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KERR ADDISON MINES LIMITED

REPORT

ON THE

ACE MINING COMPANY PROPERTY

BRIDGE RIVER, B.C.

ΒY

F. CHOW

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December 4th, 1964.

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Vancouver, B.C.

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SCHEDULE OF ACCOMPANYING MAPS

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INTRODUCTION

During October 7th - 9th, 1964, Mr. William M. Sirola visited the property of Ace Mining Company near Bridge River, B.C. The purpose of the examination was to evaluate the property as a possible gold-antimony producer, in view of the short supply and price increase of antimony on the western market.

LOCATION AND ACCESS

The Ace Mining Company owns or holds leases on 69 claims and fractions which lie north of Bridge River, most of them southwest of Gun Creek, in the Lillooet Mining Division of British Columbia.

The Bridge River area is served by the Pacific Great Eastern Railway, and the property can be reached by a gravel road 36 miles from the station at Shalalth. The customary highway access is by paved road north from Vancouver, B.C. to Lillooet, B.C., then by gravel road west to the property, a total of about 260 miles.

HISTORY

The nucleous of the property was first located by E.J. Taylor and J. Shuster. It was relocated in 1925 by C.H. Allan and associates, and during the year the upper adit was driven 85 feet and several tons of antimony ore the bagged for shipment. In 1933 the property was acquired by T. Turner, and, subsequently, transferred to the Congress Gold Mines, Limited. That company carried out a systematic programme of underground development but dropped the property in 1937. Sheep Creek Gold Mines optioned the property in 1946 but ceased work in 1947 after carrying out additional development on the Congress Vein. Mr. Ernest Howard acquired the property in November, 1958, and transferred the claims to Ace Mining Company, Limited. A working option was granted to Bralorne Pioneer Mines, Limited in 1960 and was relinquished in June, 1964. Since then, Ace Mining Company has proceeded with a surface and underground exploration programme.

GEOLOGY

The geology of the area and of the property has been described by C.E. Cairnes, Memoir 213, G.S.C. 1937, Geology and Mineral Deposits of Bridge River Mining Camp, British Columbia.

The area is underlain by greenstone and sediments of the Bridge River series. These rocks are irregularly intruded by younger dykes and small stocks, including felsitic varieties and porphyritic quartz diorite. The greenstone and argillaceous sediments form alternating northerly-striking belts of varying width with generally south-westerly dips.

ORE DEPOSITS

Ore bearing mineral deposits are generally found in shear zones within the greenstone, and normally end at, or dissipate where the shear veins cut into the sediments. Where cut by shears, a zone of extensive alteration, varying from 2 to 30 feet in width, is irregularly distributed on either side of the shear. In the porphyry dykes the alteration is less extensive and practically absent in the sediments.

In these zones the greenstone is altered to a dense tan-

coloured, carbonate rock which, in many places, shows stringers and films of fine-grained pyrite, arsenopyrite and tiny lenses of quartz. The quartz often occurs as elongated lenses up to 20 - 30 feet in length and is accompanied by stibnite.

Work done to date has shown that the valuable minerals occur principally along the shear veins, but with erratic values and poor continuity. The veins contain gold associated with arsenopyrite, silver sulphides, stibnite, pyrite, quartz and carbonates.

Four principal mineralized shear zones have been explored to date :

1.

- The Congress vein, located on Stibnite No. 1 M.C., along the Bridge River highway, is a quartz-sulphide vein mineralized with stibnite, arsenopyrite, and pyrite plus gold and silver sulphides. It strikes north-easterly and dips 35 - 55 degrees northward.
- 2. The Howard vein, located on the Ace No. 8 M.C., along the Bridge River highway, is approximately 3,500 feet west of the Congress adit and shows a strongly oxidized and mineralized shear in surface cuts and trenches. This zone strikes N.10-20 W., dips 55 - 75 degrees west, and contains similar minerals as the Congress shear.
- 3. The Bluff vein, located on T.X. No. 1 Fraction M.C., approximately 1,700 feet north of the Congress adit, lies along steep bluffs on the west bank of Gun Creek. It is a strong shear zone striking north and dipping west, similarily mineralized as the Congress and Howard with a higher content of stibnite. This shear was traced for a length of 800 feet and might be an extension of one of the veins developed on the third level of the Congress Mine about 500 feet southward. An average grade from thirty points sampled by Bralorne in 1961 was reported as 0.035 oz. gold, 0.96 oz. silver and 2.84% antimony.
- 4. The Paul vein, located on Turner X2 M.C., approximately 4,600 feet northeast of the Congress adit, is exposed for a length of 400 feet along steep cliffs on the north bank of Gun Creek. This showing is similar in character to the surface showings on the Howard vein. The shear strikes N.70W., dips 70° northeast, and pinches and swells in width along the strike.

