 1 foot wide. One assay ran a trace of gold and 0.58 ounces of silver.

At stop 30 one quartz carbonate vein 30 feet wide and at least 150 feet long assayed 0.13 ounces of silver and a trace of gold.

(3) Recommendations:

No further work is recommended on the sheet for the 1963 field season.

NOTE: Results of the geochemical reconnaisance survey on the sheet are discussed at the back of this report.

REPORT ON THE FOX & LAPIE CLAIM GROUPS

LAPIE RIVER SHEET

By: J. A. Apps
July 15, 1962

PROPERTY:

The Fox and Lapie Groups consist of 18 mineral claims covering approximately 12 square miles along the Canol Road. (Lat. 61° 53 N. Long. 132° 52 W). The Fox group contained fourteen claims while the Lapie Group contained four claims (Nos. 795806, 75911 - 13). Both groups have now lapsed.

LOCATION AND ACCESS:

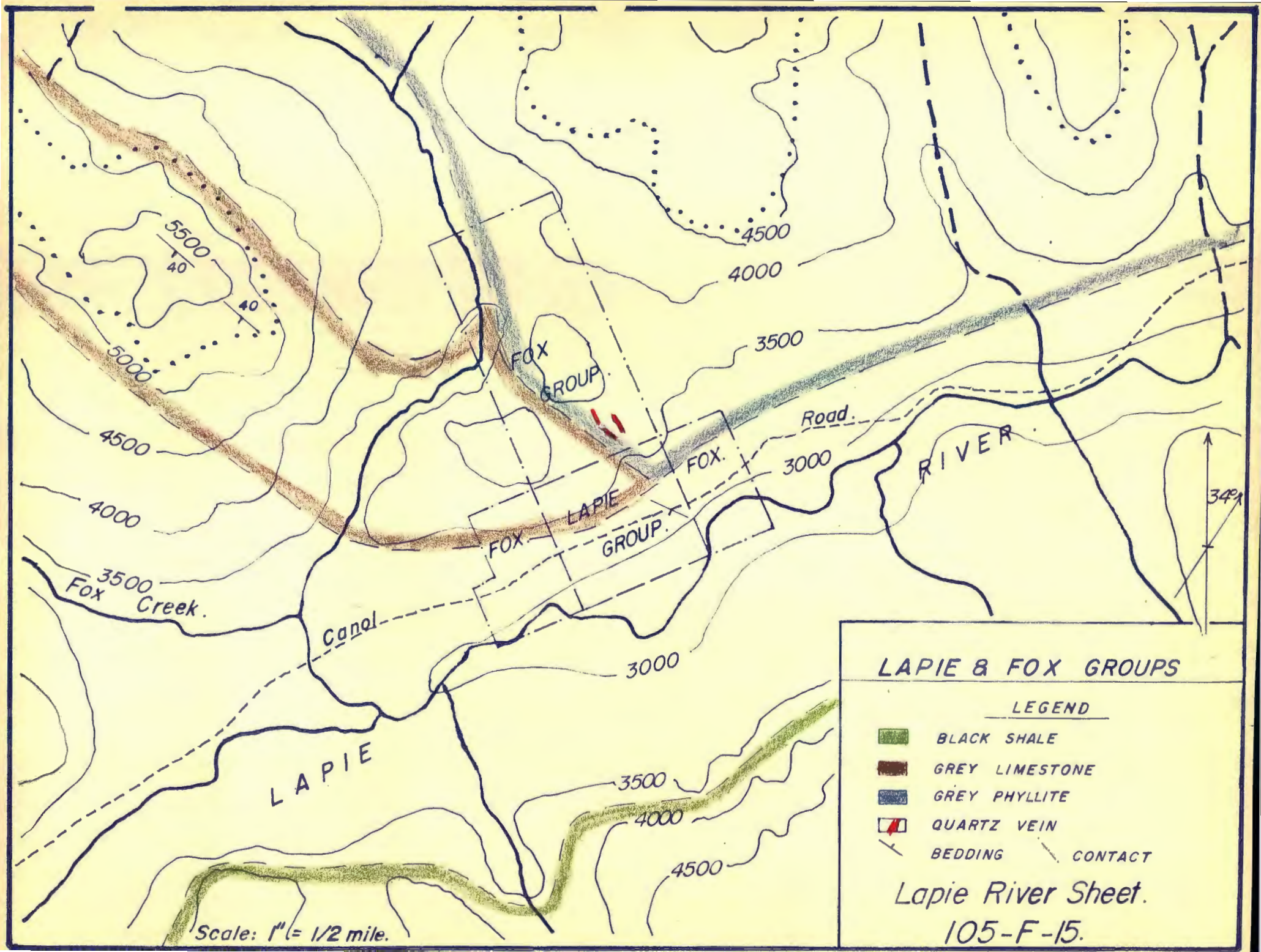
The groups are located on the Canol Road some 40 miles southwest of the settlement of Ross River, Y.T. They are accessible by road from Ross River and the Alaska Highway.

OWNERSHIP AND PREVIOUS HISTORY:

The claims were owned by W. C. Carson but were allowed to lapse July 13, 1962. No assessment work has been performed on the properties.

GEOLOGY:

The rocks on the claims consist dominantly of pale phyllites and slates whose cleavage strikes at 290° - 300° and dips south of 60 - 70°. Few outcrops occur, the greater part of the property being covered with timber or scree. Quartz carbonate floats weathering from small veins (up to 6" wide) scatter the slopes. No economic mineralization of any kind was found, even though lead mineralization was reported by the Geological Survey of Canada.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LAPIE & FOX GROUPS
LEGEND
BLACK SHALE
GREY LIMESTONE
GREY PHYLLITE
QUARTZ VEIN
BEDDING
CONTACT
Lapie River Sheet.
105-F-15.

APPENDIX: Assay Results Lapie River Sheet

Stop #	Assay No.	Cu	Au	Ag	Mineralization	Dimensions	Strike/ Dip	Host Rock
30	3772	-	Tr	.13	Qtz. Carbonate	150x30 ft.		Qtz. Carb. Vein
53	3791	Mo	-	?	1% Pyrite Pyrrhotite			Biotite Gneiss
	3800	-	Tr	.58		10x1 ft.		Qtz. vein in Phyllite
	(Gordon Shirley Claim Group)							
GEOCHEM LOCALITY T (Ram Creek)								
	3842	Tr	-	Nil	1% Pyrite			Float.

SEAGULL CREEK SHEET

By: H. Squair

DATA:
1 Mile Sheet 105 F - NE
Lat. 61° 30' N 61° 45' N
Outcrop Area: 65%
Claim Groups: TET, HYDEN

½ Mile Sheet 105 F - 10
Long. 132° 30' W - 133° W

GENERAL GEOLOGY:

The sheet is situated between the Pelly Mountains and the intensely deformed Palaeozoic rocks along the Tintina Fault zone. The Seagull fault divides the map area into two structurally different portions. The Mississippian strata northeast of the Seagull fault show more intense block-faulting and folding than the Cambrian southwest of Seagull Creek.

Middle Cambrian grey phyllite and quartzite underlie most of the southwest portion of the map. The rocks have been folded to a series of anticlines and synclines whose axial traces are partially obliterated by a foliation that cuts across the bedding. The sediments generally show little secondary alteration such as chloritization but several pyrite gossans were found.

The linear block of middle Cambrian southwest of the Porcupine thrust consist of dark phyllite and shale.

Mississippian andesite, ashrock and phyllite underlie most of the northeast half of the sheet. The volcanics are relatively competent and show little internal deformation. The rocks weather a dirty grey and have undergone only slight secondary alteration, namely pyritization. The ashrocks have a rather sygmoidal type of foliation which distinguishes them from dark phyllites and flows.

The volcanics are the host of pyrite mineralization, some of which may be primary in origin. The pyrite is confined mainly to ashrock and tuff near the margins of syenite stock.

The Mississippian phyllite and shale are less competent than the volcanics. They weather dark grey to black and form the footwall of the Porcupine thrust. The sediments have been tightly folded but the axial traces are difficult or impossible to trace from the air due to simple lithology. Internal deformation in the form of small shears is pronounced especially near the Porcupine thrust. The shales and phyllites contain no sulphide mineralization of note.

Devonian-Silurian limestones and dolomite occur in isolated linear blocks scattered across the sheet. Some of the blocks are products of thrust and reverse faulting, especially on the northeast side of the Seagull Creek. The carbonates have been flexed to form open folds but little internal deformation is present. A synclinal axis northeast of the Porcupine thrust can be traced for over a mile in the carbonates.

The Devonian dolomites show no tendency to metamorphose to skarn as those of Cambrian age. They generally weather red to buff and show only minor secondary alterations.

Several horneblende syenite stocks intrude the Mississippian on the northeast side of Seagull Creek. These intrusives weather dirty grey to green and appear massive. Green horneblende, 40% white feldspar, minor chlorite and magnetite were observed in hand specimens. Three of the stocks shown on the G.S.C. map were not found due possibly to overburden. The syenite may be the control of lead-silver mineralization found on the sheet.

One stock of granodiorite intrudes the Cambrian on the southwest corner of the sheet. The rock weathers dirty grey and contains inclusives of biotite gneiss. The rock has a foliation similar to the intrusives on the Lapie Lakes sheet.

The Seagull fault zone was not observed on surface. It is probably a reverse fault which lifted the Cambrian to the same elevation as the younger Mississippian. Subsequent erosion has removed the Mississippian and part of the Devonian limestone from the middle Cambrian.

MINERALIZATION:

Lead-silver mineralization occurs on the TET Group west of Seagull Creek. A vein of massive galena with chalcopyrite, quartz and calcite lies in a host of Devonian limestone. The vein extends for over 100 feet on strike and has an average width of 1 foot. Assays from the vein indicate that over 40 oz. per ton of silver are present but no silver minerals were noted in hand specimens.

At Stop 38 on the west side of the TET Group are several quartz veins which contain 10% galena, 5% sphalerite and pyrite. The veins have an irregular strike and are generally less than 100 feet long. The host rock is Devonian limestone. Samples from the veins indicate that 6 oz. per ton of silver, 12% galena and 5% sphalerite are present.

A typical pyrite gossan in Mississippian volcanics outcrops near Stop 16. A band of rhyolite some 30 feet thick contains 1% pyrite and is exposed for 700 feet on strike. One grab sample from the gossan assayed a trace of copper and no gold or silver.

In a velley on the west side of McConnell Creek several veins of massive pyrrhotite were found in Mississippian volcanics. The veins were generally less than 1 foot wide and contain no economic sulphides. Samples (3836 - 3841) were taken to check geochemical results but assays indicate that only .90 oz. per ton of silver and a trace of zinc is present. It is reported that a small showing of lead silver has subsequently been made in the upper reaches of the creek.

Assays from other Stops are given in the Appendix to this report. The sulphides mineralization is generally erratic and of too low grade to be of economic value.

RECOMMENDATIONS:

No further work is recommended on the sheet for the 1963 field season.

REPORT ON THE TET CLAIM GROUP

SEAGULL CREEK SHEET

By: J. A. Apps

July 4, 1962

PROPERTY:

The TET Group consists of four mineral claims (Nos. 72817 - 72823) which cover approximately 100 acres 1½ miles west of Seagull Creek on the Seagull Creek map sheet.

LOCATION AND ACCESS:

T The claims lie at an elevation of 5,500 ft. on the mountains 1½ miles west of Seagull Creek. The group is accessible by float equipped aircraft from Watson Lake to a small lake on Seagull Creek and hence by bush trail to the claims.

OWNERSHIP AND WORK PERFORMED:

The group is owned by British Yukon Explorations and expires October 2, 1962. Nine excavations were located on the claims. The accompanying plan shows their disposition relative to each other. From an examination, it appears that a small vein of galena was encountered in Trenches 1, 3, 4, 6 and 7. Trenches 2 and 5 were probably diamond drill hole sites and Trench No. 9 was excavated for the purpose of drilling a boxhole dipping at approximately 20° on a bearing of approximately 92°.

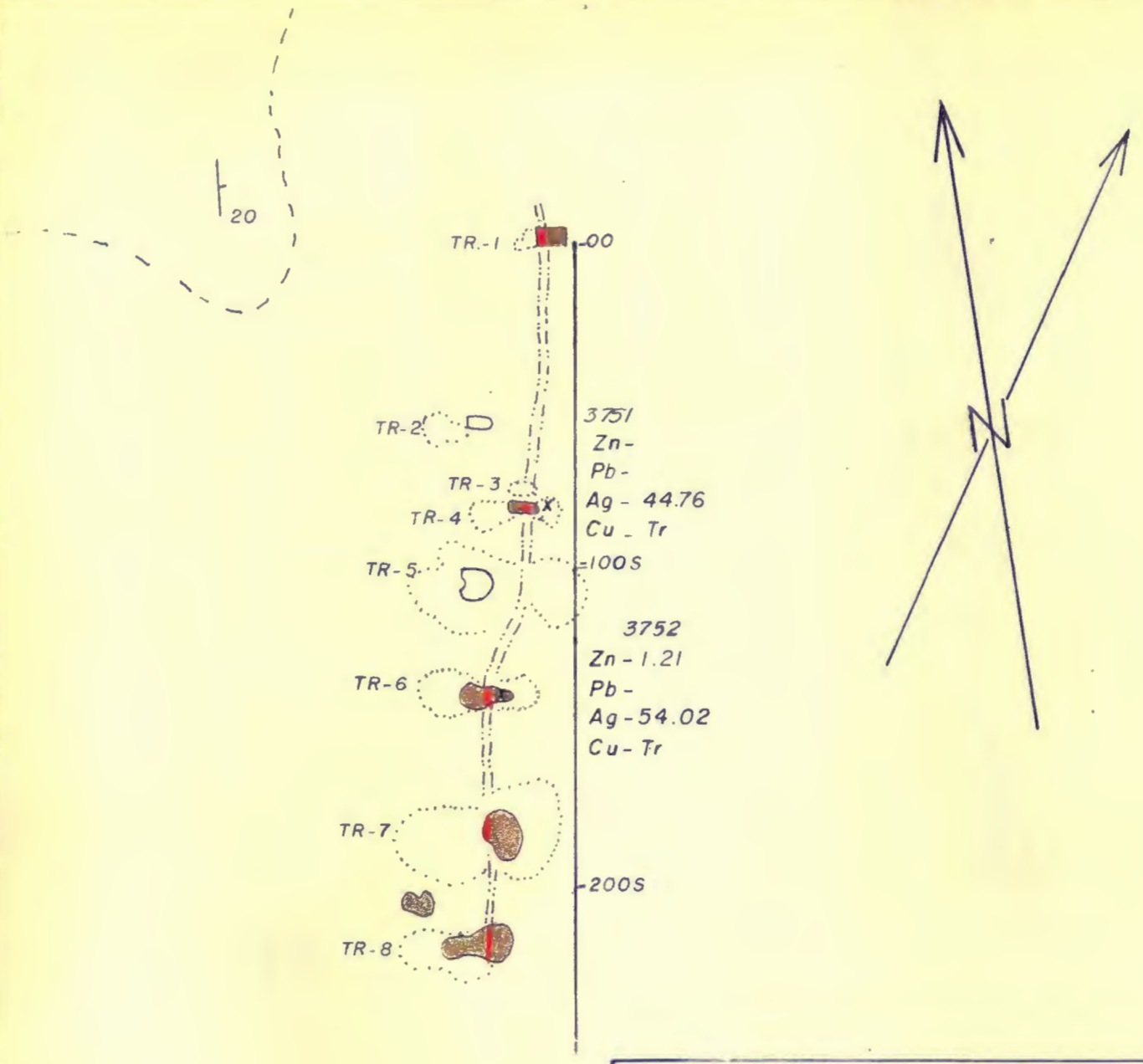
All trenches have caved to a varying degree and no vein material was exposed in situ. In Trench No. 7, massive galena encountered on the floor suggests that the vein may attain a width of approximately 1 foot. About 5 tons of massive galena had been excavated from this Trench. Samples for assay were taken from Trenches 4, 6 and 7 (Nos. 3751, 52 and 53 respectively).

GEOLOGY: (Lead as galena)
(Copper as chalcopyrite)

The vein of galena on a steep west facing slope is Devonian-Silurian massive fossiliferous limestones which strike approximately north-south and dip at 10 - 20° East. The vein strikes on a bearing of 193° and extends for 200 feet. The dip is unknown but may be steep (i.e. 780°). The maximum width probably does not greatly exceed 1 foot.

The subsoil and rocks on the slope are subject to soil creep to a depth of over 6 feet; trenches, therefore do not present a true picture of the surface geology in the locality of the vein.

Vein material consists of quartz, some calcite and massive, slightly sheared steel galena. Traces of chalcopyrite occur in the massive galena.



GIANT YELLOWKNIFE MINES LTD.

SHOWING 1

TET CLAIM GROUP

SEAGULL CREEK SHEET

LEGEND

- GREY LIMESTONE
- QUARTZ CALCITE GALENA VEIN
- BEDDING
- TRENCH

SCALE 1 inch = 50 feet

REPORT ON THE HAYDN CLAIM GROUP

SEAGULL CREEK SHEET

By: J. A. Apps

July 4, 1962.

PROPERTY:

The HAYDN Group consists of six noncontiguous mineral claims which collectively cover 150 acres immediately west of Seagull Creek.

LOCATION AND ACCESS:

The claims lie in three separate blocks two of which are south of the TET Group west of Seagull Creek. The third block lies astride Seagull Creek near the south end of a small lake. The groups are accessible by float equipped aircraft from Watson Lake to the small lake on Seagull Creek and hence by bush trail to the various claims. The relative position of the claims is shown on the accompanying sketch.

OWNERSHIP AND WORK PERFORMED:

The claims were owned by British Yukon Exploration but have since lapsed. No work has been done on the group.

GEOLOGY:

Massive bedded Cambrian limestones dip gently (10 - 15°) towards the soutwest. Some iron staining was noted on the walls of the cirque, and accordingly, the float and scree at the foot of the cirque was examined for mineralization. Only barren quartz vein, quartz-carbonate vein and quartz-pyrite vein fragments were found.

APPENDIX: Assay Results Seagull Creek Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
#16	3755	Tr	-	-	-	-	Pyrite	700x30 ft.	N40W 65SW	Rhyolite
#17	3756	Mo-Tr		.78	-	-	Molybdenite	250x4 ft.		Skarn
#18	3757	-	-	.25	-	-	Vein Qtz. Pyrite	300x5 ft.		Sandstone
#25	3765	.01	-	-	-	-	1% Pyrite			Limestone
#26	3769	-	Tr.	-	-	-	Vein Qtz.	150x3 ft.		Blackslate
#38	3780	-	.05	6.03	15.38	5.51	Galena Sphalerite pyrite	400x5 ft.		Limestone
#38	3781	-	.06	4.20	11.91	10.24	Galena Sphalerite pyrite			Limestone
#38	3782	.14	.01	4055	1.06	-	Bornite Sphalerite Galena			Limestone
#39	3783	.93	-	-	-	-	Vein Qtz. Chalcopyrite	75x2 ft.		Limestone
	3761	Tr	-	-	-	-	Pyrite	300x30 ft.		Volcanic Ash
9A	3776	Tr	Tr	-	-	-				
F-G-2	3730	Tr	-	-	-	-	1% Pyrite			Volcanic Ash
	3777	Tr	Tr	-	-	-				
F.G-2	3729	-	-	Tr	-	-	Galena Vein Qtz.			Vein in Limestone
14A	3818	Tr	-	.49	-	-	Pyrite			Volcanic Ash
	3819	-	Tr	.20	-	-	1% Pyrite	GRAB		Andesitic Ash
	3820	-	Tr	.05	-	-	Pyrite	GRAB		Andesitic Ash

APPENDIX: Assay Results Seagull Creek Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
	3821	-	Nil	.61	-	-	Pyrite	GRAB		Andesite
	3822	-	Tr	.47	-	-	2% Pyrite	GRAB		Andesitic Ash
MR4	3778	Tr	Tr	-	-	-	2% Pyrite			Quartzite
54	3790	Tr	-	-	-	Tr	1% Pyrite			Quartzite
GEOCHEMICAL ASSAYS LOCALITY "C"										
	1387	-	-	-	-	.11				Black Shale
	1388	-	-	-	-	.14				" "
	1389	-	-	-	-	.16				" "
	1390	-	Tr	Tr	.10	.27				" "
	1391	-	-	-	-	1.04				" "
	1392	-	-	-	-	.66				" "
	1393	-	-	-	-	.27				" "
	1394	-	Tr	Tr	.88	.80				" "
	1394	-	Tr	Tr	.31	.25				" "
TET GROUP										
Trench or Showing	No.	Assay Cu	Au	Ag	Pb	Zn	Mineralization	Width		Host Rock
Tr-4	3751	Tr	-	44.76	-	-	Galena Pyrite	2 ft.		Limestone
Tr-6	3752	Tr	-	53.56	-	1.21	Galena Chalco	2.5 ft.		Limestone
HAYDN CLAIM										
	3758	Tr	-	.05	-	-	Pyrite			Quartz Float

APPENDIX:

Assay Results Seagull Creek Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
GEOCHEMICAL ASSAYS LOCALITY "H"										
	3836	-	Tr	.72	Tr	.05	Massive Pyrrhotite			
	3837	-	Tr	.52	Tr	-	Massive Pyrrhotite			
	3838	-	-	-	Tr	Tr	Massive Pyrrhotite			
	3839	-	-	.46	Tr	.05	Massive Pyrrhotite			
	3840	-	-	-	-	.05				Limestone
	3841	-	-	.90	Tr	.16	Massive Pyrrhotite			
LOCALITY "B"										
	1385	-	Tr	Tr	-	.16	1% Pyrite			Ash Rock
	1386	-	Tr	Tr	-	.14	Massive Pyrrhotite			Ash Rock Float

McCONNELL RIVER SHEET By: H. Squair

DATA:

1 Mile Sheet 105 F - SE
Lat. 61° 15' N - 61° 30' N

½ Mile Sheet 105 F - 7
Long. 132° 30' W - 133° W

Outcrop Area - 30%

Claim Groups: Time, Stormy, Strike, B.C., A, Bill

GENERAL GEOLOGY

(1) Lithology and Structures

The McConnell River sheet is situated at the west end of the Pelly Mountains. Biotite gneiss, and schist with attendant granodiorite account for sixty-five percent of the outcrop area. Most of the remaining outcrops are Cambrian, limestone and quartzite with minor biotite metasediment.

Internal structures of the biotite gneiss and schist are controlled by the adjacent granodiorite masses. The dips of the foliation are generally less than 50° remote from the granodiorite. Adjacent to the igneous bodies the foliation usually assumes an attitude to correspond with that of the contact. The granodiorite stock south of the Canol Mines adit is in part concordant with the foliation of adjoining sedments and gneisses. The dips of foliation correspond with the bedding on either side of the stock and the strikes are roughly parallel. The gneisses on the southwest side of the intrusive appear to underlie the granodiorite.

The gneisses and schists, unlike those on the Lapie Lake sheet, contain bands of grey limestone, which locally has been metamorphosed to a pyroxene skarn with 2% pyrrhotite.

The Cambrian sediments at the north boundary of the sheet are composed of biotite metasediment, phyllite limestone and quartzite. The relatively pure limestones within the Cambrian show few effects of metamorphism even adjacent to the granodiorite. Impure limestones however, have been altered to pyroxene skarns with attendant pyrrhotite adjacent to the granodiorite. Metamorphic minerals such as epidote and pyroxene are present in the carbonate rocks up to ½ mile from the contact. The impure limestones are hosts for tungsten molybdenium mineralization in the area.

At the northeast corner of the sheet is a small patch of Mississippian volcanic with several pyrite gossans. The granodiorites on the sheet appear to be of two types. The stock south of the Canol Mines property is in part porphyritic and weathers white. No inclusions of gneiss were noted. The batholith on the south west half of the sheet is generally even grained and weathers a dirty grey. Several inclusions of gneiss were noted. The stock at the northern margin of the sheet is believed to be intrusive while the batholith is in part metosomatic in origin.

Near the west boundary of the sheet two stocks of pyroxenite parallel the granoliorite batholith. The ultra basic, which underlies 1% of the total area, is generally coarse grained and shows no fibrous chrysotile as in similar bodies northeast of the Tintina fault.

(2) Mineralization

Molybdenium-tungsten mineralization is confined mainly to the contacts between granodiorite and Cambrian limestone at the north boundary of the sheet. At the Canol Mines property 0.3% scheelite, 0.5% molybdenite and attendant pyrrhotite are disseminated in both granodiorite and adjacent skarns. At 1,000 feet from the granodiorite limestone contact the skarn contains pyrrhotite and minor scheelite but no molybdenite. The latter skarns are generally lens-like bodies up to 700 feet long and 15 feet wide which are concordant with the surrounding limestone and biotite metasediment.

Small bodies of skarn are found within the biotite schist adjacent to the batholitic intrusive. At Stop F.G.-3 two bands of skarn less than 200 feet long and 5 feet wide contain pyrrhotite and traces of scheelite.

Sulphide mineralization outside of the skarn bodies is mainly confined to biotite schist and gneiss. At Stop 12A a vein of massive sulphides 50 feet long and 2 feet wide parallels the bedding of its biotite metasediment host. Pyrrhotite, 5% pyrite and minor chalcopyrite are the only visible sulphides. One sample from the vein assayed 0.31% copper.

RECOMMENDATIONS

Since the unstaked skarns and sulphides bodies on the sheet are small and of low grade no further work is recommended on the sheet for the 1963 field season.

REPORT ON THE TIME GROUP

McCONNELL RIVER SHEET

By: J. A. Apps

June 25, 1962

PROPERTY:

The TIME Group consists of 5 mineral claims (Nos. 73877-73882) covering 250 acres on Upper Sheep Creek.(Lat. 61° 29'30N - Long. 132° 48'W).

LOCATION AND ACCESS:

The claims lie at an elevation of 5,000 ft. at the upper end of Sheep Creek. Acess can be made by a 1¼ mile road from the Canol Road to the west. The Canol Road is passable by truck and the trip to the property could be made by jeep.

OWNERSHIP AND PREVIOUS HISTORY:

The claims are owned by Canol Metal Mines Limited and are due to expire October 6, 1964.

Work Performed on the Property

Five trenches have been dug on the flanks of the mountain at the head of the Upper Sheep Creek and over 1,000 ft. of underground workings have been driven. The accompanying plan depicts the layout and geology as exposed on the drives and crosscuts.

Geology

The molybdenum mineralization occurs adjacent to the northern contact of an easterly extension of the main granodiorite mass forming the core of the Pelley Mountains. The granodiorite has intruded a lower Cambrian limestone as a skarn zone 2 - 3 feet thick has developed along the contact. The contact strikes east-west and dips at between 5° and 40° to the south.

Underground Exploration

The economic mineralization consists of desseminated molybdenite crystal aggregates 2-5 mm in diameter, in a granodiorite matrix. Mineralization is frequently most intense adjacent to small faults, but otherwise there appears to be no other structural control. The main body occurs 30 feet away from the granodiorite skarn contact and in plan is irregular in shape. Dimensions are approximately 20 x 25 feet. There is evidence to suggest that the main body of mineralization plunges at a shallow angle towards the south, but such could be proved only by more extensive exploration.

The skarn contains disseminated pyrrhotite and scheelite. The scheelite is contaminated with molybdenium and occurs in negligible quantities.

Trenches

In three of the five trenches molybdenite is exposed in granodiorite or skarn. However, detailed examination has not been possible since the trenches were still filled with snow at the time of examination.

Summary

On the basis of existing evidence, both the molybdenium and scheelite mineralization appear to be too small to warrant further investigation.

REPORT ON THE STORMY GROUP
McCONNELL RIVER - SEAGULL CREEK SHEETS

By: H. Squair
July, 1962

PROPERTY:

The Stormy Group consists of 23 mineral claims No. 73482 - 73505 that cover approximately 1,100 acres on Upper Sheep Creek (Lat. 61° 30' - Long. 132° 46').

LOCATION AND ACCESS:

The claims are located at 6,000 feet at the Upper End of Sheep Creek northeast of the Time Group. The group is accessible by road from Watson Lake or Whitehorse.

OWNERSHIP AND PREVIOUS HISTORY:

The claims are owned by Canol Metal Mines Limited, and are due to expire in May, 1966. No surface work has been done on the claims but the adit started on the Time Group cuts into the property.

GENERAL GEOLOGY:

(1) Lithology and Structure

The claims are underlaim by limestone slate and biotite metasediment, which lie near the contact of a granodiorite. The limestone which makes up 15% of the exposure weathers grey-white in unaltered patches. The rock is generally fine grained with a saccroidal to crystaline texture. Clay minerals and calcereous material are visible in fresh hand specimens. Stylolitic structures are present where the grade of contact metamorphism is not high.

The limestones alter to an amphibolite skarn with pyrrhotite and minor molybdenium.

The biotite metasediments weather brown to deep red. The rock is generally fine grained with quartz, feldspar, biotite and minor pyrite present in hand specimens. Several bands of black slate occur in the metasediments.

The limestones and metasediments trend generally N 45 E and dip 30 NW away from the gramodiorite contact.

(2) Mineralization

The only mineralization on surface lies in a cirque north of the adit on the Time Group. Two bands of limestone up to 5 ft. wide and 500 ft. long have been metamorphosed to an amphibolite skarn with pyrrhotite. Several flakes of molybdemite were noted in a peice of float below the bands. The float presumably came from one of the skarn bands which could not be reached due to snow conditions.

Weathering of pyrite has stained the metasediment and much of the limestone so that the sulphide bands appear larger than they actually are. No samples were taken for assay but several were brought back for reference.

The mineralization which has been explored by the adit is shown on the plan in the Appendix.

CONCLUSIONS:

More work is warranted on the claims to determine the extent of the mineralization underground and the grade of the skarn bodies.

*NOTE: The A, B, C, STRIKE and BILL groups have lapsed. The claims cover bodies of skarn with pyrrhotite but no economic mineralization was noted.

APPENDIX: Assay Results McConnell River Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
15	3749	Tr	-	Nil	-	-	1% Pyrite	30x2	10°30E	Limestone
	3750	.03	-	Nil	-	-	1% Pyrite	30x2	" "	Limestone
13A	3813	Mo	-	-	-	-	1% Pyrrhotite	5' wide		Skarn
12A	3788	.31	-	-	-	-	Pyrrhotite Pyrite			Biotite Metased
12A	3814	Tr	-	-	-	-	5% Pyrrhotite Chalcopyrite	50x2'	N30E 60NW	Biotite Metased
F.G.3	3768	Mo	-	Wo	-	-		150xl'		Skarn
F.G.3	3766	-	Nil	.02	-	-	Vein Qtz.	50x6'		Skarn
F.G.3	3767	Mo	-	Wo	-	-		70x3		Skarn
CANOL METAL MINES ADIT										
STA B (12')	3715	Mo	-	Tr	Wo = .20					Fractured Granodiorite
(130')	3723	Mo	-	5.25	WO	-	Tr			Fractured Granodiorite

ROSS RIVER SHEET

By H. Squair

DATA:

1 Mile Sheet 105 F - N
Lat. 61° 45 N - 62° N

½ Mile Sheet 105 F - 16
Long. 132°W - 132° 30' W

Outcrop Area 20%

GENERAL GEOLOGY

(1) Lithology and Structure

The sheet is divided by the Tintina fault into two distinctly different geological terrains.

Southwest of the Tintina lies Cambrian and Mississippian shale and Phyllite which makes up 70% of the exposure. The phyllites generally show minor folding and intense shear deformation. The grade of thermal metamorphism is low and little alteration such as carbonatization, silicification or iron staining is evident.

The St. Cyr fault zone can be recognized by shearing of black phyllites. Only slight discordance of dip was noticed across the zone. In the extreme southwest corner of the sheet a band of Silurian dolomite is in fault contact with Mississippian shale. The dolomite is masked by scree which covers the slopes.

Only a few minutes helicopter time was spent in reconnaisance over the gneisses and schists northeast of the Tintina fault for outcrops are poorly exposed and widely scattered. However, outcrops of gneiss west of Ross River appear to be similar to those on the Lapie Lakes sheet.

(2) Mineralization

The Cambrian Phyllites adjacent to the Tintina Fault are hosts for numerous quartz veins and stringers. Most of the veins are less than 10 feet long and appear to be concordant with the foliation.

At Stop 28 a quartz vein 0.15 feet long and 1 foot wide shows malachite stain. One assay from the vein indicated a trace of copper present. No sulphate mineralization was noted on the sheet.

(3) Recommendations

No further work is recommended on the sheet for the 1963 field season.

APPENDIX: Assay Results Ross River Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
26	3769	-	Tr	.23	-	-	Vein Qtz.	150x3	130° 45SW	Blackslate
28	3771	Tr	-	-	-	-	Vein Qtz. Malachite	100x2 ft.		Quartzite

KETZA RIVER SHEET

By: H. Squair

DATA:
1 Mile Sheet 105 F - NE
Lat. 61° 30' N - 61° 45' N
Outcrop Area: 70%
Claim Groups: (See Appendix)

½ Mile Sheet 105 F - 9
Long. 132° W - 132° 30' W

GENERAL GEOLOGY:

Lithology and Structure

The sheet is situated in the deformed belt of Palaeozoic rocks immediately southwest of the Tintina fault zone. Cambrian, Devonian and Mississippian sediments and volcanics underlie the map area save for one stock of horneblende syenite in the extreme southwest corner.

The St. Cyr fault divides the sheet into two structurally separate portions. The middle Cambrian phyllites northeast of the fault are tightly folded to a series of anticlines and synclines whose limbs have been partially obliterated by an intense foliation. The axial traces of the folds can be traced for only a short distance on surface.

The sediments and volcanics southwest of the St. Cyr fault outcrop as gently folded linear blocks separated by normal and transcurrent faults and unconformities. The folding in the rocks is less intense than on the northeast side of the St. Cyr break. Competent rocks such as quartzite and dolomite show bedding and axial traces of folds can be traced from the air.

The lower Cambrian quartzite and limestones are confined to the south boundary of the sheet. The rocks have been folded to open anticline and synclines whose axial traces trend N60W. Subsequent faulting along axial planes has produced complicated structures at the head of the Ketza River.

Both buff and grey shaly limestones belong to the lower Cambrian. The grey limestone is interbanded with quartzite and hosts lead, silver and gold mineralization in the Upper Ketza River. The buff limestone outcrops above the quartzite in isolated blocks and patches. This carbonate is host for small copper bearing quartz veins but shows no alteration to skarn or replacement by sulphides.

Middle Cambrian quartzite and phyllites outcrop in isolated patches and appear to be in fault contact with the Mississippian, at several points. The rocks show little secondary alteration and contain no significant sulphide mineralization.

Mississippian sediments and volcanics underlie 60% of the area southwest of the St. Cyr fault. The sediments are confined to a 2 mile wide belt parallel to the fault while the volcanics extend to the southwestern part of the map area.

The volcanics consist of andesitic ash and tuff with minor basalt. They have been folded to a series of open anticlines and synclines but show little internal deformation. The rocks show little chloritization or carbonitization, but pyrite gossans and stain are numerous in the ashrock. The volcanics are also host of lead, silver mineralization both in dissemination and as fracture filling of quartz veins.

The Mississippian sediments consist of phyllite, shale and minor limestone. They outcrop in a linear belt along the St. Cyr fault. The phyllites have been folded to a series of tight anticlines and synclines whose limbs have been partially obliterated by a cleavage which cuts across the bedding. Outside of red phyllites which mark fault zones the rocks show little alteration and contain no significant sulphide deposits.

A band of grey-buff Mississippian limestone up to ½ mile wide follows the St. Cyr fault. The carbonates are similar to those in the Cambrian and Devonian, and show little internal deformation. No skarn or sulphide minerals were noted in these rocks.

Silurian-Devonian limestones occur as linear blocks and patches within the Mississippian and Cambrian. The rocks have been gently folded and typically show no alteration to skarn.

The horneblende syenite in the southwest corner of the sheet intrudes Mississippian volcanics and Cambrian quartzites. The rock weathers a dirty grey and appears massive from the air. Green horneblende, 50% white feldspar and magnetite are visible in hand specimens. Several pyrite gossans are situated in the sediments and volcanics at the margin of this intrusive.

The St. Cyr appears to be a normal fault, which dips SW. The SW side has moved down relative to the NE. Subsequent erosion has not yet cut through the Mississppian on the SW side. The faulting probably took place after the Porcupine thrust.

MINERALIZATION:

The sheet lies near the centre of a mineralized belt which extends from the Lapie River to McNeil Lake. The Mississippian volcanics and Cambrian limestones are the host of numerous small showings of economic sulphide.

On the Penguin and Peel Claims at the head of theKetza River, pyrrhotite and arsenopyrite has replaced lower Cambrian limestones in irregular flat lying lenses. Chalcopyrite and gold occur in the lenses along with the iron sulphides. Chalcopyrite also occurs as fracture filling and replacement of quartz veins whose host may be either grey Cambrian limestone or Mississippian volcanics. The veins are generally less than 100 feet long.

On the KEY Group galena occurs along with pyrite in a lens over 100 feet long in a host of black phyllite and andesitic ash. Up to 115 oz. per ton of silver is reported in the lens but no tetrahedrite was visible in hand specimen.

On the OXO Group several veins of massive pyrrhotite and pyrite contain about 1% galena. The veins occur as fracture filling in a limestone host. The veins are 1 - 2 feet wide and generally less than 100 feet long. Assays show that up to 10 oz. per ton of silver are present in the veins but no silver minerals were noted in hand specimens. The occurrence of pyrrhotite and galena together suggests that two periods of mineralization have taken place.

At Stop 20 on the west side of the sheet pyrite and minor galena replace andesitic ashrock. The replacement is patchy and sulphides make up less than 1% of the visible minerals. Grab samples of mineralized volcanic assayed up to .60 oz. per ton of silver and a trace of gold.

The Mississippian andesites contain numerous pyrite gossans. Near Stop 20 the whole mountainside is covered with red stain due to the weathering of pyrite. Up to 1% pyrite replaces the volcanic ash and sediments. Similar pyrite showings outcrop at Stop 15H and on the BJ claims. Assays typically show a trace of silver and no gold.

RECOMMENDATIONS:

All mineralization with economic possibilities is now held by Companies listed in the Appendix. However, if the situation arises whereby favorable ground can be obtained on the Upper Ketza River, more work is warranted. A detailed structural map of the southern half of the map sheet may indicate the pattern of known mineralization.

REPORT ON THE BJ, NY AND TEE CLAIMS

KETZA RIVER SHEET

By: H. Squair

July 27, 1962

PROPERTY:

The BJ, NY and TEE Groups consist of a total of 64 mineral claims which cover some 300 acres on the Upper Ketza River.

LOCATION AND ACCESS:

The claims are situated at an average elevation of 5,000 ft. on the north side of Cache Creek, a tributary of the Ketza River. (Lat. 61° 34' N. Long. 132° 15' W).

The BJ and NY Groups cover a prominent east-west trending ridge and its adjoining valley to the north. The TEE Group trends north-south across the strike of the strata. The groups are accessible by 34 miles of road from the Canol Road to the Conwest camp on the Ketza River and hence by bush trail to the claims. The access road can be travelled by jeep.

OWNERSHIP AND PREVIOUS HISTORY:

The BJ Group is a restaking of all but five claims of the original NY Group, staked in 1961, to cover an area of apparently favorable geology as reported by the Geological Survey. The present NY and BJ claims are owned jointly and equally by W. R. Sheeky of New York and Giant Yellowknife Mines Limited.

The TEE Group was owned by G. Dickson of Whitehorse but has probably lapsed.

No trenching, stripping or drilling has been done on any of the groups.

GENERAL GEOLOGY:

Lithology and Structure

The claims are underlain by limestone, phyllite, ashrock and tuff of Cambrian age. The rocks have been folded to a series of anticlines and synclines whose axial planes trend N50W. Subsequent faulting and erosion has complicated the structural picture so that the accompanying map looks incomplete out of its regional setting.

Argillacious and rhyolitic ash and tuff appear to be the lowest rocks in the structural sequence. The ashrocks weather grey to brown and are generally fine-grained. Quartz, 15% white feldspar, clay minerals and minor pyrite are visible in most hand specimens. The rocks have a sygmoidal foliation pattern which allows them to break along

sinuous rather than relatively straight surfaces. The foliation helps to distinguish the ashrocks from dark phyllites.

The ashrock contains bands of rhyolite tuff which weather light grey to white. The tuffs are aphanitic to fine-grained and outcrop in bands of up to 15 ft. thick.

The tuffs have been replaced by up to 2% pyrite on the BJ Group. The replaced bands are 5 - 6 ft. thick and are exposed for 200 - 300 ft. on strike. No economic sulphides were noted in the bands.

Black shale and limestones underlie most of BJ 21 and TEE 14. The slate weathers dark grey to black and is aphanitic in hand specimen. A grey impure limestone is interbedded and makes up 10% of the exposure. The carbonates have been folded to S and Z drag folds at the margins of faults, but no alteration to skarn is evident.

Red and grey phyllites are exposed in the central and southern part of the claims. The rocks have a marked foliation which has almost obliterated the bedding. No secondary alteration such as feldspathization or chloritization has occurred in the phyllites but they are the host of quartz and quartz carbonate veins.

Grey and buff limestones form a cupping for the phyllites and ashrock. The carbonates weather grey to buff and appear relatively pure compared to those within the phyllites. Several minor quartz veins occur in the limestone but no skarn has formed.

The anticlines and synclines on the sheet are of the flexure type with low dips on the limbs. The anticline on the NY Group has been truncated by faulting and could not be traced onto the TEE Group. The minor folds on the limbs of this anticline are due to slump and not to the initial deformation.

The anticline at the south end of the TEE Group is part of a major structure that cuts across the Penguin Group to the east. The structure plunges 25° NW. Both limbs have been bent through and angle off 35° to form a rather tight fold. The anticline is disharmonic for it dies out on the TEE claims to the northwest.

The major fault that trends northwest across the claims is a rather high angle thrust. The volcanics and sediments on the northeast have moved upward relative to those on the southwest. The relative movement has not been large but enough to produce a discordance of strike and dip of sediments across the break. The phyllites and limestones in the fault zone have been folded to very tight drag folds.

On TEE 16 a small vertical normal fault trends N50E. The beds on the northwest side of the fault have moved down relative to those on the southeast side. This structure probably formed after the thrust due to release of pressure.

MINERALIZATION:

Chalcopyrite occurs as fracture filling and replacement of quartz veins on the TEE group. The veins average 20 ft. in length and are generally less than 2 ft. wide. Samples 3807 taken from a vein on TEE 3 shows that .02% copper and a trace of gold are present. Samples 3809 and 3810 from similar veins show only a trace of copper.

Numerous other small veins of quartz and quartz carbonate on BJ 27 and NY 26 and 28 contain no sulphides. Assays indicate that only traces of gold and silver are present in the veins. The tuff bands on BJ 26 contain the only iron sulphide mineralization. No economic sulphides were noted in the gossans, and no samples were taken for assay.

Massive sulphide veins and replacement bodies not not outcrop on the claims but several pieces of pyrrhotite float were noted on BJ 9. The float probably came from up the slope on the NY claims.

CONCLUSIONS:

Economic mineralization is confined to minor quartz veins on the claims. Assays show that the amounts of copper, gold and silver present are almost negligible. It is therefore concluded that the properties are of little economic value at present.

RECOMMENDATIONS:

The claims were staked to cover a thick band of quartzite shown on the Geological Survey of Canada map number 7-1960. It was thought that such a competent quartzite may be the host of lead, silver veins. Since no quartzite is exposed on the groups and existing mineralization is insignificant it is difficult to outline the course of further exploration work. However, a detailed structural map of the Kotza River area may indicate new targets on which to base more exploration work.

REPORT ON THE PENGUIN CLAIM GROUP

KETZA RIVER

Hugh Squair

June 24, 1962

PROPERTY:

The PENGUIN Group consists of 18 mineral claims which cover about 600 acres on Cache Creek, a tributary of the Ketza River. Some of the claims are fractions.

LOCATION AND ACCESS:

The group is located at an elevation of 5,000 ft. in the upper reaches of Cache Creek, a tributary of the Ketza River. The property is accessible from Ross River by 38 miles of road to the Conwest camp on the Ketza River and hence by bush trail to the claims.

OWNERSHIP AND PREVIOUS HISTORY:

The claims are owned by Ketza River Mines. Dates at which they are due to expire are given in the appendix. A total of 10 trences and six diamond drill holes have been put in to explore showings One and Two as shown on the plan. Diamond drill logs were made up from core at the site.

GENERAL GEOLOGY:

The claims are underlain by a grey lower Cambrian limestone which forms the north limb of an anticline. The anticline axis trends N40E and has a plunge of about 5° to the southwest. The bedding strikes N40E and dips 40° northwest.

The limestone is aphanitic to fine grained and contains minor quartz along with carbonate and clay minerals. Much of the surface shows irregular fractures which are filled with calcite and white quartz. Iron sulphides have replaced the limestone in irregular lenses parallel to the bedding.

In a gully below No. 2 showing, fragments of the limestone form a coarse breccia. The breccia is porous and shows iron staining. It is probably from scree which was consolidated due to the weight of passing ice.

MINERALIZATION: (Showing 1)

Massive pyrrhotite, pyrite and minor chalcopyrite have replaced the limestone in lenses which parallel the bedding. The lenses were traced along strike for 400 ft. and have a max. width of 15 ft. as shown in plan and core sections.

Chalcopyrite makes up less than 1% of the visible sulphides and pyrite is generally subordinate to pyrrhotite in hand specimens. Three samples taken for assay from trenches show one result of 0.07% copper. No gold or silver is present, in the sulphides.

Showing 2:

The only sulphides found were in Trench 6. All the remaining trenches have caved or never reached bedrock. Massive pyrrhotite and pyrite replaces limestone in a lens about 1 ft. wide. The length of the lens is not known. One grab sample from the trench of copper but no gold or silver.

In the cirque above showing 1 and 2 are several small lenses of similar mineralization. The lenses have not been trended or drilled.

CONCLUSIONS:

The sulphide lenses are too small and of too low grade to be of economic value.

REPORT ON THE FURY AND PEEL CROUPS

KETZA RIVER SHEET

By: H. Squair

July 27, 1962.

FURY GROUP
PROPERTY:

The Fury Group consists of eight mineral claims (No. 69833 - 69839, 71077) which cover approximately 300 acres in the upper Ketza River. The claims on which the main showing is situated are fractions.

LOCATION AND ACCESS:

The claims are located at an elevation of 5,000 ft. on the north side of Cache Creek, a tributary of the Ketza River. The property is accessible by road from the settlement of Ross River to the Conwest camp on the lower Ketza and hence by bush trail to the claims. The road has been washed away at several points but a jeep or Landrover could make the trip.

