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

August 30th, 1966.

REPORT

PRELIMINARY GEOLOGICAL EXAMINATION

of the

MOLYBDENUM CREEK MO-CU PROSPECT.
~~PINE GROUP MOLYBDENUM - COPPER PROSPECT~~

W.M.
**Molybdenite Creek, vicinity of Terrace, B.C.,
Skeena Mining Division.**

Zymond Metals Ltd., (N.P.L.)

**Anco Explorations Ltd. (N.P.L.),
#200 - 535 Thurlow Street,
Vancouver 5, B.C.**

Attention: Mr. D. W. Small, W.D. Yorke-Hardy

INTRODUCTION:

The following report summarizes my recent examination of the "Pine" molybdenum-copper prospect consequent upon receipt of your instruction and authorization to examine the showings and plan general exploratory work.

The examination was accomplished during August 10, 1966. This consisted of a brief reconnaissance of showings reasonably accessible during a period of high-water conditions in Molybdenite Creek. Messrs. R.H. Bates and E. R. Anderson provided guidance and willing assistance on a preliminary survey of the canyon access route and on geological detailing; the writer thankfully acknowledges this helpful cooperation.

Mr. Anderson also temporarily provided the writer with a map and report by K. C. Fahrni relevant to his October 4, 1963 examination of the showings, reports of general sampling done by Mr. Aird of Utah Construction and Mining during July of this year, and an index plan of sampling and showings which had been compiled by Mr. Anderson.

As surface sampling for evaluatory purposes was neither feasible nor practicable, the writer restricted his investigations to general features of access, geology and mineralization, and possibilities of diamond-drill exploration.

LOCATION & ACCESS

The property is situated at approximately 10 miles northwest of Terrace. Ordinary motor vehicles may be driven to within one mile of the showings via well-graded secondary logging roads branching westward from the main Kit-senkalum haul-road of the Celgar Company. The start of the Molybdenite Creek access trail is 7 miles west of the above haul road. Present foot access is by way of some 3,500 feet of high-level trail along the northeast side of Molybdenite Creek canyon.

The showings, which include both natural and slashed exposures, occur along both banks of the creek and steep canyon walls.

Molybdenite Creek provides some obstacles to general low-level access and exploration during periods of rapid melting and run-off originating from extensive snow fields within the upper reaches. Even during the mild-showery weather prevailing at the time of the examination, the creek level was too high to permit ready access and examination of creek-side showings.

In view of the rather steep creek gradient, the generally abruptly-rising canyon walls, and the loosely-fractured condition of these walls for a considerable vertical distance above the creek, the writer believes that the construction and maintenance of a safe access road would be difficult and prohibitively expensive. The east-slope trail route for a road, if required, appears more feasible.

PROPERTY & OWNERSHIP

The Pine group originally consisted of some 8 or more claims held by E.R. Anderson of Terrace, B.C. Since acquisition of the ground by Messrs. W.D. Yorke-Hardy, D.W. Small and associates, additional staking has increased the extent of the group to about 24 claims at the time of the writer's visit. The present areal extent is now sufficient to safely cover possible extensions of the mineralized zone well beyond the known occurrences; the group also includes the broad band of variably-metamorphosed sediments forming the general northeasterly contact zone of the granodioritic batholith lying at roughly a mile to the southwest of the Molybdenite Creek showings.

GEOLOGY & MINERALIZATION

The claim group is underlain by Bowser Group rocks, locally consisting of a rather mixed assemblage of greywackes, argillites and quartzites. These are well exposed along the shear walls of the canyon, and less well exposed along the access trail, which generally follows the N.E. brow of the canyon. Individual lithologic units are thinly-bedded to massive, thickly-bedded.

The proximity of the local bedding section to the northeasterly contact of the regional granodiorite batholith is marked by the frequent occurrence of injected granitic material. Within the vicinity of the showings, argillites and greywackes adjacent to the frequent sills and dykes have been variably silicified, biotized, or hornfelsized.

G.S.C. map 1136A indicates that the north to northwesterly-striking rather flatly N.E.-to S.W.-dipping Bowser sediments, flanking the granodiorite batholith were not markedly deformed by the intrusion. The regional distribution of the intrusives suggests that overlying sediments might occur, at least within the vicinity of the claim group, as a relatively shallow roof-pendant. Consequently the local sill-dyke complex may root at only moderate depths to the southwest within the main intrusive. Coincidentally, metamorphism, fracturing, veining and possibly mineralization, may increase substantially to the southwest at the currently-established mineralized horizon.

