WELCOME NORTH MINES LTD. (N.P.L.)
1027-470 Granville St., Vancouver, B.C. V6C 1V5 Telephone (604) 687-1658

VANGORDA PROJECT

SUMMARY REPORT
ON THE
TAR 1-24 CLAIM GROUP

Latitude 62°08'N Longitude 132°58'W

N.T.S. 105K-2
WHITEHORSE MINING DISTRICT
YUKON TERRITORY

R. Holland
F. Foster

October 14, 1977

090224

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of $ 5900.

F A Mair
A/ Resident Geologist or
Resident Mining Engineer

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

B. R. BAXTER
Supervising Mining Recorder

per Commissioner of Yukon Territory

TABLE OF CONTENTS

INTRODUCTION

The TAR 1-24 claims were staked by Welcome North Mines Ltd. in October, 1976 under the Vangorda Project joint venture agreement with Getty Mining Pacific Ltd. Under this agreement Getty holds a 60 percent working interest in the property, with Welcome North as a partner with 40 percent carried interest.

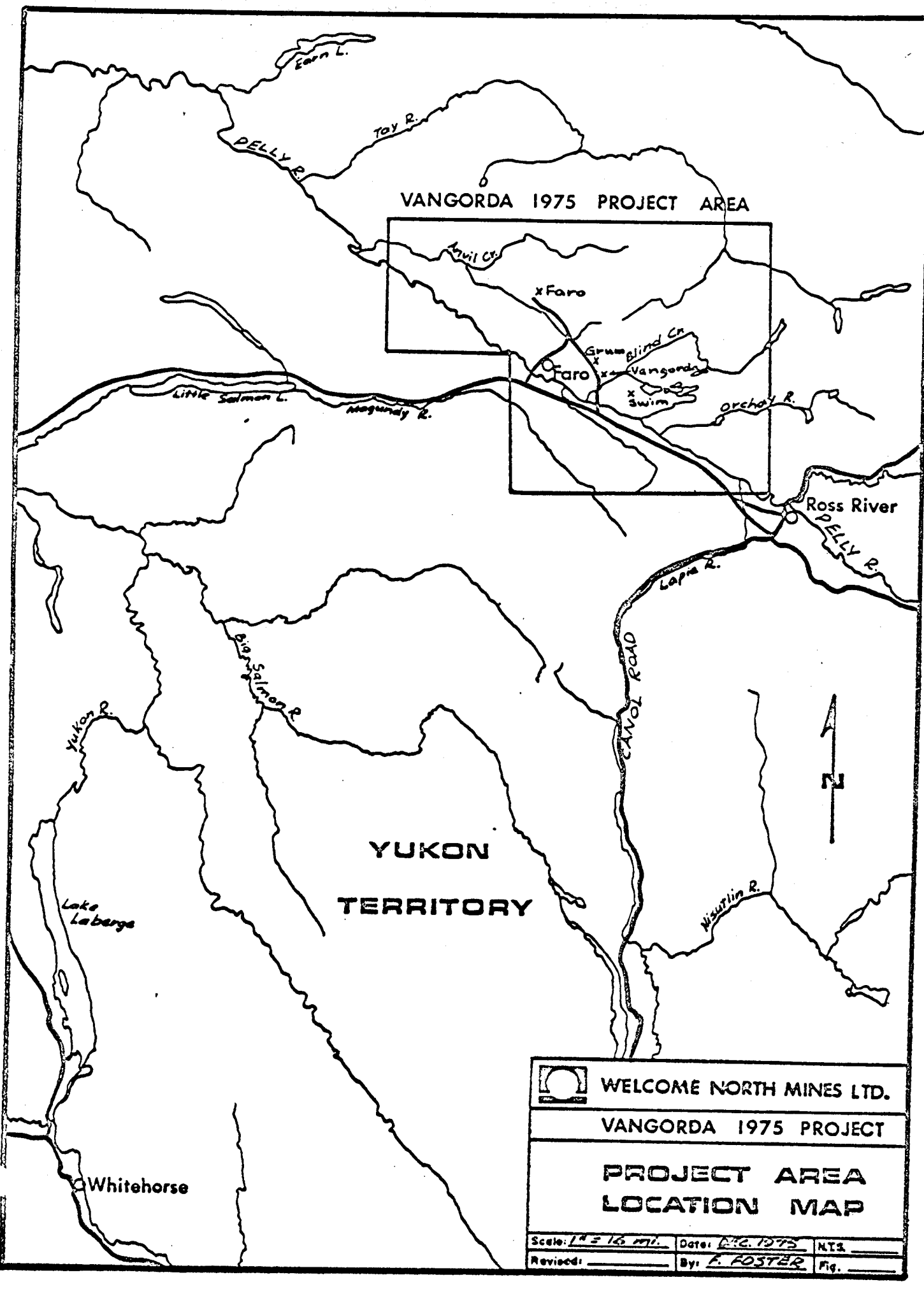
This staking was carried out in response to a large staking program conducted by Du Pont of Canada Exploration Ltd. in the Tenas Creek area twelve miles north of the town of Ross River covering what is believed to be a favourable volcanogenic environment for Anvil type massive sulphide deposits. The TAR claims were staked over a pyritic gossan believed to be part of the quartzo-feldspathic biotite-muscovite schist of Unit 1 (Templeman-Kluit 1972).

