92 H/4E

SUMMARY REPORT

ON

RICO COPPER MINES LIMITED

FIELD EXAMINATION - GEOLOGICAL

Claim Groups Reported on: ✓ Rico "A" - (Ric #1 - #4 Fr. incl.; Ric #1 - #16 incl.) ✓ Rico "B" - (Bomac Fr.; Ron #1, #3, #5, #7; Ed #1 - #4 incl.; Tom #1, #3, #5, #7; George #4; R.C. A53356 -A53359 incl.; R.C. A53360 Fr.; R.C. A53350) ✓ Rico "C" - (R.C. #100 - #105 incl.)

Location: 17 miles east of Chilliwack, 49[°] 121° S.E. <u>Author</u>: T. M. Kerr, B.Sc., P. Eng.

Work Done for: Rico Copper Mines Limited, holder of the claims

July 1st to August 1st, 1961

Dates:

SCOPE





SURGARY REPORT

ON

709

455

RICO COPPER MINES LIMITED

	Department of
Summary Report On	Mines and Petroleum Resources ASSESSMENT REPORT
RICO COPPER MINES I	INOTED 458 MAP

TABLE OF CONTENTS

	Page
Summary	1 (a)
Introduction	1
Information	2
Geology	4
Ore Zones	5
Access	8
Conclusions and Recommendations	9
Certificate	13
Assay Results	Appendix 1
Affidavit of Personnel Employed and Total Expenditure Incurred	Appendix 2
Distribution of expenditure over the various groups	Appendix 3
Location Plan	Map No. 1
Section Through Showings Indicating Possible Mine Development	Map No. 2
Vertical Longitudinal Section showing Diamond Drill Holes above Tunnel	Map No. 3
Surface Geology of part of Rico Copper Mines Limited	Map No. 4
Geology and Claim Plans of Rico Copper Mines Limited	Map No. 5

SUMMARY REPORT

ON

RICO COPPER NINES LIMITED

Summer

Rico Copper Mines Limited has a limited tonnage of known copper ore of exceptionally good grade with good exploration possibilities on their own property and on neighbouring ground along a sedimentary igneous contact. The known ore occurs in small plums or lenses and there does not seem to be any reason why more of these plums could not occur along the contact.

The problem of access to the known bodies must be alleviated before these bodies can be mined at a profit and the discovery of further tennages of ore is necessary before a major capital expenditure for production is committed.

To attempt to solve these problems the following programe is recommended:

(1) Lay out a logging type road centre line up Ford (Foley) Creek and thence up Granite Creek to the base of the cliff below the east showing. This seems possible from field reconnaissance but will be difficult in the Granite Creek area. The cost of this road should be estimated as the centre line is run.

Summery (contid)

(2) The contact area between the intrusives and the sediments should be prospected from the Granite Creek area down the Ford Creek alope right to Ford Lake by a geological geophysical party.

- 2 -

(3) Depending on a favourable cost estimate from (1) above and favourable results from (2) a road should be constructed to the eliff bottom on Granite Creek.

(4) The contact area can then be drilled using the new road as access both from the base of the cliff and above the cliff. Also the bottom tunnel at east some should be cleaned out.

(5) Assuming the previous recommendations have proven successful a mining operation can be considered probably by driving an inclined raise from near the bottom of the cliff on Granite Creek to up below the east one body and thence a drift from there along the contact some to beneath the main some. Or if lenses are found lower down from the diamond drilling a drift could be driven from the base of the cliff underneath both known one mones. This would permit an allweather, all-seeson mining operation.

