vol. '78-#192-#. 6897

THE ANDERSON MOLYBDENITE PROPERTY

LEAH AND LINDA CLAIMS, NORTHERN BRITISH COLUMBIA

NTS 104K
Tulsequah Map Sheet
Atlin Mining District

by:
Franco Morra
Mattagami Lake Mines Limited
Western Field Office

September 13, 1977

Cover Photograph: View looking southward across LEAH claim. Trench #4 in center foreground.

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INTRODUCTION

Geological mapping and detailed rock sampling have been carried out on LEAH claim and LINDA claim during August, 1977, in order to evaluate the Mo economic potential of the area.

LEAH and LINDA claims each consist of 8 claim units.

LEAH claim is presently owned by Mr. O. Anderson of Atlin, B.C., who repeatedly staked it during the past 8 years. The property was optioned by Stikine Resources Ltd in 1972, and was allowed to lapse during the years 1973 to 1976.

LINDA claim was staked by F. Morra for Mattagami on September 7, 1977.

LOCATION AND ACCESS

The property is located at 58^{o} 17' 45" N and 132^{o} 39' W in the Atlin Mining Division. It lies about 145 km southeast of Atlin, B.C., and 100 km northwest of Telegraph Creek in the northwest corner of British Columbia (Figure 1).

Access to the property is by air from Atlin or Dease Lake by float plane to Trapper Lake, 13 km north to the property. The nearest road is the Cassiar-Stewart road, 105 km to the east.

TOPOGRAPHY

The property is located on the eastern margin of the Coast Range, between 4000' (1300 m) and 5000' (1650 m) elevation. High mountains rise to 7000' (2300 m) to 9000' (about 3000 m) above sea level and they are covered by glaciers. The property is located about 150 m elevation above the tree line.

The property lies along a north-south trending valley, 300 m wide, which is covered by outwash material consisting of boulders, sand and silt, with a maxiumum thickness of 50 m (E. Livgard, 1971).

Two main glaciers are close to the property, one 1500 m to the south and one to the east, immediately adjacent to LINDA claim (Figure 2). The glaciers are reported to have retreated 150 m between 1948 and 1971. They seem to have been stationary for the last two years.

The country is very rugged and snow may be present on the ground from the end of August to middle of June.

