

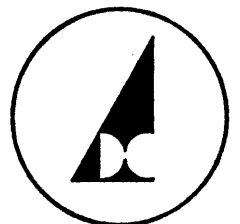
Mercury Explorations Limited (N.P.L.)

810121

1. ANVIL DISTRICT PROPERTIES
Faro, Yukon Territory.

2. ENDAKO DISTRICT PROPERTIES
Fraser Lake, British Columbia.

DOLMAGE, CAMPBELL & ASSOCIATES LTD.
VANCOUVER, CANADA



93K/3 . 1969

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CONSULTING GEOLOGICAL & MINING ENGINEERS

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VANCOUVER 1, B.C.

Mercury Explorations Limited (N.P.L.)

Summary Report

1. ANVIL DISTRICT PROPERTIES

Faro, Yukon Territory.

2. ENDAKO DISTRICT PROPERTIES

Fraser Lake, British Columbia.

September 15th, 1969.

TABLE OF CONTENTS

	<u>Page</u>
CERTIFICATE	1
INTRODUCTION	2
Location and Access	2
a) Anvil District Properties	2
b) Endako District Properties	2
SUMMARY & RECOMMENDATIONS	3

PART I

ANVIL DISTRICT PROPERTIES

INTRODUCTION	6
Property	6
History and Previous Work	8
References	9
GEOLOGICAL SETTING	10
Regional Geology	10
Ore Occurrences	11
PROPERTY GEOLOGY	12
PROPERTY EXPLORATION	14
CONCLUSIONS AND RECOMMENDATIONS	16
Recommendations	16
Estimated Cost	17

PART II

ENDAKO DISTRICT PROPERTIES

INTRODUCTION	20
Property	20
History and Previous Work	21
References	22

TABLE OF CONTENTS (Cont .)

	<u>Page</u>
GEOLOGICAL SETTING	23
ENDAKO OREBODY	23
EXPLORATION TECHNIQUES	24
Geochemistry	24
Induced Polarization	24
MERCURY CLAIM GROUPS	26
Fort Group	26
North Group	26
Tat Group	27
Chess Group	27
Bonus Group	27
Count Group	28
CONCLUSIONS	29
Recommendations	30
Estimated Cost	30

LIST OF ILLUSTRATIONS

		<u>Following Page</u>
Figure 69-1	Location Map, Anvil District Property	4
Figure 69-2	Regional Geology, Anvil District	10
Figure 69-3	Compilation Map, Anvil District	15
Figure 69-4	Location Map, Endako Properties	18
Figure 69-5	Geology, Endako District Properties	23

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CERTIFICATE

I, Robert S. Adamson, with business and residential addresses in Vancouver, British Columbia, do hereby certify that:

1. I am a consulting geological engineer.
2. I am a graduate of the University of British Columbia, (B.A.Sc., in Geological Engineering, 1957).
3. I am a registered Professional Engineer of the Province of British Columbia.
4. From 1957 to 1967 I was engaged in mineral exploration in Canada as a geologist for a number of companies. I was Chief of Exploration for Anvil Mining Corp. Ltd. when I retired in 1967 to join the firm of Dolmage, Campbell & Associates Ltd. as a consulting geologist.
5. I visited and examined the Endako properties on August 8th, 1969.
6. I have not received, directly or indirectly, nor do I expect to receive any interest, direct or indirect, in the properties of Mercury Explorations Ltd. (N.P.L.), or of any affiliate thereof, nor do I beneficially own, directly or indirectly, any securities of Mercury Explorations Ltd. (N.P.L.), or any affiliate thereof.

Respectfully submitted,
DOLMAGE, CAMPBELL & ASSOCIATES LTD.



A handwritten signature in cursive script, appearing to read "R. S. Adamson".

R. S. Adamson, B.A.Sc., P.Eng.

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- 2 -

INTRODUCTION

LOCATION AND ACCESS

ANVIL DISTRICT PROPERTIES:

The Anvil District properties of Mercury Explorations Ltd. are located on the northeast flank of the Anvil Mt. Range in the central Yukon Territory approximately 125 miles northeast of Whitehorse. The district, essentially defined by the Anvil Range, lies due north of the Pelly River, which is a principal tributary of the Yukon River system. The Tay River bounds the district on the west and north while the Ross River bounds it on the east.

Access to the properties from railhead at Whitehorse, Y.T., consists of the Klondike Highway north to Carmacks then east to the new town of Faro on the resource road from Carmacks to Watson Lake. From Faro a 10 mile mining road connects the town with the mining plant of Anvil Mining Corp. Ltd. Access to Mercury's properties, located a few miles north of the mine road, must at present be accomplished on foot or by helicopter.

ENDAKO DISTRICT PROPERTIES:

Mercury Explorations' properties in the Endako district are all accessible by good logging roads from Fraser Lake or Endako on Highway 16 in north central British Columbia. The C.N.R. line connecting Prince George with Prince Rupert on the coast parallels the Highway and bisects one of Mercury's six properties in the area.

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SUMMARY & RECOMMENDATIONS

Mercury Explorations Ltd. own six properties, which are molybdenum prospects, in the Endako district of central British Columbia and own or have in part optioned another property, a zinc-lead-silver prospect, in the Anvil Range district of the central Yukon Territory.

The zinc-lead-silver prospect, located in the Anvil Range 125 miles northeast of Whitehorse, Yukon, was acquired by option and staking in 1968. The property, consisting of 548 claims, lies about six miles northeast of the 63 million ton Faro orebody of Anvil Mining Corp. Ltd.

The geology of the property consists of northwest trending Cambrian sedimentary and volcanic rocks in contact with the northeastern flank of the Anvil batholith. These rocks are known to host several zinc-lead-silver ore bodies and occurrences which extend intermittently for a strike length of several miles on the batholith's southwest flank.

Reconnaissance gravity surveys carried out by Mercury Explorations Ltd. outlined a belt of anomalies two miles long which may represent massive zinc-lead-silver sulphide deposits near a key contact on the property.

RECOMMENDATIONS: (Anvil Property)

The writer recommends that a program consisting of additional gravity surveys, detailed geological mapping, magnetometer surveys, and 5,000 feet of diamond drilling be implemented. The estimated cost of this program is \$171,000.

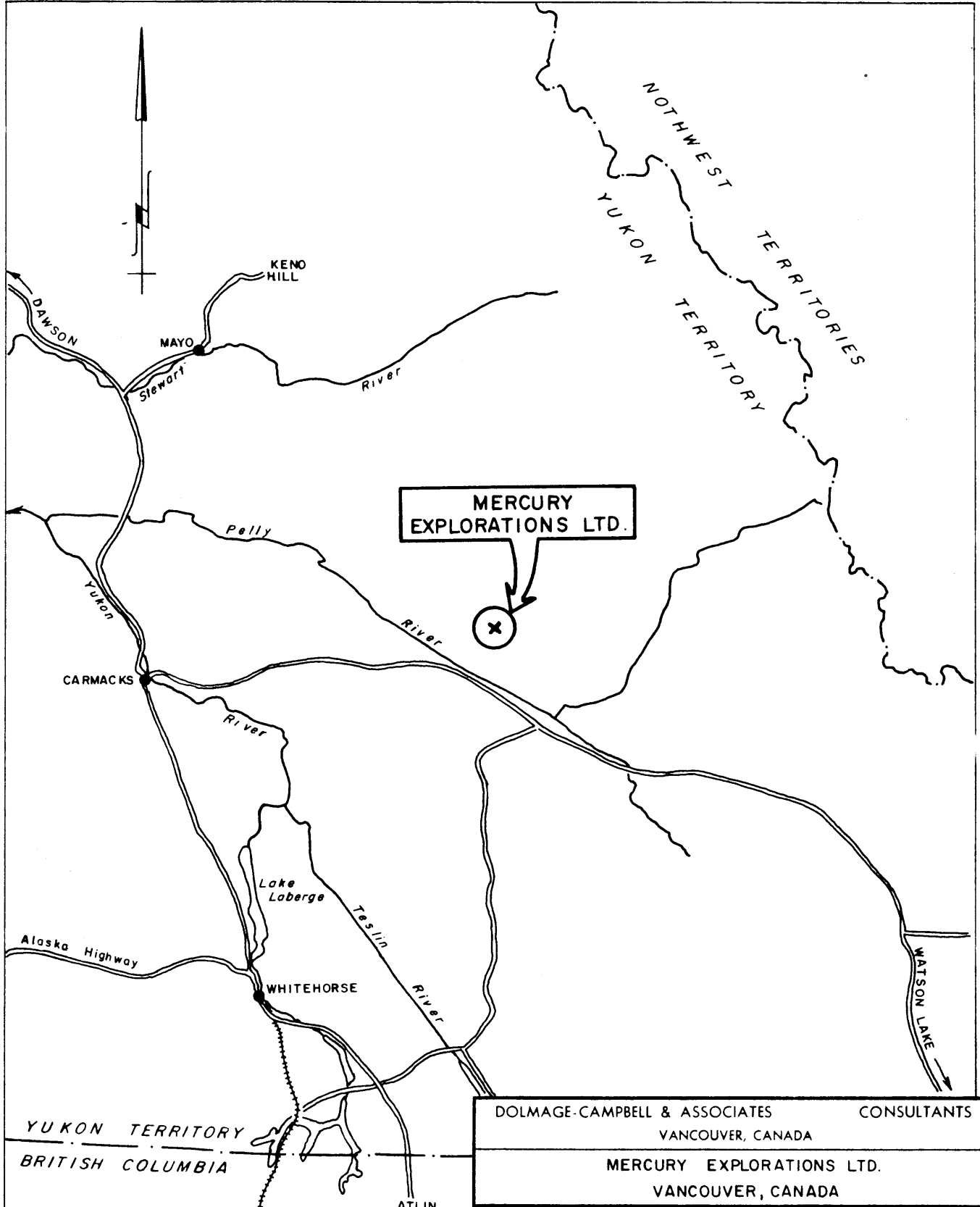
The molybdenum prospects in the Endako district consist of six separate properties that total 371 mineral claims. The 250 million ton Endako Mines "porphyry" type, open pit mine is located a few miles from all six properties.

