

926EN VANCOUVER ISLAND

005307

PROPERTY FILE
DOMINGO LTD.
GEOLOGICAL REPORT I
E AND N LAND GRANT (SOUTH BLOCK)
1967

NTS: 92 B & C
92C-14, 15, 16.

EN. 102

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

GEOLOGICAL REPORT

E AND N LAND GRANT (SOUTH BLOCK)

1967

NTS: 92 B & C

SUBMITTED BY

G. G. BOOTH

Vancouver, B.C.
March 21, 1968.

GEOLOGICAL REPORT
E AND N LAND GRANT (SOUTH BLOCK)
1967
NTS: 92 B & C

TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION	
A. General Statement.....	1
B. Agreement.....	1
C. Previous Geological Work.....	1
D. Acknowledgements.....	1
E. General Comments.....	1
II. CONCLUSIONS.....	2
III. RESULTS OF 1967 FIELD PROGRAM	
A. Mt. Sicker Shear Zone	
(a) General Statement.....	2
(b) Geological Mapping - No. 2 Area.....	2,3
(c) Geochemical Surveying	
(1) No. 1 area.....	3
(2) No. 2 area.....	3
B. Cowichan Lake South	
(a) Albata Mines Area and South.....	3,4
(b) Lookout #22 and Lens Mtn. Area.....	4
(c) Mount Bolduc.....	4
C. Pluton Reconnaissance.....	4
D. Malahat District.....	4
E. Mount Buttle.....	5
REFERENCES.....	5
(1) Induced Polarization and Resistivity Survey, CPOG Property, Grid No. 1, Duncan, B.C., GDT.	
(2) Induced Polarization and Resistivity Survey, CPOG Property, Grid No. 2, Duncan, B.C., GDT.	
(3) 1966 Final Report, CPOG South, A.C.N. deVoogd.	
ATTACHMENTS.....	5
(1) 1" = 200' CPOG 67-1, Geology, No. 2 IP area, N of 60 baseline.	
(2) 1" = 400' " 67-2, Geochemical, No. 2 IP area.	
(3) 1" = 400' " 67-3, " No. 1 IP area.	
(4) 1" = 1/4 mi. " 67-4, Geology, Seymour Range.	
(5) 1" = 500' " 67-5, " Allies Molybdenum.	
(6) 1" = 1/4 mi. " 67-6, " Malahat District.	

GGB:mk

March 21, 1968.

C O M I N C O L T D.

EXPLORATION

WESTERN DISTRICT

GEOLOGICAL REPORT
E AND N LAND GRANT (SOUTH BLOCK)
1967
NTS: 92 B & C

I. INTRODUCTION

A. General Statement

Early in 1965 Cominco obtained a lease from Canadian Pacific Oil and Gas Company Ltd. to explore for base metals in the South Block of the Esquimalt and Nanaimo Railway Land Grant which extends north from the southern tip of Vancouver Island along its eastern part to latitude 49° North.

B. Agreement

The main features of the agreement, which covers a period of four years and gives CPOG the right to participate to the extent of 45% of the yearly expenditures, are summarized below:-

<u>Year of Agreement</u>	<u>Financial Requirements</u>	<u>Area to be Retained Before the End of Permit Year</u>
First (1965)	Min. Expend. of \$30,000	20% of original area retained
Second (1966)	" " " 10¢/acre	20% of area retained after 1st year
Third (1967)	" " " 20¢/acre	20% of area retained after 2nd year
Fourth (1968)	" " " 30¢/acre	Balance of area retained

Before the end of the fourth permit year (i.e. February 28, 1969) Cominco must obtain a lease on any areas which are to be retained beyond the period covered by Mineral Agreement #16.

C. Previous Geological Work

Geological work by Cominco on a reconnaissance and detailed scale has been carried out in the South Block for two previous years. In the first year (1965) reconnaissance work was conducted on the Mt. Sicker shear zone and the northeastern portion of the block. In the second year (1966) reconnaissance and detailed work was again carried out on the Mt. Sicker shear zone and reconnaissance work in the western and northwestern portion of the block, which disclosed a number of mineralized areas which warranted further investigation during the 1967 field season.