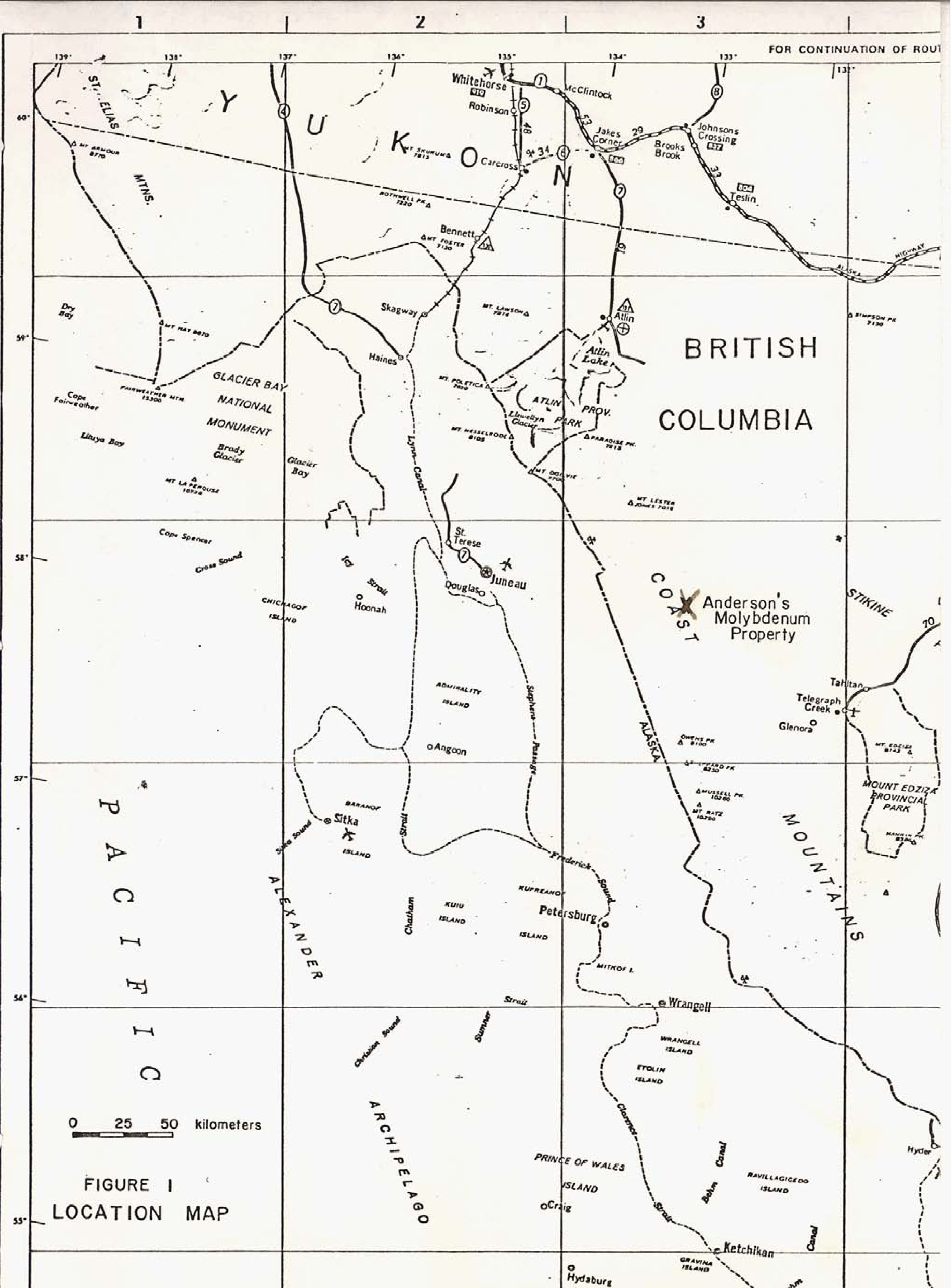


FIGURE I
LOCATION MAP

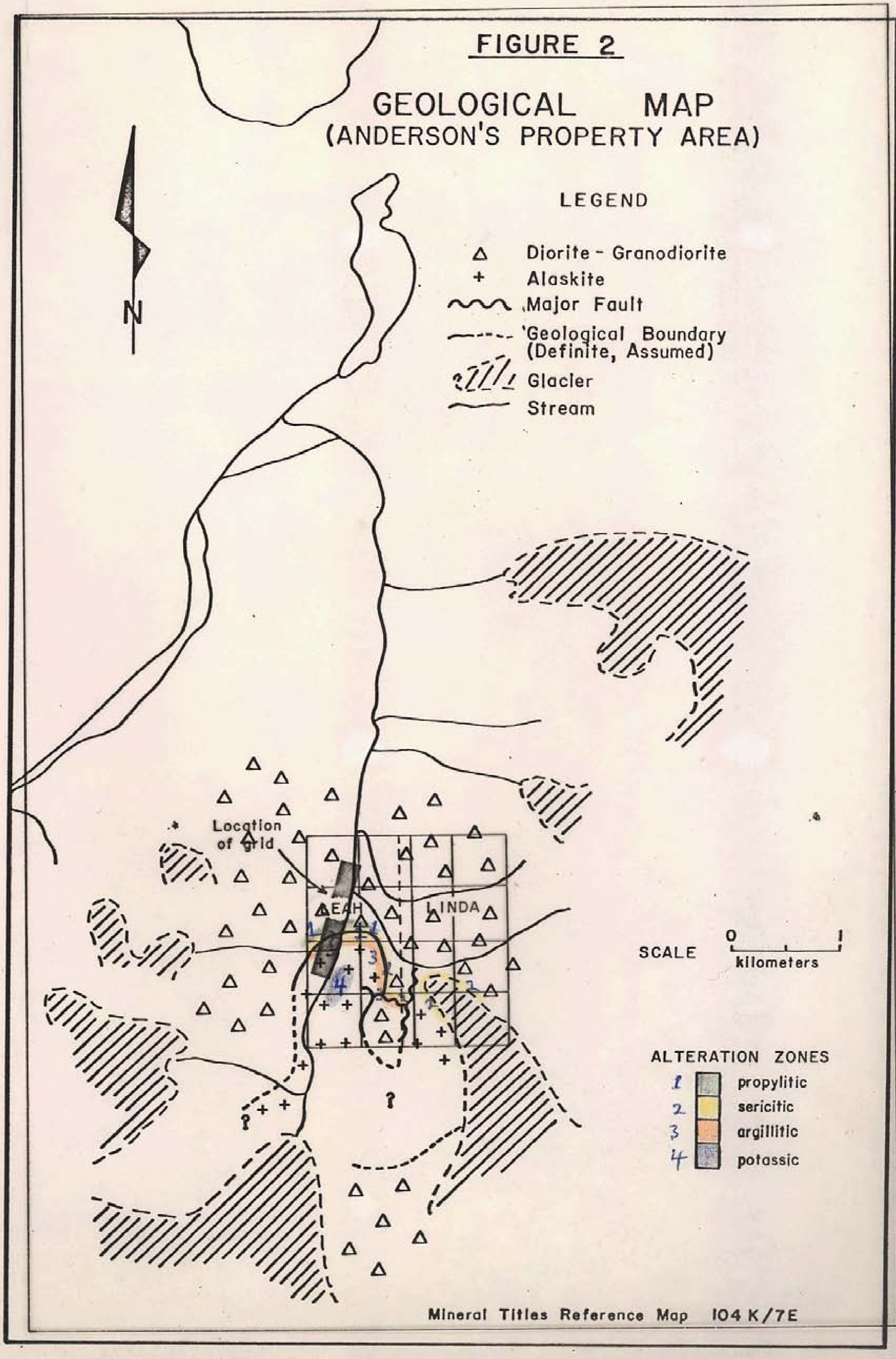


FIGURE 2

GEOLOGICAL MAP
(ANDERSON'S PROPERTY AREA)

GEOLOGY

Stratigraphy

The Mo property is underlain by intrusive rocks of the Coast Range batholith.

The rocks of the area have been grouped on Map 1262A of the Geological Survey of Canada in the following units:

Unit 6: Triassic (?) fine to medium grained, strongly foliated diorite, quartz diorite with minor granodiorite

Unit 14: Cretacous/Tertiary Sloko Group of vericoloured rhyolite, dacite and trachyte flows with tuffs and derived sediments

Unit 15: Cretaceous/Tertiary granite and quartz feldspar porphyry; also Unit 16 equivalents in age but medium grained to coarse grained pink quartz monzonite i.e. granodiorite; Units 15 and 16* are plutonic rocks genetically related to Unit 14 (volcanic rocks).

The relationships of space and time between the rocks as outlined by Map 1262A (Figure 3) were found to be correct in general but these relationships are more complex on a smaller scale.

Intrusives

In the vicinity of the property, hornblende diorite (Unit 6 ?) is intruded by hornblende granodiorite (Unit 16 ?). Both rock types are foliated on the property (or

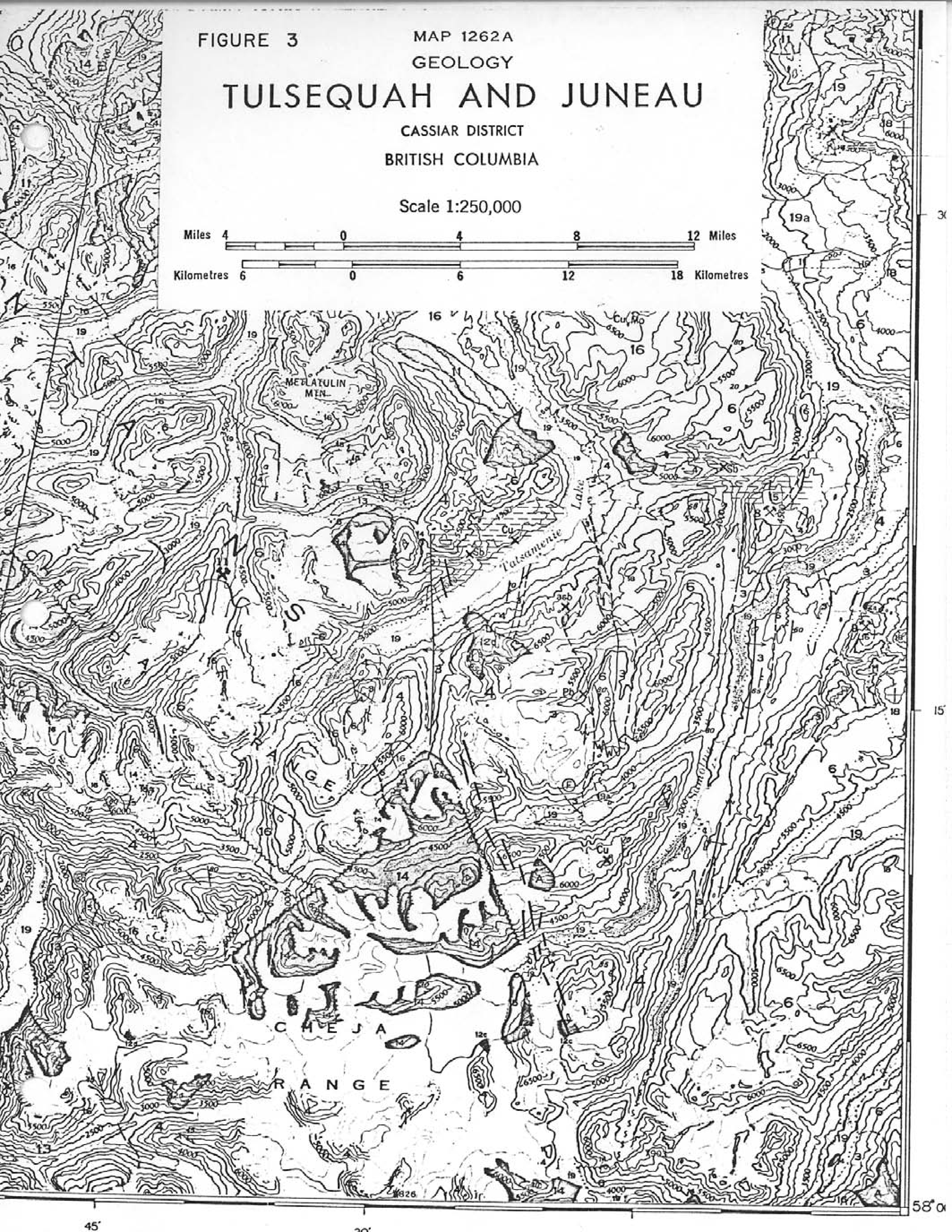


FIGURE 3
MAP 1262A
GEOLOGY
TULSEQUAH AND JUNEAU
CASSIAR DISTRICT
BRITISH COLUMBIA
Scale 1:250,000
Miles 4 0 4 8 12 Miles
Kilometres 6 0 6 12 18 Kilometres
METLATULIN MTN.
Tatsamenie Lake
CHEJA RANGE
58°00'
45'
30'
15'

MESOZOIC

CRETACEOUS AND TERTIARY

LATE CRETACEOUS AND EARLY TERTIARY

SLOKO GROUP

14 — *Light green, purple and white rhyolite, dacite, and trachyte flows, pyroclastic rocks, and derived sediments*