A variety of phases of the Topley batholith underly the Endako orebody and all six Mercury Explorations properties. The Fort claim group and possibly the Count claim group occur within the same unit of the batholith that hosts the Endako orebody.

Reconnaissance induced polarization surveys were conducted by Mercury Explorations over their properties after calibrating over the Endako orebody. I.P. anomalies which may reflect pyrite associated with a molybdenum deposit were outlined by the I.P. survey.

RECOMMENDATIONS: (Endako Properties)

The writer recommends that detailed induced polarization, resistivity, magnetic, and geochemical surveys be undertaken on the Fort and Count properties. The preliminary surveys should be followed by drilling a series of short holes with overburden equipment. In addition a few short holes should be drilled on the BONUS and TAT induced polarization anomalies. The total cost of the preliminary surveys and 5,000 feet of drilling is estimated to be \$64,000.



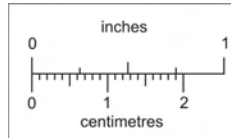
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ANVIL DISTRICT PROPERTY			
LOCATION MAP			
YUKON TERRITORY			
SCALE: 1" = 40 miles	AUGUST 1969	FIG. 69-1	

YUKON TERRITORY
BRITISH COLUMBIA

Railway to
SKAGWAY,
Alaska



This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.



PART I

ANVIL DISTRICT PROPERTIES
Faro, Yukon Territory.

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- 6 -

INTRODUCTION

During 1966 and 1967, the writer was Chief of Exploration for Anvil Mining Corp. Ltd. who were then evaluating their Faro base metal deposits and exploring their large claim holdings in the Anvil district. During his tenure with the company, the writer frequently examined the outcrops exposed on the Anvil district properties of Mercury Explorations Ltd. and Giant Yellowknife Mines Ltd. in conjunction with Anvil Minings regional mapping of the district geology.

In 1968, Mercury Explorations Ltd. acquired the ZAN Group of 48 mineral claims located on the northeast flank of the Anvil batholith and carried out a geochemical survey over the claim block. In early 1969 a 40% interest in three blocks of claims adjacent to and near the ZAN Group was optioned from Giant Yellowknife Mines Ltd. About the same time Mercury Explorations Ltd. staked a large number of additional claims northwest and southeast of these four blocks with a view to covering 18 miles of favourable geological terrane along the northeast contact of the Anvil batholith. Parallel to this program of property acquisition, the company embarked upon an extensive reconnaissance gravity survey over selected areas with this now very large claim group.

All recent geochemistry and gravity data pertaining to this project and all available airborne data, and ground geochemical and geological data acquired by others prior to 1968 have been made available to the writer.

PROPERTY:

Five separate claim blocks totalling 548 claims forms one large irregularly shaped property trending northwesterly. The area covered by this large group of claims covers approximately 18 miles in length by 2 1/2 miles in width. Three of the five blocks (AC, JET and KD Groups) are under option from Giant Yellowknife Mines Ltd. The remaining two blocks are, for the purposes of clarity, designated Mercury Ex west and Mercury Ex east. The claim names and grant numbers of the claims within each of the five blocks are as follows:

MERCURY Ex EAST BLOCK (150 claims)

<u>Claim Name</u>	<u>Grant number</u>
ZAN 1-14 inclusive	Y 25973 - Y 25986 inclusive
ZAN 15	Y 26126

PROPERTY (Cont.)

<u>Claim Name</u>	<u>Grant Number</u>
ZAN 16-24 inclusive	Y 25987 - Y 25995 inclusive
ZAN 25-48 "	Y 26127 - Y 26150 "
TIM 1 - 32 inclusive	Y 30297 - Y 30328 inclusive
MX 1-68 inclusive	Y 30497 - Y 30564 inclusive
MX 93-164 "	Y 30565 - Y 30636 "
MX 178-187 "	Y 30637 - Y 30646 "

MERCURY Ex WEST BLOCK (214 claims)

<u>Claim Name</u>	<u>Grant Number</u>
MX 186A-187A	Y 30647 - Y 30648
MX 188-222 inclusive	Y 30649 - Y 30684 inclusive
MX 222A-223A	Y 30685 - Y 30686
MX 223-227 inclusive	Y 30697 - Y 30690 inclusive
MX 224A-229A inclusive	Y 30691 - Y 30696 "
MX 228-233 "	Y 30697 - Y 30702 "
MX 230A-233A "	Y 30703 - Y 30706 "
MX 234-299 "	Y 30708 - Y 30772 "

AC GROUP (30 claims)

<u>Claim Name</u>	<u>Grant Number</u>
AC 67 - 72 inclusive	Y 3096 - Y 3101 inclusive
AC 75 - 96 "	Y 3104 - Y 3125 "
AC 111 - 112	Y 3140 - Y 3141

JET GROUP (48 claims)

<u>Claim Name</u>	<u>Grant Numbers</u>
JET 1 - 16 inclusive	Y 3142 - Y 3157 inclusive'
JET 18	Y 3159
JET 20	Y 3161
JET 22	Y 3163

PROPERTY (Cont.)

<u>Claim Name</u>	<u>Grant Numbers</u>
JET 24	Y 3165
JET 45	Y 3186
JET 49 - 60 inclusive	Y 3190 - Y 3210 inclusive
JET 61 - 64 inclusive	Y 3202 - Y 3205 inclusive
JET 93	Y 3234
JET 95	Y 3236
JET 97 - 104 inclusive	Y 3238 - Y 3245 inclusive

KD GROUP (26 claims)

<u>Claim Name</u>	<u>Grant Numbers</u>
KD 1 - 26 inclusive	Y 10219 - Y 10244 inclusive

HISTORY AND PREVIOUS WORK:

The initial discovery in the Anvil Range district, the Vangorda deposit, was found by conventional prospecting in 1953. The deposit, now controlled by Vangorda Mines Ltd., a subsidiary of Kerr-Addison Mines Ltd., was initially optioned by Prospector's Airways Ltd. who carried out a diamond drill program and outlined 9.4 million tons of zinc-lead mineralization.

Exploration in the district was suspended until 1964 when Dynasty Explorations Ltd. and Kerr-Addison began primary exploration programs. In 1965 both companies located new zinc-lead deposits in the district along the same belt of metamorphosed sedimentary rocks hosting the Vangorda deposit. Dynasty, in part financed by Cyprus Mining Corporation of Los Angeles, discovered the Faro deposit that is known to contain 63.5 million tons of zinc-lead ore. The Faro deposit, under the operating company Anvil Mining Corporation Ltd. is being prepared for production starting October 1st, 1969 at a total cost of \$63,000,000. Kerr Addison discovered the Swim deposit southeast of Vangorda, believed to contain 10 million tons of zinc-lead mineralization with grades comparable to the Faro and Vangorda deposits.