SUNMARY REPORT

ON

RICO COPPER MINES LIMITED

Introduction

Rico Copper Mines Limited hold a large block of claims at the east end of the Cheam Range comprising the following:

Located Claimat

Claim Name	Record No.	Claim Nama	Record No.
Bomas Pr.	9999	Ed 🚯	9072
Ric #1 Fr.	10714	Ed #4	9073 /
Ric 72 Fr.	10715	Ton 1	9062
Ric #3 Fra	10716	Ton 73	9064
Ric ML Pro	10717	70m #5	9066
Rin 31	10713	Ton #7	9068
RTA 25	10719	Carl #7	9123
Pic 21	10720	Carl 48	9121
Dia Al	10721	Ceorre #L	9123
	10722	R-C- \$102	6516
	10722	8.0. 103	6517
RIC TO	10101	R.C. 4101	6552
nic gr	30005		651.8
HIC TO	10/23		6560
Ric #9	10/20		6,000 6,664
Ric #10	10/2(Reve Fluit	0101
Ric #11	10723	rat fl	A 7100
Eic #12	10729	Pat #2	9109
Ric #13	10730	Pat #3	9190
Ric #14	10731	Pat #4	9191
Ric /15	10732	Pat 25	9192
Ric #16	10733	Pat \$6	9193
Ron #1	9054	R.C. A53356	6581
Ron 73	9056	R.C. 453357	6582
Ron 25	9058	R.C. A53358	6563
Ron #7	030Q	R.C. A53359	6584
Ed 71	9070	R.C. A53360 Pr.	6535
Rd 32	9071	R.C. A53350	6578

Crown Granted Mineral Claims:

<u>Claim Name</u>	Record No.
Lucky 4 #1	990
Lucky 4 #2	999
Lucky 4 #3	1001
Lucky 4 #4	989
Lucky 4 #5	1033
Lucky 4 #6	1034
Sperry	1098
Epsilon Fraction	991
Gamma Fraction	998
Delta Fraction	1000

Rico holds a substantial interest in four Cheam Crown grants

and two fractions known as:

<u>Claim name</u>	Record No.
Merry Widow Storm Fr. White Pl Fr.	L1094 L1099 L1097 L988 L1002
	1.1095

The area is located seventeen miles east of Chilliwack, British Columbia and is almost due south of the village of Laidlow on the Trans-Canada Highway.

Information

The information for this report was obtained by a personal geological study in the field by the writer and by sampling of mineral showings wherever possible.

All pertinent written information on the property in reports by Dr. Dolmage, Henry Hill and W. N. Plumb was carefully read. Conversations were held with Henry Hill and Mr. Malcom of Phelps Dodge to obtain the viewpoints of other engineers on the deposits.

Long discussions were held with T. H. Wilkinson on the historical aspects of the property. I wish at this time to acknowledge the help and assistance given by Mr. Wilkinson whose knowledge of the area and personnel saved days in orientation of the work.

The geological work and sampling of ore bodies required the use of helicopters for all the work at higher elevations. The lower Portion of the work and examination of the geological contact conditions in the Granite - Foley Creek section was completed on foot which also permitted an assessment of the possibilities of access.

Topography

The property is located at the east end of the Cheam Range in the Coast Range Mountains. This range is a knife edged ridge at about 6,000 elevation with eight peaks ranging up to 7,700 feet in height. In general the north slopes are very precipitous with the south slopes being steep but more approachable. The western portion of the Rico property covers part of this ridge and is unapproachable from any direction. In the eastern portion from Foley Mountain the main ridge seems to swing to the northeast and a

- 3 -

second ridge branches off to the southeast forming a valley about 1,000 feet wide and dipping at about 30° to the east. At the head of this valley is the main showing of Rico and part way down is the east showing. This valley forms the head waters of Granite Creek. The tops of the ridges are covered with year round glaciers and during the reconnaissance there was more snow than would be present later in the year making observations difficult at higher elevations.

It might be well to trace the descent from the main showing to Ford (Foley) creek. From the main zone there is a fairly even 30°slope down from about 6,200 feet to just east of the east showing a distance of about 2,000 feet to an elevation of about 5,200 feet, then a precipitous drop of about 700 feet to 4,500 feet at the head of Granite Creek, thence a gradual drop down Granite Creek for about a mile to about 3,700 feet and thence a quick drop in the next half mile of about 900 feet down to the level of Foley Creek.

<u>Geology</u>

The whole area of the property is underlain by granodiorite intrusives in the northern section and impure sediments in the southern section.

The granodiorite intrusives are believed to be post jurassic in age and are clearly distinguishable because of their typical grey colour on weathering.

