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REPORT

on

THE ESTHER CLAIM GROUP

MISSEZULA LAKE AREA

SIMILKAMEEN MINING DIVISION

for

DELKIRK MINING LTD.

by

R.W. PHENDLER, B.Sc., P.Eng.

Vancouver, B.C. August 6th, 1969.

ESTHER
CLAIMS
Kamloops
Merritt
Lillooet
Ashcroft
Clinton
100 Mile House
Williams Lake
Quesnel
Prince George
Kelowna
Vernon
Penticton
Salmon Arm
Princeton
Hope
Chilliwack
Abbotsford
Vancouver
Victoria
Bellingham
Anacortes
Sedro Woolley
Burlington
Mt. Vernon
Arlington
Marysville
Oroville
Osoyoos
Oliver
Omak
Okanogan
Tonasket
Republic
Grand Forks
Castlegar
Nelson
Trail
Rossland
Cranbrook
Fernie
Golden
Revelstoke
Salmo
Creston
Kimberley
Invermere
Radium Hot Springs
Banff
Lake Louise
Jasper
Valemount
Dawson Creek
Fort St. John
Fort Nelson
Mackenzie
Hudson Hope
Chetwynd
Tumbler Ridge
Kitimat
Terrace
Prince Rupert
Stewart
Hazelton
Smithers
Houston
Burns Lake
Fraser Lake
Vanderhoof
Fort St. James
Mackenzie
Germansen Landing
Manning Park
Cascade Range
Coast Mountains
Monashee Mts
Selkirk Mts
Purcell Mts
Rocky Mts
Okanagan Lake
Shuswap Lake
Kootenay Lake
Arrow Lakes
Columbia River
Fraser River
Thompson River
Okanagan River
Similkameen River
Kettle River
Pend Oreille River
Flathead River
Peace River
Liard River
Stikine River
Skeena River
Nass River
Bulkley River
Nechako River
Chilcotin River
Harrison Lake
Pitt Lake
Alouette Lake
Stave Lake
Ross Lake
Lake Whatcom
Lake Chelan
Lake Shannon
Baker Lake
Mt. Baker Lodge
Mt. Baker 10750
Mt. Robson 12972
Mt. Waddington 13260
Mt. Fairweather 15300
Mt. Logan 19524
Mt. Lucania 17150
Mt. Kennedy 13905
Mt. Hubbard 16000
Mt. Alverstone 14500
Mt. Vancouver 15700
Mt. Steele 16644
Mt. Wrangell 14163
Mt. Sanford 16237
Mt. Churchill 15638
Mt. Natazhat 16610
Mt. Hayes 13832
Mt. Deborah 12339
Mt. Moffit 13020
Mt. Fairweather 15300
Mt. Blackburn 16390
Mt. Sanford 16237
Mt. Wrangell 14163

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Location Map

Geological Map Mineral Zone - 1" = 40'

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The thirty-one Esther claims lie thirty miles north of Princeton in the Missezula Lake area. They are easily accessible by a good gravel road up Summers Creek Valley from the Princeton-Merritt Highway.

The area is underlain by Nicola Group volcanics which are far from homogeneous. In the immediate vicinity of the Shamrock prospect, which lies within the Esther claims, the rock is medium-grained feldspar porphyry which has been interpreted as being a volcanic flow breccia. To the east, south and west are fine-grained, dark green andesites containing disseminated sulphides.

A mineralized fracture zone that strikes northeasterly can be followed along strike in three trenches for about eighty feet. Old reports mention six trenches that extend the zone for 250' but some of these are caved. The fracture zone measures up to 25' in width but mineralization is confined to about 5'-18'.

The intensity of the fracturing and the amount of mineralization is impressive. The fact that the prospect lies close to throughgoing, northerly-striking faults that can be projected southward to the Copper Mountain area cannot be overlooked, although this is no guarantee that similar deposits will be discovered. No intrusives similar in nature to the Copper Mountain intrusives have been seen along this fault belt.

Recently taken chip samples indicate that the presently visible mineralization averages 1.63% Cu across 11.6'. Although chalcocite is the principal mineral, disseminated chalcopyrite was seen up to 250' to the northeast of the trenches.

From ten samples taken by the writer for 900' across the mineral zone, soil sampling would appear to be an effective method of outlining zones of interest. The property warrants exploration and it is recommended that topographic mapping, prospecting, geologic mapping, soil sampling, EM surveying and diamond drilling be carried out. Estimated cost of this program is $20,000.

A further $40,000 should be provided to carry on additional diamond drilling and trenching.

SCOPE

On July 27th and 28th the mineral showings on the Esther claims near Missezula Lake were examined and the region geologically mapped. This work was done by the writer accompanied by Mr. J.W. Murton.

LOCATION AND ACCESS

The Esther claims lie thirty miles north of Princeton, British Columbia, at the south end of Missezula Lake. Access is by good gravel road from the Princeton-Merritt Highway following the Summers Creek Valley for eighteen miles.