D. Acknowledgements

This report is based on field work done by the late A.C.N. deVoegd, G.G. Booth and S. B. Fulton from the end of May to early August and again the first part of October of 1967. D. C. Douglas and R. Rosichuck acted as assistants for geochemical soil sampling.

E. General Comments

Exploration in 1967 consisted of detailed mapping and geochemical soil sampling surveys on two areas, selected in 1966, along the Mt. Sicker shear zone with the results being negative. Additional reconnaissance work was carried out south of Cowichan Lake and in the Mt. Buttle area, but this work was greatly restricted due to extended forest closures. Also, some prospecting was carried out elsewhere in the block revealing only negative results.

II. CONCLUSIONS

A. Mt. Sicker Shear Zone

In the areas designated No. 1 and No. 2 along the Mt. Sicker shear zone, 2 and 10 miles respectively from the old Twin Jay mine, geological and geochemical work was conducted to further explain I.P. anomalies located in 1966. The geological work has shown enough pyrite and/or graphite in the areas to explain the anomalous I.P. responses. In addition, no favourable folding was observed in either area. The geochemical surveys have indicated quite conclusive negative results. Therefore, sufficient work has been conducted on the areas to show they are of no further interest.

B. Cowichan Lake - South 92C-15, 16.

Work in this area has been of a reconnaissance nature only. Follow-up work on mineralization disclosed in the 1966 field season was predominately negative. The area around Lens Lookout, 10 miles south of Cowichan Lake, looks interesting with a 5' X 100' skarn zone revealed in 1967 along with a widespread mineralized zone disclosed just south of Lens Mtn. Additional work is warranted here during the 1968 field season.

C. Pluton Reconnaissance

The Robertson batholith and numerous small plutons south of Cowichan Lake were prospected for porphyry type deposits and all work disclosed negative results.

D. Malahat District

Our reconnaissance work in the southwestern portion of the block showed that the Tertiary volcanics and intrusives of the area are not as favourable for mineralization as those at the Sunro mine to the west. The area does not seem to merit further work.

E. Mount Buttle 92C-14

A brief examination was made of this, the old Allies Molybdenum property where molybdenum occurs in widely scattered quartz veins contained in fissures, in rocks ranging in composition from Quartz-diorite to granitic intrusions. Further work should be conducted in the area to fully assess the potential of the ground.

III. RESULTS OF THE 1967 FIELD PROGRAM

A. Mt. Sicker Shear Zone

(a) General Statement

The purpose of the work was to determine if drilling targets should be located and to explain I.P. anomalies located during the 1966 season. In the No. 2 area, detailed mapping north of the 60 N baseline was conducted on a scale of 1" = 200' (Plate CPOG 67-1). Geochemical surveys were run over the No. 2 and No. 1 areas where I.P. responses were anomalous and were plotted on a scale of 1" = 400' (Plates CPOG 67-2, 3). A total of 866 soil samples were collected with determinations made with Cominco's atomic absorption unit at Williams Lake, B. C. Also, in the No. 2 area, six additional claims (OHM Nos. 2-6) were located in 1967 to protect us against nuisance staking while exploration was carried out.

(b) Geological Mapping - No. 2 Area

The I.P. anomalies on lines 16 E and 32 E occur over a band of black pyritic tuffs which were traced from the creek at 16 E eastward to 44 E. A narrow highly sheared graphitic section, six inches to two feet in width, occurs within this band of black tuffs between 22E and 44E. In Anderson Creek (16E), no highly sheared graphitic section was visible, but fine graphitic films occur on cleavage planes within the pyritic tuff band. To the west of the creek, outcrops are very scarce between lines 16E and 0 E, but mapping along line 0 E disclosed considerable disseminated pyrite which falls along strike from the unexplained anomaly on line 8 E.

Results of the 1967 Field Program

A. Mt. Sicker Shear Zone

(b) Geological Mapping continued....

Of the three anomalies which occur in the central portion of the map area (lines 16E, 24E, and 32E), two lie in the vicinity of outcrops containing disseminated pyrite (lines 24E and 32E). The third, which is at depth, has no significant mineralization near it. Thus out of seven I.P. anomalies in the No. 2 area, four lie over or close to occurrences of pyrite and/or graphite and two lie along strike from such occurrences.