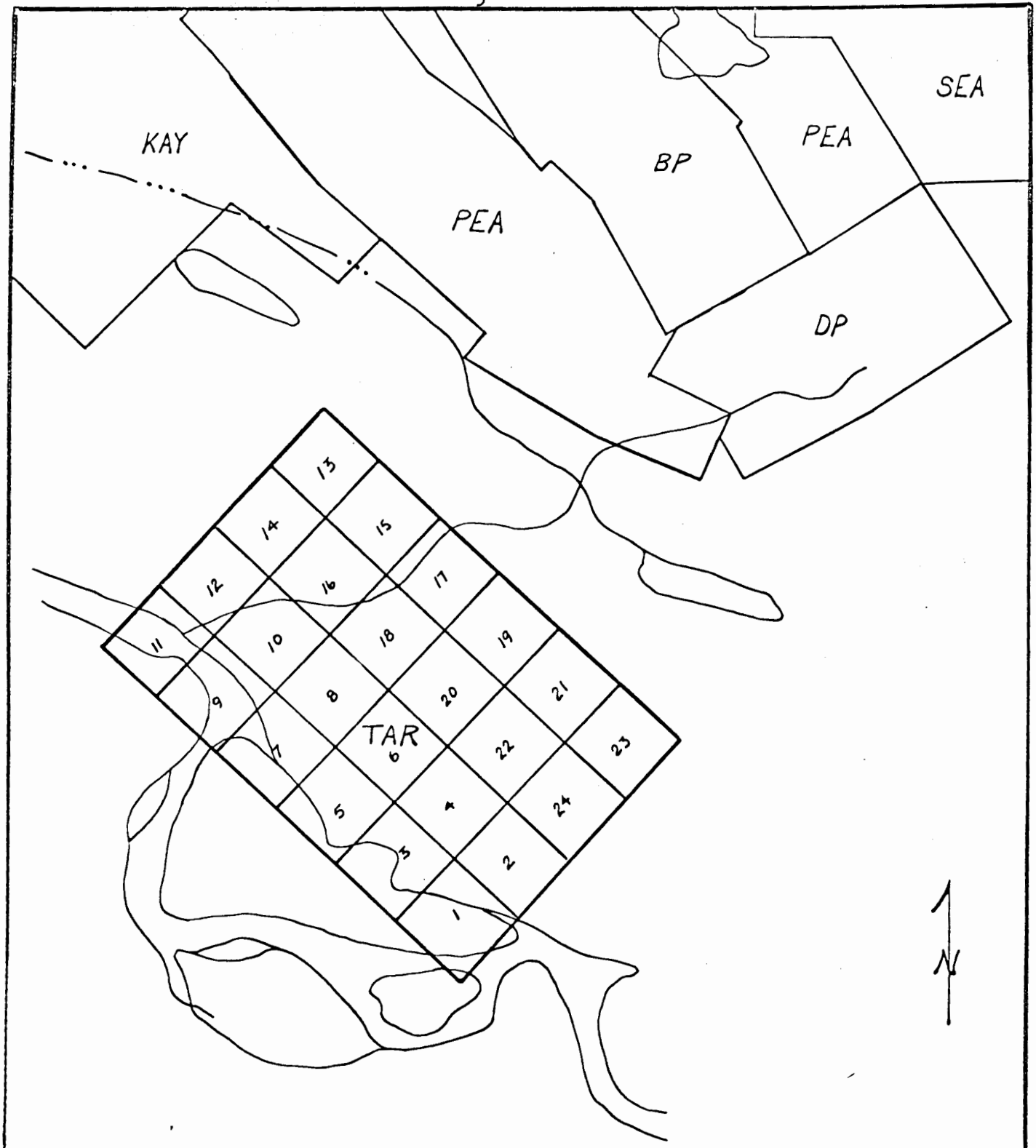
In June, 1977, Welcome North, as Operator, carried out reconnaissance mapping and geochemical surveys to further assess the potential of the property.

MINERAL CLAIMS

The TAR 1-24 claim group consists of the following 24 contiguous mineral claims located in the Whitehorse Mining District of the Yukon Territory (see Fig. 1):

CLAIMS	GRANT NUMBERS	DUE DATE
TAR 1-24	YA8289-YA8312	Oct. 19, 1977


Earn L.
Toy R.
PELLY R.
VANGORDA 1975 PROJECT AREA
Anvil Cr.
Faro
Grum
Blind Cr.
Faro
Vangorda
Swim
Little Salmon L.
Nisutlin R.
Orchay R.
Ross River
PELLY R.
Lapie R.
CANOL ROAD
Big Salmon R.
Yukon R.
YUKON
TERRITORY
Lake Laberge
Nisutlin R.
N
Whitehorse
WELCOME NORTH MINES LTD.
VANGORDA 1975 PROJECT
PROJECT AREA
LOCATION MAP
Scale: 1" = 16 mi.
Date: DEC. 1975
NTS
Revised:
By: F. FOSTER
Fig.



WELCOME NORTH MINES LTD.

