

830980

NEW MOON
MASSIVE SULFIDE
PROSPECT
OMINECA MINING DIVISION
93E/13W

Charles Kowall
Geologist

Bowen Island B. C.
November 9th, 1977

TABLE OF CONTENTS

	page
SUMMARY-----	1
GEOLOGY-----	3
MINERALIZATION-----	5
DESCRIPTION OF MINERALIZED AREAS-----	6
RECOMMENDATIONS-----	10
CONCLUSION-----	12

APPENDIX

GEOLOGICAL REPORT ON THE JOW CLAIMS, MORICE LAKE (AGGRESSIVE MINING CO.)-----	14
--	----

ILLUSTRATIONS

- 1) Topographic Map ($1\frac{1}{4}'' = 1$ mile)
- 2) Geology and Mineral Occurences
- 3) Phelps Dodge Geological Map

SUMMARY

The New Moon massive sulfide prospect consists of 44 units and is located about 50 miles southwest of Smithers B.C. Access at present is via helicopter but if development proceeded about five miles of road could be constructed down to the shore of Morice Lake, where a barge could transport supplies up from the north end of the lake, where a good gravel road connects with the town of Houston B.C. The property is located in alpine country ranging in elevation from 4000 to 7000 feet about two miles west of Morice Lake. The property was staked by the author during October of 1977 to cover a northwesterly trending zone at least two miles in length along which occurrences of massive sulfide mineralization were found in trenches and as float in rock talus and moraine. Chalcopyrite, sphalerite, galena, bornite and pyrite occur in a complex interfingering zone of Hazelton volcanics consisting of rhyolites and andesites with limestones, all of which are locally intruded by feldspar porphyries. The rocks are often well brecciated and propylitic alteration consisting of chlorite and much epidote, which may be accompanied by silicification, is both widespread and locally intense. Faulting has also played a part in the mineralization process as some of the showings appear to be fault breccia replacements, while others show distinct banding of a syngenetic appearance particularly in cherty limestone.

The northwest part of the area was originally mapped and trenched by Phelps Dodge personnel during 1968, and this company subsequently dropped their claims shortly afterwards. During 1971 Aggressive Mining Co. (Fred Jowsey), conducted a small Crone

geophysical survey followed by a series of five diamond drill holes totaling about 1000' during the 1972 field season to test a zone of lead-zinc-silver mineralization after which they also dropped the ground.

The writer prospected the area in 1969 while working for Silver Standard Mines and additional mineralization to the southeast of the Phelps Dodge property was located mostly as float. The author staked claims and recommended a work program to his company for the following year over these new occurrences but the company did not do any further work and these claims also lapsed. The writer has always felt that the area merited further study as a massive sulfide prospect with interesting volcanogenic affinities and this interest finally resulted in the restaking of the prospects during this past October, 1977.

GEOLOGY

The property is underlain largely by Hazelton volcanics which are interfingered with beds of limestone, cherty limestone, and limestone breccias. The volcanics consist of a wide variety^{of} rhyolites, andesites, porphyritic flows, tuffs and breccias which may represent a differentiated volcanic center. This assemblage is locally intruded by acid to basic dykes as well as small plutons of quartz porphyry, quartz monzonite, and diorite. The Hazelton rocks dip gently to the east at about 10 degrees, but locally dips increase to 20-30 degrees in the valley towards the east end of the claim block.

Lineaments which trend E-W, NE, and NW are visible on air photos and can often be traced out on the ground as systems of faults and dykes. The attitudes of the faults and dikes are usually steep to vertical.

The Hazelton volcanics and sediments are hydrothermally altered, often in a pervasive manner, consisting of much epidote and considerable chlorite and quartz. Breccia fragments often consist entirely of epidote which is thought to represent altered limestone and andesite. Most of the limey beds are located in the rough topography towards the southern end of the property where they are interbedded with andesites and tuffs. Considerable amounts of epidotized limestone is found in the cirque over the divide immediately south of the property.

Volcanics predominate on the northern half of the prospect and outcrop as a 2000' high escarpment. Between the volcanic escarpment and the area of mixed limestone and andesite to the south lies an area that is largely overburden covered

along a fairly wide valley floor.

The high plateau area at the NW end of the property was mapped by Phelps Dodge personnel however no other detailed mapping has been done.

