

ARCHER, CATHER

AND ASSOCIATES LTD.

CONSULTING GEOLOGICAL ENGINEERS

APPENDIX "A"

MERCURY EXPLORATIONS LIMITED (N.P.L.)

FEBRUARY 14, 1969

CASCA BUILDING, WHITEHORSE, Y.T. 667-4113

BENTALL CENTRE, VANCOUVER, B.C. 688-3022 OR 522-1562

770 ONE BENTALL CENTRE
505 BARRARD ST.
VANCOUVER 1, B.C.
November 28, 1968.

Preliminary Report

on

ZAN AND TAP CLAIM GROUPS

Anvil-Vangorda District, Yukon Territory

for

MERCURY EXPLORATIONS LTD.

105-K-5
105-K-6

November 23, 1968.

Alan R. Archer

Consultant

Vancouver, B.C.

INDEX

	<u>PAGE NO.</u>
Summary	
Introduction	1
Property, Location and Access	1
History	1
Geology	2
Regional	2
Zan and Tap Claims	3
Exploration	3 & 4
Conclusions and Recommendations	4
Budget	4 & 5

Appendix

Location Plan Zan and Tap Claims	scale 1" = 4 miles
Geology Zan Claims	scale 1" = $\frac{1}{2}$ mile
Lead Geochemistry Zan Claims	scale 1" = $\frac{1}{2}$ mile
Zinc Geochemistry Zan Claims	scale 1" = $\frac{1}{2}$ mile
Copper Geochemistry Zan Claims	scale 1" = $\frac{1}{2}$ mile

SUMMARY

Mercury Explorations Ltd. owns two separate groups of mineral claims, the Zan 1-48 claims and Tap 1-8 claims, in the Anvil-Vangorda district, Yukon Territory. The Faro open pit deposit of massive sulfides containing 63.5 million tons of ore grading 5.72% zinc, 3.4% lead and 1.2 ounces of silver per ton is centrally located in the district and is accessible by road and scheduled aircraft from Whitehorse.

The Zan claims are underlain by a 3000 foot sequence of Cambrian phyllites in which all of the deposits occur and which so far is the only recognizable ore control. The Tap claims are unfavourably located with respect to the phyllites.

No further work is justified on the Tap claims. Soil sampling on the generally overburden covered Zan claims in 1968 located two areas anomalous in lead and zinc. This, combined with the favourable stratigraphic location, justifies a vigorous program of exploration designed to locate either near surface or deeply buried mineral deposits. A gravity survey with anomalies so found checked by an Induced Polarization survey, followed by diamond drilling at a total cost of \$ 115,000 is recommended.

INTRODUCTION

The writer is closely familiar with the geology of the Anvil-Vangorda district and has personally examined the property held by Mercury Explorations Ltd. Information for this report is derived from the writers knowledge of the district and from Geological Survey of Canada Paper 68-1, Part A, Pages 43-52. "Geological Setting of the Faro, Vangorda and Swim Base metal Deposits, Yukon Territory", by D. J. Templeman - Kluit, 1968.

PROPERTY, LOCATION AND ACCESS

The property consists of two separate groups of claim, the Zan 1-48 and Tap 1-8. These claims are registered in the Whitehorse Mining District and all were in good standing at the date of this report.

Both claim groups are located in the Anvil-Vangorda district, an area five to ten miles wide and some seventy miles long that follows the north-east side of the Pelly River and more or less encompasses the Anvil Range of mountains. The Faro deposit, presently being prepared for production by Anvil Mining Corporation Ltd., is located 125 northeast of Whitehorse in the central part of the district. The Anvil camp is accessible by road to Whitehorse via the town of Carmacks and by scheduled fixed wing aircraft service from Whitehorse.

The Zan claims are located 9 miles east of the Anvil camp and road terminus. The Tap claims are located 7 miles southeast of the Anvil camp and about 2½ miles from the road.

HISTORY

The first significant discovery in the district, the Vangorda deposit, was found in 1963. This deposit, named after the creek in which it outcropped, was optioned by Prospectors Airways Ltd., which proved 9.4 million tons of lead-zinc ore. The deposit is now controlled by Vangorda Mines Ltd., a subsidiary of Kerr Addison Mines Ltd.

Exploration in the district was discontinued until 1964 when Dynasty Explorations Ltd. and Kerr Addison started surface exploration programs. In 1965 both companies located significant indications of new areas of mineralization and increased their activity. Dynasty, financed by Cyprus Mining Corporation, discovered the Faro deposit which has since been proven to contain 63.5 million tons of open pit ore. The Faro deposit, under the operating company Anvil

Mining Corporation Ltd., is being prepared for production starting October 1, 1969., at a total cost of 63 million dollars. Kerr Addison discovered the Swim deposit which is believed to contain about 10 million tons of ore grade material.

News of the Faro discovery in 1965 resulted in a staking rush culminating in some 8,000 claims of which more than half were owned by over 40 separate companies. Most of the tie-on claims were well located but, due to the high cost of exploration, little useful work was accomplished and the majority have been allowed to lapse without being adequately explored.

