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GEOLOGICAL REPORT

103I/10

MOLYBDENUM CREEK  
SKEENA MINING DIVISION

W. M. SHARP, P. ENG.

GEOLOGICAL REPORT  
on the  
MOLYBDENUM CREEK Mo-Cu PROSPECT  
in the  
vicinity of Terrace, B.C.

SKEENA MINING DIVISION

for

ZYMONT METALS LTD., (N.P.L.)

by

W.M. Sharp, P.Eng.

July, 1967

WILLIAM M. SHARP, P. ENG.  
CONSULTING GEOLOGICAL ENGINEER

STE. 808, 900 WEST HASTINGS ST.  
VANCOUVER 1, B. C.

The President and Directors,  
Zymont Metals Ltd., (N.P.L.)  
c/o Mr. D. W. Small,  
Suite 201-535 Thurlow Street,  
VANCOUVER 5, B.C.

July 17, 1967

Dear Sirs:

With this, the writer submits his report, as requested and authorized by you, on your molybdenum-copper prospect on Molybdenum Creek, near Terrace, B.C.

The writer expresses his thanks to Mr. E.R. Anderson for the essential supplementary data on previous exploration, and also to Mr. R. H. Bates for securing and forwarding copies of this material.

Respectfully submitted,

*W. M. Sharp*  
\_\_\_\_\_  
W. M. Sharp, P.Eng.,

WMS:vsm

*16 claims*

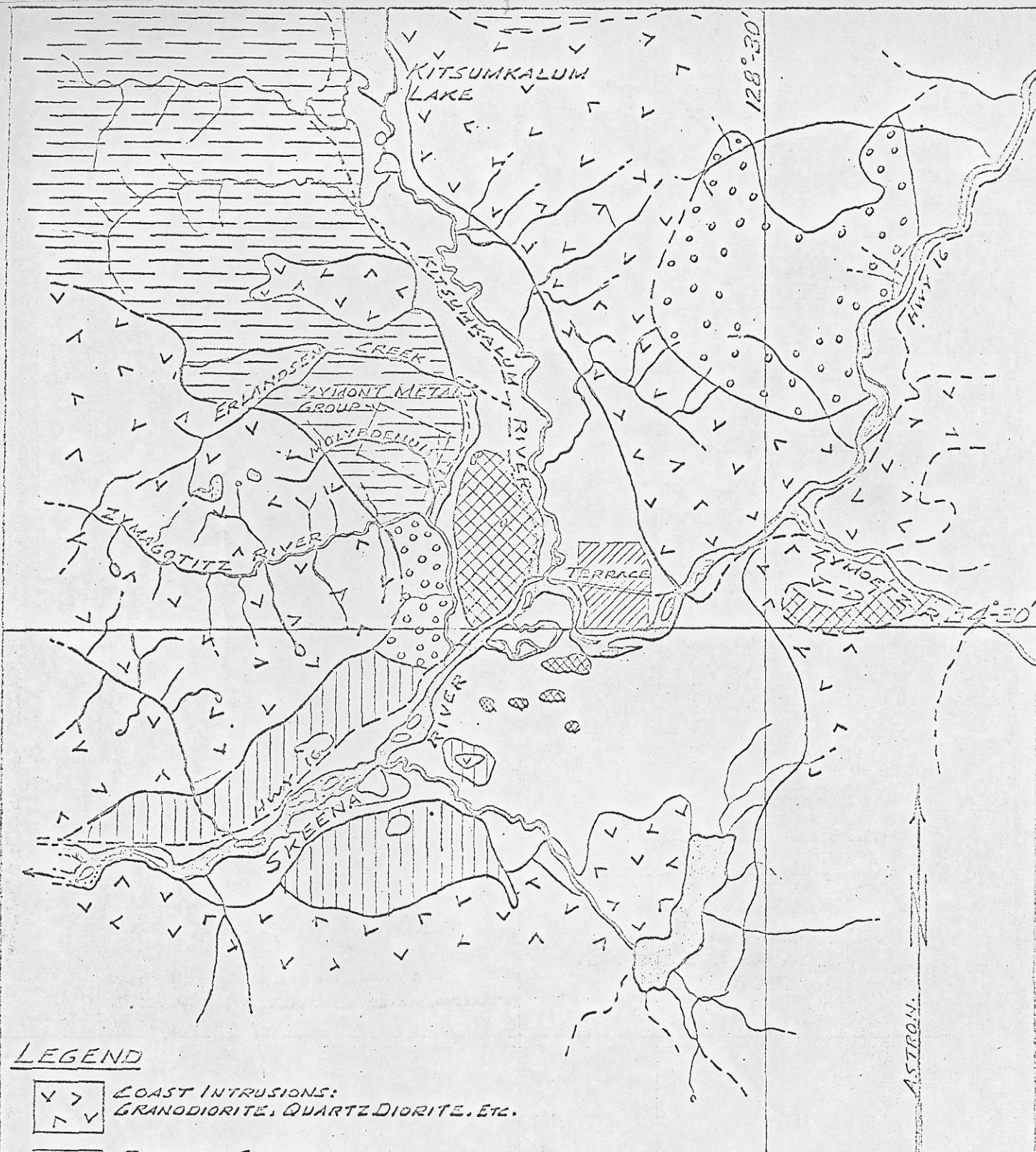
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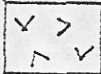
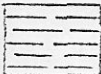