OWNERSHIP AND PREVIOUS HISTORY:

The claims are owned by Ketza River Silver Mines Limited. Eleven trenches and at least seven diamond drill holes have been put in to explore the main showing on FURY 32, 1, and 29. The relative position of trenches and drill holes are given in the plan which accompanies the report. Several Ex holes have been drilled but the drill sites were not located.

GENERAL GEOLOGY:

The claims are underlain by thick bedded dark grey Cambrian limestones that form the north limb of a syncline. The axial plane of the syncline trends N40E and the bedding of the limestone on showing 1 strikes N40E, dips 5 - 10°SE.

The limestone is generally aphanitic in texture and appears to be make up of carbonates and clay minerals. Small blebs of quartz were noted in some hand specimens. Much of the limestone is cut by stringers of calcite that make up 2% of the exposure.

A reverse fault cuts the Cambrian limestone just south of the claims and appears to follow the creek bottom below the main showing. The fault zone does not appear on surface but outcrops on the south side of the valley show that relative movement has taken place.

MINERALIZATION:

Massive pyrrhotite and arsenopyrite with minor chalcopyrite and pyrite have replaced lower Cambrian limestone along fracture planes and in lenticular bodies parallel to bedding. The lenses are generally less than 1 ft. thick with a low dip to the southwest.. In Trench 5, however, a lens

4 ft. thick dips N40W to intersect the bedding.

Arsenopyrite and chalcopyrite combined make up less than 1% of the sulphides present. Arsenopyrite was observed in Trenches 5 and 9 where it appears to replace the pyrrhotite. Chacopyrite is minor and no malachite stain was noted on the muck piles.

The lenses were traced along strike for 800 ft. as shown in the plan. The sulphides as plotted in the trenches gives a somewhat deceptive picture for the low dip of the lenses makes the plan outcrop relatively wide. One must bear in mind that the lenses are relatively narrow and parallel the bedding in most cases.

Seven samples were taken for assay from the trenches. The width of the samples are given in the appendix. The average gold, silver assay for the samples was:

Au	Ag
.37	.58

No free gold or silver minerals were observed in hand specimens.

CONCLUSIONS:

The sulphide lenses are erratic and do not appear to have depth judging from their dip. Gold values are generally below .37 oz. per ton. The property is of no economic value at present, however, further work on the structural pattern of the limestone may uncover more sulphides.

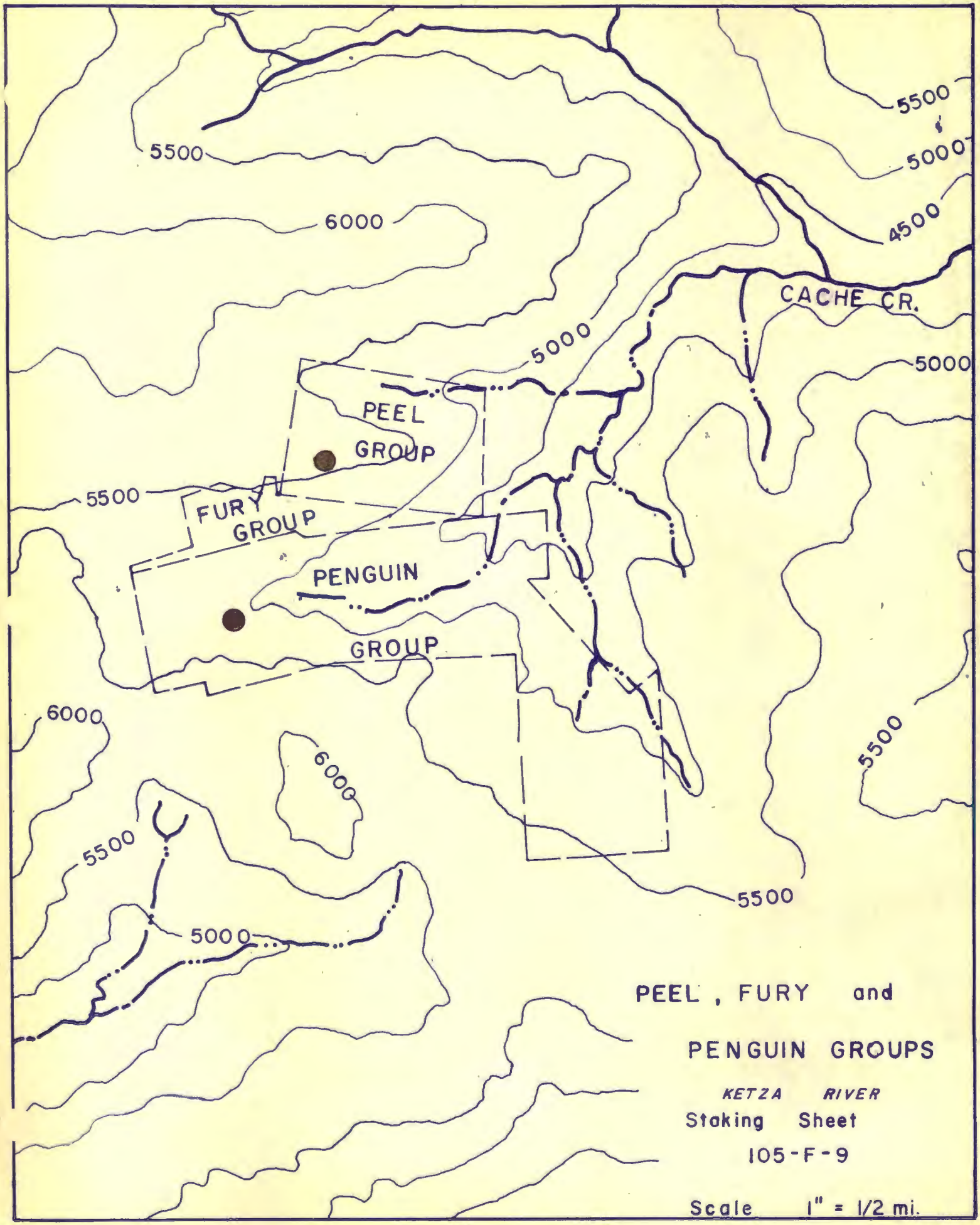
PEEL GROUP:

The Peel Group consists of six mineral claims (No. 69368 - 69373) which cover about 200 acres north of the FURY Group on the Ketza River. The claims are owned by Ketza River Mines Limited and are due to expire December 14, 1969.

The main showing lies north and 500 ft. above the workings on the FURY Group. A switch-back road has been built to carry drill equipment up the slope.

Four trenches and five diamond drill holes have been put in to explore the showing. The trenches have caved and only a few boxes of core have been left at the drill sites.

The claims are underlain by the same Cambrian limestone as on the FURY Group. One sample of carbonate from drill core assayed .28 oz. of silver per ton and a trace of gold.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PEEL, FURY and
PENGUIN GROUPS
KETZA RIVER
Staking Sheet
105-F-9
Scale 1" = 1/2 mi.

REPORT ON THE KEY GROUP

KETZA RIVER SHEET

By: H. Squair

July 29, 1962.

PROPERTY:

The KEY Group consists of forty-one mineral claims (No. 69101 - 69137, 71076, 71528 - 71531), which cover approximately 1,500 acres on the upper Ketza River. Many of the claims are fractions.

LOCATION AND ACCESS:

The group is located at an average elevation of 5,000 ft. on the west side of the Ketza River. (Lat. 61° 34'N. Long. 132° 13'W). The property is accessible by 14 miles of road from the Canol Road. The road has been washed out at several points but the trip could be made by jeep.

OWNERSHIP AND PREVIOUS HISTORY:

The Key group is owned by Ketzakey Silver Mines Limited and is due to expire November 28, 1965. The main showing was explored in 1955-56 by three adits totalling some 60 ft. of drive. The adits have since caved or have been covered by slide and scree.

The assay plans of this work along with a report written by Dr. A. Aho was obtained from Mr. W. R. Sheeky by C. E. Gordon Brown. The author made only a brief examination of the main showing near the old adits.

GENERAL GEOLOGY:

The claims are underlain by grey and black phyllite, shale and andesitic ash of Mississippian Age. The sequence is exposed on the south wall of a cirque which the main showing outcrops.

Grey Phyllite caps the ridge above the showing. The rock is aphanitic and shows lustrous slippage surfaces where foliated.

The black phyllite and shale is aphanitic to fine grained with minerals visible only in calcareous bands. These rocks have been highly fractured near the fault zone with volcanics and host some of the lead-silver mineralization on the claims.

The andesitic ash weathers grey to brown. The rock is fine grained and shows a sygmoidal foliation typical of Mississippian volcanics and ash-rocks. Quartz, white feldspar, pyrite and impurities are visible in hand specimens. The ashrocks are the host of pyrite and lead-silver mineralization.

The strata strikes generally 115° and dips 35°SW. A bedding fault separates the ashrock from black phyllite at its lower contact. Immediately west of the claims a normal fault which trends 150° separates the Mississippian rocks from the Cambrian. The northeast side of the fault is down relative to the southwest side.

MINERALIZATION:

A quartz stringer with galena and siderite follows the bedding of the ashrock just east of Adit 4. The stringer is 3 inches wide and is exposed on surface for 5 ft. The Adit reportedly cut through a 9 ft. zone of quartz galena and carbonate in the host rock. The Adit is now caved but one sample from the muck pile assayed:

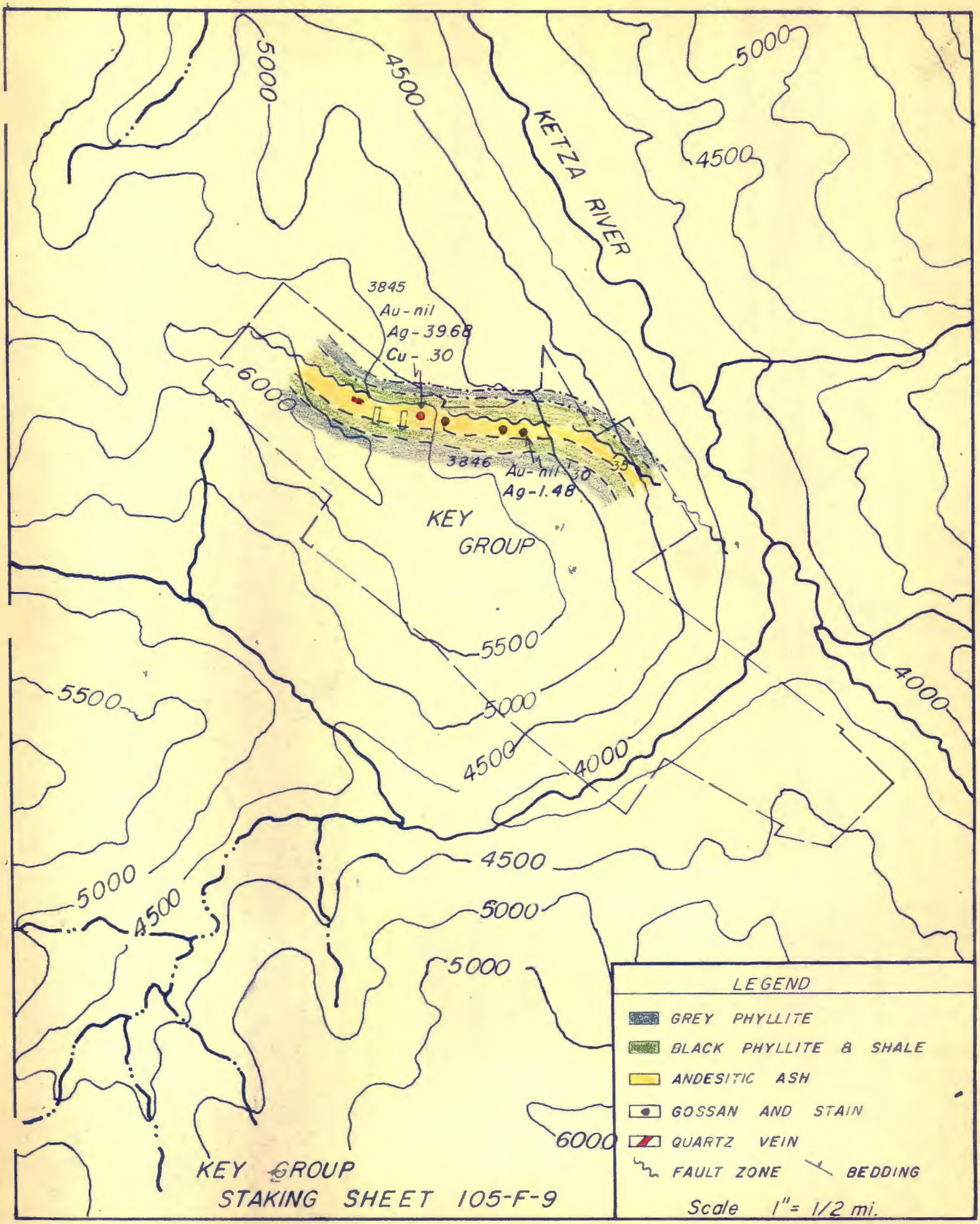
Cu	Ag	Au
.30%	39.68 oz./ton	Nil

Four hundred feet east of the adit pyrite has replaced the andesite to form a gossan 50 ft. thick and 250 ft. long. The gossan contains 1 - 2% pyrite but no galena. One assay showed 1.48 oz. per ton of silver but no gold present.

The assay values for adits 2, 3 and 4 were supplied by R. Kirrwin. The locations of five other small showings listed by Dr. Aho are unknown to the author. Dr. Aho states that the showings are of no economic value but further prospecting is warranted around them.

CONCLUSIONS:

On the basis of assays obtained from veins in the adit and on surface the property warrants more work. A structural geology map of the terrain around the claims may indicate the pattern of mineralization. Subsequent deep drilling may indicate further mineralization.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KETZA RIVER
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4500
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Au - nil
Ag - 39.68
Cu - .30
6000
3846
Au - nil
Ag - 1.48
30
35
KEY
GROUP
5500
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KEY GROUP
STAKING SHEET 105-F-9
LEGEND
GREY PHYLLITE
BLACK PHYLLITE & SHALE
ANDESITIC ASH
GOSSAN AND STAIN
QUARTZ VEIN
FAULT ZONE
BEDDING
Scale 1" = 1/2 mi.

REPORT ON THE OXO CLAIM GROUP

KETZA RIVER SHEET

By: J. A. Apps

August 1, 1962.

PROPERTY:

The OXO Group consists of 9 mineral claims (Nos. 75628 - 75636, 71273), which cover 450 acres at the head of White Creek on the Ketza River sheet.

LOCATION AND ACCESS:

The claims lie at an elevation of 5,500 feet between the head of White Creek and the Ketza River. (Lat. 61° 31' N and Long. 132° 14' W). The group is accessible by road from Ross River to the Conwest Camp on the Ketza River and hence by bush trail to the claims. An alternate route is by float equipped aircraft from Watson Lake to a small lake on the McConnell River and hence by bush trail to the claims.

OWNERSHIP AND WORK PERFORMED:

The claims are owned by P. Versluce and W. B. Green and are due to expire April 10, 1963. Part of this group was mapped on a scale of 1" - 500 feet. Not all of the claims were examined, however, since the stakes were poorly located, and not all of them were found.

Trenching and pitting has been carried out only on OXO 26. A plan on a scale of 1" - 50 feet accompanies this report and shows the disposition of the workings. One 25 foot long trench and seven pits were dug, revealing a vein of massive pyrrhotite containing galena.

ECONOMIC MINERALIZATION: Galena
Chalcopyrite (tr)
Malachite (tr)

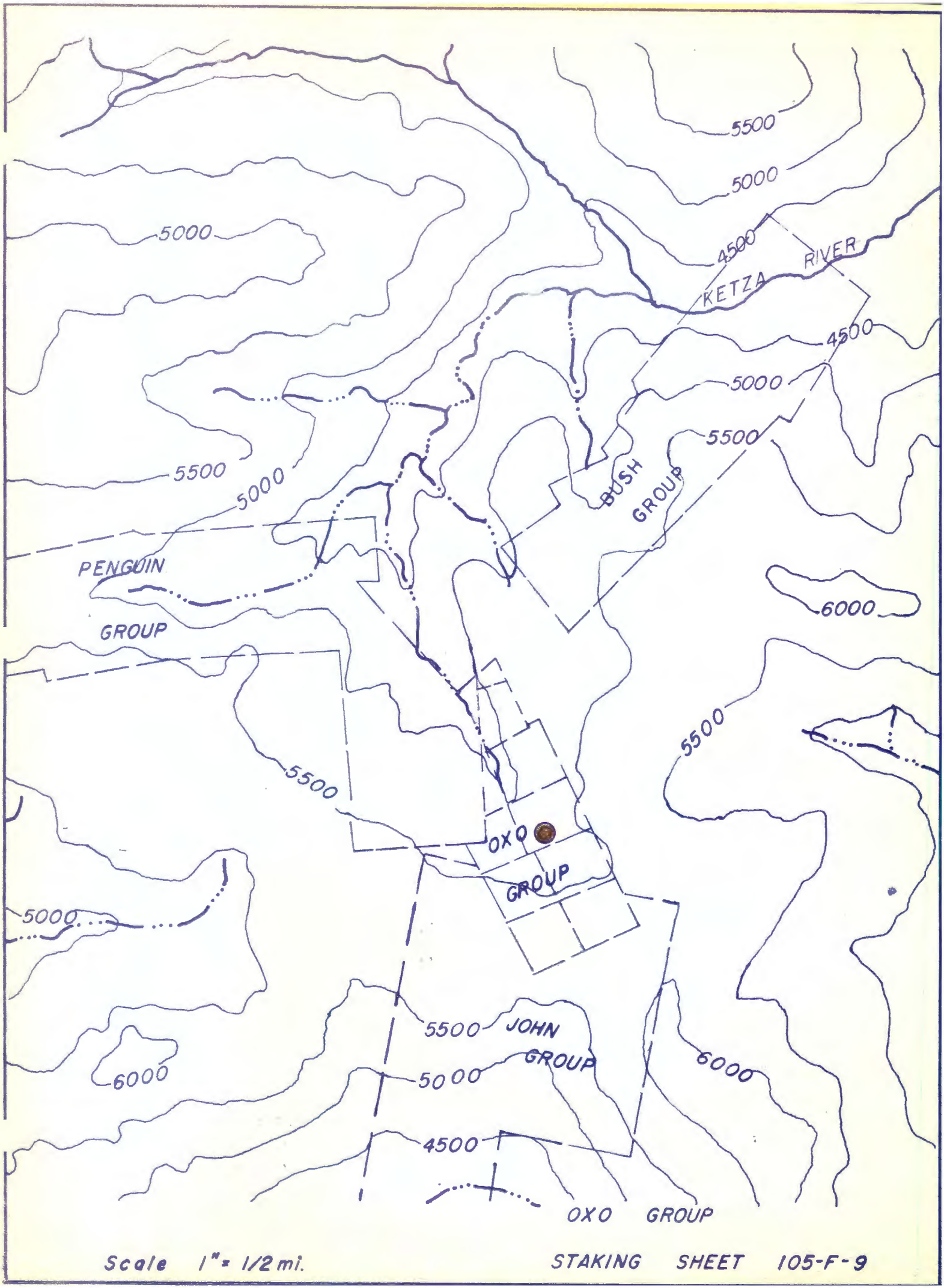
GEOLOGY:

The country rock consists of massive poorly bedded lower Cambrian limestones containing occasional black shale bands. They have been gently folded and faulted. Several (3 - 4) very large quartz veins (up to 10' thick and striking between 185 and 210°) occur on OXO 2 and OXO 26. In places, they contain sparsely disseminated pyrite. On OXO 26, a massive pyrrhotite vein develops for a distance of 100 feet. It attains a maximum width of 5 - 10 feet, but is otherwise poorly exposed. It strikes at 65° but its dip could not be determined.

The massive pyrrhotite contains some galena and disseminated pyrite. Four samples were taken (Nos. 1368, 1369, 1370, 1371). Two samples were taken from an adjacent quartz vein (Nos. 1366, 1367), and one sample taken of copper stained float (1365).

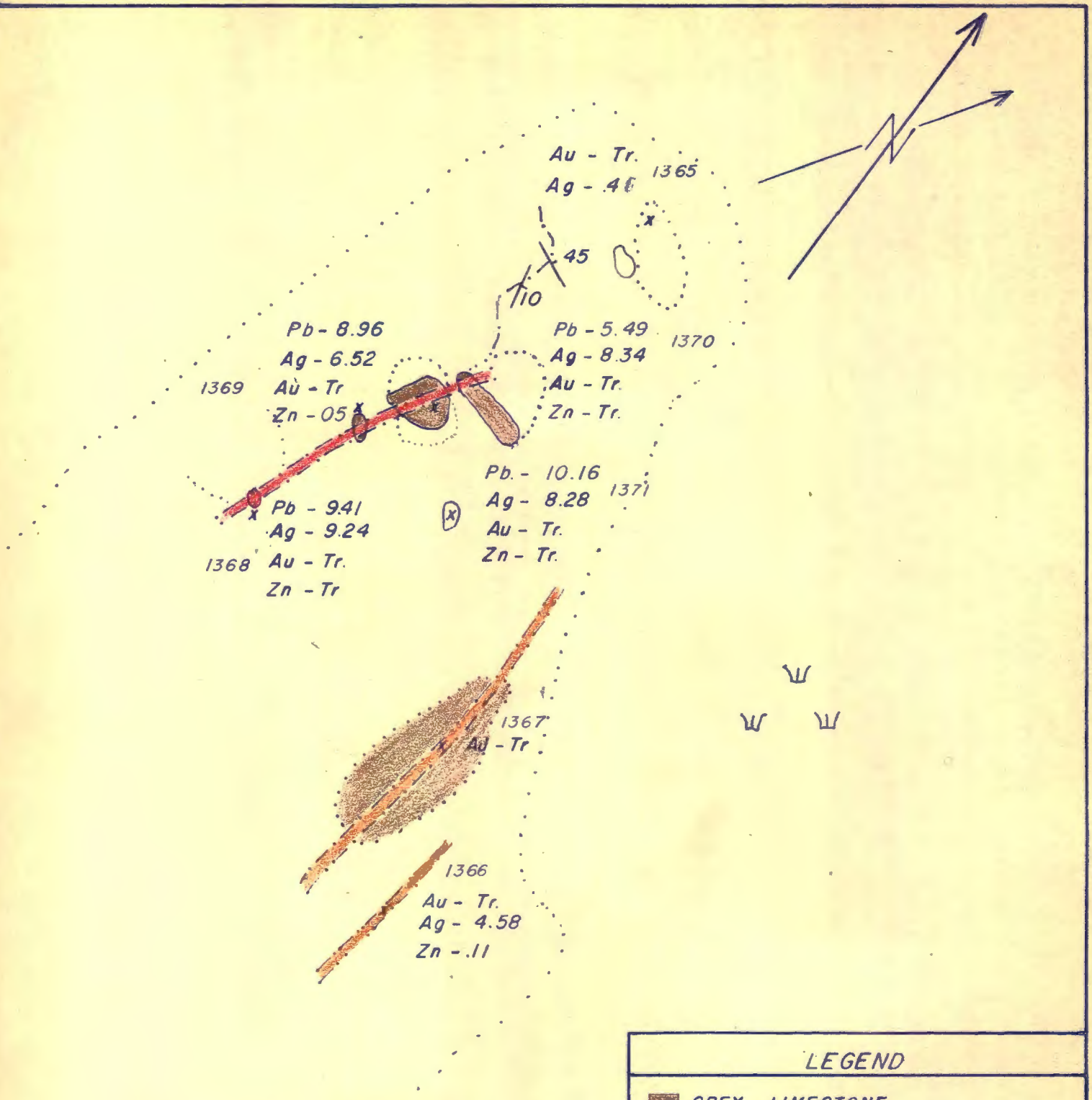
Two further samples of quartz veins on OXO 2 and OXO 26 were also taken for gold analyses (Nos 1364 and 1363 respectively).

On OXO 5, an exposure of a massive pyrrhotite vein with pyrite was found on the eastern side of the gully which passes down the centre of the claim group. No economic mineralization was noted. It strikes 138° and probably dips south at 30°. Its width may be of the order of 5 feet, but its length could not be determined owing to the cover of soil creep and scree. A sample (No. 1372) was taken for analysis.



Scale 1" = 1/2 mi.

STAKING SHEET 105-F-9



LEGEND

- GREY LIMESTONE
- QUARTZ VEIN
- SULPHIDE VEIN
- BEDDING
- CONTACT
- OUTCROP BOUNDRY
- OVERBURDEN
- TRENCH

SHOWING NO. 1

OXO 26

UPPER KETZA RIVER

SCALE 1 inch = 50 Ft.

APPENDIX: Assay Results Ketza River Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
8	3727	-	Nil	-	-	-	No Sulphides			White Qtz. Stringers
15H	3754	Tr	-	-	-	.11	Pyrite	100x2	N80W 65SW	Brown Basalt
19	3762	Tr	-	-	-	-	2% Pyrite			Silicified Tuff.
20	3763	Tr	-	-	-	-	Flourite 1% Pyrite			Rhyolite
	3764	Tr	Tr	.33	.44	1.01	Galena Pyrite Flourite			Rhyolite
4A	3725	Tr	-	-	-	-	Pyrite			Andesitic Ash
	3728	Tr	-	-	-	-	Pyrite	30x5 ft.		Andesitic Ash
20	3849	.81	.01	-	-	-	Vein Qtz.	80x2 ft.		Andesite
	3850	-	Nil	.28	-	-	Pyrite			Andesitic Ash
	1351	-	Tr	Nil	-	-	Pyrite			Andesitic Ash
	1352	-	Tr	.36	-	-	1% Pyrite			Andesite
	1353	-	Tr	.22	-	-	2% Pyrite			Andesitic Ash
	1354	-	Tr	.17	-	-	Galena Vein Qtz.			Phyllite
	1355	-	Tr	.69	-	-	Vein Qtz. Galena			Andesitic Ash
	1356	-	Tr	.02	-	-	2% Pyrite			Andesitic Ash
	1359	-	Tr.	.69	-	-	1% Pyrite			Andesitic Ash
	1360	-	Tr	.79	-	-	Galena Flourite		N40E 30SE	Andesitic Ash
	1361	-	Tr	.52	-	-	Galena 1% Pyrite		"	Andesitic Ash

APPENDIX: Assay Results Ketza River Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
20	1362	-	Tr	.56	-	-	1% Pyrite			Andesite
15A	1376	.12	Tr	.58	.54	Tr	Pyrite	25x2 ft.	N70E-Vert	Qtz.Carbonate Vein
	1377	Tr	Tr	.30	Tr	Tr	Pyrite	10x2 ft.	" "	Carb.Vein
	1378	-	Tr	.21	Tr	Tr	Siderite	20x1 ft.		Siderite Vein
	1379	-	Tr	.07	Tr	Tr	Siderite			Siderite Vein
16A	1383	.17	Tr	-	-	-	Chalcopyrite Pyrite	over 7 ft.		Basalt
	1384	.26	Tr	-	-	-	Chalcopyrite Pyrite	over 6 ft.		Basalt
	1329	.75	Tr	Tr	-	-	Chalcopyrite	GRAB		Baslat
	1330	1.42	Tr	Tr	-	-	Chalcopyrite Pyrite	GRAB		Basalt
	1331	1.25	Tr	Tr	-	-	Chalcopyrite Hematite	GRAB		Basalt
	1332	.84	Tr	Tr	-	-	Chalcopyrite	GRAB		Basalt
	1333	-	Tr	3.05	9.61	-	Galena Vein Qtz.	GRAB Sample Qtz. Stringer		Limestone
27	3770	Tr	-	-	-	-	Pyrite	150x18	120 50SW	Andesite
8A	3759	-	Nil	.26	-	-	1% Pyrite			Serecite Schist
	3760	-	Tr	.93	-	-	Vein Qtz.			Phyllite

Trench or Showing	No.	Assay Cu	Au	Ag	Pb	Zn	Mineralization	Width	Host Rock
PENGUIN CLAIM GROUP									
Showing 1									
Tr-1	3705	.07	-	-	-	-	Pyrrhotite-Pyrite Chalcopyrite	over 4 ft.	Limestone
Tr-2	3706			Lost					

APPENDIX: Assay Results Ketza River Sheet

Trench or Show.	No.	Assay Cu	Au	Ag	Pb	Zn	Mineralization	Width	Host Rock
Tr-3	3707	Tr	-	-	-	-	Pyrrhotite Pyrite Chalcopyrite	over 3 ft.	Limestone
Tr-4	3708	Tr	-	-	-	-	Pyrrhotite Pyrite	over 7 ft.	Limestone
Showing 2 Tr-6	3709	Tr	-	-	-	-	Pyrrhotite Pyrite	4 ft.	Limestone
FURY CLAIM GROUP									
Tr-9	3828	.12	.08	.18	-	-	Pyrrhotite Arseno Pyrite	over 2 ft.	Limestone
	3829	-	.32	1.62	-	-	Pyrrhotite	over 3 ft.	Limestone
Tr-7	3830	.03	.34	1.14	-	-	5% Pyrrhotite	over 3 ft.	Limestone
Tr-5	3831	-	.14	.12	-	-	5% Pyrrhotite	over 3 ft.	Limestone
	3832	Tr	.14	.52	-	-	2% Pyrrhotite Arsenopyrite	over 2 ft.	Limestone
Tr-2	3833	-	.60	.24	-	-	2% Pyrrhotite	over 4 ft.	Limestone
Tr-6	3834	-	1.02	.30	-	-	3% Pyrrhotite	over 2.5 ft.	Limestone
PEEL CLAIM GROUP									
	3835	-	.07	.28	-	-	Qtz. carb.		Core Sample Bx
KEY CLAIM GROUP									
Showing 1	3845	.30	Nil	39.68	-	-	Galena Qtz.		Qtz. stringers in Ash rock
	3846	-	Nil	1.48	-	-	Pyrite		Andesitic Ash
OXO GROUP									
OXO 2	1363	-	Tr	.45	-	-	Qtz.		Qtz. vein in Limestone
	1364	-	Tr	.68	-	-	Qtz.		Qtz. vein in Limestone
OXO26	1365	-	Tr	.41	-	-	1% Chalcopyrite		Limestone

APPENDIX: Assay Results Ketza River Sheet

Trench or Show.	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Width	Host Rock
OX026	1366	-	Tr	4.58	-	.11	1% Pyrite		Qtz.vein in Limestone
	1367	-	Tr	-	-	-	Pyrite Qtz.		Qtz. vein in Shale
	1368	-	Tr	9.24	9.41	Tr	50% Galena Pyrrhotite,Pyrite		Shale
	1369	-	Tr	6.52	8.96	.05	50% Galena Pyrrhotite Pyrite		Shale
	1370	-	Tr	8.34	5.49	Tr	50% Galena Pyrrhotite Pyrite		Shale
	1371	-	Tr	8.28	10.16	Tr	50% Galena Pyrrhotite Pyrite		Shale
	1372	-	Tr	1.54	Tr	.05	Pyrrhotite		Shale
NY CLAIM GROUP									
NY 26	3792	Tr	Nil	-	-	-	Qtz.Carbonate	50 x 1 ft.	Phyllite
NY 28	3805	-	Tr	-	-	-	New Qtz.		
NY 26	3804	-	Tr	-	-	-	Vein Qtz.		
NY 26	3802	-	Tr	-	-	-	Vein Qtz.	5'6"	
NY 24	3803	-	Tr	-	-	-	Vein Qtz.		
NY 24	3801	-	Tr	-	-	-	Vein Qtz.		
BJ CLAIM GROUP									
BJ 16	3794	-	Nil	-	-	-	Vein Qtz.	10x1 ft.	Limestone
	3806	-	Tr	-	-	-	Vein Qtz.		Limestone
BJ 25	3795	-	Nil	-	-	-	Vein Qtz.		Volcanic Ash
BJ 27	3796	-	Nil	-	-	-	Vein Qtz.		Volcanic Ash
BJ 27	3797	-	Nil	-	-	-	Vein Qtz.	6x1 ft.	Volcanic Ash
BJ 27	3798	-	Tr	-	-	-	Vein Qtz.		Volcanic Ash

APPENDIX: Assay Results Ketza River Sheet

Trench or Show.	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Width	Host Rock
BJ-20	3793	-	Nil	-	-	-	Vein Qtz.		Limestone
TEE CLAIM GROUP									
Tee 13	3807	.02	Tr	-	-	-	Vein Qtz.	1x20 ft.	Limstone
Tee 18	3808	Tr	Tr	-	-	-	Vein Qtz.		Limestone
Tee 2	3809	Tr	Tr	-	-	-	Vein Qtz.	15x50 ft.	Limestone
Tee 2	3811	Tr	Tr	-	-	-	Vein Qtz.	2x50 ft.	Phyllite
Tee 13	3816	-	Tr	-	-	-	Vein Qtz.	12x6 inches	
Tee 16	3815	-	Tr	-	-	-	Vein Qtz.		Phyllite
	3817	-	Tr	-	-	-	Vein Qtz. Carbonate	50x2 ft.	

APPENDIX: CLAIM GROUPS - KETZA RIVER

KEY	1-37	69101 - 69137	KetzaKey Silver Mines	Nov. 28,1965
PENQUIN	1-3	69364 - 69366	Ketza River Mines	Dec. 14,1964
PENQUIN	4	69367	" " "	Dec. 14,1968
PEEL	1-6	69368 - 69373	" " "	Dec. 14,1969
PIONEER	1 & 2	69374 - 69375	" " "	Dec. 14,1964
PIONEER	4	69377	" " "	Dec. 14,1966
GOAT	1-8	69398 - 69405	" " "	Dec. 14, 1964
MOON	1-8	69406 - 69413	" " "	Dec. 14, 1964
PEG	15,16p19,20	69486,69487, 69490,69491	" " "	Dec. 14,1964
PEG	17 & 18	69488 69489	" " "	Dec. 14, 1964
PEG	21-24	69492 - 69495	" " "	Dec. 14, 1963
STRIKE	4,6,8,10,12	69774 - 69778	" " "	Dec. 14, 1962
FURY	25,26&32	69833,69834,69839	" " "	Dec. 14, 1969
FURY	27	69835	" " "	Dec. 14, 1970
FURY	28	69836	" " "	Dec. 14, 1966
FURY	29&3	69837,69838	" " "	Dec. 14, 1968
BUSH	7&8	72777 - 72778	Ketza Riv. Mines	Dec. 14, 1962
BUSH	9&10	72779 - 72780	" " "	Dec. 14, 1963
PENGUIN	7-12	72781 - 72786	" " "	Dec. 14, 1964
RUSTY	7&8	73131 - 73132	George Fairclough	Aug.20,1963
SPORK	1-4	73169 - 73172	Ketza River Mines	Dec. 14, 1964
TRACK	1&2	73599 - 73500	" " "	Dec. 14, 1962
PENGUIN	13-18	73605 - 73610	" " "	Dec. 14, 1964
BUSH	11-18	73611 - 73618	" " "	Dec. 14, 1964
PENGUIN	19	73619	" " "	Dec. 14, 1964
PENGUIN	20	73620	" " "	Dec/ 14, 1962
POY	Fr	73621	" " "	Dec. 14, 1964

VIC*	1-6	73765 - 73770	G. Fairclough	Sept. 3, 1962
DON	6, 8, 13 & 15	75189, 75191, 96, 98	Conwest Expl.	Sept. 19, 1963
OXO	1, 2, 6, & 7	75628 - 75631	W. B. Green	Apr. 10, 1963
OXO	3-5, 8 & 9	75632 - 75636	P. Versluce	Apr. 10, 1963
NY	22, 24, 26, 29	75831, 75837, 75833, 75835	W. R. Sheeky	July 20, 1963
KO	1-8	77198 - 77205	G. Fairclough	Oct. 30, 1962
JOHN	1-5	77310 - 77314	W. B. Green	Nov. 2, 1962
RUSTY	9-16	79501 - 79508	G. Fairclough	May 31, 1963
RUSTY	17-23	79509 - 79516	G. Fairclough	May 31, 1963
PACK	1-26, 29, 30, 45, 46	75914-75939, 75942 75943, 75958, 75959	Conwest Expl.	
PENGUIN	5 & 6	69840, 69841		Dec. 14, 1964
STRIKE	17	71074	Ketza River Mine	Dec. 14, 1962
STRIKE	1 Fr	71075		Dec. 14, 1962
KEY 1	Fr	71076	Ketzakey Silver	Nov. 28, 1965
FURY 1	Fr	71077	KetzaRiver Mines	Dec. 14, 1969
OXO	26	71273	Peter Versluce	Sept. 21, 1962
JAN	3-6	71424 - 71427	Ketza River Mine	Dec. 14, 1966
EAGLE	2&4	71428 - 71429	" " "	Dec. 14, 1964
JAN	1 & 2	71430, 71431	Ketzakey S.M.L.	Nov. 28, 1965
ANN	1	71526	Ketza River Mine	Dec. 14, 1964
ANN	2	71527	" " "	Dec. 14, 1969
KEY	2-5(Fr)	71528 - 71531	Ketzakey S.M.L.	Nov. 28, 1965
POY	1-6	71587 - 71592	Ketza River Mines	Dec. 14, 1964
ELSIE	3	71593	" " "	Dec. 14, 1964
ELSIE	4	71594	" " "	Dec. 14, 1969
EAGLE	1 & 3	71595 - 71596	" " "	Dec. 14, 1963

ELSIE	1 & 2	71597 - 71598	Ketza River Mines	Dec. 14, 1964
EAGLE	1 Fr	71599	" " "	Dec. 14, 1964
BRUSH	1 - 5	71600 - 71604	" " "	Dec. 14, 1962
BRUSH	1 Fr	71605	" " "	Dec. 14, 1962
HUB	1 - 4	72773 - 72776	" " "	Dec. 14, 1964

GRIZZLY CREEK SHEET

By: H. Squair

DATA:
1 Mile Sheet 105 F - SE
Lat. 61° 15' N - 61° 30' N

½ Mile Sheet 105 F - 8
Long. 132° W - 132° 30' W

Outcrop Area - 30%

Claim Groups - Grey

GENERAL GEOLOGY

(1) Lithology and Structure

The sheet is situated between the Pelly Mountains on the west and the hihgly deformed Palaeozoic belt along the Tintina Fault. A trellis fault pattern divides the Palaeozoic sediments and volcanics into blocks. The major fault system, as exemplified by the Seagull fault, trends N30W. The second system trends sub-parallel to the Tintina fault. The systems intersect at an acute angle of 40°.

Seventy percent of the exposure consists of Cambrian, Silurian and Mississippian sediments while the remaining 30% is Mississippian volcanics, hornblende, syenite and granodiorite.

Silurian dolomite underlies about 1/3 of the sheet. The rock weathers light grey and generally shows less internal deformation than the quartzites, shales and phyllites of the Cambrian. Open folds of the flexural type are present in the dolomite and axial traces can be followed over the larger outcrops. Faults, where present, are generally normal.

The dolomites show no alteration to skarn possibly because of the relative purity of the carbonate rocks.

The lower Cambrian rocks are separated into two blocks by Mississippian andesites and ashrock. The south band along Grizzly Creek consists of interbanded quartzite and phyllite with minor limestone. Two irregular bedding faults divide the blocks into three parts. The faults appear to follow bands of phyllite within the quartzite phyllite mixture.

The north block of Lower Cambrian consists of interbanded limestone phyllite and buff limestone. The limestones are the host rocks for copper and lead-silver mineralization.

The middle Cambrian lies adjacent to the Lower and consists of grey phyllites, shales and quartzites. These rocks show no alteration such as carbonatization or pyritization.

Mississippian volcanics form a relatively compentant fault block between the Cambrian rocks. The volcanics show little internal deformation even at the margins of intrusive masses. Several pyrite gossans occur in andesite adjacent to the syenite stock in the northwest corner of the sheet.

REPORT ON THE RIO CLAIMS

GRIZZLY CREEK SHEET

By J. A. Apps

July 12, 1962

PROPERTY

The Rio Claim Group consists of four non contiguous mineral claims situated at an elevation of 4,500 feet on the south side of Sheep Creek. (Lat. 61° 29' N, Long. 132° 15' W).

LOCATION AND ACCESS

The property is accessible by float equipped aircraft from Watson Lake to a small lake at the mouth of Sheep Creek and hence by bush trail along Sheep Creek to the claims. The claims are also accessible by bush trail from the old Conwest camp on the upper Ketza River to the north.

OWNERSHIP AND PREVIOUS HISTORY

The Rio Claims were located on July 2, 1962 by J. Cox and H. Versluce. They represent a restake of the old Rain Claims shown on the 1 mile map.

No work has been carried out on the eastern group, although some trenching appears to have been done on the western group. The latter claims have not been examined on the ground.

ECONOMIC MINERALIZATION

Chalcopyrite
Malachite
Azurite

GEOLOGY

The claims are situated on a series of low grade dynamothermally metamorphosed conformable black slates, calc-phyllites and impure crystalline limestones. They dip south at 20 - 30°.

Several barren quartz veins and two irregular veins of siderite and pyrite were encountered on the eastern group. The latter were imperfectly exposed. Siderite mineralization attains a width of 6 feet, strikes 90° and dips 20 - 30°. However, the mineralization is not entirely conformable with the bedding of the country rock. Pyrite occurs as large disseminated cubes or pyritohedra up to 1 cm in size and as small veinlets following fractures in the siderite. The siderite is a replacement of limestone.

About 50 yards below the siderite-pyrite mineralization an irregular outcrop displays typical malachite-azurite staining. Disseminated pyrite and chalcopyrite occur on the margins of a quartz vein. Theenclosing dip is a calc-phyllite, but neither the strike nor dip of the vein could be determined owing to imperfect exposure. It is suspected however, that the vein strikes approximately at 90°.

A sample of the copper mineralization was taken for analysis (3779). (See Appendix)

No lead-silver mineralization was found on the eastern group of claims.

APPENDIX: Assay Results Grizzly Creek Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
13	3738	-	Tr	.11	-	-	Pyrite	10x50	N60W 45SW	Limestone
	3739	-	Nil	.10	-	-	Vein Qtz.	10x50	"	Limestone
14	3740	Tr	-	.11	-	-	Vein Qtz. Pyrite	2x20 ft.		Quartzite
2A	3704	-	-	-	4.46	-	Galena Pyrite			Andesite
3D	3724	Tr	-	-	-	-	Vein Qtz.	2x50 ft.		Limestone

CRIO CLAIM GROUP

Show. or Claim	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Width	Host Rock
	3741	-	.01	-	-	-	Vein Qtz.		Limestone
	3742	-	.03	-	-	-	Vein Qtz.		Argillite
	3743	Tr	Nil	Nil	-	.27	1% Pyrite		Limestone
	3744	.05	-	.19	-	.44	Vein Qtz. 1% Pyrite		Limestone
	3799	2.16	Tr	-	-	-	Vein Qtz.		

LOWER HOOLE RIVER SHEET

By: H. Squair

DATA:

1 Mile Sheet 105 G - NW
Lat. 61° 30' N - 61° 45' N

½ Mile Sheet 105 G - 12
Long. 131° 30' W - 132° W

Outcrop Area - 20%

Claim Groups - Nil

GENERAL GEOLOGY

(1) Lithology and Structure

The sheet is located astride the Tintina Fault zone which divides it into two distinctly different geological terrains.

Eighty-five percent of the outcrop consists of Palaeozoic limestones, dolomites, phyllite and volcanics which lie in linear belts parallel to the Tintina Fault zone. Highly deformed middle Cambrian phyllites border the fault on the southwest. The phyllites have been folded to a series of anticlines and synclines whose axial traces trend northwest. Subsequent thrusting has obliterated some of the limbs of the folds. However, the faulting is not as intense as on the Lapie and Ross River sheets. The phyllites are hosts to numerous white quartz stringers but little alteration such as silicification was noted.

The St. Cyr fault divides the Cambrian from a band of grey-buff Mississippian limestone. The limestone, designated 8 on the map, appears to be relatively pure carbonate and shows no alteration to skarn.

The Mississippian volcanics in the southwest corner of the sheet consist mainly of andesite with minor flows of basalt. The basalt is the host for very irregular and patchy copper mineralization.

Only a few minutes of helicopter time was spent in reconnaissance over the gneisses and schists northeast of the Tintina Fault. The outcrops are poorly exposed.

The outcrops at Stop 1 consist of biotite schist whose foliation has a shallow dip to the west. Generally the gneisses and schists are similar to those on the Lapie Lakes sheet.

(2) Mineralization

The only economic mineralization occurred in Mississippian volcanics at the southwest corner of the sheet. Bornite is present as fracture and vesicule filling in a basalt flow. The mineralization is patchy and not extensive enough to be of economic value. The only sample taken for assay was hand picked, and contained 1.62% copper. The mineralization is not continuous.

White quartz stringers in the Cambrian phyllites were not large enough to warrant an assay.

RECOMMENDATIONS

No further work is recommended on the sheet for the 1963 field season.

APPENDIX: Assay Results Lower Hoole River Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Host Rock
16A	1328	1.62	Tr	Tr	-	-	Bornite 1% Pyrite	GRAB	Basalt

McNEIL LAKE SHEET

By: H. Squair

DATA:

1 Mile Sheet 105 G - SW
Lat. 61° 15' N - 61° 30' N

½ Mile Sheet 105 G - 5
Long. 131° 30' W - 132° W

Outcrop Area - 35%

Claim Groups: Hiller Group

GENERAL GEOLOGY:

(1) Lithology and Structure

The Cambrian, Silurian and Mississippian strata lie in Northwest trending linear belts due to intense thrusting which occurred adjacent to the Tintina Trench. Less competent phyllites and shales of Cambrian and Mississippian age generally show intense deformation. Thrusting has produced numerous tight folds in the phyllites especially in the north-east corner of the sheet. Faults of both the thrust and tear type appear to be concentrated at the contact between the phyllites and more competent rocks. Most of the faults parallel the bedding and can be recognized by shearing and slickenside structures, as well as ommission of strata.

Silurian devonian dolomites which underlies 10% of the sheet appear as slices within the less competent phyllites. Folds, where present, in the dolomite are generally of the flexure type with gently dipping limbs.

Mississippian volcanics consisting of andesite flows, andesitic ash, rhyolite tuff and basalt, outcrop in a belt 4 miles wide, which extends diagonally across the centre of the map sheet. The volcanics appear to be more competent than adjacent sediments for no faults and only a few minor folds were observed. The pyroclastic portions of the belt form a nomoclimal structure with dips generally less than 45° to the southwest.

The belt is characterized by numerous pyrite gossans that occur in bands of andesitic ash and tuff.

The gneisses at the southern margin of the sheet are poorly exposed. They probably represent an altochothanous slice of precambrain from the underlying basement.

