

PROPERTY FILE

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Atlin Silver Corporation 104N
Amendment Report 12E
Final Feasibility Studies
Atlin-Ruffner Property
Dec. 20, 1975
E.N. Larabie P.Eng. Kelowna

ATLIN SILVER CORPORATION

AMENDMENT REPORT

FINAL FEASIBILITY STUDIES

ATLIN-RUFFNER PROPERTY

DECEMBER 20, 1975

EUGENE N. LARABIE P. ENG.

KELOWNA, B.C.

Table of Contents

Page	
1	Introduction
2	General Information
3	Location and Access
3	History
3	Geology
4	Geology Cont'd
4	Mining
5	Exploration and Development
5	Pre-Production Costs
6	Pre-Production Costs Cont'd
7	Pre-Production Costs Cont'd
8	Pre-Production Costs Cont'd
8	Personnel Requirements
9	Ore Reserves
10	Table 1
11	Metallurgy
11	Milling
11	Environment
12	Table 2
13	Table 2
14	Revenue
14	Marketing
15	Table 3
16	Table 4
17	Conclusions
18	Certificate
19	Acknowledgements and References.

Introduction

The following study is intended as an amendment to the production feasibility study undertaken by J.C. Snell in April 1975. The writer in making this study has been able to take advantage of information gained since Mr. Snell made his study.

During the summer of 1975, the writer as Mine Manager of Atlin Silver Corp. was able to personally supervise the work performed by the company. A modern campsite was established and the concentrator building along with a tailings pond was constructed. Underground work consisted of portal rehabilitation, bulk sampling and mining.

The writer will therefore deal mainly with the following:

1. Pre-Production Costs
2. Operating Costs
3. Smelter costs and returns
4. Mining methods
5. Ore reserve comparisons

For detailed information regarding history, geology, mineralogy, exploration, milling equipment etc., the reader is referred to Mr. Snell's study of April 1975.

General Information

Atlin Silver Corporation was incorporated under the laws of the Province of British Columbia on the 8th day of November, 1974. The following were subsequently named as officers of the company.

1. Mr. C.W. Dansey Savona B.C. President
2. Mr. Jaarl Oa Whist Kamloops B.C. Vice President
3. Dr. Lorne E. Ross Ashcroft B.C. Sec. Treasurer

In 1974 C.W. Dansey acquired an option on a group of Crown Granted mineral claims on the West slope of Mount Vaugh near Atlin B.C. from I.P. Metals Ltd. of Vancouver. The option was later transferred to Atlin Silver Corp.

The Atlin Silver District (as termed by Mr. Snell) includes the following known mineral occurrences:

1. The Ruffner Mine
2. The Big Canyon
3. The Vulcan
4. No. 5
5. Adanac

The following claims are held under option by Atlin Silver Corp. from I.P. Metals Ltd.

Crown Granted Mineral Claims:

1. L4636-Duck Pond
2. L4643-Fr.
3. L4635-4th of July
4. L4633-Blacksmith
5. L1175-The Hurrah
6. L4634-Cabin
7. L4647-Rainbow Fr.
8. L4642-Frontal Fr.
9. L1172-Nellie
10. L1173-Barber
11. L4651-Apachee
12. L6103-Twin Moose
13. L6104-Blackie
14. L6102-Grandview
15. L6101-Jim
16. L4650-Cherokee
17. L4649-Ptarmigan
18. L6100-Miriam Fr.
19. L4646-Mountain Hobo
20. L4645-Ted Fr.
21. L4638-Portal
22. L4637-Cranberry
23. L4644-Willow Fr.
24. L4646-Horseshoe
25. L4641-Commanche
26. L4648-Silver Wedge Fr.
27. L1174-Tom

Mineral Leases:

28. M20-L1170
29. M21-L1171

The above listed claims and leases are known collectively as the Ruffner Mine.

Location and Access

The Atlin Silver District is located in the extreme North central part of British Columbia. The Atlin District is served by a well maintained all weather gravel road which connects to Whitehorse Yukon 110 miles to the North on the Alaska Highway or the town of Atlin 15 miles to the south.

