Dec 2, 1982

Ladner Creek,
Carolin Mines
092HNW 003
007

827989

Working Copy

BACKGROUND NOTES -- LADNER CREEK GOLD MINE

Location: 25 km. N.W. of Hope, S. British Columbia

Ownership:

Carolin Mines Ltd.	50.00%
Aquarius Group:	
Ocelot Industries Ltd.	22.50%
Columbian Northland Exploration Ltd.	17.55%
Aquarius Resources Ltd.	5.00%
Windjammer Power & Gas Ltd.	4.95%
	100.00%

Operator: Carolin Mines Ltd.

Through Ladner Creek Joint Venture Management Committee consisting of 4 Aquarius Group members and 3 Carolin members.

Historical:

1978 Joint Venture formed. Feasibility undertaken by Kilborn Engineering.

1979 (Fall) Production Committment - Aquarius Group to fund construction and development to $20MM.

1981 (April) As a result of cost overruns, Wright Engineering undertook a re-feasibility and all joint venture partners agreed to fund overruns ($26MM) pro-rata.

1981 (Nov.) Mill start-up.

1982 (Apr.) Mill shut-down for environmental reasons.

1982 (June) Mill re-start--fine tuning to increase recoveries (continuing to date).

1982 (July) "Commencement of Production" reached.

1982 (Nov.) First month of profitable operations.

Investment:

Amount (MM$) (Approx.)	Exploration & Feasibility	Construction & Development Initial	Overruns	Total
Carolin	2.62	--	13.00 50%	13.00 28.30
Ocelot .41	0.92	9.00 45%	5.86 22.54	14.86 32.30
Columbian		7.02 35.1	4.56 17.50	11.58 25.20
Aquarius		2.00 10	1.30	3.30 7.20
Windjammer		1.98 9.9	1.28	3.26 7.10
	3.54 ~~25%~~	20.00	26.00	46.00

Ocelot has 22½% interest for 32⅓% of cap. cost.

Source

Carolin	--	Mercantile Bank & State Farm Debenture
Ocelot	--	The Royal Bank of Canada
Columbian	--	Private
Aquarius	--	The Royal Bank of Canada (Loan guaranteed by Ocelot, Columbian, Windjammer)
Windjammer	--	Toronto Dominion Bank

Payout: (MM$)

	Carolin	Ocelot	Columbian	Aquarius	Windjammer	Total (Approx.)
Priority	13.00	5.86 22.5%	4.56	1.30	1.28	26.00
First (a)	2.62	0				2.62
(b)		9.41 45%	7.34	2.09	2.07	20.92
Second	7.86	7.05 30%	5.50	1.56	1.55	23.52 ???
	23.38	22.32	17.40	4.95	4.90	73.05

Third and future % of cash flow as follows:

Carolin	Ocelot	Columbian	Aquarius	Windjammer
50.00%	22.50%	17.55%	5.00%	4.95%

.207

Technical:

Ore Reserves:

In place diluted:

Proven @ 0.08 cutoff	906,000 tons @ 0.135 oz./t.
Proven @ 0.05 cutoff	429,000 tons @ 0.100 oz./t.
Drill indicated @ 0.05 cutoff	366,900 tons @ 0.106 oz./t.
Total	1,702,500 tons @ 0.117 oz./t.

Mining Method:

Adit accessed longhole blasting. Trackless mining with tracked main haulage tramming.

Milling:

Type: Flotation, cyanide leach, Merrill-Crowe precipitation.

Capacity: 1,500 tpd (overdesign gives 1,800 tpd capability with 5% downtime).

Recovery: 83% (design). At start-up, recovery was only 20-30%. This has increased to 70% and is increasing monthly.

Tailings: Existing dam has 5 year capacity: Dam height increase and backfill sand cycloned tails will increase capacity to 10 years.

Operating Costs: Approximately $1MM/month or ranging between $22 - $18 per ton according to mill throughput (1,500 tpd or 1,800 tpd).

Estimated Gold Production:

Mineable ozs.: 199,161

Mill Recoverable ozs.: 165,303 83%

At 1,500 tpd, reserves will provide 38 months of production averaging 4350 ozs. per month or 145 ozs. per day.

At 1,800 tpd, reserves will provide 32 months of production averaging 5,220 ozs. per month or 174 ozs. per day.

POTENTIAL:

To date, little attempt has been made to increase ore reserves and since only a minimal amount of drilling has been completed peripheral to the ore body there is considerable potential for adding to the existing reserves. The present ore configuration is viewed as two, en echelon fault separated, northerly plunging bodies each having a three dimensional aspect not dissimilar to that of a pear. There are no known geological reasons why additional ore zones will not be present down plunge from the existing ore body. No consistent diamond drilling programme has been followed since production start-up. The minor amount of drilling which has been completed has added approximately 100,000 tons of reserves in satellitic pockets to the main ore zones. A programme of continuing exploration and development has been scheduled to maintain a two year reserve inventory.