MINERALIZATION:

Sulphide mineralization is confined to the Mississippian volcanic belt. The pyrite gossans are generally lens-like and follow the foliation of the andesitic ash and tuff. Some of the pyrite bearing lenses reach 1,500 feet in length but the average length is 300 feet. The thickness of most of the lenses is difficult to determine due to intense red stain. The maximum thickness is probably in the order of 15 feet.

The gossans contain 1 - 2% pyrite, no chalcopyrite and only traces of gold and silver. Assay values given in the appendix for stops 35 and 9A are characteristic for the gossans.

Insignificant amounts of gold and silver were found in veins of silicified dolomite. The veins occur in both phyllitic and andesitic host rocks usually adjacent to a fault zone. A quartz carbonate vein at Stop 1A contains small amounts of blue-green chrysocolda. The assay from a grab sample on the vein shows only a trace of copper.

RECOMMENDATIONS:

No work is recommended on this sheet for the 1963 field season.

REPORT ON THE HILLER GROUP

McNEIL LAKE SHEET

By: H. Squair

PROPERTY:

The Hiller Group consists of 9 mineral claims covering approximately one square mile near the west boundary of the McNeil Lake Sheet. The claims partially cover a steep cirque wall which faces north. The group was staked in 1957 but has since been allowed to lapse.

LOCATION AND ACCESS:

The property is two miles north of the southwest end of McNeil Lake. Access can be made by float equipped aircraft from Watson Lake to McNeill Lake and hence by bush trail to the claims.

GENERAL GEOLOGY:

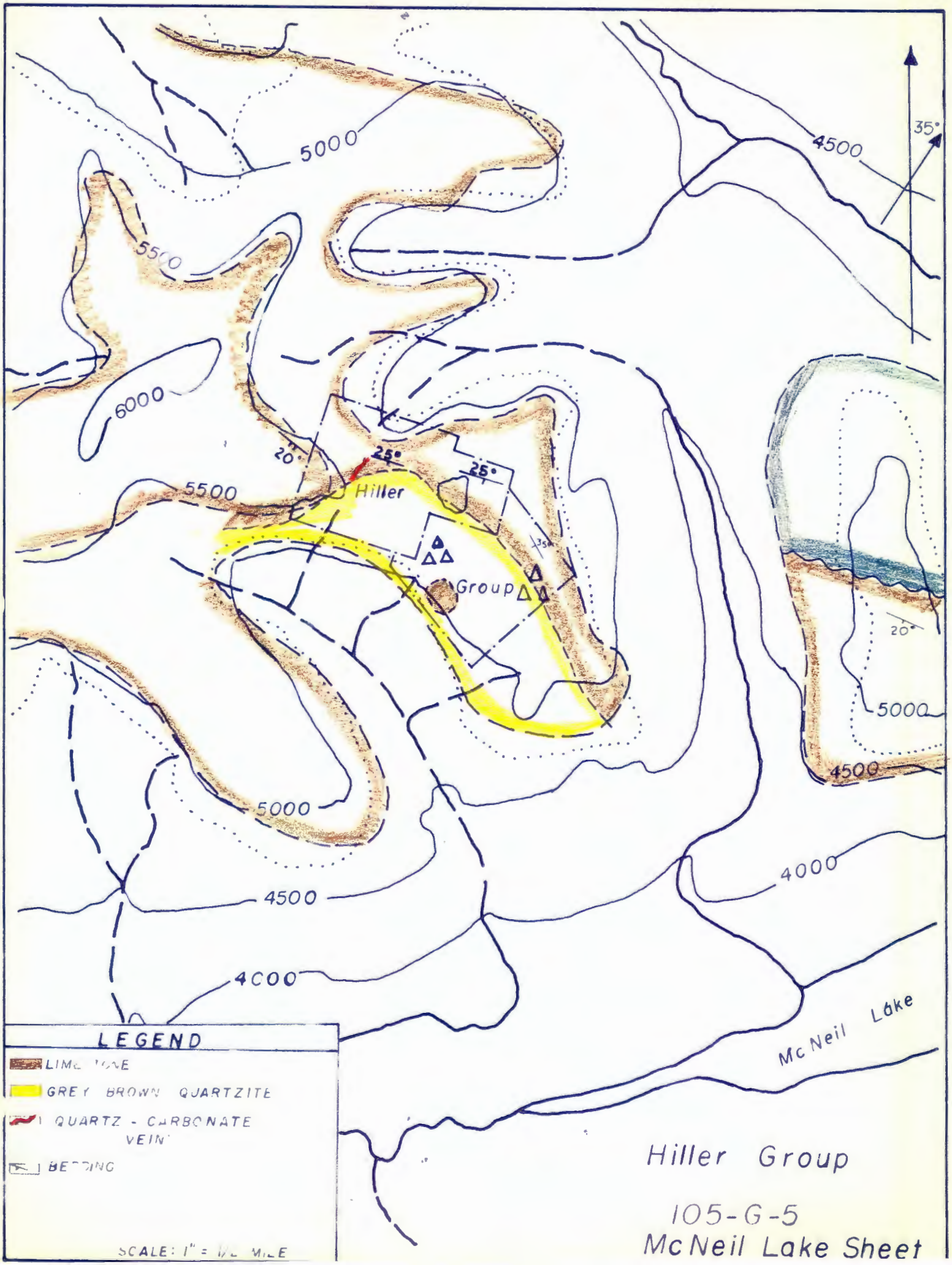
The claims are underlain by Limestone and quartzite of Cambrian age. The limestone weathers light grey and shows massive bedding up to twenty feet thick. Brown carbonates and minor silt are the only visible constituents.

The quartzite weathers grey to brown and occurs in relatively thin beds up to four feet thick. Quartz, feldspar and grey micaceous material are the only visible minerals. The quartzite has a maximum thickness of twelve feet and lies stratigraphically above the limestone. The beds strike N50W and dip 25° to the southwest.

MINERALIZATION:

The only mineralization noted was in a 1 x 5 foot quartz carbonate vein near the west end of the property. The vein contains about 1% pyrite adjacent to its contact with limestone. No samples worthy of assay were taken.

At the time of examination heavy snow cover made examination of the north side of the claims impossible. However, subsequent aureole reconnaissance indicated that no showings or workings are present.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Hiller
Group
McNeil Lake
LEGEND
LIME TONE
GREY BROWN QUARTZITE
QUARTZ - CARBONATE VEIN
BEDDING
SCALE: 1" = 1/2 MILE
Hiller Group
105-G-5
McNeil Lake Sheet

APPENDIX: Assay Results McNeil Lake Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
6	3726	Tr	-	-	-	-	2% Pyrite	20x200		Andesite Tuff
34	3773	-	Nil	.42	-	-	Vein Qtz. Ankerite	2x20		Limestone
35	3775	Tr	-	-	-	-	1% Pyrite	200x50 ft.		Volcanic Ash
	3776	Tr	-	-	-	-	1% Pyrite			Volcanic Ash
57	3823	-	Tr	.34	-	-	1% Pyrite	20x300 ft.	110°/65SW	Andesitic Ash
1A	3701	Tr	-	-	-	-	Vein Qtz. Ankerite			Volcanic Breccia
5A	3731	Tr	-	-	-	-	Vein Qtz. Ankerite			Andesite
5	3732	Tr	-	-	-	-	1% Pyrite	20x200		Andesite
6B	3733	Tr	-	-	-	-	Vein Qtz.	10x1 ft.		Phyllite
	3734	-	Tr	-	-	-	Vein Qtz. Ankerite			Phyllite
	3735	-	Nil	3.17	-	-	Vein Qtz. Dolomite	10x1 ft.		Phyllite
	3736	-	Nil	-	-	-	Vein Qtz. Ankerite			Phyllite
9A	3776	Tr	Tr	-	-	-	1% Pyrite			Rhyolite Volcanic
	3777	Tr	Tr	-	-	-	Pyrite			Andesite Tuff

MINK CREEK SHEET

By H. Squair

DATA:

1 Mile Sheet 105 G - NW
Lat. 61° 30' N - 61° 45' N

½ Mile Sheet 105 G - 11
Long. 131° W - 131° 30' W

Outcrop Area - 50%

Claim Groups Nil

GENERAL GEOLOGY

(1) Lithology and Structure

The sheet, situated northeast of the Tintina fault zone, is underlaim by biotite gneisses and schists with granodiorite and ultrabasic intrusives.

The gneisses and schists generally have a high quartz feldspar content similar to those on the Lapie Lakes sheet. It could not be determined whether the intrusives control the structure within the schists because of lack of outcrop. No folds could be traced on surface but the foliation is known to have a low dip to the west. Only one quartz carbonate vein and no sulphide mineralization was found within the gneisses and schists.

The granodiorite occurs in rather low outcrops and weathers a dirty grey. No sulphide gossans were found at the margins of these intrusives which occupy one-fifth of the total outcrop area.

The two ultrabasic stocks in the southwest corner of the sheet are well exposed. They weather a dark grey to green and appear massive. Where sheared however, these ultrabasics weather a bright apple green. In the sheared zones the pyroxenes and epidote have been altered to a bright green soapy serpentine with minor magnetite. One shear zone occurs close to the contact of ultrabasic and gneiss near Stop 58. The widest exposure of the zone is 20 feet.

MINERALIZATION

Two veins of quartz carbonate were sampled on the sheet. One vein at Stop 59 is exposed for 600 feet on strike and assayed 40 oz./ton of silver. The host rock is altered andesite and gneiss.

The second vein at Stop 65 lies in peridotite and assayed a trace of copper. No sulphide mineralization was found on the sheet.

RECOMMENDATIONS

It is recommended that no further work be done on the sheet in 1963.

APPENDIX: Assay Results Mink Creek Sheet

Stop #	No.	Assay Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
59	3824	-	Tr	.24	-	-	Vein Qtz.			Volcanic Ash
	3825	-	Tr	.56	-	-	Vein Qtz. Dolomite			Andesite

UPPER HOOLE RIVER SHEET

By Hugh Squair

DATA:

1 Mile Sheet 105 G SW
Lat. 61° 15' N - 61° 30' N

½ Mile Sheet 105 G - 6
Long. 131° W - 131° 30' W

Outcrop Area 35%

Claim Groups: Red and Hoole

GENERAL GEOLOGY:

The Tintina Fault divides the sheet into two distinctly different geological terrains. Southwest of the fault lies folded and faulted but relatively unmetamorphosed Palaeozoic strata. To the northeast lie quartzose gneisses and schists which are intruded by several granodiorite stocks.

The Palaeozoic sediments southwest of the Tintina have been highly deformed by thrusting. Cambrian and Mississippian phyllites and shales were folded into several sub-parallel tight anticlines and synclines, whose limbs dip steeply. Subsequent thrusting has truncated the folds so that their axial planes are difficult to define.

Bedding thrusts are confined to the less competent members and can be recognized by shearing and slickenside structures. Omission of strata is not a good criteria for the recognition of faults because of the complicated fold fault pattern.

Silurian-Devonian dolomites occur in linear slices which have been thrust over the Cambrian and lie locally upon Mississippian shale. Folding within the dolomite is of the flexure type. The dip of the fold limbs are generally less than 50°.

An extension of the McNeil Lake Mississippian volcanic belt enters the southwest corner of the sheet. The volcanics show only minor deformation and are characterized by several pyrite gossans.

The gneisses and schists northeast of the Tintina Fault are roughly foliated and locally show remnants of bedding. Foliations adjacent to the Tintina roughly parallel the fault while those in the northeast corner of the sheet trend roughly east-west. Folds, where present, are generally tight with steep dips on the limbs.

Several stocks of granodiorite and one of peridotite make up about 3% of the outcrop area. The gneisses and schists at the margins of the intrusives have been highly deformed but no sulphide mineralization was noted. However, one small intrusive of sheared peridotite does show slip fibres on the Hoole claim group.

Sulfide mineralization, adjacent to intrusive bodies, is conspicuous by its absence!!

MINERALIZATION:

Two occurences of sulphide mineralization were examined at Stop 66 and 67. Both gossans occur in biotite gneiss and are due to the weathering of minor pyrite. No significant gold or silver values were obtained. Lead-silver mineralization, reported by the Geological Survey of Canada could not be located on the ground.

Several quartz and quartz dolomite veins in Mississippian shale contained no sulphide and only traces of gold and silver.

RECOMMENDATIONS:

No further work is recommended on this sheet for the 1963 field season.

REPORT ON THE HOOLE CLAIM GROUP

UPPER HOOLE RIVER SHEET

By: H. Squair

PROPERTY:

The Hoole Claim Group consists of four mineral claims (Nos. 76783 - 76786) and covers 200 acres on the Upper Hoole River sheet.

LOCATION AND ACCESS:

The property is located at an elevation of 6,500 feet, 2½ miles north of the Upper Hoole River. Access to the property can be made by float equipped aircraft from Watson Lake to the Grass Lakes and hence by bush trail to the claims.

OWNERSHIP AND PREVIOUS HISTORY:

The Hoole Group were owned by Darrel REINKE and expired August 7, 1962.

GENERAL GEOLOGY:

The claims are underlain mainly by serpentinized peridotite which weathers bright green. White feldspar epidote, chrysotile and green soapy serpentine can be recognized in hand specimens. Much of the rock has been sheared and shows a radiating pattern of fractures. About 10% of the fractures are filled with cross fibres of chrysotile, up to one inch in length. The fibres make up less than 3% of the entire exposure.

The main shear zone shown on the accompanying sketch is 10 feet wide and trends N50E.

Contacts between peridotite and its biotite gneiss host rock are not well exposed due to sandy overburden. However, it is estimated that 10% of the area enclosed by the group is biotite gneiss.

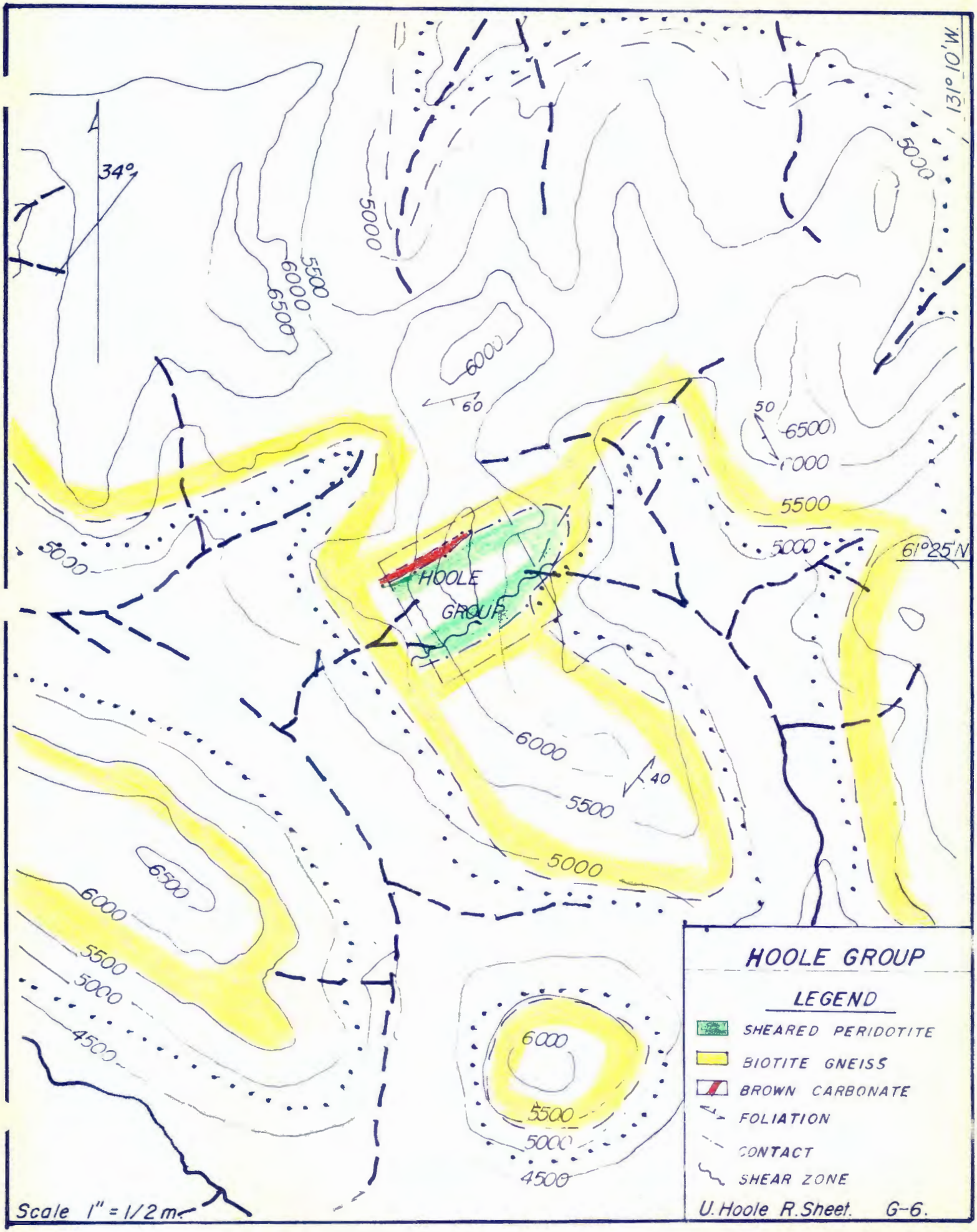
MINERALIZATION:

Near the north boundary of the peridotite a vertical quartz dolomite vein 10 feet wide parallels the contact. The vein is exposed for 150 feet at a strike of N50E. No sulphide mineralization was observed in the quartz carbonate.

The property was obviously staked for its asbestos content.

CONCLUSIONS:

The chrysoltile fibres are short, brittle, and make up less than 3% of the entire exposure. It is therefore concluded that the property is of no economic value.



HOOLE GROUP
LEGEND
SHEARED PERIDOTITE
BIOTITE GNEISS
BROWN CARBONATE
FOLIATION
CONTACT
SHEAR ZONE
U. Hoole R. Sheet. G-6.
Scale 1" = 1/2 m.
HOOLE GROUP
131° 10' W.
61° 25' N
34°
5000
5500
6000
6500
4500
60
50
40

REPORT ON THE RED CLAIM GROUP

UPPER HOOLE RIVER SHEET

By: H. Squair

PROPERTY:

The Red Claim Group consists of 9 mineral claims Nos. (76789 - 76795) covering approximately one square mile on the Upper Hole River Sheet.

LOCATION AND ACCESS:

The Red Group is located one mile south of the Upper Hoole River. Access can be made by float equipped aircraft from Watson Lake to Grass Lakes and hence by bush trail to the claims.

OWNERSHIP:

The claims are owned by Cassiar Asbestos Corp. and expire August 7, 1963.

GENERAL GEOLOGY:

The claim group lies in faulted and folded Palaeozoic sediments adjacent to the Tintina Fault zone. Three rock types: Red Phyllite, Grey Limestone and Black Slate make up 95% of the exposure.

Grey limestone underlies half of the area covered by the claims. The rock weathers grey to black with carbonate and clay the only visible minerals.

Black slate and its metamorphosed variations is 20% of the exposure. Interbanded with the slate are several lens-like patches of grey limy shale. Both the slate and black limestone contain white quartz veins and lenses up to 10 feet long and 2 feet wide which make up less than 1% of the exposure.

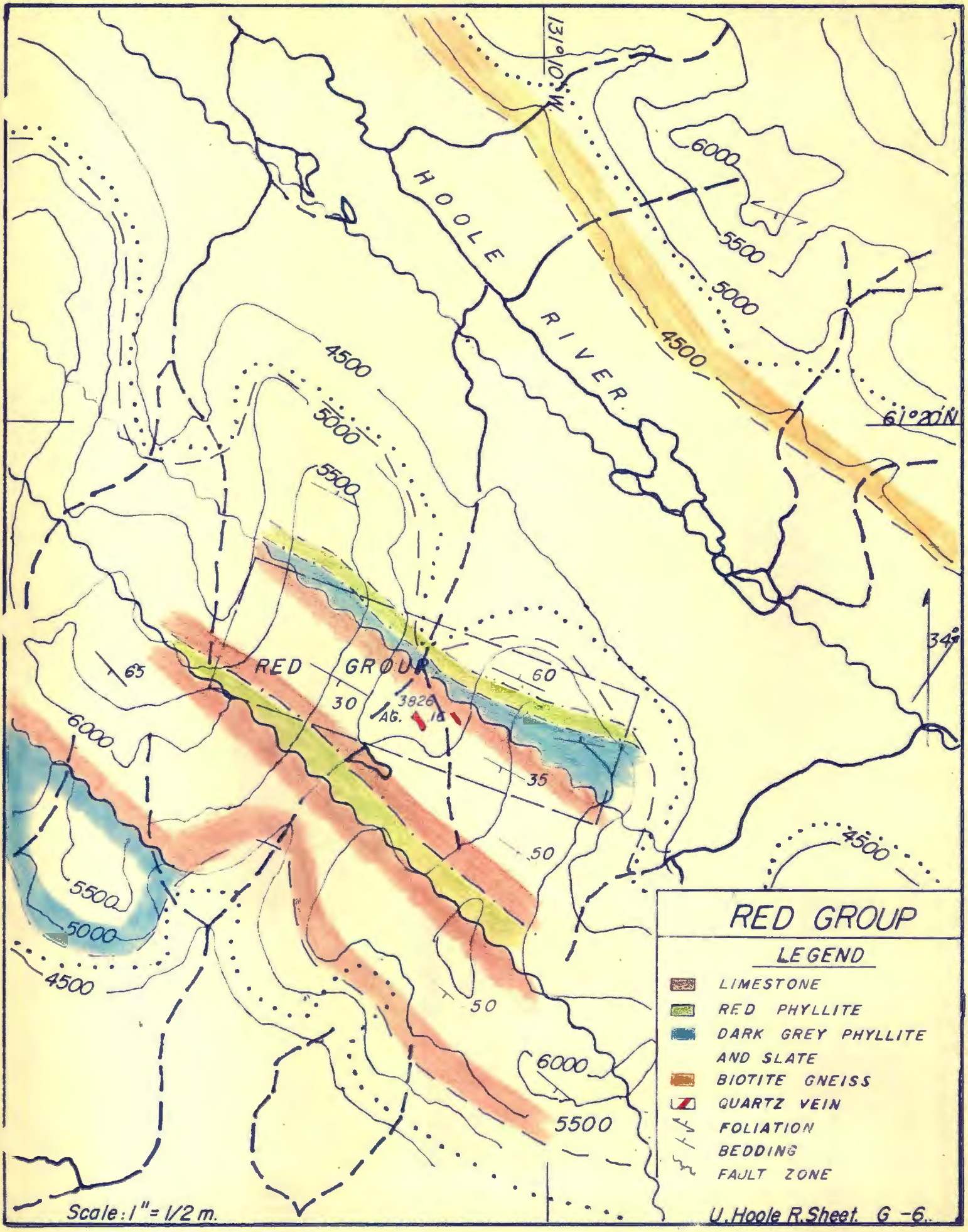
The red phyllite lies along suspected fault zones. The rock shows intense shearing and a rectangular joint pattern which cuts across the strike. The phyllite encloses several bands of red carbonate up to 5 feet wide which make up 5% of the exposure.

MINERALIZATION:

No sulphide mineralization was found during the brief examination of the claims. However, one assay of a quartz vein in limestone indicated traces of gold and silver.

CONCLUSIONS:

No trenching or drilling has been done by Cassiar Asbestos. Therefore it can be concluded that the property has been prospected but that little of economic interest has been found.



RED GROUP

LEGEND

- LIMESTONE
- RED PHYLLITE
- DARK GREY PHYLLITE AND SLATE
- BIOTITE GNEISS
- QUARTZ VEIN
- FOLIATION
- BEDDING
- FAULT ZONE

APPENDIX: Assay Results Upper Hoole River Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
60	3826	-	Tr	.16	-	-	Vein Qtz.	1x20	110°35NE	Limestone
61	3827	-	Tr	.34	-	-	Vein Qtz.	2x60 ft.	110° Vert.	Limestone
66	3844	-	.02	.27	-	-	1% Pyrite			Biotite Gneiss
67	3848	-	Nil	.17	-	-	1% Pyrite			Biotite Gneiss

JUNKERS LAKE SHEET

By H. Squair

DATA:

1 Mile Sheet 105 G - SW
Lat. 61°N - 61°15' N

½ Mile Sheet 105 G-3
Long. 131°W - 131°30' W

Outcrop Area 20%
Claim Groups - See APPENDIX

GENERAL GEOLOGY

(1) Lithology and Structure

The sheet is situated near the Northeast side of the Peel Plateau, adjacent to the Tintina Fault Zone.

Cambrian phyllites - limestone and quartzites make up 75% of the outcrop area. The limestone phyllite assemblage and its metamorphic equivalents are the major hosts of lead-zinc-silver mineralization around the Junkers Lake stock. Within the assemblage limestone occurs in rather discontinuous bands and makes up 20% of the exposure. In the metamorphic aureole of the Junkers Lake stock, much of the limestone has been altered to a sulphide bearing skarn. Phyllites within the aureole have been changed to black and red slates.

Brown and buff Cambrian quartzites lie stratigraphically above the limestone phyllite assemblage south of the Junkers Lake stock.

Approximately 20% of the sheet is underlain by Silurian dolomite and Mississippian volcanic rocks. The Mississippian volcanics contain no pyrite gossans as are present on the McNeil Lake sheet. The major portion of the Silurian dolomite occurs as linear slices within Cambrian phyllite adjacent to the Tintina Fault.

The Palaeozoic formations show a complex fold fault pattern along the Tintina Fault and at the margins of the Junkers Lake stock.

Adjacent to the stock the limestone phyllite assemblage has been folded to a series of tight anticlines and synclines. Subsequent faulting has obliterated portions of the folds so that it is difficult to determine axial traces.

The Junkers Lake stock appears to control the lead-zinc-silver mineralization on the sheet. The stock, which accounts for about 5% of the outcrop area is composed of grey-white porphyritic granodiorite. The rock is generally porphyritic with 30% white feldspar, quartz and biotite as the major constituents. Phenocrysts of white feldspar up to ½ inch wide were found in one hand specimen. The granodiorite is easily differentiated from its metamorphic aureole during aerial mapping.

(2) Mineralization

Galena, sphalerite, tetrahedrite, chalcopyrite and pyrite sulphides occur as fracture filling and replacement within the limestone phyllite assemblage south and west of the Junkers Lake stock. Most of the mineralization is found

adjacent to or within metamorphosed limestone bands. The sulphide zones generally do not exceed 300 feet in length, although surface lengths of 500 feet have been reported.

The sulphide bearing limestones are altered to a pyroxene skarn, in zones of sulphide concentration. The skarn weathers a chocolate brown, while adjacent phyllites show red iron stain.

Samples of mineralized limestone from the Tintina Mines showing contain 10% Galena, 12% sphalerite and 5% tetrahedrite with minor pyrite and chalcopyrite. Where dark sphalerite is present in the skarn it was found that the silver content is lower than where the sphalerite is pale brown. Silver assays from 80 - 400 ozs. as reported by Tintina Mines officials.

Skarn zones to the northeast of the Junkers Lake stock contain pyrrhotite and minor pyrite with no galena or sphalerite present. No investigations of gossans and skarn zones to the west of the Junkers Lake were made as these claims are owned by the operating company.

(3) Mineralized Areas

Most of the mineralization on the sheet lies near the Junkers Lake stock. No other sulphide or vein mineralization worthy of assay was noted.

(4) Recommendations

Since the mineralized zones around the Junkers Lake stock have already been staked, no further work is recommended on the sheet for the 1963 field season.

NOTE: Tintina Silver Mines main showing on the Eagle Group was the only property shown to the author.

REPORT ON TINTINA SILVER MINES MAIN SHOWING

JUNKERS LAKE SHEET

By: H. Squair

PROPERTY:

The Tintina Mines Property consists of 193 mineral claims which covers 10 square miles in area west of the Junkers Lake stock. The Eagle, IT and EL are the three groups which comprise the property. Details of ownership of other claims can be found in the Appendix.

LOCATION AND ACCESS:

The Tintina Silver Mines property is located at an elevation of 5,000 feet, 12 miles northeast of Junkers Lake and 7 miles north of the Liard River. (Lat. 61° 09' Long. 131° 10').

The property is accessible by a 70 mile winter road from Teslin or by wheel equipped aircraft from Whitehorse or Watson Lake. A 4,000 foot airstrip has been built six miles west of the property, which is accessible by road from the main camp.

OWNERSHIP AND PREVIOUS HISTORY:

The Eagle, IT and EL groups owned by Tintina Silver Mines Ltd. were staked in August, 1961. The property was mapped in September of 1961 and a drill program was started in January of 1962. From January 16th to July 29th, 1962, when operations were suspended, 2,000 feet of diamond drilling, trenching and a 1,500 foot adit were completed. Reported cost of adit work was $35 per foot advanced.

A camp consisting of 14 portable plywood shacks has been erected as well as machine shops and facilities for storage. Machinery such as tractors, air compressors, mucking machines and trucks appeared to be new and in good repair.

GENERAL GEOLOGY:

90% of the area covered by the three claim groups is underlain by Cambrian limestone and phyllite and their metamorphic equivalents. The remaining 10% includes the Junkers Lake stock which outcrops on the EL claims.

The granodiorite stock is a discordant body which is probably responsible for the complex fault fold pattern in the surrounding sediments. The limestone phyllite sequence has been folded into several sub-parallel anticlines and synclines. Subsequent thrusting has obliterated parts of the limbs to make the structural picture complex.

Two types of limestone are present within the phyllite on the property. 60% of the limestone is a light grey, relatively pure carbonate rock which occurs in bands up to 40 feet thick. The remaining 40% is a dark grey rather impure variety of carbonate rock which metamorphoses readily to skarn. The latter limestone generally occurs in thin discontinuous bands within the phyllite, and appear to be the host rock for lead-zinc-silver mineralization.

ORE DEPOSITS:

The principal mineralized area of Tintina Mines Limited lies on Eagle 24, 25, 65 and 66 at an elevation of 5,500 feet. It consists of 9 fracture zones only, six of which were seen at the time of our visit. The approximate position of the zones and adit are shown on the accompanying sketches.

The economic mineralization occurs as fracture filling and replacement of an impure limestone. 12% sphalerite, 10% galena, 5% tetrahedrite, chalcopyrite and minor pyrite are visible in hand specimen. Most of the minerals are disseminated in the limestone adjacent to fractures except galena which occurs in massive form.

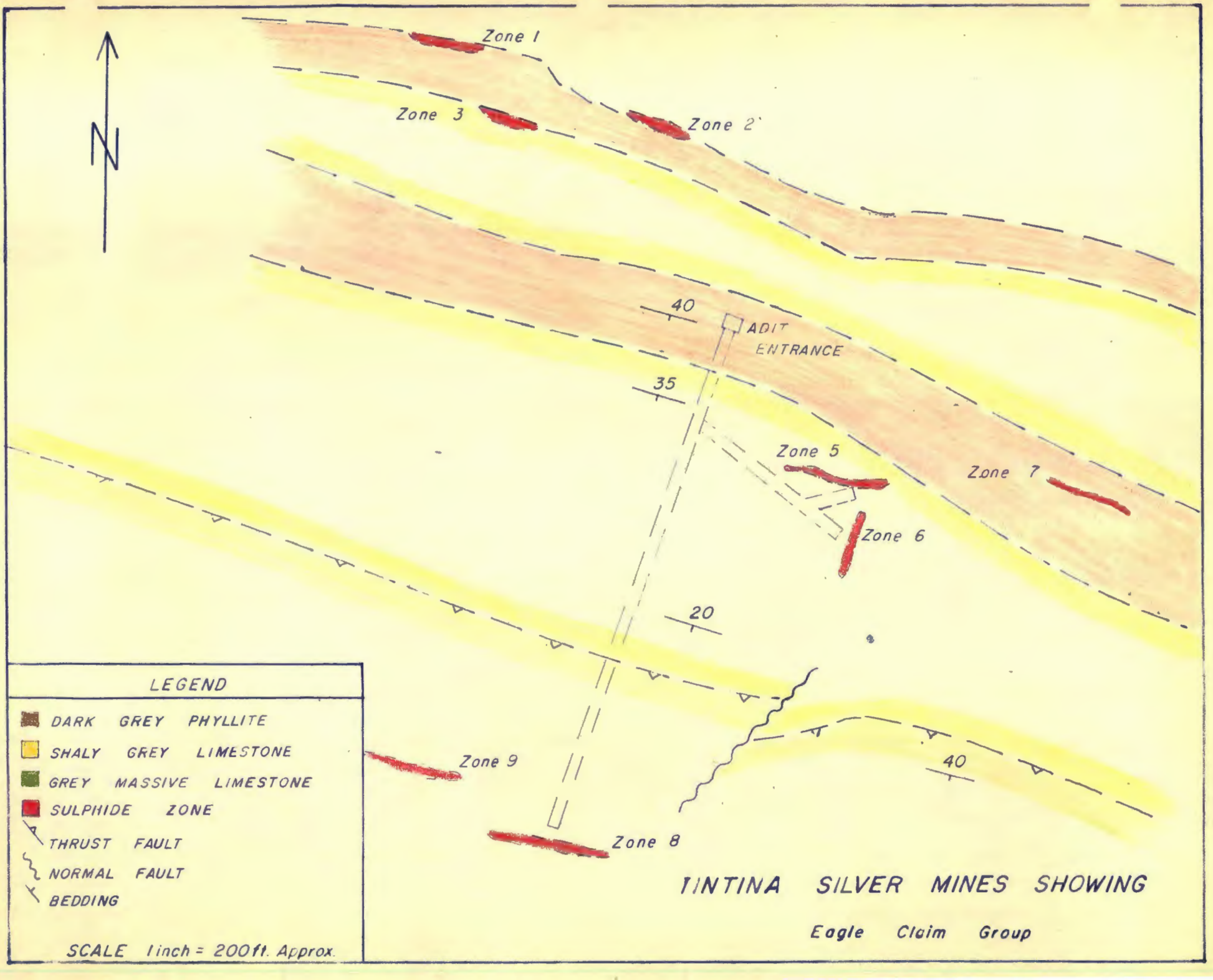
Most of the zones consist of fracture systems that parallel the bedding except zone 6 which is discordant. Skarn within the zones weathers a chocolate brown while outside the zones the phyllites show only red iron stain. The surface showings generally do not exceed 300 feet in length and 4 - 5 feet wide.

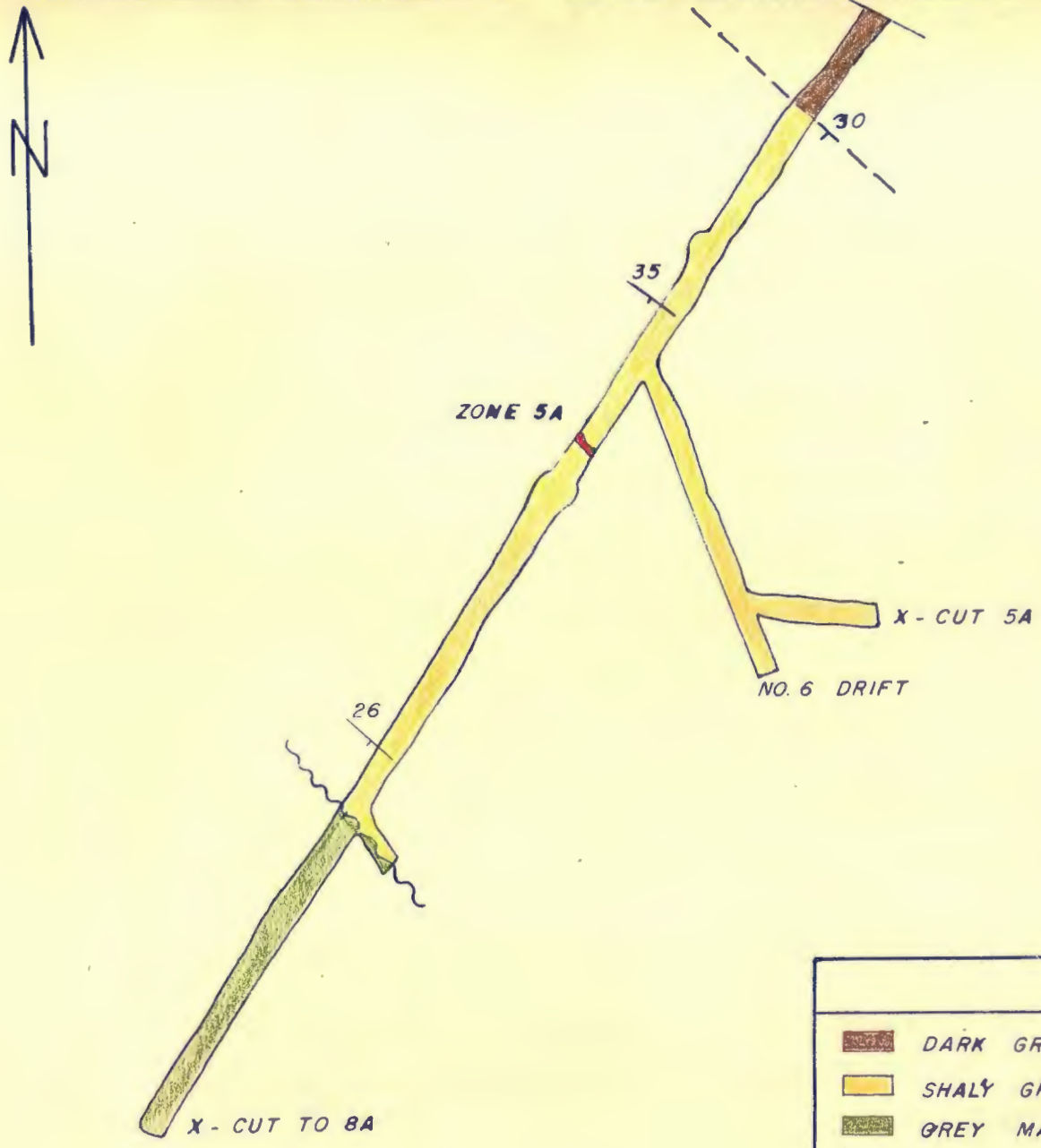
Assay values given by Tintina Mines officials vary. Grab samples from surface assayed 80 - 400 ounces of silver per ton. Assays over width in trenches on zone 5 averaged 85 ounces over 4 feet. Some silver is reported in the phyllite adjacent to the limestone in zone 5.

In the adit driven below zones 5 - 6 and 8 there is no extension of mineralization to depth. Zone 5A, which corresponds to Zone 5 on surface is less than 2 feet wide in the adit. Zone 8 does not appear at all in the underground workings.

CONCLUSIONS:

Although early results of underground work are disappointing, it should not be thought that all possibilities have been exhausted. When adit work was in progress little was known of the complex geological picture on the claims. A detailed map of the geology is now being prepared by the Company. When the map is complete, a new program will no doubt be initiated to test the property further.


N
Zone 1
Zone 3
Zone 2
40
ADIT
ENTRANCE
35
Zone 5
Zone 7
Zone 6
20
Zone 9
40
Zone 8
LEGEND
DARK GREY PHYLLITE
SHALY GREY LIMESTONE
GREY MASSIVE LIMESTONE
SULPHIDE ZONE
THRUST FAULT
NORMAL FAULT
BEDDING
SCALE 1 inch = 200 ft. Approx.
TINTINA SILVER MINES SHOWING
Eagle Claim Group



TINTINA SILVER MINES ADIT.

Eagle Claim Group

LEGEND

- DARK GREY PHYLLITE
- SHALY GREY LIMESTONE
- GREY MASSIVE LIMESTONE
- GRAPHITIC FAULT ZONE
- BEDDING
- SULPHIDE ZONE

Scale 1 inch = 150 Ft.

APPENDIX: Claim Ownership Junkers Lake Sheet

GROUP	REG. NOS.	OWNERSHIP	EXPIRY DATE
PAN 1-48	76272-76319	Cassiar Asbestos Corp.Ltd.	Aug. 31, 1962 1966
EAGLE 1-16	76323-76338 (consecutive)	Tintina Silver Mines Ltd.	Aug. 25, 1963
EAGLE 65-130	76413-76478		
RAM 1-20	76651-76670	Tintina Silver Mines Ltd.	Renewed
RAM 93-100	76747 - 76754		Sept. 1, 1963
ARCO 1-40	76879-76918	Frobisher Ltd.	Sept. 11, 1962
DALL 1-40	76919-76958	W. L. McDonald	Sept. 11, 1962
IT-GRP 1-32	76964-76999	Tintina Silver Mines Ltd.	Sept. 15, 1963
EL 1-32	77000-77031	" " " "	Sept. 26, 1963
WEST 1-32	77054-77085	W. L. McDonald	Oct. 5, 1962
NORM 1-48	77262-77309	Norman S. Edgar	Oct. 31,1962
JESS 1-8	77206-77213	Magdelena Corp. Ltd.	Oct. 31,1962
JESS 9-16	77214-77221	Norman S. Edgar	Oct. 31, 1962
JESS 17-32	77222-77237	Magdelena Corp. Ltd.	Oct. 31, 1962
JESS 33-40	77238-77245	" " "	Oct. 31, 1962
JESS 41-48	77246-77253	Norman Edgar	Oct. 31, 1962
JESS 49-56	77254-77261	Magdelena Corp. Ltd.	Oct. 31, 1962
TINA 1-80	77479-77558	Gordon F. Dickson	March 12, 1963
WEST 33-40	77086-77093	W. L. McDonald	Oct. 5, 1962

FINLAYSON LAKE SHEET

By: H. Squair

DATA:

1 Mile Sheet 105 G - NE
Lat. 61° 30' N 61° 45' N

½ Mile Sheet 105 G -10
Long. 130° 30' W - 131° W

Outcrop Area - 5%

GENERAL GEOLOGY

(1) Lithology and Structure

The sheet is situated on poorly exposed gneiss, schist and Mississippian volcanics northeast of the Tintina fault. Little helicopter time was spent in reconnaissance of this area because of poor exposure.

The southwest corner of the map is underlain by schist gneisses and minor volcanics whose structure appears to be controlled by granodiorite and ultrabasic intrusives. No folds could be traced but it is known that the foliations dip steeply adjacent to granodiorites. The dip of foliations are generally less than 50° elsewhere in the gneiss.

The granodiorite stocks in the southwest corner of the map weather a dirty grey and appear even grained similar to those on the Lapie Lakes sheet.

Peridotite and pyroxenite intrusives weather a dark grey to green. No shear zones were noted in the ultrabasics as on the Mink Creek sheet.

No work was done over the volcanics in the northeast corner of the map because of poor exposure.

(2) Mineralization

The only mineralization noted on the sheet was at Stop 68. A gossan zone containing 1% pyrite in altered volcanic rock is exposed for 200 feet. One sample from the gossan assayed 1.57 ozs. of silver and no gold.

(3) Recommendations

No work is recommended on the sheet for the 1963 field season.

APPENDIX: Assay Results Finlayson Lake Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
68	3847	-	Nil	1.57	-	-	1% Pyrite	200x10	N80W 68NE	Rhyolite

NORTH LAKES SHEET

By: H. Squair

DATA:

1 Mile Sheet 105 G SE

½ Mile Sheet 105 G 7

Lat. 61° 15 N 61° 30 N

Long. 130° 30' W - 131° W

Outcrop Area: 50%

Claim Groups: PACK, PETE, AG, LW, DP, BOB, FG, JI, LW, HR, IH, DB, SAM, BLUE, PAT, TOP, NORTH

GENERAL GEOLOGY:

Lithology and Structure:

The sheet is situated on the northeast side of the Tintina Fault zone. Biotite, schist, gneiss and metasediment along with granodiorite intrusions make up 95% of the exposure.

The structure of the gneisses and schist, unlike those on the Lapie Lakes Sheet does not appear to be controlled by granodiorite intrusions. The rocks have been folded to a series of anticlines and synclines whose axial traces trend roughly east-west. The folds adjacent to the fault zone are tight with steep limbs while those at the north end of the sheet are open with a low dip to the limbs. The gneisses and schist show little shearing or fracturing.

Secondary alteration such as seritization or carbonitization is generally absent. However iron stain due to weathering of pyrite is common especially around granodiorite intrusives.

In the southeast corner of the map a patch of Mississippian andesite and basalt lies within the gneisses and schist. The volcanics are generally massive and show minor iron stain. The patch represents an erosional remnant of the Mississippian volcanics, that lie northeast of the sheet.

Stocks of granodiorite make up about 8% of the outcrop area. The rocks weather a dirty grey and contain roof pendants of gneiss and schist. Several pyrite gossans were found in the gneiss near the margins of the granodiorite bodies.

Two small occurrences of ultrabasic rock were found on the sheet. South of the North Lakes a small stock of peridotite lies in a host of biotite gneiss. The rock weathers dark grey to green and does not appear to have been sheared.

A sill of peridotite occurs in Mississippian volcanics near Stop 71. The rock has been sheared and altered to bright green serpentine near its contacts. No chrysotile fibre was noted in the sill however.

MINERALIZATION:

Chalcopyrite and pyrite sulphides replace a band of biotite gneiss on the PACK Group just south of the North Lakes. The surface showing outcrops on a steep wall on a north facing cirque. The gossan is 5 - 10 feet thick and extends over the face for more than 1,000 ft.

Samples from drill holes put down from the cole above contain 3% pyrite and less than 1% chalcopyrite. The chalcopyrite is confined to a band less than 1 foot wide in two core logs. None of the cores were assayed but small pieces were kept for reference.

At Stop 72 a diabase dike 2,000 feet long and 15 feet wide contains 2% disseminated pyrite. The pyrite replaces the diabase as well as the gneissic host. One sample taken for assay showed .19 oz. per ton of silver and a trace of gold.

No sulphide mineralization of note was found on the claim groups, adjacent to the PACK. The claims were probably staked as tie-ons to the PACK.

RECOMMENDATIONS:

No further work is recommended on the sheet for the 1963 field season.

REPORT ON THE PACK GROUP

NORTH LAKES SHEET

J. A. Apps

August 14, 1962.

PROPERTY:

The PACK Group consists of 30 mineral claims (Nos. 75914 - 75939, 75942 - 43, 75958 - 59), which cover some 1,500 acres one mile south of the North Lakes.

LOCATION AND ACCESS:

The claims are located at an average elevation of 5,000 feet in the mountains south of the North Lakes. The Group is accessible by float equipped aircraft from Watson Lake to the North Lakes and hence by bush trail to the claims.

OWNERSHIP AND PREVIOUS HISTORY:

The claims were staked by Conwest Exploration in May of 1961. A small camp consisting of two plywood shacks has been built in the cove above the main showing. Two Bx vertical diamond drill holes were put in nearithe camp to intersect the sulphides of the main showing. A total of 525 feet was drilled in the two holes.

GENERAL GEOLOGY:

The claims are underlain by biotite schist, quartzite and minor phyllite which have been folded to an open anticline. The axis of the anticline trends N30W and passes through the claims. The metasediments at the main showing strike N30W and dip 15°SW. The rocks have reached the biotite grade of metamorphism but secondary alteration is minor save for pyritization of gneisses bands.