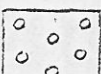

### REPORT DRAWINGS

Fig. 1-A, text; INDEX MAP, MOLYBDENUM CREEK GROUP;  
SCALE, 1 inch = 4 miles

DWG. No. 1, pocket; Composite Plan, Geology and Sampling;  
Scale 1 inch = 200 feet.



**LEGEND**

- 
 COAST INTRUSIONS:  
 GRANODIORITE, QUARTZ DIORITE, ETC.
- 
 BOWSER GROUP:  
 GREYWACKE, ARGILLITE, ETC.
- 
 HAZELTON GROUP:  
 PREDOM. ANDESITIC TUFFS, BRECCIAS.
- 
 TRIASSIC:  
 LIME-BOULDER CONGLOMERATE, ETC.
- 
 CARBONIFEROUS, PERMIAN,  
 GREENSTONE, SHALE, LIMESTONE.

**FIG. 1-A**

**INDEX MAP**

ZYMONT METALS LTD. (N.P.L.)  
 MOLYBDENUM CREEK GROUP  
 SCALE: 1 IN. = 4 MI. JULY, 1967.  
 REF. G.S.C. MAP 1136A "TERRACE"  
 B.C.D.M. 100(M)

W.H. SHARP, P. ENG.

WILLIAM M. SHARP, P. ENG.  
CONSULTING GEOLOGICAL ENGINEER

STE. 808, 900 WEST HASTINGS ST.  
VANCOUVER 1, B. C.

### SUMMARY AND RECOMMENDATIONS

This 48-claim group of Zymont Metals Ltd., (N.P.L.) is situated on Molybdenum Creek at roughly 10 miles northwest of Terrace, B.C. The writer's initial examination of the Mo-Cu mineral showings was made in August 1966; since this time additional prospecting and staking have been carried out.

The showings, being situated well within a steep-walled canyon are relatively inaccessible, as regards the normal methods of exploration; hence, the contemplated preliminary exploration program, consisting of surface-based diamond drilling, would be largely restricted to one relatively more accessible locality.

The claim group lies within the Bowser sedimentary group at less than two miles northeast of a main body of the Coast intrusives. Frequent sills and dykes, occur along the course of Molybdenum Creek; in addition, the local host rocks appear to be more-or-less thermally-altered. The above features suggest that the Molybdenum Creek showings are rather shallowly underlain by intrusive rocks.

Frequent exposures of Cu-Mo mineralization, within fractured hornfelsized sediments, occur in the bed and walls of Molybdenum Creek canyon over a N.W.-S.E. distance of about 4000 feet. The principal and/or more accessible showings occur within the northerly half of this interval. These consist of aggregates of quartz veins and minor fractures carrying significant amounts of Fe-Cu-Mo sulphides. From personal study of these occurrences, the writer believes that there is a fair possibility that economically-minerable vein-fracture deposits occur within the Molybdenum Creek section; the writer also infers that lithological-structural controls of mineralization should improve towards the main body of intrusive.