In overview then we have a thick gently dipping assemblage of acid to basic volcanics composed of flows, tuffs, and breccias which are intruded by small quartz porphyry plutons over the northern half of the property merging to the south with an area where andesite and limestone that is often brecciated predominates. Between these two rock assemblages lies a largely overburden covered valley. This general structure suggests the possibility an island arc type of volcanic center may have existed at the edge of and intermingling with a limeymarine environment. This type of structure is generally considered to be one of the classic environments for the formation of massive sulfide volcanogenic deposits.

A program of detailed mapping would shed more light on this theory and should help future exploration work to proceed on an intelligent basis.

MINERALIZATION

Several varieties of mineral assemblages have been noted across the property and are listed below as follows:

- 1) galena-sphalerite-pyrite This mineralization occurs in rhyolite , andesite and quartz porphyry on the plateau where the previous owners conducted their exploration work.
- 2) chalcopyrite -pyrite and minor galena These minerals occur in silicified, often vuggy, andesite breccia which occurs on the volcanic scarp where it is found in the talus below the slope where it is locally abundant.
- 3) chalcopyrite-pyrite This mineralization is found in brecciated but unsilicified andesite which was found as float near the campsite in the center of the valley floor.
- 4) bornite This mineral occurs as stringers and disseminations in acid tuff. Found as float in glacial moraine where it is locally abundant in an area about 100' in diameter.
- 5) chalcopyrite-pyrite-sphalerite-magnetite Occurs in cherty epidotized and chloritized breccia. Found in moraine along the west edge of the main stream where it is locally abundant over a distance of 2000'.
- 6) chalcopyrite-hematite Occurs as bands and blebs in yellowish limestone and andesite. Found as float in moraine over a distance of 1000'
- 7) chalcopyrite-sphalerite-galena Occurs as bands and disseminations in andesite and limestone and their associated breccias.
- 8) sphalerite Metallic colored sphalerite occurs cementing silicified andesite breccia. It is also found as honey colored disseminations in brownish limestone. Found as float in the glacial moraines.

9) pyrite-chalcopyrite Bands of pyrite with accessory chalcopyrite as stringers and blebs occurs in a forty foot wide zone in outcrops near the east end of the volcanic scarp

DESCRIPTION OF MINERALIZED AREAS

1) Plateau Zone This is the area worked on by previous owners. A northeast trending zone of quartz stringers (80' wide) was trenched over a distance of 500' where galena, sphalerite and pyrite carry low to moderate silver values. Ten to twenty foot wide richer zones occur within the mineralized zone that average five to fifteen per cent combined lead-zinc values and from two to ten ozs. silver and ^{also} averaging .03 oz gold. Other similarly mineralized trenches are present 700' to the north and 1200' to the southeast and may lie along the same trend. A fifty foot wide porphyry dyke parallels the zone immediately to the east.

The writer visited the trenches in 1969 and they were filled in by slumping soil but hand specimens which are well mineralized with sphalerite and galena were found around most of the cuts. In addition, five soil samples taken near the trenches assayed from 20-250 ppm. silver. This area should be geochemed on a grid to see if there is potential for the full width of the quartz stringer zone (which averages 80' in width) to carry silver and gold values. If anomalous values are encountered, this area may contain a large low grade precious metal deposit. The main 500' long zone was drilled by Aggressive Mining Co. in 1972, but results of this drilling are not known. Perhaps the drill core is still on the property.

2) Cliff Breccia Zones Immediately to the south of the Plateau Zone an E-W trending scarp drops over 2000' to the valley floor. The lower half of the slope is largely talus covered, while the upper half is composed of steep cliffs and rocky gullies where outcrops are abundant. Silicified, brecciated andesite carrying considerable chalcopyrite and malachite occurs as float over a considerable area in the talus at the base of the cliffs and it is locally quite abundant. The writer made a quick traverse over a part of this zone in 1969 and saw at least three mineralized areas which were about 50' wide and of unknown length, which were not examined thoroughly due to lack of time. Several soil samples taken across the zone showed locally very high copper values of up to 15000 ppm copper.

