825181

REPORT ON

J. G.; J. GUS AND AT LAST MINERAL CLAIMS

OWNED BY:

DUSTY MAC MINES LTD.

OSOYOOS M. D.

BRITISH COLUMBIA

by

D. M. CANNON, P. ENG.

OCTOBER 1968

TABLE OF CONTENTS

TABLE OF CONTENTS CONTINUED

PART A

SUMMARY AND RECOMMENDATIONS

On the claim group owned by Dusty Mac Mines Ltd., there is a zone of highly silicified volcanic breccia, the limits of which have not yet been determined. Associated with the silicification there is sparse sulphide mineralization in the form of tetrahedrite as well as identifiable native gold and silver. Assay results of surface sampling indicate possibly erratic but interesting gold and silver values over a length of more than 600 feet and yet undetermined widths.

It is recommended that a programme of detailed mapping and sampling be instituted immediately and that plans be made for follow-up subsurface investigation. Details of the proposed work are as follows:

Cost Estimate

It is presumed that a minimum of three months time will be required and that it will be geologically mapped, test pitted and have, at least, preliminary percussion drilling.

SUMMARY AND RECOMMENDATIONS CONT'D

Estimated Costs Cont'd

Supervision:		
1 - Senior Geologist	4,500.00	
1 - Geologist Helper	1,500.00	
Labor:		
2 - General Laborers	3,600.00	
2 - Cobra Drillers	5,000.00	
	14,600.00	$14,600.00
Living Expenses - $6.50/man day	5,500.00	5,500.00
Supplies and Expendibles		2,000.00
Assaying		1,000.00
Drilling (D. D. 2,500 feet @ $8.00/foot)		
(P. D. 6,000 feet @ $3.35/foot)		20,000.00
TOTAL:		43,100.00
PLUS:		
Engineering, Administration and Contingencies @ 20%		15,000.00
		58,100.00
SAY:		60,000.00

PART B

INTRODUCTION

The metallic mineral showings on the Dusty Mac Property were examined on August 6, 1968 by Mr. M. Guiguet at the request of Mr. I. Shulman. On August 13, 1968 an additional examination was made by the writer. Additional examinations were made on August 23, 1968 and September 11, 1968.

On all occasions Mr. J. McDonald acted as assistant during the examination.

Title

No effort was made to check the title to the claims as this had reportedly already been done to the satisfaction of Mr. Shulman.

Location and Access

The property is located approximately one mile East of the South end of Skaha Lake in the Okanagan District of British Columbia. The claim group encompasses part of the village of Okanagan Falls, BC.

A paved highway passes through Okanagan Falls and good dirt roads or passable trails extend to the showings.

INTRODUCTION CONT'D

History

The early history of the property is not known. Old claim posts with claim tags numbered 17885 Initial Post and 17832 Final Post were seen to be rotted almost completely away.

More recently the At Last Claim was staked by Mr. Ewars of Okanagan Falls to cover some old adits, and still more recently the J. G. and J. Gus Claims were staked.

During the past few weeks a very small amount of surface blasting has been done. On Zone A, on the At Last M. D., three small trenches have been opened up. On the Zone B two cross sectional trenches have been partially completed by Placer Development Ltd. (See Map).

WORK PERFORMED

Geological Mapping

The area has been mapped by H. W. Little, of the Geological Survey of Canada. (See map 15-1961 - Kettle River West Half). There has been no detailed geological mapping done on the property.

Geochemical, Geophysical Surveys

There has been no geochemical or geophysical work completed.

Drilling

The property has not been drilled.

Surface Trenching

Four shallow surface trenches have been blasted into Zone A, and five blasted on Zone B. (See attached Map). A total of about 140 lineal feet of trenching has been completed.

Underground Development

Three short adits were driven by early prospectors near Zone A but did not intersect it. No underground work has been done in recorded time.

WORK PERFORMED CONT'D

Sampling

Recorded sampling has all been done from surface or near surface exposures. Mr. M. Guiguet collected conventional chip-channel samples across the Zone A and from the two pits on the Zone B. In addition muck samples were collected from the material thrown out of the two pits on the Zone B.

On August 13, 1968 the writer collected no samples from the Zone A. One check sample was channelled across the bottom of the South pit on the Zone B. In addition a 60-lb. sample of the muck from the two pits was taken, chips from all brecciated outcrops were collected, and two grab samples chipped from outcrop to the South of Pit S. During subsequent examinations additional samples were taken. All results are noted on the attached map.

Representatives of Newmont Mining Corporation of Canada Ltd. collected three samples at locations marked "N" on the map. Results are noted under "Assays".

Representatives of Placer Development Ltd. also sampled sections of the property and the results are noted under "Assays". It appears from their sample sketch that the greater proportion of their samples were from drill hole dust. A copy of the sample sketch is enclosed.

GEOLOGY

Regional Setting

The regional geology is recorded on Map 15-1961 published by the Geological Survey of Canada.

It shows the section to the SouthEast of Skaha Lake to be underlain by Precambrian schist and gneiss of the Monashee Group. To the immediate SouthEast, South and SouthWest of the Lake the Monashee Group is overlain by a rectangular-shaped segment of fragmental rock that has been classified as being Eocene or Oligocene in age. Similar Oligocene rocks are to the West and SouthWest.

To the North the schists and gneisses are intruded by the Cretaceous Nelson plutonic rocks and immediately to the SouthEast of the Oligocene segment there are two small plugs of Cretaceous granodiorite (Valhalla Formation).

Rock Types

On the claim group only two rock types were encountered:

Breccia

This Member consists of coarse to fine, mostly angular fragments of slightly porphyritic andesite in which the fragments have been recemented by hard, vitreous, slightly crystalline, glassy quartz. Many of the fragments are bleached and are extensively silicified.

GEOLOGY CONT'D

Rock Types Cont'd

Andesite Porphyry

This rock adjoins the breccia on the West. It is fairly massive, structureless and hard. It is comprised of a very fine grained matrix containing small distinct mafic crystals, probably hornblende.

Structure

The most prominent structure is the Zone B breccia, which trends North - NorthWest and can be traced by surface outcrop for several hundred feet in both directions from the two surface pits. (See sketch). The breccia may be associated with a strong fault that was mapped by the G. S. C as striking S 35° E. The fault forms the contact of the Oligocene rocks and Precambrian rocks.

At Zone A a group of four N 20° W trending trenches expose a zone, the strike and dip of which cannot be determined. Although more heavily mineralized with sulphides than Zone B, the A Zone closely resembles it and there may be a structural relationship between the two.

GEOLOGY CONT'D

Rock Alteration

Rock alteration is confined to the breccia zone and is comprised of:

1. Surface oxidation, which extends to a usual depth of 6 inches to 14 inches. It is essentially a break-down of iron sulphides with the resultant formation of limonite which is deposited as a thin film on the myriad of fracture faces.

2. Silicification, resulting in the formation of reticulated quartz stringers filling the interstitial spaces between the breccia fragments and the partial replacement of the fragments by quartz.