15 | 16 — *Probably genetically related to 14;*
15. Felsite, quartz-feldspar porphyry
16. Medium- to coarse-grained, pink, biotite-hornblende quartz monzonite

PRE-UPPER CRETACEOUS

13 — *CENTRAL PLUTONIC COMPLEX: granodiorite, quartz diorite; minor diorite, leuco-granite, migmatite and agmatite, age and relationship to 12 uncertain*

JURASSIC AND/OR CRETACEOUS

POST MIDDLE JURASSIC

12 — *12a, hornblende-biotite granodiorite; 12b, biotite-hornblende quartz diorite; 12c, hornblende diorite; 12d, augite diorite. Age and relationship to 13 uncertain*

JURASSIC

LOWER AND MIDDLE JURASSIC

LABERGE GROUP (10, 11)

11 — *TAKWAHONI FORMATION: granite-boulder conglomerate, chert-pebble conglomerate, greywacke, quartzose sandstone, siltstone, shale*

10 — *INKLIN FORMATION: well bedded greywacke, graded siltstone and silty sandstone, pebbly mudstone, limy pebble conglomerate; 10a, limestone*

TRIASSIC

UPPER TRIASSIC

9 — *SINWA FORMATION: limestone, minor sandstone, argillite, chert*

STUHINI GROUP (7, 8)

7 | 8 — *7. Mainly volcanic rocks; andesite and basalt flows, pillow lava, volcanic breccia and agglomerate, lapilli tuff; minor volcanic sandstone, greywacke, and siltstone*
8. KING SALMON FORMATION: thick bedded, dark greywacke, conglomerate, mudstone, siltstone, and shale; minor andesitic lava, volcanic breccia, tuff, limestone, limy shale; locally enclosed in 7

LOWER OR MIDDLE TRIASSIC (?)

6 — *Fine- to medium-grained, strongly foliated diorite, quartz diorite; and minor granodiorite; age uncertain*

TRIASSIC AND EARLIER

PRE-UPPER TRIASSIC

4 — *Fine-grained, clastic sediments and intercalated volcanic rocks, largely altered to greenstone and phyllite; chert, jasper, greywacke, limestone; 4a, mainly chert, slate, argillite; minor greenstone; 4b, mainly greenstone; 4c, limestone, may include some 1*

5 — *Quartz-albite-amphibole gneiss; quartz-biotite schist, garnetiferous schist, augen gneiss, tremolite marble; mainly metamorphosed equivalents of 3 and 4, may be in part older than 3*

PALEOZOIC

PERMIAN

3 — *Chiefly limestone and dolomitic limestone; minor chert, argillite, sandy limestone*

PERMIAN (?)

1 | 2 — *May not all be of the same age*
1. Peridotite, serpentite, small irregular bodies of gabbro and pyroxene diorite
2. Fine- to medium-grained gabbro and pyroxene diorite

A — *Diorite gneiss, amphibolite, migmatite; age unknown* nearby) but 3 km to the south, at the meeting of two small valley glaciers, the rocks are non-foliated and the hornblende phenocrysts give the rocks a trachytic texture. Furthermore, biotite becomes an accessory mineral. The same change can be observed for the rocks to the east of the property. The trachytic arrangement of hornblende and addition of biotite is thought to be related to the intrusion of alaskite into these rocks (Unit 16) at both localities.

Alaskite

The alaskite (not shown on GSC geology map) is a medium to coarse grained white coloured intrusive rock which is most intimately associated with Mo-Cu-Fe ± Ti ± Zn mineralization. The mineralogical composition of alaskite is plagioclase-potassium feldspar-quartz. Mafics are absent. Plagioclase is often altered (kaolinitization). Sericite is also common.

Three phases of this rock are recognized:

1. a hybrid phase with hornblende and/or biotite found near contacts with diorite/granodiorite (Unit 16)
2. a sericite-clay minerals rich phase found towards the edges and upper portions of the pluton, especially mineralized zones
3. a sericite-clay minerals poor phase found in the topographically lower and central portions of the pluton; this phase forms the bulk of the alaskitic body.

In terms of mineralization, the second mentioned phase is the most important along with the metasomatism associated with the first two phases listed.

Volcanics

The volcanic rocks (Unit 14), slightly younger in age than their plutonic equivalents, do not outcrop on the property or nearby, as the intrusives are high level emplacements and occupy the mountain tops.

However, other volcanic rocks are found on the property. Trachytic, andesitic and basaltic dykes crosscut all intrusive rocks. These dykes, which are composed of feldspar phenocrysts in a very fine grained hornblende and pyroxene rich groundmass, exhibit a trachytic texture. This texture may be absent or not distinguishable on outcrop.

Dykes and Veins

Besides the above mentioned dykes, plutonic related epigenetic lithologies include: (1) an aphanitic pink aplite of composition like that of alaskite; (2) quartz and orthoclase rich pegmatite with no visible mineralization; (3) quartz veins with pyrite, molybdenite, occasional chalcopyrite, rutile, sphalerite and an unidentified black mineral and (4) quartz-ankerite-calcite veins with accessory gypsum.

<u>Aplite</u> intrudes all other rocks in the area except the carbonate veins. The aplite veins are up to 10 cm in width, usually much smaller.

<u>Quartz orthoclase pegmatite</u> has been found only on one spot, on LINDA claim. Orthoclase megacrysts up to

15 cm are found to the side of the vein.

Mineralized quartz veins cross cut most lithologies, including the above mentioned pegmatite. In turn, these quartz veins are cross cut by trachytic, andesitic and basaltic dykes, aplite dykes and carbonate veins (the latter occupying shear zones).

Pyrite is most abundant to the center of the veins; molybdenite is often on the sides of the veins; rare rutile, if present, is with molybdenite but on the outer portions; sphalerite, if present, with or without rutile, is found on the sides of the veins. Chalcopyrite was not found with molybdenite in veins, but only with pyrite within or just outside the trenched area.

The order of crystallization is quartz-pyrite-molybdenite-chalcopyrite-rutile-sphalerite. This sequence of mineralization in quartz veins is also found regionally, from the interior of the exposed alaskite pluton to the exterior and into the other host rocks (diorite/granodiorite). Sericite is also an accessory mineral in some veins. It is most intimately associated with molybdenite on vein walls.

The size of the quartz veins varies from 0.5 cm thick up to 2 m, averaging 3 cm.

Quartz+ankerite ± calcite veins occupy shears which cross every lithology except perhaps aplite. Only the sides of such shears may be mineralized with pyrite and, rarely, with molybdenite. Often there is no quartz in these veins, and consequently no visible mineralization.

Gypsum is an uncommon accessory. Calcite crystals occupy the center portions of the carbonate veins or they may occur in veins which cross cut the ankerite-quartz veins.

Structure

In general: the alaskite occupies the valley floors; hornblende and/or biotite granodiorite and diorite are found in the valley sides and mountain tops; the volcanic rocks situated on mountain tops are not present in the vicinity of the property, but they are found at other locations as dykes. However, the intrusive levels vary somewhat. Alaskitic and leucocratic granitic rocks are common and easily seen, especially south and southwest of the property for several km.

Occasionally the contact between alaskite and other rocks is faulted. A horizontal displacement of 30 m on a fault (strike 100^{0} az., vertical dip) may be seen to the east of the property (LINDA claim) in the vicinity of a glacier. This fault plane is similarly orientated to joint planes and quartz veins which carry mineralization.

Jointing in the intrusive rocks, both in alaskite and diorite/granodiorite, is very consistent in strike and dip. This fact favours the hypothesis of a simultaneous last phase of cooling of all the intrusives, without excluding the presence of distinct plutons, separate both in time and space.

On the LEAH claim, there are at least two sets of joints but only a conjugate pair of tensional joints are the loci of mineralized veins. The largest and most extensive mineralized veins and joints strike about 120^{0} and dip $80\text{-}90^{0}$ northeast or southwest. The smaller and less numerous joints strike 60^{0} and dip

40-50° northwest, as do the related non-mineralized quartz veins.

