

103 I - 85

018092

21 December, 1967

Mr. Ivan Todd, President,  
Alvija Mines Ltd. (N.P.L.)  
642 Clark Drive  
Vancouver 6, B.C.

Dear Mr. Todd:

Re: Kleanza River Property

Further to the enclosed report, and by way of explanation, geological mapping should show the relation, position and phases of each rock type one to the other. Statistical study of structural features may indicate that there is not present on the property, structure of sufficient intensity to have entrapped copper-bearing solutions, or alternately, that there is present a suggested structural feature which is not readily apparent from surface observation. Based on structure alone, it may be possible to place a diamond drill hole, at a later date.

While on this property, because of the nature of the mineralization and fracturing, I was left with the impression that we were not looking at the predominant structure associated with mineralization in the present rock exposures.

In summary, mapping in detail may prove this theory expressed above to be erroneous, or it may indicate a location and bearing to spot a diamond drill hole, which might otherwise be overlooked, using trenching and geochemistry alone.

At such time as you are prepared to submit my report to Securities, I will be pleased to draft a letter granting permission to do so.

For your records, appended to you report copy is a copy of the DDH log by Mr. R. Jury and the undersigned.

Yours truly,

GORDON P.E. WHITE & ASSOCIATES LTD.

"Gordon P.E. White, P. Eng."

1033/9E

1033 - 85

ALVIJA MINES LTD. (N.P.L.)  
KLEANZA RIVER CLAIM GROUP  
OMINECA MINING DIVISION, B.C.

BY

GORDON P.E. WHITE

DECEMBER 21, 1967.

## SUMMARY

Alvija Mines Ltd. (NPL) control 63 claims and 2 claim fractions in the Omineca Mining Division, east of Terrace, B.C., where previous sampling and assaying have indicated values averaging 1.4% copper and 0.6 oz. silver per ton, over an average width of 20 feet for 200 feet along strike. Geochemical surveying and trenching during the past field season have further extended the known areas of mineralization, and a programme of exploration is recommended to continue this method of search and to extend it over the whole claim group.

Preliminary examination in the field and study of core from a short test hole, have suggested a structural control to the mineralization, and geological mapping with emphasis on structural interpretation is considered essential to the evaluation of the property.

## TABLE OF CONTENTS

SUMMARY.....	Preface
INTRODUCTION.....	1
LOCATION AND ACCESSIBILITY.....	1
TOPOGRAPHY AND VEGETATION.....	2
HISTORY.....	2
CURRENT FIELD PROGRAMME.....	3
GENERAL GEOLOGY.....	5
CONCLUSIONS AND RECOMMENDATIONS.....	6
CERTIFICATE.....	10
DIAMOND DRILL .....	Appendix

## INTRODUCTION

On July 20, 1967, a field examination was made of a copper, silver prospect held by Alvija Mines Ltd. in the Omineca Mining Division, B.C. Surface showings from trenched and blasted areas were inspected as well as two adits, and two channel samples were taken and submitted for assay.

Claims Alvija 1 - 22 inclusive were checked for staking, and appeared to be in good order; claims Alpine 1 - 37 inclusive, Alpine fractions 38 and 39 and Mary 1 - 4 inclusive, have been staked since July 20, 1967.

In the preparation of this report, reference has been made to G.S.C. Memoir 329, by S. Duffell and J.G. Souther, to Memoir 212, by E.D. Kindle, to maps and assay plans prepared by Union Carbide Explorations Ltd., as well as to work carried out during the 1967 field season under the direction of Alrae Explorations and Alvija Mines Ltd.

## LOCATION AND ACCESSIBILITY

The Alvija claims are located approximately 17 miles east and somewhat north of Terrace, 9 to 10 miles east of the Canadian National Railway and the main provincial highway, at a point where the Kleanza River flows into the Skeena River. By further definition, the property is situated

immediately north-west of the confluence of the Kleanza River with Kipulta Creek.

During the past field season, a seven mile jeep and tote road was construction to within 1200 feet of the principal showing. This jeep road originates at a logging road which leads to the main provincial highway.

There is a natural clearing on the claim group, which has been used as a heliport.