Results from sampling of eight trenches and cuts along a strike length of 300 feet, by Bralorne Pioneer Mines, Limited in 1961, show erratic highs and lows in gold content (see assay plan on Paul vein). A weighted assay of these samples is 0.316 oz. gold (uncut), and 0.061 oz. silver over an average width of 6.8 feet.

Another major shear zone (the North Gun Creek Vein) has been exposed recently by bulldozing below the Paul vein at creek elevation. It has about the same strike and dip as the vein above but it has been exposed for only a short length at the showing. Recent sampling by H, Howie, of a deeper cut, was reported by the Ace Mining Company on October 29th, 1964, as follows :

"There is mineralization over a narrow zone, but, in the area examined, there was not a large amount of mineral visible. The zone is very strong over 11.5 feet".

Sampling results across 11.5 ft. are as follows :

Location		Width (ft.) Sampled	Au. Oze/T.	<u>Ag. Ozs/T</u> .	<u>Sb•%</u>	Remarks
Hanging Wa	all (N.)	5.01	0.14	7.40	0.12	4" quartz plus weathered material.
1 to 1 1		2.5'	0.24	6.50	0.37	6" quartz sulphide plus altered green- stone and feldspar porphyry.
Footwall	(S.)	4.0*	0.90	0.40	0.20	l' argillite with minor sulphides.
		11.5'	0.43	4.76	0.20	2.5' altered green- stone and 0.5' gouge material.

A horizontal diamond drill hole, directed to explore this new zone and the Paul vein, was completed recently and the sampled sections gave the following assays :

Foota	ges	Width (ft.)	Au. Ozs/T .	Ag. Ozs/T .	<u>Sb.%</u>	Remarks
27.5	- 31'	3.5'	Trace		0.40	N. Gun Cr. Zone ?
87	- 90.51	3.5'	Trace		1.25	
118	- 121.5!	3.5	0.09		0.50	
176	- 178'	2.0'	0.02		0.35	
194	- 200'	6.01	0.035	1.0		
200	- 203.81	3.8	0.24	0.6	Nil	Paul Zone ?
203.8	- 206.21	2.41	0.005	0.8	0.11	

Numerous other veins and shears, partly exposed, occur on scattered locations within the property, but not much emphasis has been placed on them to date.

PREVIOUS DEVELOPMENT

(a) <u>Congress Vein</u>.

Work done on the Congress vein, intermittently during the period between 1915 to 1962, consists of three adit levels, two lower levels, a winze, a raise, and nine or more each of underground and surface diamond drill holes. The work covers a vertical distance of 310 feet above and 349 feet below the No. 1 adit.

When Congress Gold Mines, Limited ceased operations on the property in 1937, the workings consisted of 400 feet of drifting on the vein in the No. 1 adit level, 345 feet of crosscut and 473 feet of drift on the No. 2 adit level, 768 feet of crosscut and 650 feet of drift on the No. 3 adit level, plus a raise connecting all three levels. Ore reserve estimates were reported in June, 1936, as 107,050 tons grading 0.19 oz. gold and 0.88% antimony on the three levels.

During the period between 1946-47, Sheep Creek Gold Mines, Limited provided funds for development work. When work was stopped in 1947, a winze was sunk at an angle of 56 degrees on the footwall of the shear to the sixth level, a depth of 430 feet slope distance. The fourth and fifth levels were cut at 125ft. and 155 ft. slope distance down the winze, a total of 180 feet of drifting and crosscutting were done on the fourth level, and 167 feet of crosscutting was done on the fifth level.

Mr. A.G. Pentland, Consultant for Sheep Creek Gold Mines, Limited, reported ore reserves at 40,000 tons above the third level as :

as: 300 ft. length, 4 - 5 ft. width, 0.24 oz. gold and 1% antimony.

On the fourth level as :

178 ft. length, 5.2 ft. width with 0.32 gold, and no mention of antimony content.

No ore was reported on the fifth level.

Bralorne Pioneer Mines, Limited optioned the property in 1960 and subsequently diamond drilled (nine holes totalling 5,200 ft.) and drifted 600 feet along a parallel vein lying 160 feet in the hanging wall of the main shear. Three mineralized sections on the hanging wall vein were reported as follows :

Length	Width	<u>Au. Oz</u> .	<u>Sb. %</u>
1651 451	5.31 3.31	0.33 0.74	1.30 2.24
351	2.81	0.28	_

(b) Howard Vein.

The Howard vein was exposed in a rock-cut in 1959 and subsequently traced up hill for a distance of 800 feet by irregularly spaced trenches. Bralorne Pioneer Mines, Limited sampled this strong shear and reported the grade on the oxidized zone as 0.42 oz. gold over an average width of 6.2 feet.