Our mapping in the area of the anomalies did not disclose any significant structures. The sequence of tuffs underlying the area exhibits marked folding in several localities. This folding, however, appears to be a local feature since the contacts of all units mapped traverse the area without any major interruptions. The relationship of the shearing to the folding is not everywhere apparent, but in several localities the folding appears older than the shearing. This relationship suggests that the folding is of little interest, since the orebody at the Twin Jay occurs in a fold which is either of the same age or younger than the shearing.

(c) Geochemical Surveying

The slopes of the surveyed areas ranged from 0 to 25 degrees with the average in the order of 10 degrees. The overburden ranged from 0 to possibly $\pm 20'$ in general for both areas.

(1) No. 1 Area

The survey was conducted over the southern half of the existing I.P. grid, with additional lines included to give 100' coverage at and near all areas where I.P. responses were anomalous. The background established for copper was 40 ppm and for zinc was 45 ppm. The results for the area were negative excepting one weak zone in the vicinity of lines (19 - 25 W) and (8 to 14 N). This anomalous area can be attributed to minor, local disseminations of chalcopyrite nearby, which were noted in 1966. It would now appear that the I.P. anomalous zones can be attributed to pyrite and no further work should be undertaken in the area.

(2) No. 2 Area

All anomalous I.P. responses were soil sampled on a 100' grid in addition to a 400' zone along the 60 N baseline from (32E to 80E). The entire northern half of the existing grid was sampled on a 400' grid to obtain a proper background. The background established was the same as that for the No. 1 area. The results were negative, with only a few sporadic highs evident which can be attributed in most cases to minor local disseminations of chalcopyrite. Again, it would appear the I.P. anomalies in the area are caused by graphite and/or pyrite. Thus, no further work is warranted for the area during the 1968 season.

B. Cowichan Lake South

Our work in this area has been of a reconnaissance nature only. The purpose of the 1967 program was to follow up on mineralization located in 1966 and to prospect additional ground (Plate CPOG 67-4).

(a) Albeta Mines area and South

The area surrounding Albeta Mines was fully assessed and no interesting mineralization or geological settings are prevalent outside the known mineralized zones. Sufficient explanation is made of the Albeta Mines area in the 1966 summary report.

Reconnaissance work was also carried out south to the San Juan R. Fault. The area is underlain by volcanic flows of the Bonanza and Karmutsen formations and the field differentiation between such volcanics in this area was very difficult to impossible. Only minor shear zones within the Karmutsen showed trace amounts of mineralization, which were predominately pyrite.

Results of the 1967 Field Program

B. Cowichan Lake South

(a) Albata Mines Area and South cont'd....

The eastern boundary of the Robertson batholith was carried south with only one mineralized area observed, but was not of further interest. Outcrops in most of the area were scarce, which made the tracing of contacts difficult.

No further work is warranted on the east side of the Robertson batholith.

(b) Lookout #22 and Lens Mtn. Area

The Lookout #22 area has a geologic setting similar to the Albata area four miles to the east. Magnetite and sulphides occur at the contact of small Sutton limestone bodies (Quatsino) and Karmutsen volcanics at or near Coast Range intrusives. No further mineralization was encountered in the area so the area does not merit further work.

Just to the south of the above area, around Lens Mountain, new mineralized zones were encountered in 1967. In the northern part of this area a skarn zone 5' X 100' with pyrite, magnetite and chalcopyrite was disclosed at the contact of Karmutsen volcanics and Sutton limestone (Quatsino) to the west of and near the Robertson batholith. Overburden is quite extensive in the area which presented a problem when following the skarn zone. In the southern part of this area, widespread magnetite, pyrite, and chalcopyrite mineralization was disclosed in or near small and irregular fractures. In addition, disseminated chalcopyrite was encountered within the Karmutsen volcanics of the area.

The structural setting of the area appears complex with the volcanics being folded, faulted, and cut by numerous felsitic dykes. The trend of the faulting and of the dykes in the area is north to northwest.

Further work is recommended in the two areas around Lens Mountain for the 1968 field season.

(c) Mount Bolduc

During the 1966 field program, magnetite float was encountered in sufficient quantities to warrant a further investigation of the area. The mineralization was located in place and was a small irregular skarn zone occurring at the contact of Sutton limestone (Quatsino) and Karmutsen volcanics. The mineralization and alteration was found to have no extent and little to no copper.