Essentially the same orientations are found for veins and joints on both sides of the main valley, but some changes are found as we move towards the small glacier on LINDA claim. Here the most prominent veins and joints strike 95-100° az. with dips of about 70° north, although the dominant northwest-southeast trend of major veins is maintained at the bottom of the valley.

Towards the south, some mineralized veins at the meeting of two glaciers strike 20° and dip 60-80° northwest. Because of this, and the paucity of mineralization between these veins and the ones on the property, the veins to the south are thought to represent a different structural and possibly different intrusional center than that on the property and to the east. The two areas are however, related both temporally and spatially on a regional scale.

Another prominent structural feature of the area is given by fractures, faults and shear zones, striking 30° to 50° az. and dipping 60-70° northwest.

Quartz-ankerite-calcite veins fill the shear zones.

Folding was not observed nor expected - the area is characterized by intrusive competent rocks which would fracture before they would fold.

Sequence of Events

A general sequence of events is proposed as follows:

1. intrusion of hornblende-biotite diorite, granodiorite and granite
2. metamorphism: foliation developed
3. intrusion of alaskite, with partial melting of surrounding intrusive rocks, followed by faulting and jointing; extrusion of rhyolitic to andesitic volcanic flows; in detail, for this phase:
    a. alaskite intrusion
    b. quartz pegmatite dyking
    c. mineralized quartz veining
    d. "lamprophyre" dyking
    e. ↑ aplite dyking ⇄ shearing ⇉
    f. ?↓ carbonate veining

MINERALIZATION

Mode of Occurrence

This property has been known as a molybdenite occurrence since 1962 and was shown on the GSC Map 1962A.

Molybdenum mineralization is exposed in quartz veins principally in alaskitic rocks. Few barren quartz veins are present on the property. They have a milky-white colour and the strike is not consistent with that of the mineralized veins.

The mineralization is somewhat unusual, for, in part, it consists of large rosettes of molybdenite erratically distributed within alaskite on the east side of the property close to the glacier (LINDA claim) and, in part, of almost massive MoS_2 in quartz veins (LEAH claim). One molybdenite vein was found to be 4 cm wide and several up to 1 cm wide, all presenting continuation over at least 5 to 10 m.

This second type of mineralization (mineralized quartz veins) is characteristic of the "showing" itself, on the west side of the main valley. These molybdenite-rich quartz veins strike about 120^{o}, dipping $80-90^{o}$ northeast or southwest. Commonly the two metallic minerals are molybdenite and pyrite, but chalcopyrite may be present in small amounts. Bright yellow powellite is the only molybdenite secondary alteration mineral found.

The veins sometimes have drusy cavities, lined with spectacular quartz crystals up to 5 cm long and 2-3 cm is diameter. The quartz crystals are often coated with pyrite and molybdenite.

Comparison of This Property with Porphyry Deposits

An attempt to compare this Mo occurrence with a porphyry type deposit has been done.

Following the classical models of Guilbert and Sillitoe, etc., this deposit has every alteration zone expected (but not the grade of mineralization).

The inner potassic zone is limited, most likely by lack of outcrop in the central part of the deposit, to vugs of quartz and orthoclase on the east side of the property. These vugs are adjacent to a pegmatitic quartz-orthoclase vein in which orthoclase megacrysts form an alteration rind into the host alaskite.

Sericite alteration is represented by sericite replacement of feldspar in host alaskite (and granodiorite occasionally) along mineralized quartz veins. Sericite is also common in one of the outer phases of alaskite. Quartz also replaces host alaskite.

Argillitic alteration is very common. Altered feldspar, some of which has degraded to clay minerals, is an abundant constituent of the outer phases of alaskite. To the east of the property and right up to the glacier, argillitic alteration is particularly prominent.

Propylitic alteration is not found so much within the alaskite itself as within the surrounding diorite and granodiorite. The alteration consists of epidote blebs and veinlets in a zone adjacent to the alaskite intrusion. Carbonate veining in shear zones may also be considered "prophylitic" alteration. Carbonate veins also penetrate the alaskite outer edges.

It should be pointed out that while alteration zones transcend lithologies, on this deposit the inner three zones for the most part are confined to the alaskite. Only mineralized quartz veins penetrate surrounding rocks, and not always with sericitic alteration. The prophylitic alteration zone is found mostly in the country rocks but does not extend any more than 300 m away from the alaskite intrusion. It is then probably that the alaskite is a rather "dry" intrusion and it is spatially and temporally related to the mineralization and alterations.

The mineralization zones of this deposit correspond to those expected from a classical model: a pyritic ± molybdenite core with low grade mineralization; a pyrite-rich "halo" often with higher grade molybdenite and low grade Cu; a pyritic-copper rich envelope of vein/disseminated mineralization and finally a zinc ± lead ± iron oxide-rich skarns.

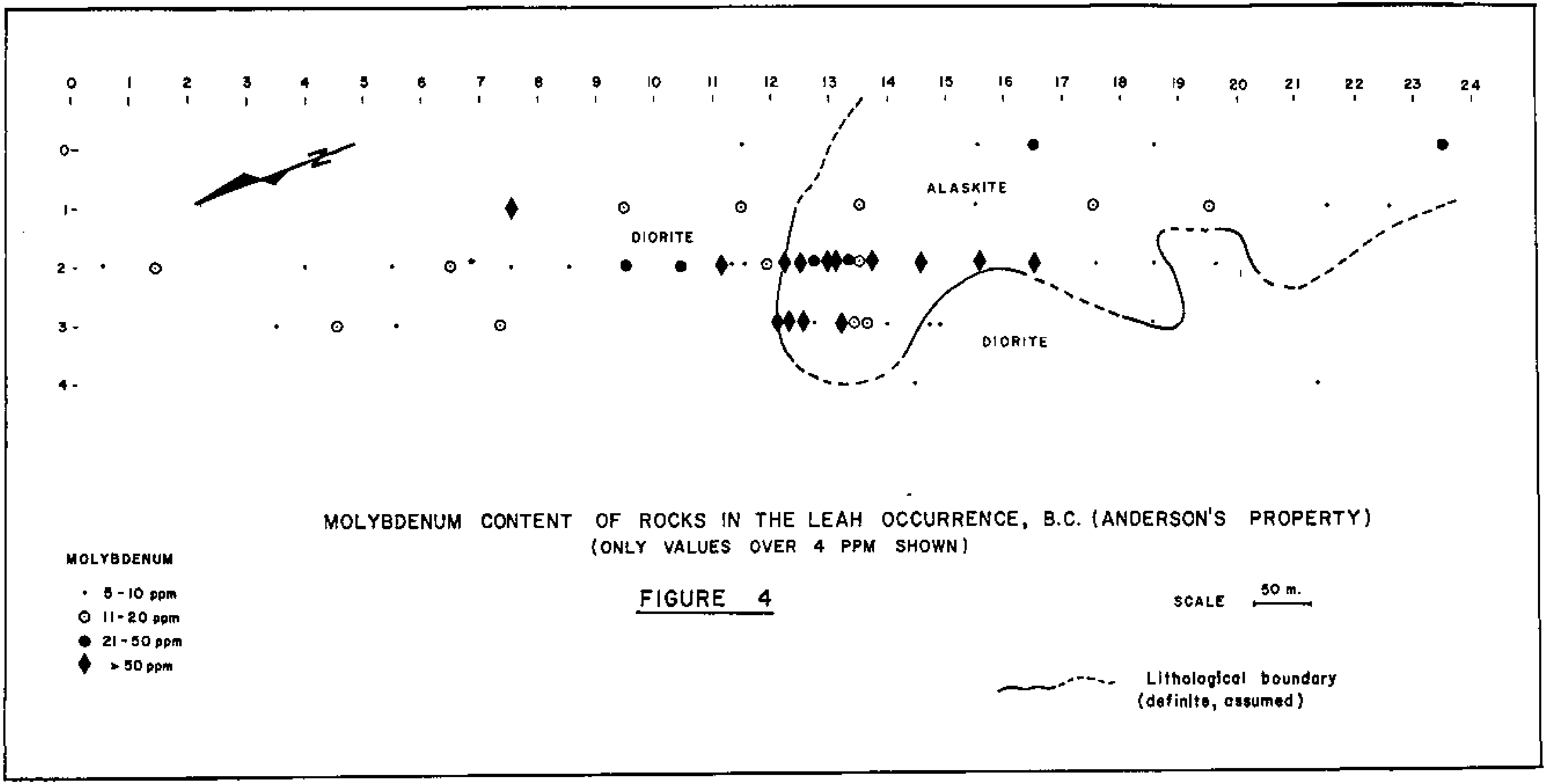
This deposit departs from the classical model on a few points: copper is found as disseminations outside the zone of highest grade molybdenite, but copper is not common within the property; skarns are not developed due to restrictions on prophylitic alteration and any alteration of the country rocks in general (it should be pointed out that rutile and sphalerite occupy the outer portions of mineralized veins which cut the country rocks); and finally, the observed grade of disseminated molybdenite is too low for the deposit to be considered a "porphyry moly" deposit.