Upon discovery of the Faro deposit in 1965, a major staking rush developed culminating in the location of approximately 8,000 claims of which more than half were owned by over 40 separate companies. Subsequently, most of these claims have been allowed to lapse with minimal exploration done on them.

HISTORY (Cont.)

The Mercury claim blocks were staked in early 1966. Previous work on the ground consisted of prospecting by Indians in the earlier years; brief geochemical reconnaissance by Dynasty Explorations Ltd.; low-level helicopter-borne magnetic and aeromagnetic surveys, reconnaissance soil sampling, and geological mapping by Giant Yellowknife Mines Ltd. in 1966. The Geological Survey of Canada mapped the area in some detail in 1967 and the results of a high level aeromagnetic survey was published recently by the G.S.C.

REFERENCES:

1. Map 13 - 1961, Geology of the Tay River map sheet, Yukon Territory by J.A. Roddick and L.H. Green of the Geological Survey of Canada.
2. Geological setting of the Faro, Vangorda and Swim base metal deposits, Yukon by D.J. Templeman - Kluit in Paper 68-1, Report of Activities (1968) by the Geological Survey of Canada.
3. Anvil - Vangorda District, Yukon (105K) by D.J. Templeman - Kluit in Paper 69-1, Report of Activities (1969) by the Geological Survey of Canada.
4. Assessment Report on KD, ZAN, JET, TIM, AC, and MX mineral claims, Whitehorse Mining District, Y.T. for Mercury Explorations Ltd. by R.E. Chaplin, P.Eng. dated June 6th, 1969.
5. Preliminary Report on the Geochemistry of the ZAN and TAP Claim Groups, Anvil-Vangorda district, Yukon Territory by Alan A. Archer, P.Eng. dated November 23rd, 1968.
6. Magnetic and electromagnetic maps developed from a low-level airborne survey conducted by Lockwood Surveys for Giant Yellowknife Mines Ltd. in 1966.
7. High-level aeromagnetic maps from the Canadian Geological Survey, Geophysical maps 4353 and 4363.

GEOLOGICAL SETTING

The Tay River map sheet (NTS 105K) that contains the Anvil Range base metal district was initially mapped by officers of the Canadian Geological Survey, J.A. Roddick and L.H. Green, who produced a geological map entitled "Geology, Tay River, Y.T." in 1961 on a scale of 1 inch = 4 miles. In 1967 and 1968 D.J. Templeman-Kluit, also of the Geological Survey, mapped the Anvil district in the map area and studied its orebodies with a view to contributing to a further understanding of their nature and geological setting.

As Chief of Exploration for Anvil Mining Corporation Ltd. during 1966 and 1967, the writer supervised a regional geological mapping program in the district and exploration on the company's 3,000 mineral claims in the district on behalf of Anvil. In addition he was in charge of all the geology relating to the detailed evaluation and exploration of the Faro orebodies.

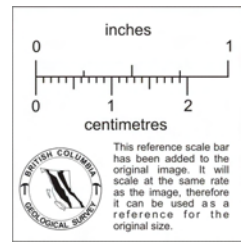
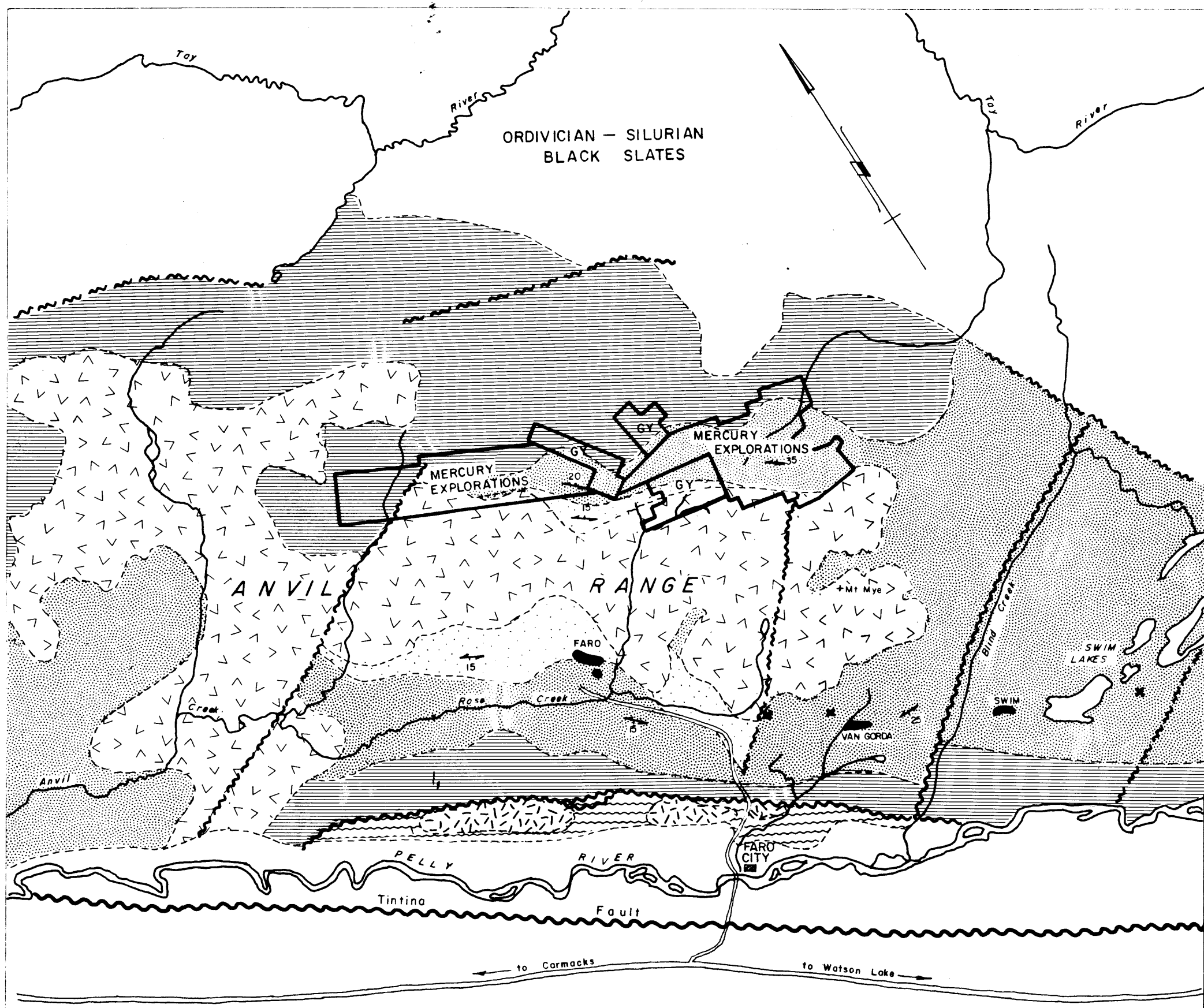
The above sources provide the basis for the following conclusions regarding the regional geology and ore occurrences in the Anvil district.

REGIONAL GEOLOGY:

The economically important rocks of the Anvil district are comprised of a north-west - trending belt of metamorphosed sedimentary and volcanic rocks bounding the Anvil Mt. Range; the belt can be traced along strike for 35 miles. These rocks are draped in anticlinal fashion over granitic rocks that intruded along the axis of the structure. The granitic rocks were subsequently exposed by erosion and now form the core of the Anvil Range which thus effectively bisects the belt into separate southwest and northeast sections.

Late Paleozoic sedimentary and volcanic rocks unconformably cap the economically interesting rocks which have been assigned a Cambrian age. The Cambrian sedimentary and volcanic assemblage has been subdivided into two relatively distinct yet conformable units: a phyllite unit and a limy quartzite unit.

The quartzite unit, approximately 2,000 feet thick, consists largely of thin-bedded and fine grained somewhat limey quartzites. Marble horizons occur in the upper portion of the unit. Subsequent metamorphism produced a calc-silicate rock characterized by thin argillaceous partings. The distinctive quartzites can be viewed in the large creek draining the area a few miles northwest of the Faro orebodies. On the southwest flank of the Anvil batholith the quartzite unit can be traced intermittently in outcrop southeasterly for 14 miles before it abuts the northeast striking Mt. Mye fault; whereas on the northeast flank the unit can be traced for approximately 6 miles.