Several holes were drilled to intersect the lower section of the showing 100 feet or more below the surface and were reported as follows :

D.D.	S.A.	26	-	0.11	Au./2.0 ft., and 0.32 Au./3.0 ft	٠
D.D.	S.A.	28	-	0.68	Au./11.0 ft.	
D.D.	S.A.	29	-	0.16	Au./3.0 ft.	

Bralorne drifted on the vein for 507 feet at river elevation and found erratic assay values. The vein terminated in a fault dipping

flatly to the south. Two holes, drilled from the face, failed to intersect the structure beyond the fault. Sampling of drift backs gave only a few assays greater than 0.2 oz. with 5 ft. widths, or less. Ten-foot test holes into the hanging wall also gave discouraging results, and six diamond drill holes into the footwall showed only traces of gold. A raise was driven from the adit to the 0.68 oz. Au intersection in D.D. S.A. 28, and it was found that this drill hole had intersected a noncontinuous lens of quartz which contained the higher gold values.

KERR ADDISON SAMPLING

(a) Howard Vein

One chip sample was taken near the centre of the showing on the Roadside cut, and seven across the face on Cut No. 5, which is a showing 260 ft. north and 158 ft. higher in elevation than the Roadside cut. The results are as follows :

Location	Width Sampled	<u>Au. Ozs/T</u> .	<u>Assays</u> <u>Ag. Ozs/T</u> .	<u>Sb. %</u>
Roadside Cut-centre	53"	1.76	0.1	0.08
Cut No. 5 - East	46" 20"	0.14 0.84	0.1 0.4	0.24 0.03
t to	35" 26"	0.26	0.1	0.03
1	61" 38"	0.28	0.2	0.21
- West	36"	0.30	0.5	0.08
Cut No. 5 Average				
Uncut	21.7 ft.	0.71	0.28	0.16

These samples were taken from heavily oxidized faces and the assays cannot be assumed to represent the true grade of the vein.

(b) Bluff Vein

The trenches along this vein were not accessible, but two samples of float material taken from the slope below the bluff assayed:

			<u>Au</u> .	\underline{Ag} .	<u>Sb</u> .
Mineralized	Specimen	:	1.52	0.2	9.75
Grab Sample	Across Slope	•	1.16	0.5	11.8

These are samples of selected specimens and may indicate the value of the higher grade portions of the vein material. Bralorne reported an average grade of only 0.03 oz. gold, and 2.84% Sb. in the zone. It is difficult to reconcile the discrepancy between our sampling and Bralorne's.

(c) Paul Vein

Four chip samples taken from three open cuts on the Paul vein assayed as follows :

Location	Width(ft.) Sampled	<u>Au. Ozs/T</u> .	$\frac{\text{says}}{\text{Ag. Ozs}/\text{T}}.$
Trench No. 1 - F.W.	10'	0.26	0.1
Cut No. 2	41	0.38	0.1
Cut No. 5	41	1.30	0.2

The gold assays do not check with that of Bralorne's sampling, but show a wide divergence of values, which is probably due to the erratic deposition of gold within the vein plus mechanical salting upon weathering.

(d) North Gun Creek Vein (Silver Vein)

Five samples were taken across the shear vein and assayed as follows :

Location	Width (ft.) Sampled	$\underbrace{\text{Au. Ozs}/\text{T}}_{\text{Au. Ozs}}$	ays Ag. Ozs/T.	Remarks
North (H.W.)	10'	0.34	0.10	Rusty volcanics with pyrite & arsenopyrite.
r r r to	61	0.34	0.10	Bleached volcanics with pyrite & arsenopyrite. 10" black graphitic material.
1 - 1	61	0.20	0.50	Rusty rock, some gouge.
1	51	0.10	0.10	Bleach volcanics with pyrite & arsenopyrite.
South (F.W.)	51	0.10	1.1	Bleached rock with pyrite & arsenopyrite. 10" mineralized quartz.
	61	0.02	0.3	Bleached volcanics.

The samples were taken from a heavily oxidized bulldozer cut.

(e) Other Showings

1. A sample was taken on the south bank of Gun Creek, opposite the Paul vein, where a nickel occurrence was reported recently, and it assayed 0.25% nickel. The rock showing contains a large amount of mariposite and minute grains of sulphides.

A chip sample, taken on a quartz vein, about 80 feet west
of the Paul vein on the south bank of Gun Creek, assayed 0.14 oz. gold,
1.0 oz. silver and 3.7% antimony across four inches.