ECONOMIC POTENTIAL

The work completed on the LEAH and LINDA claims by the Mattagami crew is shown in Table 1. Geochemical results are given in Appendix I. Mo content in rock samples taken along a grid is displayed in Figure 4. Trenching (as shown on Geology Map 1 and Figures 5 to 8) was completed by Mr. Anderson.

TABLE I. WORK PERFORMED BY MATTAGAMI'S CREW ON LEAH AND LINDA CLAIMS.

Crew:	5 men (1 party chief, 1 senior assistant, 3 junior assistants)
Date in:	17 August 1977
Date out:	23 August 1977
Transportation:	by Beaver to small lake south of Trapper Lake and by Hiller 12E helicopter from lake to property
Work done:	LEAH claim - grid on the showing, 1200 m by 200 m, with 50 m interval between the lines - detailed geological mapping on the grid - general geological mapping of the area - detailed geological mapping of 4 trenches present on the showing - detailed rock sampling along the grid - channel sampling on trenches - stream sediment sampling LINDA claim - general geological mapping



MOLYBDENUM CONTENT OF ROCKS IN THE LEAH OCCURRENCE, B.C. (ANDERSON'S PROPERTY)
(ONLY VALUES OVER 4 PPM SHOWN)

FIGURE 4

LEGEND

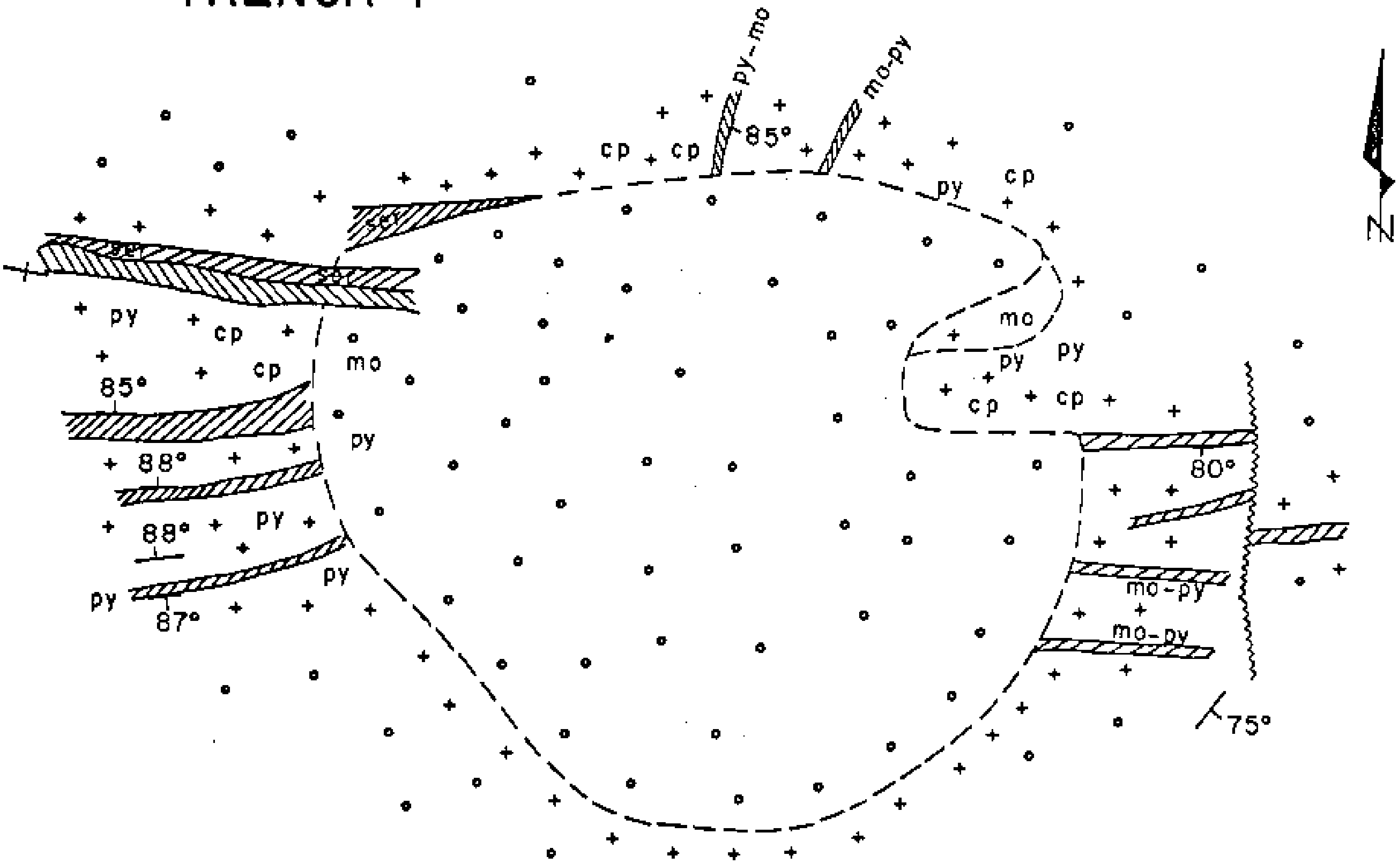
(for Figures 5-8, Incl.)

	ALASKITE
	BOULDERS - OVERBURDEN
	QUARTZ VEIN
	TRENCH BOUNDARY
	DIORITE
	DIORITE WITH PROPYLITIC ALTERATION
Mo	MOLYBDENITE
py	PYRITE
ser	SERICITIC ALTERATION
	FAULT
	JOINT
cp	CHALCOPYRITE
cc	CALCITE