The Zan and Tap claims cover areas staked in 1966 and dropped in 1967. Previous work on ground covered by the Zan claims consisted of helicopter borne magnetic and electromagnetic surveys, reconnaissance soil sampling and geological mapping. No previous work is known by the writer to have been done on the ground now covered by the Tap claims.

GEOLOGY

Regional

The Ross River district lies within the eastern crystalline belt of the Yukon Territory - a zone of more or less metamorphosed sediments and volcanics intruded by medium grained quartz-monzonite and granodiorite batholiths of Cretaceous age. The district has been heavily glaciated and the valleys and lower flanks of the mountains are generally covered by glacial till. Because of this, most of the significant structures, contacts and indications of mineralization are obscured.

The main structural feature of the district is the Tintina fault that is generally followed by the Pelly River valley and is probably related to the Rocky Mountain Trench. The ore deposits occur in a variously metamorphosed Cambrian phyllite approximately 3000 feet thick that is part of a Cambrian sequence of schist, phyllite, quartzite and marble. These Cambrian rocks form a belt five to ten miles wide and over fifty miles long paralleling the northeast side of the Tintina fault. This sequence was domed into a broad anticline by the intrusive Anvil batholith. Erosion has exposed the core of the intrusive and the favourable Cambrian rocks now occur as an elliptical halo around it as minor small roof pendants.

The three known deposits of economic interest Vangorda, Faro and

Swim, all average 3-4% lead, 5-6% zinc and 1-2 ounces silver per ton. The ore minerals are associated with pyrite, pyrrhotite, minor arsenopyrite and quartz. Exploration techniques depend chiefly on the geophysical response of the massive sulfide mineralization and the geochemical dispersion of the lead and zinc if the deposit is near surface. There is no apparent relationship of the ore deposit to location within the phyllite formation, proximity to the intrusive, grade of metamorphism or local faulting. In all probability they are Cambrian replacements which have been recrystallized by metamorphic action associated with the Cretaceous intrusives. Thus, the Faro deposit, being closest to the intrusive is coarse grained while the Vangorda deposit, being some distance from the intrusive, is fine grained. The only associated alteration effect is a slight bleaching, primarily due to addition of silica, in an irregular envelope up to 200 feet thick.

Zan and Tap Claims

The Tap claims are underlain by Pennsylvanian volcanics that unconformably overlie the Cambrian phyllites.

The Zan claims are chiefly underlain by the favourable Cambrian phyllites. The northern contact of the Anvil batholith passes through the southern edge of the claim group. As most of the claims lie in a broad valley floor filled with glacial till, possibly to depths exceeding 100 feet, this geological setting is extrapolated from a few outcrops and regional projection.

EXPLORATION

Exploration by Mercury Explorations during 1968 consisted of reconnaissance prospecting of both claim groups and soil sampling of the Zan claims. Soil samples were taken at 300 foot intervals on lines 1000 feet apart and analysed for lead, zinc and copper by atomic absorption spectrometry of a hot acid extraction. Two separate areas, each about 1200 feet by 1000 feet in size, were found to contain anomalous values in lead and zinc. Lead values averaged about four times background and zinc values about three times background. Both anomalous areas are found on the valley floor and may be due to metal rich seepages from an uphill source.

Prospecting did not locate any evidence of or mineralization, which is not surprising considering the lack of outcrop.

CONCLUSIONS AND RECOMMENDATIONS

The location of the Tap claims is stratigraphically unfavourable and no further work is recommended for them.

The Zan claims are underlain by the favourable Cambrian phyllites and indirect evidence of lead and zinc mineralization is indicated by two sizable geochemical anomalies. Further exploration is amply justified and should be designed to locate both near surface and deeply buried ore deposits. A gravity survey on lines 400 feet apart with readings at 100 foot intervals is recommended for the portion of the claims underlain by the phyllite. All gravity anomalies should be cross-checked with Induced Polarization surveys prior to selecting drill targets.

BUDGET

Stage One

Gravity survey, 40 line miles.....	\$ 16,000.	
Induced Polarization survey, 10 line miles.....	3,000.	
Line Cutting.....	5,000.	
Transportation, mainly helicopter.....	5,000.	
Management.....	<u>4,000.</u>	
	Total	\$ 33,000

Stage Two

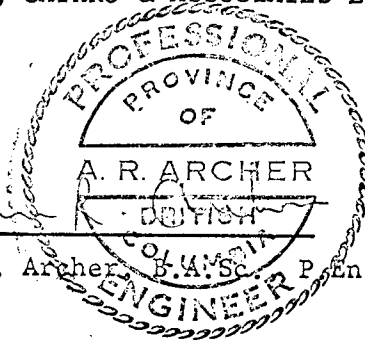
Diamond drilling, assume 3000 feet.....	\$ 45,000.	
Tote road construction.....	10,000.	
Camp costs, supervision.....	15,000.	
Transportation.....	5,000.	
Management.....	<u>7,000.</u>	
	Total	\$ 82,000

(5)

Total Stage One and Two.....