- 4 -

The impure sediments are commonly known as the Chilliwack group and are believed to be upper carboniferous in age. The exposed outcrops are impure argillites with a high iron content and weather a typical rusty red colour.

The contact between these two rocks is clearly defined and has a vertical attitude on exposed cliff faces and strikes west - northwest. This contact passes between Cheam peak and the Four Brothers Mountain crosses just north of Stewart and Foley peaks runs down the valley leading to Granite Creek and along the south edge of the Granite Creek Valley, crosses Ford Creek and swings sharply south of Ford Creek.

There is no visible alteration in the intrusives near the contact but in the sediments in many places there is minor alteration and silicification. In those places where there is an embayment in the contact you get the altered skarn zones in which the pods of massive sulphide mineralization occurs.

The contact zone itself is obscured by overburden in the Ford Creek area and part way up Granite Creek except for two steep cliff faces. It can be observed near the east ore zone but is obscured by talus and ice farther up near the main ore zone. Farther west it can be seen but the slopes are so steep it cannot be examined.

- 5 -

<u>Ore Zones</u>

(a) <u>Main Ore Zones</u>

The method of sampling and drilling of the three zones was discussed thoroughly with Henry Hill and I believe that good technical practice was observed. In the field check samples were taken but due to depth of snow it was impossible to sample and establish the size of the 'C' zone. The samples taken checked closely with results obtained by Henry Hill.

So for all practical purposes we can assume that Hill's estimates, as follows, are acceptable:

	Tons	Oz. Gold	<u>Oz. Silver</u>		% Copper
High Grade Low Grade	25,000 75,000	•07	6.1	Ň	8.7 1.8
Total	100,000	.02	2.4		3.52

From the drilling it would seem that the area beneath the 'A' zone was not too well explored and a further eight holes might have increased the above figures perhaps by 15 or 20%. The accompanying plan would indicate this area. There are many large clear quartz crystals in vugs in association with the copper ore and could have important by-product values. It would be well to point out at this time that the estimated tonnages of low grade could not be considered ore with the present system of access since it could not be mined at a profit.

(b) East Ore Body

The surface outcrop of chalcopyrite is not large at the east ore body although the skarn zone is quite extensive extending down a 200 foot cliff. The chalcopyrite zone is about 20 feet long and 15 feet wide and extends down the cliff for a short distance. It assays 6.05% copper. There is evidence of tunnels at two elevations below this zone with the top one caved and the bottom one almost unrecognizable except for a trench type depression. However, there is an extensive rock dump just below the old tunnel which looks like the tunnel may have been two to three hundred feet long which it would have had to be to reach the east ore body. The extent of the dump at the lower elevation would lead one to believe that the prospectors must have had some encouragement in this tunnel and when proper access to this area is established it should be cleaned out. It would take two men probably a month to clear up this tunnel and make it safe for entry and would cost about \$2,500.00.

It would be comparatively easy to drill this east ore body from the intrusive side of the contact since there is the sloping bottom of the basin to drill from and the east showing is much higher. It is impossible to work from the sedimentary side because there is continually slides of rock from the steep slopes to the south. The contact zone between the two ore zones could be drilled in a similar manner.

- 7 -

A couple of long holes could be drilled from the bottom of the cliff to the area east of the east zone and would indicate if the zone extends east at depth.

Ore Possibilities

The known ore bodies are replacements in the sediments near the sedimentary igneous contact and in each case the ore bodies themselves although of good grade are plums of limited tonnage. The possibility of there being further similar plum type bodies along this contact would be considered good.

The only set of conditions which are different where the known bodies occur seem to be minor folding or embayments in the contact and similar conditions could be present anywhere along the contact. The contact area should be prospected by geological and geophysical methods all along from Granite Creek down Ford Creek right to Ford Lake. This could be done by a three man party including a geologist, geophysicist and prospector and could be completed in six weeks to two months for a cost of about \$8,500.00. If proper access is established then the contact area from Granite Creek up to the main zone can be tested by diamond drilling.

West of the main ore zone would not be of particular interest at this time since access is all but impossible and you would have to have a money making operation in progress before considering this type of risk capital.