AGREEMENT:

The Joint Venture is covered by an Agreement dated the 18th of July, 1978. An Operating Agreement is attached as a Schedule to the Agreement which amongst other things details the Disposal of Production and each partners' Right to Take in Kind.

An Amendment Agreement was signed dated the 1st of June, 1981 which redefined the payout schedule in respect of additional capital requirements to cover construction overruns.

Ocelot, Columbian and Windjammer signed an Agreement with Aquarius known as the Representative Agreement whereby each party undertook to guarantee a production loan to Aquarius to cover the Aquarius portion of the mine capital costs.

GENERAL COMMENTS:

The Ladner Creek Mine is the largest gold mine in Western Canada. It mines a relatively low grade ore by low cost bulk tonnage mining methods. A flotation concentrate is produced and subsequently leached with cyanide. Gold is precipitated from the leach solution by a Merrill-Crowe system and the precipitate is batch smelted in a conventional oil-fired furnace to produce Dore bars. The bars are shipped to Ottawa for further refining by the Mint.

Construction delays resulted in mine start-up beginning in the middle of winter and, due to its severity, an environmental problem developed. As a result, operations were suspended for a 10 week period. The environmental problem has been corrected by the construction of a secondary water treatment plant to process mill effluent water and by increasing the capacity of the mine tailings pond which was accomplished by raising the height of the tailings dam to 117 feet. There will be no need for further additions to the dam for five (5) years and, by incurring additional capital costs now, future cash flows will be enhanced.

Since the mine is one of Canada's newest gold mines to come on stream and is located in an accessible area of British Columbia, it has come under close environmental scrutiny. This has resulted in strict environmental controls being imposed, which, hitherto, have never been required in other gold mines. Consequently, production delays, low recoveries and cost overruns have been experienced, however, through persistent effort these problems have largely been overcome. During the month of November, recoveries have risen dramatically from 30% to over 70%. Continued gradual improvement in recoveries is anticipated and mill throughput will be increased to design levels now that losses are being minimized.

December 2, 1982

J. E. Gunton, Manager,
Mineral Exploration and Mining.
(Ocelot Industries)

→ Bill Sirola

WINDJAMMER POWER & GAS LTD.

1800 AQUITAINE TOWER
540 - FIFTH AVENUE S.W.
CALGARY, ALBERTA
T2P OM2

TELEPHONE: 269-1144

APR 26 1982

~~I.D.S.~~
A.H.C.
P.S.C.
~~D.M.H.~~
W.J.
~~J.P.S.~~
FILE

perhaps a personal investment?

March 29, 1982

Re: Follow up to Original Gold Mine Sale offered approximately two weeks ago.

Gentlemen:

Approximately two weeks ago, Windjammer Power & Gas Ltd. sent out a letter offering for sale a portion or all of its interest in the Ladner Creek Gold Mine.

As of today, we have had no responses. Perhaps the initial sales letter is still in the mail or you have received it and have no interest in acquiring a portion of the Carolin Mines.

Please return one copy of this letter to indicate that you have received the offer and have no further interest in it. This offer is subject to prior sale.

Thank you for your consideration.

Yours truly,
WINDJAMMER POWER & GAS LTD.,

Joseph Sabo
President

JS/jb
encl.

WINDJAMMER POWER & GAS LTD.

1800 AQUITAINE TOWER
540 - FIFTH AVENUE S.W.
CALGARY, ALBERTA
T2P 0M2

TELEPHONE: 269-1144

March 15, 1982

Re: Sale of Ladner Creek Gold Mine and Mineral Claims at Cost - Windjammer owns 4.95%

Due to the present economic situation, Windjammer Power & Gas Ltd. is offering for sale one half (2.45% of 100%) of its interest in the Ladner Creek Gold Mine. The sale includes all the associated claims in the area.

Total Windjammer Power & Gas Ltd. investments at cost to March 1, 1982 is $3,686,246.00. The 2.45% is offered at $1,850,000.00. This is actual cost. There are no commissions or contingencies built into the numbers.

Carolin Mines is now on production. The main crusher is capable of putting out 250 tons per hour. The mill capacity is 1800 tons per day. Ore reserves average 0.14 ounces per ton. The mill has been fine tuned mechanically. We are now in a process of balancing the chemical system to produce gold at maximum efficiency. Three (3) gold bars have already been produced averaging 30 pounds a piece. These were poured February 11, 18 and 25, 1982. It is anticipated pouring will be made approximately every 9 days at maximum efficiency. Approximate payout is 2 1/2 years based on the enclosed sliding scale formula. This offer is subject to prior sale and open for 30 days from the date above.

If you have any further questions, please call me.

Yours truly,
WINDJAMMER POWER & GAS LTD.,

30x3 x12 = 1080 oz @ $430/oz
= 464,400 production

Joseph Sabo / pp jb

Joseph Sabo
President

JS/jb

Corolin Mines Ltd. Re-exam. Feb. 26/75

Reserves reported GCNL. = 1,500,000
Grade — 0.144

Recov. — 0.126.