LEGEND

- ANVIL BATHOLITH - Granodiorite, Monzonite
- PERMIAN - Serpentine, Conglomerate
- DEVONIAN TO PENNSYLVANIAN - Limestone, Volcanics, Conglomerate, Chert
- M to U CAMBRIAN - Phyllite, Tuff, Greenstone (Sulphide Horizon)
- LOWER CAMBRIAN - Laminated Quartzite, marble, amphibolite
- LOWER CAMBRIAN - Mica Schist, Quartzite
- GEOLOGICAL CONTACT
- ORE BODIES, OCCURRENCES
- FAULT - known; assumed
- FOLIATION

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ANVIL DISTRICT

REGIONAL GEOLOGY

REGIONAL GEOLOGY (Cont.)

The phyllitic unit, within which occur all of the known sulphide deposits of economic interest, may be in the order of 4,000 feet thick and contains numerous andesitic flows and fragmental horizons. The unit has been subdivided by D.J. Templeman-Kluit into two members; the "lower" one, about 1,000 feet thick, contains medium grey, lustrous, quartz-rich phyllite with dark grey graphitic quartz phyllite near its base, and small chloritic greenstone lenses and tuffaceous phyllite in its upper part. Sulphide bodies discovered to date occur in the "lower" member of the unit some distance above the graphitic horizons and a considerable distance "below" the lowest thick greenstones. The "upper" member of the unit, about 3,000 feet thick, contains pale greenish grey, lustrous, non-quartzose phyllite with many large greenstone lenses and 10 feet thick sections of phyllitic tuff. Because the gross orientation of the bedding in the unit is unknown the terms "upper" and "lower" are in reference to the crenulation foliation.

Both units have been intruded by small outlying granitic bodies related to the Anvil Batholith and later basic bodies, diorite and gabbro, which may be Tertiary in age.

Regional metamorphism, occurring possible during the Ordovician, diminishes from moderate grade at the Faro property to low grade in the Swim Lakes area and may be of economic significance.

ORE OCCURRENCES:

The phyllite unit on the southwestern flank of the Anvil Batholith contains all of the known sulphide deposits of economic interest as well as a number of other deposits of no economic interest. The deposits conform generally with the foliation of the gently southwest-dipping phyllites which host them, so that they are always tabular shaped and flat lying. The long axes of the deposits usually trend northwestward, apparently controlled in that direction by quartzitic lenses within the phyllite or else by broad northwest-trending folds.

The ores are massive replacement bodies, containing approximately 50% sulphides, which include pyrite, pyrrhotite, sphalerite, galena and chalcopyrite, in descending order of abundance, as well as some magnetite. One deposit is known to contain no pyrrhotite or magnetic, hence has no magnetic expression geophysically. Ore grades, although erratic throughout individual deposits, are generally similar in their gross average for all deposits in the district; averaging 10% combined lead and zinc and 1 ounce of silver per ton. In addition sulphide proportions (galena, sphalerite, and chalcopyrite) remain fairly constant both within individual deposits and between deposits. Gangue mineralization within the sulphide bodies is predominantly quartz and each deposit is enveloped by a bleached sericitic halo.

ORE OCCURRENCES (Cont .)

Variable grain size of the deposits may reflect effects of Ordovician regional metamorphism upon the orebodies. The average grain size of the deposit increases to the northwest from fine grained at the Swim deposit to medium at Vangorda to distinctly coarse grained at Faro. Thermal metamorphic effects due to the emplacement of the Anvil batholith during the late Cretaceous may have further increased the grain size at Faro. This phenomenon has a direct bearing on the metallurgical characteristics of the various orebodies with regard to optimizing separation of lead and zinc concentrates from the ore.

One origin that has been postulated for the sulphide deposits is deposition during the Cambrian by fumerolic activity in loosely consolidated sandstone lenses. In contrast to this quasi-syngemetic origin is the other possibility of a hydrothermal origin as suggested by the spatial relation of all ore occurrences to the intrusive granite and the Tintina Fault plumbing system.

Because the hosting member of the favourable phyllite unit does not exhibit distinctive external characteristics from an exploration standpoint; search for orebodies within this member by simply stratigraphic means presents a problem. A feature that may be significant, at least toward locating the "upper" member within the phyllite unit, is that in the case of the Faro deposits the orebodies lie near the contact with the limy quartzite unit. Therefore, exploration at or near this contact, which can be traced for some distance through the Cambrian belt on both sides of the batholith, could prove very fruitful since it will be in what is apparently the most favourable ore environment for any theory of origin.

PROPERTY GEOLOGY

On the five claim blocks comprising the Mercury Explorations' property, outcrops form less than 10% of the surface area of the claims and occur largely at higher elevations. The bulk of the property covers a low-lying intermontane valley draining a branch of Anvil Creek where outcrop exposures, excepting the creek's canyon on the western part of the property, are few. Most of the property's geology therefore has been derived from the canyon exposures and exposures on the hills flanking the property on the north and south. However, these outcrops are sufficient when supported by both the high and low level aero-magnetic and electromagnetic data to recognize the marked similarity in geology to that on the southwest flank of the Anvil batholith.

On the Mercury property Cambrian sedimentary and volcanic rocks are in contact with the northeastern flank of the Anvil batholith. Essentially bounding the property on the northeast, Pennsylvanian volcanic rocks unconformably overly the Cambrian

PROPERTY GEOLOGY (Cont.)

sequence, (Figure 69-3). Positive aeromagnetic trends within the Cambrian units suggest the presence of massive greenstone bands within the sedimentary phyllites, probably in the "upper" member. Foliation attitudes in the Cambrian formations generally strike north-westerly and dip gently northeast.

PROPERTY EXPLORATION

In the Anvil district outcrop exposures are not plentiful, particularly over the favourable Cambrian rocks flanking the more erosion-resistant Anvil Range batholith. The mountainous Anvil Range batholith generally is flanked by gently rolling terrain incised by numerous creeks along which almost all the outcrops occur. Because of the prevalence of extensive overburden of variable thicknesses covering the favourable host rocks, exploration for gently dipping conformable massive zinc-lead-silver ore deposits has consisted largely of the use of geophysical and geochemical techniques, followed by diamond drilling of anomalous targets.

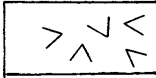
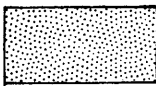
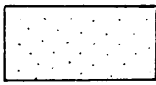




During the writer's tenure with Anvil Mining Corp. Ltd, he supervised an exploration program for the company on several large blocks of claims in the district. Staking of the claims was largely predicated on aeromagnetic and aerelectromagnetic anomalies. This exploration program was supported by ground magnetic, induced polarization, electromagnetic, gravity, and geochemical surveys conducted over the Faro orebodies. The surveys provided a calibration for assessment of those airborne anomalies removed from the Faro deposits. Because of the nature of the district's orebodies and the regional geology, none of the various geophysical and geochemical techniques are uniquely exclusive and are most effective when viewed in relation to each other. Of the various surveys, however, gravity surveys were determined to be the most effective means of detecting typical Anvil district orebodies. Relatively ideal density contrast and Topographic conditions amenable to detection of sulphide bodies by gravity surveys occur along both valleys flanking the Anvil Range. Because of the size of the orebodies and the consistent northwest strike of all known deposits in the district, gravity surveys can be conducted on an essentially reconnaissance basis, particularly since the general location of the favourable Cambrian host formations can be reasonably well defined. Based on the Faro calibrations, residual gravity anomalies of 0.5 m.g.'s are known to be of economic significance.