MINERALIZATION

Zone A

In Zone A metallic mineralization is comprised of pyrite, chalcopyrite and tetrahedrite together with a thin film of limonite and malachite. All are associated with quartz veins and stringers in a brecciated shear zone.

Zone B

Metallic mineralization in Zone B is exceptionally scarce. Minute specks of tetrahedrite are scattered throughout most of the rock and in some places there is a bluish-grey tinge to the rock that may be caused by fine grained tetrahedrite.

Visible native gold and silver have been identified from two different locations.

There is very scant malachite stain in much of the near surface material.

ASSAYS (CANNON ENGINEERING LTD.)

Sample No.	Location	Width	Au. oz/ton	Ag. oz/ton	% Cu.	% MoS_2
123	Zone A - Tr. #2	10'	0.05	5.9	0.31	0.015
124	Zone A - Tr. #2	10'	0.08	10.6	0.34	0.020
125	Zone A - Tr. #3	10'	0.09	2.0	0.12	0.010
126	Zone A - Tr. #4	5'	0.36	6.3	0.15	0.015
127	Zone A - Tunnel	Muck	0.02	3.2	0.56	-
128	Zone A	Muck	0.01	0.8	0.17	-
129	Zone A - Tunnel	Muck	0.07	0.10	0.34	-
130	Zone A -	Surface Vein Muck	0.01	0.80	0.19	-
131	Bet. A & B	Tunnel Muck	0.01	Tr.	0.02	-
132	Zone B - Pit S	Chip Channel	0.23	3.1	0.02	-
133	Zone B - Pit S	Muck	0.20	0.8	0.03	-
134	Zone B - Pit N	Chip Channel	0.51	4.1	0.03	-
135	Zone B - Pit N	Muck	0.21	2.8	0.02	-

ASSAYS CONT'D

Sample No.	Location	Width	Au. oz/ton	Ag. oz/ton	% Zn.	% SiO_2
333	Zone B - Pit S	Channel Bottom of Pit 4.1'	0.81	1.57	0.22	-
334	Zone B - 228' S of Pit S.	Grab of Surface Outcrop- Grey Cu.	2.58	30.47	-	-
335	Zone B - 400' S of Pit S.	Crystal fragments Dissem. Sulphide	0.20	1.42	-	-
336	Zone B	Chips from Outcrops S of Pit S.	0.06	0.44	-	-
337	Zone B	Chips from Outcrops N of Pit S.	0.02	0.43	-	-
651	Zone B	Chips from Surface of Outcrop	Tr.	Trace	-	-
652	Zone B	Chip Channel across 5'10" of fresh exposure.	0.15	9.4	-	76.12
653	Zone B	Grab of barren mat- erial West side of Zone	0.01	0.70	-	65.98
654	Zone B	Chip channel across wall of old pit - 4.0'	1.09	5.3	-	-

ASSAYS CONT'D

Sample No.	Location	Width	Au. oz/ton	Ag. oz/ton	% Zn.	% Si02
655	Zone B	Selected Highgrade most Southerly Pit.	0.44	35.6	-	-
656	Zone B	Selected Lowgrade most Southerly Pit.	0.08	8.3	-	-

NEWMONT ASSAYS

C-1414	Random Grab along 40' weakly silicified & conglom. breccia W. of North Pit.	0.01	0.4	-	-
C-1415	Grab of Dump - old open cut by J. S. Livermore	0.02	0.9	-	-
C-1416	Random Chip silicified & conglom. breccia open cut North of gate where car parked.	0.02	Trace	-	-

CANEX ASSAYS

2990	Middle Pit SE Corner, 2.1' vert. channel.	0.57	1.4	-	-
2991	Middle Pit NW Corner, 2.5' vert. channel.	0.09	6.2	-	-
2992	North slash N. end face, lower half, 1' vert. channels (green rock and graphite).	0.07	5.5	-	-

CANEX ASSAYS CONT'D

Sample No.	Location	Au. oz/ton	Ag. oz/ton
2993	North slash S. end face, top rusty, 2' vert. channel.	0.10	2.0
2994	North slash S. end face, 2.1' vert. channel including graphite.	0.27	3.3
2995	North Pit channel sample.	0.50	0.2
2996	#2 trench, 2-hole composite 2' deep @ 44.5' East of reference.	0.01	0.2
2997	#2 trench 2-hole composite 2' deep @ 42' East of reference.	0.01	Trace
2998	#2 trench, 2-hole composite 2' deep @ 39.5' East of reference.	0.01	0.4
2999'	#2 trench, 2-hole composite 2' deep @ 36.5' East of reference.	0.01	Trace
3000	#2 trench, 2-hole composite 2' deep @ 29.5' East of reference.	0.01	Trace
5251	#2 trench, 2-hole composite 2' deep @ 26' East of reference.	0.01	0.2
5252	#2 trench, 2-hole composite 2' deep @ 22.5' East of reference.	0.02	0.1

CANEX ASSAYS CONT'D

Sample No.	Location	Au. oz/ton	Ag. oz/ton
5253	#2 trench, 2-hole composite 2' deep @ 19' East of reference.	0.02	0.1
5254	#2 trench, 2-hole composite 3' deep @ 17' East of reference.	0.01	0.2
5255	#2 trench, 2-hole composite 3' deep @ 14.5' East of reference.	0.06	Trace
5256	#2 trench, 2-hole composite 3' deep @ 12' East of reference.	0.03	0.1
5257	#2 trench, 2-hole composite 3' deep @ 10' East of reference.	0.01	Trace
5258	#2 trench, 2-hole composite 3' deep @ 8' East of reference.	0.03	Trace
5259	#2 trench, 1 hole 3' deep @ 67' West of reference.	Trace	Trace
5260	#2 trench, 2-hole composite 3' deep @ 63' West of reference.	Trace	0.1
5261	#2 trench, 2-hole composite 3' deep @ 61' West of reference.	Trace	Trace
5262	#2 trench, 2-hole composite 3' deep @ 57.5' West of reference.	Trace	Trace

CANEX ASSAYS CONT'D

Sample No.	Location	Au. oz/ton	Ag. oz/ton
5263	#2 trench, 2-hole composite 3' deep @ 55' West of reference.	Trace	Trace
5264	#2 trench, 2-hole composite 3' deep @ 52' West of reference.	Trace	Trace
5265	#2 trench, 2-hole composite 3' deep @ 46.5' West of reference.	Trace	0.5
5266	#2 trench, 2-hole composite 3' deep @ 42' West of reference.	Trace	0.3
5267	#2 trench, 1 North hole 3' deep @ 36' West of reference.	0.01	0.3
5268	#2 trench 9-15' E, channel at bottom of trench.	0.01	0.3
5269	#2 trench 15-20' E, channel at bottom of trench.	0.01	0.1
5270	#2 trench 20-25' E, channel at bottom of trench.	0.01	0.2
5271	#2 trench 25-30' E, channel at bottom of trench.	0.08	0.9
5272	#2 trench 30-35' E, channel at bottom of trench.	0.01	0.1