VANGORDA PROJECT

TAR 1-24 CLAIMS

Scale: 1" = ½ mile	Date: November 76	N.T.S. 105K-2
Revised:	By: F. Foster	Fig. 1

SUMMARY AND RECOMMENDATIONS

During June, 1977 reconnaissance geological and geochemical surveys were conducted on the TAR claims and on some of the immediately adjacent area.

Geological mapping revealed that the northern part of the property is underlain by massive green and grey basalts (Unit 8b) and lesser amounts of greenish tuffaceous chert (Unit 8a). Intruding the basalt in one location is an irregularly shaped body of serpentinite (Unit 9). To the south and in apparent fault contact with the basalt is a massive, well indurated pebble conglomerate (Unit 10) with some associated black shale, quartzite, and limestone (Unit 10a). One of these Unit 10a pods contains significant amounts of fine-grained massive pyrite in a highly sheared and altered quartzite-limestone breccia.

Geochemical results obtained from the soil grid revealed only one weak, scattered zinc anomaly (up to 480 ppm). The rock chip values from the showing area were weakly anomalous for lead (40-60 ppm). A selected sample from the mineralized zone gave anomalous values for both lead and zinc (590 ppm).

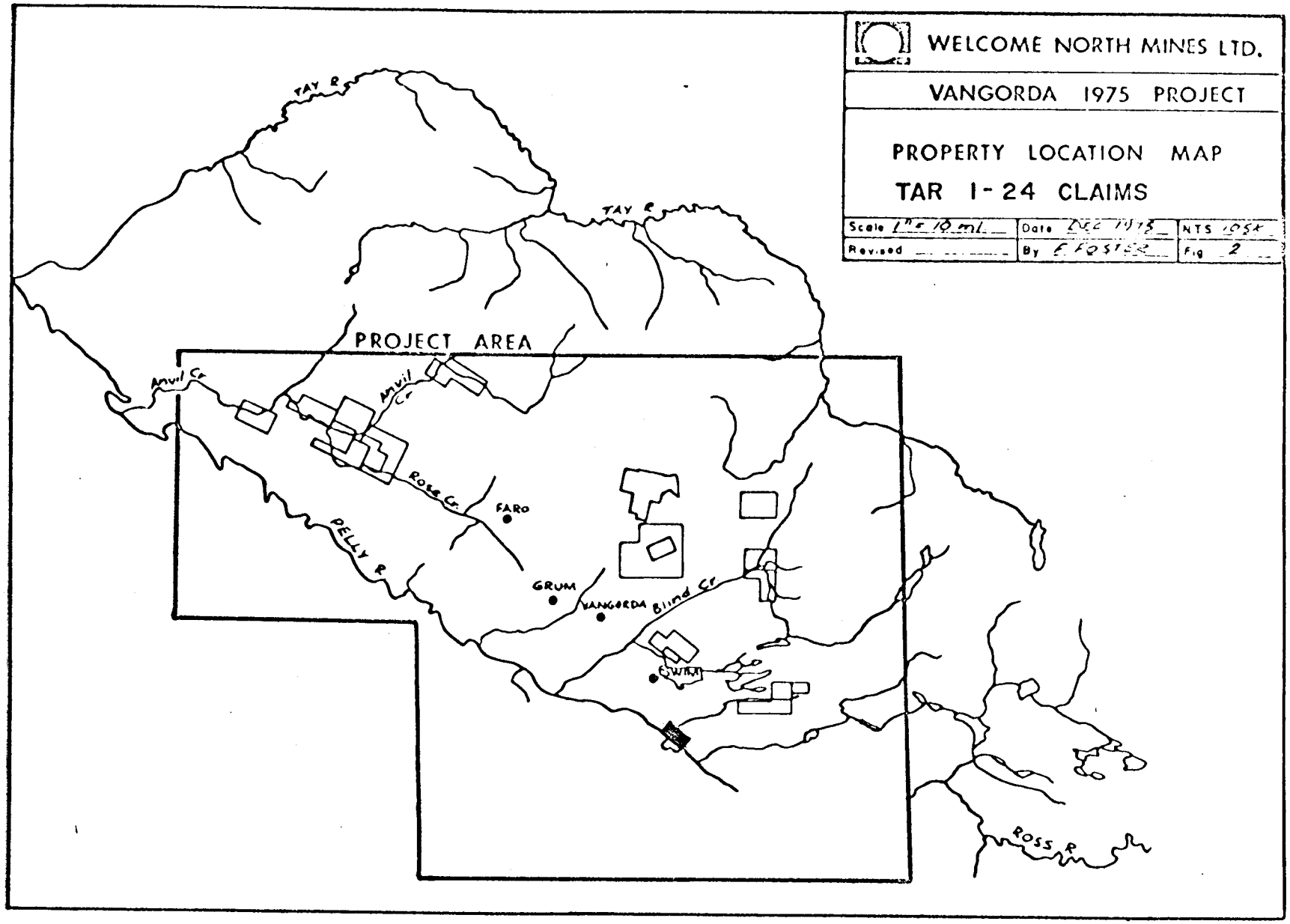
Further work is required on the showing area and the soil geochemical anomaly. A more detailed soil grid should be laid out on TAR 3 to 6 mineral claims to further delineate that anomaly, while detailed geological mapping and sampling is recommended for the showing area.