Scale .25 0 .25 .50 metres

FIGURE 5

TRENCH I



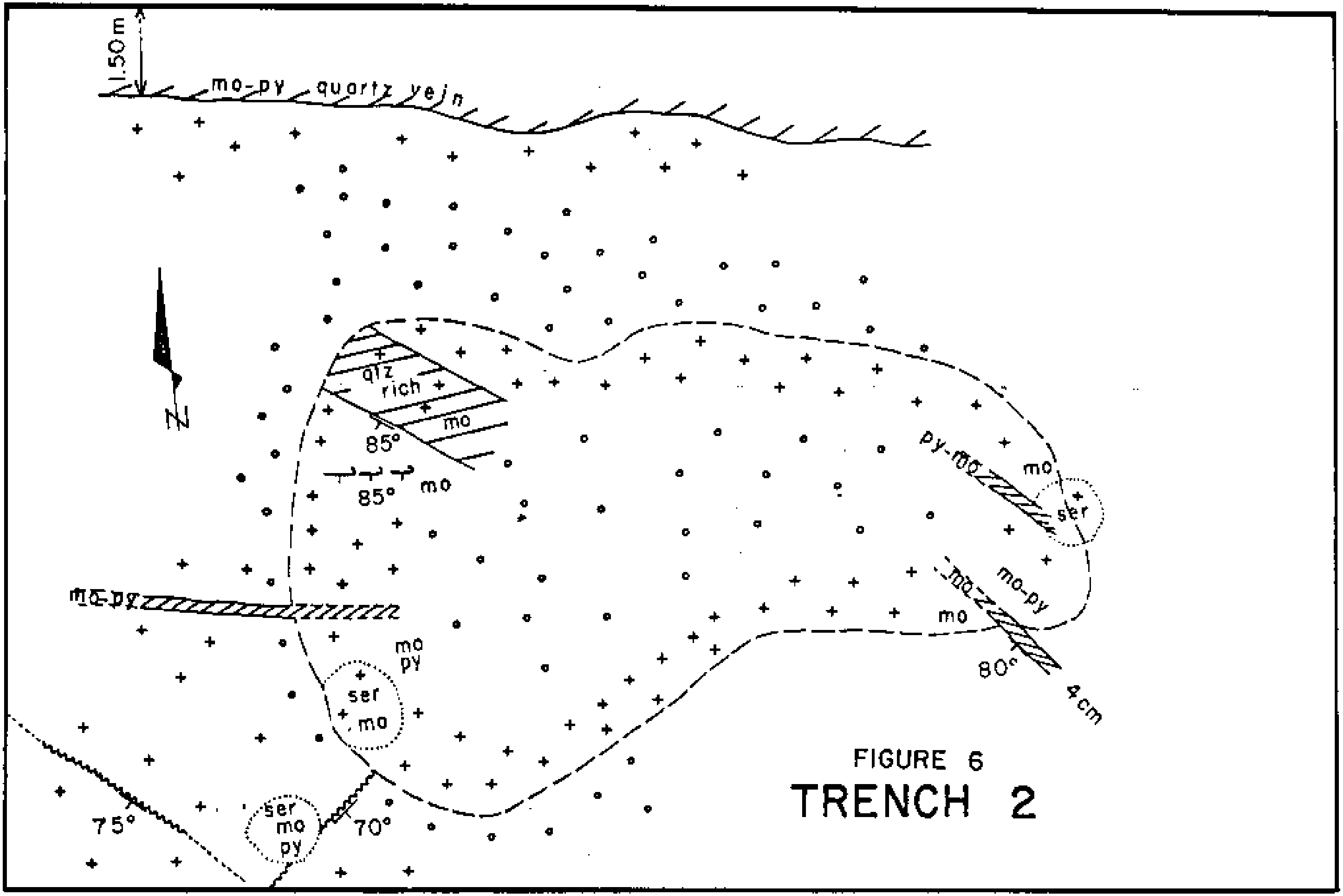


FIGURE 6
TRENCH 2

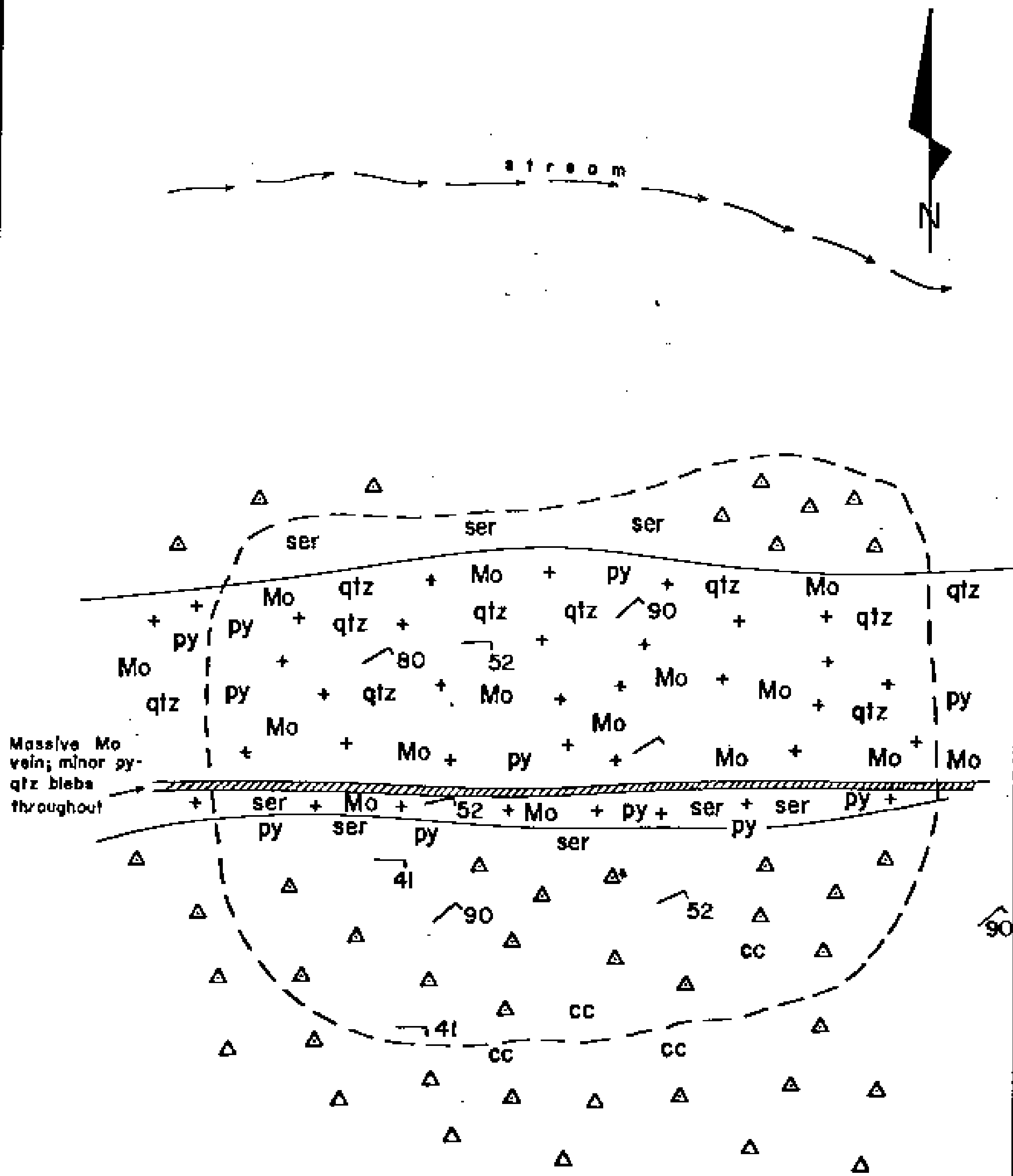


FIGURE 7

TRENCH 3

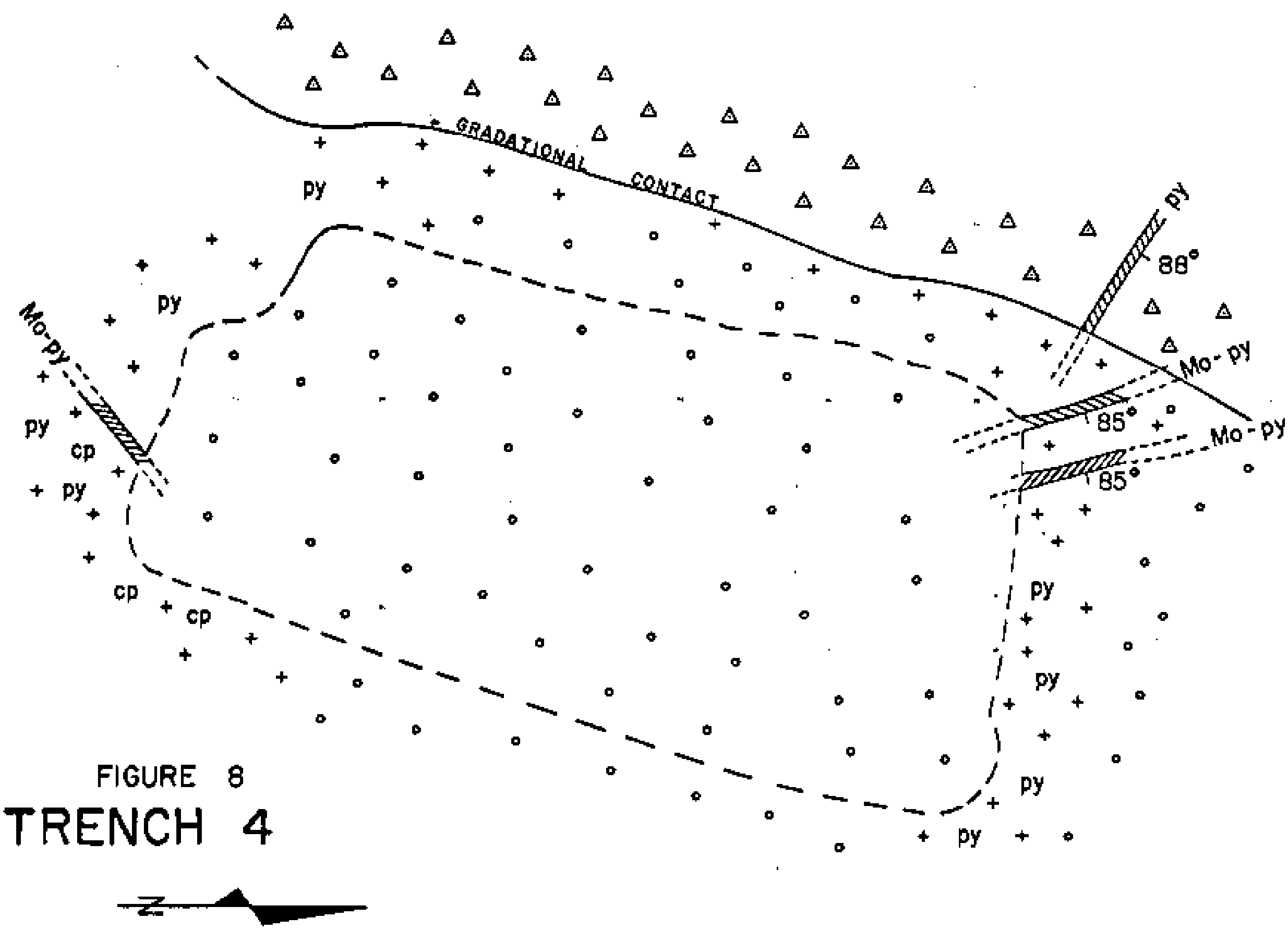


FIGURE 8

TRENCH 4

Disseminated Molybdenite

A detailed rock sampling along grid lines over the LEAH claim was performed to determine the grade of disseminated molybdenite. The geochemical results gave an overall grade of 60.76 ppm Mo. This value should ideally represent the disseminated Mo content in the diorite, granodiorite and alaskite. However, some very high values (eg. 1250 ppm Mo) were obtained, suggesting that some of the high grade mineralized quartz veins were also sampled.

This writer eliminated all values above 100 ppm from the calculation and then obtained a "true" value of 12.88 ppm disseminated Mo (1200 m by 200 m section).

Although this value is about 6 times higher than the average Mo content in granitic rocks, it is still extremely low for a porphyry type deposit.

Slightly higher disseminated Mo values were obtained within the alaskite rocks (not considering the adjacent diorite and granodiorite). 17.26 ppm Mo was obtained over a 600 m by 200 m section.

Disseminated Mo is not visible (although assay results indicate its presence) in alaskite between mineralized quartz veins on the LEAH claim. Nor does the alaskite to the south appear to contain visible MoS_2 (finely disseminated pyrite is common however). The LINDA claim has disseminated Mo both along fractures and joints without quartz and within the alaskite, especially on the outer margins of the alaskite.

Mineralized Quartz Veins

Up to 10% Mo (grab samples) has been obtained from large quartz veins on LEAH claim (between lines 12S and 13S and 1.5W and 2.5W on the grid, Figure 4). Pits were blasted by Mr. Anderson to cover these veins (Figures 5 to 8) and channel samples were collected by the Mattagami crew, with the following results:

	Mo ppm	Cu ppm
Trench 1	2050	100
Trench 2	2050	43
Trench 3	1700	125
Trench 4	1050	56

These results give an average of 1712 ppm over a 12.5 m section.

Mineralized quartz veins comprise about 1% of the area covered by the grid on LEAH claim. The veins are very numerous and up to 2 m wide in the area of the trenches. They present a certain continuity along strike and show a marked northwest-southeast trend. The grade of MoS_2 is lower outside the trenched area. The mineralized veins are smaller (1-2 cm), more widely spaced (5-20 m) and carry less molybdenite. Moving away from the trenched area, the grade drops from 1712 to 650 ppm Mo over an area of 50 m by 50 m (this calculation includes the anomalously high assay results that were previously deleted because they were not representative of 'disseminated' Mo).