CANEX ASSAYS CONT'D

	Sample No.	Location	Au. oz/ton	Ag. oz/ton
	5273	#2 trench 35-40' E, channel at bottom of trench.	0.01	0.2
	5274	#2 trench 40-45' E, channel at bottom of trench.	0.01	0.2
	5275	#2 trench 4-hole composite 3.5' deep @31' to 33' West of reference.	0.12	0.6
	5326	#2 trench 15-20' W, channel at bottom of trench.	0.01	0.8
	5327	#2 trench 20-25' W, channel at bottom of trench.	0.02	1.5
***	5328	#2 trench 25-30' W, channel at bottom of trench.	0.21	1.4
***	5329	#2 trench 30-35' W, channel at bottom of trench.	0.14	6.5
	5330	#2 trench 35-40' W, channel at bottom of trench.	0.01	0.4
	5331	#2 trench 40-45' W, channel at bottom of trench.	0.01	0.2
	5332	#2 trench 45-50' W, channel at bottom of trench.	Trace	0.1
	5334	#2 trench 55-60' W, channel at bottom of trench.	Trace	Trace

*** NOTE: Samples 5328 and 5329 were taken across the bottom of the middle pit which was not reblasted.

CANEX ASSAYS CONT'D

Sample No.	Location	Au. oz/ton	Ag. oz/ton
5335	#2 trench 60-65' W, channel at bottom of trench.	Trace	0.1
5336	#2 trench 4' hole 1' W of reference point.	0.04	0.1
5337	#2 trench 4' hole 5.5' W of reference point.	0.04	0.2
5338	#2 trench 4' hole 10.5' W of reference point.	0.03	3.4
5339	#1 trench 4' hole 33' E of W end of trench.	0.38	7.1
5340	#1 trench 4' hole 38' E of W end of trench.	0.10	1.3
5341	#1 trench 4' hole 43' E of W end of trench.	0.03	0.3
5342	#1 trench 4' hole 48' E of W end of trench.	0.01	Trace
5343	Copper Trench Pt. G 4' deep hole.	0.01	0.2
5344	Copper Trench Pt. G + 19' N, 4' hole.	Trace	0.2
5345	Copper Trench Pt. G + 30' N, 4' hole.	0.01	Trace

CANEX ASSAYS CONTINUED

Sample No.	Location	Au. oz/ton	Ag. oz/ton
2986	New South trench, Channel sample 2.3' vertically on face of top bench.	0.04	0.90
2987	New South trench, Channel sample 2.8' horizontally along bench between samples 2986 and 2988.	0.09	1.80
2988	New South trench, Channel sample 2.1' vertically on face of lower bench below sample 2987.	0.08	1.80
2989	New South trench, Channel sample 3.2' horizontally along bottom of trench East of sample 2988.	0.02	0.70

These four samples were taken from a freshly blasted trench immediately to the West of the location of the high grade samples assaying approximately 2 oz. Au., and 30 oz. Ag. per ton.

METALLURGY

Preliminary metallurgical investigations by Britton Research indicate that good recoveries can be obtained. A copy of the report is appended hereto.

ORE RESERVES

No ore reserves can be calculated at this time.

SERVICES

The geographical location of this property is ideal. If there is an orebody on it, only a minimum of expense would be required to install power, transportation, mining and milling facilities. Personnel could be housed at nearby Okanagan Falls, BC.

ECONOMIC ASSESSMENT

Capital Cost

No estimate of preproduction costs can be made until more is known of the mineralization.

Operating Costs

Operating costs for either an underground or open pit mine would be favorable.

CONCLUSIONS AND GENERAL COMMENT

The host rock and mineralization in the B Zone is unprepossessing and would normally be discarded without an assay. The identification of free gold and silver explains in part the assays received but the very sparse grey copper must also have an inordinately high precious metal content.

This zone cannot be adequately tested without a good programme of work.

Zone A is more spectacular in appearance than Zone B. It has not had sufficient investigation, but it has the general appearance of a smaller deposit. If Zone B is tested, some additional work should be programmed for Zone A.

Respectfully Submitted,

D. M. Cannon, P. Eng.

7 October 1968

PART C

REFERENCES AND DEFINITIONS

References:

Report of Sampling	M. Guiguet 1968
G. S. C. Map 15-1961	H. W. Little 1961

Definitions:

Volcanic Breccia:	Fragments of slightly porphyritic andesite, mostly sharply angular but some are rounded; all silicified and recemented together with quartz. Some of the quartz is slightly crystalline.
Tetrahedrite :	This mineral is likely one of the Tetrahedrite family but could probably be more accurately identified as Freibergite.

APPENDIX A AND B

(Legend & Map)

L E G E N D

OLIGOCENE (?)

20 CORYELL PLUTONIC ROCKS: syenite, granite; minor monzonite and shonkinite.

EOCENE OR OLIGOCENE

19 Andesite, trachyte, minor basalt; locally, interbedded tuff and shale; 19a, andesite and trachyte flows and agglomerate; 19b, conglomerate, sandstone, shale, tuff; minor agglomerate and breccia; coal; 19c, andesite and trachyte; 19d, agglomerate and conglomerate.

PALEOCENE OR EOCENE

18 Porphyritic granite and rhyolite.

17 Conglomerate, sandstone, shale, tuff.

CRETACEOUS (?)

16 VALHALLA PLUTONIC ROCKS: granite, granodiorite.

15 NELSON PLUTONIC ROCKS: granodiorite, quartz diorite, diorite; granite, quartz monzonite, syenite, monzonite.

JURASSIC (?)

14 14a, pyroxenite; 14b, hornblendite; 14c, serpentinite.

TRIASSIC OR JURASSIC

13 Limestone.

TRIASSIC OR EARLIER

8-11
8. BARSLOW FORMATION: argillite.
9. INDEPENDENCE FORMATION: chert, greenstone.
10. SHOEMAKER FORMATION: chert, some tuff and greenstone.
11. OLD TOM FORMATION: greenstone, minor diorite.

CARBONIFEROUS (?)

KOBAU GROUP

4 Quartzite, schist, greenstone.

MONASHEE GROUP

1 Layered gneiss (paragneiss); minor schist, amphibolite, quartzite, marble, and pegmatite.

MAP 15-1961
(REVISION OF MAP 538A)

GEOLOGY

KETTLE RIVER
(WEST HALF)

BRITISH COLUMBIA

Scale: One Inch to Four Miles = $\frac{1}{253,440}$

Miles

4 2 0 4 8 12

Approximate magnetic declination, 23° 00' East

49° 30'

49° 15'

119° 30'

APPENDIX C

(John Britton Report)

CYANIDATION TESTS ON A SAMPLE OF GOLD-SILVER ORE

submitted by

NEWMONT MINING CORPORATION

OF CANADA LTD.

Progress Report No.1

Our Project No: B196

Date: September 10, 1968

Investigation by: Britton Research Limited,
Consulting Metallurgist,
1612 West 3rd Avenue,
Vancouver 9, B.C.