LOCATION AND ACCESS

The TAR 1-24 claims are located in the Whitehorse Mining District of the Yukon Territory (N.T.S. 105K-6) at latitude 62°08' N and longitude 132°58'W, 120 miles northeast of Whitehorse, Yukon Territory and 16 miles southeast of the town of Faro, Yukon Territory (see Fig. 2).

Access to the property is by helicopter from Faro or Ross River or via two overgrown cat roads, one following Moose Creek north to Swim Lakes and the other following the Pelly River to the Blind Creek road. The former may be used in summer with a four-wheel drive vehicle.

The property is located along the north side of the Pelly River at the mouth of Moose Creek. Elevation varies from 2200 feet at the river to a maximum of 3100 feet to the northeast. All the property is below treeline and covered by evergreen and poplar trees, except on steep south-facing slopes which tend to be barren of all vegetation except grass. The terrain tends to be rolling with steep slopes especially near the river where near-vertical silt banks often over 100 feet high predominate. Outcrop is common in the higher areas in the northern and northeastern portion of the property but is scarce and poorly exposed lower down towards the river.


WELCOME NORTH MINES LTD.
VANGORDA 1975 PROJECT
PROPERTY LOCATION MAP
TAR 1-24 CLAIMS
Scale 1" = 10 mi.
Date DEC 1975
NTS 105K
Revised
By E. FOSTER
Fig 2
TAY R.
TAY R.
PROJECT AREA
Anvil Cr.
Anvil Cr.
ROSS Cr.
FARO
PELLY R.
GRUM
VANGORDA
Blind Cr.
SWIFT
ROSS R.

REGIONAL GEOLOGY

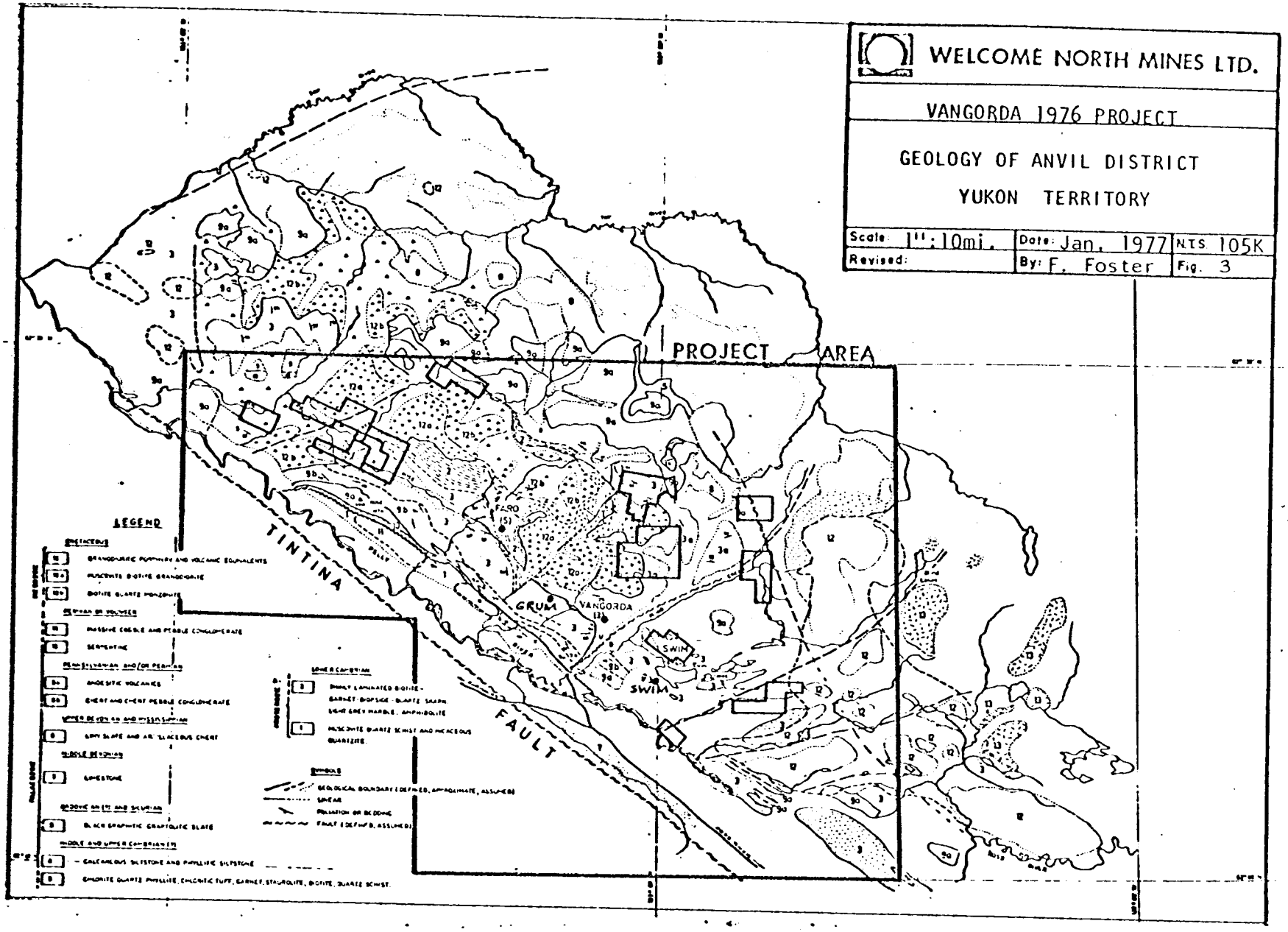
The Anvil District, as outlined in Fig. 3, lies immediately northeast of the Tintina Trench, the probable locus of a major zone of northwest-southeast transcurrent faulting.