METALLURGICAL PROBLEM

A high metallurgical recovery of either gold or stibnite would be difficult, and a good recovery of both minerals would be rather complicated on gold-antimony-arsenopyrite-pyrite ore. From test work done to date on the Ace property ore, and on similar sulphide ore elsewhere, a guesstimate may be made on the expected recovery of the commercial mineral or minerals.

Recovery of about 80% of the gold, or 75 - 80% of the antimony at a grade of 60% Sb. may be achieved if the operation is stressed on the recovery of any one of the two minerals.

A guess of about 70 - 75% of the contained gold, silver and antimony may be recovered if all three products should be desirable for extraction.

A metallurgical report, by the Department of Mines in Ottawa, dated June 17th, 1964, on the Ace ore, and submitted by John McMynn, formerly of Bralorne, states that none of the products produced in the work would be acceptable to any antimony smelter under the usual ore buying schedule. The work was done on a representative sample of Congress ore containing 0.165 oz. Au., and 0.51% Sb. A copy of this report is attached.

A previous test (1934), by the Pan-American Engineering Corporation of California, indicated that a 63% antimony concentrate could be made. This means that 82% of the antimony was recovered, but no mention was made of the arsenic content. It would appear that only by leaching the arsenic could a potentially acceptable concentrate be produced.

CONCLUSIONS AND RECOMMENDATIONS

The workings on the property consist of four principal shear zones, plus a possible new zone which is being investigated at present. The Congress vein, which has been developed on five levels, indicates low tonnage and low grade ore. The Howard vein, which has been explored by an adit and several diamond drill holes,

gave little indication of the widths and high gold values of the surface showings. The Bluff vein assayed moderate values in antimony, but was low in gold, and, at depth, a decrease in antimony content seems quite possible judging by reports on the Congress vein. The most promising shear yet to be investigated below the zone of surface enrichment, is the Paul vein, which is an east-west structure as compared to the north-south strikes of the other three veins. It is, however, very similar to the Howard vein in mineralization and structure.

With discouraging results from past exploratory and development work, the pinching-out of the veins when they encounter sediments, probable low recovery of gold and/or antimony, and the unknown factor of obtaining a concentrate acceptable to a smelter, it is recommended that the company should not do further work on this property at this time.

Respectfully submitted,

F. Chow.

FC/iw. December 4th, 1964.

ACE MINING PROPERTY (Bralorne)

METALLURGICAL INVESTIGATION

Sample submitted to the Department of Mines Laboratory by Bralorne :

Au Ozs/T.	Ag Ozs/T .	As %	<u>Sb %</u>	Fe %	<u>S (total</u>)
0.165	0.095	1.68%	0.51%	7.10%	3.93

The sample contains 3.3 times as much arsenic as antimony. It also contains 7.7 times as much sulphur as antimony. The only important sulphide minerals are pyrite, arsenopyrite and stibuite.

Direct cyanidation and direct amalgamation recovered little or no gold(?).

All bulk sulphide flotation tests, irrespective of gold recovery, produced a low-antimony concentrate containing considerably more arsenic than antimony. This is to be expected from the position of the ore.

The best antimony concentrate, produced by differential flotation was :

	Grade	Recovery
Au	0.335 ozs/t.	2.4%
Sb	30.5%	71.4%
As	2.3%	2.3%
S	30.9	9.5%

The majority of the gold was recovered in an arsenopyrite/ pyrite concentrate which was floated after making the stibnite concentrate. Total gold recovery by differential flotation was :

Sb concentrate As-FeS ² concentrate	2.4% 76.7%	
Total	79.1%	

None of the products produced in the work would be acceptable to an antimony smelter under the usual ore buying schedule for the following reasons :

(1)) Antimony content is too low.
(2)) Antimony/arsenic ratio unfavourable.
(3)) Sulphur (and probably iron) undesirably high.
(4)) Product too finely divided (at least 90%-200 M).





Rat	Width	Au 035/ton	Ag ogs/ton	
Weathered surface	12'	0.72	0.15	
Partly weathered	20'	0.71	0.15	
Altered greenstone	15'	0.05	0.03	
Altered greenstone	10'	0.267	0.02	
Altered greenstone	2"	1.15	0.10	
Altered greenstone	2'	0.10	-	
Quarty rein	1.5	0.15	-	
Altered greenstone	grab	0.03	Tr.	
Quartz Vein	4"	0.23	0.17	
Quarty vein	0.5'	10.04	Tr.	
Altered greenstone .	2'	0.02	TF.	
Quartz vein	1'	0.10	TF.	
quarty vein	3"	10.61	Tr.	
Altered Greenstone	gnab	0.95	0.22	
Altered greenstone	1. 1'	2.60	-	

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Cut 5

GREENSTONE