About half way down the scarp and towards its eastern end occurs an outcrop of banded pyrite with chalcopyrite that is about forty feet in width. In 1969 the author came upon this outcrop at dusk on the last day of camp. It was a smooth, slightly rusty outcrop that was not shedding any float down slope and from which no rock samples could be easily taken. The zone appeared to lens out about 100' uphill, to extend into overburden down hill and appeared to strike to the south. An attempt was made to re-examine this outcrop during the recent staking but poor weather conditions in the form of snow and fog as well as its inexact location prevented its re-discovery.

3) Valley Camp Occurrence Several pieces of brecciated andesite float carrying considerable chalcopyrite were found in 1969 near the Silver Standard camp by the author. The host rock was a dark green andesite breccia cemented with $\frac{1}{4}$ " to $\frac{1}{2}$ " seams of solid chalcopyrite. Specimens of this float assayed 9.5% copper and about 2 ozs. of silver. The andesite breccia was not vuggy and silicified as is the material found on the Cliff showings one half mile to the northwest, and probably has a different origin.

4) Glacial Moraine Occurrences Most of the mineral assemblages listed in the previous section are found in boulders of float, both scattered and as distinct linear zones, on the glacial moraines covering the wide valley floor at the east end of the claims near a prominent northward trending bend in the main stream. This float is found on both sides of the stream and appears to have originated either on the ice covered cliffs to the south or from the bedrock underlying the overburden covered valley floor. The boulders are often quite numerous over distances of hundreds of feet. Unless one has a very sharp eye many of the mineralized boulders are easy to miss as a thin coating of gray glacial rock flour often covers their surfaces and apart from some iron stain they appear quite similar superficially to the nearby unmineralized boulders. Sulfide boulders were found up to three or four feet in diameter and are generally well mineralized with minerals containing copper, iron, lead, and zinc.

Most float is found after a person has spent an hour or two becoming familiar with the various rock types and areas where nothing was found initially can often be reprospected

by the same person who will then find all sorts of mineralization. As an example, the writer and his assistant were traversing over well mineralized boulders for three days before finally recognizing their potential.

An interesting aspect of the boulders is that they usually are of "ore grade" in mineral content and visually appear to carry in excess of 1% copper and or several per cent of zinc and lead. This is encouraging as the source areas should definitely carry a good grade of mineral which is generally a problem with many prospects initially. A second major concern, that of size, can only be answered by finding and exploring the deposit, however an initial favorable factor is the relative abundance of float which may be indicative of a considerable tonnage in place.

These mineral showings and float occurrences extend across the property from northwest to southeast for a distance of approximately two miles and appear to be overlain by glacial ice at either end.

RECOMMENDATIONS

A work program, probably extending over two field seasons, should be carried out in two phases as follows:

PHASE I

- 1) A geologic map should be prepared on a scale of 1"=200'. Areas of mineralization should be mapped in detail on a scale of 1"=100'.
- 2) The geologic mapping should be oriented towards understanding the possible volcanogenic relationships to areas of mineralization.
- 3) An attempt should be made to find out the results of diamond drilling conducted by Aggressive Mining Co. Perhaps the split core still remains on the property. ✓ *Most of it.*
- 4) Consideration should be given to using airborne magnetometer or EM surveys or other geophysical methods to enable one to better understand the geological structure and controls of mineralization. In particular, the extremities of the mineralized trend extend into very rough, ice covered, mountainous terrain. EM ✓
- 5) Ground geophysical surveys should be carried out along the covered trend of the mineralized occurrences in the central part of the claim group along the valley floor to search for buried extensions of the known sulfide bearing zones. EM ✓
- 6) A program of soil sampling should be carried out over the Plateau and Cliff zones as well as the valley floor and the samples should be analyzed for copper, zinc, lead, gold, and silver. ✓
- 7) Results of the geological mapping, geochemical survey

and the geophysical surveys should be compiled and studied to ascertain if worthwhile targets exist that should be diamond drilled.

The first phase is estimated to cost in the neighborhood of fifty thousand dollars.

PHASE II

A second phase of about 3000' of diamond drilling should be emplemented as a followup to a successful preliminary study. This program would cost in the neighborhood of seventy five thousand dollars.

CONCLUSION

The New Moon massive sulfide prospect has several favorable features that indicate that the property is worthy of further exploration.