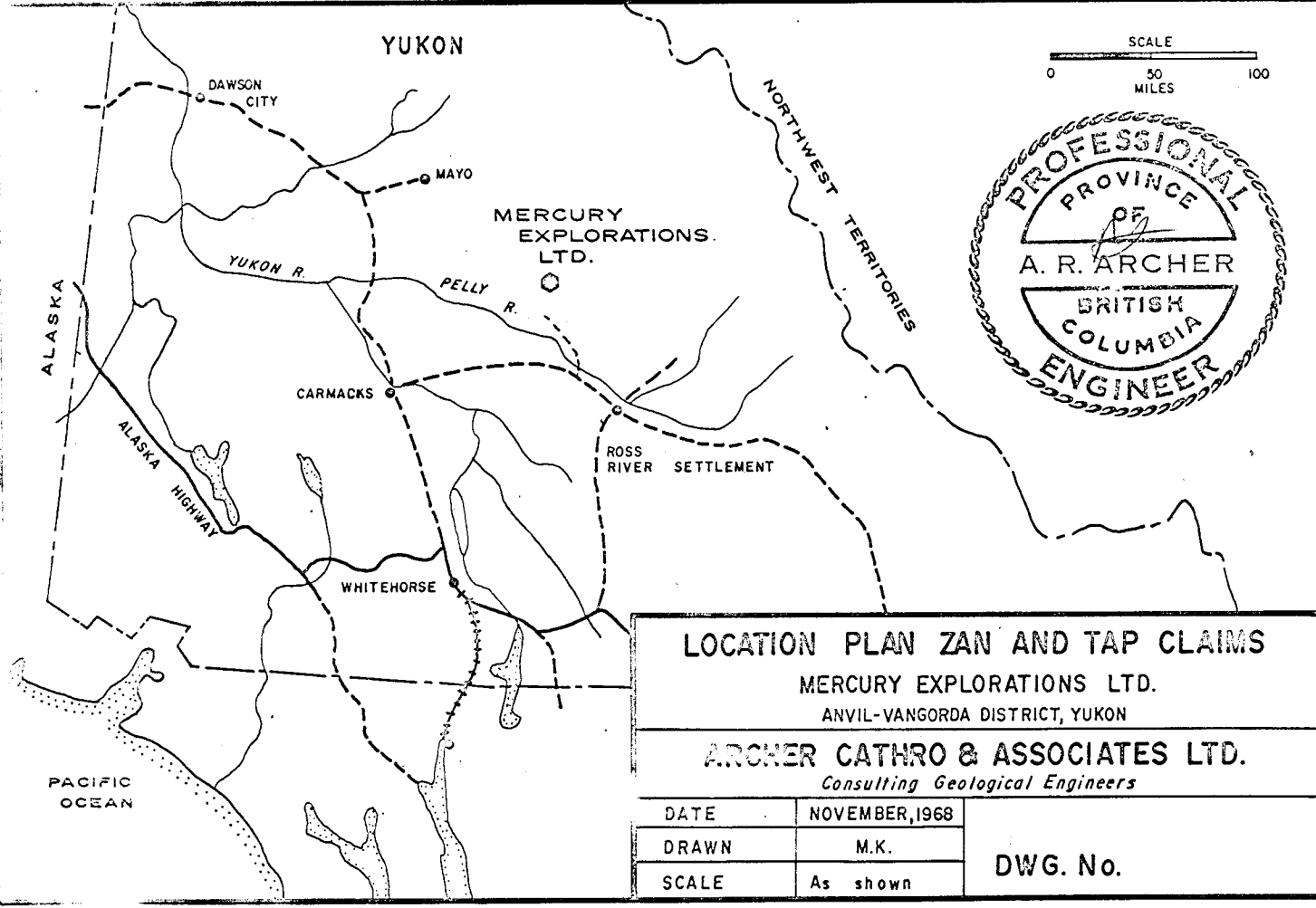
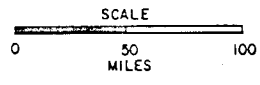
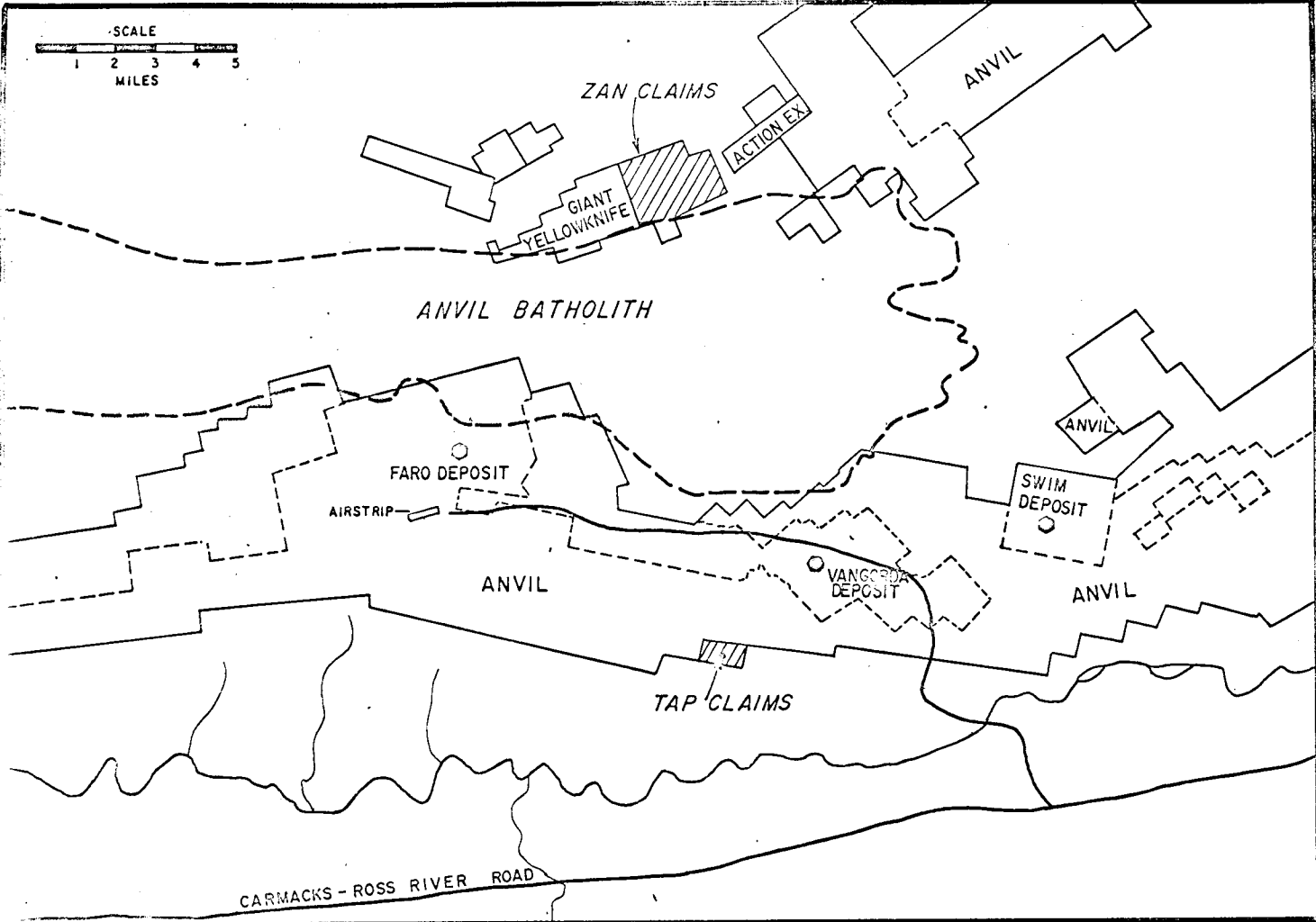
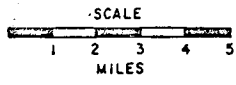
\$ 115,000