#### TOPOGRAPHY AND VEGETATION

The mineral showings are on the banks of a fairly steep hill at an elevation of approximately 1500 to 2400 feet. Above 2400 feet in elevation, the ground is relatively flat with gentle undulations and occasional open meadows. The area is well forested and there is ample water even at higher elevations.

#### HISTORY

The mineralization was discovered and claims were staked in 1908 by Mr. Fred Forrest of Usk, B.C. At an elevation of 2130 feet, a short adit of approximately 35 feet was constructed by Federal Mining and Smelting Company in 1924, and in 1929, Consolidated Mining and Smelting Company drove an exploration drift from the 2080 foot

elevation for approximately 155 feet, The exploration work, reported to be for gold, encountered low values and the work was discontinued.

The two adits are on a claim previously known as the Lucky Jim, and currently covered by Alvija No.'s 1 and 2. A 20 by 7 by 7 foot inclined shaft on the Idaho (now Alvija No. 1) is 1,000 feet south-east of the two adits.

In 1966, Union Carbide Exploration Limited mapped and sampled the showing and the results of this work were available to the writer.

#### CURRENT FIELD PROGRAMME

In addition to the construction of the major portion of the access road, a grid was established, and soil samples were taken at 200 foot intervals on lines spaced 200 feet apart, except over the area of primary interest, where the line spacing was reduced to 100 feet. Over 7 miles of lines were surveyed in order to collect these soil samples for copper assaying. The results, expressed in parts per million, were plotted and anomalous areas designated on a 1 inch = 100 foot map.

The major anomaly reflects the mineralized area in the region of the adits and the anomaly extends 600

feet to the west of the adits. Four additional significant anomalies trending over three thousand feet north-west south-east, are located west and north of the adit area, and preliminary stripping has indicated copper mineralization in the country rock.

Assay results of surface sampling from trenched and blasted areas gave the following results:

SAMPLE NO.	LOCATION PER GRID LINES	TYPE OF SAMPLE	Cu.%	Ag. oz/T	Au oz/T
1	13 N, 7 W	3' grab	.31	.28	
2	10'S of 1 N, 1 W	6' channel	.53		.02
3	12' SW of 1 N, 1 W	4' channel	.49	trace	
4	50' S of 5 N, 3W	5' channel	.02	.1	
5	In winze on Lucky Jim	5' rough channel	.9	.4	

---

Approximately 80 feet of predominately porphyritic andesite was recovered from a preliminary test hole drilled to the SW, dipping 63 degrees at 2 + 80 N, 1 + 10 W (grid line location). The core showed disseminated bornite and chalcocite with minor malachite where the andesite was fractured, and the results of assays from selected sections



of split core were as follows:

<u>FROM</u>	<u>TO</u>	<u>LENGTH</u>	<u>Cu. %</u>	<u>Ag. oz/T</u>
20.0'	25.0'	5.0'	.01	.03
33.0'	36.0'	3.0'	.13	.07
36.0'	39.0'	3.0'	5.0	4.50
39.0'	44.0'	5.0'	.46	.22
55.0'	47.5'	2.5'	1.95	1.75
59.0'	63.0'	4.0'	.58	.18
64.0'	68.0'	4.0'	2.63	.86
69.0'	74.0'	5.0'	.50	.16
74.0'	79.0'	5.0'	.41	.12

GENERAL GEOLOGY

The Alvija claims, in the mineralized area, are underlain by Jurassic volcanics of the Hazelton Group, a series of interbedded andesites, rhyolites and tuffs. The green, white-weathering andesite exhibits coarse (10 inch) flow breccia as well as potash feldspar porphyritic phases; the rhyolite is porphyritic and the tuff is grey, calcareous and laced with fine, white carbonate stringers. A contact of tuff with andesite in the lower adit has a strike of 340 degrees with a 50 degree dip to the north-east.

Granodiorite has been mapped (G.S.C. Memoir 329) immediately south of the claims and dikes and/or diorite intrusions have been reported in the area of mineralization. The diorite was not recognized in the field.