INTRODUCTION

A 16 pound sample of gold-silver ore was received from Mr. J. Livermore, on behalf of Newmont Mining Corporation of Canada Limited, on August 21, 1968, with a request for cyanidation tests to be carried out on the sample.

SUMMARY AND CONCLUSIONS

1. The head sample assayed 0.20 ounces of gold and 2.57 ounces of silver per short ton.
2. Three cyanidation tests were carried out on the sample at varying degrees of fineness. In each test the ore was agitated for three successive periods of 24 hours, using a fresh cyanide solution for each stage.
3. Results are summarised in the following table:

Test No.	Grind % -200 mesh	Cyan. period Hours (total)	Extraction % Gold	Extraction % Silver	Reagent consumption Lb/ton of ore NaCN	Reagent consumption Lb/ton of ore CaO
C1	23	24	61.8	64.1	0.44	1.4
"	"	48	66.9	69.4	0.72	2.4
"	"	72	69.9	72.3	0.90	3.0
C2	64	24	96.2	88.7	0.50	2.4
"	"	48	97.6	89.9	0.92	2.9
"	"	72	97.9	90.3	1.20	3.4
C3	89	24	97.4	91.7	0.38	2.3
"	"	48	98.1	93.5	0.70	3.0
"	"	72	98.6	93.8	0.82	3.5

4. Test C1 was carried out on ore which had only been crushed to minus 10 mesh; only 69.9% of the gold and 72.3% of the silver were extracted in 72 hours. In test C2 the ore was ground in a ball mill for 15 minutes prior to thickening and cyanidation of the thickened pulp. A high extraction of the gold (96.2%) and a fairly high extraction of the silver (88.7%) were obtained in 24 hours. A further 24 hours treatment increased the gold and silver recoveries by 1.4% and 1.2% respectively but an additional 24 hours treatment gave an almost negligible improvement. After grinding for 30 minutes (test C3) the gold and silver recoveries in 24 hours increased to 97.4% and 91.7% respectively.

5. Some of the silver was refractory to cyanidation; it is probable that fresh ore would contain a higher proportion of refractory silver. If this is the case, flotation of the gold and silver, followed by cyanidation of the tailing if necessary, may prove to be the best method of treatment.

6. The cyanide and lime consumptions were moderate and the cyanide solutions contained relatively small amounts of copper.

Respectfully submitted,
BRITTON RESEARCH LIMITED

John W. Britton, P. Eng.

John W. Britton, P. Eng.,
Consulting Metallurgist

DETAILS OF TESTS

The whole of the sample was crushed to minus 10 mesh and mixed thoroughly before riffling to give samples suitable for test work and assay.

The first cyanidation test (C1) was carried out on the minus 10 mesh ore, using a 1000 gram sample, which was agitated in a bottle on rollers at a pulp density of 40% solids, at room temperature (approx. 20°C). Sodium cyanide (8 pounds per ton of ore) and calcium hydroxide (equivalent to 4 pounds CaO per ton of ore) were added at the start. After 24 hours agitation, the pulp was filtered and the residue was washed and retreated for 24 hours, the cyanide and lime additions being reduced to 6 and 2 pounds per ton respectively. After again filtering and washing, the residue was retreated under the same conditions for 24 hours. The final residue and the three filtrates were assayed for gold, silver, copper, cyanide and lime. Results are shown in tables 1 and 2; the screen analysis of the residue is given in table 7.

In test C2, a 1000 gram sample of minus 10 mesh ore was ground in a ball mill for 15 minutes at 60% solids, lime equivalent to 4 pounds CaO per ton being added before grinding. The mill used for grinding had previously been standardised, using ores of known grindability; the power required for grinding to the same fineness in a full scale mill could therefore be calculated (10 K.W.H. per short ton from minus 10 mesh).

The pulp was thickened and cyanided for 24 hours under the same conditions as in test C1, except that the lime addition was reduced to 2 pounds per ton. The remainder of the test was carried out under the same conditions as in test C1. Results are shown in tables 3 and 4.

In test C3, conditions were similar to those used in test C2 except that the grinding time was increased to 30 minutes, equivalent to about 20 K.W.H. per ton of ore. Results are shown in tables 5 and 6.

Comments: As expected, relatively low extractions of the gold (69.9% in 72 hours) and silver (72.3% in 72 hours) were obtained on the minus 10 mesh ore, but grinding to 64% minus 200 mesh gave a high extraction of the gold (96.2% in 24 hours) and a fairly high extraction of the silver (88.7% in 24 hours). Grinding to 89% minus 200 mesh increased the gold and silver extractions in 24 hours by 1.2% and 3.0% respectively. The cyanide and lime consumptions were not excessive and the solutions had fairly low copper contents (less than the silver assays), although some malachite was observed in the ore. Owing to the clay present, filtration was fairly slow and the use of counter-current decantation might be required in practice.

It should be noted that part of the silver was refractory to cyanidation, even after fine grinding and prolonged treatment. It is possible that this silver is associated with a sulphide mineral such as galena and that the proportion of such refractory silver would tend to increase if fresh ore was treated. Tests should therefore be carried out on samples taken below the zone of oxidation. As an alternative to cyanidation, flotation or a combination of flotation and cyanidation, should also be investigated, especially if the proportion of refractory silver tends to increase with depth.

JWB/ih

Cyanidation test on gold and silver ore

Test 196-C1

Grind: 100% -10 mesh, 23% -200 mesh, 19% -325 mesh

Table 1

Metallurgical results

#	Product	Cyan. time-Hours Ind.	Cyan. time-Hours Cum.	Amount	Assays Au	Assays Ag	Assays Cu	Distribution % Au Ind.	Distribution % Au Cum.	Distribution % Ag Ind.	Distribution % Ag Cum.
1	1st cyan.filtrate*	24	24	3.0 liter	1.40 mg/l	19.24 mg/l	0.016 g/l	61.8	61.8	64.1	64.1
2	2nd " " *	24	48	2.5 "	0.14 "	1.92 "	0.003 "	5.1	66.9	5.3	69.4
3	3rd " " *	24	72	2.5 "	0.08 "	1.02 "	0.002 "	3.0	69.9	2.9	72.3
4	Final residue	-	-	99.75%	0.06 oz/ton	0.73 oz/ton	N.A.	30.1	100.0	27.7	100.0
5	Head (calculated)	-	-	100.00%	0.20 oz/ton	2.63 oz/ton	N.A.	100.0	100.0	100.0	100.0
5	Head (direct assays)				0.20 oz/ton	2.57 oz/ton	N.A.				

*Including washes. N.A. = Not assayed.