Respectfully submitted,
ARCHER, CATHRO & ASSOCIATES LTD.

A circular professional seal for the Province of Ontario. The outer ring contains the text "PROFESSIONAL ENGINEER" at the top and "PROVINCE OF ONTARIO" at the bottom. The inner circle contains the name "A. R. ARCHER" and the title "P. Eng.". A handwritten signature "Alan R. Archer" is written across the seal.

Alan R. Archer, B.A.Sc., P. Eng.

ARA/dm



LOCATION PLAN ZAN AND TAP CLAIMS
MERCURY EXPLORATIONS LTD.
ANVIL-VANGORDA DISTRICT, YUKON

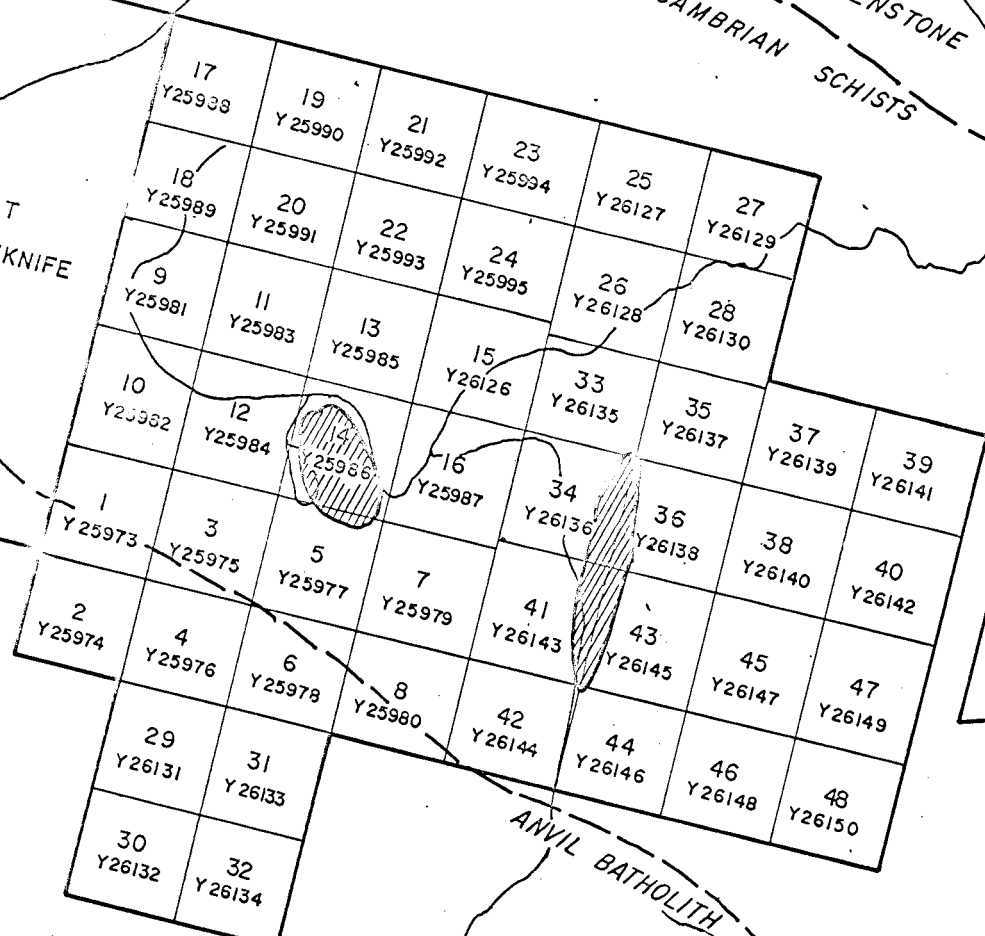
ARCHER CATHRO & ASSOCIATES LTD.
Consulting Geological Engineers