The meagre amount of exploration and somewhat doubtful and uncoordinated sampling done to date has not provided adequate data for even preliminary estimates of the economic potential of the principal showings.

With the above in mind, the writer recommends that the Company carry out a moderate program of surface diamond drilling to properly sample a portion of the upstream showings. Following this a more comprehensive program, involving cross-cut tunnelling and underground diamond drilling may be considered. The surface drilling would be directed to test principal showings within localities 'A' and 'B', as delineated in this report.

ESTIMATED COSTS

Heliport - drill site preparation	\$ 2,500.00
Move-in, move-out drill equipment and supplies - ground and air costs	1,000.00
Interim supply by helicopter	500.00
Core boxes, estimated @ 100 @ \$2.00	200.00
Core Drilling, BX wire line, estimate 2,500 l.f. @ \$12.00/l.f.	30,000.00
Provision for supervision, core-sampling	1,500.00
Provision for Cu-MoS <sub>2</sub> assays estimate 250 @ \$8.00 <sup>2</sup>	2,000.00
Vehicle rental and operation	500.00
Miscellaneous tools and supplies	500.00
General engineering	500.00
Provision for omissions and contingencies	4,000.00
	<hr/>
TOTAL	\$43,200.00

Respectfully submitted,

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W. M. Sharp, P.Eng.,

## INTRODUCTION

The writer's initial field examination was made on August 10, 1966. This consisted of a Brunton-chain survey of the access trail - with notes on attendant geologic-topographic features - leading from the access road to the canyon showings; this being followed by a general reconnaissance of accessible mineral showings, and a detailed examination of representative mineralization within one area on the southwest wall of the canyon. The writer supplemented his field observations with geological and sample data taken from E.R. Anderson's exploration files.

The above data have been supplemented by observations occurring from the writer's examination of the easterly-adjointing 'KMT' group, accomplished on June 12, 1967.

Messrs. R. E. Bates and E. R. Anderson helpfully guided and assisted the writer during both of the above-noted examinations.

A number of significant mineral showings could not be reached during the preliminary examination because of the turbulent, high-water conditions then prevailing within Molybdenum Creek gorge. However, adequate descriptions of these have been provided via Mr. Anderson's files. These include a tracing of Mr. K. C. Fahmi's sample plan, with geological notes, accruing from his October, 1963 examination of the property; this is augmented by a detailed sample-assay report.

Other reference data from Mr. Anderson's file comprises assay reports relating to sampling by Southwest Potash geologists during October and November, 1963, and an assay report resulting from localized sampling by Utah field personnel in June or July, 1966.

The writer acknowledges his incorporation of the above data in this report; special acknowledgement is made to Mr. K. C. Fahmi, who has kindly given his verbal consent for the writer to use his data. These, consisting of the above-noted plan and report, comprise the principal reference for this report.

From his own observations of the mode of occurrence of molybdenite and chalcopyrite - within friable quartz veins and as fragile, minute seams within intervening sections of country rock - the writer did not think that additional hand-sampling was practicable; therefore he confined his investigations to general features of access, to detailed studies of specific mineral occurrences, and to considerations of the probable feasibility and value of more comprehensive exploration by alternative methods.

## CLAIMS

These are shown on report Dwg. No. 1.

The group consists of a single block of 40 claims including a 2.7 mile central interval of Molybdenum Creek, and extending up the adjacent slopes to their summit areas.

The group contains all of the known, significantly-mineralized showings outcropping along Molybdenum Creek and canyon walls.



The original Pine group consisted of some 8 claims held by E. R. Anderson, Terrace, B.C. Since acquiring an option on the group from Mr. Anderson during the summer of 1966, Zymont principals have located additional claims, bringing the group to its present size. The total claims area adequately covers the currently-inferred mineral zones and extensions.

Schedule "A" appended, and compiled from the Company's records, provides details of claim nomenclature, location, record, ownership, and current status per assessment work performed.

#### LOCATION AND ACCESS

This is illustrated by Fig. 1-A and Dwg. No. 1 with this report.