Value / ton at $150 Au = 127.90 x 0.126 = 16.12

Op. Profit. = Value 16.12
less. Mining etc 9.50

op profit = $6.62/ton.

at Mining rate = 500 t/d. ∴ Min life = ~ 8.5 yrs.

Capital cost = 7,500,000.

Total value of ore = 1,500,000 x 6.62 = $9,930,000

at $175 Au gross value = $17.46.

op. Costs. 9.50

op. Profit $7.96

Gross value of op. profit over life of mine

= 7.96 x 1,500,000. = $11,940,000.

Cost of plant etc $7,750,000 $7,750,000

Net op. profit. (Does not include cost of money) over life of mine $4,190,000.

File 92H.
(Gen. File 92)

Carolin Mine. - Hope Property.

Recov. Grade. - 0.081 oz/ton in upper zone.

Assume U.G Mining: Costs est. 7.50 - 9.50/ton.

Gold Price.	* Value/Ton.	Total op. Costs.	Op. Prof.
$125.00	9.40	7.50	1.90
150.00	10.36	"	2.86
175.00	11.22	"	3.72
200.00	12.13	"	4.63
225.00	13.05	"	5.55
250.00	13.96	"	6.46.
125	9.40	8.50	.90
150	10.36	"	1.86
175	11.22	"	2.72
200	12.13	"	3.63
225	13.05	"	4.55
250	13.96	"	5.46.
125	9.40	9.50	(-.10)
150	10.36	"	0.86
175	11.22	"	1.72
200	12.13	"	2.63
225	13.05	"	3.55
250	13.96	"	4.46.

---

* Value/ton calc. using net price after Royalties from attached chart.

Sect #12 possible O.pit to 200'

ratio ~ 3/1

#11 no O.pit

#10 No ore to 300'

9. Possible O.P. ratio 2-3/1
or greater.

8. Ore too deep ratio 5-6/1

7. Small part O.P.
ratio high.

6. No O pit.

5. No. O.pit.

4. No ore.

3 No ore.

2 O pit small Tonnage.

1 Small section O pit
ratio high 2:1

Sect. 2.

ore at Surface. → 100'

ore ~ 0.16,

Sect 8 ore 200' down ~ 70' thick.

el. OG 17 – 3488 OG 1&2. 3302

(2) Carolin Mines -

Prod. 2000 t/d. (700,000 t/yr.)

year.	Debt	Int.	annual Op. Prof.	Debt Depr.	Debt at std.
PreProd. 1½ yr.	12 MM	2,520,000			14,520,000
Prod. 1st year.			2,012,500	(507,500)	15,027,500
2	15,027,500	1,502,750	4,025,000	2,522,250	12,505,250
3	12505 250	1,250,525	"	2,774,475	9,730,775
4	9,730,775	973,077	"	3,051,923	6,678,852
5	6,678,852	667,885	"	3,357,115	3,321,737
6	3,321,737	332,173	"	3,692,827	End Mine life. ~~3710~~, 371,000

Assume. (1) Recov. 90% of 0.094 = 0.085 oz Au.

(2) Op. Cost of \$5.30/Ton

(3) Op. prof. \$5.75/ton or \$4,025,000 Annually.

(4) Open pit mining.

(5) Interest at 10%.

(6) Capital costs covered by borrowed money.

(7) Capital cost of \$12MM. for 2000 ton/day capacity. (May be low)

(8) Constant income over life of Mine.

(9) No provisions for taxes or royalties.

Conclusions: (1) Mine life will pay back capital costs with no allowance for return on investment.

(2) If own money used — may consider return at 10%. less gov't taxes.

(1.) Carolin Mines.

2000 tons/day (700,000 ton/yr)

Yr.	Debt	Int.	Annual Op. Prof.	Debt. Deprec.	Debt outstanding
Preprod. 1½ yrs.	$16 MM.	3,360,000			$19,360,000
Prod. 1st yr.			4,025,000	665,000	18,695,000
2nd.	18,695,000	1,869,500	4,025,000	2,155,500	16,539,500
3rd	16,539,500	1,653,950	"	2,371,050	14,168,450
4th	14,168,450	1,416,845	"	2,608,155	11,560,295
5th	11,560,295	1,156,029	"	2,868,971	8,691,324
6th.	8,691,324	869,132	"	3,155,868	5,535,456
7th.	5,535,456	553,545	"	3,471,455	2,064,001
8th	2,064,001	206,400	"	3,818,600	Pay Back Here. 1,754,599

Assume ① Net annual op. prof. $4,025,000 ($5.75/ton)
② Recov. 90% of 0.094 = 0.085 oz Au
③ open pit Mining method
④ Op. Cost of $5.30/ton.
⑤ Interest at 10%.
⑥. Constant operating income over the 5.5 yr. life of the mine.

Conclusions: using cost assumed + ~~Carolin~~ figures of $8000/ton capacity. — Capital would not be recovered over life of mine.

880 ROCKHEIGHTS AVE.
VICTORIA B. C.
OCT. 15/79

RECEIVED
OCT 15 1979
KERR ADDISON MINES LTD.
PER

FILE
92 H - 11
(not general !)