The central part of the district is formed by the Anvil Range, the dominating structure being a doubly plunging arch-like feature around the Anvil batholith. The core of the Anvil Range is underlain by granitic rocks for which potassium-argon age determinations suggest an age of 80-90 million years. The Anvil Arch is flanked on the southwest and northeast by phyllites, calc-silicate gneisses and schistose rocks thought to be of Cambrian (?) to Ordovician age; these metasediments which have undergone at least three phases of deformation are host to the known massive sulphide deposits of Faro, Vangorda, Grum and Swim.

The schistose quartz-rich host rocks of the Faro sulphide deposits are confined to the upper part of a unit of carbonaceous biotite-muscovite andalusite whose sections are sometimes graphitic. Small greenstone lenses are often found within this sequence. This section constitutes the lower member of a 6,000 foot thick sequence of biotite-muscovite schist, calc-silicate gneiss and skarn, phyllite, chloritic greenstone bodies, and tuffaceous phyllite.

The phyllitic host rocks of the Grum, Vangorda and Swim sulphide deposits are confined to graphitic quartz-rich sections of phyllite situated close to relic volcanic complexes of greenstone, chloritic phyllite, limestone, and pyroxenite in the lower and upper parts of an estimated 3,000 foot thick unit of phyllite. The phyllite unit is separated from the lower schist unit in many areas by thick sections of calc-silicate gneiss.

The sulphide bodies of the Anvil district are tabular and lie in the plane of the crenulation foliation developed during the first phase of deformation. The long axes coincide with the intersection of primary and secondary foliation. The sulphide deposits appear to have been only slightly affected by the regional metamorphism of phyllite host rocks.


WELCOME NORTH MINES LTD.
VANGORDA 1976 PROJECT
GEOLOGY OF ANVIL DISTRICT
YUKON TERRITORY
Scale 1" : 1 0mi.
Date: Jan. 1977
NTS 105K
Revised:
By: F. Foster
Fig. 3
PROJECT AREA
TINTINA
FAULT
FARO
GRUM
VANGORDA
SWIM
SWIM
LEGEND

However, a district average grain size increase from the Swim northwest to the Faro deposits reflects a thermal metamorphic gradient caused by the intrusion of the Anvil Batholith. The base metals have been introduced into the phyllite prior to its metamorphism and deformation.

It appears that two units, the pelitic schists and phyllites, are host rocks for the four economically important sulphide masses and are also host to several smaller, presently non-economic deposits in the area.

Chloritic tuffaceous greenstone outcrops are close to all four deposits but are nowhere immediately against ore. Graphite is present in host rocks around all four deposits, but it is far more prevalent around the Swim body than near the Vangorda, Grum or Faro deposits.

A description of the rocks that make up the stratigraphic section of the Anvil Arch, and their tentative ages is listed on the following page. The description has been taken from Templemen-Kluit (1968) and modified by field observations and by information obtained from Cyprus-Anvil Mining Company.