The property is situated some 8 miles northwest of Terrace, B.C. It straddles Molybdenum Creek, which is tributary to Zymagotitz River. The group lies within the Skeena Mining Division.

An all-weather gravel road permits standard vehicle access to within 1 mile, or less, of the principal showings - this point being reached via 7 miles of Celgar's main haul-road up Kitsungalum valley from Highway 16, followed by about the same length of secondary haul road departing westward. From the end of the road the property is reached by roughly 3/4 miles of foot-trail along the northeasterly side of Molybdenum Creek canyon.

The showings, which include both natural and slashed exposures, occur along the creek banks, on the steep rock walls of the canyon, and on the upper, less precipitous timbered slopes.

Molybdenum Creek, being closely confined by precipitous rock walls, does not furnish a convenient access route at any time. During periods of high run-off it is particularly difficult to reach all but a few of the showings.

In view of the generally steep, to precipitous local terrain, the writer believes that road construction for preliminary exploration would be impracticable; these operations could be more expeditiously serviced by helicopter, rope-way, etc. In the event that an access road becomes necessary, it would appear that the present trail route would present fewer obstacles to construction and maintenance.

#### HISTORY

The showings have had very little work performed on them; hence the property is viewed as an essentially raw prospect.

Mr. E. R. Anderson, vendor, has held the group for a few years. In this time he has opened and exposed several mineral showings by small hand excavations in both overburden and rock.

As previously noted the property has been examined, in varying detail, by K. C. Fahrni in October, 1963; by Southwest Potash Corporation about the same time; and by both Utah Construction and Mining and the writer - the latter on behalf of Zymont Metals Ltd., - in June and July, 1966. In addition, Mr. R. H. Bates, on behalf of Zymont, has prospected and surveyed the property intermittently since the early summer of 1966.

## PRINCIPAL SHOWINGS

These are generally shown on report Drawing No. 1.

Most of these occur within a 100-foot vertical distance above the creek, and lie within the Leo # 1 and # 3 M.C.'s.

Two specific showings, herein designated localities "A" and "B", include representative occurrences of molybdenite/chalcopyrite - bearing quartz veins and lesser fractures; these were selected for detailed study by the writer, and are described later in this report. They are situated on the southwest canyon wall, at 300-400 feet downstream of the log 'bridge' at an elevation of roughly 40-60 feet above the creek level.

## GEOLOGY AND MINERALIZATION

### (A) GENERAL

This is illustrated on report Fig. 1-A and the inset sketch on Drawing No.1.

The property is entirely underlain, at least within the vertical range of exposures, by sediments of the Upper Jurassic and (?) Lower Cretaceous Bowser Group. Locally, these consist of unaltered to thermally-altered argillites, quartzites, intergradations of the foregoing, and visibly minor amounts of greywacke. The latter rock type is reportedly more abundant within stratigraphically-higher sections occurring in the upper valley slopes and ridges. The local argillite-quartzite section is well exposed along the creek-canyon walls, but infrequently exposed at, and above the level of the access trail. The more quartzitic rocks are typically thickly-bedded to massive; while predominantly argillaceous units tend towards thinner bedding sequences.

Although the local sedimentary section is situated nearly 2 miles north-eastward of the main batholithic contact, it has been significantly intruded by granitic material, forming local sill-and-dyke complexes. Sediments within these general sections have been variably silicified, biotized, and/or hornfelsized.

Mapping by the G.S.C. indicates that the northerly-to-northwesterly-striking essentially flat-lying section of beds underlying the Molybdenum Creek area were not notably folded by the intrusion of the batholith.

The areal predominance of intrusive rocks, with respect to sedimentary-volcanic rocks, within the general Molybdenum Creek section of the map area suggests that the latter may have a roof-pendant relationship to the former. If this is the case, it would be probable that the nearby granodiorite contact would slope moderately to the northeast, and underlie the Molybdenum Creek showings at relatively shallow depths. The sill-dyke complex occurring in the area of the showings, also, may root at only moderate depths and/or distances to the southwest. With this an increase in metamorphism, fracturing, and mineralization could be expected with depth and/or southwesterly towards the underlying intrusive.