- 8 -

<u>Access</u>

I believe the controlling factor in any future operation at Rico is possible access to the ore areas.

<u>l</u> Rapid examination of the route from Laidlow up Jones Creek and past Janes Lake led me to dismiss this possibility.

<u>II</u> Thorough examination of the Ford Creek - Granite Creek route would lead me to believe it would be feasible to build a road, although probably fairly difficult in the lower section of Granite Creek. It would have the following advantages:

- (a) Slopes would be more moderate and could be kept open year round.
- (b) It would be controlled by Rico.
- (c) It parallels the favourable contact zone and any bodies found would have easy access to this road.
- (d) It could be used to handle all ore from the main zone east and south.

There is evidence from an old trail that the prospectors in the early work crossed the Granite Creek basin above the cliff on a pack trail and proceeded along the south side of the Granite Creek basin at about 5,200 foot elevation and then headed north up Foley Creek. It is not known where this pack trail came out but it would be difficult to prepare a road this way.

Conclusions and Recommendations

There are two main problems at Rico that must be overcome for this property to become a producing mine, namely there must be a suitable, reasonable cost method of access obtained and further tonnages of ore must be discovered to make the capital expenditure a realistic figure per ton of ore mined. I am listing the following recommendations with certain of these being entirely dependent on the previous onos.

(1) Lay out a logging type road centre line up Ford (Foley) Creek and thence up Granite Greek to the base of the cliff below the east showing having a cost estimate prepared by the people laying out the route. This if properly done would cost \$8,000.00.

(2) Prospect the contact area from Ford Lake up to
 Oranite Creek area using a three man geological - geophysical party. This would cost \$2,500.00.

(3) Depending on a favourable cost estimate from (1) above and favourable results from (2) a road should be constructed to the cliff bottom on Granite Creek. When I speak of a favourable cost estimate I am assuming a figure of \$100,000.00 or less.

(4) The contact area can then be drilled using the new road as access both from the base of the cliff and above the cliff. This drilling would cost about \$6.00 per foot at the base of the cliff for 3,000 feet or a total of \$16,000.00. At the top of the cliff the cost would be increased to \$7.50 for 3,000 feet or a total of \$22,500.00. The old tunnel could be cleaned out and resampled at a cost of \$2,500.00.

- 10 -

If the previous recommendations give successful [5] results then a mining operation would be considered. A raise could be driven up from near the base of the cliff on Granite Creek to up below the east ore body and thence a drift from there along the contact some to beneath the main zone. Or if lenses are found lower down from the diamond drilling the drift could be driven from the base of the cliff underneath the known ore sones. Either of these methods would permit an all-weather, all-season mining operation. However, they would both cost about \$300,000.00 before development had been completed for mining all the ore. Nowever, it is possible that with either method you could be mining ore from the east ore body after an expenditure of \$125,000.00. The concentrator which would be placed at the base of the cliff could be for 100 tons and would cost, erected and in place, about \$150,000.00 assuming a second hand mill could be acquired. To these figures must be added the cost of trucks, living accommodations, compressors and hoist which would entail a further \$150,000.00. So to complete the road and develop the ore bodies for mining we are speaking of a capital outlay of \$700,000.00 to which would be added mining, milling and transportation of concentrates costs which would be in the neighbourhood of \$12.00 per ton of raw ore. This would leave a break even

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- 11 -

proposition on the 100,000 tons of known ore at the present price of metals and would not be attractive for this capital overlay.

However any substantial increase in ore tonnages would make this an attractive looking operation and as we know there must be further tonnages at the east ore body this possibility is very good.

Respectfully submitted,

SCOPE MINING AND EXPLORATION CONSULTANTS LIMITED

1 - M- Ten . T. H. Kerr, B.Sc., P. Eng.

Toronto, Ontario.

CERTIFICATE

I, THOMAS MacDONALD KERR, of the Town of Oakville in the County of Halton and Province of Ontario, hereby certify:

1. That I am a Mining Engineer and reside at 1097 Rosemary Lane, Oakville, Ontario.

2. That I am a graduate of Queen's University with a B.Sc. Honour degree and that I have been practising my profession as a Mining Engineer for 19 years.