Conclusions on Economic Potential

The deposit, as it is known now, is 1 km in a northwest-southeast direction and (probably) 2-3 km in a northeast-southwest direction. This assumes that mineralization is present under the moraine and fluvial deposits at the valley bottom.

As previously calculated, Mo grade is 1712 ppm in the trenched area but 650 ppm away from the trenches. Disseminated Mo is about 13 ppm on the LEAH.

Taking 100 m width by 100 m length and 100 m depth over the best mineralized section on LEAH claim (trenches area) to give 1 million tons of ore, a grade of 133 ppm Mo (about 0.4 lb/ton or 0.02% MoS_2) is obtained. This grade is improved however, to 2 lb/ton for 1 million tons ore if one makes the calculation with a 200 m length (assuming the veins extend 200 m along strike), 50 m width and 100 m depth. These assumptions (mineralized veins extend 200 m along strike and to a depth of 100 m) are rather improbable however. Even if these figures were realistic, the grades are too low for an open pit mining operation.

If we consider Anderson's property, its location, accessibility and several other technical and logistical problems, we would need perhaps 100 million tons of 0.35% MoS_2 to make it of economic interest.

CONCLUSIONS AND RECOMMENDATIONS

Anderson's Mo property presents several petrographic similarities with other porphyry Mo deposits of the Canadian Cordillera, but it cannot be classified as such because of the very low disseminated Mo content present in the host rocks.

Areas of particular interest are the fractured portions of alaskite where Mo is present in quartz filled veins striking northwest-southeast. Pyrite is also commonly present in these veins, as well as finely disseminated in the host rocks.

The grade of Mo in the country rocks averages about 13 ppm over an area of 1200 m by 200 m. Channel sampling over the highly mineralized zone gave 1712 ppm Mo over 12.5 m section. The overall grade is considered to be too low and therefore no further work on Anderson's property is recommended.

Respectfully submitted,

F. Morra

ACKNOWLEDGEMENTS

Acknowledgements are made to O. Anderson who gave me the permission to perform this work on his property, to W. Howard and L. Withers for their accurate geological mapping and valuable observations reported in the geological section of this report, and to K. Berndt and N. Ball for the assistance given during every phase of this property evaluation.

REFERENCES

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Soregaroli, A.E. and A. Sutherland Brown 1976: Porphyry Deposits of the Canadian Cordillera, S.V. 15, 1976, pp. 419-422.