Hornfelsic units of the Molybdenite Creek bedding section are more frequently and conspicuously fractured; whereas the more massive relatively unaltered quartzitic beds, thicker sills and dykes show a less obvious development

of random minor fracturing. All fractures appear to have been more-or-less mineralized with quartz, pyrite and variable amounts of chalcopyrite-molybdenite. Frequently the only outward evidence of mineralization within the smaller slips and joints is shown by colour contrasts provided by alteration selvages. These minor fractures are typically mineralized by film-like coatings of the above sulphides.

The flatly-bedded canyon exposures exhibit numerous quartz veins varying in thickness from a fraction of an inch to a foot, and occasionally wider. These are similarly mineralized but contain a wider range of textures - the sulphide content ranging from sooty-blue (molybdenite-pyrite) dispersions to distinctly disseminated, to massive granular aggregates - most frequently as central clots or marginal bands.

As a significant proportion of the brittle sulphides occur within "tight" fractures of diverse orientation, conventional chip, or channel sampling would be essentially useless. The applicable alternatives are bulk sampling or core-drill sampling. Under existing topographic limitations, and without tunnelling, the latter constitutes the locally more practicable method of obtaining representative samples.

Mr. K. Fahmi's sampling of individual and multiple quartz veins shows that frequent occurrences of high-grade copper-molybdenum mineralization occur at random intervals throughout the section - frequently up to several percent combined Cu-Mo. On the other hand, samples of apparently very sparsely-mineralized tight wall rock by Utah Mining showed Cu and Mo contents ranging from 0.04 - 0.23%, and 0.02 - 0.11 % respectively. Hence the objective of the proposed preliminary exploration program is to determine the gross Mo-Cu content within the aggregate section comprised of visibly-mineralized quartz veins and less-evidently mineralized random seams.

STATISTICAL ANALYSIS OF FRACTURES

Two accessible, continuous sections of mineralized hornfels and quartzitic rock, designated as "A" (down-stream) and "B" (up-stream) were examined. For purposes of general classification, on the basis of dip-angle, fractures were classified as follows: "flat" @ 0° - 30° ; "intermediate" @ 30° - 60° ; "vertical" @ 60° - 90° . The local fracture distributions were as follows:

Locality "A":

10 "flat"; 2 "intermediate"; 3 "vertical" - Tot. 15
0-30° 30°-60° 60°-90°

Locality "B":

10 "flats"; 7 "intermediate"; 6 "vertical" - Tot. 23

Totals: 20 "flats" 9 "intermediate" 9 "vertical" - Tot. 38

Also dips ranged from 40° easterly, through vertical, to 20° westerly on only a minor number of the fractures; also from 65° north to 70° south on the less frequent "verticals".

From the above, it was concluded that surface diamond drilling from the bench closely up-stream (west) of locality "B", with holes pointed downstream and slightly into the hill, on, say, 60° to 80° inclinations initially, should efficiently sample local mineralization - particularly as additional undetected tight, flat mineralized seams are suspected to occur.

SUMMARY & RECOMMENDATIONS

Appreciable amounts of Cu-Mo mineralization occur within relatively obvious quartz veins within a favourable and extensive section of hornfelsized to silicified flatly-bedded sediments outcropping along Molybdenite Creek canyon. In addition an unknown amount of Cu-Mo sulphides occur within difficultly detectable fine seams and joints of the enclosing rock. Hence diamond drilling from one or more set-ups on the south creek bench is recommended as the most practicable, rapid, and economical method of sampling the accessible up-stream section of the general mineralized zone.

ESTIMATED COSTS:

General drill-site clearing and heliport preparation	\$ 1,000.00
Helicopter equipment transport	500.00
Core Drilling; BX wire-line, 1,500 l.f. @ 10./l.f.	15,000.00
Camp preparation & supplies	500.00
Core boxes	100.00
Supervision, engineering and assaying	900.00
Allowance for omissions and contingencies	<u>2,000.00</u>
TOTAL:-	\$ 20,000.00

Respectfully submitted,

W. M. Sharp, P. Eng.

Pine Group.

Re. Molybdenite Creek Aug 10/66.

EP by K.C. Pakrui; Oct. 4, 1963.

Plan: survey up-stream property; receive any detailed geol. mapping for wider up-stream section of zone.

Note Al Anderson has done considerable (temporary) work (?) since initial survey.