Dear Sir,

Enclosed is information pertaining to several groups of mineral claims in the vicinity of the Carolin Mines' gold property.

The claim groups are held as joint property by Daniel and William Edward Blower, c/o 880 Rockheights Ave., Victoria B.C., V9A 6J6. The claims have been held by the present owners since 1975, while previous to that, several claim groups staked under the old mineral claim system on portions of the property had been held for a period of years by other owners.

We are interested in discussing the selling or optioning of these groups of claims and are prepared to show this property to interested mining companies. This initial circulation of information is being distributed to only a select number of the most active B. C. mining exploration companies.

Yours truly,
Dan Blower

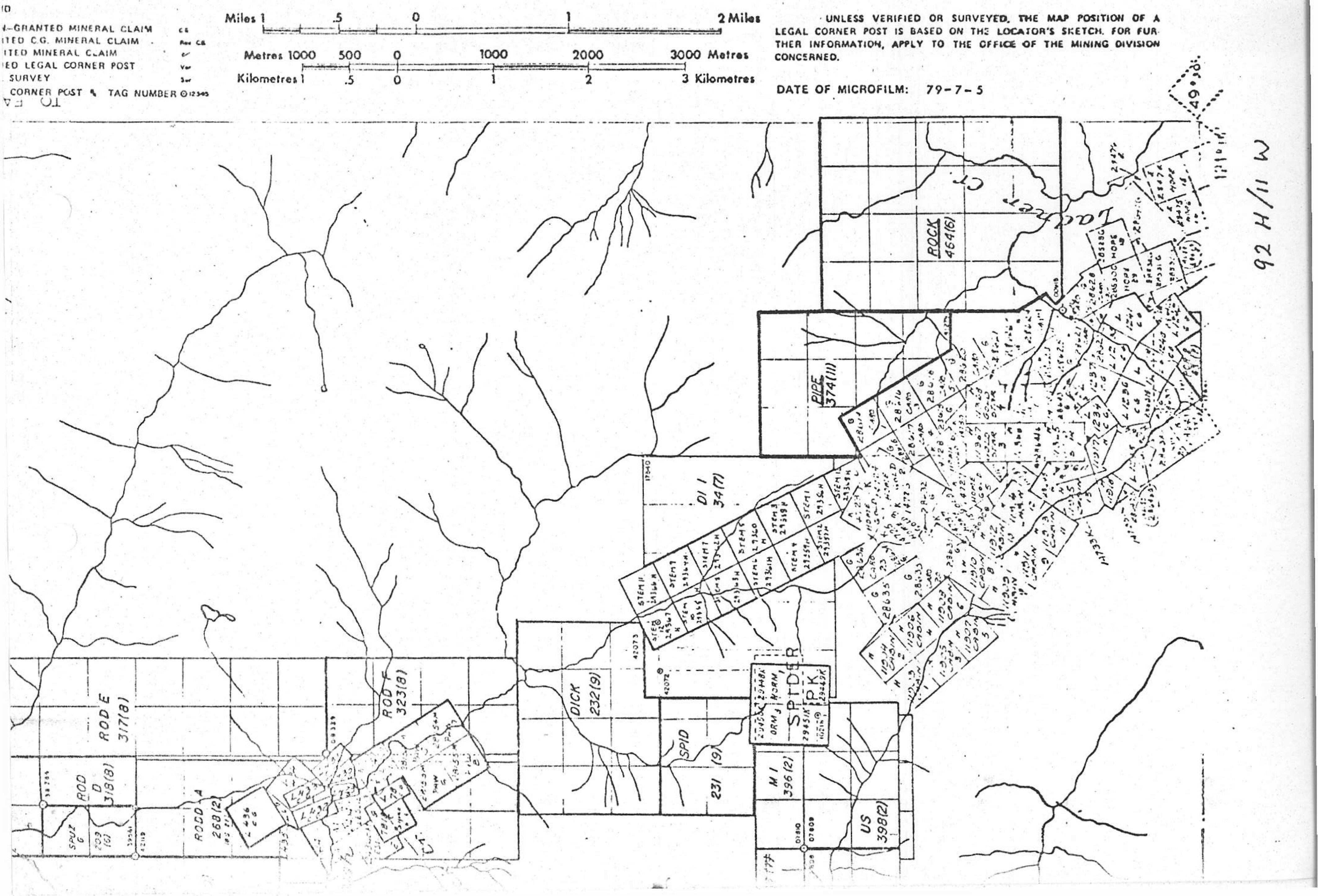
ROCK, LAD AND PIPE MINERAL CLAIMS

The ROCK, LAD and PIPE mineral claim groups are located adjacent to the east of the Carolin Mines gold property in the Ladner Creek area of the New Westminster Mining Division (see attached Mineral Claim Map). A total of 47 legally located and recorded units comprise the claim groups (ROCK 20 units; LAD 15 units; PIPE 12 units), although portions of several units, totalling approximately 3 units in area, are on ground shown held in good standing by Carolin Mines.