C. Pluton Reconnaissance

The central and southern reaches of the Robertson batholith along with numerous small plutons, south of Cowichan Lake, were checked for porphyry type mineralization. All the areas checked showed negative results.

D. Malahat District

Our work here disclosed that the area is underlain predominately by Metchosin volcanics with a few Sooke intrusive stocks, all of Tertiary age. The volcanics encountered consisted mainly of pillow lavas with some tuffs, agglomerates and volcanic flow rocks. The Sooke intrusives were predominately augite-olivine gabbros.

At the northern portion of the area, a shear zone in the Metchosin volcanics trending N60°W, with accompanying quartz and epidote stringers of no extent, exhibited a small amount of sulphides. These sulphides were pyrite (1-3%) with only a trace of chalcopyrite scattered about the main shear zone.

All the Sooke intrusives located, showed no favourable shear zones within them and the contacts between the gabbro and the volcanics showed no mineralization.

No further work is recommended for this area.

Results of the 1967 Field Program
continued....

E. Mount Buttle

The old Allies Molybdenum prospect near Delphi Lake on Mount Buttle was briefly examined. The old workings were located and a preliminary examination made.

The best showings are in a quartz-diorite which is a border facies of the main intrusive. The intrusive ranges in composition from quartz-diorite through granodiorite to granite. Andesitic greenstones of the Permian Sicker group surround this intrusive.

Molybdenum bearing veins of massive white quartz is apparent over a zone reported to be "6500 feet in a north-south direction by 1800 feet in an east-west direction". The veins observed ranged from a fraction of an inch to four feet in width, to an exposed length of 45 feet in one locality. The mineralization present in these quartz veins is molybdenum, pyrite, and minor chalcopyrite. The molybdenum usually forms as rosettes ranging in size from $\frac{1}{4}$ inch to 3 inches in diameter. In a few zones, fracture fillings and minor disseminations of molybdenum were observed. Sericitic and chloritic alteration is prevalent at the walls of a few veins, especially in the border facies of the intrusive.

Additional work is recommended in the area for 1968.

REFERENCES

- (1) Induced Polarization and Resistivity Survey, CPOG Property, Grid No. 1, Duncan, B.C., GDT.
- (2) Induced Polarization and Resistivity Survey, CPOG Property, Grid No. 2, Duncan, B.C., GDT.
- (3) 1966 Final Report, CPOG South, A.C.N. deVoogd.

ATTACHMENTS

- (1) 1" = 200' CPOG 67-1, Geology, No. 2 IP area, N of 60 baseline.
- (2) 1" = 400' " 67-2, Geochemical, No. 2 IP area.
- (3) 1" = 400' " 67-3, " No. 1 IP area.
- (4) 1" = $\frac{1}{2}$ mile " 67-4, Geology, Seymour Range.
- (5) 1" = 500' " 67-5, " Allies Molybdenum.
- (6) 1" = $\frac{1}{2}$ mile " 67-6, " Malahat District.