Samples (country rock) by Aird (?) of Utah Contract 2 Mining - July 20, 1966; (Al. states' Aird ^(hoo-hoo) says that his Co. could not make fast cash offer (as per Bill y-H)).

Aird Sampler (C.R.)	As	Ag	Cu	Mn 5 ₂
#25652, part 1 + 2 -	Tr	0.1	0.04	0.06
25653	Tr	Tr	0.17	0.02
25654.	<u>0.01</u>	<u>0.10</u>	0.23	0.11

Area A = 0/5

B = 0/5 but S.E. of bench area.

Group, ~~in part~~ 24 claims to date of survey, with additional staking planned for 0/5 - 0/5 extension of zone.

PINE GROUP, Molybdenite Cr. Tenness area; Aug 10/66

Access road survey:

S.P. @ end of Branch "4", @ 2 miles from Colgan log haul road; --- S.P. = 0' EL 0 @ 800.00

Course;	Bearing	S.P.	V.L.	H.D.	V.D.	EL
0-1;	N 53 1/2° W	87.0	+12°	85.5	+18.0	818.0
1-2	N 11 1/2° W	76.6	+31°	66.5	+39.0	857.0
2-3	N 51 1/2° W	87.5	+11 1/2°	85.0	+17.0	874.0
3-4	N 67° W	100.0	+16 1/2°	96.0	+28.0	902.0
4-5	N 51° W	69.0	+20°	65.0	+23.0	925.0
5-6	N 39° W	59.0	+18°	56.0	+18.0	907.0
6-7	N 86° W	47.0	-6°	47.0	-5.0	902.0
7-8	N 44° W	66.5	+10°	66.0	+11.5	913.5
8-9	N 52° W	88.5	+3°	88.5	+4.5	918.0
9-10	N 70° W	90.8	0°	90.8	0.0	918.0
Steep side hill heavy O.B. timber, +37°						
10-11	S 62° W	32.5	-23°	30.0	-12.0	906.0
(ditto topog; +37°)						
11-12	N 42° W	57.3	-4°	57.0	-4.0	902.0
(ditto topog etc) N side canyon						
12-13	N 86° W	61.5	+12 1/2°	61.5	+2.0	904.0
(across X-draw)						
13-14	N 70° W	94.5	-5°	94.0	-8.0	896.0
(ditto re topog on N side canyon)						
14-15	N 67° W	55.6	+17°	53.0	+16.0	912.0
(ditto re topog N side canyon)						
15-16	N 50° W	60.0	+15°	58.0	+15.0	927.0
(ditto re topog)						
16-17	N 51° W	57.3	-5°	57.0	-5.0	922.0
(ditto)						
17-18	N 29° W	47.9	+4 1/2°	47.6	+4.0	926.0
(ditto)						
18-19	N 15° W	100.0	+23°	92.5	+38.5	964.5
(ditto)						
19-20	N 45° W	59.3	+12 1/2°	58.0	+12.0	976.5
(ditto - some more dry etc.)						
20-21	West	90.5	-2°	90.5	-3.0	973.5
(back near camp)						

1482.3
10

Cont'd Pine Shavings Survey (cont.) Aug 10/66

10/6/

Course	Bearing	S.D.	V.L.	H.D.	V.D.	E.L.	Remarks
21-22	N48W	27.5	+21°	26.0	+9.5	973.5 983.0	on steep bank & N side canyon, rough ridge
22-23	N46W	83.0	+5½°	83.0	+7.0	990.0	
23-24	N63°W	84.0	-0½°	84.0	-0.5	989.5	
24-25	N50W	67.0	+15½°	65.0	+17.5	1007.0	30-35° slope R-L. heavily bog 0.15,
25-26	N52°W	76.5	+5½°	76.0	+7.0	1014.0	
26-27	N26°W	53.0	+3°	53.0	+3.0	1017.0	20-30° above trail 50° below trail
27-28	N30°W	60.0	+16½°	57.5	+17.0	1034.0	ditto
28-29	N35°W	75.9	+7½°	75.5	+9.5	1043.5	ditto
29-30	N42½W	87.5	+10°	87.0	+15.0	1058.5	"
30-31	N52W	80.8	-2°	81.0	-3.0	1055.5	"
31-32	N58W	40.2	-2°	40.2	-1.5	1054.0	"
32-33	N39°W	74.0	+12°	73.0	+15.0	1069.0	on brow 20-70° slope
33-34	S81°W	66.5	-3°	66.5	-3.5	1065.5	ditto; heavily
34-35	N88W	70.0	-9½°	69.0	-11.5	1054.0	
35-36	N66°W	97.5	+0½°	97.5	+1.0	1055.0	all on 30° slope @ A 37400
36-37	N36W	80.6	+06°	80.0	+8.0	1063.0	Nov 8/67 adj.
37-38	N34°W	98.0	+14°	95.0	+23.0	1086.0	"
38-39	N49W	51.0	+18°	48.5	+15.5	1101.5	Not on main "main" show, across creek
39-40	N14E	62.8	+17½°	60.5	+18.5	1120.0	
40-41	N25½W	71.0	-08°	70.0	-9.5	1110.5	50' on brow of road to steep canyon slope .015 @ Sta 42+00,
41-42	N07W	42.0	+15°	41.0	+11.0	1121.5	
42-43	N26W	51.3	+10½°	51.0	+9.0	1130.5	
43-44	N17W	38.0	+9°	37.5	+5.5	1136.0	
44-45	N63½W	33.8	+10½°	33.5	+6.0	1142.0	1110 ft. in air @ 30' v.d. below 45' or 40' 20'
45-46	N21W	62.0	+4°	62.0	+4.0	1146.0	End of Calaveras Park a 400' v.d. above pt (+)
46-47	N80W	51.5	+4°	51.5	+3.5	1149.5	
47-48	N39W	66.0	+14°	64.0	+16.0	1165.5	