DATE	NOVEMBER, 1968
DRAWN	M.K.
SCALE	As shown

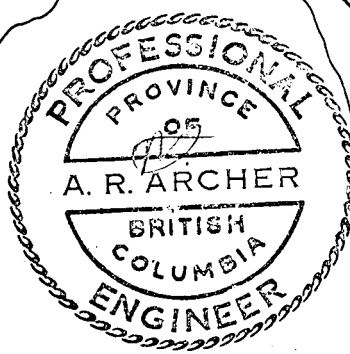
DWG. No.

PENNSYLVANIAN
MIDDLE CAMBRIAN GREENSTONE
SCHISTS


GIANT
YELLOWKNIFE



ACTION
EXPLORATIONS



LEGEND

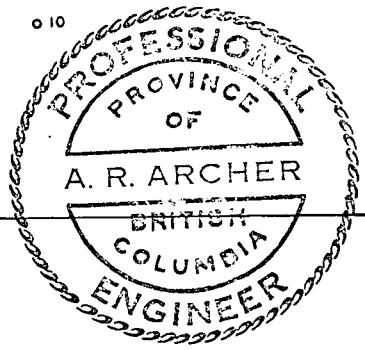
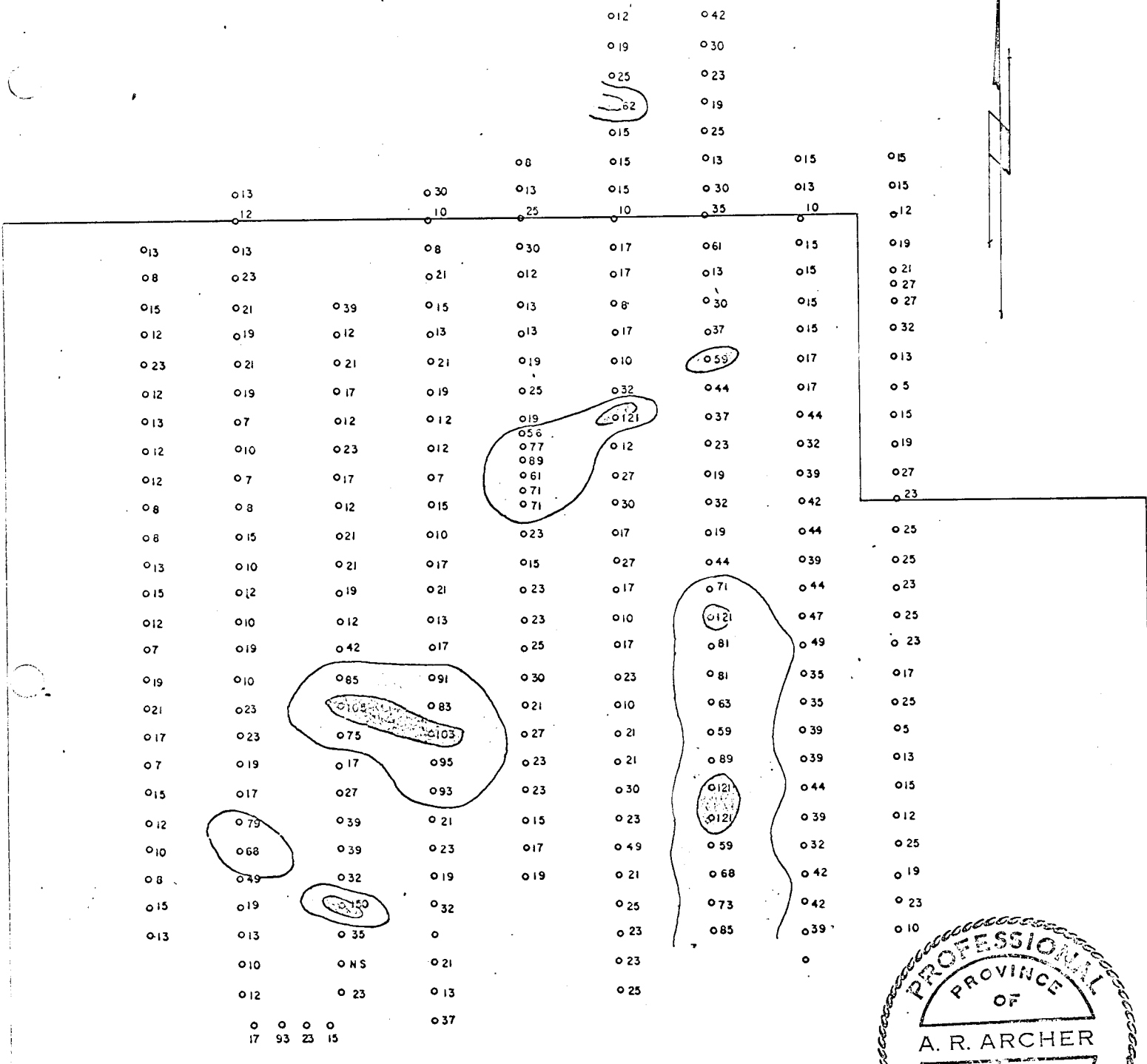
 — Geochemical Anomaly