History

Silver-lead mineralization was first discovered in the Atlin District during the Klondike Gold Rush days in 1899. Superficial development and prospecting was carried out, but it was not until between the years 1925 and 1933 that any important showings were exposed and developed. The property then lay dormant until 1951-52 at which time it was re-activated by Atlin-Kuffner Mines(B.C.) Ltd. More work was then carried out in 1965 and between 1966 and 1969 over one million dollars was spent by Interprovincial Mines Ltd.

Between 1921 and 1966 the No.2 vein system was explored by 6 adits, one shaft and numerous trenches for a total length of 5,500 ft. The No.4 system has been explored by 3 adits and numerous open cuts for a horizontal length of 5000 feet. During the afore mentioned period a total of 281.3 tons of hand sorted ore was shipped from the property. The average grade of that ore was Au. .12oz. Ag. 113.3 oz., Pb. 24.7% and Zn. 5.6%.

The property then remained idle until the summer of 1975 when Atlin Silver Corporation started to work on the property.

Geology

The Atlin District lies just East of the main mass of the Coast Range batholith and is centered in the Atlin Horst. The Silver District lies within a stock of zoned intrusives which lie East of the North end of Atlin Lake. The mineral bearing stock East of Atlin Lake has been mapped as Jurassic granite and granodiorite with a central core of Cietaceous Alaskite and monzonite. The silver-lead deposits described in this report lie within the Jurassic granites.

The mineral deposits are marked by wide spaced strong fault-shear zones spaced several hundred feet apart. These shear zones strike northeast and dip 65 degrees to 70 degrees to the northwest. The fault zones have been intruded by dykes ranging from one to fifty in width.

The silver-lead-zinc mineral deposits occur either as fissure filling in granite along branch faults, or more commonly as fissure filling through the dyke system or as replacement or breccia ore. The zone is generally confined to simple or double veins with low grade ore between the two. These veins are irregular varying in width and grade and can change abruptly to fault gouge and fault gouge to massive mineralization.

The principle sulphide minerals present in the ore are as follows:

1. Galena
2. Sphalerite
3. Arsenopyrite
4. Pyrite
5. Chalcopyrite
6. Pyrrhotite
7. Tetrahedrite
8. Enargite
9. Ruby Silver
10. Native Silver.

Mining

The mining method recommended is a compromise between open stope-room and pillar method. The ore is scraped into ore passes by way of slusher drifts. These drifts are advanced on ore while slashing of the backs and walls is done daily, after the ore behind the face has been examined visually. Small open stopes are mined from the slusher drifts leaving when possible lower grade or waste pillars. When it is necessary to leave hi-grade pillars these can be removed while retreating from the stope after all available ore has been mined. The advantages of the mining method are mainly:

1. Excellent ground and grade control
2. Versatility
3. Little to no timber required

The main disadvantage lies in the area of ore storage. Very little ore can be stored underground because usually when mining narrow hi-grade veins waste and low-grade sections are encountered. These sections sometimes have to be removed and cannot be mixed with ore, thus all ore has to be removed so that waste rock can be properly disposed.

Work during the past summer indicated that open stopes will range downward from 25' x 25' x 4' in size. Time study has indicated very good drill penetration and one man is expected to be able to deliver to the ore pass 25 tons per 8 hour shifts. Thus it is expected that 2 stope miners, 1 development miner and 1 helper-trammer will supply sufficient ore to sustain a 50 TPD milling operation. In order to develop and mine as much ore as possible from above the 5000ft. elevation the underground staff should be increased by 2 men during the summer of 1977.

Exploration and Development

Since proven and probable reserves on the Ruffner claims are in excess of 2½ years at 16,000 tons per year, exploration during the first year should be kept to a minimum. The object here is to establish working capital and repay as much of the capital cost as possible. This will of course reduce the operating cost (interest) and increase the cash flow.

During the first year top priority will be given to developing probable ore zones. Some minor exploration in the form of 40 foot test holes, short raises and sub drifts on possible ore zones can be carried out.

The long range exploration program which should get underway during the summer of 1977 should consist of systematic development of the dyke system above the 5000 foot elevation. A program of drifting, raising, testing and diamond drilling should be carried out. This should be followed up with a winter program of development at the 3000 foot elevation. This adit has been driven for a distance of 2600 feet where it encountered the No.2 vein system. Very little information is presently available about this zone, however the presence of some mineralization has been mentioned.

Some consideration for obtaining an option on surrounding properties should also be given at this time. Proven and probable reserves of 23,800 tons of ore grading 25 ozs. of silver per ton are known to exist near surface on the Big Canyon and Adanac Properties.