Era	Period	Formation	Unit	Lithology
Cenozoic	Tertiary		14b	Rhyolitic tuff
			14a	Quartz-feldspar porphyry
		RELATIONS NOT KNOWN		
Mesozoic	Cretaceous or Tertiary		13	Saussuritized porphyritic hornblende diorite
		INTRUSIVE INTO UNITS 2, 3, AND 11		
	Age unknown		12b	Hornblende diorite, gabbro
			12a	Pyroxenite, sometimes cataclastic and serpentinized
		INTRUSIVE INTO UNITS 2 AND 3		
	Cretaceous	Anvil Batholith	11	Porphyritic biotite-quartz monzonite and granodiorite; muscovite-biotite granodiorite; foliated equivalents
		INTRUSIVE INTO UNITS 2, 3, AND 8		
	Lower or Middle Triassic		10	Massive, well indurated cobble and pebble conglomerate with fragments of mica quartz schist (Unit 1), basalt (Unit 8), chert (Unit 8a), limestone (Unit 8c) and serpentinite (Unit 9); brown sandstone slate and argillaceous limestone (interlayered with 10a)
			10a	
	Upper Permian or Lower Triassic		9	Serpentinite and serpentinized peridotite
		FAULT BOUNDED		
Paleozoic	Upper Permian	Anvil	8c	Light grey, massive resistant recrystallized limestone
	Lower Permian	Range	8b	Massive green basalt, commonly amygdaloidal, includes common pyroclastic and less common pillowed varieties, metamorphosed equivalents near granitic bodies
	Lower Permian and Upper Permian	Group	8a	Greenish grey, pale green and brick red argillaceous and tuffaceous chert
		UNCONFORMABLE ON UNITS 3, 4, 5, 6, 7		
	Upper Devonian		7	Grey slate, chert, greywacke, chert pebble pebble conglomerate and limestone
		UNCONFORMABLE ON UNITS 3 AND 4		
	Middle Devonian		6	Limestone and dolomite
	Silurian and Devonian		5	Light grey, medium bedded, medium-grained orthoquartzite
		CONFORMABLE		
	Middle Ordovician Lower Silurian		4	Dark grey and black graptolitic slate, minor thin-bedded black chert
		UNCONFORMABLE ?		
	Ordovician-Silurian		3a	Amygdaloidal chlorite phyllite; massive andesitic greenstone at lower boundary of unit; contains 3b (host here for Swim massive sulphide deposit) and 3d.
			3d	Rhyolitic quartz feldspar tuff, sometimes pyritic; bleached quartz-sericite-(pyrite) phyllite (metatuff).
			3c	Medium-green, foliated actinolite schist; andesitic greenstone; foliated fine-grained amphibolite.
			3b	Graphitic phyllite and quartzite; can contain 3d; can contain massive sulphide (Grum-Vengorda).
			3a	Medium greenish-grey, lustrous, lumpy, chlorite-muscovite-quartz phyllite; sometimes weakly graphitic; contains 3b, 3c, and 3d.
	Cambro-Ordovician		2e	Marble, contains quartzites.
			2d	Metabasite; see unit 1e for description.
			2c	Non calcareous carbonaceous and/or siliceous phyllite containing marble lenses and minor (<5%) calc silicate bands; contains 2d.
			2b	Calc silicate gneiss undifferentiated; variable amounts of marble, biotite phyllite, and calc silicate; contains 2d and 2e.
			2a	Transition zone, interbanded schist and calc silicate, marble bands and schistose biotite phyllite bands, some quartzite.
	Cambrian		1f	Marble; can contain quartzite compositions.
			1e	Metabasite; well banded greenstone, sometimes exhibiting flaser structure; biotite concentrated in thin laminations; sometimes actinolite schist.
			1d	Graphitic schist and phyllite; variable graphite content; some andalusite present where weakly graphitic biotite present as thin laminations; can contain 1e and 1f; can be calcareous or siliceous; contains Fare massive sulphide deposit.
			1c	Carbonaceous biotite-muscovite-andalusite schist; upper sections contain 1d, 1e, and 1f; muscovite-quartz schist sometimes containing andalusite present in upper sections; andalusite contains carbonaceous inclusions, chiastolite sometimes present; pyrite and pyrrhotite present in trace amounts.
			1b	Transition zone, combination of quartzo-feldspathic biotite-muscovite schist (1a) and carbonaceous biotite-muscovite-andalusite schist (1c), andalusite disappearing, garnet and staurolite content increasing, biotite reddish in colour; textures more granoblastic; can contain 1a.
			1a	Quartzofeldspathic biotite-muscovite schist; can contain 1a; garnet and staurolite present; gneissic textures.

TABLE 1 LITHOLOGIC SECTION, ANVIL DISTRICT
Revised February 2, 1977

PREVIOUS WORK

The LISA and EZE claims (93981) were staked in the area in November of 1965 by Silver Arrow Mines Ltd. who, during the following summer, conducted an airborne magnetometer and EM survey and reconnaissance mapping. Green Valley Mines Ltd. tied on the RAM claims (99030) in February, 1966 and completed mapping and ground geophysical surveys later in the year. No results from either of these surveys were available.

The SOY claims (Y67395) were staked one mile to the west in October, 1972 by A. Kulan, and were subsequently restaked as the TAR claims (YA8289) by the Vangorda Project in October, 1976.

GEOLOGY

Geological mapping, combined with data obtained from Cyprus Anvil Mines Ltd., indicate that the northern two-thirds of the TAR group is underlain predominantly by basalts and cherts of Unit 8 (Templeman-Kluit 1972). These rocks have been subdivided into two subunits; 8a which is dominantly pale greenish to greenish grey, and occasionally brick red, massive to thin laminated, rusty to pale grey weathering tuffaceous chert with some intermixed basalt, and; Unit 8b which incorporates massive, aphanitic to fine-grained, unaltered grey to chlorite and epidote-rich green gabbroic basalts with minor amounts of massive chert. The Unit 8b rocks, by far the most abundant, occur as large rounded resistance knolls and cliffs which form the hills to the north and northeast of the property. Unit 8a occurs mainly in the northernmost corner of the property and was not visited by the authors (see Fig. 4).

Just west of Moose Creek, within the basalts, is a highly irregularly shaped body of serpentinite (Unit 9 Templeman-Kluit) consisting almost entirely of dark green to black greasy looking, massive but highly fractured serpentinite and serpentinized periodite. No fibre was observed. An intrusive origin is suggested by sharp contacts with the basalts and by locally intense rusty alteration and fracturing of the basalt near the serpentinite. Several other serpentinite bodies were observed east of the creek but these were very small and unmappable.

The remainder of the property is underlain mainly by massive dark grey well indurated, poorly sorted pebble conglomerate (Unit 10 Templeman-Kluit). The pebbles are dominantly composed of quartz and black chert with significant amounts of Unit 1 schist, Unit 3 phyllite, Unit 8 chert and basalt plus minor large rounded fine-grained intrusive pebbles. The size of the pebbles is variable up to 2 inches in diameter but they are generally in the 1/8 to 1/2 inch range.