A stock of granodiorite intrudes the gneiss and quartzite near the west boundary of the claims. The intrusive weathers a dirty grey and contains patches of biotite gneiss. The relative position of the granodiorite is shown on the $\frac{1}{2}$ mile to the inch map which accompanies this report.

SHOWING 1:

The main showing outcrops on a steep north-facing cirque wall near the centre of the group. The gossan zone is 5 - 10 feet thick and extends along the face for over 1,000 feet. No surface samples were taken of the gossan due to the steepness of the cirque face.

Drill core indicates that the gossan contains 3% pyrite and less than 1% chalcopyrite which replaces biotite schist. The pyrite and chalcopyrite are mainly confined to bands less than 1 ft. wide as shown by the drill core logs. Minor pyrite is disseminated in the biotite schist. No samples were taken from the core for assay but several pieces were kept for reference.

Below the biotite schist the drill intersected some 90 feet of chlorite phyllite. The phyllite has been sheared at several points and contains minor graphite. No sulphides were present in the core.

East of the main showing on a west facing cirque wall are several sulphide gossans up to 200 feet long which were not examined.

CONCLUSIONS:

The sulphide zones are not extensive. Chalcopyrite mineralization is less than 1% and is confined to narrow bands in the schist. It is therefore concluded that the property is of no ecomomic value.

APPENDIX: Assay Results North Lakes Sheet.

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
70	1357	-	Tr	.12	-	-	1% Pyrite		110° 30 NE	Brotite Gneiss
72	1358	-	Tr	.19	-	-	Pyrite	15x2000 ft.	100° 30 SW	Diabase DIKE
79	1307	-	Tr	Tr	-	-	Dolomite Pyrite	100x20 ft.	120° 65SW	Chlorite Schist

FIRE LAKE SHEET

By: H. Squair

DATA:
1 Mile Sheet 105 G SE
Lat. 61° N - 61° 15 N
Outcrop Area: 45%
Claim Groups: NORTH, LAKE, SILVER, MONT, EKGS

½ Mile Sheet 105 G 2
Long. 130° 30' W 131° W

GENERAL GEOLOGY:

Lithology & Structure

The map sheet is situated astride the Tintina Fault at the east side of the Nisutlin Plateau.

The terrain southwest of the Tintina Fault is underlain by Cambrian and Ordovician sediments with several granodiorite intrusions. The Cambrian consists of phyllite, quartzite and their metamorphic equivalents. The grey and red phyllites which border the Tintina Fault have a marked cleavage and show only segments of fold structures. The Cambrian in the southwest corner of the sheet has been folded to a series of open folds with shallow dipping limbs. Adjacent to the granodiorite stock near the centre of the sheet the strike and dip of the foliation in the phyllite reflects the attitude of the granodiorite sediment contact.

The Cambrian sediments show silicification and iron stainimg only within the contact metamorphic aureole of the granodiorite..

The Ordovician dolomite in the northwest corner of the sheet is in fault contact with the Cambrian. The dolomite has been gently folded but shows little internal deformation.

The terrain on the northeast side of the Tintina Fault is underlain by biotite gneiss and schist with interbanded slate and quartzite. The rocks generally have a high felsic content and show a marked foliation. The dip of this foliation is steeper near the Tintina Fault than in the northeast corner of the sheet.

The schists and sediments show little secondary alteration except in fault zones. On the top group a biotite metasediment has been altered to quartz chlorite schist along a fault which cuts across the property.

The granodiorites on the sheet appear to be of two types. The stock which cuts the Cambrian on the central part of the sheet weathers grey-white and is generally massive. No inclusions of biotite gneiss were noted in this mass. The granodiorite within the schist weathers a dirty grey and shows a foliation which often parallels that of the surrounding metamorphic rocks. No contact metamorphic aureole could be traced around the granodiorite in the schists. The granodiorite in the Cambrian is probably of intrusive origin while the granodiorite in the schist is in part of metasomatic origin.

MINERALIZATION:

Sulphide mineralization occurs in metasediments, gneisses and schists near the margins of granodiorite intrusives.

On the MONT and INGS Groups southwest of the largest granodiorite stock, chalcopyrite and pyrite occur disseminated and as fracture filling in quartz veins. The veins parallel the strike and dip of the surrounding gneisses and metasediments.

Dissemminated pyrite is present in the country rocks at the margins of these veins. Assays from grab samples show that up to 2% copper and less than 1% silver are present in the veins.

On the MONT Group a band of amphibolite 3 feet wide contains pyrite and minor chalcopyrite. Chalcopyrite and pyrite occur in chlorite schist on the TOP claim group northeast of Fire Lake. The chlorite schist is on the footwall side of a fault which cuts across the property. Less than 1% chalcopyrite and pyrite occur as replacement of the schist. Grab samples from trenches and drill core assayed up to 1.44% copper.

Below the fault on the TOP group is a band of massive pyrite some 5 feet thick, which seems to parallel the bedding. Sulphides appear to have replaced a felsic sedimentary band. No chalcopyrite was found associated with the pyrite either on surface or in drill core.

At Stop 77 on the old Silver Group a pyrite gossan in quartzite is exposed for over 200 feet. The gossan contains 1 - 2% disseminated pyrite. A grab sample for assay showed 0.03% copper and a trace of silver present.

RECOMMENDATIONS:

No further work is recommended on the sheet for the 1963 field season.

REPORT ON THE INGS CLAIM GROUP

FIRE LAKE SHEET

By: H. Squair

August 6, 1962.

PROPERTY:

The INGS Group consists of two mineral claims that cover 100 acres at the head of Old Gold Creek on the Tirie Lake Sheet.

LOCATION AND ACCESS:

The claims are situated at an elevation of 5,000 ft. on the south side of a tributary of Old Gold Creek. Access can be made from Watson Lake to a small lake south of the MONT Group and hence by bush trail to the claims.

OWNERSHIP AND PREVIOUS HISTORY:

The claims were owned by the Asbestos Corporation Exploration Ltd., but have lapsed. One 20 x 6 x 3 ft. trench has been blasted in a quartz vein at an elevation of 5,000 ft.

GENERAL GEOLOGY:

The claims are underlain by biotite metasediment and quartzite which is part of the Cambrian contact metamorphic aureole of a granodiorite stock. The sediments and metasediments strike 110° and dip 40°NE. A cleavage superimposed on the bedding strikes 110°and dips 60°NE. The granodiorite contact is ½ mile east of the claims and may be the control of the mineralization.

The biotite metasediments weather dark grey and show 30% white feldspar, quartz and biotite in hand specimens. They are the host of several pyrite gossans in the metamorphic aureole.

The quartzites weather light grey to greenish-white and contain 60% quartz, white feldspar and minor biotite. They occur in bands up to 5 ft. wide which make up 10% of the total exposure.

MINERALIZATION:

Chalcopyrite and pyrite occur disseminated in a dusty quartz vein within the metasediments. The vein has a maximum width of 4 ft. and is exposed for 25 ft. on surface. Hand specimens of the vein show 1% chalcopyrite and 1 - 2% pyrite. Pyrite also occurs in the metasediments at the margins of the vein. One grab sample from the trench showed that .38 oz. of silver per ton and a trace of gold were present as well as copper.

CONCLUSIONS:

The mineralized quartz vein was the only showing found on the property. The vein is relatively small and the economic mineralization is of low grade. It is therefore concluded that the property is of no economic value.

MONT CLAIM GROUP

FIRE LAKE SHEET

By: H. Squair

August 6, 1962

PROPERTY:

The MONT Group consists of 14 mineral claims (Nos. 71462 - 71471, 71481 - 71485) covering some 700 acres on Upper Old Gold Creek.

LOCATION AND ACCESS:

The claims are located at an elevation of 5,500 feet on the east side of Old Gold Creek (Lat. 61° 1' N Long. 130° 38' W). The property is accessible by float equipped aircraft from Watson Lake to a small lake south of the old camp and hence by tractor road to the claims.

OWNERSHIP AND PREVIOUS HISTORY:

The claims are owned by the Newmont Mining Corporation and are due to expire on October 13, 1962. Two quartz veins and an amphibolite band have been exposed by stripping. At least four diamond drill holes were put in to test the veins. Besides this surface work on the showing a camp has been constructed on Old Gold Creek and two miles of roadway were bulldozed to the showing. A switchback road was used to carry the drill equipment up the mountainside.

GENERAL GEOLOGY:

The claims are underlain by biotite gneiss, quartzite and minor amphibolite which lie within the contact metamorphic aureole of a granodiorite. The gneiss and metasediments strike generally 115° and dip 45° NE. Alteration such as carbonitization and chloritization are absent but pyritization is evident in the quartzites and amphibolite bands.

The granodiorite sediment contact which lies ¼ mile east of the claims may be the control of chalcopyrite-pyrite mineralization that occurs in quartz veins and amphibolite on the claims.

MINERALIZATION:

The examination of the main showing was brief due to wind conditions and helicopter landing space. Most of the economic mineralization noted was confined to two sub-parallel dusty quartz veins which follow the bedding of the quartzite. The largest vein, 4 feet wide, is exposed for some 300 feet on the strike. The second vein averages 2 feet wide and is exposed for 150 feet. Both veins contain 1 - 2% disseminated and massive chalcopyrite and pyrite. The gneisses and quartzite contain disseminated pyrite for some 20 feet on either side of the veins. Two rather high grade grab samples from the veins assayed over 2% copper.

Approximately 200 feet south of the quartz veins a band of amphibolite some 3 feet thick shows pyrite and minor chalcopyrite. The length of the amphibolite band is not known but it appears to be part of a gossan zone which extends for some 1,500 feet on strike.

Four diamond drill sites were found on the mountainside below the quartz veins and amphibolite band but no core was found.

CONCLUSIONS:

The quartz veins examined were too small to be of economic value. Furthermore the Newmont Corporation seem to have abandoned the property after drilling. It is therefore concluded that the property is of no economic value.

REPORT ON THE TOP CLAIM GROUP

FIRE LAKE SHEET

By: H. Squair

August 4, 1962.

PROPERTY:

The TOP Group consists of 22 mineral claims that cover some 1,100 acres one mile east of Fire Lake. The registration numbers are given in the Appendix to the Fire Lake Sheet.

LOCATION AND ACCESS:

The group is located at an average elevation of 5,000 feet in the mountains one mile east of Fire Lake. (Lat. 61° 13' Long. 130° 30'). Access can be made by float equipped aircraft from Watson Lake to Fire Lake and hence by bush trail to the property.

OWNERSHIP AND PREVIOUS HISTORY:

The claims were staked by Cassier Asbestos Corporation and are due to expire January 5, 1964. Several trenches have been blasted and at least 10 diamond drill holes have been put down to explore the main showing. Drill equipment and camp supplies were taken in by helicopter.

GENERAL GEOLOGY:

The claims are underlain by biotite metasediment, phyllite and quartzite which are part of a faulted folded sequence lying within biotite gneiss and schist. The rocks strike generally N10°W and dip 30° NE.

Biotite metasediment is the most prevalent rock type. It weathers dark grey and contains 20% white feldspar, quartz and biotite. The metasediment is altered to chlorite schist along a fault zone on the main showing.

Black phyllite and quartzite are confined to bands within the metasediment sequence. The phyllites are lustrous, aphanitic and occur in bands up to 10 feet thick.

The sediments and metasediments have been subjected to at least one period of faulting. The major fault trends N80W and dips NW. A second fault whose attitude is unknown is evident in the drill core.

SHOWING L:

The main showing lies at an elevation of 5,000 feet at the head of a valley which drains west intoFire Lake. A plan of the showing can be found in the pocket at the back of the report.

Sulphide mineralization occurs in a band of chlorite schist on the foot wall of the fault. The schist is fine to medium grained and appears dirty green in drill core. Quartz, white feldspar, chlorite, 2% pyrite and 1% chalcopyrite appear in core and hand specimens. Minor pyrrhotite was noted in samples from trench No. 1. The chlorite

schist band is 30 feet thick and outcrops for about 1,200 feet on strike. The sulphides appear to be confined to the upper 4 or 5 feet of the chlorite schist band.* (see below to Add. assays).

A band of massive pyrite 5 feet thick outcrops in the stream below the fault near 1102 N. The rock contains .40% pyrite, quartz and feldspar. The band has a dip of 10°E and lies within chlorite schist. On the outcrop west of 2+02 a band of rusty quartzite with solution pits may be the surface exposure of this band. The quartzite has 50% solution pits and minor malachite stain, even though no copper is associated with the pyrite in drill core. One sample from surface assays .43% copper.

At least 10 diamond drill holes were put down in June of 1962. The core was examined beifly by the author and seven of the ten drill sites were found. Correlations between the core and surface were difficult to make due possibly to faulting.

Several diamond drill holes were spotted in the creek below the main showing. This drilling was done prior to 1962 and no core could be found. It is not known whether a geophysical survey was done but a 100 ft. grid has been laid out for 1800 ft. on strike.

* One sample over 4 ft. from the chlorite schist in trench 1 showed .27% copper and .14 oz. of silver per ton. A second sample from drill core ran 1.44% copper.

CONCLUSIONS:

It is known that the chlorite schist contains significant amounts of copper for 1,000 feet on strike. The fault zone which appears to be a control for the mineralization extends across the claims. The property may therefore prove economic if more drilling and detailed mapping were done.

APPENDIX: Assay Results Fire Lake Sheet,

Show. or Trench	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Host Rock
SILVER CLAIM GROUP									
Show.1 77	1306	.03	Tr	Tr	-	-	1% Pyrite	200x10	Grey Quartzi
INGS CLAIM GROUP									
Tr.1	1373	-	Tr	.38	-	-	Chalcopyrite Pyrite Vein Qtz.	25x3 ft.	Limestone
MONT CLAIM GROUP									
Sh.1	1374	1.21	Tr	.69	-	-	Chalcopyrite Vein Qtz.	200x4 ft.	Brotite Metasede
Sh.1	1375	2.08	Tr	-	-	-	Chalcopyrite Vein Qtz.	200x2 ft.	Brotite Metased
TOP CLAIM GROUP									
Sh.1 Tr.1	1380	.27	Tr	.14	-	-	Chalcopyrite Pyrite	over 4 ft.	Chlorite Schist
Tr.2	1381	.43	Tr	-	-	-	Chalcopyrite Pyrite		Quartzite
DDH-G	1382	1.44	Tr	-	-	-	Chalcopyrite Pyrite	over 4 ft.	Chlorite Schist

APPENDIX: CLAIM GROUPS FIRE LAKE

MONT	1-10	71462 - 71471	Newmont Mining	Oct. 13, 1962
MONT	20-24	71481 - 71485	" "	Oct. 13, 1962
TOP	6,7-5	75232 - 75233	Cassiar Asb.Corp.	Jan.5,1964
TOP	9 & 11	75235 - 75237	" " "	Jan.5,1964
TOP	15 - 55	75241 - 75281	" " "	Jan.5,1964
TOP	57 & 59	75283 - 75285	" " "	Jan.5,1964
TOP	71-74	75475 - 75478	" " "	Jan.5,1964
TOP	77-78,79	75481 - 75482-83	" " "	" " "
TOP	81 & 83	75485 - 75487	" " "	" " "
TOP	160-162	76261 - 76263	" " "	" " "
	131	75531		
TOP	133	75533		
TOP	134 - 135	75534 - 75535	" " "	" " "
NORTH	1 - 9	75381 - 75389	" " "	" " "
NORTH	17-26	75397 - 75406	" " "	" " "
LAKE	1-6	75365 - 75370	" " "	" " "
LAKE	8-16	75372 - 75380	" " "	" " "
LAKE	17-18	75413 - 75414	" " "	" " "
SILVER	1-32	77134 - 77165	Asb. Corp. Exp.Ltd.	Oct. 29,1962
SILVER	33-40	77166 - 77173	" " " "	" " "
SILVER	41-48	77174 - 77181	" " " "	" " "

McEVOY LAKE SHEET

By: H. Squair

DATA:
1 Mile Sheet 105 G NE
Lat. 61° 45' N - 62° N
Outcrop Area: 35%

½ Mile Sheet 105 G 16
Long. 130° W - 130°30' W

GENERAL GEOLOGY:

Lithology and Structure

The geology of the sheet is characterized by an elongate granodiorite intrusive which forms the core of an arch of Cambrian Silurian and Mississippian sediments. The axis of the arch trends N30W and extends from McEvoy Lake to the north boundary of the sheet.

Cambrian quartzites, limestone and phyllite with their metamorphic equivalents lie immediately adjacent to the granodiorite. The rocks weather grey to black and show a foliation which cuts across the remnants of bedding. The bedding dips systematically away from the stock. The rocks within the contact aureole have reached the biotite grade of metamorphism but the Cambrian outside the aureole shows only patchy alteration.

The Cambrian is the host of several pyrite gossans and minor lead, zinc-silver mineralization which occurs in a skarn band.

Silurian-Devonian limestone and quartzite are confined mainly to the southwest side of the arch. The rocks weather buff to brown and show little internal deformation. They appear to lie unconformably on top of the Cambrian. The carbonates are not altered to skarn and neither rock type shows sulphide mineralization.

Mississippian phyllites and limestones outcrop on both sides of the arch. The phyllites weather dark grey to black and show little alteration. Their bedding dips at a low angle away from the centre of the arch.

Within the phyllite on the northeast side of the arch lie several bands of massive dolomite up to 30 feet wide. The carbonates weather grey but show no skarn or sulphide mineralization.

In the extreme northeast corner of the sheet a band of grey grit lies within the limestone phyllite sequence. The grit contains pebbles of granite and medium grained fragments of quartz and feldspar. The outcrop is unique in that it was the only grit found outside of the Logan Mountains and the Hyland Valley.

The granodiorites on the sheet weather light grey to white. The rocks have a marked jointing but no foliation. The main stock is surrounded by a contact metamorphic aureole of Cambrian rocks but the smaller stocks at the south boundary and in the northeast corner have no such aureole. The granodiorites appear to control the sulphide mineralization on the sheet.

Mineralization

Galena sphalerite mineralization was found by prospectors south of the main stock. The sulphides occur as replacement of a Cambrian limestone band. The band is 3 feet thick and is exposed for 300 feet. Mineralization is erratic and appears in patches along the band. Four grab samples give an average assay of:

Ag	Pb	Zn
1.11	3.55	1.68

At Stop 98 a pyrite gossan 10 feet wide and some 300 feet long follows the foliation of a biotite gneiss. The gossan contains 2% pyrite and a light green mineral that was not identified in hand specimens. One grab sample assayed .35% copper and a trace of gold and silver.

Several small gossan and stain zones occur in Mississippian phyllite south of McEvoy Lake. The gossans are due to weathering of pyrite and pyrrhotite in lime rich bands. Samples 1336 - 1339 were taken during a geochemical survey of a creek. The assays show that about .1% zinc is present in the sulphides.

RECOMMENDATIONS:

No further work is recommended on the McEvoy Lake sheet for the 1963 field season.

APPENDIX: Assay Results McEvoy Lake Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike-Dip	Host Rock
96	1318	-	Tr	Tr	-	-	1% Pyrite			Limestone
98	1334	.35	Tr	Tr	-	-	2% Pyrite	300x10	N20W 65SW	Biotite Gneiss
111	1259	-	.01	-	-	-	1% Pyrite			Quartzite
F.G. 8	1321	-	-	1.08	5.28	3.01	Galena Spharleite	GRAB		Limestone
	1322	-	-	1.31	4.87	1.04	Galena	GRAB		Limestone
	1340	-	Tr	.93	2.83	1.64	Galena 1% Pyrite	GRAB		Limestone
	1341	-	Tr	Tr	1.22	1.04	Galena 1% Pyrite	GRAB		Limestone
GEOCHEM LOCALITY Fr-Z										
Sta 3	1336	-	Tr	Tr	-	.16	1% Pyrite	2x20 ft.		Phyllite
Sta 5	1337	-	Tr	Tr	-	.14	1% Pyrrhotite			Slate
Sta 9	1338	-	Tr	Tr	-	.08	2% Pyrrhotite			Slate
Sta 10	1339	-	Tr	Tr	-	.16	1% Pyrite			Slate

FINLAYSON RIVER SHEET

By: H. Squair

DATA:

1 Mile Sheet 105 G NE
Lat. 61° 30' N 61° 45' N
Outcrop Area: 20%

½ Mile Sheet 105 G 9
Long. 130° W 130° 30' W

GENERAL GEOLOGY:

Lithology and Structure:

The sheet is situated in the low-lying map area northeast of the Campbell Range. Most of the map area is underlain by Mississippian volcanics and sediments with the exception of the northeast corner where granodiorite and Silurian-Devonian limestones outcrop.

The Mississippian are confined to rather low-lying outcrops in the southern part of the sheet. Andesite and volcanic ash appear to be the main rock types.

Outcrops are too poorly exposed and erratic to determine the structure of the volcanics but they lie within a band which extends from Ross River to Frances Lake. No sulphide gossans or large patches of alteration were noted in these rocks.

The Mississippian phyllites and quartzites are confined to the northeast corner of the sheet. They weather grey to black and show a marked cleavage which masks much of the bedding. Their structure appears to be controlled by a granodiorite stock which intrudes them. The strike and dip of the sediments reflects the attitude of the granodiorite contact. The phyllites show minor pyritization adjacent to the contact and several quartz veins were noted and sampled.

The Silurian dolomite lies on top of the Mississippian in isolated blocks that appear to be in fault contact with the underlying phyllite. These carbonates show little internal deformation and no skarn was noted even at the margin of the granodiorite.

The granodiorite which intrudes the Mississippian phyllite weathers light grey. The rocks have a marked joint pattern but no foliation or inclusions of gneiss were noted. No contact metamorphic aureole was visible from the air.

MINERALIZATION:

Only minor occurrences of sulphide mineralization were found. The phyllites adjacent to the granodiorite contain disseminated pyrite but no economic minerals. The granodiorite contains several patches of iron stain due to the weathering of pyrite.

Two quartz veins on the east side of the stock were located by prospectors. The veins showed no sulphide and only a trace of gold and silver.

RECOMMENDATIONS:

No further work is recommended for the 1963 field season.

APPENDIX: Assay Results Finlayson River Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Host Rock
F-G 9	1342	-	Tr	Tr	-	-	Vein Qtz.		Phyllite
	1343	-	Tr	Tr	-	-	Vein Qtz.		Phyllite

WOLVERINE LAKE SHEET

By: H. Squair

DATA:

1 Mile Sheet 105 G SE
Lat. 61° 15' N 61° 30' N
Outcrop Area: 30%

½ Mile Sheet 105 G 8
Long. 130°W 130°30' W

GENERAL GEOLOGY:

Lithology and Structure:

The sheet is underlain by gneiss, schist, quartzite and Mississippian volcanics with minor intrusions of granodiorite and pyroxenite. The terrain is similar to that of other sheets situated immediately northeast of the Tintina Fault.

The gneisses and schists have a high quartz feldspar content and show a marked foliation. Remnants of bedding show no definite fold pattern for the foliation has marked the major structures.

Secondary alteration such as sericitization and chloritization is generally absent. Even pyrite gossans are less prevalent than on other sheets with the same terrain.

Basalt and volcanic ash make up the Mississippian volcanics which are confined mainly to the northeast corner of the sheet. One small patch of basalt found in the southwest corner of the sheet indicates that the volcanics lie unconformably on the schist and gneiss. The outlies of basalt represent an erosional remnant of the Mississippian.

The volcanics weather dark grey and generally show more secondary alteration than the gneisses. At Stop 94 the volcanics have been sheared to a talc schist with pyrite. The basalt in the southwest corner of the sheet has been carbonitized. Calcite filled vesicules are common and several veins of dolomite fill fractures in the basalt.

Two irregular stocks of granodiorite outcrop near the western and southern margins of the map area. The intrusives weather dirty grey and appear to have a foliation. Several minor pyrite gossans were noted in the host rocks at the margins of the granodiorites.

Three small stocks of pyroxenite intrude the gneiss at the western margin of the sheet. These intrusives weather grey-green and are generally massive. No shearing or light green serpentine was noted from the air.

MINERALIZATION:

Pyrite was the only sulphide mineral found on the sheet. The gossans are confined mainly to Mississippian volcanics. At Stop 95 a band of quartzite 15 feet wide and 500 feet long contains 3% disseminated pyrite. One grab sample from the gossan assayed traces of silver and gold.

At Stop 83 a brown carbonate vein 10 feet wide contains 1% pyrite. The vein lies on basalt and is exposed for some 500 feet along strike. One sample from the vein also assayed a trace of silver and gold.

No economic mineralization was found on the sheet.

RECOMMENDATIONS:

No further work is recommended on this map sheet for the 1963 field season.

APPENDIX: Assay Results Wolverine Lake Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
83	1309	-	Tr	Tr	-	-	1% Pyrite	500x10	N10E 45SE	Carbonate Vein in Basalt
84	1308	-	Tr	Tr	-	-	Dolomite	500x30 ft.	120° 30SW	Carbonate Vein in Basalt
93	1315	-	Tr	Tr	-	-	1% Pyrrhotite			Argillite
94	1316	-	Tr	Tr	-	-	1% Pyrite			Talc Schist
95	1317	-	Tr	Tr	-	-	3% Pyrite			Quartzite

NORTH BLACK LAKES SHEET

By: H. Squair

DATA:

1 Mile Sheet 105 G SE
Lat. 61° N - 61° 15' N
Outcrop Area: 30%
Claim Groups: EAST, TOP, SOUTH, LAKE and MM

½ Mile Sheet 105 G 1
Long. 130° W- 130° 30' W

GENERAL GEOLOGY:

Lithology and Structure

The sheet is underlain mainly by gneiss, quartzite and schist with granodiorite intrusions. However, on the southwest side of the Tintina Fault two patches of Cambrian phyllite outcrop at the margins of a granodiorite stock.

The gneisses, schists and metasediments have a high quartz feldspar content and appear coarser grained than unmetamorphosed Palaeozoic. Bedding, where present, is generally coarse and little fracturing or shearing has taken place.

The rocks have a marked foliation that trends east-west. Remnants of bedding however, indicate that they have been folded to a series of anticlines and synclines whose axial planes trend east-west.

Secondary alteration such as carbonitization is generally absent except in fault zones where some of the metasediments have altered to chlorite and sericite schist. At Stop 90 a feldspathic biotite metasediment has been sheared to form a band of sericite schist 20 feet wide and 1,500 feet long. The gneisses and schists also contain pyrite gossans especially adjacent to granodiorite intrusives.

The granodiorites on the sheet appear to be of two types. The intrusive within the Cambrian weathers grey-white and has no foliation, while the granodiorite within the gneiss and schist weathers a dirty grey and contains inclusions of gneiss. The latter intrusives are in part of metasomatic origin while the granodiorites in the Cambrian appear to be of intrusive origin.

A stock and one sill of pyroxenite intrudes the gneisses in the southeast corner of the sheet. The intrusives weather dark grey to green and appear massive. The sill at Stop 87 contains fibrous pyroxene which fills fractures up to 1 inch wide. The fibres make up 5% of the exposure and are too short and brittle to be of value for asbestos.

MINERALIZATION:

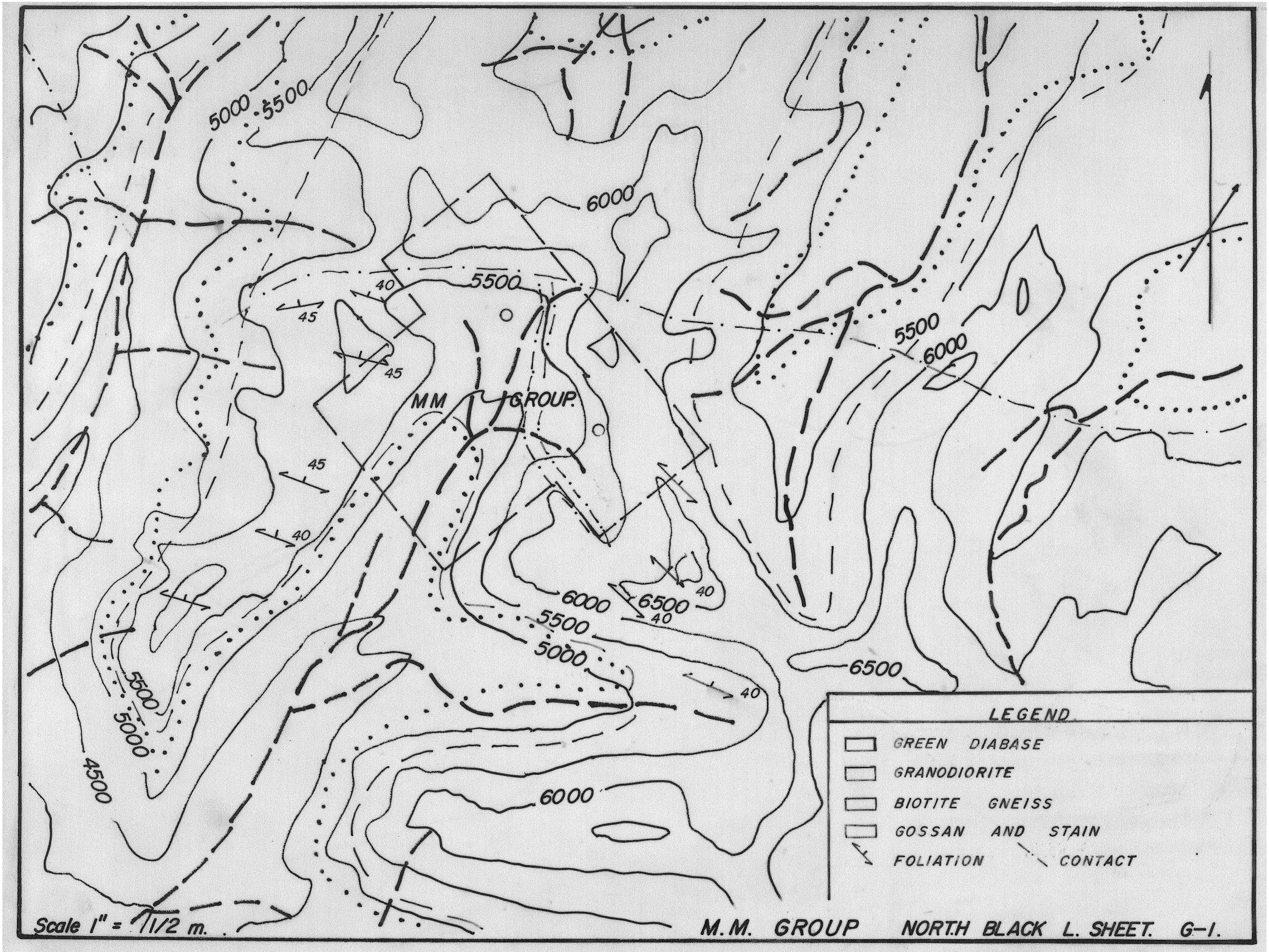
Pyrite was the only sulphide mineral found on the sheet. At Stop 90 the sericite schist contains 1% disseminated pyrite. One grab sample taken at this stop assayed 0.03% copper and a trace of gold and silver.

Other pyrite gossans occur in biotite gneiss and quartzite. At Stop 89 a band of biotite gneiss 30 feet thick contains 1% disseminated pyrite. The band is exposed for 150 feet on strike. A grab sample from the band showed traces of gold and silver.

No gossans or economic mineralization were noted on the claims staked on the sheet.

RECOMMENDATIONS:

No further work is recommended on this sheet for the 1963 field season.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BIOTITE GNEISS
GOSSAN AND STAIN
FOLIATION
CONTACT
Scale 1" = 1 1/2 m.
M.M. GROUP NORTH BLACK L. SHEET. G-1.

APPENDIX: Assay Results North Black Lakes

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
90	1310	.03	Tr	Tr	-	-	1% Pyrite	1500x20	90/30S	Serecite Schist
91	1313	-	Tr	Tr	-	-	1% Pyrite			Quartzite
92	1314	-	Tr	Tr	-	-	1% Pyrite			Quartzite
89	1311	.03	Tr	Tr	-	-	1% Pyrite	150x30 ft.	87°/60NW	Brotite Gneiss
M-R 8	1263	-	nil	Tr	-	-	1% Pyrite	GRAB		Brotite Gneiss
P	1264	-	Tr	Nil	-	-	1% Pyrite	GRAB		Brotite Gneiss

McPHERSON LAKE SHEET

By: H. Squair

DATA:
1 Mile Sheet 105 H - NW
Lat. 61 45'N - 62 N
Outcrop Area: 25%
Claim Groups: YVONNE, ROSE, HOW and WILLOWDEAN.

½ Mile Sheet 105 - H - 13
Long. 129 30'W - 130 W

GENERAL GEOLOGY:

(1) Lithology and Structure

The sheet is situated in the low lying area astride the Yusezyu River. Ninety percent of the area is underlain by Cambrian and Ordovician sediments which occur in patchy outcrops. The remaining exposures are biotite gneiss and granodiorite.

Cambrian phyllites, quartzites and limestones make up most of the Palaeozoic rocks. The sediments appear to be part of a synclinal structure whose axis lies in low ground below Ptarmigan Creek. The Cambrian generally shows little alteration save for several limestone bands which have been metamorphosed to skarn. Several veins of massive pyrrhotite cut the Cambrian on the ROSE group.

Ordovician phyllite and grit is confined to the northern boundary of the sheet. It is not known whether the contact with the Cambrian is a fault or an unconformity.

One patch of biotite gneiss and schist outcrops at the east boundary of the sheet. The rock may be highly altered Cambrian but it has a similar appearance to gneisses and schist northeast of the Tintina fault.

One small stock of granodiorite cuts the Cambrian near the centre of the sheet. The rock weathers grey-white and is certainly intrusive. Several pyrite gossans occur in the sediments at the margin of this stock.

(2) Mineralization

Pyrrhotite and minor sphalerite occur in skarn on the ROSE claim group. The skarns are generally less than 2 ft. wide and 100 ft. long. Grab samples from the skarn zones assay up to .22% zinc with small amounts of lead.

One vein of massive pyrrhotite with sphalerite cuts the limestone near the north end of the group. The vein is 2 ft. wide and is exposed for 20 ft. One grab sample assays:

Ag	Pb	Zn
.23	.78	2.88

Massive hematite occurs at the margins of the vein.

RECOMMENDATIONS:

No further work is recommended on the sheet for the 1963 field season.

REPORT ON THE YVONNE, ROSE, WILLOWDEAN and HOW GROUPS

McPHERSON LAKE SHEET

By: H. Squair and J. A. Apps
August 20, 1962

PROPERTY:

The YVONNE, ROSE, WILLOWDEAN and HOW groups consist of 46 mineral claims which cover 2,000 acres near the centre of the McPherson Lake sheet. Only the ROSE claims (No. 75725 - 75732) were in good standing at the time of examination. They were due to expire November 28, 1962.

LOCATION AND ACCESS:

The claims are located at an average elevation of 5,000 feet in the mountains, ten miles west of McPherson Lake (Lat. 61° 59' N, Long. 129° 55' W). The claims are accessible by float equipped aircraft from Watson Lake to McPherson Lake and hence by bush trail to the claims. A small lake 2 miles west of the property is also suitable for landing with light loads.

GENERAL GEOLOGY:

(1) Lithology and Structure

The claims are underlain by phyllite, quartzite, grit and limestone of Cambrian age. The sediments strike generally N 45 W and dip 50 - 70° NE.

Quartzite phyllite and grit underlie most of the claims. Grey limestone which makes up 15% of the exposure occurs in bands up to 20 ft. wide within the quartzite and phyllites. Unaltered limestone weathers grey to white and appears aphanitic in hand specimen.

The carbonates are altered at several points to an amphilole skarn with pyrrhotite. These skarns are the host of minor zinc mineralization near the north end of the claims.

One granodiorite stock cuts the grit band near the northwest corner of the claims. The rock weathers grey to white and shows no foliation.

The grit and phyllite are cut by a small transcurrent fault on the HOW group. The fault strikes N 30 W and dips NE. No mineralization was found along the fault which outcrops on the north end of the group.

(2) Mineralization

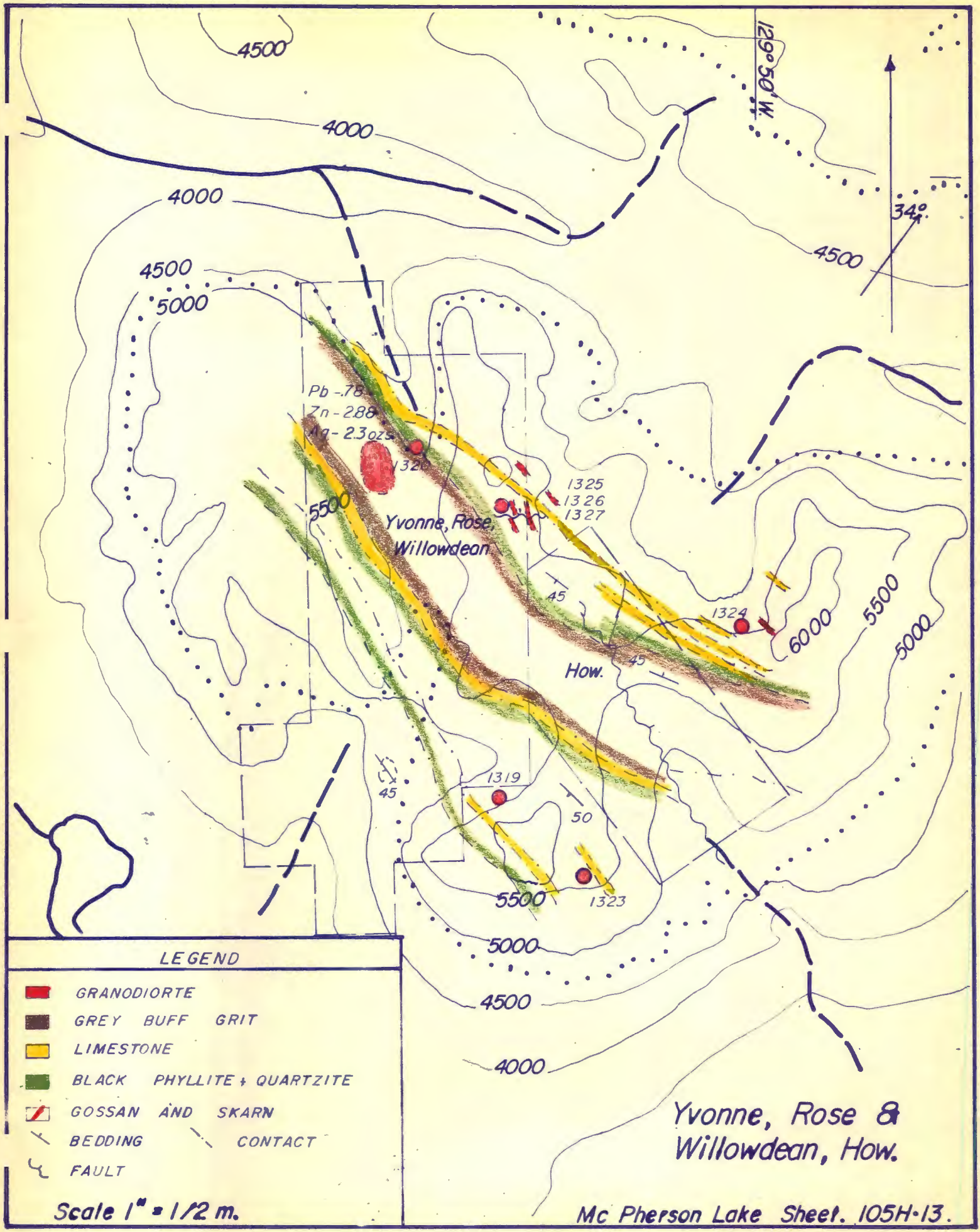
Sulphide mineralization occurses replacement bodies of limestone and phyllite and as intrusive runs. Galena and 1% sphalerite occur in a massive pyrrhotite vein near the north end of the claims. The vein is 2 ft. wide and is exposed for 20 ft. on surface. Sample 1320 shows 2.88% zinc, .78% lead and .23 oz. of silver per ton are present. A band of massive phematite 1 ft. wide lies along the vein contact.

Pyrrhotite partially replaces the carbonates of skarn bands near the north east boundary of the claims. The skarns contain 1 - 2% pyrrhotite but no economic sulphides. The bands are generally less than 20 ft. long and 2 ft. wide. Samples 1324 - 27 show that only small amounts of lead and zinc are present.

The argillite at the south end of the claims show replacement by 1 - 2% pyrite. The gossand are less than 200 ft. long and 3 ft. thick. Sample 1319 shows that only a trace of gold and silver are present.

CONCLUSIONS:

The sulphide bodies are generally small and erratic. Assays show that the lead-zinc content of the bodies is low. It is therefore concluded that the property is of no economic value.


4500
4000
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129° 50' W.
34°
4500
Pb - .78
Zn - 2.88
Ag - 2.3 ozs.
1326
1325
1326
1327
5500
Yvonne, Rose,
Willowdean
45
1324
6000
5500
5000
How.
45
45
1319
50
5500
1323
5000
4500
4000
LEGEND
GRANODIORTE
GREY BUFF GRIT
LIMESTONE
BLACK PHYLLITE & QUARTZITE
GOSSAN AND SKARN
BEDDING
CONTACT
FAULT
Scale 1" = 1/2 m.
Yvonne, Rose &
Willowdean, How.
Mc Pherson Lake Sheet. 105H-13.

APPENDIX: Assay Results McPherson Lake Sheet

Showi or Sta	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Width	Host Rock
ROSE AND YVONNE CLAIM GROUPS									
	1320	-	-	.23	.78	2.88	Sphalerite 3% Pyrrhotite	2x20 ft.	Sulphide vein in Limestone
	1319	-	Tr	Tr	-	-	1% Pyrite		Argillite
	1323	-	Tr	Tr	.07	.25	Pyrrhotite		Quartzite
	1324	-	Tr	Tr	.14	.16	1% Pyrrhotite		Limestone
	1325	-	Tr	Tr	.10	.22	Sphalerite		Limestone
	1326	-	Tr	Tr	.07	.14	Sphalerite		Limestone
	1327	-	Tr	Tr	.07	.19	Actinolite Pyrite		Limestone

NORTH FRANCES LAKE

By: H. Squair

DATA:
1 Mile Sheet 105 H - NW
Lat. 61° 30' N - 61° 45'N
Outcrop Area: 5%

½ Mile Sheet 105 H - 12
Long. 129° 30'W - 130° W

GENERAL GEOLOGY:

(1) Lithology and Structure

The sheet is situated at the north end of Frances Lake astride the Yusezyu River. Exposures are confined to the west portion of the sheet.

Cambrian and Mississippian sediments and volcanics make up the exposure and are believed to underlie most of the map area.

The Cambrian, which outcrops in the northwest corner consists of grey phyllite and limestone. The rocks are probably part of the same syncline which underlies the McPherson Lake sheet to the north. The limestones show no alteration to skarn.

The Mississippian volcanics are confined to the southwest corner of the sheet. Andesite and volcanic ash make up most of the exposure. The rocks are part of a belt stretching from Ross River to Frances Lake and show little internal deformation.

A small patch of Mississippian phyllite outcrops northeast of the volcanics at Stop 29. The phyllites are host to several quartz carbonate veins.

(2) Mineralization

No sulphide mineralization was found on the sheet. One quartz carbonate vein at Stop 99 was sampled. The vein is 250 ft. long and 10 ft. wide. Assays show that a trace of gold and no silver is present.

RECOMMENDATIONS:

No further work is recommended on the sheet for the 1963 field season.

APPENDIX: Assay Results North Frances Lakes Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
99	1252	-	Tr	Nil	-	-	Vein Qtz Dolomite	250x10	N20E Vert.	Quartzite

WEST FRANCES LAKE SHEET

By: H. Squair

DATA:

1 Mile Sheet 105 - H - SW
Lat. 61° 15' N 61° 30' N

½ Mile Sheet 105 - H - 5
Long. 129° 30' 130°

Outcrop Area - 10%

GENERAL GEOLOGY

(1) Lithology and Structure

The sheet is situated in the low lying area west of Frances Lake. Eighty-five percent of the bedrock is covered with sandy overburden.

Most of the sheet is underlaim by Mississippian volcanics and sediments. The volcanics weather dark grey and show little alteration such as sericitization and carbonatization. At Stop 109 however, a band of chlorite schist 20 feet wide has been formed in the volcanics adjacent to a small shear. The volcanics generally are roughly foliated and make up part of a homoclimal structure that dips west.

Near the eastern and southern margins of the sheet are several outcrops of Mississippian sediments. Grey coarsely bedded quartzites with several bands of limestone underlie Simpson's Tower on the east while the southern outcrops are mainly phyllite with minor quartz biotite gneiss.

Two intrusives of pyroxenite outcrop near the southern margin of the sheet. The pyroxenite weathers dull grey to green and is generally massive. On the Gen Claims however, a dike of pyroxenite has been sheared to an apple green serpentinite. The serpentite contains less than 5% chrysotile fibre.

(2) Mineralization

The chloritic band at Stop 109 contains 1% disseminated pyrite, over a width of 20 feet. The band is exposed on strike for at least 100 feet. One sample taken for assay showed a trace of silver. No other sulphide mineralization was found.

Chrysotile occurs as cross-fibre fracture filling in serpentenite on the Gen Claims. The distribution of the mineral within the serpentenite is erratic and generally makes up less than 5% of the exposure.

RECOMMENDATIONS

No further work is recommended on the sheet for the 1963 field season.

REPORT ON THE GEN GROUP

WEST FRANCES LAKE AND TUCHITUA RIVER SHEETS

BY: H. Squair

PROPERTY:

The Gen Group consists of 26 mineral claims covering approximately 2 square miles in area at the common boundary of the Tuchitua River and West Frances Lake Sheets.

LOCATION AND ACCESS:

The claims are located at an elevation of 4,000 feet on the headwater of the Tuchitua River (Lat. 61° 15' Long. 129° 45'). The property is accessible by float equipped aircraft from Watson Lake to a small lake nearby and hence by bush trail to claims.

OWNERSHIP AND PREVIOUS HISTORY:

The claims were staked and tagged in 1958 and have since expired. Five pits were excavated in serpentenite on the only showing. The approximate size and relative position of the pits is shown on the accompanying sketch.

GENERAL GEOLOGY:

The claims are underlain mainly by dark green serpentinite in a host of biotite gneiss. The gneiss weathers grey and contains 30% white feldspar, quartz and biotite. The rock adjacent to its contact with serpentinite has been sheared to a dense grey mylonite. The strike of the foliation is generally N20E, while the dip varies from 50° to 70° N.W.