Several interesting surface showings in the area could also be investigated.

Pre-Production Costs

During the summer of 1975 Atlin Silver Corp. established a modern campsite consisting of a 20 man trailer complex and cookhouse at the Atlin mine site. Approx. 90% of the necessary milling equipment required to concentrate 50 tons of raw ore per day has been purchased and is presently being stored at the Atlin property. Construction of the tailings impoundment concentrator building and fine ore storage bin is near completion.

A program of underground bulk sampling and mining was undertaken producing 150 tons of hi-grade hand sorted ore and 800 tons of mill feed. Preliminary results from the hi-grade ore which was shipped to the Asarco smelter in East Helena Montana, indicate the following results: The average assays are Gold .14 oz., Silver 70.0 oz., Lead 13%, Zinc 5.5%, Grab samples from the remaining 800 tons indicate an average of 18 ozs. of silver per ton.

Pre-production costs to date have totalled \$310,000. The afore mentioned sum has been obtained by direct loans made to Atlin Silver Corp. by officers of the company and Taseko Mines Ltd. who supplied approx. 20% of this amount.

In order to reach production on or about the 15th of June 1975 the following financing will be required.

Liabilities Nov.15 to Mar. 15	<i>(Head office expenses)</i>	27,600
Labour		53,000
Electrical supplies		4,000
Misc. Mill equipment		10,000
Tailings		7,000
Equipment rental purchase		28,000
Camp maintenance		3,000
Mill balls and chemicals		2,000
Freight, telephone travel etc.		2,500
Royalty payments		10,000
Reclamation		8,000
Vehicle rental		4,900
Head office		600
Underground equipment		6,000
		<u>168,600</u>
	(10%) Contingencies	16,360
		<u>185,460</u>
	Operating Capital	65,000
	Total required	<u>250,460</u>

Preproduction cost
Months 15 to June 15

Thus total pre-production costs are expected to be 310,000 + 250,460 = 560,460.

Mine Operating-Production Costs

A-1 Development and Exploration

	Amount	Cost per ton	Cost per ton
Labour	177.50	3.55	
Daily costs	177.50	3.55	
Supervisors	<u>25.00</u>	<u>.50</u>	
Total	380.10	7.60	

A-2 Stoping-Stope preparation

Labour	307.50	<i>121/day</i>	6.15	
Daily costs	307.50		6.15	
Supervisors	<u>25.00</u>		<u>.50</u>	
	640.00		12.80	20.40

Note: Above costs include wage levies, bonuses, explosives steel and bits, mine equipment and compressor maintenance and operations.

Ore from development headings has not been included in the ore requirement, this should augment the 50 T.P.D. required for the mill.

	Amount	Cost per ton
B-1 Surface overhead		
Truck and operator	48.00	
Supervisor	20.00	
Road maintenance	10.00	
Mechanic-electrician	<u>40.00</u>	
	118.00	
Plus 20% load	<u>36.00</u>	
	154.00	3.08

Note- Allows for ore transportation to mill which is expected to require 4 hrs. per day allowing the operator to perform other duties such as crushing, tailings, pond maintenance etc.

	Amount	Cost per ton	Cost per ton
C-1 Power Cost			
Fuel	180.00		
Maintenance	<u>40.00</u>		
	220.00		4.40

Note- A D-348 cat unit with a 500K/W generator has been purchased with necessary power requirements expected be in the nature of 350 H.P. (Incl. surge).

D-1 Crusher operating cost

Labour	35.00	
Mechanic-Electrician	20.00	
Lubrication, wearing parts, screens, dust collectors etc.	<u>25.00</u>	
	80.00	1.60

D-2 Mill Operating cost

Labour	252.00	
Supervision	25.00	
Mechanic-Electrician	40.00	
Assaying	20.00	
Grinding balls	15.50	
Liners	7.00	
Reagents filter bags	40.00	
Freight	20.00	
Misc. Expemses	25.00	
Tailings Pond	<u>20.00</u>	
	464.50	9.29
		10.89

Note- Heat to be supplied by the power unit, direct heat and electric heat.