3. That I do not have nor do I expect to receive either directly or indirectly an interest in the properties or securities of Rico Copper Mines Limited.

4. That the accompanying report has been prepared from personal reconnaissance and sampling in the field, and from original reports on the property in question.

5. That I am a member of the Association of Professional Engineers of the Province of Ontario.

DATED this 1st day of August, 1961.

J. miten

T. M. Kerr, B.Sc., P. Eng.



APPENDIX I

On samples I have taken from the various showings the assay results confirm Henry Hill's original surface work.

The copper in the massive samples show values as high as 18.4% and silver up to 14 ounces. Gold, however, is not an important factor and values are, in general, low.

I had these samples run for Molybdenite but results were negative although apparently other people have obtained significant values.

- 62-

X-RAY ASSAY LABORATORIES LIMITED

28 EGLINTON AVENUE WEST - TORONTO. ONTARIO - HUDSON 5-8907

Certificate of Analysis

NO. 740

Scope Mining & Exploration Consultants Ltd., 347 Bay Street Suite 703, TORONTO 1, Ontario.

RECEIVED July 24, 1961 [INVOICE NO. 4431

SAMPLE(S) OF drill core SUBMITTED TO US SHOW RESULTS AS FOLLOWS:

Sample	No.	% Cu	Gold		Silver	
			oz./to	n (z_{*}/to	n
527		17.6	0.02		14.2	
528		10.4	0.02	1.11	Nil	
529		16.8	0.02		1.96	
530		17.8	Trace		9.04	نې مېرې
531		18•4 7.55	Trace		2.94	Ĵ,
533		7.20	0.06		13.0	, F.
534		11.3	0.01		11.6	ÿ. **

X-RAY ASSAY LABORATORIES LIMITED

CERTIFIED BY

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X-RAY ASSAY LABORATORIES LIMITED

28 EGLINTON AVENUE WEST - TORONTO, ONTARIO - HUDSON 5-8907

Certificate of Analysis

NO. 736

^{D.} Scope Mining Company Limited, 347 Bay Street Suite 703, TORONTO, Ontario.

RECEIVED July 25, 1961 (Instructions) INVOICE NO. 4427

SAMPLE(S) OF rock

SUBMITTED TO US SHOW RESULTS AS FOLLOWS:

1		r	
Sample	No.	% MoS2	14
1		~	4
527		N.D.	•
528		. N.D.	
529		Trace	
- 530		Trace	
ંે 531		Trace	
532		Trace	
533		Trace	
534		N.D.	

Trace - less than 0.01%

X-RAY ASSAY LABORATORIES LIMITED

CERTIFIED BY ENDroch NAGER

DATE July 26, 1961

STARE RISTE ANALYTICAL CHEMISTS - SPECTROGRAPHER

APPENDIX 2

Affidavit of Personnel Employed

and Total Expenditure Incurred

The following personnel were employed in the carrying out of the work: T. M. Kerr; B.Sc., P. Eng. - Mining Engineer, worked a total Suite 2200, of 27 days from July 4 to July 27

372 Bay Street, Toronto 1, Ontario

C. Leighton, Chilliwack, B.C.

Ron Furness, Chilliwack, B.C.

J. K. Robinson, Suite 2200, 372 Bay Street, Toronto 1, Ontario

Miss S. Stilwell, Suite 2200, 372 Bay Street, Toronto 1, Ontario. Mining Engineer, worked a total of 27 days from July 4 to July 27 inclusive at \$100.00 per day for a total of \$2,700.00.
 Supervised and carried out field examination of property and author of subsequent report.

- Prospector, worked a total of 10 days from July 10 to July 20 at \$15.00 per day for a total of \$150.00. Assisted in the carrying out of field examination.

- Prospector, worked a total of 2 days, July 7 and July 8 at \$15.00 per day for a total of \$30.00. Assisted in the carrying out of field examination.

- Draughtsman, worked a total of 7 days from July 25 to July 31 inclusive at \$24.00 per day for a total of \$168.00. Drafting of maps from results of field examination for report.