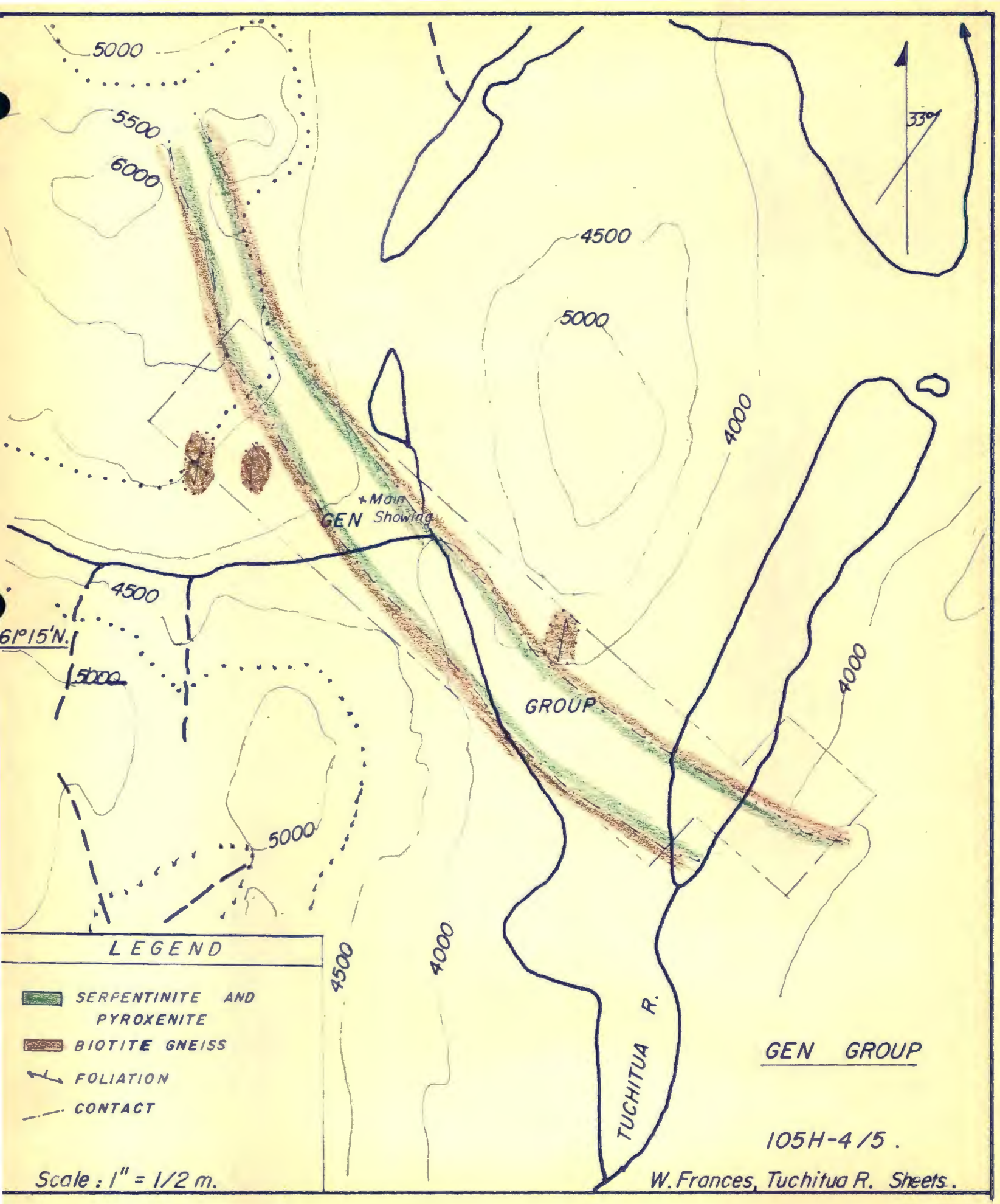
The serpentinite occurs as a vertical dike 1800 feet wide which trends 140°. The rock weathers bright green with pyroxene, chrysotile, magnetite and soapy serpentine visible in hand specimen.

MINERALIZATION:

The chrysotile occurs as brittle cross fibres up to one inch long as fracture filling within the serpentinite. The fractures are generally less than 2 feet long and have a radial pattern. The chrysotile is brittle and makes up less than 5% of the total exposure. The property was obviously staked for its asbestos content, but only one showing was found and trenched.

CONCLUSIONS:

The chrysotile fibres are brittle, short and make up less than 5% of the exposure. It is therefore concluded that the property is of no economic value.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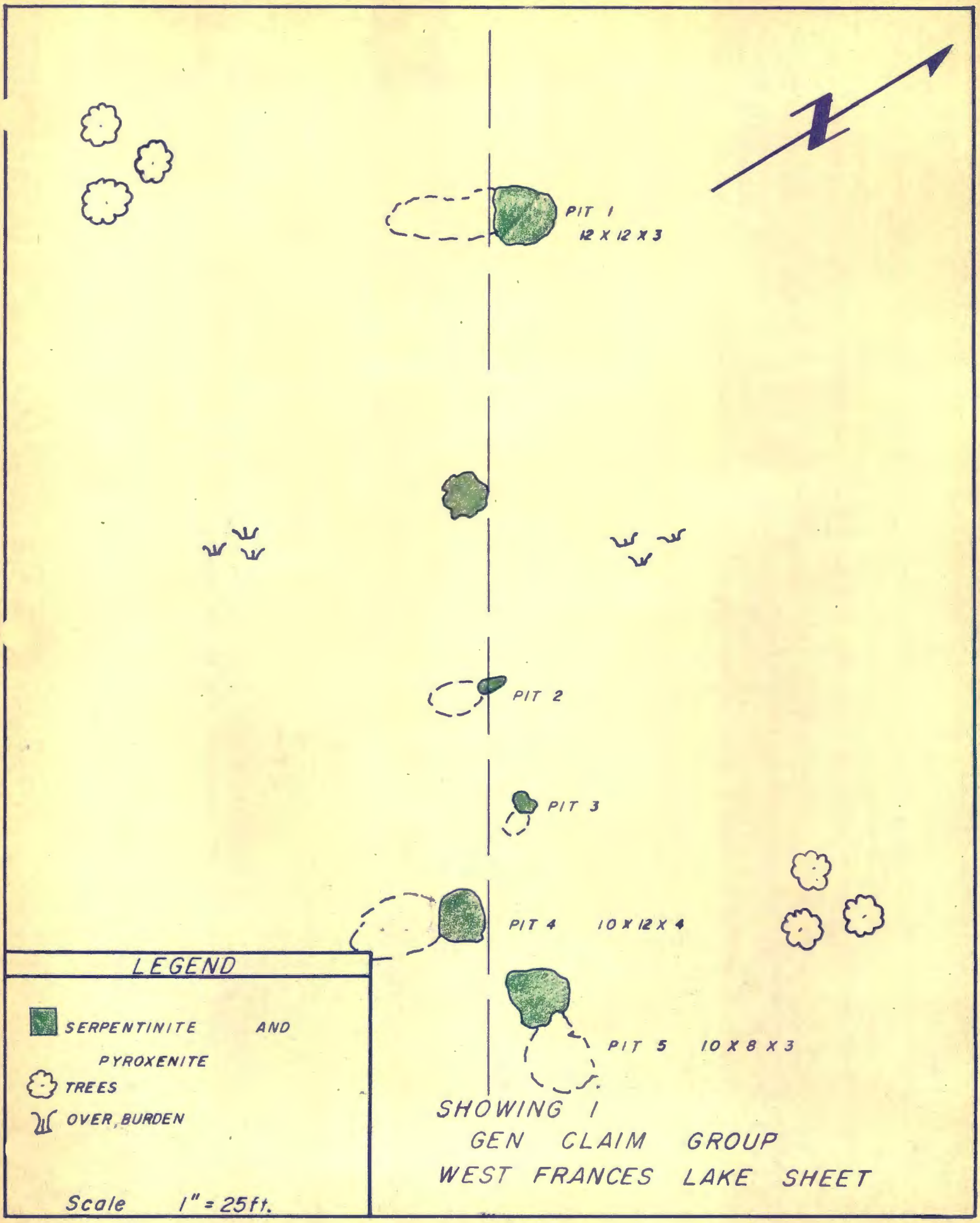
TUCHITUA R.
LEGEND
SERPENTINITE AND PYROXENITE
BIOTITE GNEISS
FOLIATION
CONTACT
GEN GROUP
105H-4/5.
Scale : 1" = 1/2 m.
W. Frances, Tuchitua R. Sheets.


PIT 1
12 X 12 X 3
PIT 2
PIT 3
PIT 4 10 X 12 X 4
PIT 5 10 X 8 X 3
LEGEND
SERPENTINITE AND
PYROXENITE
TREES
OVER, BURDEN
Scale 1" = 25ft.
SHOWING 1
GEN CLAIM GROUP
WEST FRANCES LAKE SHEET

APPENDIX: Assay Results West Frances Lake Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
109	1350	-	Nil	Tr	-	-	1% Pyrite	100x20 ft.	N50W 20SW	Chlorite Schist

TUCHITUA RIVER SHEET

By: H. Squair

DATA:
1 Mile Sheet 105 H SW
Lat. 61° N 61° 15' N
Outcrop Area: 25%

½ Mile Sheet 105 H 4
Long. 129° 30' W 130° W

GENERAL GEOLOGY:

(1) Lithology and Structure

The sheet is situated in the Campbell Mountain Range west of the Frances River Valley. Seventy percent of the outcrop is made up of Cambrian and Mississippian sediments while the remainder of the exposure is biotite gneiss and schist with attendant granitic intrusions.

Mississippian phyllites, quartzites and limestones are exposed over the widest area. They have been folded to a series of anticlines and synclines whose axial planes trend northwest. The limestone bands within the Mississippian have not been altered to skarn and no alteration such as silicification or carbonatization was noted.

Near the northeast corner of the sheet is a band of Cambrian phyllite and quartzite. The rocks show a similar fold pattern to the Mississippian but the bedding appears to be much coarser in the Cambrian.

The biotite gneisses and schists in the southwest corner of the map sheet show a rough foliation and remnants of bedding. The rocks have been altered locally to sericite and chlorite schists with pyrite. One small stock of granodiorite occurs in the schist but it has little effect on the trend of the foliation. The Mississippian probably lies unconformably on the gneiss and schist to the southwest but no direct evidence was noted on the sheet.

The granodiorite intrusive within the gneiss weathers a dirty grey and shows a rough foliation at several points. A second small stock of granodiorite occurs in Mississippian sediments near the south boundary of the sheet. The rock appears massive but is poorly exposed.

Several small stocks of pyroxenite occur in the Mississippian on the sheet. These intrusives weather a dark grey to green except where shearing has formed a pale green serpentinite. No chrysotile fibre was noted in the intrusive on the sheet.

(2) Mineralization

Pyrite was the only sulphide mineral formed on the sheet. Most of the gossans are situated in Mississippian or gneissic rocks adjacent to granodiorite.

At Stop 102 a band of chlorite schist 25 feet wide and at least 1,000 feet long contains 1% disseminated pyrite. A gossan of similar size at Stop 103 shows 1% pyrite in an amphibolite band. Samples from both gossans assayed

a trace of silver.

At Stop 104 a band of chlorite sericite schist 10 feet wide contains 1% pyrite and weathers bright red. Samples from the gossan assayed a trace of silver.

No fibres of chrysotile were found in the ultrabasic intrusives on the sheet.

RECOMMENDATIONS:

No further work is recommended on the sheet for the 1963 field season.

APPENDIX: Assay Results Tuchitua River Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
103	1345	-	Nil	Tr	-	-	1% Pyrite	3000x20 ft.	N78W 40SW	Amphidolite
104	1346	-	Nil	Tr	-	-	1% Pyrite	400x10 ft.	20° 35NW	Chlorite Schist
	1347	-	Nil	Tr	-	-	1% Pyrite	" " "		Serecite Schist
107	1251	-	.01	Nil	-	-	1% Pyrite	150x20 ft.	N50W 35NE	Chlorite Schist
102	1348	-	Nil	Tr	-	-	1% Pyrite	1000x25 ft.	N40W 35SW	Chlorite Schist

TILLEI LAKE SHEET

By: H. Squair

DATA:
1 Mile Sheet 105 H NW
Lat. 61° 45' N - 62° N
Outcrop Area: 50%
Claim Groups: VAN GIANT YELLOWKNIFE MINES LIMITED

½ Mile Sheet 105 H 14
Long. 129° - 129° 30' W

GENERAL GEOLOGY:

Lithology and Structure

The sheet is situated in the Logan Mountains; sixty-five percent of the exposure consists of Cambrian, Ordovician and Mississippian sediments, while the remaining outcrop is made up of granodiorite and granite.

The Cambrian is situated adjacent to granodiorite intrusives on the central and eastern portions of the sheet. Grey phyllite and biotite gneiss are the most prevalent rock types. However, grey impure limestone which is interbanded with the gneiss and phyllite makes up 10% of the sediments. The biotite gneiss represents the contact metamorphic aureole of the granodiorite intrusions while the phyllites with attendant limestone are representative of a lower grade of metamorphism.

In the northern part of the sheet the foliation of the phyllites strikes roughly east-west and dips north under the Ordovician. On the eastern half of the sheet the attitude of foliation of gneisses and phyllites is controlled by the granodiorite masses. The strike and dip of the foliation reflects the attitude of the granodiorite sediment contact.

No folds of major proportions could be traced on the sheet but several small faults were noted at the margins of the granodiorite.

The limestones within the Cambrian phyllite and gneiss weather a dirty grey. Unlike those of Ordovician and Mississippian the limestones show impurities and are locally fragmental. The impure carbonates are metamorphosed to skarn adjacent to the margins of granodiorite bodies. Several of the skarns are hosts of lead, zinc, silver mineralization.

Ordovician phyllites and quartzites are confined to the northern part of the map sheet. The rocks show a low grade of thermal metamorphism and little alteration such as silicification or carbonitization. The lithology is similar to that of the unaltered Cambrian but no limestone bands were noted.

The Ordovician may be thrust over the Cambrian in the northeast corner of the sheet. The strikes and dips are discordant to those in the Cambrian and several small folds occur at the Ordovician Cambrian contact. However, no fault zone could be recognized in the phyllites at the contact.

The Mississippian consists of phyllites and interbanded grey limestone. The limestone occurs in rather massive beds which make up 5 - 10% of the exposure. The carbonates weather grey-white and show no alteration to skarn.

One sill and one batholitic mass of grey granodiorite make up 20% of the exposure on the sheet. The rock weathers grey white and is generally massive. No inclusions of gneiss were noted in either intrusive. The sill is an offshoot of a large batholitic mass to the east and is in part concordant with the strike and dip of the surrounding Cambrian sediments. Lead, zinc silver mineralization was found in Cambrain sediments near the south contact of the sill.

MINERALIZATION:

Lead, zinc, silver and copper mineralization occur in Cambrian phyllite and limestone on the south side of the granodiorite sill. Several bands of limestone have been metamorphosed to a skarn which contains 3% galena, 5 - 8% shpalerite, 2% pyrite and minor chalcopyrite. The limestones are in part fragmental and sulphides occur as fracture filling and replacement of the bands. Assays indicate that up to 3% silver is present but no tetrahedrite was noted in hand specimen. Chalcopyrite and pyrite also occur in quartz disseminated in a phyllite band.

The skarns and copper bearing phyllites are only exposed for 100 - 200 feet along strike. However, other skarn bodies and iron staining are present along the contact which extends for some six miles. A further discussion of the grade of mineralization is given in the report on the VAN claim group.

Several pyrite gossans occur in phyllite and quartzite on the sheet. At Stop 114 a gossan 15 feet wide contains 1 - 2% disseminated pyrite. The gossan is exposed for 1,000 feet on strike. Samples typically show a trace of silver and no gold.

RECOMMENDATIONS:

It is recommended that ground prospecting be carried out in the Cambrian strata at the margins of the sill outside of the VAN group. Special attention should be given to the ground immediately east of the VAN claims and also north of the sill. The purpose of this ground work is to ascertain the presence of more skarn and sulphide bearing bodies.

REPORT ON THE VAN GROUP

TILLEI LAKE SHEET , Y.T.

By: H. Squair

PROPERTY:

The Van Group consists of 48 mineral claims (No. 79810 - 79857) covering approximately 4 square miles near the eastern boundary of the Tillei Lake sheet. (Lat. 61° 53' Long. 129° 06'). The property is owned by Giant Yellowknife Mines Limited of Yellowknife, N.W.T.

LOCATION AND ACCESS

The claims are located at an elevation of 5,500 feet on the headwaters of an unnamed river which flows southwest into Tillei Lake. The property is accessible by float equipped aircraft from Watson Lake to Tillei Lake and hence by an 11 mile bush trail to the claims. The Watson Lake Canada Tungsten road lies 50 miles to the south of the claims and the proposed Ross River road will pass 40 miles to the west.

OWNERSHIP AND HISTORY:

The claims were staked September 11th and 12th by Giant Yellowknife Mines Limited of Yellowknife, N.W.T. The economic mineralization was located by a two-man prospecting party. Only a very limited amount of ground prospecting and mapping was done due to snow and ice conditions.

GENERAL GEOLOGY:

The claims are situated astride a contact between granodiorite and Cambrian phyllite, limestone and shale.

The phyllites appear to form the foot wall of the granodiorite sediment contact and make up most of the exposure on the claims. They are generally aphanitic and weather dark grey except where weathered pyrite produces iron stain. The strike of the phyllites is roughly parallel to the contact and the dip is north below the granodiorite. At the east end of the claims a local flexure produces dips of 75° to the south. The flexure may be surface evidence of a buried offshoot from the granodiorite sill.

Bands of impure and fragmental limestone with their skarn equivalents occur in the phyllite. Some of these limestone bands reach a thickness of 30 feet but those which form skarn vary from 6 inches to 4 feet wide. The limestone generally weathers dark grey and contains equal portions of carbonate and clay minerals. Some of the limestones, however, are definitely fragmental and show calcerious breccia fragments in a clay mineral matrix. Calcereous

fragments up to 1 inch long and ½ inch wide were noted in hand specimen. The fragmental limestones have been silicified as indicated by minute quartz eyes which make up 10% of the rock. Both fragmental and non-fragmental limestones are hosts of galena sphalerite mineralization on the property.

The Black shales lie below the phyllite and limestone. They weather a dark grey to black and generally show less alteration than the adjacent phyllites. The rock is aphanitic except where silicification has taken place. In silicified specimens small eyes of glassy quartz make up 10 - 15% of total minerals.

The granodiorite on the claims is part of a sill-like mass which extends onto the Tillei Lake sheet from the east. The rock weathers grey white and shows 40% white feldspar, quartz and biotite in hand specimen. The granodiorite appears to lie on top of the phyllite to the south and is overlain by biotite gneiss to the north. Further east however, the granodiorite appears to widen to a discordant mass with the sediments on both sides lying on top.

MINERALIZATION:

Two showings of lead, zinc, silver mineralization were examined in the presence of one member of the prospecting party.

The main showing is situated at an elevation of 6,000 feet in a small south-facing gully 3,700 feet from the east end of the claims. At the top of the gully is a west-facing wall of limestone and skarn some 30 feet high. Exposed on this face is a patch of chocolate brown alteration 70 feet long and 25 feet wide in which the lead, zinc, silver mineralization occurs. The patch may be part of a mineralized lens but extension on strike could not be traced due to scree. The gully below the face contains mineralized boulders for at least 500 feet below the showing.

Two percent galena, 5% sphalerite and minor pyrite-chalcopyrite occur as replacement and fracture filling in a fragmental limestone. The sulphides have apparently replaced the matrix at the margins of silicified breccia fragments. The brown color of the altered surface is due to zinc and iron oxide.

Three grab samples (Nos. 1273, 1274, 1283) were taken for assay from the altered patch. The assay averages for the three were:

Cu	Au	Ag	Pb	Zn
.47%	0.1 - tr.	2.93 oz.	2.61%	5.11%

No samples were taken over measured widths.

A second band of skarn 1 foot wide and 50 feet long outcrops 900 - 1,000 feet east of the main showing at roughly the same elevation. The mineralization is exposed on a vertical face at the east side of a small gully. Galena, sphalerite and pyrite replace a fragmental limestone similar to that on the main showing. The presence of mineralization is indicated by a chocolate brown stain on the surface of the limestone.

One sample (1280) taken over 8 inches near the base of the high outcrop assayed:

Cu	Au	Ag	Pb	Zn
Tr	0.13	1.61	2.48	2.08

Two other small bands of alteration were found in limestone between the two showings discussed. The bands average 1 foot in width and were exposed for only a few feet on strike. Samples 1281 and 1283 were taken for assay from the bands. The assay results are shown in the Appendix.

The mineralization east of the main showing does not appear to be part of the main mineralized lens, but the smaller showings are separate individual bands within the limestone phyllite sequence.

In the gully 1,000 feet below the main showing is a band of pyritized phyllite some ten feet wide. A white quartz stringer within the phyllite contains 1% chalcopyrite. No copper mineralization was found in phyllite in the gully but the sulphide band continues for at least 1,000 feet on strike.

On the west and central parts of the property the phyllites show iron stain. The position of the stain is shown by brown circles on the accompanying map. The stains were not prospected due to treacherous ice and snow conditions.

CONCLUSIONS:

The granodiorite phyllite contact is a fairly extensive structure along which economic mineralization is known to occur. Assays indicate that at least 5 metals of economic value are present in skarn and sulphide zones on the Van Claims. It is therefore concluded that more work should be done on the property in order to determine the size of known showings and to ascertain the presence of further economic mineralization.

RECOMMENDATIONS:

A twofold program is recommended for the Van Group for the 1963 field season:

(1) Geological mapping on a scale of 1 inch = 500 feet should be carried out in late July or August when the danger of snowslide is least.

(2) A geochemical stream sediment survey should be attempted in all intermittant streams draining the gossan zones.

APPENDIX: Assay Results Tillie Lake Sheet

Stop #	No.	Assay Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
112	1260	-	Nil	-	-	-	1% Pyrite			Quartzite
114	1265	-	Nil	Tr	-	-	Pyrite	100x15 ft.	170W 70SW	Phyllite
117	1266	-	Nil	Tr	-	-	Pyrrhotite Pyrite	300x15 ft.	110W 50NE	Biotite Metased
F-G 11	1275	2.99	Tr	.62	-	-	Chalcopyrite Pyrite	GRAB		Argillite
	1276	.30	.01	4.72	-	-	Chalcopyrite Pyrite	GRAB		Argillite

VAN CLAIM GROUP

Show. or Station	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Width	Host Rock
Sh. 1	1273	.61	.01	3.16	3.16	6.38	Galena Sphalerite		Skarn
	1274	.41	Tr	2.52	-	4.41	Galena Sphalerite Pyrite		Skarn
	1280	Tr	.13	1.61	2.48	2.08	Galena Sphalerite	8 inches	Skarn
	1281	Tr	Tr	.54	.20	3.34	Galena Sphalerite	over 1 ft.	Fragmental Limestone
	1282	.20	Tr	3.11	2.62	4.55	Galena Sphalerite	50x20 ft. patch	Skarn
	1283	Tr	Tr	1.85	.72	16.46	Pyrite Sphalerite	over 6 inches	Fragmental Limestone

ANDERSON CREEK SHEET

By: H. Squair

DATA:
1 Mile Sheet 105 H - SW
Lat. 61° 30' N - 61° 45' N
Outcrop Area: 30%

½ Mile Sheet 105 H - 11
Long. 129° W - 129° 30' W

GENERAL GEOLOGY:

(1) Lithology and Structure

The sheet is situated on the west side of the Logan Mountains northeast of Frances Lake.

Thirty percent of the outcrop is made up of Cambrian, Ordovician and Mississippian sediments and metasediments which occur in isolated patches at the margins of granodiorite intrusives.

Cambrian phyllite and biotite gneiss accounts for most of the Palaeozoic rocks. No folds could be traced on surface for the beds have been partially obliterated by a foliation. The rocks show no secondary alteration such as chloritization.

The Ordovician phyllites and grit are confined to the southwest corner of the sheet. They have a foliation but show no secondary atleration.

Mississippian phyllite and limestone outcrop in the northwest corner of the map area. The limestones occur in bands up to 20 ft. wide within the phyllite and make up 10% of the exposure. These carbonates have not altered to skarn.

The granodiorites on the sheet appear to be of two types. The pluton on the northern part of the sheet is intrusive and weathers grey to white. The granodiorites at the south boundary weather dirty grey and contain inclusions of gneiss. They are partially metasomatic in origin.

(2) Mineralization

Little sulphide mineralization was noted on the sheet. At Stop 133 pyrrhotite replaces a band of biotite gneiss. The band is 4 to 5 ft. wide and is exposed for about 300 ft. One grab sample from the gossan showed no gold, silver, or copper present in the pyrrhotite.

No economic sulphides were found on the sheet.

RECOMMENDATIONS:

No further work is recommended on the sheet for the 1963 field season.

EAST FRANCES LAKE SHEET

By: H. Squair

DATA:
1 Mile Sheet 105 H SW
Lat. 61° 15' N 61° N
Outcrop Area: 10%

½ Mile Sheet 105 H 6
Long. 129° W - 129° 30' W

GENERAL GEOLOGY:

Lithology and Structure

The sheet is situated in the low lying area around Frances Lake. Outcrop is sparse except in the northeast corner where granodiorite forms the core of mountains up to 6,000 feet high.

Most of the sheet is underlain by phyllite limestone and quartzite believed to be of Mississippian age. Simpson's Tower and Nipple Mountain show the best exposure. No. secondary alteration is apparent fn the sediments save for pyritization of a quartzite on Simpson's Tower. No faulting or folding could be recognized due to poor exposure.

The granodiorite in the northeast corner of the sheet weathers dirty grey. The rock has a marked jointing but no foliation. No contact metamorphic aureole could be traced but the patches of gneiss at the margins of the intrusive show iron stain.

MINIERALIZATION:

Chalcopyrite and pyrite occur as fracture filling of several small quartz veins on the MINK Group. The veins occur in a limestone host which is exposed in a creek bottom. The veins average 10 feet in length and are generally less than 1 foot wide. Pyrite is disseminated in the limestone at the margins of the veins. Assays from grab samples on the veins indicate that up to 0.14% copper is present.

The only other occurrence of sulphide was found at Simpson's Tower. A 10 foot band of quartzite has been pyritized for over 100 feet on strike. No economic sulphides are present and one grab sample showed only a trace of silver.

RECOMMENDATIONS:

No further work is recommended on the sheet for the 1963 field season.

REPORT ON THE MINK GROUP

EAST FRANCES LAKE SHEET

BY: H. SQUAIR

AUGUST 26, 1962.

PROPERTY:

The MINK Group consists of eight mineral claims that cover about 700 acres on the east shore of Frances Lake.

LOCATION AND ACCESS:

The claims are situated at an elevation of 3,000 ft. astride the creek that empties into the south part of Frances Lake. The property is accessible by float equipped aircraft from Watson Lake to Frances Lake and hence by bush trail to the showings. (Lat. 61° 16' N. Long. 129° 15' W).

OWNERSHIP AND PREVIOUS HISTORY:

It is not known whether the claims are in good standing. Several small pits have exposed mineralization along the small creek that passes through the claims.

GENERAL GEOLOGY:

The claims are underlain by buff limestone and grey phyllite of possible Mississippian age, which are exposed along a creek bottom.

The phyllite weathers grey to black and contains numerous white quartz stringers up to 2 feet long. The phyllite shows extreme contortion at its contact with limestone.

The limestone weathers buff to brown and appears to be relatively pure. The carbonates are host of several quartz veins with chalcopyrite and minor pyrite.

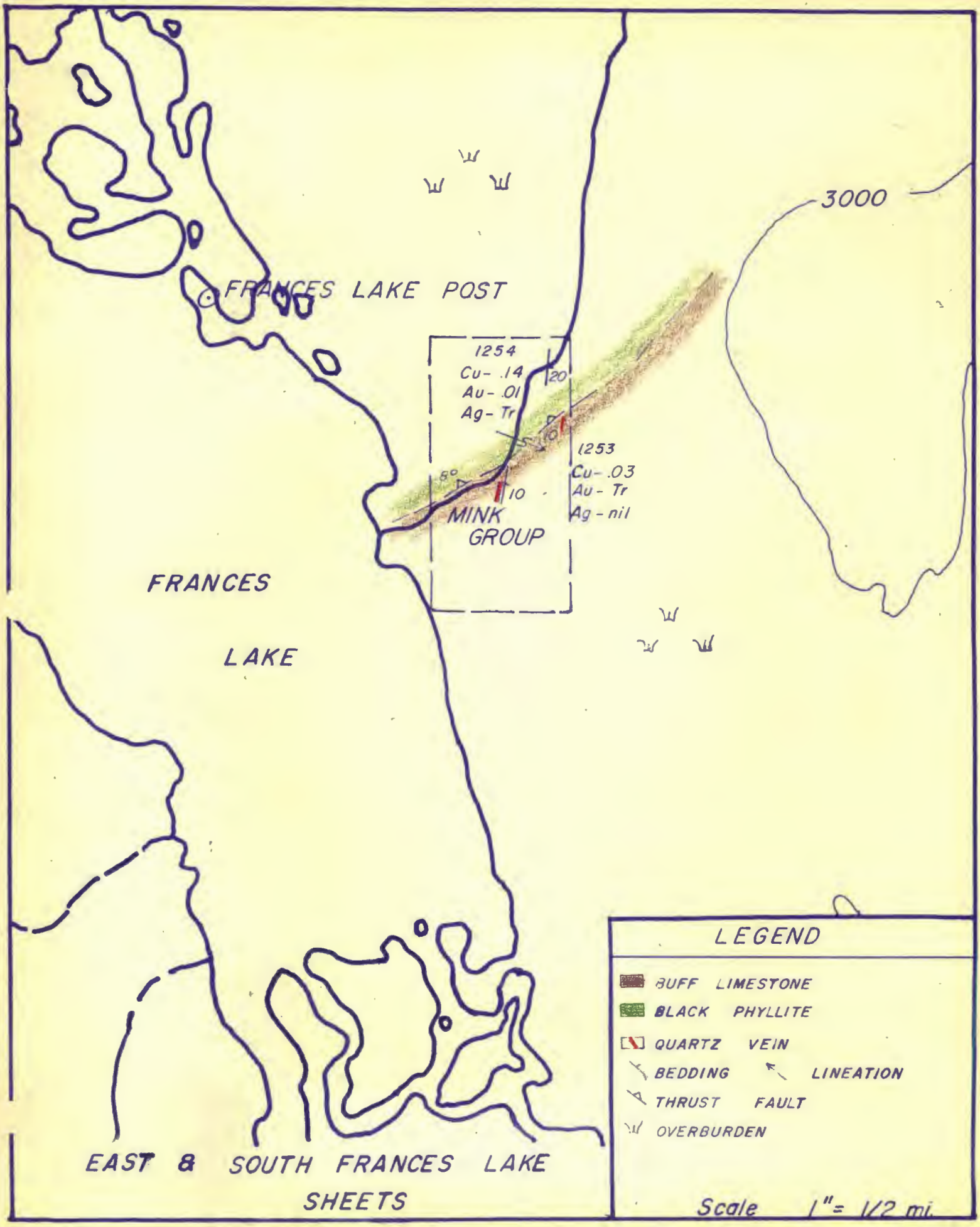
The limestone appears to be in fault contact with the underlying phyllite. The contact has a low dip and the beds on either side are contorted and discordant. The beds strike generally N20E and dip 10 - 20°SE. The fault strikes N45E and dips SE.

MINERALIZATION:

Chalcopyrite and pyrite occur as fracture filling and replacement of quartz veins in brown limestone. The veins are generally less than 10 feet long and 6 inches wide. Chalcopyrite makes up less than 1% of most hand specimens. Grab samples from two of the veins show a trace of silver and gold and 0.14% copper.

RECOMMENDATIONS:

The veins are too small and of too low grade to be of economic value.


3000
FRANCES LAKE POST
1254
Cu - .14
Au - .01
Ag - Tr
20
1253
Cu - .03
Au - Tr
Ag - nil
10
MINK GROUP
FRANCES
LAKE
EAST & SOUTH FRANCES LAKE
SHEETS
LEGEND
BUFF LIMESTONE
BLACK PHYLLITE
QUARTZ VEIN
BEDDING
LINEATION
THRUST FAULT
OVERBURDEN
Scale 1" = 1/2 mi.

APPENDIX: Assay Results East Frances Lake Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
110	1349	-	Nil	Tr	-	-	1% Pyrite	75x10 ft.	10°/20SW	Limestone

MINK CLAIM GROUP

Show. or Trench	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Width	Host Rock
Sh.1	1253	.03	Tr	Nil	-	-	Chalcopyrite Vein Qtz.		Limestone
Sh.2	1254	.14	.01	Tr	-	-	Vein Qtz.		Limestone

SOUTH FRANCES LAKE SHEET

By: H. Squair

DATA:
1 Mile Sheet 105 H SW
Lat. 61° N - 61° 15' N
Outcrop Area: 10%

½ Mile Sheet 105 H 3
Long. 129° W 129° 30' W

GENERAL GEOLOGY:

Lithology and Strudure

The sheet is situated astride the Frances River Valley south of Frances Lake. Outcrop is sparse save for the southwest corner and extreme east boundary.

Most of the outcrop consists of Mississippian phyllite, quartzite and limestone with minor patches of Cambrian and granodiorite.

Most of the Frances River valley is underlain by Mississippian. The phyllites and quartzites weather dark grey and show little secondary alteration such as carbonitization or feldspathization. However, several veins of brown carbonate up to 10 feet wide cut across the foliation of these sediments.

Mississippian limestone occurs in bands within the phyllite. These carbonates weather light grey to buff and show no alteration to skarn. The limestones make up about 10% of the exposure. The Mississippian sediments strike N30W and dip SW.

The patch of Cambrian on the west side of the sheet consists of grey phyllite and biotite metasediment. The rocks have similar lithology to Cambrian outcrops further west.

The granodiorites on the east portion of the sheet are poorly exposed. They weather a dirty grey and contain inclusions of biotite schist. The contact between the granodiorite and sediments is covered by overburden.

Several small stocks of pyroxenite intrude the Mississippian sediments in the southwest corner of the sheet. The ultrabasics are generally massive and weather dark grey to green. At Stop 100 however, the pyroxenite has been sheared to a light green serpentinite. The altered rock is made up of green serpentine, talc and magnetite. No chrysotile fibre was present.

MINERALIZATION:

No sulphide mineralization was located on the sheet. One of the carbonate veins at Stop 101 was sampled and assayed. Results show that only a trace of gold is present.

RECOMMENDATIONS:

No further work is recommended on the sheet for the 1963 field season.

APPENDIX: Assay Results South Frances Lake Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
101	1344	-	Tr	Nil	-	-	Vein Qtz. Dolomite	100x10 ft.	N10E 30NW	Chlorite Schist

NORTH ANDERSON LAKES SHEET

By: H. Squair

DATA:

1 Mile Sheet 105 - H - NE
Lat. 61° 45'N - 62 N
Outcrop Area: 65%

½ Mile Sheet 105 - H - 15
Long. 128° 30'W - 129° W

GENERAL GEOLOGY:

(1) Lithology and Structure

The sheet is situated astride the Little Hyland River in the Logan mountains. Most of the map area is underlain by Cambrian, Ordovicun and Silurian sediments. The remainder of the outcrop consists of grey-white granodiorite.

The Cambrian phyllites, limestones and metasediments are confined mainly to the southwest corner of the map sheet, at or near the north margin of a granodiorite stock. The rocks appear to be part of the contact metamorphic aureole and have reached the biotite grade of metamorphism. They have a foliation which reflects the attitude of the granodiorite contact and partially obliterates the bedding. Pyrite and pyrrhotite have replaced the limestone and gneiss at several points near the margins of the granodiorite.

The Ordovicun, Silurian, Phyllite and Grit are confined mainly to the northeast portion of the map. The rocks are brittle and thrust and reverse faults have developed rather than isoclinal folds. The beds appear to have been thrust over the Cambrian and granodiorite at the west margin of the sheet. Folds and contortion as well as minor thrusts near the contacts are the main shreds of evidence for thrust faulting.

At the margins of granodiorite bodies the Ordovicun-Silurian have been altered to biotite schist and gneiss. Pyrite and pyrrhotite have repla ced the gneiss at several points to form sulphide gossans.

The granodiorites weather light grey to white and appear massive. Inclusives of gneiss and metasediment are rare save for near Stop 120 where a band of gneiss appears to lie on top of the intrusive. The rock has a pronounced joint pattern rather than a foliation.

(2) Mineralization

Sulphide mineralization is confined to the contacts of granodiorite bodies. At Stop 119 pyrrhotite replaces a band of biotite gneiss in a band 10 ft. thick which is exposed for over 100 ft. The band contains 1 - 2% disseminated pyrrhotite but no economic sulphides. One grab sample assayed a trace of gold and silver but no copper.

At Stop 122 1% pyrite is disseminated in a slate band 15 ft. thick that is exposed for 600 ft. on strike. One grab sample typically showed a trace of silver and no gold.

Pyrrhotite gossans on the sheet generally weather a chocolate brown whereas pyrite and pyrite pyrrhotite gossans weather red brown.

RECOMMENDATIONS:

No further work is recommended on the sheet for the 1963 field season.

APPENDIX: Assay Results North Anderson Lake Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
118	1270	-	Nil	Tr	-	-	Pyrite	350x20	N40W 20NE	Biotite Metased
119	1267	-	Nil	Tr	-	-	1% Pyrrhotite	100x10 ft.	N70W 45NE	Biotite Gneiss
120	1269	.12	Nil	Tr	-	-	1% Pyrrhotite	1000x30 ft.		Quartzite
121	1271	-	Nil	Tr	-	-	1% Pyrite	700x10 ft.	110° 35NE	Biotite Metased
122	1268	-	Nil	Tr	-	-	1% Pyrite	600x15 ft.	N70W 40NE	Slate

ANDERSON LAKE SHEET

By: H. Squair

DATA:

1 Mile Sheet 105 - H - NW
Lat. 61° 30'N - 61° 45'N
Outcrop Area: 35%
Claim Groups: Nil

½ Mile Sheet 105-H-11
Long. 129° W - 129° 30'W

GENERAL GEOLOGY:

(1) Lithology and Structure

The sheet is situated in the Logan Mountains west of the Hyland Valley. Only the northwest corner of the map area was surveyed before fall snow covered the outcrops above timber line.

The northeast portion of the sheet is underlain by Cambrian and Ordovicun gneisses, schist and quartzite. Only minor iron stain was noted northeast of Anderson Lake.

The west and southern portions of the sheet appear to be underlain by granodiorite. The granodiorite in the northwest corner appears to be intrusive for it weathers grey-white and has no inclusives of gneiss. The platons to the south appear to be partially metasomatic in origin for they weather a dirty grey and contain several inclusions of gneiss.

No sulphide mineralization was sampled on the sheet.

RECOMMENDATIONS:

No further work is recommended on the sheet for the 1963 field season.

APPENDIX: Assay Results Anderson Lakes Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
133	1279	-	.01	Nil	-	-	1% Pyrrhotite	300x2 ft.	N70W 65SW	Limestone

TYERS RIVER SHEET

By: H. Squair

DATA:
1 Mile Sheet 105 - H - SE
Lat. 61° 15' N - 61° 30' W
Outcrop Area: 45%
Claim Groups: - Nil

½ Mile Sheet 105 - H - 7
Long. 128° 30' W - 129° W

GENERAL GEOLOGY:

(1) Lithology and Structure

The sheet is situated in the Logan Mountains astride the Tyers River. Only the west half of the map area was surveyed before fall snow covered the outcrops above timber line.

Eighty percent of the known exposure is made up of granodiorite. The remainder of the outcrop consists of patches of Cambrian and Mississippian sediments.

The granodiorite weathers dirty grey and contains several small inclusions of biotite gneiss. The intrusives show jointing but no pronounced foliation.

The patches of Mississippian are made up of phyllite quartzite and their metamorphic equivalents. Remnants of bedding indicate that the south patch has been folded to a synclinal structure. The rocks show little secondary alteration save for pyritization at the margins of granodiorite bodies.

One small patch of biotite metasediment north of the Tyers River is considered to be Cambrian.

(2) Mineralization

Several sulphide gossans are present in the Mississippian and Cambrian gneisses adjacent to granodiorite intrusions. At Stop 130 a band of biotite gneiss contains 2% disseminated pyrite and minor pyrrhotite. The gossans is 10 ft. thick and is exposed for over 300 ft. No economic mineralization was noted. One grab sample from the gossan assayed 1.12 oz. per ton of silver and 0.01 oz. per ton of gold.

Disseminated pyrrhotite replaces a band of biotite gneiss at Stop 131. The gossan is about 20 ft. thick and is exposed for over 350 ft.

One sample assayed a trace of silver and gold.

RECOMMENDATIONS:

No further work is recommended on the sheet for the 1963 field season.

APPENDIX: Assay Results Tyres River Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
130	1277	-	.01	1.12	-	-	Pyrrhotite 1% Pyrite	300x10 ft.	N30E 30NW	Biotite Gneiss
131	1278	-	Tr	Tr	-	-	Pyrrhotite	350x20 ft.	N50E 65NW	Biotite Gneiss

MOUNT BILLINGS SHEET

By: H. Squair

DATA:

1 Mile Sheet 105 H SE
Lat. 61° N - 61° 15 N
Outcrop Area: 45%
Claim Groups: Nil

½ Mile Sheet 105 H 2
Long. 128° 30' W 129° W

GENERAL GEOLOGY:

Lithology and Structure

The sheet is situated in the Logan Mountains east of the Hyland River. Only part of the map area was surveyed before fall snow covered the outcrop above timber line.

The sheet is underlain mainly by granodiorite which weathers dirty grey and contains patches of biotite gneiss. Foliation noted in similar granodiorites to the west is generally absent in the Mount Billings intrusives.

Several patches of gneiss phyllite and limestone which outcrop at the margins and within the granodiorite have similar lithology to the Cambrian west of Frances Lake. No folding or faulting could be traced in the isolated patches of Cambrian.

MINERALIZATION:

At Stop 127 several bands of skarn occur in metasediments of Cambrian age. The skarns are generally 5 - 10 feet thick and extend on strike for over 1,000 feet. Green pyroxene carbonate and 2 - 3% pyrrhotite are the only visible minerals. One grab sample taken from the largest skarn assay 0.01 oz. per ton of gold and a trace of silver.

No economic sulphides were noted on the sheet.

RECOMMENDATIONS:

No further work is required on the surveyed part of the sheet for the 1963 field season.

NOTE: The unsurveyed part of the sheet appears to be granodiorite, with minor outcrop of sediment near the Hyland Valley.

APPENDIX: Assay Results Mount Billings Sheet

Stop #	No.	Assays Cu	Au	Ag	Pb	Zn	Mineralization	Dimensions	Strike/ Dip	Host Rock
127	1271	-	.01	Tr	-	-	Pyrrhotite	1000x10	120°35SW	Limestone

UPPER HYLAND RIVER SHEET

By: H. Squair

DATA:

1 Mile Sheet 105 - H - NE
Lat. 61° 30' N - 61° 45' N
Outcrop Area: 40%
Claim Groups: - Nil

½ Mile Sheet 105 - H - 9
Long. 128° W - 128° 30' W

GENERAL GEOLOGY:

(1) Lithology and Structure

The sheet is situated astride the Hyland Valley immediately southwest of the Yukon-N.W.T. boundary. Only the east half of the map area was surveyed before fall snow covered the outcrops above the timber line.

The map area is underlain by Cambrian, Ordovicun and Mississippian sediments which lie in linear belts parallel to the Hyland Valley. Cambrian phyllite and quartzite make up the largest area of outcrop. The rocks have been thrust over the Mississippian and Ordovicun to the west. The main thrust outcrops at the contact between Cambrian and Mississippian. Relatively thin lined tongues of Cambrian have been thrown over the lower Mississippian phyllite. The rocks above the contact show extreme contortion while those below show only a change of dip.

The Mississippian is made up of shale phyllite and grey limestone. The carbonates occur in bands up to 30 ft. wide and typically show no alteration to skarn.

Some of the phyllites weather purple to grey in color. The outcrops are unique in that they are confined to the east side of the Hyland Valley.

The Ordovicun is poorly exposed but outcrops show similar phyllite grit sequence as on the sheets to the northwest.

(2) Mineralization

The only sulphides found were at Stop 129 where pyrite has replaced a quartzite. The gossan zone is 10 ft. wide and is exposed on surface for 100 ft. No samples were taken for assay.

RECOMMENDATIONS:

No further work is recommended on the surveyed part of the sheet for the 1963 field season.

REPORT ON THE PJ GROUP
SW OF STEWART LAKE SHEET 105 A 10

By: J. A. Apps
Aug. 11, 1962.

PROPERTY:

The PJ Group consists of four mineral claims (Nos 79569 - 79572) which cover some 200 acres in the mountains ten miles southwest of Stewart Lake, Yukon Territory.

LOCATION AND ACCESS:

The claims are located at an elevation of 4,500 ft. some ten miles southwest of Stewart Lake on Sheet 105 A 10. (Lat. 60° 31' N. Long. 128° 52' W). Access can be made from the Cantung Watson Lake road by bulldozed trail.

OWNERSHIP AND PREVIOUS HISTORY:

The claims are owned by Jacobo Hundere and are due to expire July 20, 1963.

One trench 50 ft. long, 2 ft. wide and up to 3 ft. deep has been cut in a north-south direction 60 feet east of the centre of the property on PJ 4. 1,000 feet west of the trench, on PJ 1, some surface blasting has been carried out on a steep scree slope, to expose sphalerite vein material. No other workings were found.

ECONOMIC MINERALIZATION: Galena
Sphalerite

GEOLOGY:

The claims cover an area occupied by gently dipping Paleozoic massive poorly bedded, well jointed limestones overlying brown-black phyllites. They have been affected by low grade metamorphism, but the phyllites show poor and irregular cleavage. Dip and strike measurements taken on one outcrop of limestone indicated a dip of 10° to the north, but an aerial reconnaissance suggests a gentle dip towards the north-west.

ECONOMIC GEOLOGY:

Four outcrops showing economic mineralization were examined. They all lie in one stratiographic horizon and suggest the occurrence of an impersistent flat-lying vein conformable with the bedding and placed within the limestone some ten feet above the limestone phyllite contact.

The first, some 225 feet east of the trench revealed a 15 foot wide zone of float containing disseminated sphalerite in an actinolite-tremolite matrix. The sphalerite content was not high, however, being of the order of 5% or less. The second exposure has been trenched. The trench, although 3 feet deep, did not penetrate completely, the zone of soil creep, but suggests that three veins have developed. Galena predominates over sphalerite in the top and bottom veins;

sphalerite predominates over galena in the centre vein. Between the upper and centre veins outcrops a bande of actinolite tremolite of massive radiating acicular habit. Mineralized float extends for 150 feet along the strike.