Elevation is about 3000'; topography is relatively steep and the timber growth moderate.

PROPERTY AND OWNERSHIP

The thirty-one Esther claims are owned jointly by E. Garrison, A. Broomfield and W. Shropshire of Princeton, British Columbia. The claim group is presently under option to Delkirk Mining Ltd.

HISTORY

Although the area was primarily a placer mining region, copper occurrences in the Princeton-Aspen Grove area are common. The Esther claims cover a showing that was formerly known as the Shamrock. In 1929 it was reported that the mineralized zone could be followed for 1500 feet. Six open cuts explored the zone and in 1929 a small shipment was made which is reported to have carried 5.78% copper.

Little is known regarding more recent work on the property but it is known that diamond drilling was carried out a few years ago. No records concerning drill hole locations or results are presently available.

GEOLOGY AND MINERALIZATION

For forty miles north from Copper Mountain a zone occurs along which copper prospects are numerous. In the Aspen Grove area certain showings are in or close to large granitic bodies and probably are related to them. Other deposits, including the one under consideration, occur in fractures and as disseminated grains of chalcopyrite, pyrite, bornite and chalcocite within Nicola volcanic rocks

of Triassic age. No intrusive rocks are known to be related to them and the only thing they have in common seems to be their occurrence along the trend of faults up Allison Valley and Summers Creek.

The Esther showing is underlain by a rather coarse-grained reddish rock containing rounded fragments of feldspar porphyry. This rock has been interpreted as a rather unusual flow breccia. To the east and southeast of the mineral showing the Nicola volcanics are composed of purplish basalts and medium-green andesites.

The reddish flow breccia is intersected by a north-easterly trending fracture zone which is mineralized with chalcocite and finely disseminated chalcopyrite. The mineralized bands within the fracture zone are associated with calcite stringers which trend either easterly or northerly.

Although old records show that the zone was traceable for 250' in six trenches, only three trenches are presently accessible and these show the mineral zone to extend over a strike length of 80'. Disseminated chalcopyrite was observed about 250' to the north-east in similar rock type.

During the examination, 28 chip samples were taken in the three principal trenches. Results are as follows:

Trench	Sample No.	Width	% Cu	Oz. Ag	Location	
#1	* 9273	5.0'	0.88	0.03	0-5.0'	East of face
1	* 9274	3.0	4.20	0.12	5.0'-8.0'	"
1	* 9275	5.0	2.80	0.10	8.0'-13.0'	"
1	* 9276	5.0	1.45	0.06	13.0'-18.0'	"
1	9277	5.0	0.04	0.01	18.0'-23.0'	"
1	9278	5.0	0.02	0.01	23.0'-28.0'	"
1	9279	5.0	0.02	0.01	28.0'-33.0'	"
1	9280	5.0	0.02	0.01	33.0'-38.0'	"
Average -	*9273-9276	18.0'	2.10	0.07	0-18'	"
#2	9282	5.0'	0.05	0.03	0-5.0'	W. of tr. collar
2	9283	5.0'	0.01	0.01	5.0'-10.0'	"
2	9284	5.0	0.01	0.01	10.0'-15.0'	"
2	* 9285	5.0	0.26	0.01	15.0'-20.0'	"
2	* 9286	5.0	2.40	0.10	20.0'-25.0'	"
2	* 9287	5.0	0.25	0.01	25.0'-30.0'	"
Average -	*9285-9287	15.0'	0.97	0.04	15.0'-30.0'	"
#3 south wall	9288	3.0'	0.05	0.01	3.0'-6.0'	"
3 "	9289	5.0	0.15	0.01	6.0'-11.0'	"
3 " *	9290	1.5	4.20	0.20	11.0'-12.5'	"
3 " *	9291	6.0	0.11	0.01	12.5'-18.5'	"
3 " *	9292	1.0	2.50	0.13	18.5'-19.5'	"
3 "	9293	5.5	0.09	0.01	19.5'-25.0'	"
Average -	*9290-9292	8.5'	1.10	0.06	11.0'-19.5'	"
#3 north wall	9294	3.0'	0.44	0.03	3.0'-6.0'	"
3 " *	9295	5.0	1.60	0.06	6.0'-11.0'	"
3 " *	9296	5.0	0.10	0.01	11.0'-16.0'	"
3 " *	9297	4.0	0.04	0.01	16.0'-20.0'	"
3 " *	9298	1.0	8.00	0.41	20.0'-21.0'	"
3 "	9299	5.0	0.08	0.01	21.0'-26.0'	"
3 "	9300	6.0	0.05	0.01	26.0'-32.0'	
Average -	*9295-9298	15.0	1.11	0.04	6.0'-21.0'	"

Summary

Trench	Mineral Width	% Cu	Oz. Ag
#1	18.0'	2.10	0.07
#2	5.0	2.40	0.10
#3 S. Wall	8.5	1.10	0.06
#3 N. Wall	15.0	1.11	0.04
Average	11.6'	1.63	0.06

Ten geochemical soil samples were taken across the mineral area with the following results:

Sample No.	P.P.M. Cu	Location
9301	18	510' Upslope from Trench #1
9302	32	410 " " " "
9303	45	310 " " " "
9304	40	210 " " " "
9305	38	110 " " " "
9306	545	10 " " " "
9307	1600	90 Downslope " " "
9308	1340	190 " " " "
9309	780	290 " " " "
9310	465	390 " " " " - on road

This indicates that geochemical sampling will be an effective tool in outlining anomalous areas.