The mineralization, which appears to be controlled by a zone of shearing and brecciation, is a few feet to 30 feet across, dips steeply north-east and has a general strike of 330 to 340 degrees. The copper minerals, chiefly bornite, chalcocite with minor chalcopyrite and suspected tetrahedrite, occur as fine disseminations and concentrated small masses in the brecciated andesite. Epidote is a common secondary mineral, and there are also occasional isolated patches of carbonate and quartz. Malachite is found, usually a foot below the exposed surface, after blasting the rock.

The heaviest concentration of copper minerals is in the shattered zone, but values of 0.31% copper and 0.28 oz/T silver have been found in trenches well removed from the adit areas.

#### CONCLUSIONS AND RECOMMENDATIONS

Principally bornite and chalcocite are found, for over 2000 feet, along shears as well as in fine

disseminations in a fairly competent volcanic rock, in a general area of intrusive activity.

The potential of this copper, silver showing lies in the nature of the mineralization and the factors controlling the emplacement of the ore-bearing solutions. Massive sulphides might be found along fault planes and/or disseminated sulphides in stockworks caused by tectonic breccias associated with intrusive masses. Another consideration is that the copper, silver mineralization may have been part of the magma which extruded the andesite flows and flow breccias. In order to understand the mechanism of deposition and control, reconnaissance and detailed geological mapping should be carried out on this claim group. Particular attention should be paid to structure, as the limited observations to date have suggested a possible structural control to the mineralization.

The geochemical soil sampling should be extended to other areas of the property, at 200 foot line spacing, as it appears to be a sound method of exploration on this ground,

Based on the results of the mapping and geochemistry, trenching, sampling and assaying should be used to investigate areas of interest.

Prior to embarking on a drilling programme,

geochemical anomalies should be confirmed by I.P. survey over areas where trenching is not practical due to heavy overburden.

An evaluation of the entire programme at this stage, should determine the location of diamond drill holes.

The first step should be to improve the road and extend it to the region on the claims near water, where a semi-permanent base camp should be established. Grid lines should be extended, present anomalies trenched, sampled and assayed, further soil sampling carried out, and geological mapping started.

The approximate cost of this programme would be as follows:

-A-

Completion and upgrading of the road	\$5,000.00
Base camp construction & maintenance	6,000.00
Completion of grid lines & soil sampling	25,000.00
Air photo interpretation, reconnaissance and detailed geological mapping, and stripping as an aid to mapping	15,000.00
Trenching, sampling, assaying	12,000.00
Transportation, communications	<u>3,000.00</u>
	\$66,000.00

-B-

Geochemical soil sampling, 100' spacing	\$5,000.00
---	------------

I.P. surveying, 30 miles @\$600/m	\$18,000.00
	<u>\$23,000.00</u>

-C-

Diamond drilling 10 x 700' @\$10/ft	70,000.00
Supervision, assaying	<u>6,000.00</u>
	<u>\$76,000.00</u>
	\$165,000.00

Successive evaluation of each stage of exploration should determine the advisability of continuing the programme, and in the event that the results are encouraging, additional funds should be made available for further drilling and testing.

Respectfully submitted,

GORDON P.E. WHITE & ASSOCIATES LTD.

"Gordon P.E. White, P. Eng."

I, GORDON PATRICK EARL WHITE, of the Municipality of West Vancouver, in the Province of British Columbia, HEREBY CERTIFY:

- 1) THAT I am a registered Professional Engineer in the Province of British Columbia.
- 2) THAT I am a graduate of the University of New Brunswick with a degree of Bachelor of Science, (1953)
- 3) THAT I am a Consulting Geologist, and my residential address is 2975 Altamont Crescent, West Vancouver, B.C. and my office is at 821 West Pender Street, Vancouver, B.C.
- 4) THAT I have visited the property discussed in this report.
- 5) THAT I have practised as a geologist for more than 14 years, examining and reporting on properties and mines in North America and Africa.
- 6) THAT I have personally checked the staking of some of the claims listed in this report, and have found those posts, tags and claim lines to be properly staked.
- 7) THAT I have no interest, direct or indirect in any company acquiring or intending to acquire control, nor do I expect to have any interest in Alvija Mines Limited. Nor do I have any interest, direct or indirect, in the claims referred to in this report.