MATTAGAMI LAKE MINES LIMITED
(NO PERSONAL LIABILITY)
EXPLORATION DIVISION

SUITE 1110
8 KING STREET EAST
TORONTO, ONTARIO
M5C 1B5

TELEPHONE 362-1653

November 24, 1977

ANDERSON OPTION

Statement of Costs in the Exploration of the above Property, August - September, 1977.

Staking Costs	$ 45.00
Geological reconnaisance, salaries	1,764.36
Aircraft Charter	3,077.95
Assays	431.85
Travel, etc.	516.70
Draughting	121.00
Clerical	48.26
Report Writing	385.28
	$6,390.40
Management, Supervision, Overhead (15%) --	958.56
	$7,348.96
less staking	45.00
	7303.96 allowed cost

staking costs not allowable

CERTIFICATION

I, Franco Morra, residing at 11234 - 72 Avenue, Edmonton, Alberta, do hereby certify that:

1. I graduated with a degree in geology from the University of Milan, Italy (BSc, Hon., 1972) and from the University of Alberta, Edmonton (MSc, 1977).

2. I have practiced my profession since 1972 and I am presently employed by Mattagami Lake Mines Limited as an exploration geologist.

3. To the best of my knowledge and experience all information contained within the scope of this report is believed to be accurate.

F. Morra, B.Sc., M.Sc.
Exploration Geologist

Dated: ______________

APPENDIX I.

ROCK AND STREAM SEDIMENT SAMPLES ASSAY RESULTS

BARRINGER RESEARCH LIMITED

304 CARLINGVIEW DRIVE
REXDALE, ONTARIO, CANADA
PHONE: 416-677-2491
CABLE: BARESEARCH

Laboratory Report

DATE : September 28, 1977

F. Morra
Mattagami Lake Mines Ltd.
c/o General Delivery
Dawson City, Yukon

cc. Mattagami Lake Mines
#502 - 8215-112 Street, College Plaza Office Tower
Edmonton, Alberta T6G 2C8

REPORT NUMBER: 68A

$HClO_4$ HNO_3 SAMPLE NUMBER ROCKS	Mo ppm									
0+00W, 11+00S to 12+00S	8									
00 +00W 14+00S to 15+ 00S	2									
15 + 00S to 16 + 00S	8									
16 + 00S to 17 + 00S	30									
17 + 00S to 18 + 00S	<2									
18 + 00S to 19 + 00S	6									
19 + 00S to 20 + 00S	<2									
21 + 00S to 22 + 00S	<2									
23 + 00S to 24 + 00S	14									
01 W 07S to 08S	95									
01 W 08S to 09S	4									
09S to 010S	14									
10S to 11S	4									
11S to 12S	14									
13S to 14S	14									
14S to 15S	2									
15S to 16S	10									
01 W 16S to 17S	2									
01 W 17S to 18S	12									
18S to 19S	4									

Laboratory Report /68A

SAMPLE NUMBER	Mo ppm									
01W 19S to 20S	14									
20S to 21S	4									
21S to 22S	10									
22S to 23S	8									
01W 12S + 20S	2									
01W 12 + 20S to 12 + 30 ms	4									
12 + 30 mS to 13S	<2									
01W 065 + 0075	<2									
2W 0S - 1S	8									
1S - 2S	14									
3S - 5S	6									
5S - 6S	6									
6S - 7S	12									
7S - 8S	6									
8S - 9S	8									
9S - 10S	32									
10S - 11S	26									
14S - 15S	1250									
15S - 16S	90									
16S - 17S	595									
17S - 18S	6									
18S - 19S	8									
19S - 20S	8									
20S - 21S	2									
21S - 22S	2									
2W 11S + 10	2									

Laboratory Report / 68A

SAMPLE NUMBER	Mo ppm									
2W 11S + 20	50									
11S + 30	6									
11S + 40	10									
11S + 50	16									
12S + 10	385									
12S + 20	555									
12S + 30	30									
12S + 40	110									
12S + 50	95									
13S + 10	46									
13S + 20	12									
13S + 30	440									
3W 4S	6									
5S	14									
6S	6									
7S	2									
8S	14									
9S	<2									
10S	4									
11S	<2									
15S	2									
16S	2									
17S	2									
18S	2									
19S	6									
3W 12 + 10S	4									

Laboratory Report / 68A

SAMPLE NUMBER	Mo ppm
3W 12 + 10S (2)	96
12 + 20S	210
12 + 30S	760
12 + 40S	10
3W 13 + 00S	2
13 + 10S	4
13 + 20S	120
13 + 30S	12
13 + 40S	12
3W 14 + 00S	6
14 + 10S	4
14 + 20S	2
14 + 30S	6
14 + 40S	6
4W 14S - 15S	6
17S - 18S	2
20S - 21S	<2
21S - 22S	6

SAMPLE NUMBER	Cu ppm	Zn ppm
0 + 00W 16 + 00S 17 + 00S	19	24
01 W 15S - 16S	15	20
2W 11S + 40S	135	75
3W 13 + 40S	19	12
4W 14S - 15S	225	95

BONDAR-CLEGG & COMPANY LTD.

1500 PEMBERTON AVE., NORTH VANCOUVER, B.C. PHONE: 985-0681 TELEX: 04-54554

Geochemical Lab Report

xtraction Au, Cu, Mo.

lethod Fire Assay, A.A.

raction Used -80 soils

Report No. 47-163

From Mattagami Lake Mines.

Date Sept. 23, 1977 19

SAMPLE NO.		Cu ppm	Mo ppm	ppb Au
OW 2S			14	
2+47S			14	
8+10S			18	
8+49S			15	
10+28S			19	
10+35S			21	
11+8S			34	
11+42S			43	
13+8S			44	
13+45S		265	21	10
15+25S			15	
15+32S			10	
16+2S			12	
16+10S			12	
16+20S			17	
20+38S			17	
21+15S			69	
OW 24S			18	
4W 1+24S			6	
2+45S		85	12	L5
3+3S			7	

SAMPLE NO.	Cu ppm	Mo ppm	Au ppb	
3+9S			7	
4+37S			8	
5+9S			7	
7+33S			36	
10+30S			14	
12+3S			66	
12+10S			50	
12+12S			44	
12+18S		170	39	10
12+30S			50	
12+36S		39		
12+39S		36		
4W 12+42S		19		
14+33S		25		
16+39S		12		
19+12S		68		
21+14S		20		
22+45S		71		
23+4S	270	121	5	
23+9S		75		
23+39S		24		

MAP NO. 1
ANDERSON'S MOLYBDENUM PROPERTY
GEOLOGY MAP (Reference: Tulsequah 104 K)
2 ALASKITE
3 DIORITE - GRANODIORITE
DIORITE - GRANODIORITE WITH PROPYLITIC ALTERATION
BASALTIC DYKE
SHEAR ZONE WITH CARBONATES
MINERALIZED QUARTZ VEIN (from 2 cm. to 2 m. wide)
ZONE OF NUMEROUS PYRITE AND/OR MOLYBDENUM VEINS (less than 2 cm. wide)
FAULT
SERICITE ALTERATION
JOINTS (inclined, vertical)
APLITE DYKE
TRENCH
Mo MOLYBDENUM
cc CALCITE
ep EPIDOTE
ser SERICITE
py, cp PYRITE, CHALCOPYRITE
STREAM
CABIN
571 STREAM SEDIMENT SAMPLE - Mo ppm
SCALE
10 0 10 25 metres
GEOLOGY BY F. MORRA
L. WITHERS
W. HOWARD
SEPTEMBER, 1977
0 S
1 S
2 S
3 S
4 S
5 S
6 S
7 S
8 S
9 S
10 S
11 S
12 S
13 S
14 S
15 S
16 S
17 S
18 S
19 S
20 S
21 S
22 S
23 S
24 S
0 W
1 W
2 W
3 W
4 W
Till Mound
Till Mound
Till Mound
POND
Intense Fracturing
Intense Fracturing
6897