Much of the property involves rugged terrain, although access to the southwest corner and along the eastern side is relatively good via logging roads stemming from the main Coquihalla River road (see attached topographic map). Trail access is available to the northwest corner via the old Pipestem Mine trail and the abandoned Pipestem wagon road. The old Pipestem Gold Mine is located on the northwestern edge of the property.

Mineralization and evidence of secondary oxidation is widespread throughout the claim groups although only a limited number of surface rock grab samples have at present been assayed for mineral content. The samples assayed were taken from a variety of random locations on the property and are not tied to a survey grid. The samples were assayed only for the presence of silver and/or gold values. Definable gold mineralization was present in most of the rock samples assayed although values are low (see attached Certificates of Analysis). However, as no geochemical or geophysical surveys have yet been undertaken on the property, and in view of the widespread surface mineral occurrences, the potential of the property has not been significantly tested.

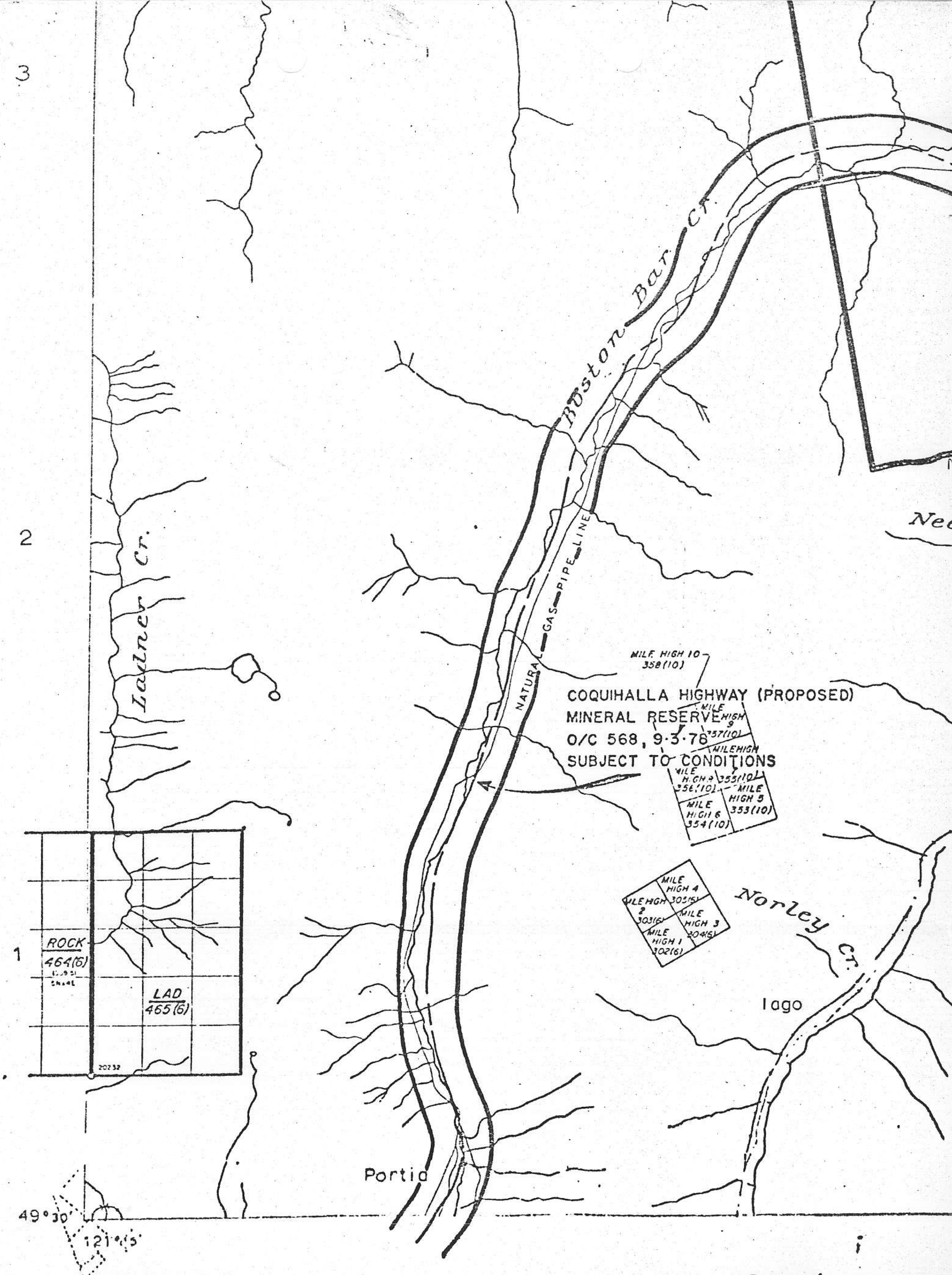
Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources



UNLESS VERIFIED OR SURVEYED, THE MAP POSITION OF A LEGAL CORNER POST IS BASED ON THE LOCATOR'S SKETCH. FOR FURTHER INFORMATION, APPLY TO THE OFFICE OF THE MINING DIVISION CONCERNED.