### (B) DETAILED

The (brittle-competent) hornfelsic interbeds and sections outcropping along Molybdenum Creek and appears to have been more susceptible to fracturing than the massive (stronger) quartzitic bedding sections.

All fractures appear to have been more-or-less mineralized with quartz, pyrite, and chalcopyrite/molybdenite. Frequently the only outward evidence of mineralization within smaller slips and joints is provided by coloured alteration selvages. Within these, Mo-Cu sulphides typically occur as film-like coatings.

The flatly-bedded canyon exposures exhibit numerous quartz veins ranging in width from a small fraction of an inch, to a foot and, less frequently, up to 2 or 3 feet. These show a corresponding range of textures, with the Cu-Fe-Mo sulphides varying from sooty-blue (molybdenite-pyrite) dispersions, to disseminated-granular, to massive granular aggregates of the above sulphides - the latter most frequently occurring as central clots and/or marginal bands within the more prominent quartz veins.

As the ore minerals mainly occur as brittle films or aggregates within both 'tight' and 'open' fractures of diverse orientation, the actual metal content of the host rock cannot be determined with sufficient accuracy by chip, or channel-sampling. The writer believes that only bulk, or core-drill sampling will return representative assays.

Past sampling of individual and multiple quartz-vein exposures shows that high-grade Mo-Cu mineralization occurs locally and/or at random intervals across various sections of the host rocks. However chip-sampling of less obviously fractured and mineralized intervening sections of host rock returned uniformly low Cu and Mo assays. In view of the apparent local inapplicability of chip-sampling, the writer is inclined to disregard assays from sampling by this method.

### (C) FRACTURE STUDIES

Two separate sections of hornfelsic - quartzitic country rock, exhibiting random sets of mineralized quartz veins and minor fractures, were studied. These areas were designated as localities "A" (downstream) and "B" (upstream). The fractures were grouped on the basis of specific ranges of dip: "flats" at 0-30°; "intermediates" at 30-60°; and "steeps" at 60-90°. The number of each of these was determined by actual counts; however, a considerable number of weaker fractures may have been overlooked. The following distributions were indicated:

Locality "A" :

10 flat; 2 intermediate; 3 steep -- total 15

Locality "B" :

10 flat; 7 intermediate; 6 steep -- total 23

"A" and "B" :

20 flat; 9 intermediates; 9 steep -- total 38

The 'flats' and 'intermediates' appeared to lie within an east, to west-dip zone; the 'steeps' within a north, to south-dip zone.

From the above, the writer concluded that surface drilling from a bench closely up-stream (west) of locality "B", with holes aimed southerly and on, say, 60°-80° inclinations should efficiently core-sample the local showings -

particularly as the occurrence of additional mineralized 'flat' seams is suspected.

SAMPLE-ASSAY DATA

As only Mr. Fahrni's records provide sample locations, only his samples (#1 - #20) are shown on Dwg. No. 1. Assays accruing from sampling by other examining geologists are based on random chip-samples, and for reasons previously noted are probably not sufficiently representative for purposes of average grade estimation. However, for the sake of completeness all results are listed below:

(A) K.C.F. SAMPLES, 1963

Sample No:	Description	Assays				
		oz/ton Au	oz/ton Ag	% Cu	% Mo	Equip % MoS <sub>2</sub>
1.	Veinlets in granite & seds.	0.01	Tr.	0.16	0.07	.12
2.	Seds. with quartz (veins)	.01	0.10	1.07	.02	.033
3.	Quartz with sulphides	Tr.	Tr.	.31	.04	.067
4.	3" quartz vein	Tr.	Tr.	.18	.18	.30
5.	2" quartz vein	.01	Tr.	1.05	.28	.47
6.	Veins in schist	.02	.40	1.07	.01	.017
7.	5" vein	.01	.20	.90	.02	.033
8.	12" vein, west side	.02	.90	3.03	.01	.017
9.	3" vein at dyke	.01	.20	.59	.18	.30
10.	4-3" veins --- 25'	.01	.10	.49	1.17	1.95
11.	Veins in creek	Tr.	Tr.	.07	1.21	2.02
12.	Veins in creek	Tr.	Tr.	.42	.02	.033
13.	2' vein	.02	Tr.	.95	Tr.	Tr.
14.	9" vein	.02	Tr.	.26	.35	.58
15.	Several ½" veinlets	.02	Tr.	.25	.06	.10
16.	2' vein	.20(?)	.20	.21	.01	.017
17.	12" vein	.02	Tr.	.64	.04	.067
18.	12" vein	.02	Tr.	.25	.14	.23
19.	6" vein	.01	Tr.	.21	.15	.25
20.	3' vein	.02	Tr.	.42	.06	.10