The third outcrop 1,000 ft. west of the trench exposes a vein of massive crystalline sphalerite, not greater than 2 feet wide, for 50 feet. Actinolite-tremolite float occurs adjacent to the vein outcrop.

The south outcrop is found 200 feet southwest of the previous (3rd) outcrop at the bottom of a gully. It is a small showing of mineralized float containing oxidized zinc minerals (hydrozincite?) and galena.

REPORT ON THE JP GROUP

STEWART LAKE SHEET (105 A 10)

H. Squair

August 11, 1962.

PROPERTY:

The JP Group consists of four mineral claims (Nos. 79573 - 79576) which cover 200 acres in the mountains ten miles southwest of Stewart Lake in the Yukon Territory.

LOCATION AND ACCESS:

The claims are located at an elevation of 4,500 ft. ten miles southwest of Stewart Lake and eleven miles east of the Cantung Watson Lake road, on Staking Sheet 105 A 10. The claims are accessible by a bulldozed trail from the Cantung Watson Lake Road. (Lat. 60° 32' N. Long. 128° 50' W).

OWNERSHIP AND PREVIOUS HISTORY:

The claims were staked by Jacobo Hundere and are due to expire July 20th, 1963. Three trenches had been blasted at the time of the visit to expose lenses of galena and sphalerite for 150 ft. in strike. No surface work was being carried on at that time but the Frances River Syndicate had tied on the OP Claims to the north and south of the showings.

GENERAL GEOLOGY:

Outcrops are sparse for the claims lie near the timber line. However, it appears that the group is underlain by grey phyllite and limestone of Cambrian age.

The phyllite is aphanitic with clay minerals in lustrous surfaces. Within the phyllite are bands of impure grey limestone up to four ft. wide. These latter bands metamorphose to skarn and host the lead zinc mineralization. The phyllite strikes N20E and dips 65 SW at the main showing.

On the east side of the claims the phyllite is in contact with a grey-white limestone. This carbonate is aphanitic and relatively pure. No skarn has been formed parallel to the beds. The contact was not exposed but both rock types occur on and to the north of the claims. Intrusives and major structures if present are masked under overburden.

MINERALIZATION: (Showing 1)

Sulphide mineralization is confined to skarn zones and grey quartz veins within the phyllite. Galena, sphalerite have replaced the skarn and appear as fracture filling and replacement of the quartz veins. The skarn contains 5 - 10% galena, 10% sphalerite with calcite, diopside and minor hydrozincite. They appear to be lens-like in shape and extend along strike for less than 150 ft. The largest lens is 5 ft. wide and appears in all trenches.

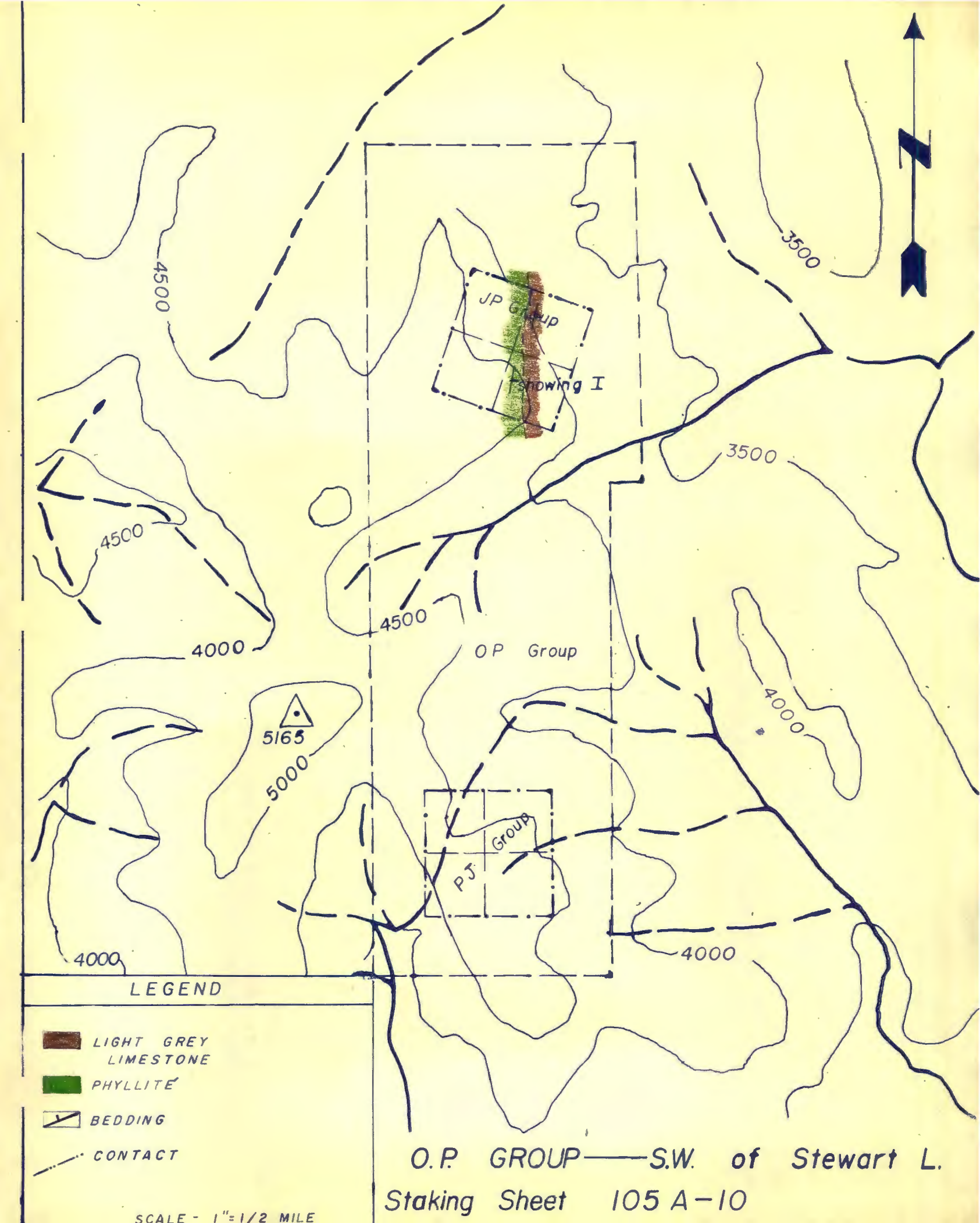
The quartz veins are irregular and generally less than 2 ft. wide. Five samples from the trenches gave an average assay of:

Au	Ag	Pb	Zn
Tr.	Tr.- 1.10 oz/ton	5.81%	7.41%

The widths of sample and their relative positions are given in the Appendix and on the assay plans.

CONCLUSIONS:

The main showing is too small to be of value. The mineralization may extend south across the OP Group to the PJ Claims. Any mention of extensive structure without diamond drilling is wishful thinking for the area surrounding the claims is covered by overburden.



O.P. GROUP——S.W. of Stewart L.

Staking Sheet 105 A-10



P.J. CLAIM GROUP

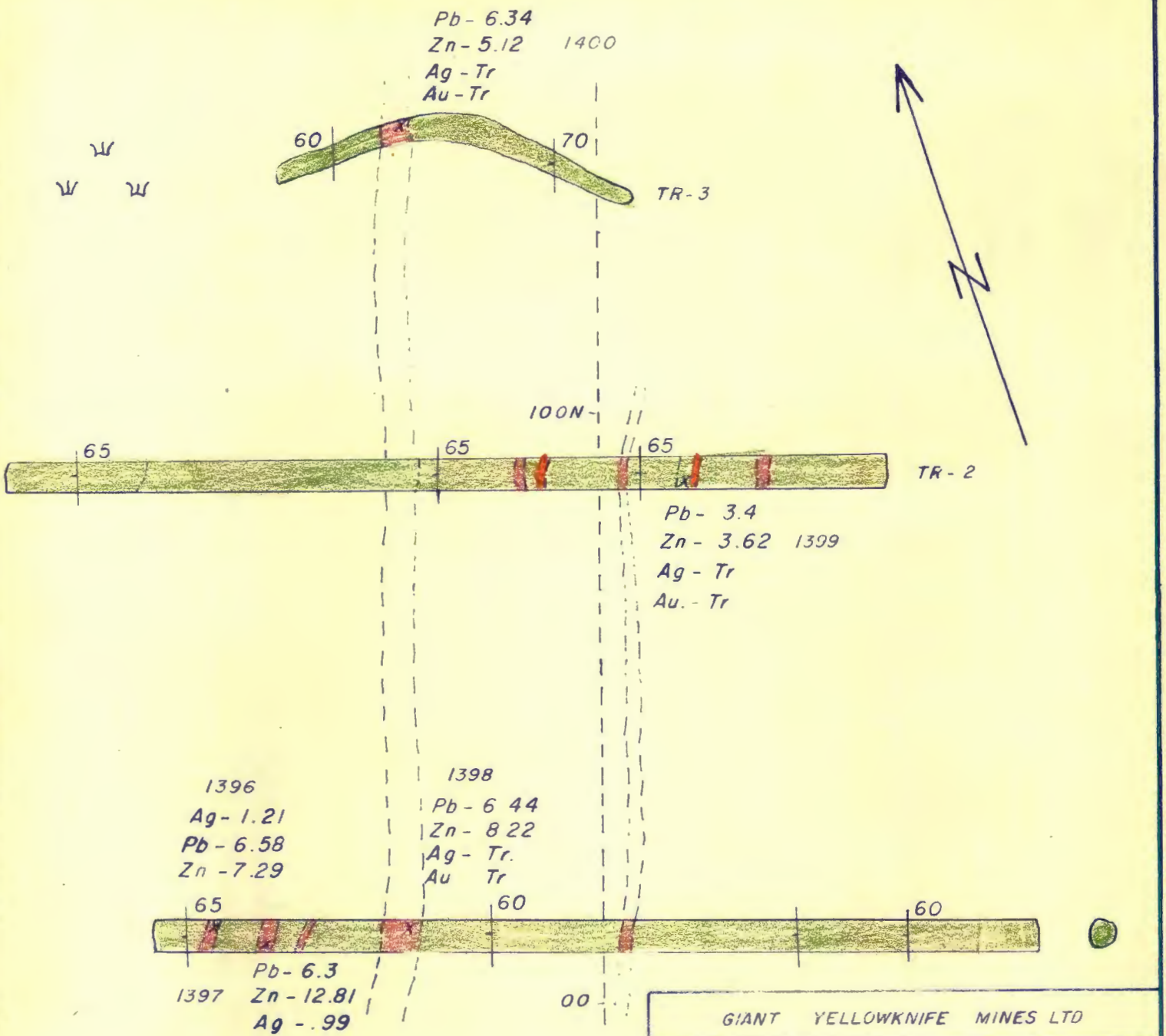
S.W. of STEWART LAKE

YUKON TERRITORY

SCALE 1" = 750'

LEGEND

- GREY SHALE & PHYLLITE
- MASSIVE LIMESTONE
- SULPHIDE VEIN
- BEDDING
- CONTACT
- STREAM



GIANT YELLOWKNIFE MINES LTD

SHOWING 1.

J.P. CLAIM GROUP

LEGEND

- GREY PHYLLITE
- SKARN WITH GALENA - SPHALERITE
- QUARTZ VEIN
- BEDDING
- CONTACT
- OVERBURDEN

SCALE 1 inch = 25ft.

STAKING SHEET 105 - A - 10

APPENDIX:

Assay Results JP Claim Group Sheet

Trench No.		Assays Cu	Au	Ag	Pb	Zn	Mineralization	Width	Host Rock
Tr 1	1396	-	-	1.21	6.58	7.29	Galena Sphalerite	2'6"	Skarn
	1397	-	-	.99	6.3	12.81	Galena Sphalerite	over 6'	Skarn
	1398	-	-	Tr	6.44	8.22	Galena Sphalerite	5½'	Skarn
Tr 2	1399	-	Tr	Tr	3.4	3.62	Galena Sphalerite	4'	Skarn
Tr 3	1400	-	Tr	Tr	6.34	5.12	Galena Sphalerite	over 3'	Qtz. vein
PJ CLAIM GROUP									
Show.2	1301	-	-	Tr	1.5	5.18	Galena Sphalerite	GRAB	Skarn
	1302	-	-	7.85	19.81	22,23	Galena Sphalerite	GRAB	Skarn
	1303	-	-	2.35	23.95	30.95	Galena Sphalerite	GRAB	Skarn
	1304	-	-	8.08	16.2	23.82	Galena Sphalerite	GRAB	Skarn
	1305	-	-	2.41	24.05	32.08	Galena Sphalerite	GRAB	Skarn

APPENDIX: CIAIM GROUPS SHEET 105 A 10

PJ	11-4	79569 - 79572	Jacobo Hundere	July 20, 1963
JP	1-4	79573 - 79576	" "	" " "
OP	1-8	79598 - 79605	Frances Riv.Syndicate	Aug. 2,1963
OP	45-48 & 53-56	79606 - 79613	" " "	" " "
OP	21,22,49,50, 43,44,51,52	79614 - 79621	" " "	" " "
BUS	1-8	79622 - 79629	" " "	" " "
OP	23-30	79646 - 79653	" " "	Aug. 6, 1963
OP	9-16	79654 - 79661	" " "	" " "
OP	39-42	79662 - 79665	" " "	" " "
OP	31-38	79666 - 79673	" " "	" " "
OP	17-20	79674 - 79677	" " "	" " "

REPORT ON GEOCHEMICAL

INVESTIGATIONS IN THE

McNEIL LAKE - FRANCES LAKE AREAS

S. E. YUKON TERRITORY

BY: J. A. APPS

FEBRUARY 7, 1963

Introduction

The purpose of geochemical prospecting in the south Yukon Territory, during the summer field season of 1962, was to assist in the delineation and localization of significantly anomalous zones or concentration of economic mineralization. Prospecting was carried out by analying stream sediments for their absorbed metal content using the total metals cold extraction dithizone technique and the rubeanic acid test for copper, both suitably modified for field use by Dr. R. E. Delavault of the University of Brithish Columbia. Hydro-geochemical prospecting was executed simultaneously using an appropriately modified dithizone technique.

Sampling and testing was performed by two parties of two persons each, who camped at the confluences of mountain streams, and who systematically sampled the drainage patterns of the streams by on-the-spot analyses of sediments and waters. When significantly anomalous sediments were encountered, whose magnitude exceeded the range obtained by the field kit, samples were collected for Lab analyses at Base Camp.

Operation of the Geochemical Kits

The modified dithizone technique employed and the contents of the field kits has been described elsewhere by Dr. R. E. Delavault. However, experience proved that certain modifications were necessary and these are noted, together with a revised list of materials in an appendix to this report.

Five different tests were possible using the geochemical field kit. They consisted of stream sediment tests for total metals (cold extractable) and for copper, the rubeanic acid test for the presence of cold extractable copper in sediments, and water tests for the total metals and for copper.

In practice, it was found that only two tests produced significant results, namely, the sediment and water tests for total metals. Copper tests were made only when a significant total metal anomaly was encountered. The rubeanic acid test was rarely performed, since it was more time consuming than the former tests and no provision was made in the kit for carrying the necessary equipment. Further, the purely qualitative results were of limited value.

The stream sediment test for total metals using dithizone proved to be very successful in locating anomalies. A test conducted upon a stream sediment within two miles of the head of the creek usually served to indicate whether any anomalous sources existed.

Water testing of the main creeks was usually fruitless, there being too much dilution by run-off and melt waters. However, the sampling of seepages adjacent to streams containing anomalous sediments often proved to be an excellent way of localizing an area of detailed investigation.

Contamination of the kits occurred only once during the entire season.

Plotting of Results

Readings taken in the field were recorded in terms of colour indicated by the dithizone analysis of stream sediments and waters. These were plotted upon base maps as a circle or cross in the respective colour for sediments or water analyses respectively. Such a method allowed for rapid visual interpretation and had the merit of simplicity.

The field method was calibrated in the Base Camp Laboratory. Stream sediment samples brought in from the field were analyzed, and plotted directly on the base maps in parts per million of indicated total cold extractable metals. Such readings gave a semi-quantitative assessment of the order of magnitude of the anomaly and served as an aid in localizing source areas.

Performance of the Crews

In general, the crews performed adequately; an average of six to seven miles of streams could be covered during the course of a day, but this distance was not always attained. The number of sampling points per day depended to a large extent upon the distance covered, whether or not the stream was anomalous, bush conditions, and weather. Between ten and twenty stations could be sampled during the course of an average day.

The crews' performance also depended to a large extent upon their morale and accordingly, rotation of personnel was conducted every nine or ten days. Camp moves were kept to a minimum, since it was frequently impossible to move them at the time specified, and often resulted in a complete day being lost.

Description of Anomalies

Three areas were chosen for reconnaissance geochemical prospecting, one of which was abandoned after one week's activity when nothing had been discovered. Of the remaining two, the first examined was an area extending from the Lapie to Ketza Rivers noted for a number of showings of lead silver mineralization, and the second area surrounded a granite intrusion immediately south of McEvoy Lake where favorable showings were observed.

Anomalous creeks were discovered upon the following 2 ins. = 1 mile base map sheets; Lapie River, Sea Gull Creek, Ketza River, Finlayson River, and McEvoy Lake.

Out of a total of fifty-six creeks and tributaries examined in the Ketza River-Lapie River area, fifteen proved to be anomalous, with indicated total cold extractable metal concentration reaching values of 7 ppm, although the average values were 20 ppm or less.

Brief descriptions of the anomalies are given below:

Locality: P

Sheet: Ketza River
Lat. 61° 33' N. Long. 132° 15' W.

Samplers: Apps, Brown
Examined by: J. A. Apps
Date of Exam.: July 7 & 8, 1962.

The creeks sampled occurred in an area of known mineralization (pyrrhotite, chalcopyrite, galena, sphalerite, etc.) and were chosen to test the kit under field conditions. Two creeks were significantly anomalous, but water tests gave no indication except for a group of seepages occurring on both streams.

Neither anomalies were traced, owing to a dense cover of vegetation. Both groups of seepages emerged from beneath terminal moraines and screes. The stream draining from the pyrrhotite-chalcopyrite mineralization at the head of the main valley, and the creek draining from the OXO group of claims which contained massive pyrrhotite-lead mineralization were neither significantly anomalous, suggesting that the pyrrhotite mineralization is low in zinc and that the sparse copper mineralization does not affect the dithizone test. A rubeanic acid test conducted at the confluence of the creek with the Ketza River, gave a value of 12 ppm copper absorbed upon the stream sediments.

Locality: B

Sheet: Seagull Creek
Lat. 61° 44' N. Long. 132° 41' W.

Samplers: Smith, Carter
Examined by: H. Squair
Date of Exam.: Aug. 7, 1962

The anomalous creek, located at the head of Porcupine Creek runs through gently sloping rough pasture at the head of the valley. Some pyrrhotite float was sampled (Assay Nos. 1385 and 1386) and analyzed for lead, zinc and silver. Only No. 1386 indicated more than a trace of the respective metals. It contained 0.14% zinc. Two soil samples analyzed for their total heavy metal content yielded negative results.

Locality: C

Sheet: Seagull Creek
Lat. 61° 43' N. Long. 132° 31' W

Samplers: Delavault, Smith, Carter
Examined by: J. A. Apps
Date of Exam.: Aug. 7, 1962.

Two adjacent creeks were found to yield high total heavy metal contents in both sediments and water. They lay on the same strike as a number of anomalous tributary streams all of which fed Ram Creek from the south.

Careful sampling of one of the tributary creeks and the gullies leading into it was carried out. The anomaly appeared to develop from a black shale band sandwiched between gretstones. A traverse was made across the shale band taking nine grab samples (Nos. 1387 - 1395) at approximately five foot intervals. These were analyzed for lead, zinc and silver and the results given below. The high zinc content averaging 0.4% is indicative of the source of the anomaly.

No.	Ag	Pb	Zn
1387	-	-	0.11
1388			0.14
1389			0.16
1390	Tr	0.10	0.27
1391			1.04
1392			0.66
1393			0.27
1394	Tr	0.88	0.80
1395	Tr	0.31	0.25

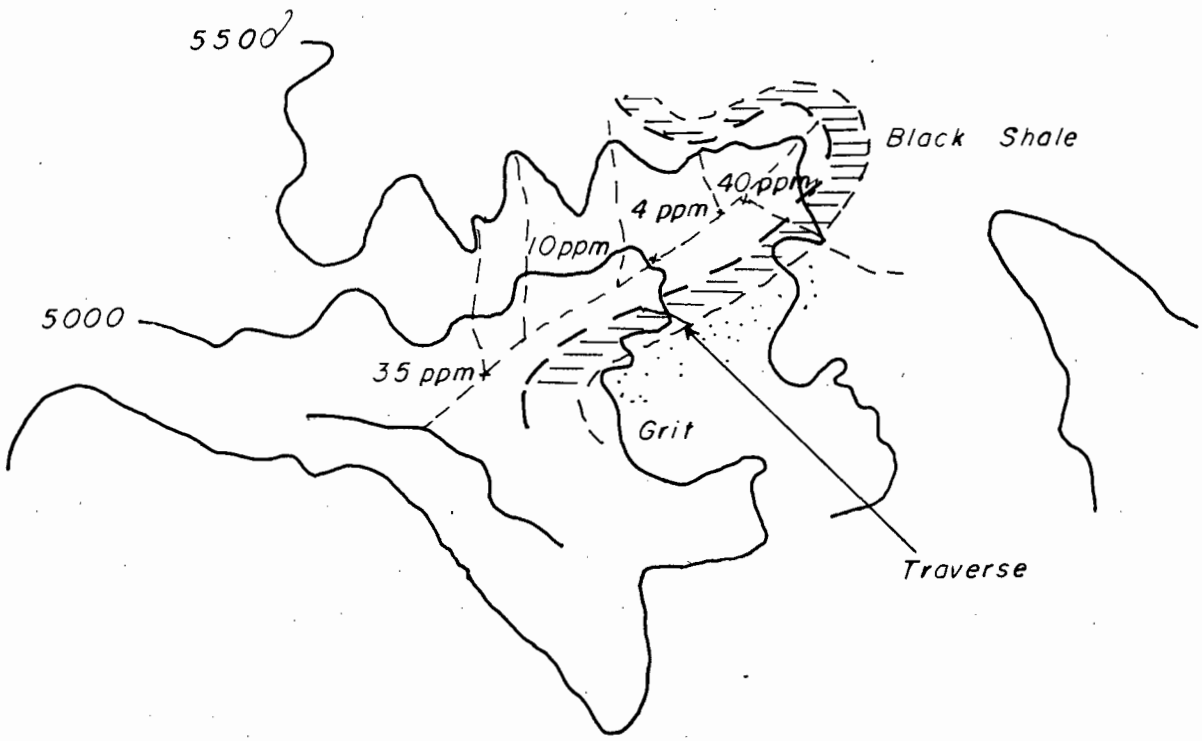
Stream sediments yielded total heavy metal concentrations of up to 40 ppm.

Localities: Q, S, T
Q: Lat. 61° 49'N. Long. 132° 45' W
S: Lat. 61° 49'N. Long. 132° 45' W
T: Lat. 61° 42' N. Long. 132° 40'W

Sheet: Lapie River

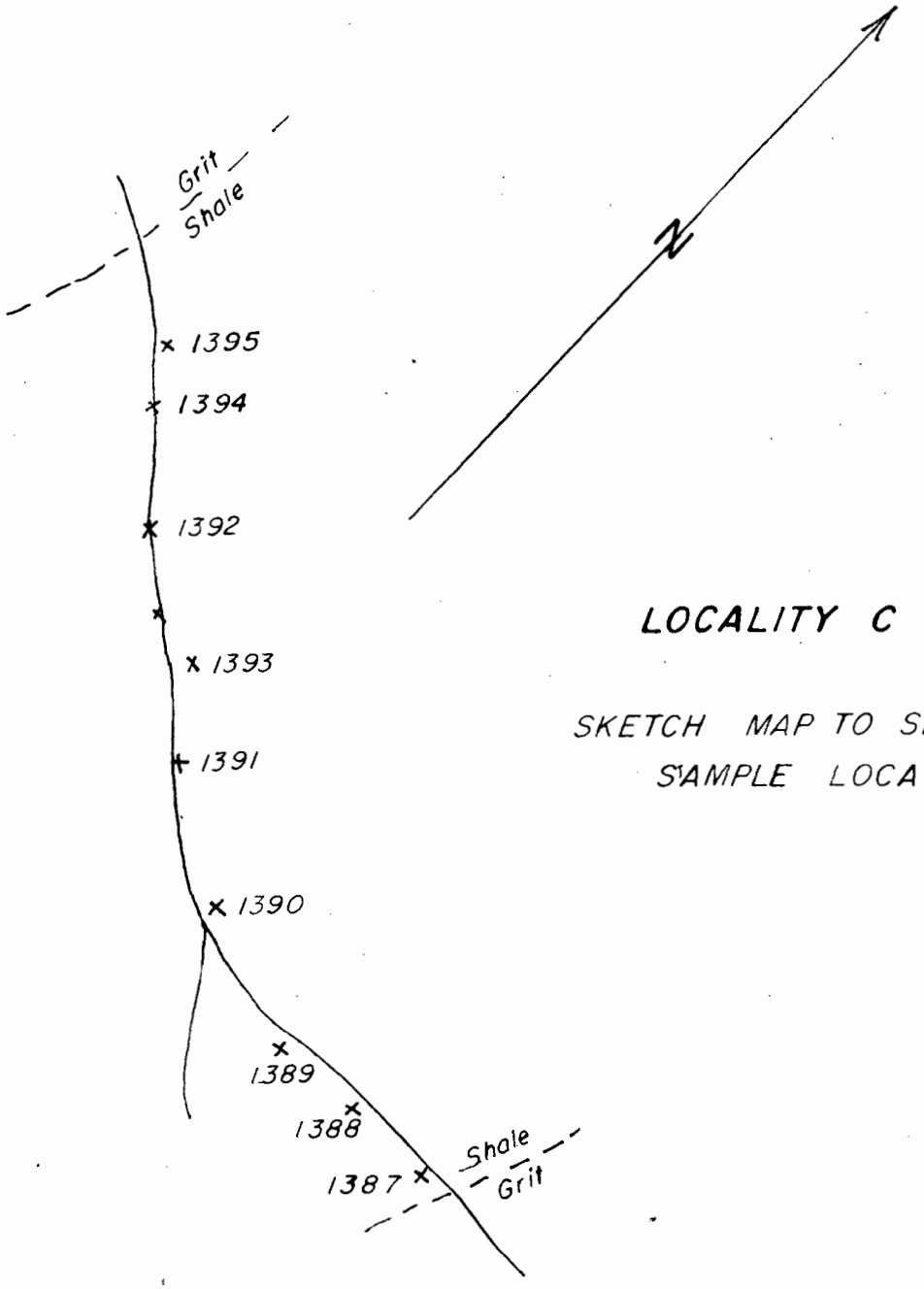
Samplers: Apps

This series of creeks drained into Ram Creek from the south. All showed anomalous stream sediment values for the greater part of their length. The source of the anomaly, however, was localized to a slate horizon on the same strike as that causing the anomaly at C. The maximum indicated cold extractable total heavy metal content of the stream sediment was 27 ppm.



LOCALI

Scale 1"=



LOCALITY C

SKETCH MAP TO SHOW
SAMPLE LOCATION

Localities: D, E, F

Sheet: Seagull Creek
D. Lat. 61° 42' N. Long. 132° 51' W
E. Lat. 61° 38' N. Long. 132° 48' W
F. Lat. 61° 34' N. Long. 132° 38' W

Samplers: Smith, Carter

Anomalies in these localities were not examined. The anomalous stream sediments encountered in the stream extending into the TEE Group of claims may well be due to the presence of mineralized veins. Samples taken from a vein one and a half miles to the north of the anomalous stream yielded 5.51 and 10.24% of zinc respectively. However, the floor and flanks of the valley, through which the stream flows, are composed of black shales, and may be responsible for the anomaly.

Locality: H

Sheet: Seagull Creek
Lat. 61° 36' N. Long. 132° 37' W.

Samplers: Delavault, Brown, Scott
Examined by: J. A. Apps
Date of Exam.: July 28, 1962

Locality H was situated at the head of a tributary creek of the McConnell River.

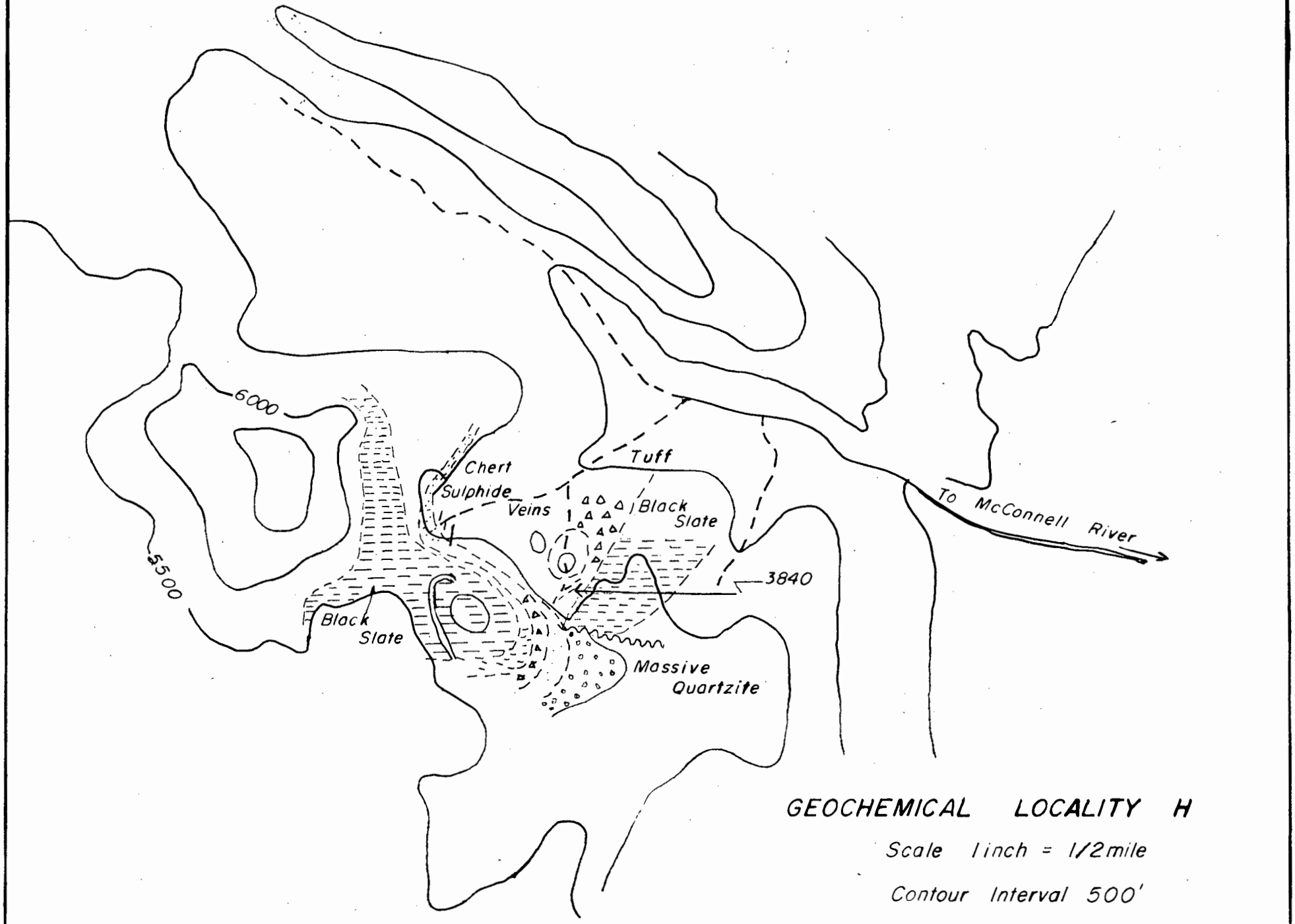
Three massive sulphide veins consisting dominantly of coarsely crystalline pyrrhotite with accessory pyrite and sphalerite were discovered in the course of the detailed examination. The most prominent vein was estimated to be about one foot wide with an estimated strike length of 50 - 100 ft. and strike of 26°. However, extensive soil creep obscured the exposure.

The dip of the vein is unknown, but it is probably steep. Host rocks are quartz, clear and impure limestone. They strike 105° and dip slightly to the south (2° - 5°).

Samples were taken for an analysis from the three veins and analyzed for lead, zinc and silver.

Vein	No.	Ag	Pb	Zn
1	3836	.72	Tr	.05
1	3837	.52	Tr	Tr
1	3838	Nil	Tr	Tr
2	3839	.46	Tr	.05
3	3841	.90	Tr	.16

The head of an adjacent creek also showed anomalous stream sediment values. One analyses at 15 ppm cold extractable total metals. Since no obvious cause could be found, a suspected shaley limestone was sampled for analysis (No. 3840).



GEOCHEMICAL LOCALITY H

Scale 1 inch = 1/2 mile

Contour Interval 500'

Locality: I

Sheet: Seagull Creek
Lat. 61° 35' N. Long. 132° 32' W.

Samplers: McLeod, Carter
Examined by: J. A. Apps
Date of Exam.: Aug.2,1962

This locality is situated at the head of an eastern tributary creek of the McConnell River. The stream sediments in the creek showed the largest stream sediment anomaly (70 ppm) found during the season. The source was traced to an area about 100 yards square, covered with a dense thicket of willow and balsam clumps. No outcrops were visible, and no mineralized float was observed. Soil tests upon black shale above the anomalous area showed that the shales had only a negligible extractable metal content. Soil tests were also made upon seepage muds adjacent to metamorphosised pyritiferous volcanic tuffs. These also yielded negative results.

In order to determine the cause of this anomaly, detailed augur sampling would have been necessary. The source of the anomaly may be the result of a long residence time of black shales in the anomalous area, when the shales would break down and release their zinc content.

Locality: R

Sheet: Seagull Creek
Lat. 61° 40' N. Long. 132° 32' W.

Samplers: Smith, Carter, Squair, Apps.
Examined by: Apps & Squair
Date of Exam.: July 13&25,1962

Streams flowing north into Ram Creek and one flowing south into the McConnell River showed anomalous waters and stream sediments. Both the writer and H. Squair investigated the area independently, but were unable to locate any economic mineralization. An east-west trending belt of acid volcanic tuffs, breccias and auto brecciated rhyolites containing disseminated pyrite is considered to be the source of the anomaly.

McEvoy Lake Area

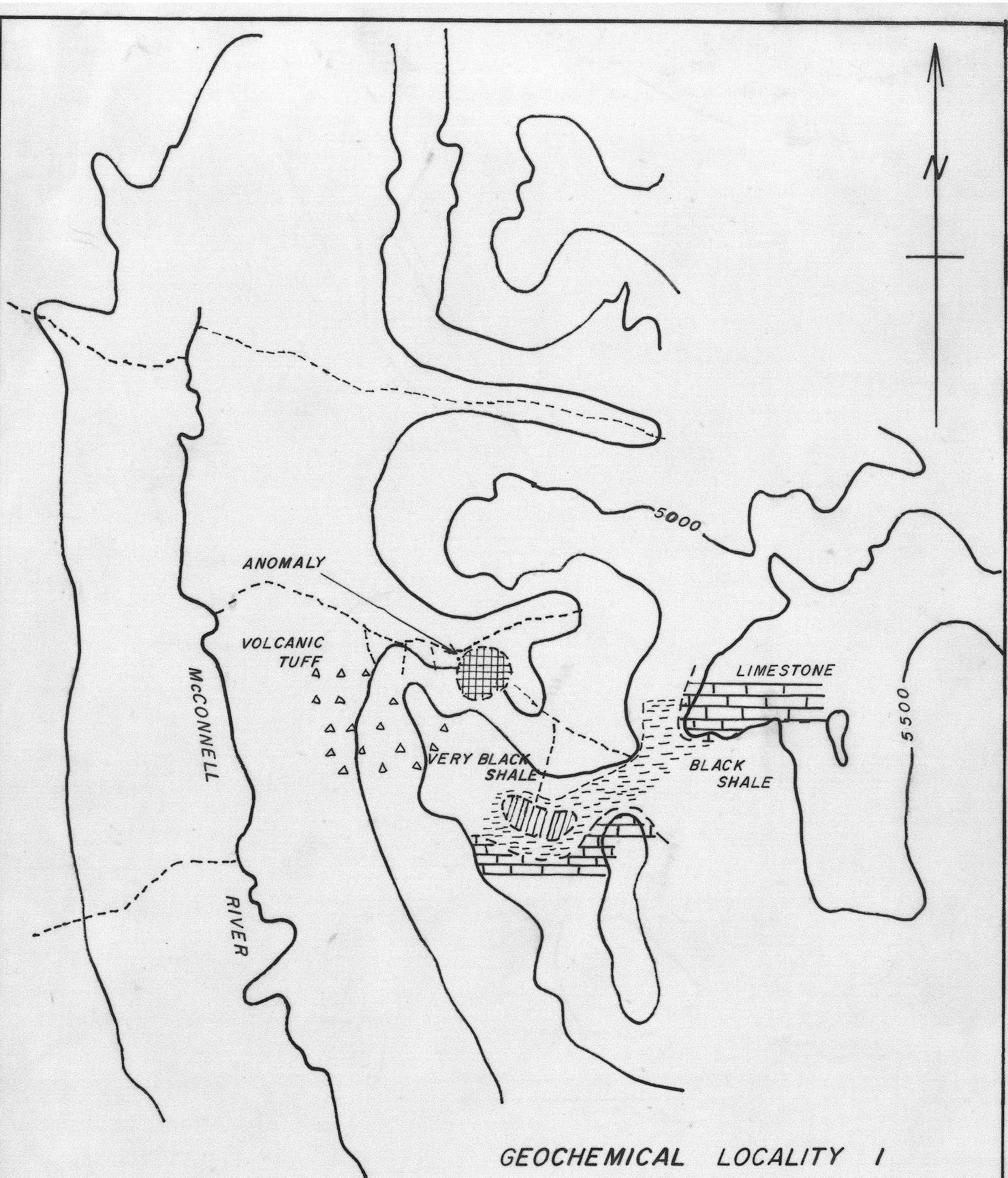
Four anomalous creeks were located in an area surrounding a granite intrusive south of McEvoy Lake.

Locality: Fr Z

Sheet: McEvoy Lake
Lat. 61° 46' N. Long. 130° 03' W.

Sampler: H. Squair
Date of Exam.: Aug. 22, 1962

Seepages of gullies draining from a black slate band contained anomalous waters (1 ppm total cold extractable heavy metals), and stream sediments contained up to 15 ppm cold extractable heavy metals. The anomaly is attributed to the black shales which occur at



GEOCHEMICAL LOCALITY 1

Scale 1" = 1/2 mile

Contour Interval 500'

the heads of the anomalous creeks. The black shale is in places mineralized with both pyrrhotite and pyrite. Four samples were taken for analysis, for lead, zinc and silver. The results are given below:

No.	Ag	Pb	Zn
1339	Tr		0.16
1338	Tr		0.08
1337	Tr		0.14
1336	Tr		0.16

Locality: M

Sheet: McEvoy Lake — Samplers: McLeod, Carter
Lat. 61° 48' N. Long. 130° 07' W.

The creek was found to be slightly anomalous, the cause of the anomaly being considered to be black shales.

Locality: B

Sheet: Finlayson Lake — Samplers: Scott, Smith
Lat. 61° 43' N. Long. 130° 03' W.

A small creek contained anomalous water and stream sediments indicating 15 ppm total cold extractable metals.

Locality: C

Sheet: Finlayson Lake — Samplers: Scott, Smith

A creek draining from black pyritiferous shales showed moderately anomalous values. The stream sediment analyzes at 8 ppm total cold extractable heavy metals. Two samples of black shale were taken for analysis for zinc and lead:

No.	Pb	Zn
1261	-	.22%
1262	-	.16%

Conclusions and Recommendations

The geochemical prospecting project in the South Yukon has indicated that the equipment performs well and is quite reliable in operation. Anomalous stream sediments and water were detected with ease, and in many examples, the anomaly diminished away from the source in a predictable and regular manner. However, several aspects of the dithizone technique are worthy of comment.

As the equipment was employed, it was impossible to cover a large area during the short summer season commencing at the beginning of July, and ending at the beginning of September. It is estimated, that a drainage pattern covering the area of two 15' x 30' sheets only could be covered by two crews in the course of a summer. When a reconnaissance survey aims at covering 35 such sheets, then only known and favorable areas of mineralization can be examined. As a consequence, it is essential that favorable localities be delineated before the commencement of field work or upon the basis of experience gained in the same area from a previous season. A prior knowledge of the geology of the region is helpful, but often inadequate. For example, the mere presence of a granite intrusion is insufficient indication of a favorable environment for mineralization. Furthermore, the possibility that deposits occur elsewhere, associated with volcanic deposits, for instance, serves to illustrate that a considerable knowledge of the area is required before selective geochemical prospecting can be used with advantage.

Most of the anomalies encountered during the investigation in the South Yukon were due to the presence of shale bands containing relatively high concentration of zinc. Others could be attributed to zinc concentrations in volcanic rocks, and three remained unaccounted for, owing to a cover of scree, moraine or vegetation. Further investigation of the latter anomalies would not have yielded additional information without greatly increased expenditure.

Streams anticipated to be anomalous, often proved not to be so. For example, scree derived from a volcanic rock of uncertain genesis containing fluorite, galena (0.45%) and sphalerite (1.03%) did not contaminate the catchment streams sufficiently for detection by dithizone. Similar results were experienced in the Ketza River area.

It therefore appears that the present technique is unlikely to lead to significant discoveries without greatly increased expenditure. As a prospecting tool in small localized areas of already known mineralization it can be of great use in helping to locate previously unknown vein systems which may be otherwise obscured. Under the existing exploration program, it was very difficult to modify the geochemical prospecting technique without upsetting the program in general, and in particular, with its conflicting interest of prospecting by helicopter. Should the company decide to employ geochemical techniques in the future, the technique should be modified according to the purpose of the survey. As already stressed, the method already employed was of value only in previously tried areas where intimate knowledge of theextension of existing mineralization would be required. The nature of the survey was too detailed to be carried out in conjunction with helicopter prospecting. It would have been of value however, had an ore body of economic value been located during the course of exploration, a possibility which would merit the holding of a geochemical kit as part of the exploration inventory.

A more satisfactory approach would be to completely modify the exploration technique to allow for the geochemical reconnaissance of an area comparable with that covered by helicopter prospecting. During the course of the summer exploration program, it was noticed that zinc stream sediment anomalies were often detectable as far down stream as four miles from the source of the anomaly. The distance copper could be found away from the source of an anomaly would be limited by its lower mobility, and lead would likewise show an even more limited dispersion pattern. Since zinc, lead and copper are frequently found in association, a survey for copper and zinc could be conducted by taking suitable sediment samples from streams at two to four mile intervals over a large area using a helicopter for transportation. Samples should be collected in the appropriately designed envelopes and returned to base camp for drying and analysis for zinc, copper and any other metals. In this way no time would be wasted in the field and maximum use would be made of the helicopter.

Without prior knowledge of the efficiency of this suitably modified technique, it would be unwise to postulate the area that could be covered in a season. A favorable province 2,000 square miles in area should not be beyond the scope of a single helicopter used full time upon the project.

Since laboratory procedure is simple in colorimetric analysis, one relatively unskilled analyst could be employed full time, making semi-quantitative analyses at Base Camp. Results could be plotted according to the colour code employed with success during the present investigation. Anomalous areas could then be recognized, and a more detailed follow-up employed to determine the cause of the anomaly. The identification of a shale band for instance, might eliminate the need for a follow-up of adjacent anomalous streams. Needless to say, a reconnaissance geological map would be a prerequisite for such a survey. Either one made previously, or a map produced by helicopter survey should be adequate.

It is beyond the scope of this report to elaborate upon the merits of geochemical prospecting as an exploration tool. It is to be hoped that the somewhat disappointing results obtained in the McNeill-Frances Lake areas do not detract from its future use by the Company, suitably modified to fit the prevailing field conditions and the scope of the exploration program.

Appendix

The following list of materials would be required for two crews using the analytical procedure recommended by Dr. R. E. Delavault and for Base camp analysis of highly anomalous samples. The quantities of chemicals indicated should be ample for a full summer's work.

Chemicals

1 litre glacial acetic acid.

5 packages 16½ gr(anhydras) sodium acetate.

5 litres Toluene

4 litres acetone

25% solution of sodium thiosulphate 2 x 100 ml.

1 litre 1:(hydrochloric acid

1 litre chloroform

Standards zn 100 (gamma) per ml; 100 ml.

cu 100 (gamma) per ml; 100 ml.

Dithizone 6 mgm and 10 mgm packages; 2½ of each.

Apparatus

Carboy (plastic) to hold water.

Syphon with top for above.

6 glass 100 ml graduated cylinders.

2 plastic 100 ml graduated cylinders.

6 spare stoppers for glass cylinders.

10 50 ml. plastic dropping bottles modified with glass dropper.

12 ordinary plastic dropping bottles.

8 100 ml. plastic bottles.

3 packets of filter paper 9 cm.

1 packet of filter paper 12 cm.

4 plastic 100 ml bottles cut to shape for rubeanic acid test.

1 pestle and mortar.

1 80" mesh sieve (stainless steel or nylon). A simple device for measuring 0.1 - 1.0 gr. to an accuracy of 5%.

Rubeanic acid paper.

40 sheets onion skin paper.

Indicator paper SS -8 ph.

2 thermometers 0 - 100° C.

2 10 ml. glass graduated pipettes.

3 2ml. plastic pipettes.

4 1ml. plastic pipettes.

Several ¼ teaspoon measuring spoons.

Test tubes 24 1.28 x 8.45 in.

8 1.58 x 15 in.

Plastic stoppers for above.

2 plastic funnels (3" - 4").