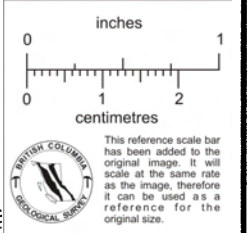
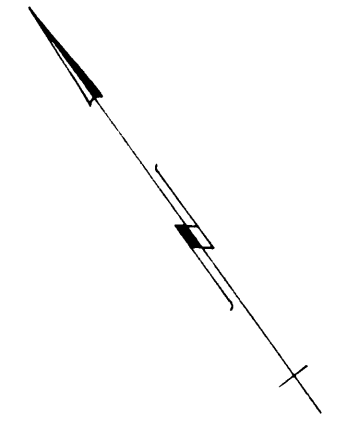
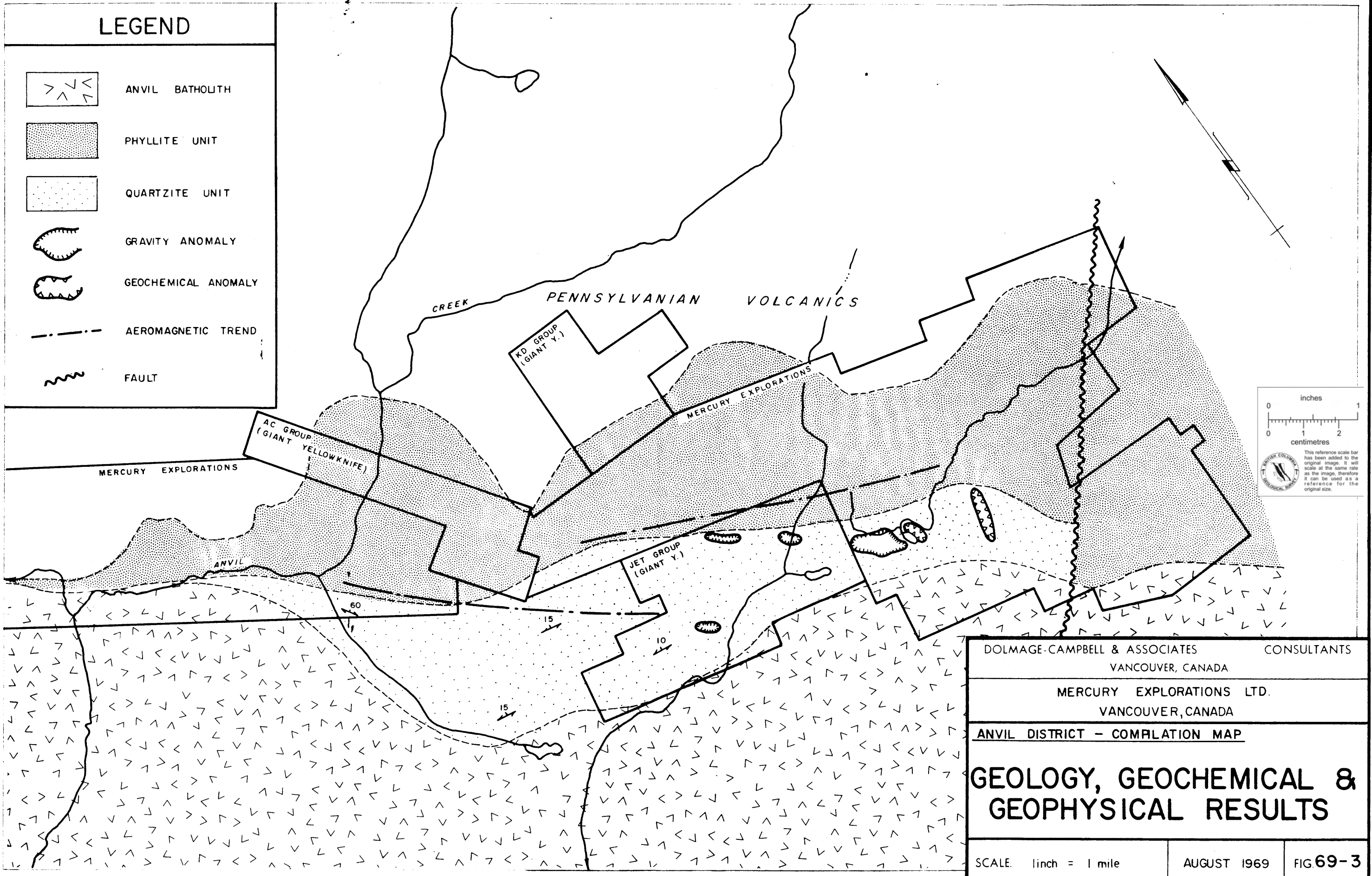
During the summer of 1968, Mercury Explorations Ltd. carried out reconnaissance prospecting, some regional geological mapping, and limited soil sampling over the area now covered by their mineral claims. As a result of this preliminary work, in early 1969 the company initiated an extensive reconnaissance gravity survey totalling approximately 70 line miles over most of the favourable rocks on the northeastern flank of the batholith. Gravity surveys were run over lines at 1,000 foot intervals at right angles to the strike of the formations. Readings along the lines were taken at 200 foot intervals. The program was designed to detect a stratiform deposit, typical of the known orebodies in the Anvil district, with dimensions approximately one half the size of the Faro No. 1 orebody at a depth of 300 feet or less below the surface. Elevations and horizontal controls were conducted by transit and stadia survey.

PROPERTY EXPLORATION (Cont.)

From the gravity data collected, Bouguer Gravity maps were developed, the regional gravity trend was removed, and residual gravity anomaly maps were prepared. With reference to Figure 69-3, four reconnaissance gravity anomalies in excess of 0.5 milligals were defined by the survey; three of these anomalies are significantly aligned along and near the contact between the Cambrian quartzite and phyllite units.

LEGEND

-  ANVIL BATHOLITH
-  PHYLLITE UNIT
-  QUARTZITE UNIT
-  GRAVITY ANOMALY
-  GEOCHEMICAL ANOMALY
-  AEROMAGNETIC TREND
-  FAULT



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ANVIL DISTRICT - COMPIRATION MAP		
GEOLOGY, GEOCHEMICAL & GEOPHYSICAL RESULTS		
SCALE. 1 inch = 1 mile	AUGUST 1969	FIG. 69-3

CONCLUSIONS & RECOMMENDATIONS

The regional geology underlying the Mercury Explorations property, located on the northeastern flank of the Anvil batholith, is remarkably similar to that on the southwestern flank. Cambrian phyllites which host stratiform zinc-lead-silver deposits elsewhere in the district are in contact with the limy quartzite unit.

The reconnaissance gravity anomalies located by Mercury Explorations Ltd. trend in lineal fashion for approximately two miles northwesterly and generally along this contact; indicating that the anomalies may represent conformable bodies within favourable Cambrian formations. The anomalies, on the other hand, may reflect bedrock highs beneath overburden, intruding basic plugs within the less dense phyllite, or interbedded volcanic flow rocks. Nonetheless, the anomalies still represent favourable diamond drill targets in view of the size and grade of the known deposits in the district and the now favourable economics due to the Anvil development only a few miles south of the property.

All orebodies and deposits found to date in the district are located near surface and hence are detectable by conventional prospecting and geophysical and geochemical techniques. Very good exploration opportunities occur down the dip of the favourable formations; but such deposits cannot be discovered by geophysical and geochemical means because of depth limitations of the various techniques. Hence deposits which might occur at some depth are only to be discovered by geological studies and projections. Therefore, should the gravity anomalies not directly reflect underlying sulphide deposits, diamond drilling of the anomalies at regular intervals for the two mile strike length, and in one or two instances to a 1,000 feet depth, will provide valuable geological information toward locating deposits elsewhere on the property. Because the sulphide deposits found to date in the district are known to occur within a 1,000 foot stratigraphic range in the "lower" member of the phyllite unit between the thick "upper" greenstone horizon and the "lower" graphite horizon, aid in definitively resolving the stratigraphy on the property can be secured from these initial drill holes. Magnetic and electromagnetic surveys can be used to define greenstone and conductive graphite horizons respectively, thereby contributing additional data toward understanding the key stratigraphy.

RECOMMENDATIONS:

Based on the above conclusions, the following exploration is recommended:

- A) Conduct further gravity surveys; detailed surveys over the known gravity anomalies, and further reconnaissance gravity covering the remainder of the property followed by detailed gravity surveys as warranted.

RECOMMENDATIONS (Cont.)

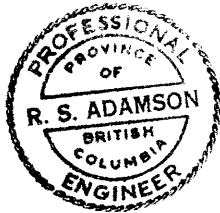
- B) Detailed geological mapping of the entire property aided by logging of diamond drill core. Develop geological sections as information becomes available.
- C) Conduct a ground magnetic survey over the present grid laid out for the gravity surveys with a view to aiding in geological interpretation.
- D) 5,000 feet of diamond drilling - 5 holes along the two miles of strike length indicated by the 1969 gravity survey. Two of these holes should be drilled to a depth of 1,000 feet each.