Table 2

Cyanide and lime consumptions

Cyan. period	Cyanidation period - Hours Ind	Hours Cum.	Sodium cyanide Lb. 100% NaCN/ton of ore Added Ind.	Added Cum.	Consumed Ind.	Consumed Cum.	Lime Lb. 100% CaO/ton of ore Added Ind.	Added Cum.	Consumed Ind.	Consumed Cum.
1st	24	24	7.76	7.76	0.44	0.44	4.00	4.00	1.42	1.42
2nd	24	48	5.82	13.58	0.28	0.72	2.00	6.00	1.00	2.42
3rd	24	72	5.82	19.40	0.18	0.90	2.00	8.00	0.60	3.02
Total	-	-	19.40	19.40	0.90	0.90	8.00	8.00	3.02	3.02

Cyanidation test on gold and silver ore
Test 196-C2

Grind: 64% -200 mesh, 47% -325 mesh

Table 3

Metallurgical results

#	Product	Cyan. time - Hours Ind.	Cyan. time - Hours Cum.	Amount	Assays Au	Assays Ag	Assays Cu	Distribution % Au Ind.	Distribution % Au Cum.	Distribution % Ag Ind.	Distribution % Ag Cum.
1	1st cyan.filtrate*	24	24	3.0 liter	2.18 mg/l	27.16 mg/l	0.017 g/l	96.2	96.2	88.7	88.7
2	2nd " " *	24	48	2.5 "	0.04 "	0.46 "	0.003 "	1.4	97.6	1.2	89.9
3	3rd " " *	24	72	2.5 "	0.006 "	0.14 "	0.001 "	0.3	97.9	0.4	90.3
4	Final residue	-	-	100.07%	0.004 oz/ton	0.26 oz/ton	N.A.	2.1	100.0	9.7	100.0
5	Head (calculated)	-	-	100.00%	0.20 oz/ton	2.68 oz/ton	N.A.	100.0	100.0	100.0	100.0
5	Head (direct assays)				0.20 oz/ton	2.57 oz/ton	N.A.				

*Including washes. N.A. = Not assayed.

Table 4

Cyanide and lime consumptions

Cyan. period	Cyanidation period - Hours Ind.	Cyanidation period - Hours Cum.	Sodium cyanide Lb. 100% NaCN/ton of ore Added Ind.	Sodium cyanide Added Cum.	Sodium cyanide Consumed Ind.	Sodium cyanide Consumed Cum.	Lime Lb. 100% CaO/ton of ore Added Ind.	Lime Added Cum.	Lime Consumed Ind.	Lime Consumed Cum.
Grind	-	-	-	-	-	-	4.00	4.00	†	†
1st	24	24	7.76	7.76	0.50	0.50	2.00	6.00	2.42	2.42
2nd	24	48	5.82	13.58	0.42	0.92	2.00	8.00	0.50	2.92
3rd	24	72	5.82	19.40	0.28	1.20	2.00	10.00	0.46	3.38
Total	-	-	19.40	19.40	1.20	1.20	10.00	100.0	3.38	3.38

† Including CaO added to grind.

Cyanidation test on gold and silver ore

Test 196-C3

Grind: 89% -200 mesh, 68% -325 mesh

Table 5

Metallurgical results

#	Product	Cyan. time - Hours Ind.	Cum.	Amount	Assays Au	Ag	Cu	Distribution % Au Ind.	Cum.	Ag Ind.	Cum.
1	1st cyan.filtrate*	24	24	3.0 liter	2.26 mg/l	27.08 mg/l	0.016 g/l	97.4	97.4	91.7	91.7
2	2nd " " *	24	48	2.5 "	0.02 "	0.64 "	0.003 "	0.7	98.1	1.8	93.5
3	3rd " " *	24	72	2.5 "	0.01 "	0.10 "	0.001 "	0.5	98.6	0.3	93.8
4	Final residue	-	-	100.27%	0.003 oz/ton	0.16 oz/ton	N.A.	1.4	100.0	6.2	100.0
5	Head (calculated)	-	-	100.00%	0.20 oz/ton	2.58 oz/ton	N.A.	100.0	100.0	100.0	100.0
5	Head (direct assays)				0.20 oz/ton	2.57 oz/ton	N.A.				

*Including washes. N.A. = Not assayed.

Table 6

Cyanide and lime consumptions

Cyan. period	Cyanidation period - Hours Ind.	Cum.	Sodium cyanide Lb. 100% NaCN/ton of ore Added Ind.	Cum.	Consumed Ind.	Cum.	Lime Lb. 100% caO/ton of ore Added Ind.	Cum.	Consumed Ind.	Cum.
Grind	-	-	-	-	-	-	4.00	4.00	2.30/	2.30/
1st	24	24	7.76	7.76	0.38	0.38	2.00	6.00		
2nd	24	48	5.82	13.58	0.32	0.70	2.00	8.00	0.70	3.00
3rd	24	72	5.82	19.40	0.12	0.82	2.00	10.00	0.50	3.50
Total	-	-	19.40	19.40	0.82	0.82	10.00	10.00	3.50	3.50