ZAN CLAIMS
MERCURY EXPLORATIONS LTD.
ANVIL-VANGORDA DISTRICT, YUKON

ARCHER, CATHRO & ASSOC. LTD.
Consulting Geological Engineers

DATE:	NOVEMBER, 1968
DRAWN:	M.E.
SCALE	1" = 1/2 Mile

DWG.



LEGEND

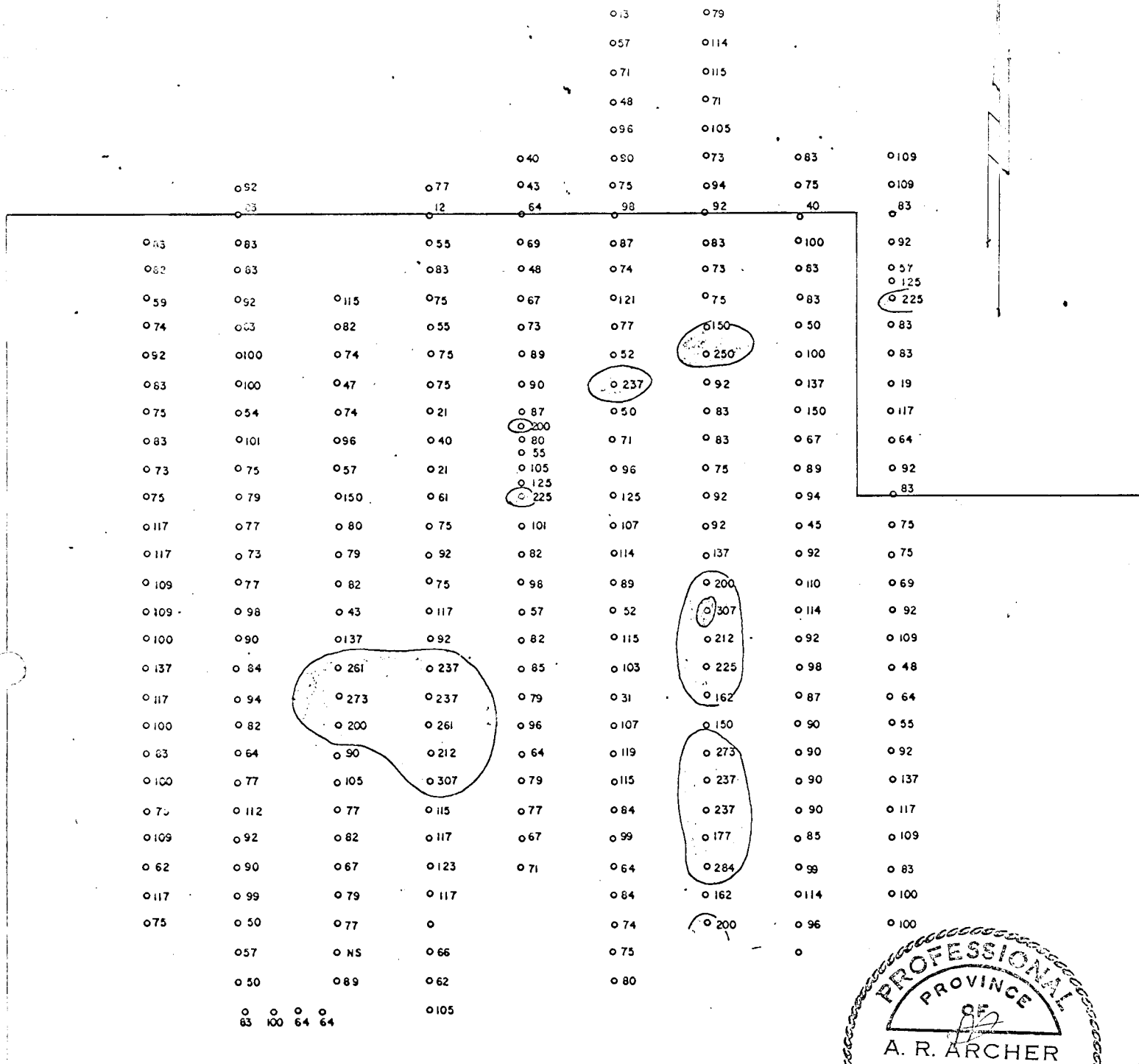
○25 Assay in parts per million
Hot acid extraction

TOTAL LEAD

MAP SHOWING LOCATION OF SOIL SAMPLES
TAKEN FROM ZAN GROUP
MERCURY EXPLORATIONS LTD.
ANVIL VANGORDA DISTRICT, YUKON .