ESTIMATED COST:

The cost of the recommended program is estimated to be as follows:

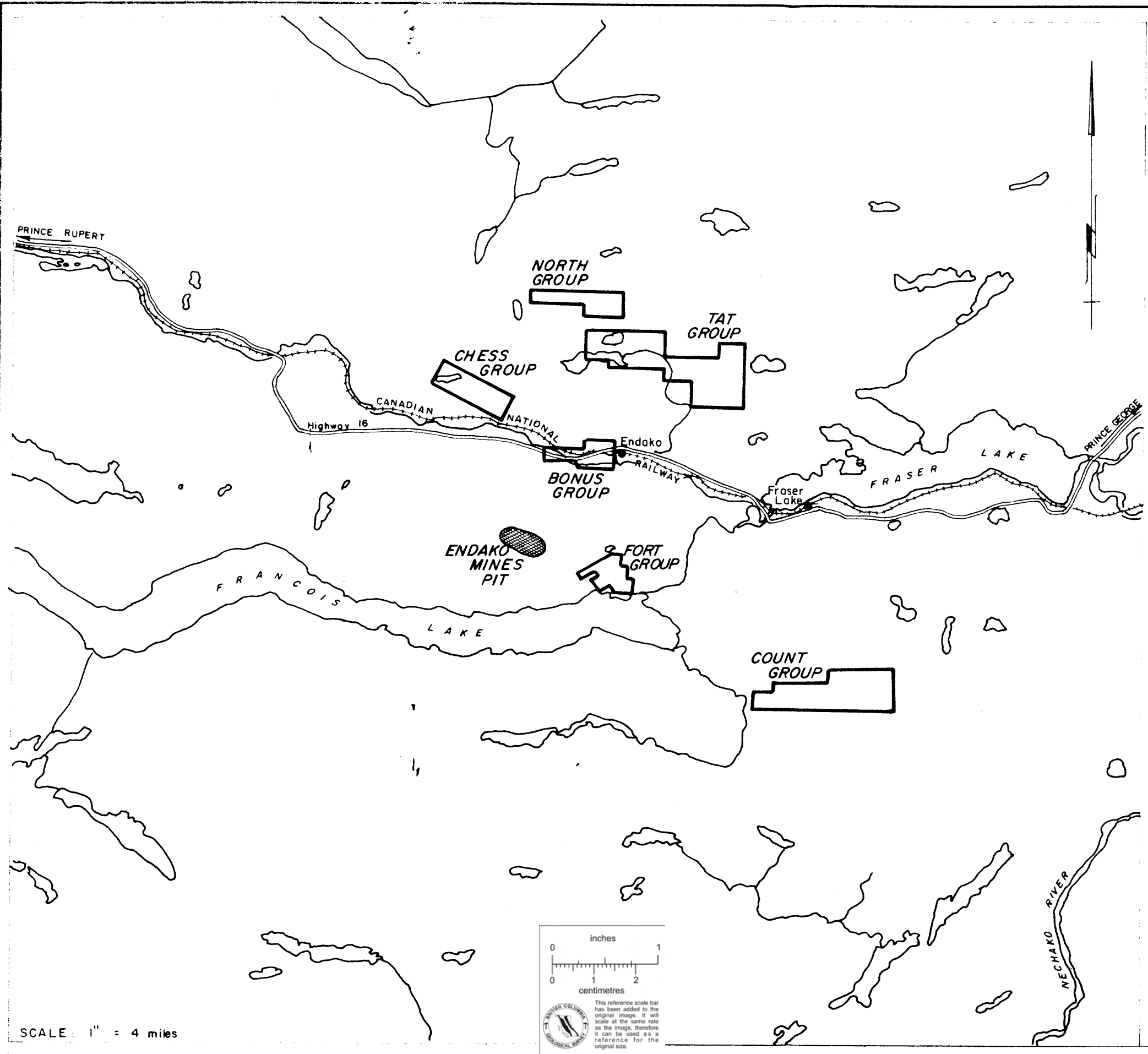
A)	Geophysics, gravity and magnetics	\$ 15,000.00
B)	Diamond Drilling, 5,000 feet	75,000.00
C)	Transportation	20,000.00
D)	Camp Maintenance	10,000.00
E)	Supervision, consulting, and mapping	15,000.00
F)	Travel and Communication	3,000.00
G)	Assaying, Freight	3,000.00
H)	Office overhead, Administration	15,000.00
I)	Contingencies	<u>15,000.00</u>
	<u>TOTAL:</u>	<u>\$171,000.00</u>

Respectfully submitted,
DOLMAGE, CAMPBELL & ASSOCIATES LTD.

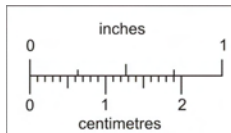


A handwritten signature in cursive script that reads "R. S. Adamson".

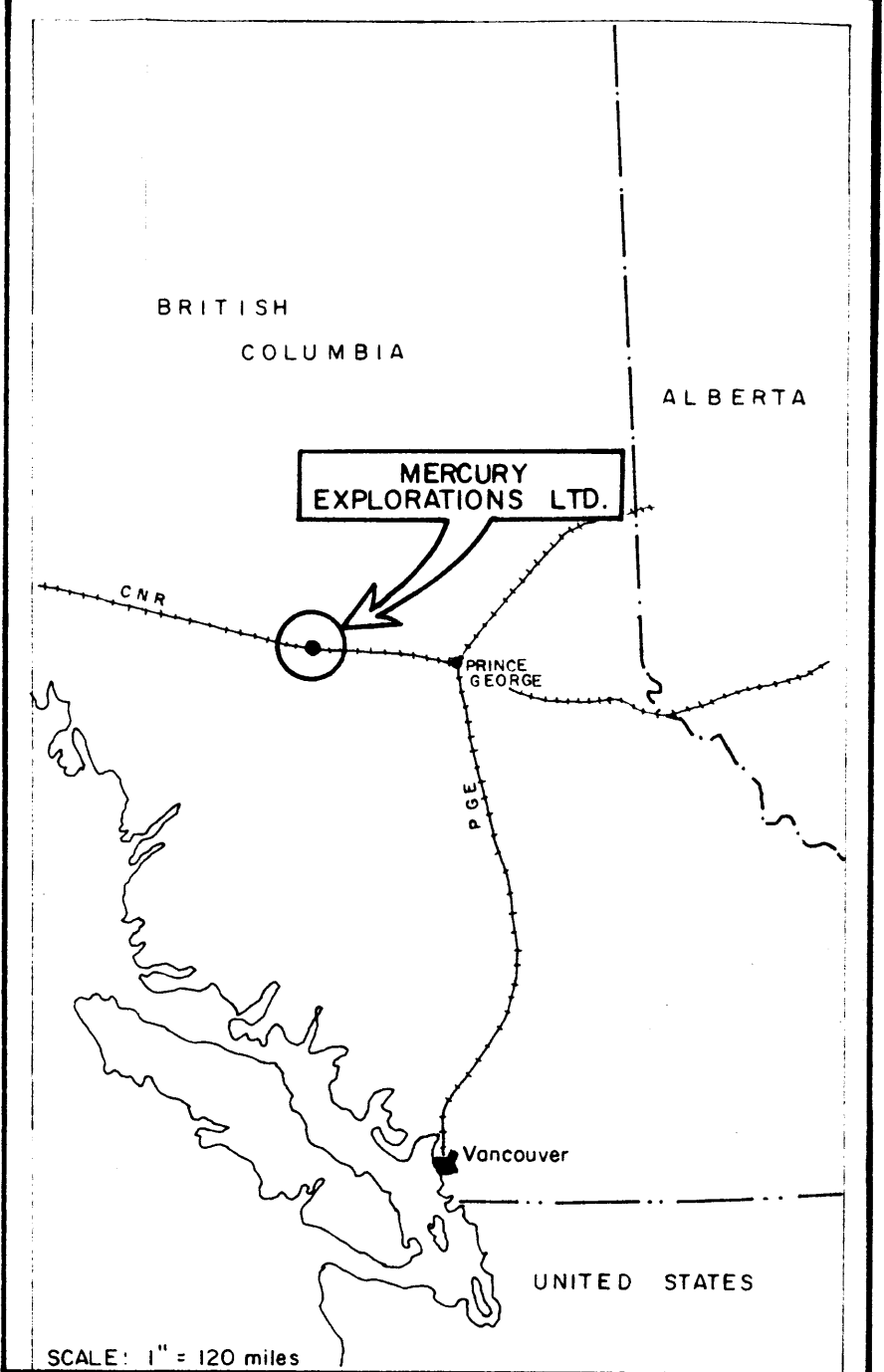
R. S. Adamson, P. Eng.