Mineralization occurs, both in place and as float boulders, over a distance of two miles in an interfingering assemblage of Hazelton volcanics and limestone. Only a small part of this zone has been tested by detailed work and the property is largely unexplored. The local relative abundance of well mineralized float together with the good grade of the known showings indicates the possibility that one or more orebodies of considerable size and of a relatively good grade may be found by further exploration.

A two phase program extending over two field seasons would be necessary to adequately explore the property. The first phase would essentially gather more geological, geochemical, and geophysical information. The second phase would consist of analyzing the data obtained from the first part of the program and then carrying out a diamond drill program if warranted.

The Hazelton Formation has been suspected of being a possible host for massive sulfide deposits for several years now. Several major companies have engaged in exploration programs along these lines in the Smithers-Hazelton area with this in mind. The New Moon prospect occurs in the kind of environment these companies have been searching for and is well worth pursuing with further programs of exploration. This prospect also has important implications for further prospecting in the Morice Lake area, as massive sulfide deposits often occur in clusters, and further prospecting may reveal other such occurrences in the future.



CANNON-HICKS ASSOCIATES LTD.
SUITE 713-744 WEST HASTINGS ST.
VANCOUVER 1, B.C.

GEOLOGICAL REPORT

ON THE

JOW CLAIMS, MORICE LAKE

OMINECA MINING DIVISION

BY

R. W. PHENDLER, B. SC., P. ENG.

FOR

AGGRESSIVE MINING LTD.

SEPTEMBER 15, 1971.

VANCOUVER, B.C.

TABLE OF CONTENTS

PAGE NO.

PART "A"

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS 1

PART "B"

INTRODUCTION 2

LOCATION AND ACCESS 2

PROPERTY AND OWNERSHIP 3

HISTORY 3

GEOLOGY AND MINERALIZATION 3 - 6

GEOPHYSICAL 6

CONCLUSIONS 6

CERTIFICATION 7

MAPS

1 FIG. 1 - LOCATION MAP - 1" = 120 MILES

2 FIG. 2 - GEOLOGICAL MAP OF JOW GROUP, MORICE LAKE.

APPENDIX

A. LIST OF CLAIMS

PART "A"

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS:

In June, 1971, the writer examined the Morice Lake property of Aggressive Mining Ltd., which is located at an elevation of 7000' about 50 miles southwest of Smithers in central B.C.

At that time the writer was impressed with the width and strength of the quartz veining that had been positively traced for 600' with indications along strike extending for an additional 1600', with somewhat less assurance. Although strong leaching has taken place on surface, sampling by personnel of Phelps Dodge Corporation in 1968 and the writer indicated a grade of 5% Pb., 9% Zn. and 2.0 oz. Ag. across 15.0'. Recommendations were that detailed geological mapping and an electromagnetic survey be carried out. Diamond drilling was to follow if results were favourable. Between Aug. 18 and 21, the above work was carried out and results showed that a flat lying lens-type conductor existed on only one of the cross lines, which were spaced at 200'. This gives a possible length to the zone of 200'.

It appears that the mineralization is confined to a small portion of the structure, where it crosses the south part of a quartz porphyry intrusive.

In view of the results of the electro-magnetic survey, on which a report will follow in a few days, diamond drilling is not recommended.

Respectfully submitted,

R. P. PHILLIPS, B.Sc., P.E.

PART "B"INTRODUCTION:

Between August 18 and August 21, 1971, the writer carried out detailed geological mapping in the vicinity of the lead-zinc silver vein on the Morice Lake property of Aggressive Mining Ltd. During this period, an electromagnetic survey was conducted by Mr. P.P. Neilson, B.Sc., of Atled Exploration Management Ltd. of Vancouver. A Crone J.E.M. two frequency electromagnetic instrument was used.

The work carried out was part of the recommendations made by the writer in his report of June 30, 1971 following an examination of the property on June 23.

LOCATION AND ACCESS:

The property is located at an elevation of 7000' about 50 miles southwest of Smithers in the Omineca Mining Division of central British Columbia. It is accessible by helicopter from Smithers or Houston in about 35 minutes. Access by land would be difficult, although a good gravel road from Houston reaches the north end of Morice Lake, a few miles from the claims. They are located at the headwaters of an unnamed creek which flows into the south side of Atna Bay.