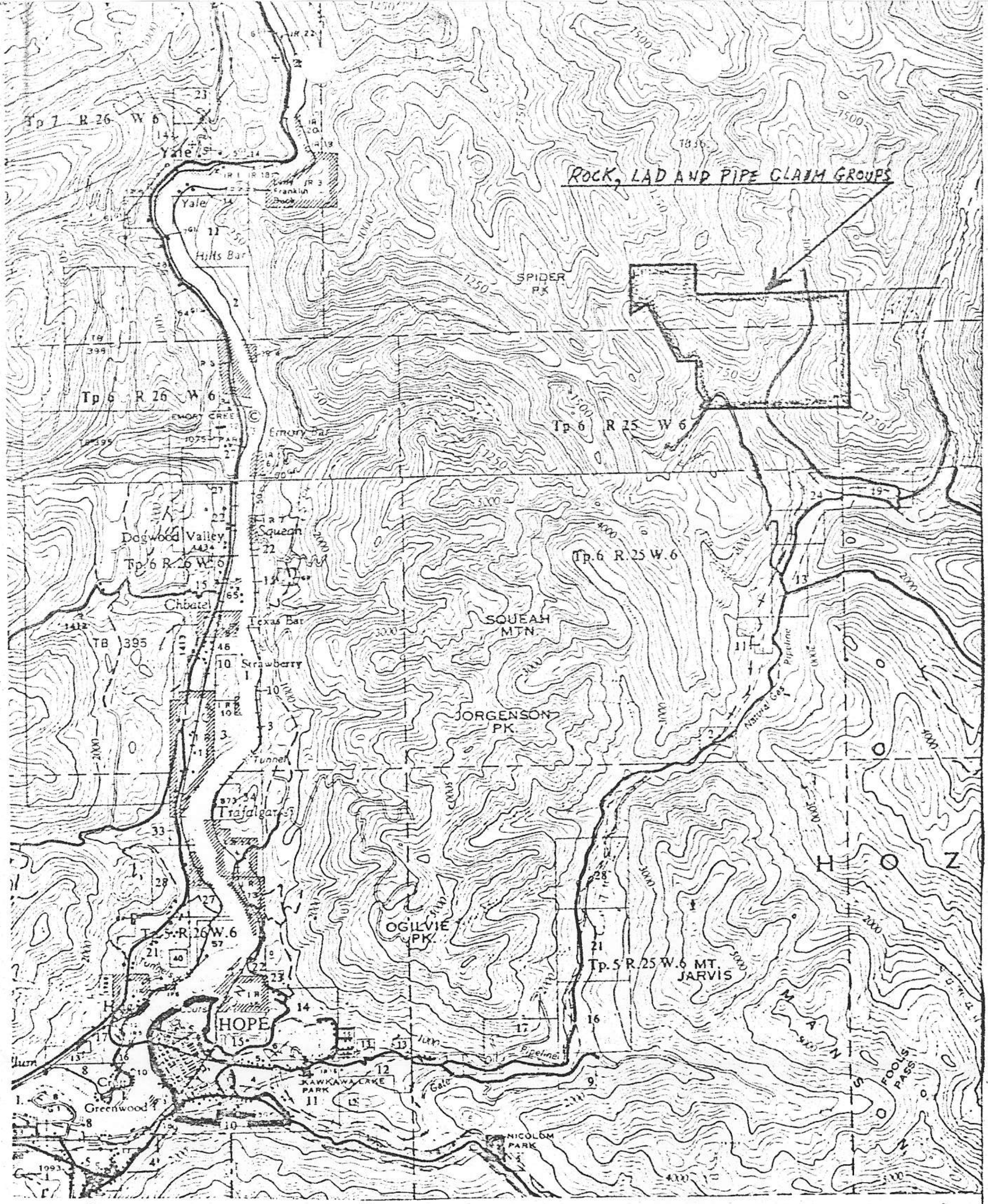
DATE OF MICROFILM: 79-7-5

92 H/11 W



3
2
1
Boston Bar Cr.
Ladner Cr.
NATURAL GAS PIPE LINE
MILE HIGH 10
358(10)
COQUIHALLA HIGHWAY (PROPOSED)
MINERAL RESERVE
O/C 568, 9·3·78
SUBJECT TO CONDITIONS
MILE HIGH 9
357(10)
MILE HIGH 7
355(10)
MILE HIGH 5
353(10)
MILE HIGH 6
354(10)
MILE HIGH 4
303(5)
MILE HIGH 3
304(5)
MILE HIGH 1
302(6)
Norley Cr.
Iago
ROCK
464(6)
LAD
465(6)
Portia
49°30'
121°15'

92 H/11 E



Scale 1:125,000 or 1 Inch to 2 Miles approximately

Miles 1 ½ 0 2 4 6 8 10 Miles

Scale of Kilometres

1 0 2 4 6 8 10 12 14 16

Magnetic Declination approximately 22°45′ East at centre of map, 1972.
Decreasing approximately 3′ annually.