DATED at West Vancouver this 21st day of December, 1967/

"Gordon P.E. White, P. Eng."

APPENDIX

DIAMOND DRILL RECORD

NAME: ALVIJA NO. 1

DIRECTION: 265 degrees A

LOCATION: 2 + 80 N, 1 + 10W  
(Geoch. Grid)

DIP: - 63 degrees

ELEVATION: 2350' approximately

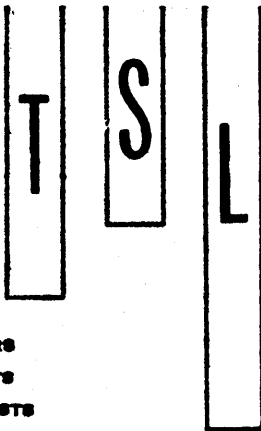
DATE: Drilled Nov. 1967

LOGGED BY: R. Jury &  
G. White

FROM	TO	DESCRIPTION	CORE LENGTH							
			FROM	TO	WIDTH	SAMPLE NO.	Cu %	Ag oz.	Au oz.	
0	59.0	Andesite porphyry-K feldspar xls to 5mm long in fine grained dark grey matrix. Irregular epidote amygdules scattered throughout rock. Surface rock appears to be breccia with frags to 12". K feld. is throughout frag and matrix. Rock only slightly fract. excellent core recovery.								
20.0	25.0	Tr. chalcocite	20.0	25.0	5.0	9574	.01	.03		
30.0	35.0	Increased epidote At 31.5 2" reddish rhy.? possibly a fragment.	33.0	36.0	3.0	9575	.13	.07		
36.0	39.0	Finely diss. bornite and chalcocite	36.0	39.0	3.0	9576	5.0	4.50		
39.0	44.0	Minor sulphides	39.0	44.0	5.0	9577	.46	.22		
		At 50 tr. malachite	46.5	48.0	1.5	lost				
			49.0	51.0	2.0	lost				
			51.6	52.0	.4	lost				
			54.0	55.0	1.0	lost				

FROM	TO	DESCRIPTION	CORE LENGTH				ASSAYS		
			FROM	TO	WIDTH	SAMPLE NO.	Cu %	Ag oz.	Au oz.
55.0	57.5	Malachite along fract. bn diss. in reddish rock	55.0	57.5	2.5	9578	1.95	1.75	
			57.5	59.0	1.5	lost			
59.0	63.0	Maroon, aphinitic, dark, occ. phenoxsts, unequig. unequid, pink & white up to 1/8", usually closely spaced; epid. as fine veinlets, as 1" clouds and in-filling vesic. - minor mal. - specked chalco. At 63.0 qtz. 1/2" vein & some mala.	59.0	63.0	4.0	14420	.58	.18	
63.0	64.0	lost							
64.0	68.0	K - porp. andesite, greener matrix occ. chalco - born. speck. with fair diss. at 65.0 where fractures appear: domin. frac. is parallel to core and 2" long. subsid fract. at small ang to core.	64.0	68.0	4.0	14421	2.63	.86	
68.0	69.0	lost?							
69.0	79.0	And. K-spar porp. - some finely diss. sulph. & mal. - epid. common. - occ. frag. up to 1/2", oblong of similar rock	69.0	74.0	5.0	14422	.50	.16	
			74.0	79.0	5.0	14423	.41	.12	
TOTAL DRILL ROD LENGTH: 87'									
INDICATED CORE LENGTH: 79 - 80'									





# Laboratories Limited

325 HOWE STREET - VANCOUVER 1, B.C.

TELEPHONE 684-1374

ASSAYERS  
CHEMISTS  
GEOCHEMISTS

## CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM

Alvija Mines Limited

REPORT NO.

V-3277

cc/ Mr. G. White

SAMPLE(S) OF

DIAMOND DRILLED ROCK

Samples submitted on December 13, 1967.

Samples No.	Silver (Ag) oz:ton	Copper (Cu) %
14420	0.18	0.58
14421	0.86	2.63
14422	0.16	0.50
14423	0.12	0.41

oz:ton - Troy ounces per 2,000 lbs.

DATE December 15, 1967.

SIGNED 