(B) SOUTHWEST POTASH per Coast Eldridge Oct. 25 and Nov. 20, 1963.

These, per advice from Mr. Bates, are assays of chip-samples of country rock (not located) *(available)*

SAMPLE No.	Description	Oz/ton Ag	% Cu.	% Mo.	% MoS <sub>2</sub>
11878	nil	-	-	-	0.40
11879	nil	-	-	-	0.25
11880	nil	-	-	-	0.03
11881	nil	-	-	-	0.30
11882	nil	-	-	-	0.23

Further Southwest Potash assays on samples #109 - #131 inclusive - origin not specified - ranged from 0.01% to 0.04% Cu, and from trace to 0.05% MoS<sub>2</sub>

(C) UTAH CONSTRUCTION & MINING CO. per Coast Eldridge assay report of July 20, 1966

SAMPLE No.	Location	Description	Oz/ton Au.	Oz/ton Ag.	% Cu.	% MoS <sub>2</sub>
25652	Sta.53+70	Part 1 & 2	Trace	0.10	0.04	0.06
25653	Sta.42+	-	Trace	Trace	0.17	0.02
25654	Sta.39+	-	0.01	0.10	0.28	0.11

These, reportedly, represent general random sampling.

*W.M. Sharp*

WILLIAM M. SHARP, P. ENG.  
CONSULTING GEOLOGICAL ENGINEER


STE. 808, 900 WEST HASTINGS ST.  
VANCOUVER 1, B. C.