2 volumetric flasks either 200 ml. or 100 ml. (preferably the latter)

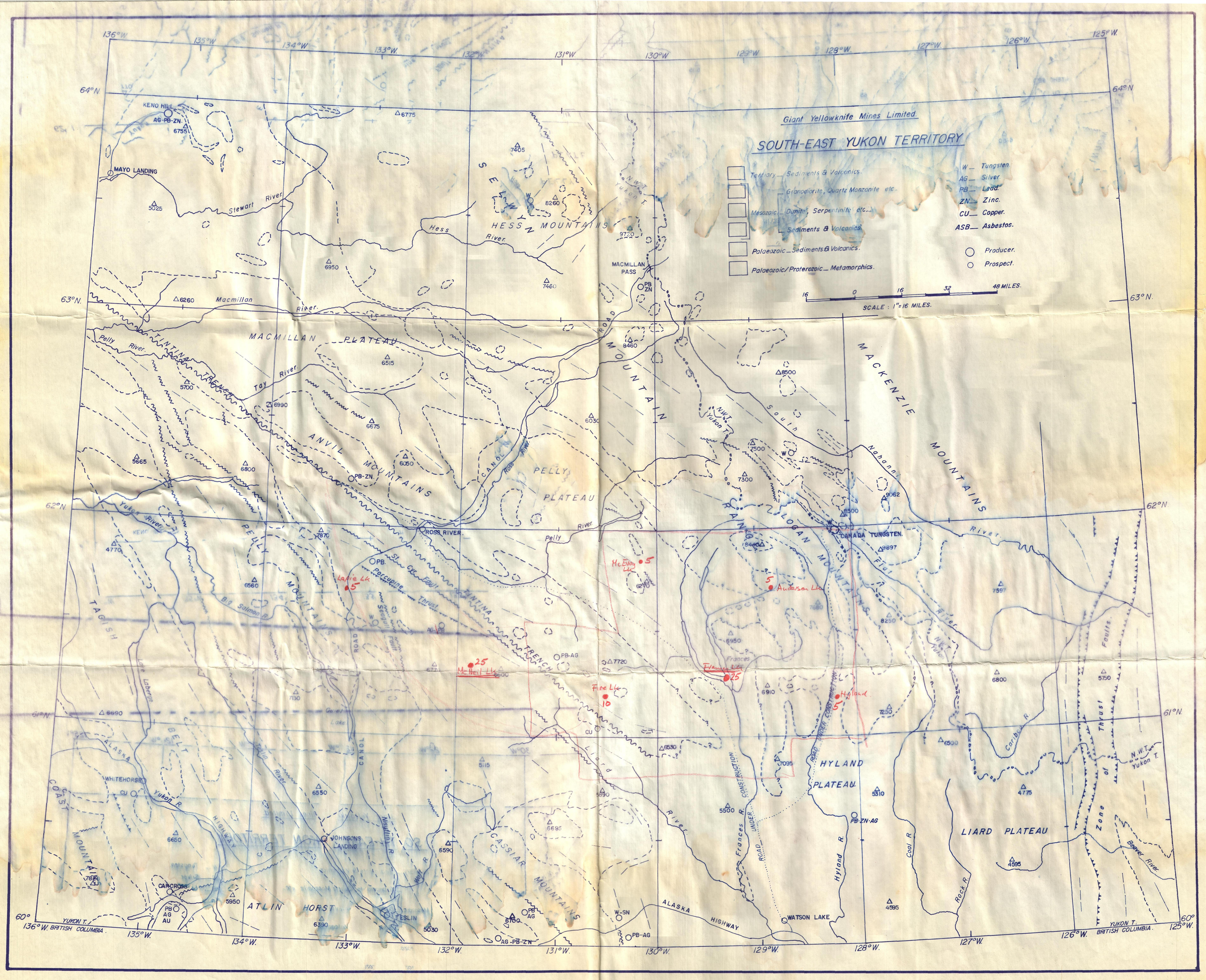
10 1 litre bottles.

4 500 ml. pastic squeeze bottles.

2 1 litre beakers, 2 500 ml. beakers.

1 glass stirring rod.

2 test tube racks.



Giant Yellowknife Mines Limited.
SOUTH-EAST YUKON TERRITORY
Tertiary — Sediments & Volcanics.
— Granodiorite, Quartz Monzonite etc.
Mesozoic — Dunite, Serpentinite etc.
— Sediments & Volcanics.
Palaeozoic — Sediments & Volcanics.
Palaeozoic/Proterozoic — Metamorphics.
W — Tungsten.
AG — Silver.
PB — Lead.
ZN — Zinc.
CU — Copper.
ASB — Asbestos.
Producer.
Prospect.
SCALE : 1"=16 MILES.
48 MILES.
KENO HILL
MAYO LANDING
Stewart River
Hess River
SELWYN MOUNTAINS
MACMILLAN PASS
Macmillan River
MACMILLAN PLATEAU
Pelly River
TINTINA TRENCH
Tay River
ANVIL MOUNTAINS
PELLY PLATEAU
CANOL ROAD
Ross River
ROSS RIVER
Yukon River
PELLY MOUNTAINS
Porcupine Thrust
St. Cyr Fault
Big Salmon R.
TAGISH
Lake Laberge
BELT
ALASKA
COAST MOUNTAINS
WHITEHORSE
Yukon R.
HIGHWAY
JOHNSONS LANDING
CARCROSS
ATLIN HORST
TESLIN
CASSIAR MOUNTAINS
Nisutlin R.
Wolf R.
Liard River
Frances R.
ROAD UNDER CONSTRUCTION
HYLAND PLATEAU
Hyland R.
Coal R.
Rock R.
LIARD PLATEAU
Caribou R.
Beaver River
Zone of Thrust Faults
N.W.T.
Yukon T.
MACKENZIE MOUNTAINS
South Nahanni River
Flat River
LOGAN MOUNTAINS
CANADA TUNGSTEN
Anderson Lk.
McEvoy Lk.
Lapie Lk.
McNeil Lk.
Fire Lk.
Frances Lk.
Hyland
ALASKA HIGHWAY
WATSON LAKE
YUKON T.
BRITISH COLUMBIA
136°W.
135°W.
134°W.
133°W.
132°W.
131°W.
130°W.
129°W.
128°W.
127°W.
126°W.
125°W.
64°N.
63°N.
62°N.
61°N.
60°

SPECIMEN MAP

YUKON TERRITORY

1962

SPECIMENS
199
194
111
73
66
64

ARE FROM THE PI GROUP S.W. OF STEWART LAKE

SLIDES ARE PREPARED DL-CB-1 (Example)

NATIONAL TOPOGRAPHIC SERIES — DEPARTMENT OF MINES AND TECHNICAL SURVEYS — FIRST EDITION — CANADA, SHEET 105 G

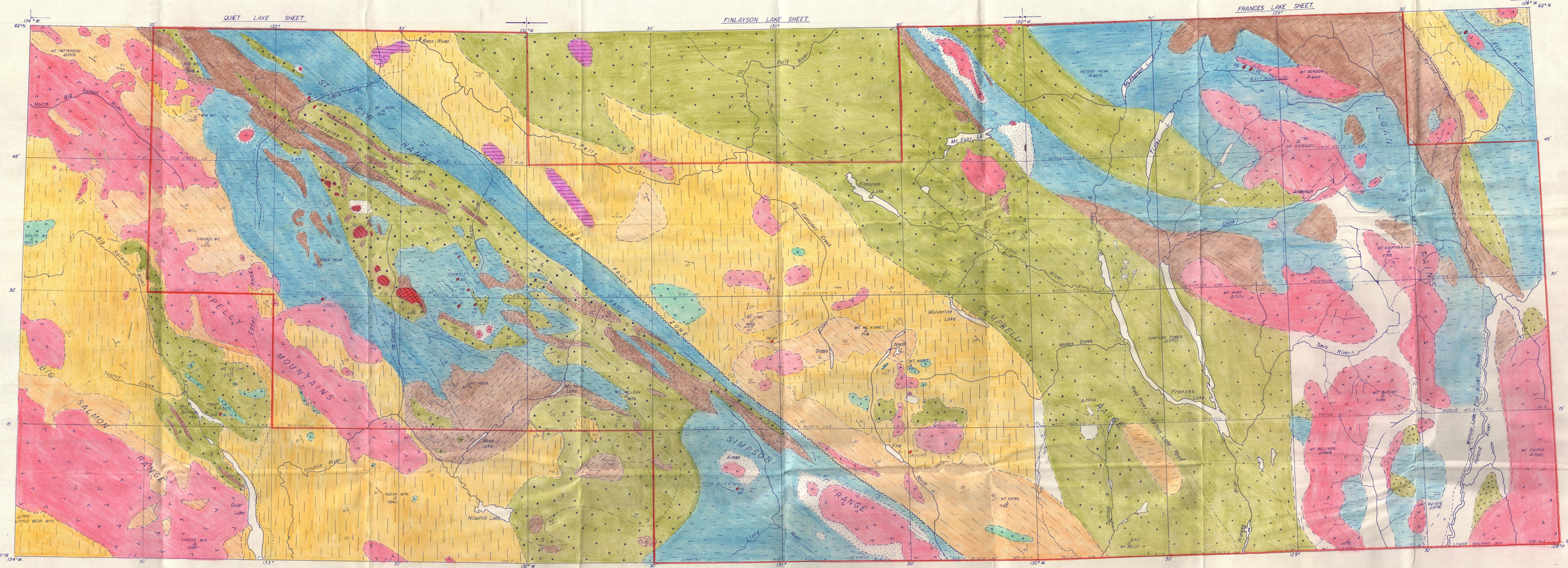
NATIONAL TOPOGRAPHIC SERIES — DEPARTMENT OF NATIONAL DEFENCE — FIRST EDITION — CANADA, SHEET 105 F

NATIONAL TOPOGRAPHIC SERIES — CANADA — DEPARTMENT OF MINES AND TECHNICAL SURVEYS — SECOND EDITION — CANADA, SHEET 105 H

FINLAYSON LAKE
YUKON TERRITORY

Scale 1:250,000
1 inch to 4 Miles Approximately

FRANCES LAKE
YUKON TERR.—NORTHWEST TERR.


QUIET LAKE SHEET
FINLAYSON LAKE SHEET
FRANCES LAKE SHEET
ST CYR RANGE
TINTINA FAULT ZONE
JUPELL MOUNTAINS
BIG SALMON RANGE
SIMPSON RANGE
CAMPBELL RANGE
LOGAN MTS
Ross River
Pelly River
Big Salmon River
Nisutlin River
Frances Lake
Finlayson Lake
Wolverine Lake
Anderson River
Tintina Trench
Watson Lake-Ross River Road
Robert Campbell Highway
Mt. Patterson
Mt. Ross
Mt. Green
Mt. Lowe
Mt. McKinney
Mt. Wilkes
Mt. Exkins
Mt. Kelly
Mt. Gordon
Mt. Sveinson
Mt. Hoye
Mt. Billings
Mt. Partlow
Mt. Kaufman
Mt. Butcher
Mt. Sutherland
Mt. Tumber
Peter Peak
Dunite Mt.
Cahoon Mt.
Indian Mtn.
Crater Mtn.
Mt. Hodge
Mt. Mye
Mt. Mc Clean
Mt. Mc Nee
Mt. Stanley
Mt. Cyr
Mt. Mye
Mt. Mc Connell
Mt. Hoole
Mt. Mc Cann
Mt. Mc Whirter
Mt. Black
Mt. Mc Millan
Mt. Mc Millan
Mt. Mc Millan

FOX CREEK SHEET

62°00'

133°00'

134°00'

61°30'

LAPIE LAKES SHEET

LEGEND

JURASSIC INTRUSIVES
Granite and Granodiorite

MISSISSIPPIAN AND EARLIER
5a Black Slate and Shale

SILURIAN DEVONIAN
4a Dolomite

ORDOVICIAN SILURIAN
Black Slate

MIDDLE CAMBRIAN
2a Phyllite 2b Breccia and Tuff

LOWER CAMBRIAN
1d Limestone

A Quartz Biotite Schist

B Limestone

C Quartz Biotite and Granitoid Gneiss

Quartz Vein

Bedding

Foliation

Contact

Tear and Normal Fault

Thrust Fault

Anticline

Jointing

Approx Outcrop Boundry

Gold (Tr - 0.1ozs.) (> - 0.1)

Silver (0.1 - 1oz.) (> - 1oz.)

Copper (< - 0.5)

Sulphide Gossan, Stain and Skarn

2 0 2 4

Scale 1 inch = 1 mile

GIANT YELLOWKNIFE MINES LIMITED

GENERAL GEOLOGICAL MAP

of

SHEET 105F N.W.

YUKON TERRITORY

N

Nov. 1962 H. Squair

McCONNELL LAKE SHEET

GRIZZLY CREEK SHEET

133° 00' W

61° 30' N

61° 00' N

Mt. Hoge 6774

McConnell PR 6182

East Peak

Indian Mtn 5940

5039

5515

5567

6222

5871

6570

6541

6441

5977

6268

Nisutlin

Hundred Mile Cr

Wolf Cr

McConnell Creek

Big Creek

Grizzly Creek

McNeil L

Red River L

Nisutlin Lake

LEGEND

JURASSIC INTRUSIVES
- Granite and Granodiorite
- Pyroxenite

MISSISSIPPIAN AND EARLIER
- Hornblende Syenite
- 6a Altered Volcanic, Amphibolite and Ashrock
- 6c Felsic Breccia Chert and Limestone
- 5a Shale and Slate

SILURIAN - DEVONIAN
- 4A Dolomite

MIDDLE CAMBRIAN
- 2a Phyllite

LOWER CAMBRIAN
- 1a Quartzite 1b Limestone
- 1c Undivided Quartzite and Limestone
- A Quartz Biotite Schist and Gneiss
- B Limestone
- Quartz and Quartz Carbonate Vein
- # Jointing

- Bedding
- Foliation
- Contact
- Tear and Normal Fault
- Thrust Fault
- Anticline
- Syncline
- Approx Outcrop Boundry

- Gold (Tr - 0.1) -- (> 0.1)
- Silver (0.1 - 1oz) -- (> 1oz)
- Copper (> 0.5)
- Lead
- Zinc - (> 0.5)
- Molybdenum
- Tungsten
- Sulphide Stain and Gossan

2 0 2 4

Scale 1 inch = 1 mile

GIANT YELLOWKNIFE MINES LIMITED

GENERAL GEOLOGICAL MAP

of

SHEET 105-F SE.

YUKON TERRITORY

N

Nov. 1962 H. Savoir

LAPIE RIVER SHEET

ROSS RIVER SHEET

SEAGULL CREEK SHEET

KETZA RIVER SHEET

62°00'

61°30'

133°00'

132°00'

Mt Cook 6676

Mt Ross 5941

Mt Green 6669

Ferry

Ross River

Blackfox Bend

Hoole Canyon

Bruce Lake

Porcupine Creek

Seagull Creek

Ketza River

Tintina Fault Zone

Seagull Fault

5473

7000

7001

6762

LEGEND

PALEOCENE
- Shale and Sandstone

JURASSIC INTRUSIVES
- Granite and Granodiorite

MISSISSIPPIAN AND EARLIER
- Hornblende Syenite
- 6a Altered Andesite and Ash
- 6b Greywacke
- 6c Felsic Breccia and Tuff
- 5a Grey Slate and Shale

SILURIAN DEVONIAN
- 4a Dolomite

ORDOVICIAN SILURIAN
- 3a Grey Phyllite

MIDDLE CAMBRIAN
- 2a Grey and Buff Phyllite
- 2b Limestone

LOWER CAMBRIAN
- 1a Grey Phyllite
- 1b Limestone
- 1c Quartzite

A Quartz Biotite Schist and Gneiss

Quartz Vein

Bedding

Foliation

Contact

Jointing

Tear and Normal Fault

Thrust Fault

Anticline

Syncline

Gold (Tr - 0.1oz) (> - 0.1)

Silver (0.1 - 1oz) (> - 1oz)

Copper (> - 0.5)

Lead (> - 1%)

Zinc (> - 1%)

Sulphide - Gossan and Stain

Scale 1 inch = 1 mile

GIANT YELLOWKNIFE MINES LIMITED

GENERAL GEOLOGICAL MAP

of

SHEET 105F N.E.

YUKON TERRITORY

N

NOV. 1962 H. SQUAIR

TEE GROUP

B.J. GROUP

N.Y. GROUP

LEGEND

- OUTCROP
- FROST HEAVED OUTCROP
- CONTACT (INFERRED)
- CONTACT (OBSERVED)
- 5500 — CONTOUR
- ANTICLINE
- SYNCLINE
- STREAM or CREEK
- BUFF LIMESTONE
- GREY "
- GREY & RED PHYLLITE
- BLACK SHALE & LIMESTONE
- ARGILLACEOUS ASH
- RHYOLITIC ASH & TUFF
- QUARTZ & QTZ. CARB. VEINS
- APLITE DIKES & SILLS
- THRUST FAULT
- NORMAL FAULT
- BEDDING
- FOLIATION
- LINEATION
- CLEAVAGE & JOINTING
- MUSKEG
- BOULDERS & OVERBURDEN

GIANT YELLOWKNIFE MINES LTD.

GEOLOGICAL MAP

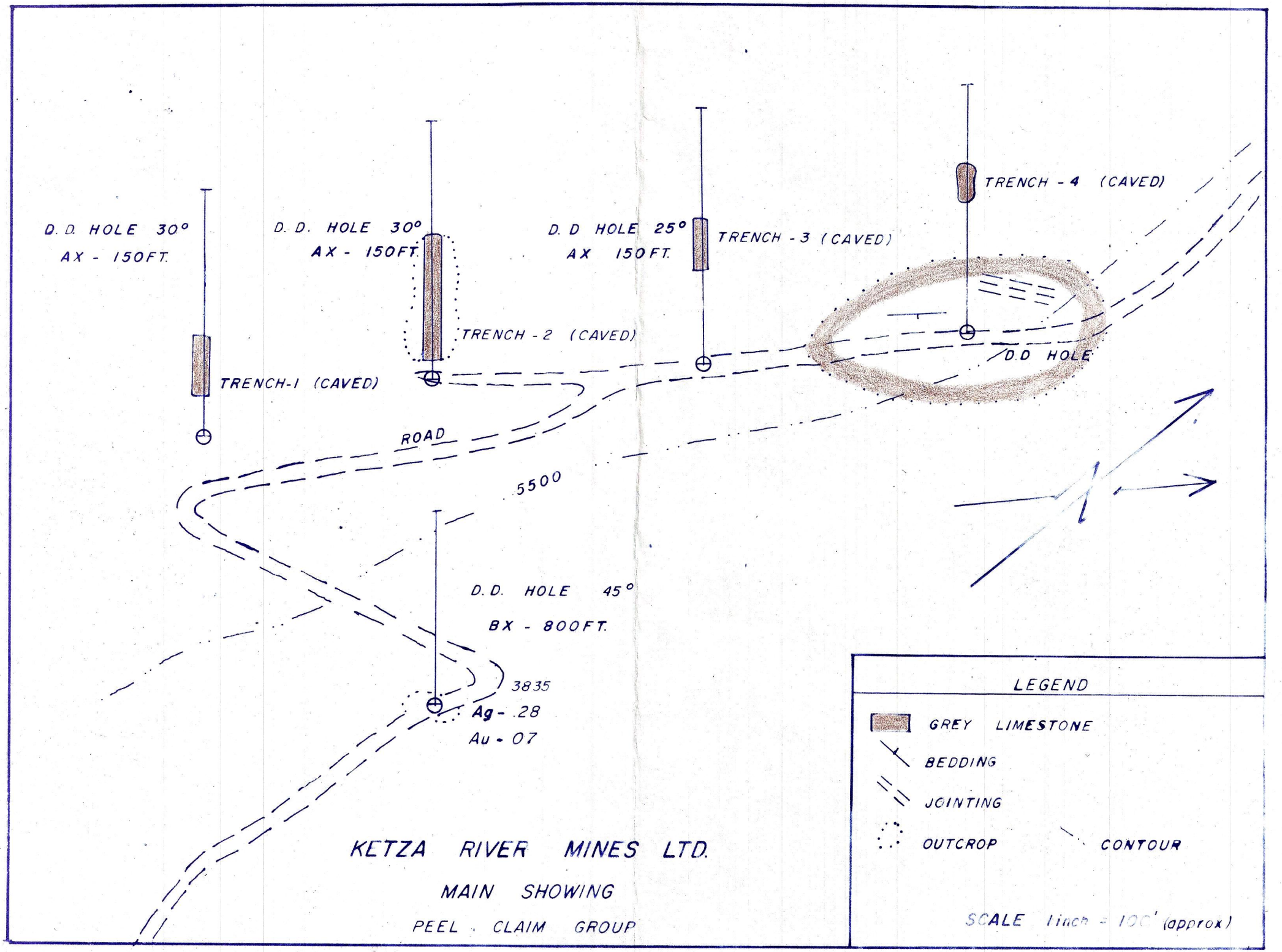
B.J., N.Y., AND TEE CLAIMS

UPPER KETZA RIVER - Y.T.

SCALE

0 500 1000 1500 2000 2500

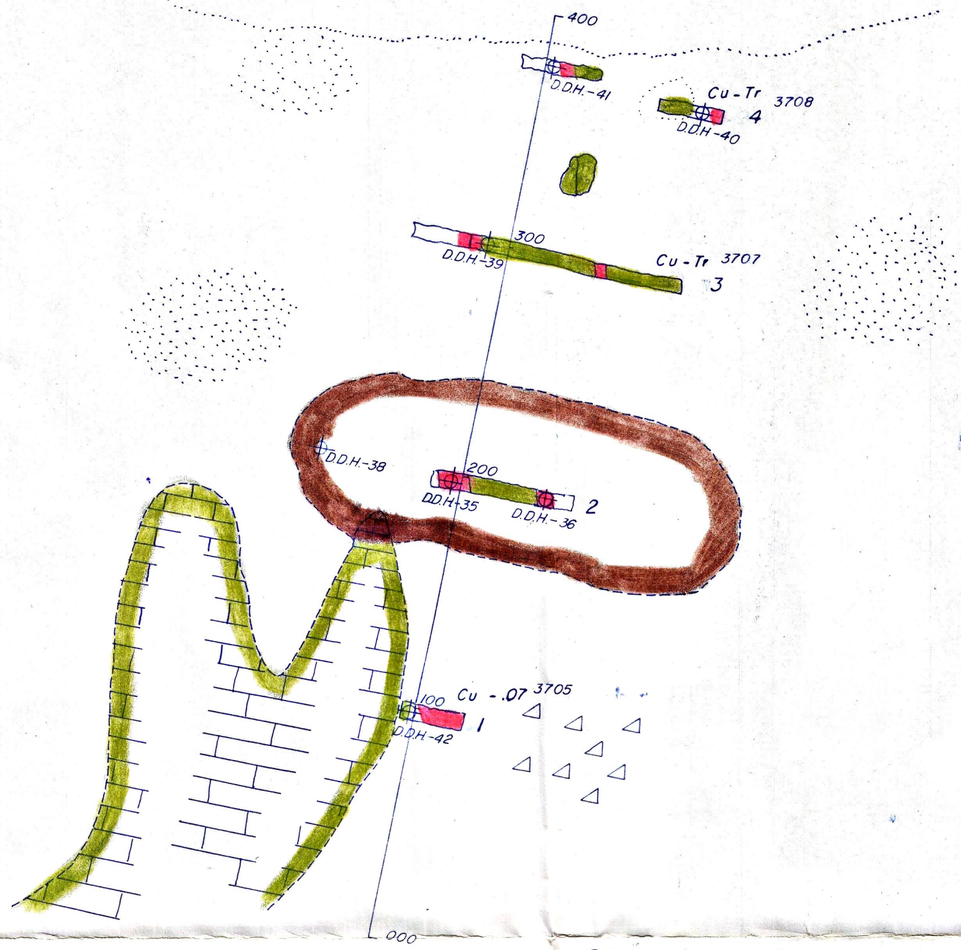
1 in. = 500 ft.



KETZA RIVER MINES LTD.

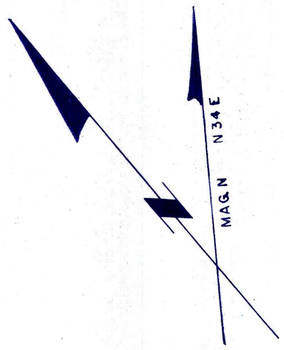
MAIN SHOWING

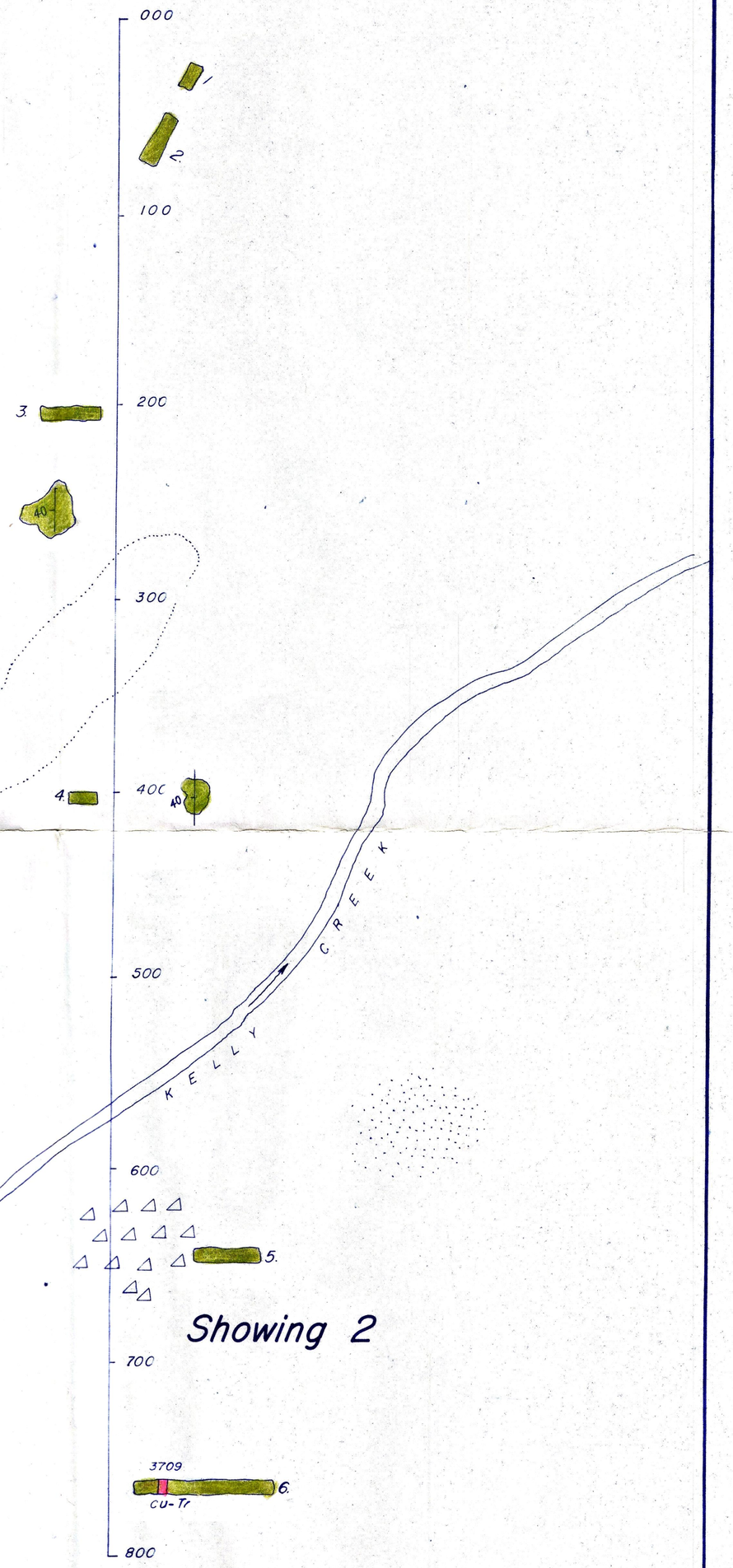
PEEL . CLAIM GROUP



Showing 1

NOTE — SHOWING ON 25° SLOPE TO EAST





Showing 2

GIANT YELLOWKNIFE MINES LTD.

GEOLOGICAL MAP

SHOWING 1 and 2

Penguin Claim Group

UPPER KETZA RIVER-Y.T.

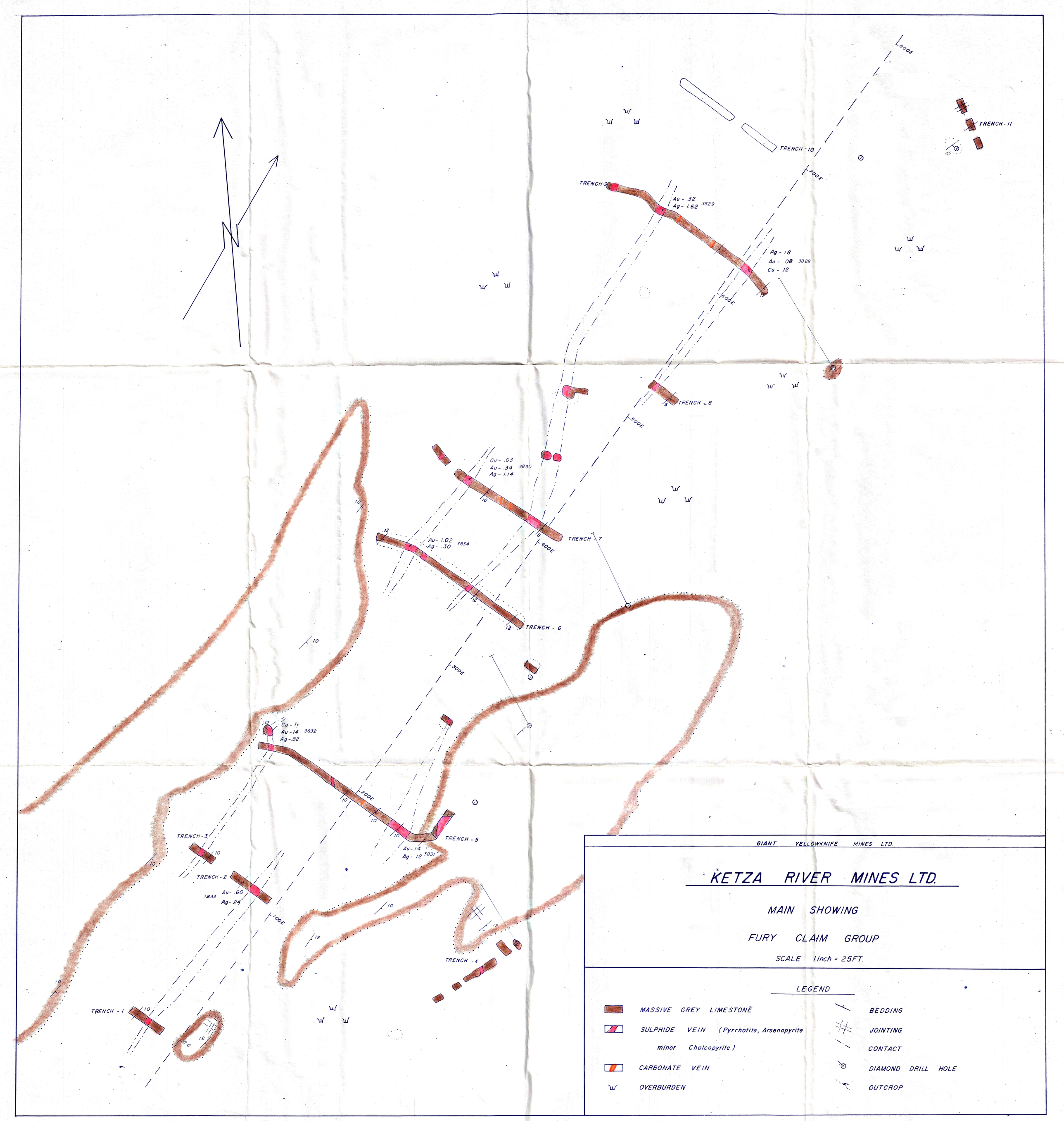
SCALE

0 50 100 150 200

1in.=50ft.

LEGEND

- Limestone
- Massive Sulfides
- Iron Stain
- Boulders
- Drill Hole
- Overburden
- Snow



GIANT YELLOWKNIFE MINES LTD.

KETZA RIVER MINES LTD.

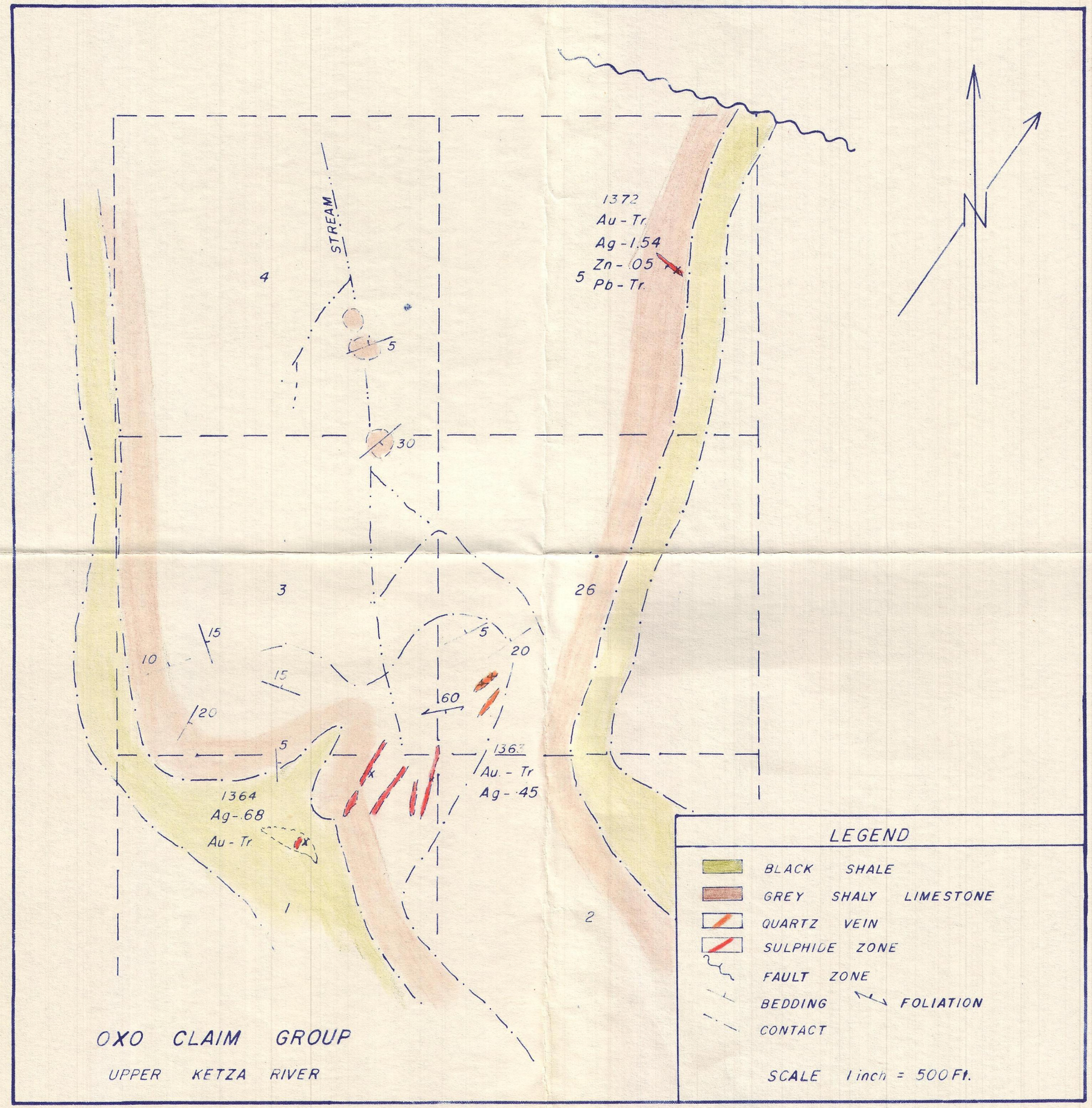
MAIN SHOWING

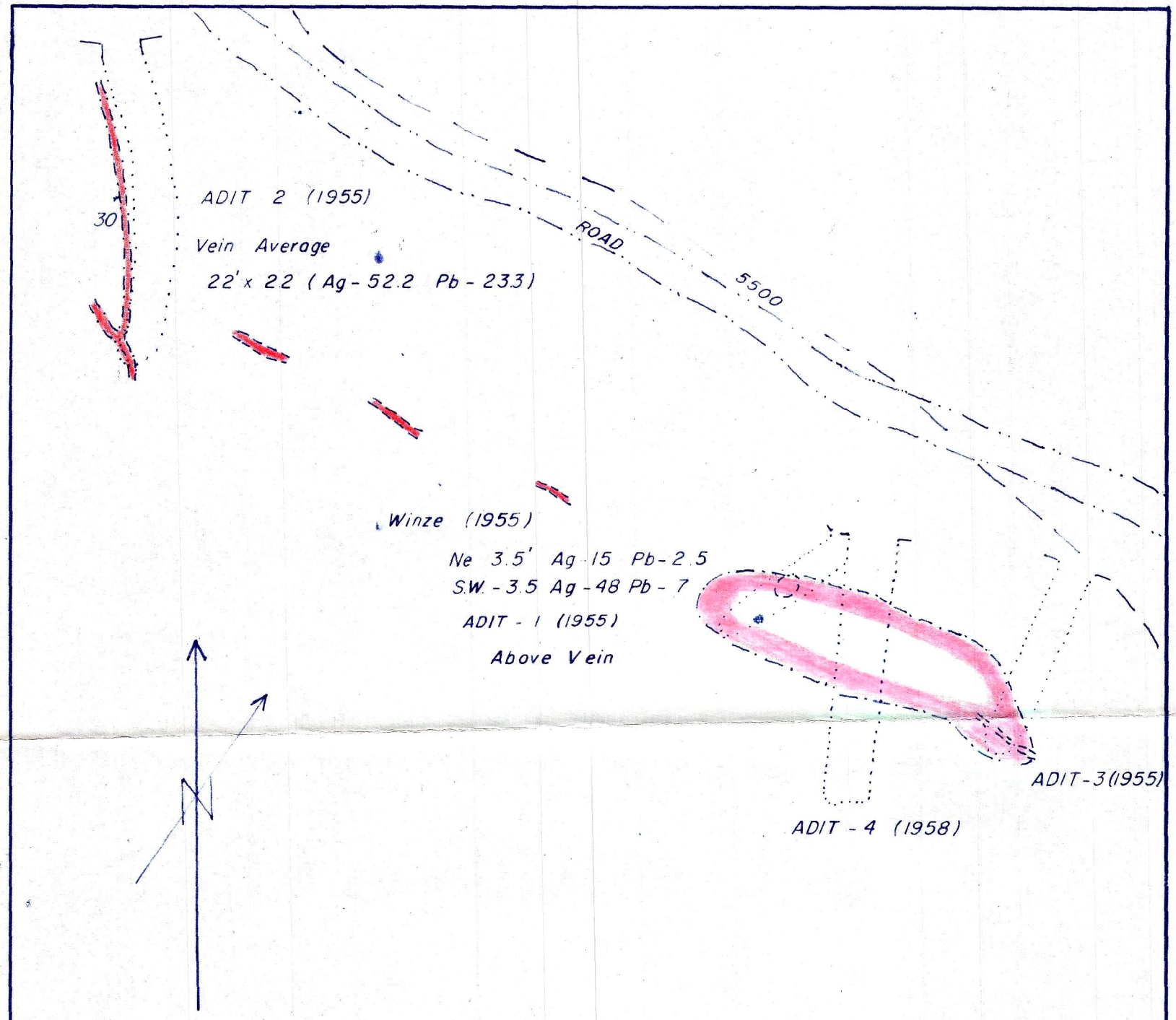
FURY CLAIM GROUP

SCALE 1inch = 25FT.

LEGEND

- MASSIVE GREY LIMESTONE
- SULPHIDE VEIN (Pyrrhotite, Arsenopyrite minor Chalcopyrite)
- CARBONATE VEIN
- OVERBURDEN
- BEDDING
- JOINTING
- CONTACT
- DIAMOND DRILL HOLE
- OUTCROP


STREAM
4
5
3
26
2
1
1372
Au - Tr
Ag - 1.54
Zn - .05
Pb - Tr.
1364
Ag - .68
Au - Tr
1367
Au. - Tr
Ag - .45
5
30
15
10
15
20
5
60
5
20
LEGEND
BLACK SHALE
GREY SHALY LIMESTONE
QUARTZ VEIN
SULPHIDE ZONE
FAULT ZONE
BEDDING
FOLIATION
CONTACT
SCALE 1 inch = 500 Ft.
OXO CLAIM GROUP
UPPER KETZA RIVER



KEY GROUP

MAIN SHOWING

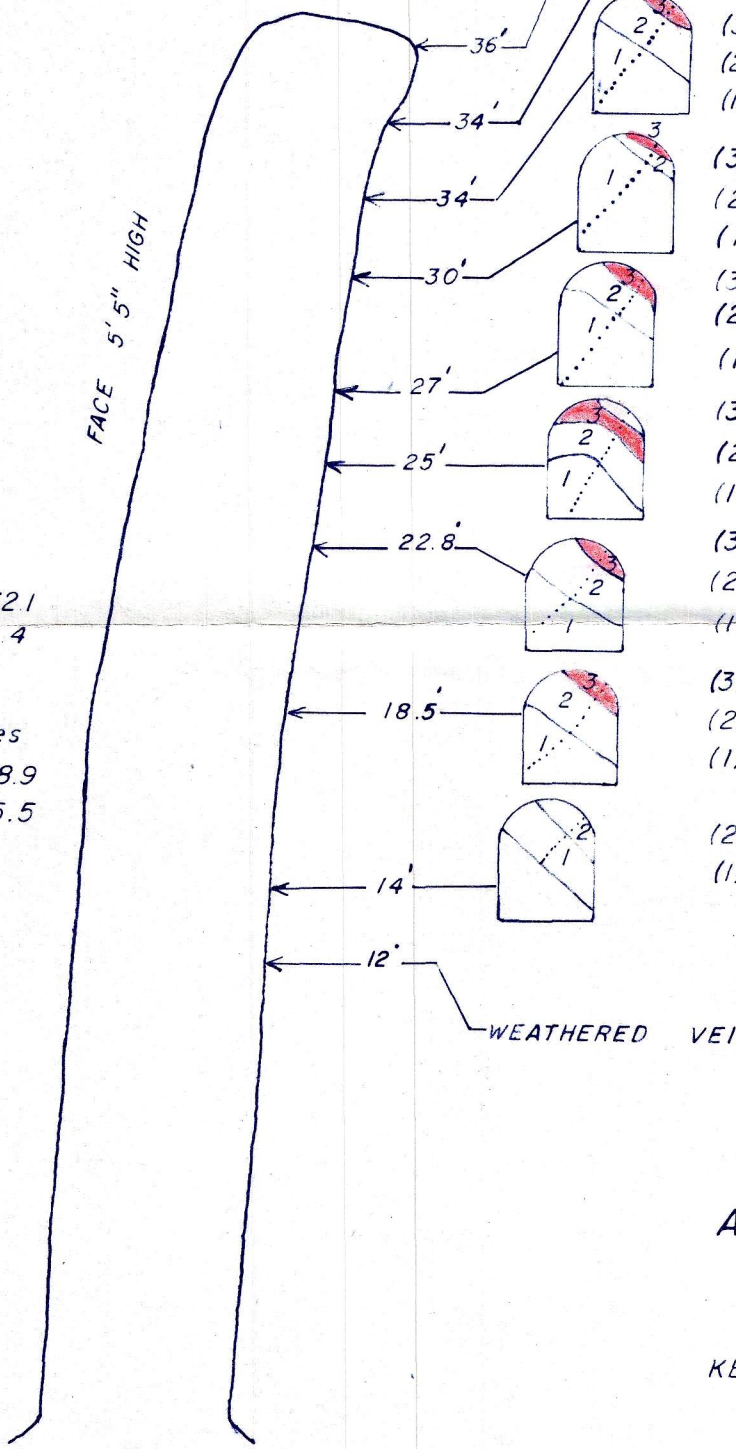
KETZA RIVER Y.T

WORK DONE IN 1955 - 56 - 57 - 58

BY KETZAKEY SILVER MINES LTD.