/ Including CaO added to grind

Screen analyses of cyanidation residues

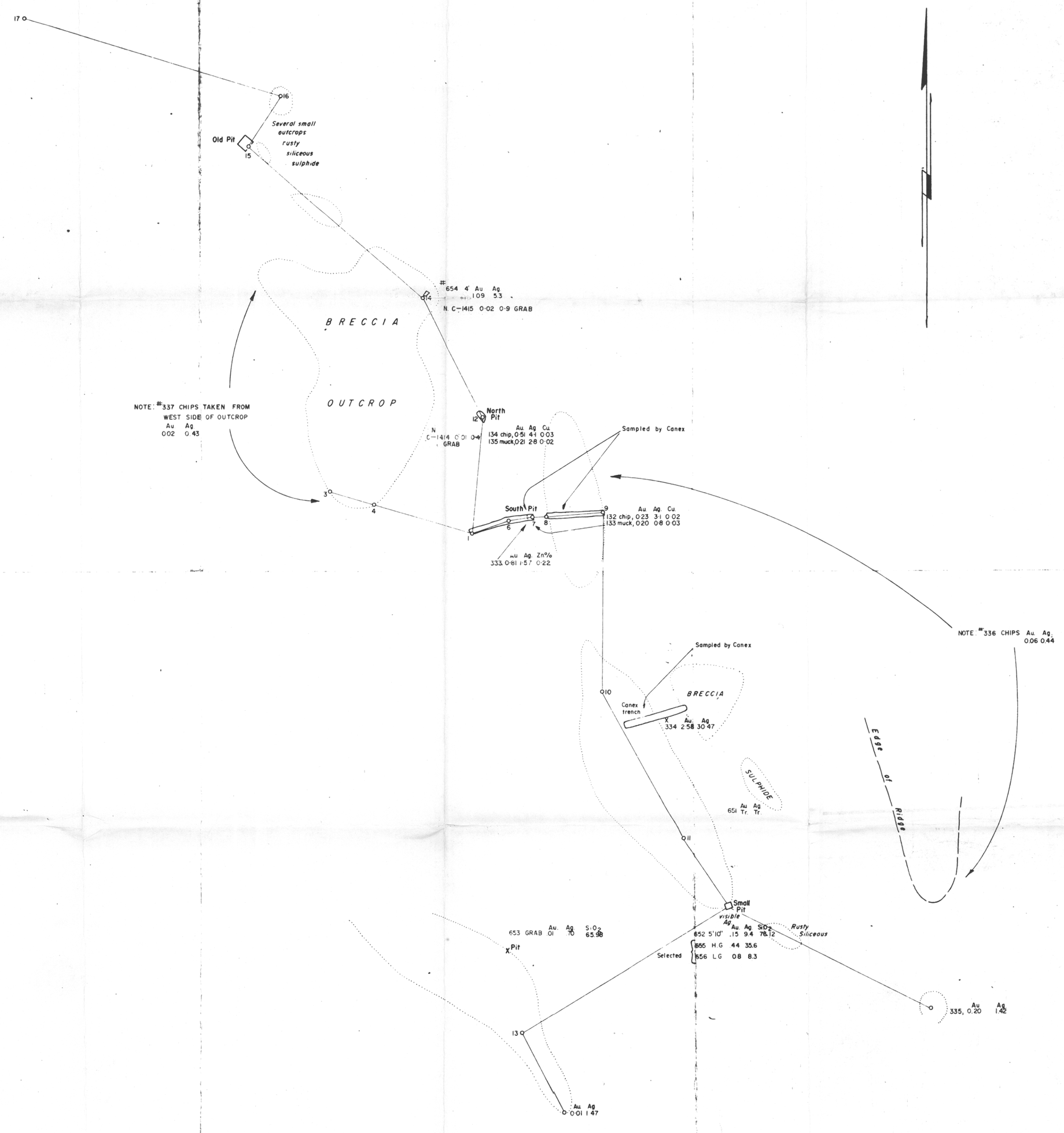
Table 7

Mesh (Tyler)	Test 196-C1 residue % retained Ind.	Test 196-C1 residue % retained Cum.	Test 196-C1 residue % passing Cum.	Test 196-C2 residue % retained Ind.	Test 196-C2 residue % retained Cum.	Test 196-C2 residue % passing Cum.	Test 196-C3 residue % retained Ind.	Test 196-C3 residue % retained Cum.	Test 196-C3 residue % passing Cum.
10	-	-	100.0	-	-	100.0	-	-	100.0
14	15.8	15.8	84.2	0.1	0.1	99.9	-	-	100.0
20	13.4	29.2	70.8	-	0.1	99.9	-	-	100.0
28	13.9	43.1	56.9	0.1	0.2	99.8	-	-	100.0
35	8.2	51.3	48.7	0.1	0.3	99.7	-	-	100.0
48	7.5	58.8	41.2	0.3	0.6	99.4	0.1	0.1	99.9
65	5.4	64.2	35.8	1.2	1.8	98.2	-	0.1	99.9
100	5.7	69.9	30.1	10.5	12.3	87.7	0.2	0.3	99.7
150	3.7	73.6	26.4	11.6	23.9	76.1	2.7	3.0	97.0
200	3.3	76.9	23.1	12.4	36.3	63.7	8.1	11.1	88.9
+ 325	4.0	80.9	19.1	17.0	53.3	46.7	20.7	31.8	68.2
- 325	19.1	100.0	-	46.7	100.0	-	68.2	100.0	-
Total	100.0	100.0	-	100.0	100.0	-	100.0	100.0	-

Note: Test 196-C1 was carried out on ore which had been crushed to minus 10 mesh but not ground.

Test 196-C2 was carried out on ore which had been ground in a ball mill at 60% solids (1000 grams for 15 minutes).

Test 196-C3 was similar to test 196-C2 but the grinding time was increased to 30 minutes.



CANNON ENGINEERING LTD.
VANCOUVER BRITISH COLUMBIA

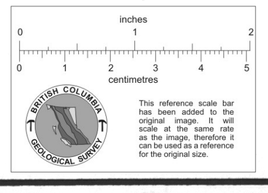
DUSTY MAC CLAIMS

OKANOGAN FALLS, B.C.
CHAIN & COMPASS SURVEY

SCALE

FEET 50 0 50 100 FEET

SEPTEMBER, 1968.



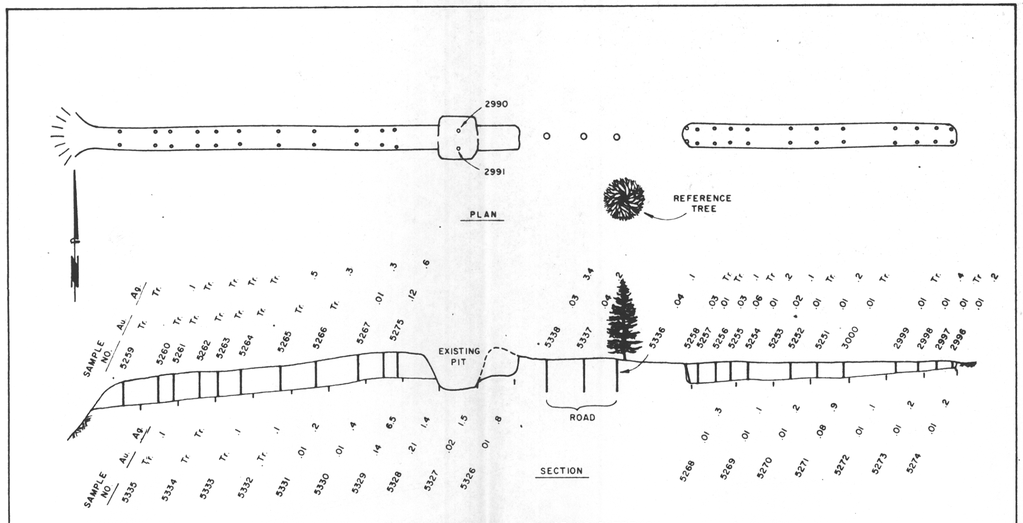
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

ALTAIR

COPPER TRENCHES
SEE DETAIL NO. 1

NO. 1 POST
JG 5 8 6

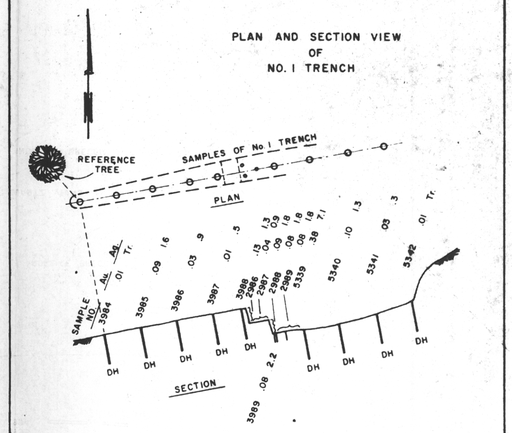
NO. 2 POST
JG 3 8 4



PLAN AND SECTION VIEW OF NO. 2 TRENCH

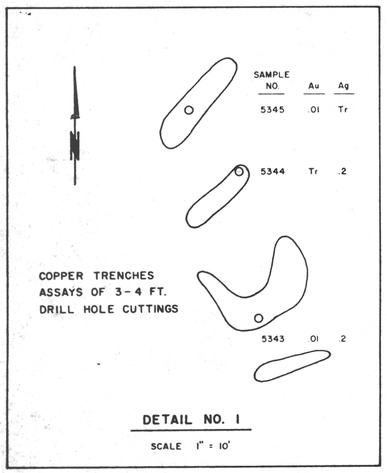
DETAIL NO. 2

SCALE 1" = 10'