Report by G.G. Booth
G.G. Booth

Endorsed by J. Richardson
J. Richardson

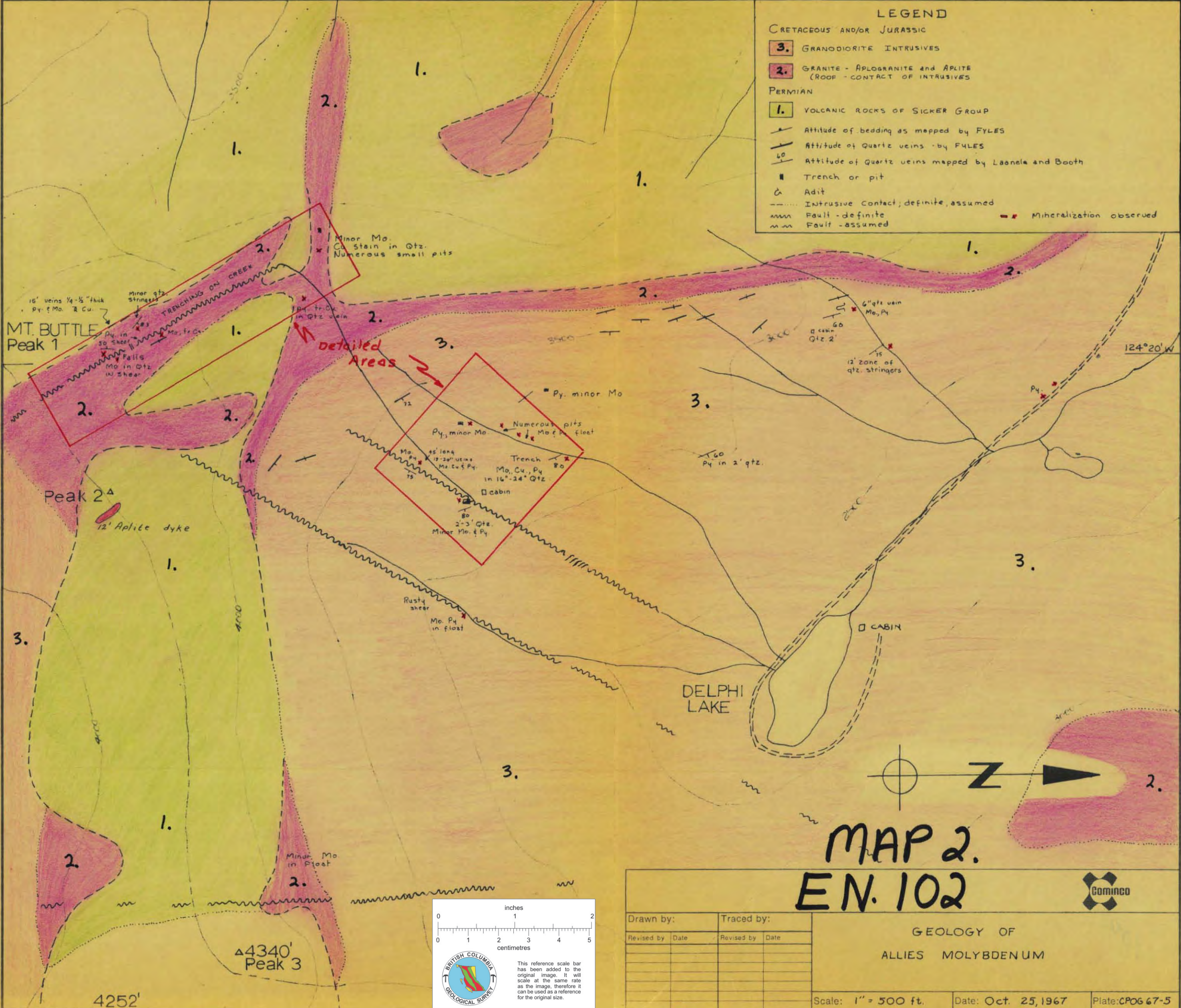
GGB:mk
March 21, 1968.

Distribution:

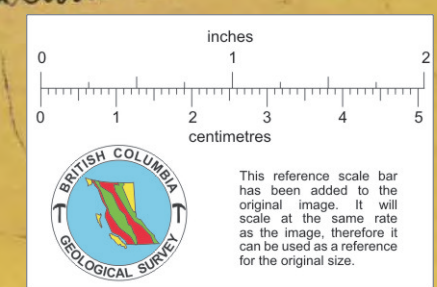
Montreal	(1)
Western District, Vancouver	(1)
C.P.O.G.	(2) ✓
Field File	(1)

LEGEND

- CRETACEOUS AND/OR JURASSIC
- 3. GRANODIORITE INTRUSIVES
 - 2. GRANITE - APLITE and APLITE (ROOF - CONTACT OF INTRUSIVES)
- PERMIAN
- 1. VOLCANIC ROCKS OF SICKER GROUP
- Attitude of bedding as mapped by FYLES
 - Attitude of Quartz veins - by FYLES
 - 60 Attitude of Quartz veins mapped by Laanele and Booth
 - Trench or pit
 - ⊙ Adit
 - - - - Intrusive Contact; definite, assumed
 - Fault - definite
 - Fault - assumed
 - Mineralization observed



MAP 2.
EN. 102



Drawn by:		Traced by:		GEOLOGY OF ALLIES MOLYBDENUM			
Revised by	Date	Revised by	Date				
				Scale: 1" = 500 ft.			
				Date: Oct. 25, 1967		Plate: CPO6 67-5	