SCALE: 1" = 4 miles



This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.



SCALE: 1" = 120 miles

DOLMAGE-CAMPBELL & ASSOCIATES CONSULTANTS
VANCOUVER, CANADA

MERCURY EXPLORATIONS LTD.
VANCOUVER, CANADA

ENDAKO PROPERTIES

LOCATION MAP

FRASER LAKE, B. C.

SCALE: as shown

SEPTEMBER 1969

FIG. 69-4

PART II

ENDAKO DISTRICT PROPERTIES
Fraser Lake, British Columbia.

DOLMAGE, CAMPBELL & ASSOCIATES

CONSULTING GEOLOGICAL & MINING ENGINEERS

808 BANK OF CANADA BUILDING

VANCOUVER 1, B.C.

- 20 -

INTRODUCTION

On August 8th, 1969, the writer, accompanied by Mr. R. Chaplin, president of Mercury Explorations Ltd., visited the Endako district with a view to examining some of that company's properties in the district. During the course of the examination, areas underlain by induced polarization anomalies were viewed on the COUNT, FORT, BONUS, and TAT properties. The results of all geochemical and induced polarizations surveys were made available to the writer.

During the years 1960-1964 the writer supervised property exploration programs in the district for other companies. During this period he became familiar with the geological controls and setting of the Endako molybdenum orebody and examined the mine and exploration diamond drill core on many occasions.

PROPERTIES:

Mercury Explorations Limited own six separate claim blocks in the Endako District; the BONUS, COUNT, CHESS, FORT, NORTH and TAT claim groups. The six properties consist of 371 full sized and fractional mineral claims. They are listed with their record numbers as follows:

<u>Claim Name</u>	<u>Record Number</u>
<u>Count Group (102 claims)</u>	
Count 1-102 inclusive	67619-67720 inclusive
<u>Fort Group (32 claims)</u>	
Fort 1-14 inclusive	64335-64348 inclusive
Fort 15-24 inclusive	63633-63642 inclusive
Fort Fraction	64349
Fort Fractions 1-4 inclusive	64350-64353 inclusive
Fort Fraction 5	63632
Fort 25, 26	66571-66572

PROPERTIES (Cont .)

<u>Claim Name</u>	<u>Record Number</u>
<u>Chess Group (48 claims)</u>	
Chess 1-12 inclusive	67859-67870 inclusive
Chess 13-48 inclusive	71964-71999 inclusive
<u>North Group (40 claims)</u>	
North 1-40 inclusive	67579-67618 inclusive
<u>Tat Group (126 claims)</u>	
TAT 1-100 inclusive	67102-67201
TAT 101-126 inclusive	not yet available
<u>Bonus Group (23 claims)</u>	
Bonus 1-9	72469-72477
Bonus 10-21	75724-75735
Bonus 22, 23	not yet available

HISTORY AND PREVIOUS WORK:

The Foote brothers of Endako, B.C. discovered the molybdenum prospect known as the Stella in the late 1920's, and worked the claims intermittently for over 30 years. In 1960 the property was acquired by Endako Mines Ltd, who after trenching and drilling a few holes optioned the property to Placer Development Limited. Placer developed the property and brought it into production in 1964.

The staking rush, which reached a peak in 1962, resulted in additional regional exploration work. Lack of outcrop hindered most exploration programs that were conducted by small exploration companies. Several large companies have performed regional silt and ground water geochemical surveys in the district. Diamond drilling carried out on properties other than Endako Mines Ltd. were predicated usually on geochemical anomalies only.

HISTORY AND PREVIOUS WORK (Cont.)

With regard to the properties now held by Mercury Explorations in the district no bulldozer stripping or diamond drilling for exploration purposes was done on any of their properties.

REFERENCES:

1. "The Geology of the Endako Area" by Dr. J.M. Carr in Lode Metals in British Columbia, Minister of Mines Report, 1965.
2. Geology of the Endako Molybdenum Deposit by E.T. Kimura and A.D. Drummond; CIM Bulletin, Vol. 62- No. 687, July 1969.

GEOLOGICAL SETTING

The Endako district, which contains the Endako Mines Ltd. open pit molybdenum producer, lies within one of the northwesterly trending Topley batholithic intrusions. The Topley rocks extend northwest and southeast for approximately 90 miles in each direction; hence the district lies almost at the geographic centre of the belt of intrusions. The Topley rocks, ranging in age from late Jurassic to Paleocene, are composed largely of quartz monzonite with lesser amounts of granite, granodiorite, quartz diorite and diorite.

Tertiary basic volcanic rocks of the Endako Group irregularly cover the Topley rocks which are therefore exposed as separate windows rather than one large, continuous Topley batholith.

Within the Endako district the Topley intrusion consists of a composite batholith containing several varieties of quartz monzonite as well as granite and quartz diorite. One of the monzonitic units, the Endako quartz monzonite, contains the Endako orebody. The Endako quartz monzonite unit can be traced west-northwest from the Stellako river for at least nine miles and averages 1 1/2 to 2 miles in width.

ENDAKO OREBODY

The Endako molybdenum orebody consists of a stockwork of mineralized fractures and faults of sufficient intensity, mineral content, and distribution to be amenable to economic extraction by open pit mining methods. The orebody, approximately 1,200 feet in width, extends northwestward for about a mile in apparent conformity with the trend of the host Endako quartz monzonite unit.

Mineralization occurs as ribbons and dusty seams of blue-grey molybdenite in quartz veins, veinlets, and stringers. Unevenly and sparsely distributed, pyrite is disseminated through the orebody forming somewhat less than 1% of the rock volume. With possible exploration significance more intense pyrite, up to 1 1/2% of the rock volume, envelopes the orebody, particularly on the west and south.

EXPLORATION TECHNIQUES

During June and July, 1968, Mercury Explorations embarked upon a reconnaissance exploration program in the Endako district. The object of this program was to resolve the molybdenum dispersion in rocks, soils, ground water and vegetation as well as to develop a case history of the Endako orebody with a view to discovering similar deposits in the area; this included four induced polarization lines over the Endako orebody.

GEOCHEMISTRY:

Over 2,000 soil sample sites and 49 outcrop areas were sampled and analyzed for total molybdenum and copper. The soils were sampled at 300 foot intervals on lines spaced 1/2 mile apart over areas of sparse outcrop.

As a result of this program six properties, the BONUS, COUNT, FORT, CHESS, NORTH, and TAT claims groups, were acquired. The decision to stake claim blocks was made on the basis of a favourable geological setting supported by the reconnaissance geochemical results which were appreciably higher than background.

INDUCED POLARIZATION:

A reconnaissance induced polarization survey over the Endako orebody, which was undertaken in 1968, outlined a weak I.P. response over the body proper; however, the pyritic halo flanking the orebody showed a strong positive response. Therefore, the use of induced polarization survey techniques as a primary exploration tool is based upon the premise that Endako type molybdenum deposits can be discovered elsewhere in the district by defining the attendant pyritic halo enveloping such deposits. Furthermore, by assuming that the unknown orebody will strike generally west northwest, paralleling the regional trend, and that the orebody to be of economic potential should be at least 1/2 mile in strike length, the initial induced polarization survey can be of a reconnaissance nature.

In 1969 Mercury Explorations Ltd. carried out approximately 100 line miles of reconnaissance induced polarization surveys over their claim blocks, the acquisition of which was largely predicated on favourable geology but supported to some extent by reconnaissance geochemistry results.

Pyrite is not a common accessory mineral in the Topley rocks in the Endako district. Small amounts have been noted in the dioritic phases and in late porphyry and

INDUCED POLARIZATION: (Cont.)

lamprophyres dykes. Careful choice of the geological terrane based on the known regional geology of the district should accentuate or optimize the probability of detecting pyrite related to molybdenum.

MERCURY CLAIM GROUPS

Following is a summary of the geology, geochemistry and geophysics derived from the work done to date by Mercury Explorations Ltd. on each of the six claim groups:

FORT GROUP:

The property is underlain by Endako quartz monzonite, the same unit that hosts the Endako orebody located three miles west-northwest of the Fort anomaly. Outcrops on the property are few hence the structural setting of the anomaly can only be postulated from projection of geology surrounding the property or from air photo linears. Thus, the quartz latite porphyry dykes, that crop out on the road and in the creek southeast of the property, are indicative of structural breaks trending north northwest.