Although the contact between the basalt and conglomerate is not visible, it appears to be a fault (Templeman-Kluit 1972). The basalt

PELLY RIVER

133°00'W

62°08'30"

Moose Creek

PYRITE
LOWING
EE SKETCH)

LEGEND

10	MASSIVE, WELL INDURATED COBBLE AND PEBBLE CONGLOMERATE.
10a	QUARTZITE, LIMESTONE, ARGILLACEOUS LIMESTONE, BLACK SHALE.
9	SERPENTINITE AND SERPENTINIZED PERIDOTITE.
8	8b/ MASSIVE GREEN BASALT. 8a/ GREENISH GREY TUFFACEOUS CHERT

SYMBOLS

- ROAD
- CLAIM BLOCK BOUNDARY
- CLAIM POST (LOCATED, ASSUMED)
- CREEK
- OUTCROP
- CONTACT (DEFINED, ASSUMED)
- FAULT (APPROXIMATE)
- CLEAVAGE
- BEDDING
- FOLD AXIS

WELCOME NORTH MINES LTD.

TAR CLAIMS

GEOLOGY

SCALE : 1" = 1000'	DATE : AUGUST 1977	NTS : 105 K/2
BY : B. Holland	REVISED : OCT. 12, 1977	FIGURE : 4

nearest the contact tends to be moderately to strongly schistose with abundant crenulations, kink folding and fine muscovite development.

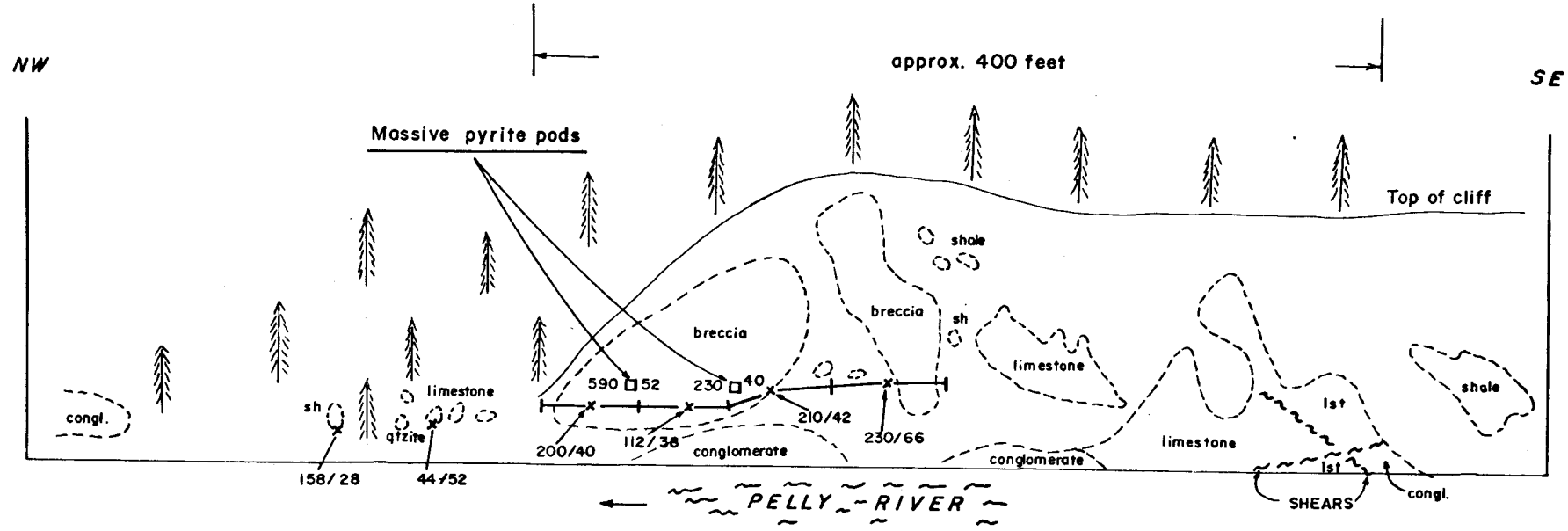
Included within Unit 10 are several recessive weathering pods of black shale, quartzite, and/or massive grey limestone (Unit 10a). The one good exposure for this unit is a large rusty outcrop along the Pelly River just south of the property. This outcrop is of further interest as it contains significant amounts of fine-grained massive pyrite.

One outcrop of resistant, creamy green to dark grey, quartz porphyry rhyolite and rhyolite breccia was found in Moose Creek and, because of the nearby presence of Unit 10a shales, was included within that unit. The quartz phenocrysts tend to be small and few in number, especially in brecciated zones. The green coloration is largely due to abundant epidote which also occurs as stringers and disseminated blebs.

The showing area (see Fig. 5) outlined above is underlain by a resistant shelf of Unit 10 conglomerate which is separated from the overlying Unit 10a rocks by a decollement or shear surface. The pyrite mineralization occurs in small zones within a large pod of highly sheared, broken, and rusty breccia with angular clasts of quartzite in a fine swirly matrix of impure limestone. Where pyrite occurs it is often intermixed with the limestone matrix, giving the appearance of having been stirred in. White epsomite precipitate was commonly found on exposed surfaces especially near fractures. The breccia appears to have resulted from shearing and deformation of brittle quartzites and infilling by surrounding ductile limestones. The pyrite appears to be prekinematic.