1195.9

Some occur through cont'd:

Some foliated arg. gneiss
with some quartz
Tuff. gneiss
(3)

Course	Bearing	S.D.	V.L.	H.D.	V.D.	EL.	REMARKS
48-49.	557½W	54.0	-8°	53.0	-7.0	1165.5 1158.5	Trail cut up to 49: 665 found trail & cr here
49-50	507E	68.7	-22½	69.0	+16.0	1179.5	Open more moderate slope here for pins suited here
50-51	515W	53.0	-44°	39.0	-37.0	1137.5	Trail branches down slope 0 0.50
51-52	533W	57.0	-41½°	53.0	-37.5	1100.0	0 10' above W.P. of valley ft of trail/ridge

Statistical on Fractures: 232.7 178.7 0-30 - flat
90-60 - vert } w strikes.
30-60 - intermed.

- (A) v. 6 flat - tight
10' vert 1/2" - 4" g2, w as 52 - intermed. dip up.
range 2 flat - tight
15' v. 2 flat - 1/8" - 1/4" max
u/s - d/s
1 vert - W; 70° S; 1/4" x 2' long
1 vert W; 70° N; to 1/2" hair length
1 intermed. W; 40° S; 1/8" - 1/4"
1 vert W; 65° N.
Note: very probably a considerable number (flats) not detected

B: v. 1 - 4" - 6" lenticular flat g2 v. ± 15°

✓ 2 flat	
✓ 4 intermed	10 flats
✓ 3 vert. favour u/s dip	7 inter
✓ 1 intermed.	6 vert. - steep u/s
✓ 1 vert c N60 W.	
✓ 2 flats (thin), 20° - 30° N.	232.7
✓ 2 + flats (thin), 20° E	1795.9
✓ 1 vert (thin) N 50 W + 85° NE.	1482.3
✓ 1 flat 10° S.	3510.9
✓ 2 flats	178.7
✓ 2 intermed - N	3332.2
✓ 1 vertical	

Stamps + variably biotized to hornblende argillites,
quartzites, some gneisses; see notes by box
larger g2 veins prominent < 30°, or near-vertical.
"Painted" folios of M052 on trail planes - smallest, but
poss. most prevalent alteration; some brown py/M052 adjacent
to faults, and all with bl-silic selvages.

PURE GROUP, MOLYBDENITE CR BRUNTON - TAPE
TRaverse; AUG. 10, 1966.

ACCESS "ROAD" SURVEY:

STARTING POINT "O" @ APPROX. 7 MI. FROM CELGAR

MAIN HAUL ROAD: ASSUMED EL. 800' F.S. = FORESIGHT.