Heavy equipment can be brought by road to Morice Lake, then by boat to a beach on Atna Bay. A helicopter would be required for the lift from the beach at 3000' up to the showings at 7000'.

PROPERTY AND OWNERSHIP:

The property consists of twenty full size mineral claims, five claims by four claims, the long dimension striking N 80° W. (Jow 1-20, Record Nos. 93844-93863).

The claims were staked on September 30, 1970 by P. Dunsford as agent for Mr. F. H. Jowsey and were recorded in Vancouver on Oct. 2, 1970.

HISTORY:

In 1967-68, claims held by Phelps-Dodge Corporation, covered the Morice Lake showings. Geological mapping, trenching and sampling was carried out. The work was done by a crew headed by Peter Curtis under the direction of Mr. R. Cunningham.

GEOLOGY AND MINERALIZATION:

The area in which the Morice Lake showings of Aggressive Mining Ltd. are located is underlain by Lower and Middle Jurassic volcanics of the Hazelton Group. These are predominantly grey and green andesitic to rhyolitic tuffs, breccias and flows with minor intercalated sediments and some reddish basalt. Minor granitic intrusives of Jurassic and Cretaceous age are also present.

Geological mapping by personnel of Phelps-Dodge Corporation showed undifferentiated tuffs and volcanics intruded by

quartz and feldspar porphyry plugs and dykes. Recent mapping by the writer showed the volcanics to be gently-dipping rhyolite and andesite with thin basaltic flows.

The mineralized zone is composed of a network of quartz stringers across an average width of 80 feet in quartz porphyry close to a contact with tuffaceous rhyolite. Although the four trenches which showed lead-zinc-silver mineralization are in a host rock of quartz porphyry, strong quartz veining continues northward into mixed andesite and rhyolite. General strike of the mineralized zone is N 30° E and observed dip is 60° to the east.

Galena, pyrite and sphalerite mineralization is scattered across the mineral zone but in most trenches appears to be concentrated in 10 - 20 foot wide richer zones. Some leaching has taken place.

The structure has been explored by four trenches (#1,3,4 and 5) along a strike length of 500'. To the north the quartz veining is present for 700' where a trench (#7) shows 15' of pyritic material. Eight hundred feet south of the trenches a malachite-stained pyrite zone exists (trench #8). It may be related to the principal structure although the direct extension of this structure along strike is talus covered.

The following table shows samples taken by the writer on June 23, 1971 and those taken by Phelps Dodge personnel

at the same locations. Widths of samples could not be measured by the writer due to slumpage of trench walls.

SAMPLES BY R. W. PHENDLER

<u>Sample No.</u>	<u>% Cu</u>	<u>% Pb</u>	<u>% Zn</u>	<u>Oz. Ag</u>	<u>Location</u>
1	--	5.60	13.0	0.50	200' S of Trench 1 - flat
2	--	3.35	11.0	0.35	300' S of Trench 1 - flat
3	0.72	--	--	0.32	Trench #8
4		2.68	2.50	0.41	Trench #1
5		37.0	5.40	3.65	Trench #4
6		0.85	11.5	0.93	Trench #5
-		Snow-covered			Trench #3

Composite of Samples - 0.038 oz. Au. per ton

SAMPLES BY PHELPS-DODGE

<u>Sample No.</u>	<u>% Cu.</u>	<u>% Pb.</u>	<u>% Zn.</u>	<u>Oz. Ag.</u>	<u>Location</u>	<u>Width</u>
91	0.41	--	--	0.20	Trench #8	10.0'
41.42	0.26	7.25	0.98	2.00	Trench #1	20.0'
71	0.29	5.75	--	1.52	Trench #4	8.0'
77	0.07	8.15	--	1.18	Trench #5	10.0'
56	0.18	2.55	4.00	1.72	Trench #3	20.0'
59	0.22	2.72	--	9.80	Trench #3A	10.0'
50	0.47	11.50	6.00	0.23	Trench #2	20.0'

Trench #2 lies 1200' southeast of trench #8 and appears to lie along strike. This is difficult to ascertain as the area is drift covered.

Samples taken by the writer were assayed by Chemex Labs Ltd., North Vancouver on June 29, 1971.