DETAIL NO. 3

SCALE 1" = 10'



DETAIL NO. 1

SCALE 1" = 10'

PIT
CAVED ADIT
TO OKANAGAN FALLS
NO. 2 POST OF JOE NO. 1
BRECCIA OUTCROP
OUTCROP
BRECCIA
BRECCIA O I PIT SAMPLE 2995
GULLY
FACE SLASH SAMPLES 2992 2993 2994
NO. 2 TRENCH SEE DETAIL NO. 2
REF. PT.
FENCE
NO.1 TRENCH SEE DETAIL NO. 3
REF. PT.
TO ALLANDALE ROAD
ANDESITE BRECCIA
NO. 2 POST GUS NO. 1
QUARTZ VEINS
ANDESITE BRECCIA

SAMPLE NO.	Au	Ag.
2990	.57	1.4
2991	.09	6.2
2992	.07	5.5
2993	.10	2.0
2994	.27	3.3
2995	.50	0.2

inches
centimetres

This reference scale bar has been added to the image to indicate the scale at the same rate as the image, therefore it can be used as a reference for the original size.

DRAWN L.B.A.	SCALE 1" = 100'	CANEX AERIAL EXPLORATION LTD.	DUSTY MAC CLAIMS OKANAGAN FALLS
TRACED	DATE SEPT. 68	TAPE & COMPASS SURVEY	
APPROVED			FILE NO.

TO:

Cannon Engineering Ltd.,

744 West Hastings Street,

VANCOUVER. B.C.

Certificate of Assay

COAST ELDRIDGE
PROFESSIONAL SERVICES DIVISION
WARNOCK HERSEY INTERNATIONAL LIMITED
125 EAST 4TH AVE. VANCOUVER 10, B.C., CANADA

PHONE: (604) 876-411
TELEX: 04-50353
CABLE ADDRESS: ELDRICO

FILE NO. A.3-C.2-68-7

DATE August 2, 19

We Hereby Certify that the following are the results of assays made by us upon submitted ORE samples

MARKED	GOLD		SILVER	Molybdenite (MoS_2)	Copper (Cu)				
	OUNCES PER TON	VALUE PER TON	OUNCES PER TON	PER CENT.	PER CENT.	PER CENT.	PER CENT.	PER CENT.	PER CENT.
		$							
123	0.05	1.75	5.9	0.015	0.31				
124	0.08	2.80	10.6	0.02	0.84				
125	0.09	3.15	2.0	0.01	0.12				
126	0.36	12.60	6.3	0.035	0.35				
127	0.02	0.70	3.2	0.025	0.86				
128	0.01	0.35	0.8		0.17				
129	0.07	2.45	1.0		0.84				
130	0.01	0.35	0.8		0.19				
131	0.01	0.35	trace		0.02				
132	0.23	8.05	3.1		0.02				
133	0.20	7.00	0.8		0.08				
134	0.51	17.85	4.1		0.08				
135	0.21	7.35	2.8		0.02				

DUSTY MAC

/mr Gold calculated at $ ..... per ounce

Note. Rejects retained one week.
Pulps retained one month.
Pulps and rejects may be stored for a maximum of one year by special arrangement.

Unless it is specifically stated otherwise, gold and silver values reported on these sheets have not been adjusted to compensate for losses and gains inherent in the fire assay process.

..... Provincial Assayer

TO:

Cannon Engineering Limited,

744 West Hastings Street,

Vancouver, B. C.

Certificate of Assay

COAST ELDRIDGE
PROFESSIONAL SERVICES DIVISION
WARNOCK HERSEY INTERNATIONAL LIMITED
125 EAST 4TH AVE. VANCOUVER 10, B.C., CANADA

PHONE: (604) 876-4111
TELEX: 04-50353
CABLE ADDRESS: ELDRICO

FILE NO. A.3-C.4-68-1151

DATE August 28, 1968

We Hereby Certify that the following are the results of assays made by us upon submitted Ore samples

MARKED	GOLD		SILVER	Zinc (Zn)	Copper (Cu)				
	OUNCES PER TON	VALUE PER TON	OUNCES PER TON	PER CENT.	PER CENT.	PER CENT.	PER CENT.	PER CENT.	PER CENT.
		$							
333	0.81	28.35	1.57	0.22					
334	2.58	90.30	30.47		DUSTY MAC				
335	0.20	7.00	1.42						
336	0.06	2.10	0.44						
337	0.02	0.70	0.43						
		$		$i O_2$					
651	trace	-	trace						
652	0.15	5.25	9.4	76.12					
653	0.01	0.35	0.7	65.98	DUSTY MAC				
654	1.09	38.05	5.3						
655	0.44	15.40	35.6						
656	0.08	2.80	8.3						

TELEX: 04-50353
CABLE ADDRESS:
ELDRICO

Member Canadian Testing Association

mont Mining Corporation of Canada Ltd.,
- 744 West Hastings Street
couver, B.C.

ment Mining Corporation of Canada Ltd.,
0 - 25 King Street West
onto, Ontario
ENTION: Mr. J.S. Livermore

Certificate of Assay

COAST ELDRIDGE

PROFESSIONAL SERVICES DIVISION
WARNOCK HERSEY INTERNATIONAL LIMITED
125 EAST 4TH AVE. VANCOUVER 10, B.C., CANADA

Dusty Mac - Okanagan Falls, B.C.

FILE NO. A.3-N.5-68-1438

DATE August 29, 1968

We Hereby Certify that the following are the results of assays made by us upon submitted ORE samples

MARKED	GOLD		SILVER						
	OUNCES PER TON	VALUE PER TON	OUNCES PER TON	PER CENT.	PER CENT.	PER CENT.	PER CENT.	PER CENT.	PER CENT.
		$							
1414	0.01	0.35	0.4	Random grab alg 40' wide sil'd cong. breccia W of N pit					
1415	0.02	0.70	0.9	Grab from dump - old open cut by J.S. Livermore					
1416	0.02	0.70	Trace	Random chip sil'd cong. breccia o/c N of gat. w/low part. con.					

P

Gold calculated at $ ..... per ounce

te. Rejects retained one week.
Pulps retained one month.
Pulps and rejects may be stored for a maximum of one year by special arrangement.

Unless it is specifically stated otherwise, gold and silver values reported on these sheets have not been adjusted to compensate for losses and gains inherent in the fire assay process.

H. Hayes ..... *Provincial Assayer*

M 656 (REV. 5-68)

TO:

Canex Aerial Exploration Ltd.,

800 - 1030 West Georgia Street

Vancouver, B.C.