Universal Transverse Mercator Projection

Maps and indexes with price lists may be obtained from the Map Production Division, British Columbia Lands Service, Parliament Buildings, Victoria, B.C.

? BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE: 604
TELEX: 043-52597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

CERTIFICATE NO. 31880

INVOICE NO. 18700

RECEIVED Oct. 22/76

ANALYSED Oct. 27/76

TO: Mr. Bill Blower
Westbank, B. C.

ATTN:

SAMPLE NO. :	Oz/Ton Silver	Oz/Ton Gold
1	0.02	0.020
2	0.02	0.012
3	0.02	0.008
4	0.01	0.005
5	< 0.01	< 0.003
6	< 0.01	0.003
7	< 0.01	< 0.003

Description:

1. Black (Sedimentary) Sulfides, phyllitic - 2nd smallest chip.
2. Black (Sedimentary) Sulfides, phyllitic - smallest chip
3. Black (Sedimentary) fine sulfides - part of vein (white) - 3rd smallest chip
4. Black (Sedimentary) fine sulfides - sample cut - retained 1/2
5. Grey - Schistosic sediment - Gneissic Qtz. - sulfides - 1/2 retained
6. Grey - Qtz. sedimentary. sulfides - 1/2 retained
7. Grey - Sedimentary - phyllite - minor sulfides - 1/2 retained.

CTA MEMBER CANADIAN TESTING ASSOCIATION

B. Twaites

REGISTERED ASSAYER, PROVINCE OF BRITISH COLUMBIA

CHEMEX LABS LTD.

BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE 604
TELEX 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 40507
INVOICE NO. 20896
RECEIVED July 19/77
ANALYSED July 21/77

TO: Mr. B. Blower
R.R. #2
Westbank B.C.

ATTN:

SAMPLE NO. :	PPB Gold
1	80
2	40
3	20
4	< 10
5	< 10
6	< 10
6	< 10
7	< 10
9	< 10
10	< 10

CTA
MEMBER
CANADIAN TESTING
ASSOCIATION

CERTIFIED BY: Hart Bichler

KERR ADDISON MINES LIMITED
405 - 1112 WEST PENDER STREET
VANCOUVER, B.C. V6E 2S1

COPY

Glen M. Hogg W. M. Sirola

CAROLIN MINES LTD. 3rd March 1975

Herewith John Lund's summary of the Carolin Mines Ltd. low grade gold property near Hope, British Columbia.

Carolin has recently made a deal with Numac Oil & Gas and Precambrian Explorations wherein the latter two companies may earn a 60% position by spending something in excess of $800,000. If, after spending this money, they decide to pull out, they will retain 25% equity in the Carolin property.

We do not consider that this deposit is economic at $150.00 gold because it is basically an underground operation, despite anything you may read in the George Cross Newsletter. The combination of very low grades (0.09 Au), underground mining costs and B.C. royalties plus super royalties, puts a rather effective clamp on the profitability of this situation.

W. M. Sirola

WMS:lmp

enc:

CAROLIN MINES LTD.

HOPE, B.C.

INTRODUCTION

Carolin Mines property is located about 10 air miles North North East of Hope, B.C. and 110 miles East of Vancouver. It is well situated with respect to transportation, power source and service centres.

The company holds 8 Crown granted and 70 located claims that cover two former producing gold mines. The two former producers are Aurum (545 tons production) and the Pipestem (1650 tons production). Grade of material extracted was 0.978oz/ton Au, and 0.177oz/ton Ag from the Aurum; 0.165oz/ton Au and 0.022oz/ton Ag from the Pipestem. Work by Carolin has concentrated on the Idaho zone which appears to be either part of the Aurum or an adjacent property.

Topography is rugged. The Idaho zone is centred at the 3500' elevation on the South West slope which rises to ridge at just over 5000'. The rugged topography makes any hope of open pit mining doubtful.

THE DEPOSIT

Paleozoic Hozameen group metasediments underly the Western part of the claim group and Jurassic Ladner group slates, argillites and greywackes underly the Eastern part. The two units are in part separated by a narrow steeply dipping band of Serpentine. The Serpentine is bounded to the East by a fault. The Idaho zone lies east of the Serpentine within the Ladner group rocks.

Mineralization occurs primarily in two zones, the lower and upper Idaho. Mineralization consists of pyrrhotite, pyrite, arsenopyrite and chalcopyrite with associated gold in an albite-carbonate-silica host rock. The two zones vary from a few feet to over 100' thick and are separated by 50' to 130' of relatively barren slate.

The zones dip at a moderate angle to the North. Neither zone has been completely delineated.

Reported reserves and grade in the Idaho zone are as follows:

1. Upper Idaho - 550,000 tons averaging 0.092oz Au
2. Lower Idaho - 150,000 tons averaging 0.085oz Au

These reserves are drill indicated and fill-in drilling is necessary to bring these into a more positive category.

Other areas remain untested by diamond drill and are targets for additional work. It is conceivable that the reserve figures will be increased with additional exploration in these zones, however, the probability of increasing the grade significantly is unlikely.