A positive geochemical response, values ranging from 27 to 67 ppm molybdenum occur on one of the lines which cross the I.P. anomaly.

In contrast to the induced polarization surveys carried out on the remaining properties, the Fort reconnaissance I.P. anomaly was subjected to detailed I.P. analysis. Additional lines were surveyed over the reconnaissance anomaly on lines spaced at 800 foot intervals. The resultant I.P. anomaly, which trends north northwest for approximately one mile, averages 1.4 times background. A resistivity low partially coincides with the I.P. anomaly and essentially flanks it on the northeast. The resistivity low averages 1,000 feet in width and also in part coincides with a low I.P. response that trends generally north northwest parallel to the I.P. high and resistivity low. This I.P. low may be of economic significance, particularly since a rudely crescent-shaped zone of higher I.P. flanks the low on the northeast. This resultant I.P. and resistivity pattern may represent a molybdenum deposit (the I.P. low) flanked by weak to moderate pyritization.

NORTH GROUP:

The North Group was staked largely on the basis of air photo interpretation and its proximity to known molybdenum mineralization on the KS property of United Buffadison Mines Ltd. The property lies in Tatin quartz monzonite, a phase of the Topley batholith, and is located about 5 miles north of the village of Endako, B.C.

Because of negative results returned from the reconnaissance geochemistry no induced polarization surveys were initiated on this claim block.

TAT GROUP:

The Tat property, a large one, extends east from Tatin Lake for approximately five miles. The property was staked to cover the projected eastern extension of the unit hosting the KS mineralization. The KS occurrence lies in another phase of the Topley batholith, Casey quartz monzonite.

Positive geochemical results generally tended to be somewhat spotty, hence only served to indicate a continuation of the trend containing the KS mineralization.

The reconnaissance induced polarization survey carried out on very widely spaced lines over the TAT claim group broadly defined an irregular-shaped I.P. anomaly which trends, apparently, north northeast. The TAT anomaly is large in areal extent, approximately 10,000 feet by 1,500 feet, and somewhat crescent shaped as indicated by I.P. responses on widely spaced lines. The I.P. anomaly is hidden beneath a thin veneer of overburden.

CHESS GROUP:

Reconnaissance induced polarization traverses of the Chess claim group outlined a weakly anomalous zone 6,000 feet by 2,000 feet in area. Bedrock in the general vicinity of the anomaly exposed by a natural gas pipeline right-of-way consists of quartz monzonite, apparently of the Casey variety.

The presence of an outlier of Endako quartz monzonite on the northwestern end of the anomaly may be of exploration significance.

No significant geochemical response was detected in this area.

BONUS GROUP:

The Bonus Claim Group lies astride the valley of the Endako River. Both Highway 16 and the C.N. railway bisect the property, and essentially parallel the river.

Most of the claim block is covered by glacial clays, silts, and gravels which are incised by the river. Bedrock exposures on the northern edge of the property consist of Tatin quartz monzonite, a phase of the Topley batholith.

The reconnaissance I.P. survey which was followed up by some limited detail surveys outlined a strong I.P. anomaly. The detailed survey indicated that the top of the I.P. response is approximately 150 feet below the surface. Overburden is estimated to thicken from 100 feet on the northern edge of the anomaly to greater depths progressing southerly.

BONUS GROUP (Cont.)

No geochemical response is associated with the Bonus anomaly. Because of the apparent depth of overburden on the Endako river valley the lack of geochemical response, however, need not reflect upon the merits of the Bonus anomaly.

COUNT GROUP:

The Count property lies in the Nithi River valley approximately 2 1/2 miles due south of the R. & P. Metals Ltd. molybdenum deposit on Nithi Mt. Because the overburden masks the bedrock in the valley, the underlying geological unit is not known; however, Topley batholithic rocks flank the valley on the north and south. Projection of these rocks, supported by aeromagnetics carried out by the government, beneath the valley can be done with reasonable assurance. The precise unit of the Topley batholith is unknown.

The reconnaissance induced polarization survey carried out over the claim group outlined a broad I.P. anomaly, 7,000 feet in length by 1,000 feet in width, located largely on the southern flank of the valley but trending northeast across the valley. Because the I.P. lines were very widely spaced the nature of the anomaly with regard to continuity, trends, shape, etc. is at present very imperfectly known. The anomaly was outlined on four lines spaced up to 3,500 feet apart. The resistivity data derived in conjunction with the I.P. survey suggests the depth of overburden over most of the anomaly does not exceed 100 feet in depth.

CONCLUSIONS

Proceeding on the basis that Endako Mines "porphyry" type molybdenum deposits can be detected by locating the pyrite halo surrounding such deposits, Mercury Explorations Ltd. embarked upon a reconnaissance (wide spaced lines) induced polarization survey over selected areas in the Endako district. The areas were chosen because of their apparent geological favourability for the localization of these deposits, partially supported where practical by reconnaissance (again widely spaced) geochemical surveys. Of six areas staked, five were investigated by induced polarization surveys, and four contained induced polarization anomalies which might represent pyrite haloes. The halo of pyritization flanking an orebody was viewed as the primary target but a secondary target consisting of pyrite directly associated with economic molybdenum mineralization, yet perhaps lacking such a halo, was also considered.

Because induced polarization anomalies can reflect several bedrock and overburden phenomena, it becomes most desirable that such anomalies be supported by other geological parameters in order to justify the expense of further investigation by drilling. With the exception of the Fort anomaly, the induced polarization anomalies outlined for additional investigation have as yet only been indicated by initial induced polarization surveys. Normally, geochemical techniques will provide the support and justification for diamond drilling the induced polarization anomalies. However, in the Endako district, Mercury Explorations Ltd. to a large extent chose areas for investigation that were covered with overburden, in most instances thick enough to prevent the migration of metallic ions to the surface. Their approach was to use geochemistry to indicate trends of mineralization to localize favourable ore locales.

In view of the wide spaced definition of the induced polarization anomalies and the lack of firm geochemical support on three of the four properties, it is the writer's opinion that emphasis on supporting the anomalies should be placed largely on their geological settings; that is, to concentrate further exploration on those anomalies which occur in the rock unit known to contain the Endako orebody, the Endako quartz monzonite.

Although other quartz monzonites in the Topley batholith apparently are very similar to the Endako unit, no commercial molybdenum deposits are yet known in them. When viewing the relationship between the Endako orebody and the host rock, two things are apparent. One is that the Endako quartz monzonite, apparently a differentiate of the Topley batholith, is lineal in shape and apparently terminates abruptly near the Stellako River. The second is that the long axis of Endako orebody parallels the trend of the host unit, suggesting that the fracture setting which localizes the mineralization and perhaps its related intrusions were essentially channelled along subtle zones of weakness that trend west northwest in the Endako district. It follows then that the best place to search for similar deposits in the district is within the known Endako quartz monzonite, such as on the Fort property, or in areas which might be an extension of the Endako quartz monzonite unit that is masked by overburden, such as the COUNT property.

RECOMMENDATIONS;

The writer therefore proposes the following exploration program be implemented, which takes into account the probability of discovery related to geology .

1. Carry out more definitive induced polarization surveys over the FORT and COUNT anomalies. Support these surveys by resistivity, magnetic, and detailed geochemical surveys.
2. Investigate the resultant FORT and COUNT anomalies by drilling several short holes 100 feet into bedrock, using overburden equipment. The estimated footage is 2,000 feet on each property.
3. Allocate an additional 1,000 feet of overburden drilling, again 100 feet into bedrock, in order to determine the cause of the I.P. anomalies presently indicated on the BONUS and TAT properties.
4. No work is recommended for the NORTH and CHESS Groups at this time.

ESTIMATED COST:

The cost of the above program is estimated to be as follows:

A)	Drilling - 5,000 feet @ \$6 per foot includes maintenance and mobilization .	\$30,000.00
B)	Geophysics and Geochemistry induced polarization and magnetics .	15,000.00
C)	Engineering, Consulting	3,000.00
D)	Assays, Freight	2,000.00
E)	Travel, Communication	2,000.00
F)	Office overhead, Administration	7,000.00
G)	Contingencies	<u>5,000.00</u>
	<u>TOTAL:</u>	<u>\$64,000.00</u>

Respectfully submitted,
DOLMAGE, CAMPBELL & ASSOCIATES LTD.



A handwritten signature in cursive script that reads "R. S. Adamson".

R.S. Adamson, P.Eng.