ATTENTION: Mr. Adie

Certificate of Assay

COAST ELDRIDGE

PROFESSIONAL SERVICES DIVISION

WARNOCK HERSEY INTERNATIONAL LIMITED

125 EAST 4TH AVE. VANCOUVER 10, B.C., CANADA

PHONE: (604) 87
TELEX: 04-503
CABLE ADDRESS
ELDRICO

FILE NO. A.3-C.4-68

DATE September

We Hereby Certify that the following are the results of assays made by us upon submitted ORE sampl

MARKED	GOLD OUNCES PER TON	GOLD VALUE PER TON	SILVER OUNCES PER TON	PER CENT.	PER CENT.	PER CENT.	PER CENT.	PER CENT.	PER CE
		$							
2986	0.04	1.40	0.9			Property: Dusty Mac Mines			
2987	0.09	3.15	1.8			Submitted by: C. C. Rennie			
2988	0.08	2.80	1.8						
2989	0.02	0.70	0.7						

2986 -- New South Trench, channel sample 2.3' vertically on face of top bench.

2987 -- New South Trench, channel sample 2.8' horizontally along bench between samples 2986 and 2988.

2988 -- New South Trench, channel sample 2.1' vertically on face of lower bench below sample 2987.

2989 -- New South Trench, channel sample 3.2' horizontally along bottom of trench east of sample 2988.

These four samples were taken from a freshly blasted trench immediately to the west of the location of the high grade samples assaying approximately 2 oz. Au and 30 oz. Ag per ton.

/jp

Gold calculated at $ ..... per ounce

Note. Rejects retained one week.
Pulps retained one month.
Pulps and rejects may be stored for a maximum of one year by special arrangement.

Unless it is specifically stated otherwise, gold and silver values reported on these sheets have not been adjusted to compensate for losses and

H. Shaylor

Provincial

CANEX AERIAL EXPLORATION LTD.
DIVISION OF CANADIAN EXPLORATION LIMITED
700 BURRARD BUILDING VANCOUVER 5, B. C. CANADA

September 12, 1968
File: Grid 82-E-5 SR

DUSTY MAC ASSAY RESULTS

(phoned from Coast Eldridge)

Sample No.	Au	Ag	Location
2990	.57	1.4	Middle pit SE corner, 2.1' vert. channel
2991	.09	6.2	Middle pit NW corner, 2.5' vert. channel
2992	.07	5.5	North slash north end face, lower half, 1' vert. channels (green rock and graphite)
2993	.10	2.0	North slash south end face, top rusty, 2' vert. channel
2994	.27	3.3	North slash south end face, 2.1' vert. channel including graphite
2995	.50	0.2	North pit channel sample
2996	.01	.2	#2 trench, 2-hole composite 2' deep @ 44.5' East of reference
2997	.01	Tr	#2 trench 2-hole composite 2' deep @ 42' East of reference
2998	.01	.4	#2 trench, 2-hole composite 2' deep @ 39.5' East of reference
2999	.01	Tr	#2 trench, 2-hole composite 2' deep @ 36.5' East of reference
3000	.01	tr	#2 trench, 2-hole composite 2' deep @ 29.5' East of reference
5251	.01	.2	#2 trench, 2-hole composite 2' deep @ 26' East of reference
5252	.01	Tr	#2 trench, 2-hole composite 2' deep @ 22.5' East of reference
5253	.02	.1	#2 trench, 2-hole composite 2' deep @ 19' East of reference

Sample No.	Au	Ag	Location
5254	.01	.2	#2 trench, 2-hole composite 3' deep @ 17' East of reference
5255	.06	Tr	#2 trench, 2-hole composite 3' deep @ 14.5' East of reference
5256	.03	.1	#2 trench, 2-hole composite 3' deep @ 12' East of reference
5257	.01	Tr	#2 trench, 2-hole composite 3' deep @ 10' East of reference
5258	.03	Tr	#2 trench, 2-hole composite 3' deep @ 8' East of reference
5259	Tr	Tr	#2 trench, 1 hole 3' deep @ 67' West of reference
5260	Tr	.1	#2 trench, 2-hole composite 3' deep @ 63' West of reference
5261	Tr	Tr	#2 trench, 2-hole composite 3' deep @ 61' West of reference
5262	Tr	Tr	#2 trench, 2-hole composite 3' deep @ 57.5' West of reference
5263	Tr	Tr	#2 trench, 2-hole composite 3' deep @ 55' West of reference
5264	Tr	Tr	#2 trench, 2-hole composite 3' deep @ 52' West of reference
5265	Tr	.5	#2 trench, 2-hole composite 3' deep @ 46.5' West of reference
5266	Tr	.3	#2 trench, 2-hole composite 3' deep @ 42' West of reference
5267	.01	.3	#2 trench, 1 north hole 3' deep @ 36' West of reference
5268	.01	.3	#2 trench 9-15'E, channel at bottom of trench
5269	.01	.1	#2 trench 15-20'E, channel at bottom of trench
5270	.01	.2	#2 trench 20-25'E channel at bottom of trench
5271	.08	.9	#2 trench 25-30'E channel at bottom of trench

Sample No.	Au	Ag	Location
5272	.01	.1	#2 trench 30-35'E channel at bottom of trench
5273	.01	.2	#2 trench 35-40'E channel at bottom of trench
5274	.01	.2	#2 trench 40-45'E channel at bottom of trench
5275	.12	.6	#2 trench 4-hole composite 3.5'deep @ 31' to 33' West of reference
5326	.01	.8	#2 trench 15-20'W channel at bottom of trench
5327	.02	1.5	#2 trench 20-25'W channel at bottom of trench
5328	.21	1.4	#2 trench 25-30'W channel at bottom of trench
5329	.14	6.5	#2 trench 30-35'W channel at bottom of trench
5330	.01	.4	#2 trench 35-40'W channel at bottom of trench
5331	.01	.2	#2 trench 40-45'W channel at bottom of trench
5332	Tr	.1	#2 trench 45-50'W channel at bottom of trench
5333	Tr	.1	#2 trench 50-55'W channel at bottom of trench
5334	Tr	Tr	#2 trench 55-60'W channel at bottom of trench
5335	Tr	.1	#2 trench 60-65'W channel at bottom of trench
5336	.04	.1	#2 trench 4'hole 1'W of reference point
5337	.04	.2	#2 trench 4'hole 5.5'W of reference point
5338	.03	3.4	#2 trench 4'hole 10.5'W of reference point
5339	.38	7.1	#1 trench 4'hole 33'E of W end of trench
5340	.10	1.3	#1 trench 4'hole 38'E of W end of trench
5341	.03	.3	#1 trench 4'hole 43'E of W end of trench
5342	.01	Tr	#1 trench 4'hole 48'E of W end of trench
5343	.01	.2	Copper trench Pt. G 4' deep hole
5344	Tr	.2	Copper trench Pt. G + 19'N, 4' hole
5345	.01	Tr	Copper trench Pt. G + 30'N 4' hole

Note: Samples 5328 and 5329 were taken across the bottom of the middle pit which was not reblasted.

700 BURRARD BUILDING