- Typist, worked a total of 4 days from July 28 to July 31 inclusive at \$12.00 per day for a total of \$48.00. Preparation of report.

As evidence of Total Expenditure Incurred for the work described in the report, attached to the report and considered as a part of Appendix 2 is a copy of the invoice as charged to Rico Copper Mines Limited by Scope Mining and Exploration Consultants Limited. The total expenditure incurred as per this invoice is \$4,647.47 for the 46 claims covered in the report.



MINING AND EXPLORATION CONSULTANTS LIMITED SULTE 703 347 BAY STREET, TORONIO 1, ONTARIO - PHONE EM. 4-1429 OR EM. 4-1420 SULTO 2200, 372 BAY STREET

July 31, 1961

Rico Copper Mines Limited, 4 - 821 West Pender Street, VANCOUVER 1, B.C.

SCOPE

1.	Fiel in	d Work and Report on property Cheam Range	\$3 ,000.0 0
2.	(a)	Expenses incurred Transportation - Toronto - Vancouver T.C.A. return	296.00
	(b)	T. M. Kerr - expense account	
		 (a) Field transportation ground (b) Wages in field (c) Local flying - Chilliwack - Cessina (d) Board and lodging, camp supplies 	183.90 182.00 72.00 321.24
	(c)	Pacific Helicopters Limited	433.33
	(d)	Express samples and baggage	28.50
	(e)	Assaying	88.00
	(f)	Telephone and telegram charges	42.50
			\$4,647.47

C O P Y 0 N L Y

APPENDIX 3

Distribution of Cost of Work to the Individual Claim Groups of the Total Area Considered.

The work described in the report was carried out simultaneously on the three claim groups, Rico "A", Rico "B" and Rico "C".

- Rico "A" comprises 20 contiguous claims made up of the following claims: Ric #1 Fr. to Ric #4 Fr. inclusive Ric #1 to #16 inclusive
- Rico "B" comprises 20 contiguous claims made up of the following: Bomac Fr.; Ron #1, 3, 5, 7; Ed #1, 2, 3, 4; Tom #1, 3, 5, 7; George #4; R.C. #A53350, R.C. #A53356 to A53359 incl., and R.C. #A53360 Fr.
- Rico "C" comprises the 6 contiguous claims consisting of the following: R.C. #100 to #105 inclusive

The following is the distribution of expenditure incurred relative to each claim group and the distribution of time of persons employed relative to each claim group.

Total Expenditure Incurred

Rico "A"	*	\$2,000.00	
Rico "B"	**	\$2,000.00	
Rico "C"	-	\$ 647.47	
Total	. * ****	\$4,647.47	- total as per Evidence of Total Expenditure Incurred Appendiz 2.

Personnel Employed

- T. M. Kerr, B.Sc., P. Eng. Mining Engineer
 - Rico "A" 12 days at \$100.00 per day for a total of \$1.200.00
 - Rico "B" 11 days at \$100.00 per day for a total of \$1,100.00
 - Rico ${}^{n}C^{n}$ 4 days at \$100.00 per day for a total of \$400.00.

Appendix 3 (Cont'd) - 2 -

C. Leighton - Prospector

- Nico $^{n}A^{n} 5$ days at \$15.00 per day for a total of \$75.00.
- Rico "B" 5 days at \$15.00 per day for a total of \$75.00

Ron Furness - Prospector

Rico "C" - 2 days at \$15.00 per day for a total of $\frac{1}{2}$ \$30.00.

J. K. Robinson - Draughtsman

Rico "A" - 3 days at \$24.00 per day for a total of \$72.00

- Rico "B" 3 days at \$24.00 per day for a total of \$72.00
- Rico ${}^{n}C^{n}$ 1 day at \$24.00 per day for a total of \$24.00.

Miss S. Stilwell - Typist

- Rico $^{n}A^{n} \frac{1}{2}$ days at \$12.00 per day for a total of \$18.00
- Rico "B" 13 days at \$12.00 per day for a total of \$18.00

Rico "C" - 1 day at \$12.00 per day for a total of \$12.00







C

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