To the east the breccia is onlapped by black shale and massive, grey limestones which, although much less sheared and altered, still appear to be highly deformed and folded. Some infolding of limestone into the underlying conglomerate was observed along the generally sharp shear controlled contact.

No rocks of the Unit 1 biotite-muscovite schist were found on the TAR group despite indications of their presence (Templeman-Kluit). It is believed that the showing outcrop was mistakenly, from a distance, thought to be schist.



SKETCH VIEW OF PYRITE SHOWING (looking North - East)

By B. Holland

	outcrop area
230 □ 40	selected specimens Zn / Pb ppm
× 200/40	chip samples Zn / Pb ppm

FIG. 5

WELCOME NORTH MINES LTD.

TAR CLAIMS

OCTOBER 1977

NOT TO SCALE

GEOCHEMISTRY

The geochemical soil survey consisted of sampling at 200-foot intervals along the two claim lines, using grub hoes to get below the volcanic ash layer within the soil. Fifteen additional samples, including one silt sample from Moose Creek and one rock chip sample of schistose basalt, were taken at scattered locations throughout the property.

Sampling of the showing area was restricted to six rock chip samples taken over 40-50 foot intervals and two selected specimens of the mineralized zones.

The resulting samples were bagged, labelled, and sent to Acme Analytical Laboratories Ltd. in Ross River, Yukon Territory for geochemical analyses for lead and zinc. These values were then plotted on a 1" : 1000' scale property map (see Fig. 6). Values greater than 30 ppm lead and and 250 ppm zinc were considered to be anomalous.

Soil samples over the basalt and chert unit gave consistently low values for both lead and zinc (< 100 ppm Zn, < 20 ppm Pb), while those over the sedimentary rocks were substantially higher in zinc (100-250 ppm common). These values were not anomalous except for a weak scattered anomaly on TAR claims 3 and 6 (values to 480 ppm Zn). Lead values for Unit 10 were low (< 20 ppm Pb).

The rock chip geochemistry over the showing gave values for zinc ranging from 100 to 230 ppm, and for lead 40 tp 65 ppm. The values for lead are considered weakly anomalous. One specimen from the showing assayed high in both lead and zinc (52 ppm Pb, 590 ppm Zn) with the zinc being strongly anomalous. The other specimen gave results similar to the rock chips (40 ppm Pb, 230 ppm Zn).

PELLY RIVER

133°00'W

62°08'30"

Moose Creek

370 • 16
98 • 14
88 • 16
110 • 22
106 • 24
104 • 22
124 • 28
110 • 12
142 • 24
14 • 6
119 • 20
116 • 20
98 • 18
13 • 6
26 • 6
12 • 4
70 • 16
225 • 20
76 • 16
36 • 12
116 • 18
250 • 18
108 • 16 S 142/16
154 • 16 S 360/7
144 • 18 S 80/2
172 • 14 S 74/3
345 • 20
102 • 18
200 • 16
255 • 18
146 • 20
160 • 16
92 • 14
72 • 14
215 • 20
102 • 22
108 • 20
134 • 18
150 • 14
100 • 16
160 • 14
94 • 12
108 • 14
210 • 14
100 • 16

162 • 24
70 • 3
148 • 14
18 • 5
46 • 1
480 • 23
146 x 13
152 • 12
138 • 3

68 • 12
70 • 14
82 • 24
76 • 16
160 • 22
88 • 22
180 • 26
50 • 12
37 • 12
98 • 10
19 • 8
76 • 16
14 • 4
16 • 2
58 • 12
142 • 12
68 • 10
64 • 8
120 • 16

SYMBOLS

- ROAD
- CLAIM BLOCK BOUNDARY
- CLAIM POST (LOCATED, ASSUMED)
- CREEK
- OUTCROP
- CONTACT (DEFINED, ASSUMED)

116 • 18 SOIL Zn / Pb IN ppm
92 09 SILT " "
146 x 13 ROCK " "

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TAR CLAIMS

SOIL GEOCHEMISTRY

SCALE: 1" = 1000'	DATE: AUGUST 1977	NTS: 105 K/2
BY: B. Holland	REVISED:	FIGURE: 6

RECOMMENDATIONS

Geological mapping and geochemical surveys carried out on the TAR claims to date have revealed only low priority exploration targets. Of minor interest is a weak, scattered geochemical anomaly on TAR claims 3 to 6, which appears to be underlain by Unit 10a rocks similar to those found at the showing located on the river bank. Lack of outcrop in the area of this anomaly makes further geological mapping impractical, but the area should be further investigated with a more detailed soil grid and an electromagnetic survey.

The mapping and sampling of the pyritic breccia showing located along the Pelly River did not reveal any lead or zinc mineralization. However, due to the intesnely leached nature of the outcrops and the presence of fine-grained massive pyrite, it is recommended that the showing outcrops be trenched by blasting techniques to expose fresher rock, and that further mapping and sampling of the trenched area be carried out.

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