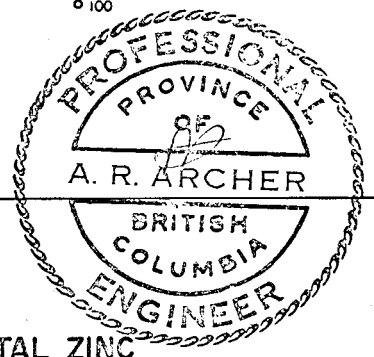
ARCHER CATHRO & ASSOCIATES LTD.
Consulting Geological Engineers

DATE	NOVEMBER/68	DWG. No.
DRAWN	M.K.	
SCALE	1" = 1500'	



LEGEND

080 Assay in parts per million
Hot acid extraction



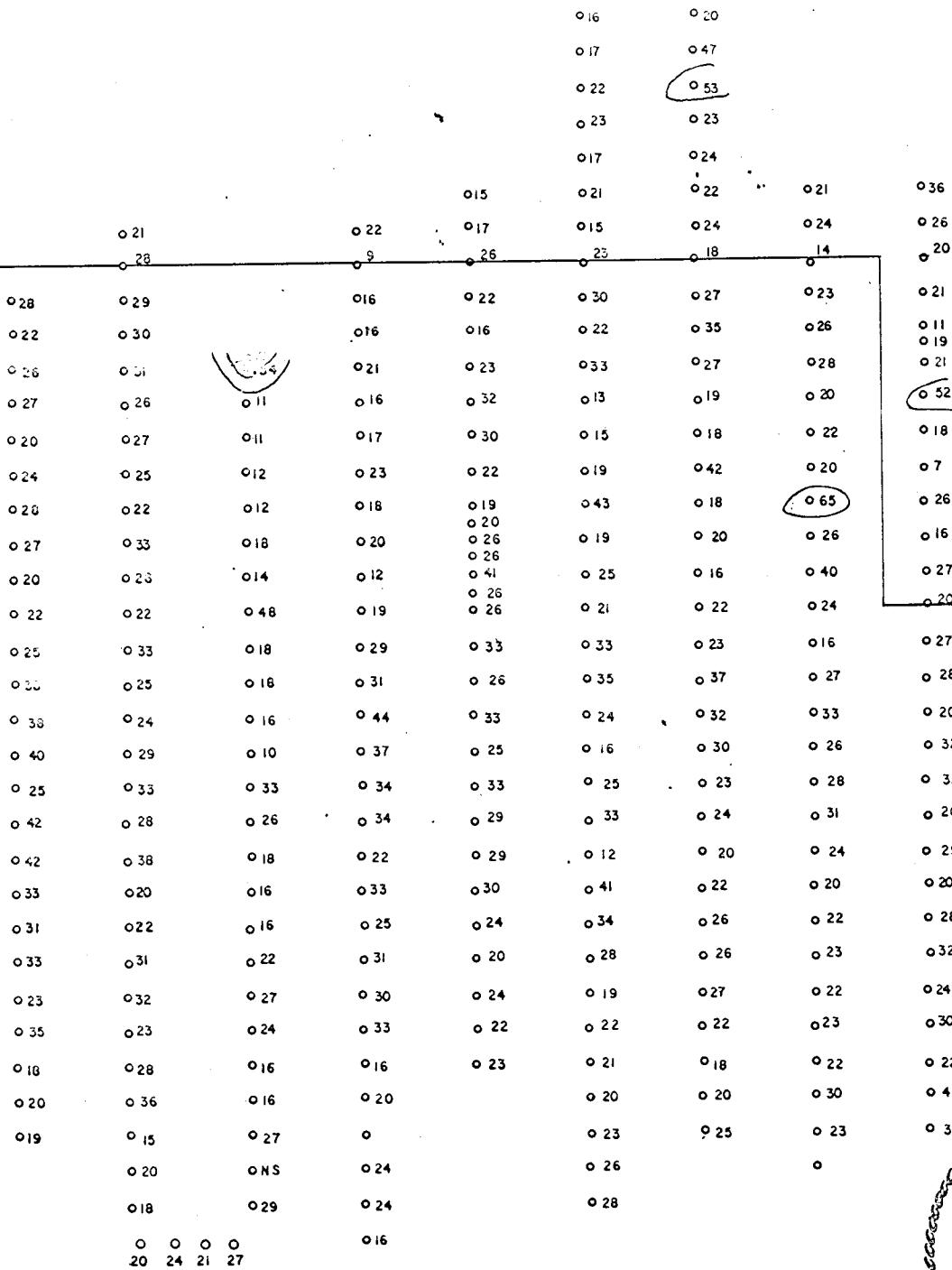
TOTAL ZINC

MAP SHOWING LOCATION OF SOIL SAMPLES
TAKEN FROM ZAN GROUP
MERCURY EXPLORATIONS LTD.
ANVIL VANGORDA DISTRICT, YUKON

ARCHER CATHRO & ASSOCIATES LTD.
Consulting Geological Engineers

DATE	NOVEMBER/68
DRAWN	M.K.
SCALE	1" = 1500'

DWG. No.