GEOPHYSICAL:

Poor weather conditions (continuous wet snow, rain and strong gusty wind) made the EM survey difficult. However, six lines across the mineral zone were completed. A conductor was found to exist on one line only (Line Zero) across trench #1. Anomalous conditions were found at a depth of 100' and 150' indicating a flat lying lensy conductor, possibly 70-80' below the surface. Leaching was found to extend to a depth of about 40 - 50'.

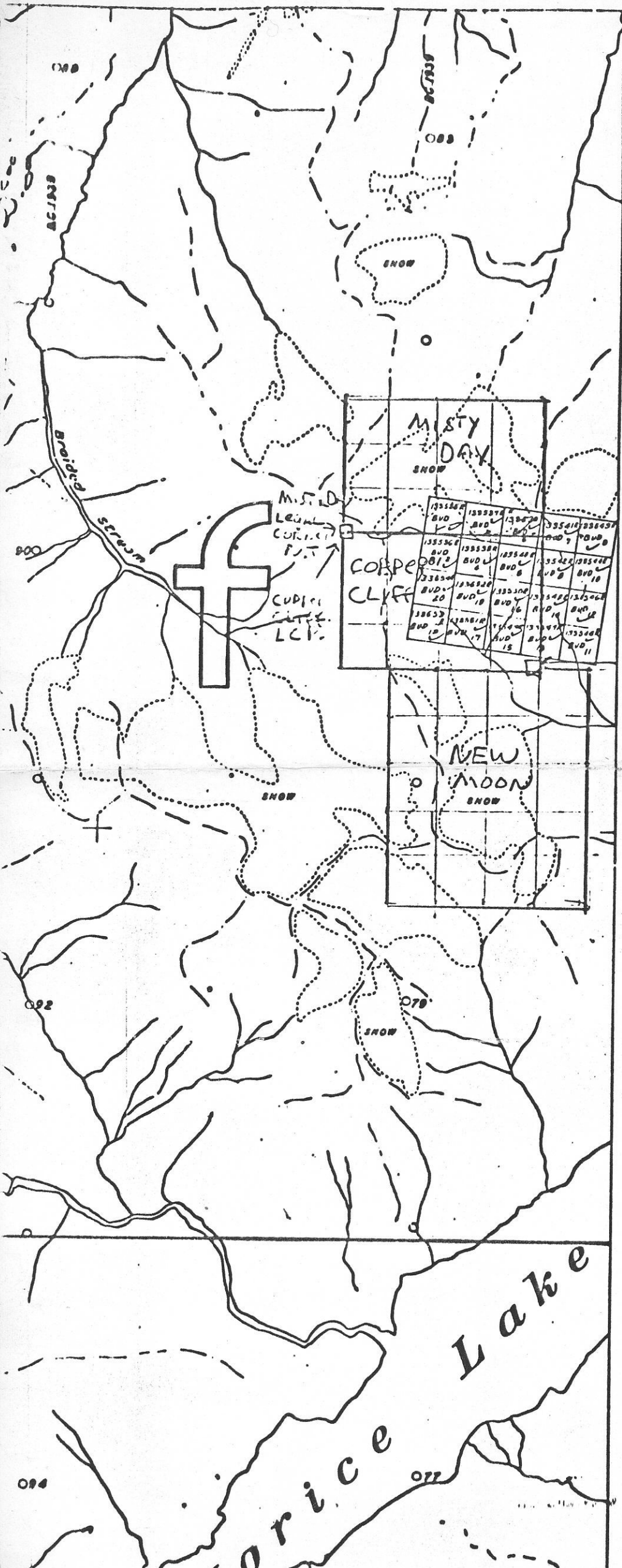
All other lines (2 + 00 S, 2 + 00 N, 4 + 00 N, 8 + 00 N, 10 + 00 N) were found to have no metallic conductors.

All lines were carried for 400' on either side of the structure except line 10. On this line, the west side could be carried only to the glacier at 3 + 00 W.

CONCLUSIONS:

It appears that the mineralized structure is confined to the intrusive quartz porphyry and only the quartz veining continues in both directions into the enclosing volcanic rocks.

127° 40' 54" 00"



New Moon
LEGAL CORNER
POST

SUB-MINING RECORDER
RECEIVED

OCT 21 1977

M.R. # 116746
VANCOUVER, B. C.

TO EAST SEE MAP 93 E/33 E