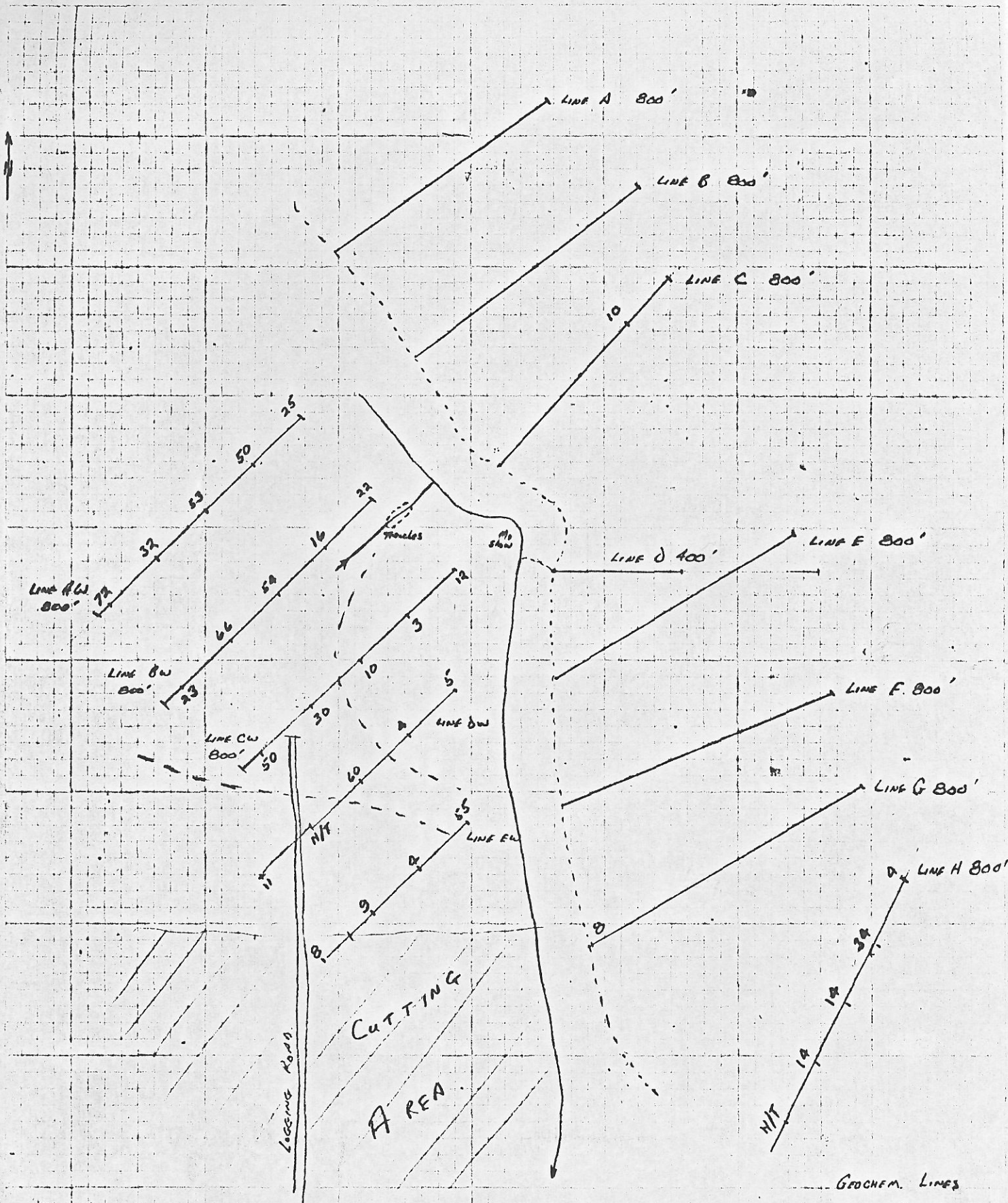
CERTIFICATE

I, William M. Sharp, with business address in Vancouver, British Columbia and residential address in North 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 with B.A.Sc. (1945) and M.A.Sc. (1950) degrees in Geological Engineering.
3. I am a registered Professional Engineer in the Province of British Columbia.
4. I have practiced my profession since 1946, in both geological and managerial capacities, with Canadian mining companies until 1964, when I established my own consulting practice.
5. I have personally examined the Molybdenum Creek Mo-Cu prospect for Zymont Metals Ltd., (N.P.L.), and have studied the available technical data, reports, correspondence, and Dominion and Provincial government reports pertaining to the property and region.
6. I have no interest, direct or indirect, in the properties or securities of the above Company, nor do I expect to acquire any such interest.
7. I have inspected such claim posts and location lines as I encountered during my property examination. These appear to be as required by the B.C. Mineral Act. In addition, from my general knowledge of the proficiency of the Company's field men, I assume that the locations have been made as plotted.

Respectfully submitted,

  
W. M. Sharp, P.Eng.



GEOMETRICAL LINES  
MOLLY CREEK  
VERY ROUGH SKETCH PLAN  
1" = 400'  
H.R. BULLER

MACLEOD & SMALL

685-2361

BARRISTERS & SOLICITORS

J. RAYMOND MACLEOD  
DANIEL W. SMALL  
JAMES L. BARRETT  
JON F. TOLLESTRUP

SUITE 201-535 THURLOW ST.

VANCOUVER 5, B.C.

REPLY ATTENTION OF Mr. Small.

OUR FILE NO: SY 1109

January 4th, 1968.

Mr. E.R. Anderson,  
Box 297,  
TERRACE. B.C.

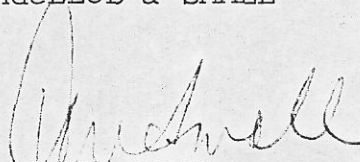
Dear Sir,

Re: Zymont Metals Ltd. (N.P.L.).

We acknowledge receipt of your letter of December 30th, 1967 and enclose herewith a copy of the Report of W.M. Sharp covering the claims.

Zymont Metals Ltd. (N.P.L.) is without funds.

Yours truly,  
MacLEOD & SMALL

  
D.W. SMALL

DWS.hf  
Dict. Jan. 3rd.

c.c. The Directors,  
Zymont Metals Ltd. (N.P.L.).

Encl.