○ 20 ○ 24 ○ 21 ○ 27

LEGEND

○28 Assay in parts per million
Hot acid extraction

TOTAL COPPER

MAP SHOWING LOCATION OF SOIL SAMPLES
TAKEN FROM ZAN GROUP
MERCURY EXPLORATIONS LTD.
ANVIL VANGORDA DISTRICT, YUKON

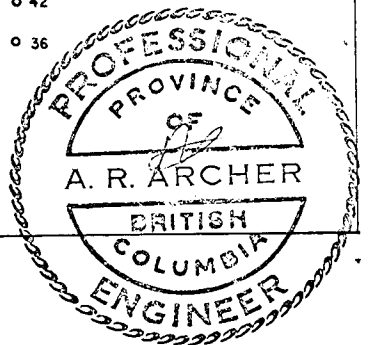
ARCHER CATHRO & ASSOCIATES LTD.
Consulting Geological Engineers

DATE NOVEMBER/68

DRAWN M.K.

SCALE 1" = 1500'

DWG. No.



INTERIM REPORT

FEBRUARY 14, 1969

MERCURY EXPLORATIONS LIMITED (N.

ANVIL-VANGORDA DISTRICT, Y.T.

BY: ROBERT E. CHAPLIN, P.ENG., PRESIDENT

NTS 105K5-105K-6

February 14, 1969

Mercury Explorations Limited (N.P.L.) has been actively acquiring mineral rights in the Anvil-Vangorda District of the Yukon Territory.

A report on our ZAN and TAP claims by A.R. Archer, P.Eng. consulting engineer, dated November 23, 1968, recommended the expenditure of \$115,000 in a two-stage program.

The ZAN and TAP groups comprise a total of 54 claims. Recently, new company claims have been recorded, namely the TIM claims (32 in number), and the company has acquired a 40 percent working interest in a total of 104 claims owned by Giant Yellowknife Mines Limited of Toronto. (Jet, AC & KD groups)

At present the company is staking a 330 claim block (the IBM claims) adjoining all the above mentioned claim groups (except the TAP claims).

A total of 514 claims will then be included in an 18 mile belt of favourable Cambrian phyllite formation on the north side of the Mye Mountain intrusions. A federal government sponsored airborne magnetic survey of the area, clearly co-operates the Geologic Survey of Canada mapping of this phyllitic formation as mapped by Dr. D. Templeman-Kluit of the G.S.C.

A 75 claim block is being staked (the M group) to acquire mineral rights on a low-intensity airborne magnetic anomaly that is located westerly, along strike, from Dr. Templeman-Kluit's assumed location of the Cambrian phyllites in the known Faro - Vangorda - Swim trend. Deep superficial cover

obscures the geology in the vicinity of the M claims magnetic anomaly. Eight low-intensity airborne magnetic anomalies similar to those at the Faro, Vangorda, and Swim deposits occur within our claim blocks.

Geochemical reconnaissance data for total lead & zinc obtained by the writer and others over a period of five years, indicates the presence of a base-metal concentration within the phyllitic stratigraphy on the company's claims. One five-foot true-thickness section of phyllite was found to contain low lead and zinc values in an area of little outcrop. The outcrop is small and may be detached slightly from bedrock. A second lead, zinc, and silver showing was found in August 1968 in a northerly trending fracture system within the intrusive rocks, close to and striking toward the assumed location of the phyllites. Low-level airborne magnetic and electro magnetic data will be made available to the company from Giant Yellowknife Mine's files on their JET, AC, & KD claim groups.

Mercury Explorations plans to conduct a reconnaissance gravimeter and magnetometer survey over approximately two hundred line miles within our claim holding. Case history data gained from Dynasty Explorations Limited and Prospectors Airways Limited indicates that gravity surveys are possibly the most definitive single exploration technique for the detection of a bedded-replacement base metal deposit of the Vangorda-Anvil type. All obtained anomalies will be checked by an induced polarization survey to select drilling targets.

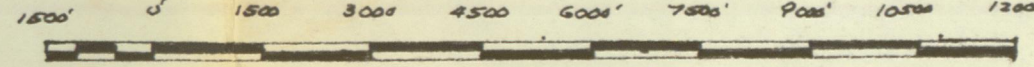
The work is to commence March 1st, 1969. The anticipated cost of this complete project is estimated at \$340,000 (including the Archer & Cathro estimate and our expanded program).

P. J. Walsh for R. E. Chaplin

R.E. Chaplin, P.Eng.,
President.

MERCURY EXPLORATIONS LTD 105K-6

ANVIL-VANGORDA AREA Y.T.



PROPOSED GEOPHYSICAL SURVEY GRID OVER PHYLLITES *photo locations are only approximate*
TIM, ZAN, JET, AC, KD, IBM MINERAL CLAIMS

APPENDIX "A"
MERCURY EXPLORATIONS LIMITED (N.P.L.)
FEBRUARY 14, 1969