SCALE 1" = 20'

● Quartz Vein with Galena



	SAMPLE WIDTH		
(3)	0.7	Ag - 17.9	Pb - 5.7
(2)	1.2'	Ag - 61.3	Pb - 31
(1)	2.8'	Ag - 39.0	Pb - 7.8
(3)	1.1'	Ag - 58	Pb - 25
(2)	0.6'	Ag - 24	Pb - 14.8
(1)	4.5'	Ag - 3.0	Pb - 1.5
(3)	0.6'	Ag - 114.2	Pb - 48
(2)	1.6'	Ag - 48.9	Pb - 4.8
(1)	4.0'	Ag - 2.3	Pb - 1.0
(3)	0.5	Ag - 33.5	Pb - 11.4
(2)	0.3	Ag - 34.4	Pb - 12.5
(1)	4.2'	Ag - 2.6	Pb - 1.6
(3)	1.0	Ag - 64.9	Pb - 40.8
(2)	1.2	Ag - 9.0	Pb - 4.4
(1)	3.2'	Ag - 2.6	Pb - 2.3
(3)	1.3	Ag - 82.3	Pb - 41.6
(2)	2.2	Ag - 5.4	Pb - 2.6
(1)	3.2	Ag - 1.5	Pb - 0.9
(3)	1.2	Ag - 5.9	Pb - 1.9
(2)	2.8	Ag - 99.0	Pb - 40
(1)	3.0	Ag - 1.1	Pb - 0.6
(3)	0.6	Ag - 13.3	Pb - 2.8
(2)	1.6	Ag - 54.2	Pb - 29.2
(1)	3.8'	Ag - 3.2	Pb - 2.1
(2)	1.5'	Ag - 83.2	Pb - 26.5
(1)	2.4'	Ag - 3.1	Pb - 1.8

WEATHERED VEIN 0.9' Ag - 250 Pb - 48.0 Cu - 1.7

Muck Sample
Ag - 62.1
Pb - 3.4

Muck Samples
Ag - 28.9
Pb - 15.5

ASSAY PLAN

ADIT 2

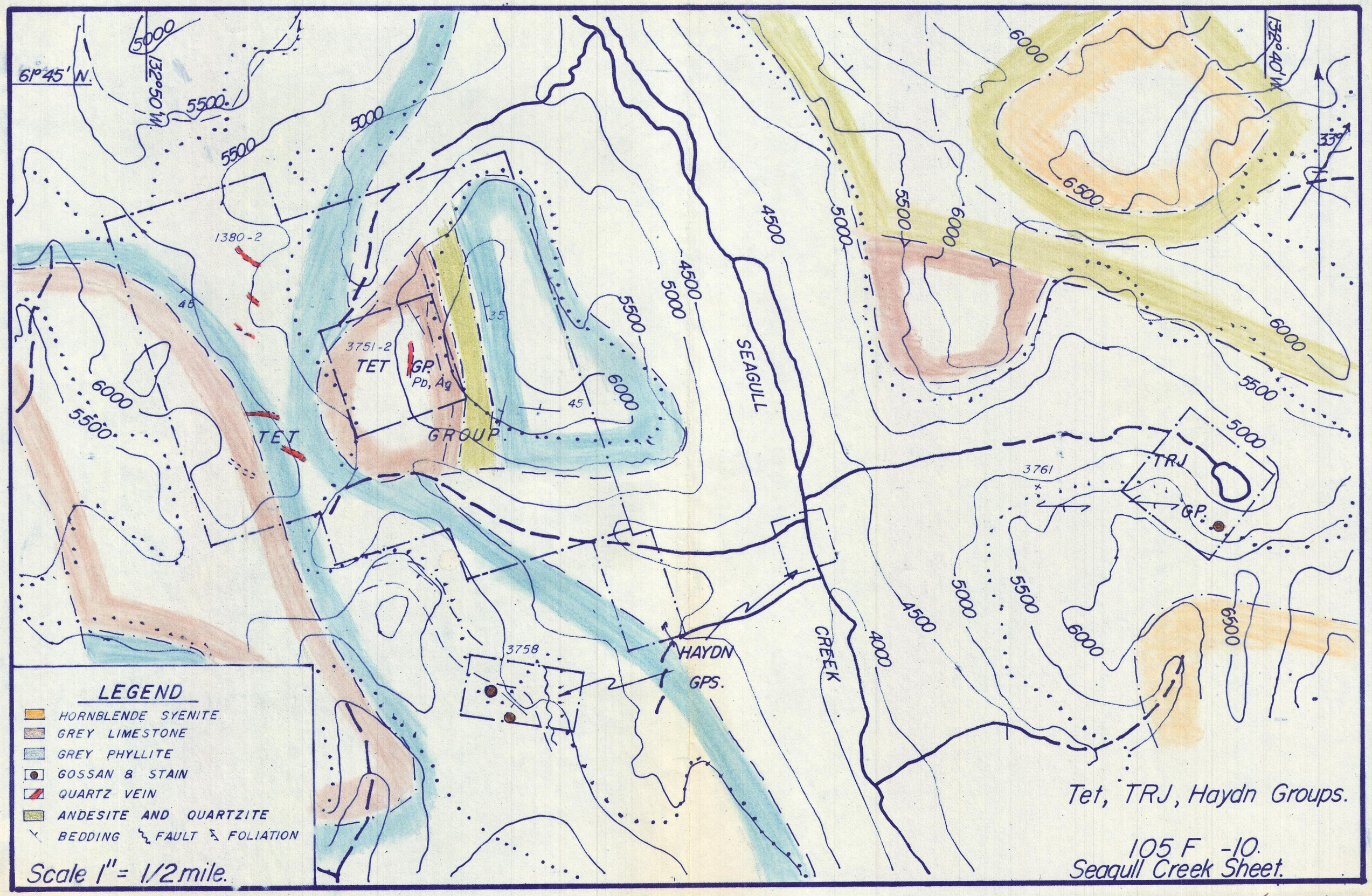
KEY CLAIM GROUP

KETZA RIVER

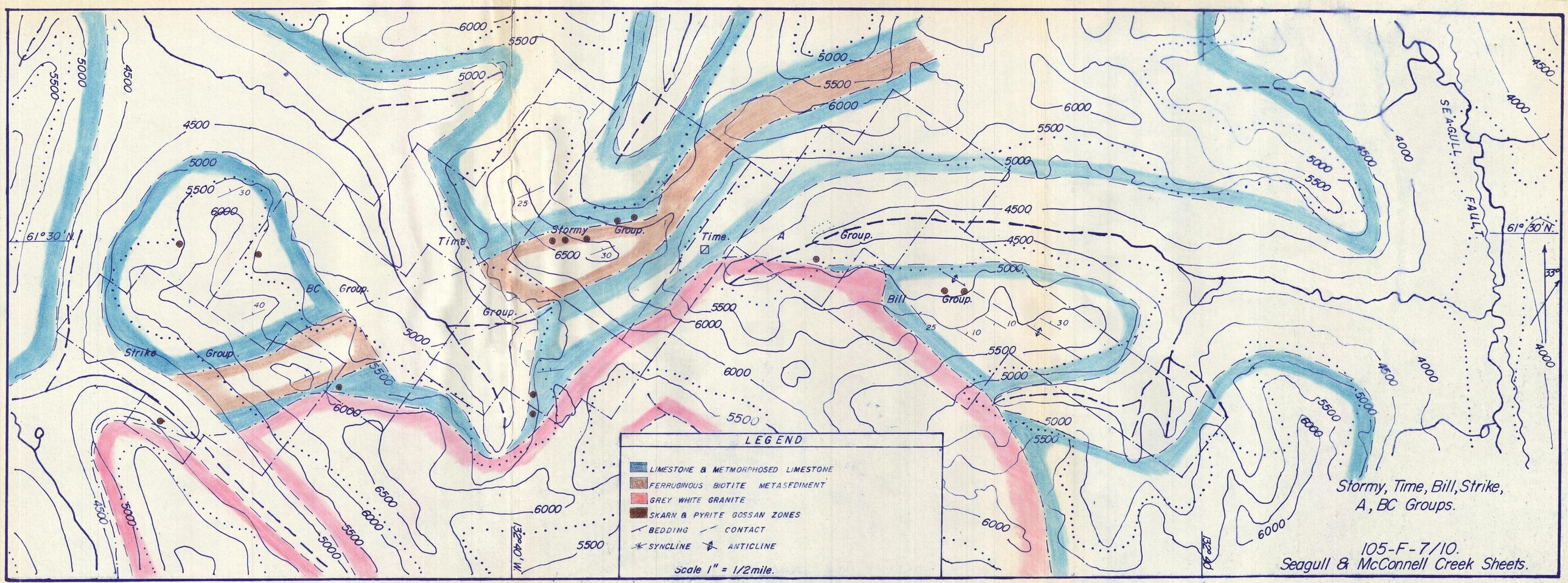
Y.T.

QUARTZ VEIN

HS



61°45' N.
132°50' W.
132°40' W.
33°
5000
5500
6000
6500
4500
4000
1380-2
3751-2
TET
GP.
Pb, Ag
GROUP
TET
SEAGULL
CREEK
3761
TRJ
GP.
3758
HAYDN
GPS.
LEGEND
HORNBLENDE SYENITE
GREY LIMESTONE
GREY PHYLLITE
GOSSAN & STAIN
QUARTZ VEIN
ANDESITE AND QUARTZITE
BEDDING
FAULT
FOLIATION
Scale 1" = 1/2 mile.
Tet, TRJ, Haydn Groups.
105 F -10.
Seagull Creek Sheet.



Stormy, Time, Bill, Strike, A, BC Groups.
105-F-7/10.
Seagull & McConnell Creek Sheets.
LEGEND
LIMESTONE & METMORPHOSED LIMESTONE
FERRUGINOUS BIOTITE METASEDIMENT
GREY WHITE GRANITE
SKARN & PYRITE GOSSAN ZONES
BEDDING
CONTACT
SYNCLINE
ANTICLINE
Scale 1" = 1/2 mile.
61° 30' N.
132° 40' W.
SEAGULL FAULT
Stormy Group.
Time Group.
Time.
A Group.
Bill Group.
BC Group.
Strike Group.

PELLY RIVER

Slate Rapids

Horton Cr

Creek

Slate Cr

Hoole River

Mink Creek

Big Creek

LOWER HOOLE RIVER SHEET

MINK CREEK SHEET

132°00'

61°30'

61°30'

LEGEND

TERTIARY
Basalt Flows

JURASSIC INTRUSIVES
Granite Granodiorite

MISSISSIPPIAN AND EARLIER
B Dark Grey Limestone
6a Altered Andesite and Ash
5 Black Slate and Shale

SILURIAN DEVONIAN
4a Dolomite

MIDDLE CAMBRIAN
2a Grey Phyllite
2b Limestone
A Biotite Schist and Gneiss
C Granitoid Gneiss
D Peridotite Pyroxenite
Quartz Vein

Bedding
Foliation
Contact
Jointing
Tear and Normal Fault
Syncline
Approx Outcrop Boundry

Gold (Tr - 0.1oz) (> - 0.1oz)
Silver (0.1 - 1oz) (> - 1oz)
Copper (> - 0.5%)
Sulphide Gossan and Stain

Scale 1 inch - 1 mile

GIANT YELLOWKNIFE MINES LIMITED

GENERAL GEOLOGICAL MAP

of

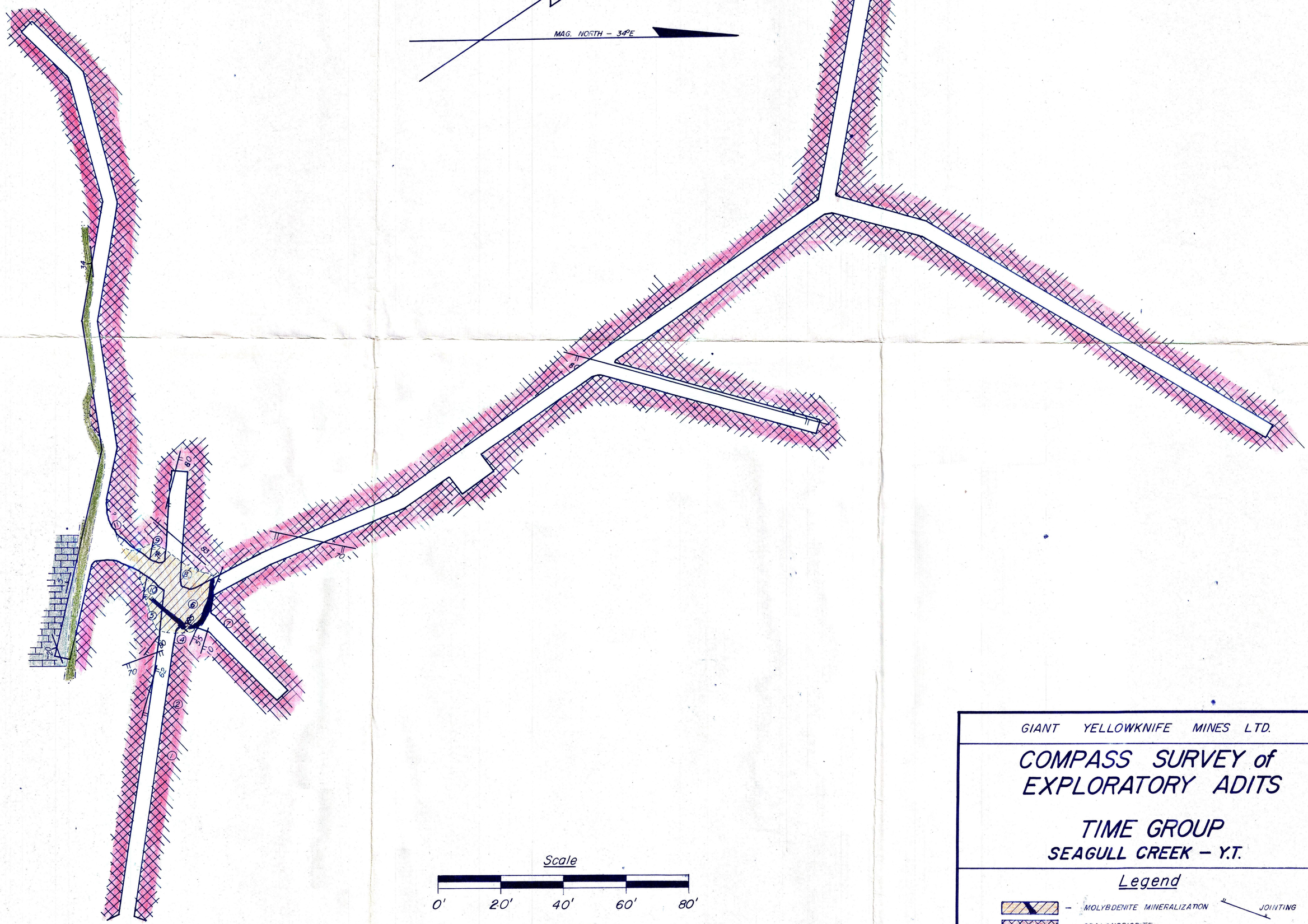
SHEET 105G NW

YUKON TERRITORY

N

34°

Nov. 1962 H. Squair



GIANT YELLOWKNIFE MINES LTD.

COMPASS SURVEY of EXPLORATORY ADITS

TIME GROUP

SEAGULL CREEK – Y.T.

Legend

- MOLYBDENITE MINERALIZATION
- GRANODIORITE
- SKARN
- LIMESTONE
- JOINTING
- CONTACT
- ② SAMPLE

61°30'

McNEIL LAKE SHEET

UPPER HOOLE RIVER SHEET

61°30'

132 00

137°00'

McNeil River

McNeil Lake

Hoole R.

BRANGE

Junkers Lake

LIARD

JUNKERS LAKE SHEET

61°00'

61°00'

132 00

137°00'

LEGEND

JURASSIC INTRUSIVES
- Granite and Granite Porphyry

MISSISSIPPIAN AND EARLIER
- 6a Andesite and Amphibolite
- 6c Felsic Breccia and Tuff
- 5a Phyllite

SILURIAN DEVONIAN
- 4a Dolomite

MIDDLE CAMBRIAN
- 2a Grey and Buff Phyllite
- 2b Limestone
- 2c Biotite Metasediment and Hornfels

LOWER CAMBRIAN
- 1a Buff Quartzite
- 1b Grey Limestone
- A Qtz. Biotite Schist and Phyllite
- B Limestone
- C Biotite Gneiss
- D Dunite Peridotite
- Quartz Vein

- Bedding
- Foliation
- Contact
- Tear and Normal Fault
- Thrust Fault
- Anticline
- Approx Outcrop Boundry

- Gold (Tr - 0.1ozs) (λ - 0.1)
- SILVER (0.1 - 1oz) (> - 1oz)
- Copper (> - 0.5)
- Lead (> - 1%)
- Zinc (> - 1%)
- Sulphide Gossan and Stain

2 0 2 4

Scale 1 inch = 1 mile

GIANT YELLOWKNIFE MINES LIMITED

GENERAL GEOLOGICAL MAP

of

SHEET 105G S.W.

YUKON TERRITORY

N

34

Nov 1962 H. Squair

West Group.

Group

Dall Group.

said to adjoin.

El Group.

Pan Group.

Argo Group.

CAMP SITE

ADIT

EAGLE GROUP.

AIRSTRIP

ROAD TO

Jess Group.

Ram Group.

Norm Group.

7393

N.

33°

61°10' N.

61°05'N.

131°10' W.

LEGEND

- GRANODIORITE AND PORPHYRY
- RED AND GREY PHYLLITE + LIMESTONE
- BROWN QUARTZITE
- BIOTITE & HORNBLENDE METASEDIMENT
- GOSSAN AND STAIN
- CONTACT
- BEDDING
- FOLIATION
- FAULT ZONE

SCALE : 1" = 1/2 mile.

TINTINA SILVER MINES

(Conwest).

Eagle, Argo, Ram, Jess, Norm, Pan, El, Dall, It, West Groups.

JUNKERS LK. SHEET — 105G-3.

NORTH LAKES SHEET

WOLVERINE LAKE SHEET

6P30'

61°30'

131°00'

130°00'

Wolverine Lake

Grass Lakes

North Lakes

Money Creek

North River

Black River

BELT RANGE

7018

7721

7184

6053

FIRE LAKE SHEET

NORTH BLACK LAKE SHEET

61°00'

131°00'

130°00'

LEGEND

JURASSIC INTRUSIVES
- Granite and Granodiorite

MISSISSIPPIAN and EARLIER
- 6a Altered Basalt and Ash
- 5a Black Shale and Slate

SILURIAN DEVONIAN
- 4a Dolomite

MIDDLE CAMBRIAN
- 2a Grey Phyllite
- 2b Limestone
- 2c Biotite Metasediment and Quartzite

LOWER CAMBRIAN
- 1a Grey Quartzite
- A Quartz Biotite Schist and Phyllite
- B Limestone
- C Biotite Gneiss and Quartzite
- D Peridotite Pyroxenite
- Quartz and Quartz Carbonate Vein

- Bedding
- Foliation
- Jointing
- Contact
- Tear and Normal Fault
- Anticline
- Syncline
- Approx Outcrop Boundry

- Gold (Tr - 0.1 ozs) (> - 0.1)
- Silver (0.1 - 1oz) (> - 1oz)
- Copper (> - 0.5)
- Zinc (> = 1%)
- Sulphide Gossan

2 0 2 4

Scale 1 inch = 1 mile

GIANT YELLOWKNIFE MINES LIMITED

GENERAL GEOLOGICAL MAP

of

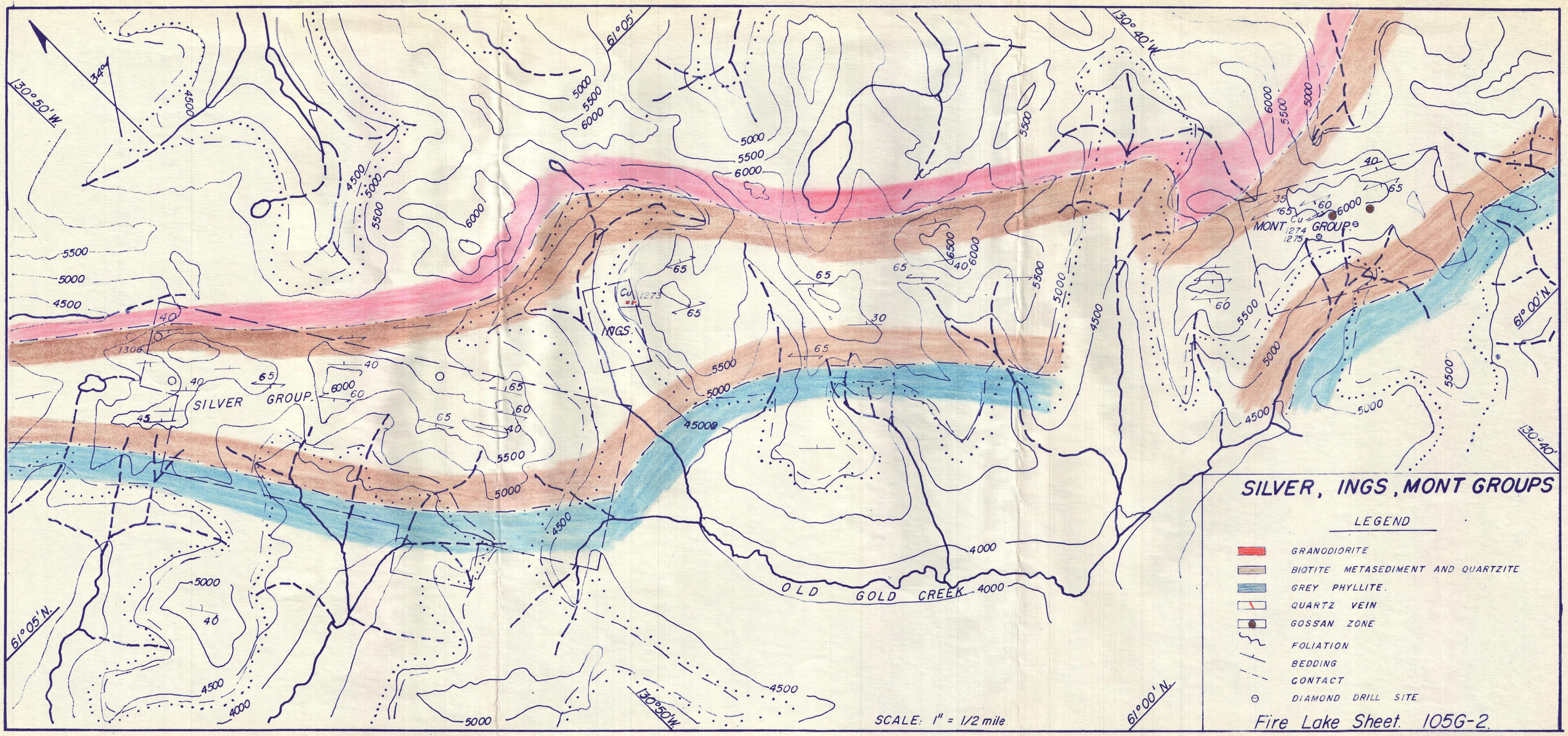
SHEET 105G S.E.

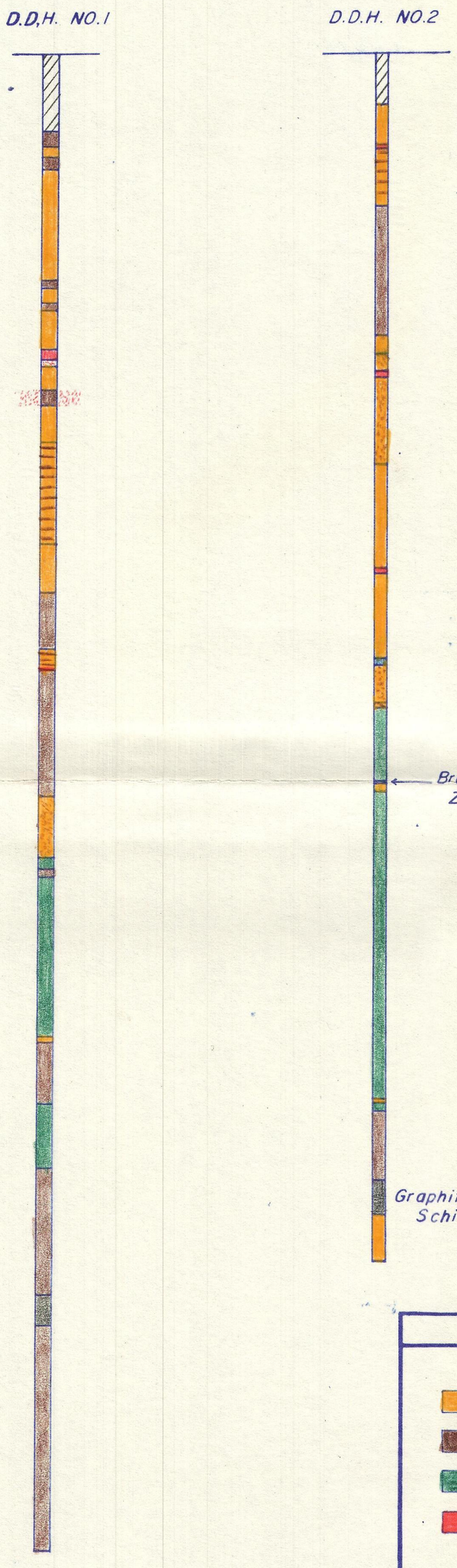
YUKON TERRITORY

N

34

Nov. 1962. H. Squair


SILVER, INGS, MONT GROUPS
LEGEND
GRANODIORITE
BIOTITE METASEDIMENT AND QUARTZITE
GREY PHYLLITE.
QUARTZ VEIN
GOSSAN ZONE
FOLIATION
BEDDING
CONTACT
DIAMOND DRILL SITE
SILVER GROUP.
INGS.
MONT GROUP.
OLD GOLD CREEK
SCALE: 1" = 1/2 mile.
Fire Lake Sheet. 105G-2.
130° 50' W.
130° 40' W.
61° 05' N.
61° 00' N.



DIAMOND DRILL HOLES

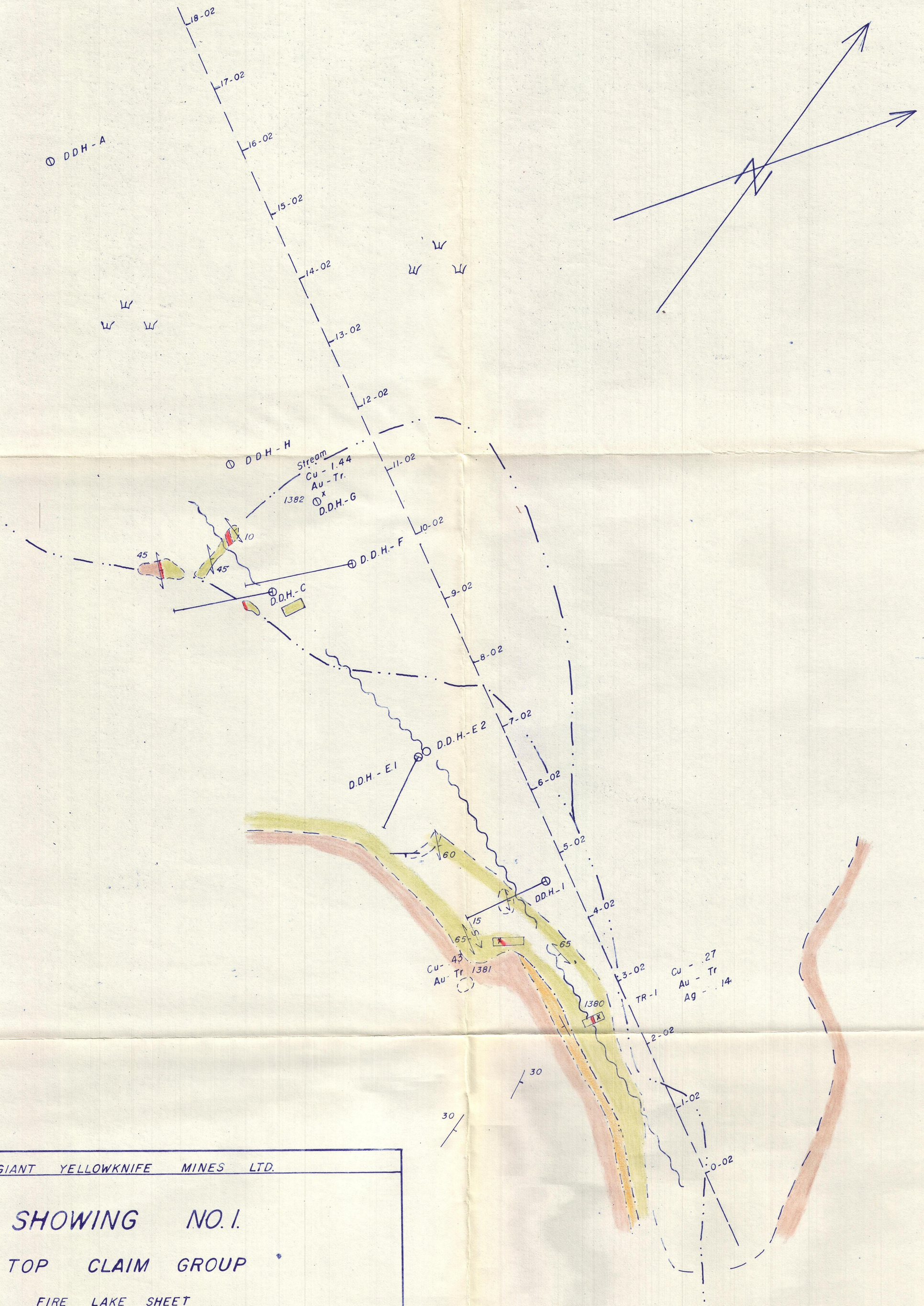
PACK GROUP

NORTH LAKES SHEET

SCALE - 1" = 25 FT.

LEGEND

- QUARTZITE
- BIOTITE SCHIST
- CHLORITE PHYLLITE
- SULPHIDES



GIANT YELLOWKNIFE MINES LTD.

SHOWING NO. I.

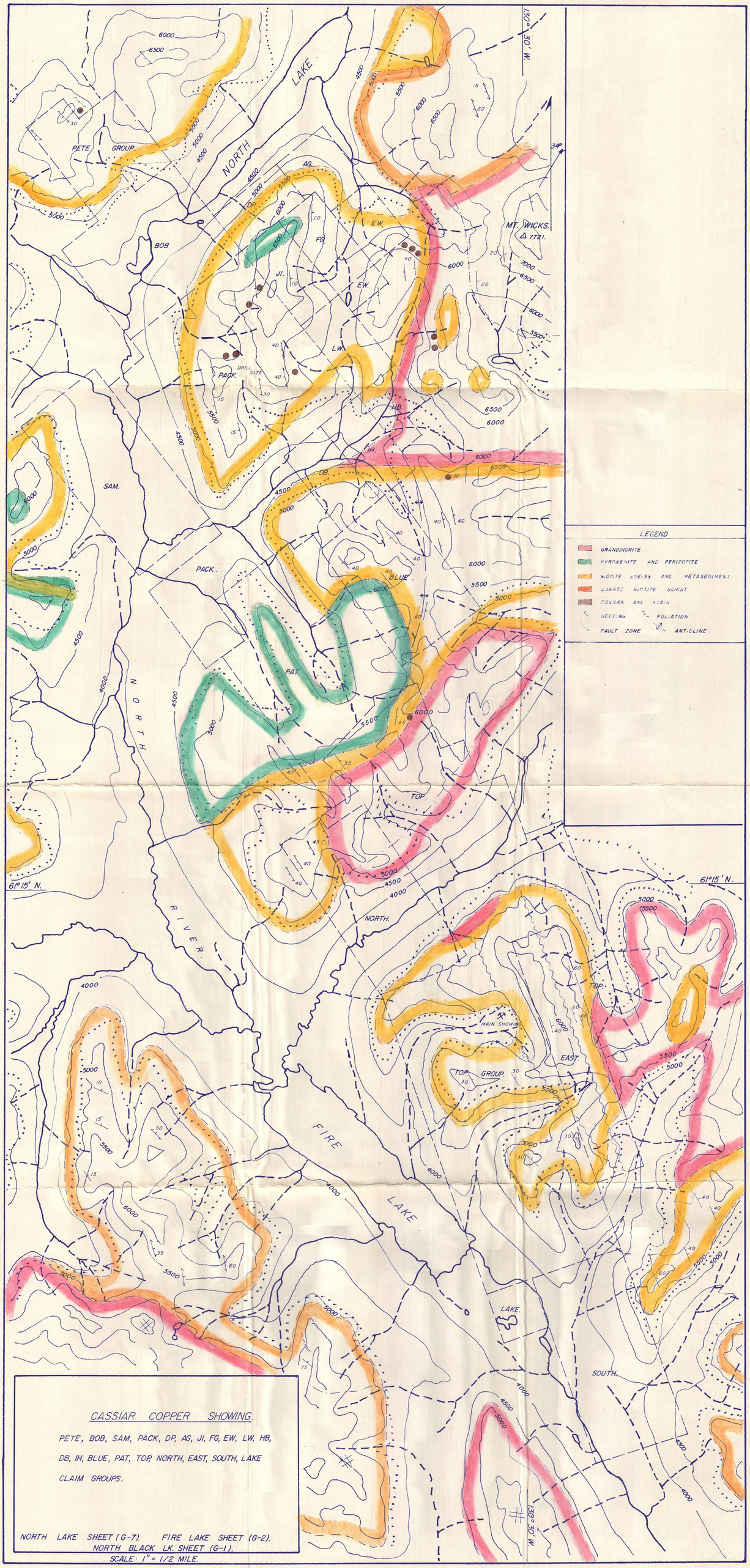
TOP CLAIM GROUP

FIRE LAKE SHEET

LEGEND

- CHLORITE SCHIST
- BIOTITE METASEDIMENT AND PHYLLITE
- WHITE QUARTZITE
- SULPHIDE ZONE (Pyrite & Chalcopyrite)
- BEDDING
- SCHISTOSITY
- FAULT ZONE
- CONTACT
- OVERBURDEN

SCALE 1 inch = 100 ft.


LEGEND
GRANODIORITE
PYROXENITE AND PERIDOTITE
BIOTITE GNEISS AND METASEDIMENT
QUARTZ BIOTITE SCHIST
GOSSAN AND STAIN
BEDDING
FOLIATION
FAULT ZONE
ANTICLINE
CASSIAR COPPER SHOWING.
PETE, BOB, SAM, PACK, DP, AG, JI, FG, EW, LW, HB, DB, IH, BLUE, PAT, TOP, NORTH, EAST, SOUTH, LAKE CLAIM GROUPS.
NORTH LAKE SHEET (G-7). FIRE LAKE SHEET (G-2).
NORTH BLACK LK. SHEET (G-1).
SCALE: 1" = 1/2 MILE.
61°15' N.
130°30' W.
NORTH LAKE
FIRE LAKE
NORTH RIVER
MT. WICKS. Δ 7721.
PETE GROUP.
BOB
SAM.
PACK.
DRILL SITE
DP.
AG.
JI.
FG.
EW.
LW.
HB.
IH.
DB.
BLUE.
PAT.
TOP.
NORTH.
EAST.
SOUTH.
LAKE.
MAIN SHOWING

62°00'

131°00'

McEVOY LAKE SHEET

62° 00'

130°00'

Fortin Lake

Fortin Creek

McEvoy Lake

Campbell Creek

Finlayson Lake

McEvoy Creek

Campbell

Finlayson River

61°30'

FINLAYSON LAKE SHEET

FINLAYSON RIVER SHEET

61°30'

LEGEND

JURASSIC INTRUSIVES
- Granite and Granodiorite

MISSISSIPPIAN and EARLIER
- 6a Altered Andesite, Basalt and Ash
- 6b Buff Limestone
- 5a Black Shale and Slate

SILURIAN DEVONIAN
- 4a Dolomite

MIDDLE CAMBRIAN
- 2a Grey Phyllite
- 2b Limestone
- 2c Biotite Metasediment and Quartzite

- A Biotite Schist and Gneiss
- D Peridotite Pyroxenite
- Quartz and Quartz Carbonate Vein

- Bedding
- Foliation
- Jointing
- Contact
- Tear and Normal Fault
- Anticline
- Approx Outcrop Boundry

- Gold (Tr - 0.1 ozs.) (> - 0.1 oz.)
- Silver (0.1 - 1 oz.) (> - 1 oz.)
- Copper (> - 0.5%)
- X Sulphide Gossan

2 0 2 4

Scale 1 inch = 1 mile

GIANT YELLOWKNIFE MINES LIMITED

GENERAL GEOLOGICAL MAP

of

SHEET 105G N.E.

YUKON TERRITORY

N

34°

Nov 1962 H. Saucier

62°00'

McPHERSON LAKE SHEET

TILLEI LAKE SHEET

62°00'

130°00'

129°00'

Pyramigan Creek

Nasehula Brook

McPherson Lake

Tillei Lake

Tustles Lake

Brown Lake

YUSEZYU RIVER

THOMAS RIVER

ANDERSON CREEK

Finlayson River

60°30'

61°00'

NORTH FRANCES LAKE SHEET

ANDERSON CREEK SHEET

LEGEND

JURASSIC INTRUSIVES
Granite Granodiorite and Porphyry

MISSISSIPPIAN AND EARLIER
6a Argillite and Phyllite
6b Limestone

ORDOVICIAN SILURIAN
4a Grey Phyllite
4b Quartzite 4c Limestone

MIDDLE CAMBRIAN
2a Grey and Red Phyllite
2a Biotite Metasediment and Gneiss
2c Quartzite and Grit 2d Limestone
Quartz Vein
A Quartz Biotite Schist and Gneiss

Bedding
Foliation
Contact
Jointing
Tear and Normal Fault
Thrust Fault
Anticline
Syncline

Gold (Tr - 0.1oz) (-) - 0.1oz)
Silver (0.1 - 1oz) (+) - 1oz)
Copper (-) - 0.5%)
Lead (-) - 1%)
Zinc (-) - 1%)
Nickel ((-) - 1%)
Sulphide Gossan and Stain
Approx. Outcrop Boundry

2 0 2 4
Scale 1 inch = 1 mile

GIANT YELLOWKNIFE MINES LIMITED

GENERAL GEOLOGICAL MAP

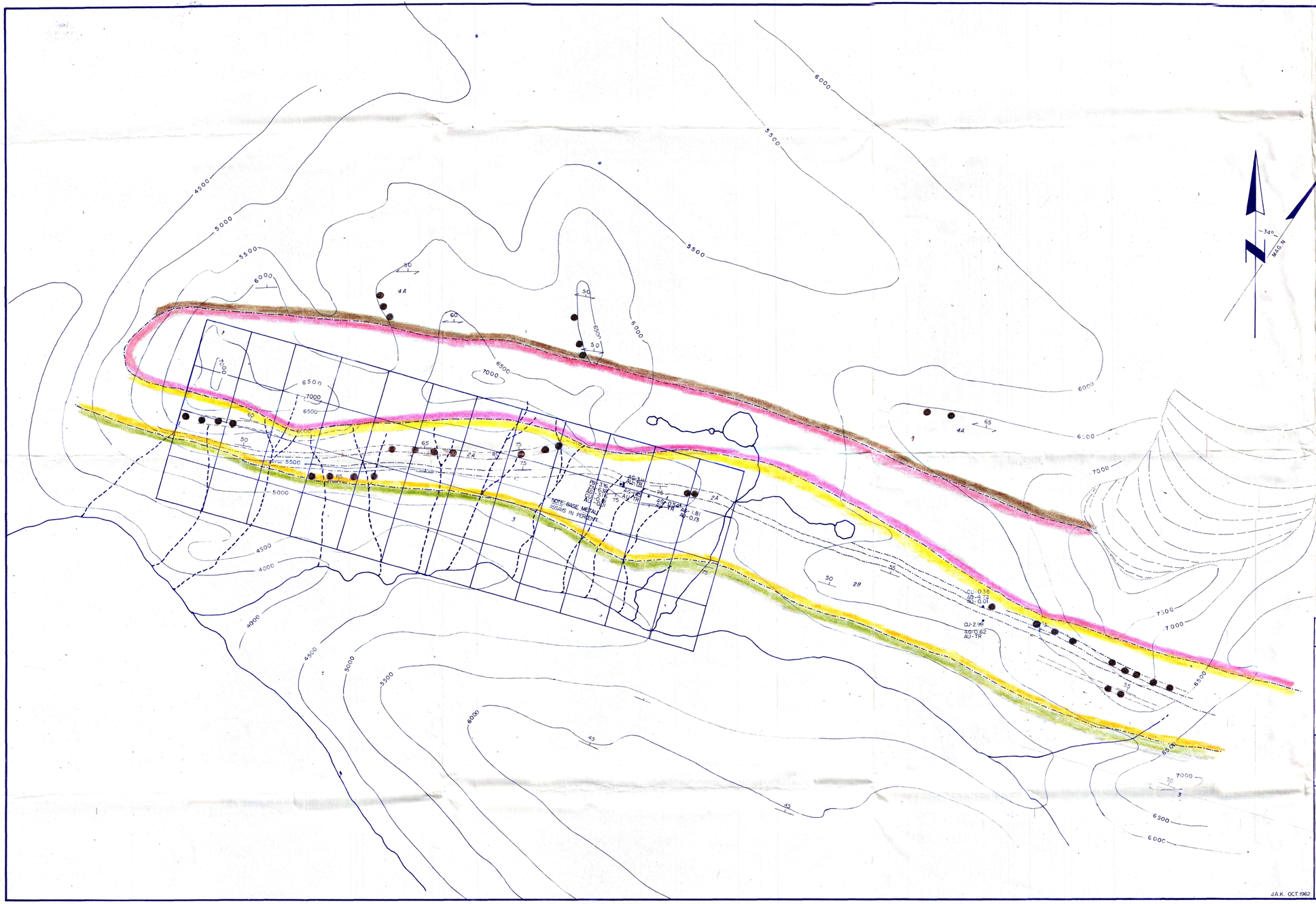
of

SHEET 105H N.W.

YUKON TERRITORY

N

Nov. 1962 H. Squair



GIANT YELLOWKNIFE MINES LTD.

GEOLOGICAL MAP
VAN GROUP
TILLEI LAKE - YUKON TERRITORY

SCALE

0 1/4 1/2 3/4 1 1 1/4 miles

Legend

- GRANODIORITE
- GREY LIMESTONE-2A, BLACK SHALE & PHYLLITE-2B
- BLACK SHALE
- BIOTITE GNEISS-4A, BLACK PHYLLITE-4B
- GOSSAN & STAIN
- FOLIATION
- BEDDING
- CONTACT
- ICE
- SAMPLE

J.A.K. OCT. 1962

61°30'

WEST FRANCES LAKE SHEET

EAST FRANCES LAKE SHEET

61°30'

130°00'

129°00'

CAMPBELL

ANCABB

STARR

LLAK

RIVER

Money Creek

Tuchitua River

Frances Lake

TYERS RIVER

FRANCES RIVER

Klaza RIVER

MOUNT HUNT

SIMPSON TOWER

NIPPLE MTN.

61°00'

TUCHITUA RIVER SHEET

SOUTH FRANCES LAKE SHEET

61°00'

LEGEND

JURASSIC INTRUSIVES
- Granite and Granodiorite

MISSISSIPPIAN AND EALIER
- 6a Andesite Flows and Ash
- 6b Grey Phyllite and Quartzite
- 6c Limestone

MIDDLE CAMBRIAN
- 2a Grey Phyllite
- 2b Biotite Metasediment and Quartzite
- A Qtz Biotite Schist and Gneiss
- B Limestone
- D Pyroxenite

- Bedding
- Foliation
- Contact
- Jointing
- Anticline
- Approx. Outcrop Boundry

- Gold (Tr - 0.1oz) (> 0.1oz)
- Silver (0.1 - 1oz) (> - 1oz)
- Copper (> - 0.5%)
- Sulphide Gossan and Stain

Scale 1 inch - 1 mile

GIANT YELLOWKNIFE MINES LIMITED

GENERAL GEOLOGICAL MAP

of

SHEET 105H SW

YUKON TERRITORY

N

Nov. 1962 H Squair

TYERS RIVER SHEET

MIDDLE HYLAND RIVER SHEET

MOUNT BILLINGS SHEET

LOWER HYLAND RIVER SHEET

LEGEND

JURASSIC INTRUSIVES
- Granite and Granodiorite

MISSISSIPPIAN AND EARLIER
- 6a Andesitic Ash and Flows
- 6b Grey Phyllite and Gneiss

MIDDLE CAMBRIAN
- 2a Grey Phyllite
- 2b Biotite Metasediment and Quartzite

Quartz Vein

Bedding

Foliation

Contact

Jointing

Syncline

Approx Outcrop Boundry

Gold (Tr - 0.1oz) ( ) - 0.1oz)

Silver (0.1 - 1oz) ( ) - 1oz)

Sulphide Gossan and Skarn

Scale 1 inch = 1 mile

GIANT YELLOWKNIFE MINES LIMITED

GENERAL GEOLOGICAL MAP

of

SHEET 105H S.E.

YUKON TERRITORY

N

Nov. 1962 H Squair

62°00'

NORTH ANDERSON LAKE SHEET

129°00'

62°00'

128°00'

Flat River

NORTHWEST TERRITORIES

YUKON TERRITORIES

Anderson Lake

61°30'

129°00'

ANDERSON LAKE SHEET

UPPER HYLAND RIVER SHEET

61°30'

128°00'

LEGEND

JURASSIC INTRUSIVES
- Granite Granodiorite

MISSISSIPPIAN AND EARLIER
- 6a Purple Phyllite and Brown Argillite
- 6b Quartzite

ORDOVICIAN SILURIAN
- 4a Grey Phyllite
- 4b Grit and Quartzite

MIDDLE CAMBRIAN
- 2a Grey Phyllite and Chlorite Schist
- 2b Biotite Metasediment and Quartzite

Quartz Vein

Bedding

Foliation

Contact

Jointing

Tear and Normal Fault

Thrust Fault

Anticline

Syncline

Gold (Tr - 0.1oz) ( ) - 0.1oz)

Silver (0.1 - 1oz) ( ) - 1oz)

Copper ( ) - 0.5%)

Sulphide Gossan and Stain

Approx Outcrop Boundry

2 0 2 4

Scale 1 inch - 1 mile

GIANT YELLOWKNIFE MINES LIMITED

GENERAL GEOLOGICAL MAP

of

SHEET 105H N.E.

YUKON TERRITORY

N

34°

Nov 1962 H Squair

LAPIE RIVER SHEET

ROSS RIVER SHEET

SEAGULL CREEK SHEET

KETZA RIVER SHEET

62 00

62° 00

133° 00

132° 00

61 30

LOCALITY - A

LOCALITY - B

LOCALITY - C

LOCALITY - D

LOCALITY - E

LOCALITY - F

LOCALITY - G

LOCALITY - H

LOCALITY - I

LOCALITY - P

Canol Road

Ram Creek

Seagull Creek

Sheep Creek

Pelly River

Ketza River

6676

6669

6763

LEGEND

SAMPLE STATIONS AND VALUES

STREAM WATER VALUES

0.1 PPM
0.1
0.2
0.4
0.6
1.0

STREAM SEDIMENT VALUES

1.0 PPM
1.0
1.5
2.0
4.0
6.0

0.2 PPM
0.2
0.4
0.8
2.0
3.0

PPM. = PARTS PER MILLION TOTAL METALS

Scale 1 inch = 1 mile

GIANT YELLOWKNIFE MINES LIMITED

GEOCHEMICAL MAP

SHEET 105 F N.E.

YUKON TERRITORY

N

EB.

COMPILED BY J.A. APPS

62 00

131 00

McEVOY LAKE SHEET

Fortin Lake

Fortin Creek

McEvoy Lake

LOCALITY Fr-M

LOCALITY Fr-Z

LOCALITY Fr-B

Campbell Creek

Finlayson Lake

McEvoy Creek

Finlayson River

Δ 5217

61 30

FINLAYSON LAKE SHEET

FINLAYSON RIVER SHEET

LEGEND

SAMPLE STATIONS AND VALUES

STEAM WATER	VALUES	STREAM SEDIMENT	VALUES
○	0.1	+	1.0
○	0.1	+	1.0
○	0.2	+	1.5
○	0.4	+	2.0
○	0.6	+	4.0
○	1.0	+	6.0

P.P.M. PARTS PER MILLION TOTAL METALS

2 0 2 4

Scale 1 inch = 1 mile

GIANT YELLOWKNIFE MINES LIMITED

GEOCHEMICAL MAP

SHEET 105G NE

YUKON TERRITORY

N

COMPILED BY J.A. APPS

H.S.

61 30

WEST FRANCES LAKE SHEET

EAST FRANCES LAKE SHEET

61°30'

130°00'

129°00'

MONEY CREEK

SIMPSON TOWER

NIRPPLE MTN.

LOCALITY Fr A

LOCALITY Fr-K

LOCALITY Fr-L

TUCHITUA RIVER

TYERS RIVER

FRANCES RIVER

KLATZA RIVER

130°00'

129°00'

61°00

TUCHITUA RIVER SHEET

SOUTH FRANCES LAKE SHEET

61°00'

LEGEND

SAMPLE STATIONS AND VALUES

STREAM WATER VALUES		STREAM SEDIMENT VALUES	
	0.1 PPM		1.0 PPM
	0.1		1.0
	0.2		1.5
	0.4		2.0
	0.6		4.0
	1.0		6.0

PPM = PARTS PER MILLION TOTAL METALS

2 0 2 4

Scale 1 inch = 1 mile

GIANT YELLOWKNIFE MINES LIMITED

GEOCHEMICAL MAP

SHEET 105H S.W

YUKON TERRITORY

N

COMPILED BY J.A APPS HS