COURSE	BEARING	SLOPE DIST'	VERT. ANGLE°	HOR. DIST'	VERT. DIST'	ARBITRARY EL. F.S.
0 - 1	N 53½ W	87.0	+12	85.5	+18.0	818.0
1 - 2	N 11½ W	76.6	+31	66.5	+39.0	857.0
2 - 3	N. 51½ W	87.5	+11½	85.0	+17.0	874.0
3 - 4	N 67 W	100.0	+16½	96.0	+28.0	902.0
4 - 5	N 51 W	69.0	+20	65.0	+23.0	925.0
5 - 6	N 39 W	59.0	+18	56.0	+18.0	907.0
6 - 7	N 86 W	47.0	-6	47.0	-5.0	902.0
7 - 8	N 44 W	66.5	+10	66.0	+11.5	913.5
8 - 9	N 52 W	88.5	+3	88.5	+4.5	918.0
9 - 10	N 70 W	90.8	0°	90.8	0.0	918.0
10 - 11	S 62 W	32.5	-23	30.0	-12.0	906.0
11 - 12	N 42 W	57.3	-4	57.0	-4.0	902.0
12 - 13	N 86 W	61.5	+1½	61.5	2.0	904.0
13 - 14	N 70 W	94.5	-5	94.0	-8.0	896.0
14 - 15	N 67 W	55.6	+17	53.0	+16.0	912.0
15 - 16	N 50 W	60.0	+15	58.0	+15.0	927.0
16 - 17	N 51 W	57.3	-5	57.0	-5.0	922.0
17 - 18	N 29 W	47.9	+4½	47.6	+4.0	926.0
18 - 19	N 15 W	100.0	+23	92.5	+38.5	964.5
19 - 20	N 45 W	59.3	+12½	58.0	+12.0	976.5
20 - 21	WEST	90.5	-2	90.5	-3.0	973.5
21 - 22	N 48 W	27.5	+21	26.0	+9.5	983.0
22 - 23	N 46 W	83.0	+5½	83.0	+7.0	990.0
23 - 24	N 63 W	84.0	-00½	84.0	-0.5	989.5
24 - 25	N 50 W	67.0	+15½	65.0	+17.5	1007.0
25 - 26	N 52 W	76.5	+5½	76.0	+7.0	1014.0
26 - 27	N 26 W	53.0	+3°	53.0	+3.0	1017.0

COURSE	BEARING	SLOPE DIST.	VERT. ANGLE	HOR. DIST	VERT. DIST.	EL.
27-28	N30 W	60.0	+16 1/2	57.5	+17.0	1034.0
28-29	N35 W	75.9	+7 1/2	75.5	+9.5	1043.5
29-30	N42 1/2 W	87.5	+10	87.0	+15.0	1058.5
30-31	N52 W	80.8	-2	81.0	-3.0	1055.5
31-32	N58 W	40.2	-2	40.2	-1.5	1054.0
32-33	N39 W	74.0	+12	73.0	+15.0	1069.0
33-34	S81 W	66.5	-3	66.5	-3.5	1065.5
34-35	N88 W	70.0	-9 1/2	69.0	-11.5	1054.0
35-36	N66 W	97.5	+0 1/2	97.5	+1.0	1055.0
36-37	N36 W	80.6	+06	80.0	+8.0	1063.0
37-38	N34 W	98.0	+14	95.0	+23.0	1086.0
38-39	N49 W	51.0	+18	48.5	+15.5	1101.5
39-40	N14 E	62.8	+17 1/2	60.5	+18.5	1120.0
40-41	N25 1/2 W	71.0	-08	70.0	-9.5	1110.5
41-42	N07 W	42.0	+15	41.0	+11.0	1121.5
42-43	N26 W	51.3	+10 1/2	51.0	+9.0	1130.5
43-44	N17 W	38.0	+9°	37.5	+5.5	1136.0
44-45	N63 1/2 W	33.8	+10 1/2	33.5	+6.0	1142.0
45-46	N21 W	62.0	+4	62.0	+4.0	1146.0
46-47	N86 W	51.5	+4	51.5	+3.5	1149.5
47-48	N39 W	66.0	+14.	64.0	+16.0	1165.5
48-49	S57 1/2 W	54.0	-8	53.0	-7.0	1158.5
49-50	S07 E	68.7	-22 1/2	64.0	+16.0	1174.5
50-51	S15 W.	53.0	-44	39.0	-37.0	1137.5
51-52	S33 W	57.0	-41 1/2	53.0	-37.5	1100.0

NOTES: Course 12-13 over cross-draw; 22 on steep brow on N. side of Canyon; *33 on brow; Δ36 @ RNB Δ37+00; Dick adv. end of Colanese road up-hill of Δ46; branch trail to Creek & bridge @ start @ Δ49; Trail drops steeply @ Δ50; Δ52 @ 10' above Creek level.

REQUIRE Compass-tape tie-ins of Area "A" & Area "B" where cross-f fract. counts made.