ECONOMIC CONSIDERATIONS

Assumptions:

1. D. Cochrane's figures for grade and tonnage are correct.
2. A recovery of 88% over the total ore reserve could be maintained.
3. In the areas explored, mining would have to be done using underground methods.
4. A mining rate of 500 tons per day would be maintained for a mine life of 4.5 - 5 years.
5. Mining milling and administration costs:
   - (a) Open Pit $ 6.50
   - (b) Underground (using long hole method) $11.50
6. Capital Costs:
   $15,000 per ton capacity, or $7,500,000 for a 500 ton per day operation.
7. A gold price of $150.00. Base price in B.C. is now $92.00, consequently, the net price to the operator after royalties would be $122.50.

Using a net price of $122.50 for gold and a recoverable grade of 0.081oz/ton, the value per ton, after royalties, would be $8.97/ton for the 560,530 ton reserve. Since the underground mining and milling costs are estimated at $11.50, any operation would suffer a net operating loss of $2.53/ton. To break even or zero operating profit using above figures, a net smelter price of $200/oz would be required for gold.

CONCLUSIONS

1. There are 560,530 tons of reserves in the Upper Idaho zone. Of these, only 75,000 tons could be mined using open pit methods.
2. The Lower Idaho zone has reserves of approximately 150,000 tons.
3. The average grade in the above zones of 0.092oz Au and 0.085 oz Au in the Upper and Lower zones respectively, will not support a profitable mining operation capable of returning the capital investment.
4. Probability of increasing the reserves is good, but grade is unlikely to vary significantly from the present reported average.

John

John C. Lund

JCL:lmp
21 Feb. 75

GEORGE CROSS NEWSLETTER - 24th FEBRUARY 1975

CAROLIN MINES LTD. PRECAMBRIAN SHIELD RESOURCES LIMITED NUMAC OIL & GAS LTD.

EXPLORATION AGREEMENT DETAILED - As noted briefly in GCNL No.37(75) Precambrian Shield
MOST RECENT HOLE DRILL RESULTS Resources Limited and Numac Oil & Gas Ltd., as equal partners have agreed to provide $880,000 minimum to complete the work necessary to carryout a feasibility study of the mine. Continued exploration and development of the property, located ten miles from Hope, B.C. by Precambrian Shield as operatior and by Numac is planned to start about mid-March. The work will include surface diamond drilling, followed by an underground bulk test of the Idaho Zone and accumulation of other data. Completion of the feasibility report and a commitment to place the property into production will earn Precambrian and Numac a 60% interest in the property. Under the agreement Carolin can maintain a 40% interest in the property by providing 40% of the funds to production or the company can revert to a 20% carried interest. If Numac/ Precambrian decide not to proceed to production they retain a 25% working interest in the mine and return management to Carolin. In turn, Carolin has the right to buy the Shield-Numac interest by paying double the costs the two companies incurred,

Carolin has reported the assay results of the No.33 diamond drill hole on the property as follows: from 699 ft. to 706½ ft. a 7.5 foot intersection 0.05 oz. gold per ton

869	872.1	3.1	0.20
892	917.2	25.2	0.174
953	1027.4	74.4	0.223
1056.2	1081.5	25.3	0.206

Total reserves are now placed at 2.6 million tons averaging better than 0.10 oz. gold p/t.

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KERR ADDISON MINES LIMITED

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To W. M. Sirola From John C. Lund

Subject Carolin Mines Ltd. - Gold Mine Near Hope, B.C. Date 4th February 1975

I have examined the information provided by D. Cochrane, consultant for Carolin Mines, and my conclusions are:

1. of the 560,530 tons of reserves in the upper Idaho Zone reported, only about 75,000 tons are amenable to open pit methods.

   Lower Zone has 154,686 tons of 0.086 oz Au.

2. The grade of 0.092oz per ton is too low to support an underground mining operation.

3. Using what I regard as conservative mining costs, there would be no net operating profit.

In my calculations, the following assumptions were made:

1. D. Cochrane's figures for grade and tonnage are correct.

2. A recovery of 88% over the total ore reserve could be maintained.

3. A mining rate of 500 tons per day would be maintained for a mine life of 4.5 - 5 years.

4. Mining, milling and administrative costs:

(a)	Open Pit	\$ 6.50
(b)	Underground (long hole method)	\$11.50

5. Capital Costs:

   \$15,000 per ton capacity, or \$7,500,000 for a 500 ton per day operation.

6. A gold price of \$150.00. Base price in B.C. is now \$92.00, consequently, the net price to the operator after royalties would be \$122.50.

Using a net price of <u>\$122.50</u> for gold and a recoverable grade of <u>0.081oz/ton</u>, the value per ton, after royalties, would be <u>\$8.97/ton</u> for the 560,530 ton reserve. Since the underground mining and milling costs are estimated at \$11.50, any operation would suffer a net operating <u>loss</u> of <u>\$2.53/ton</u>. To break even or zero operating profit using above figures, a net smelter price of \$200/oz would be required for gold.

John

John C. Lund

JCL:lmp

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