About 1000' north of the principal mineral showings a large talus slope contains boulders with visible chalcocite and malachite staining. The source of these boulders has not been located.

RECOMMENDED WORK

It is the opinion of the writer that the mineral showings warrant exploratory work. The intensity of the fracturing and the mineralization is impressive. The presence of a commercial copper deposit is a distinct possibility.

ESTIMATED COSTS

Stage 1

1.	Topographic mapping	$1,000.00	
2.	Detail geologic mapping & prospecting	2,000.00	
3.	Soil sampling and EM Survey	4,000.00	
4.	Diamond Drilling - 1000' @ $10/ft.	10,000.00	
5.	Engineering, assaying & sampling	3,000.00	$20,000.00

No administration and head office costs are included herein.

It is recommended that an additional $40,000 be provided to continue the exploration work as follows:

Stage 2

1.	Tractor trenching	$2,000.00	
2.	Further diamond drilling as follows:		
	(a) Main zone - 1500' @ $10/ft.	15,000.00	
	(b) Expected EM & geochem anomalies 1500' @ $10/ft.	15,000.00	
3.	Engineering, assaying & sampling	5,000.00	
		$37,000.00	
	Contingencies	3,000.00	
	Total		$40,000.00

Respectfully submitted,

BACON & CROMHURST LTD.

R.W. Prendler, B.Sc., P.Eng.

PROFESSIONAL ENGINEER R.W. PRENDLER BRITISH COLUMBIA ENGINEER

NEXT FOUR SOIL SAMPLES
18 ppm Cu
32 ppm Cu
45 ppm Cu
0 100' 0 100' 0 — — 100' — — 0 40 ppm Cu

Trench

Purplish andesite

38 ppm Cu

3650'

Drill hole vertical

Drill hole -55°

Turn-around

DRILLHOLE

Porphyry

3550'

Cp spks in porphyry

CAVED TRENCH

Py spks

Barren

Chalcocite float.

CAVED

CAVED

Barren porphyry

Smple 9281

15.0' - 1.11% Cu; .04 oz Ag

8.5' - 1.10% Cu; .06 oz Ag

75° 70° 65°

TRENCH No. 3

5.0' - 2.40% Cu; .10 oz Ag

TRENCH No. 2

545 ppm Cu

78°

Vert

chalcocite stngs

18.0' - 2.10% Cu; .07 oz Ag

3580

TRENCH No. 1

Steep slope

1600 ppm Cu

1340 ppm Cu

Cp spks in feldspar porphyry flow breccia

GEOCHEM TEST LINE.

780 ppm Cu

ROAD TO MISSIZULA LAKE

465 ppm Cu

3260'

Access Road

3420'

DELKIRK MINING LTD.

GEOLOGICAL MAP
of
SHAMROCK PROSPECT, ESTHER
CLAIM GROUP.
MISSEZULA LAKE, B.C.

SCALE: 1" = 40' AUG, 1969.

R. L. Pfeiffer

Fig 1.

Approved.
Ellis Bros

MISSEZULA LAKE

MOSS TOURIST LODGE

DILLARD CREEK

ROAD TO PRIMER GROUP MINERALS LTD. 4 MILES

MODERATE SLOPE

SHROPSHIRE FARM

Valley floor

SLOPE

BARN

Valley floor

SLOPE

CREEK

GRAVEL ROAD

SUMMERS

SLOPE

Valley floor

SLOPE

ROAD TO PRINCETON-MERRIT HIGHWAY 16 MILES

3350'

3300'

3300'

3275'

3300'

3250'

3300'

3400'

3500'

Feldspar porphyry breccia

Chalcocite in talus

Chalcocite stringers in Trenches 1, 2 & 3

Fine gr'd purplish basalt

D.D.H.

Tr 3

Tr 2

Tr 1

Py Cp

Felds. porph. flow breccia

Numbers refer to parts per million Copper in geochemical samples

LEGEND

CONTOUR INTERVAL — 50 p.p.m. Cu

inches
centimetres

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.

DELKIRK MINING LTD. R.W. Pflendler

GEOCHEMICAL MAP

OF

ESTHER CLAIM GROUP
SHAMROCK PROSPECT

MISSEZULA LAKE, BRITISH COLUMBIA

SCALE : 1"=400'

FEET 400 200 0 400 800 1200 1600 FEET

FIG. 2

ALTAIR drafting. AUGUST— 1969