Mine Operating and Production Costs (cont'd)

	Amount	Cost /ton	Cost/ton	
E-1				
Camp maintenance				
Board loss etc.	120.00	2.40	2.40	
F-1				
Administration, General Cost				
Head Office	35.00			
Accounting	8.00			
Office + Eng Supplies	3.00			
Insurance	15.00			
Travel and Expending	20.00			
Misc. expenses	20.00			
	<u>97.00</u>		1.94	
G-1	Geology , Engineering	40.00	.80	.80
H-1	I.P. Payment	30.00	.60	.60
I-1	Depreciation @ 15%	210.75	4.21	4.21
J-1	Interest	<u>315.00</u>	6.30	<u>6.30</u>
	Total cost	<u>2751.35</u>		<u>55.02</u>

Daily operating costs are expected to total 2751.35
50

for a cost of 55.02 per ton.

Personnel Requirements

No contracts have been entered into, by the company to date. Underground personnel are expected to be under a bonus contract which will contain a penalty clause for intentional overbreak.

The following personnel are expected to be capable of mining and milling 50 TPD.

1	Development mine	1	} 120
2	Stope miner	2	
3	Helper trammer	1	} 84
4	Mill operators	3	
5	Crusher truckdriver	1	80
6	Mechanic electrician	1	100
7	Cook	1	
8	Mine manager	1	95
	Total	<u>11</u>	men

Ore Reserves

Offered with this study are ore reserve calculations, calculated independently by five geologists-engineers. It is assumed that similar data for those calculations, was made available to each geologist-engineer. The writer, however, was able to take advantage of knowledge gained during the bulk sampling and mining program carried out during the summer of 1975. Those reserves as calculated are shown below

Vein	Mine Level	Proven & Probable	Ag (oz/T)
No 2	3900-2	Possible reserves	
No 2	4100-2		21.7
No 2	4300-2	-37,520	
No 2	5000-2	Possible reserves	
No 2	5600-2	3,150	26.2
No 2	5800-2		
No 4	5150-4	6850	21.5
No 4	5300-4	2612	15.6
No 4	5700-4	3440	29.2
Total Proven and Probable		53,572 tons	
Average Grade		20.2 ozs. per ton	

Dilution factor has been included ~~in each individual~~ in each individual level calculation. Assays for gold and for lead-zinc have not been included however, the average gold assay is expected to be 0.05 ozs per ton with a combined lead-zinc assay of 7.0% per ton.

Metallurgy

Considerable testing of ores from the Ruffner Mine has been conducted by Britton Research and Mr. H.E. Pawson for Interprovincial Silver Mines Ltd. Further testing of the ore is presently being carried out by Kamloops Research Laboratory.

Three complete flotation tests were carried out under identical conditions except that the addition of sodium cyanide varied from 0.05 to 0.1 lbs. per ton of ore.

The results from these tests are shown on table 2 which is included in this study. Those results have also been used by the writer in tables 3 and 4 to arrive at the net smelter return figure.

Milling

A concentrating plant with a maximum throughput of 60 TPD has been purchased and is presently being stored at the Atlin Ruffner property. The ore will be crushed by a primary jaw crusher and a secondary cone crusher to 3/8 " mill feed. Two banks of No.21 Denver flotation cells will be used to produce a separate lead and zinc concentrator. A disc filter along with electric heaters will be used to extract as much moisture as possible from the concentrate. These concentrates are expected to be shipped by White Pass and Yukon Route to the Cominco smelter at Trail B.C. via Whitehorse, Skagway and Vancouver. The reader is referred to Mr. Snell's study of April 1975 for more detailed information on the mill.

Environment

No major danger to the environment is expected from this operation. A reclamation report will be submitted early in 1976. No access roads will be needed, however repairs to the present roads will be necessary and on application for assistance has been made to the Department of Mines and Petroleum resources.

Merallurgical Balance from Composite Test Sample
 Test Results determined by Variable additions of NaCN

Table #2

Case 1- Lead Cleaner concentrate assaying 179.9 oz. Ag. per ton, no NaCN additions

Product	Weight %	Assays					% Recoveries			
		Au	Ag	Pb	Zn	Fe	Au	Ag	Pb	Zn
Lead Cleaner Concentrate	11.63	.35 .14	168.0 179.9	38.5 37.48	4.00 4.01	20.7	74.9	38.8	94.1	19.1
Zinc Recleaner Concentrate	3.16	.03	13.6	.91	49.77	12.0	3.5	1.8	.6	64.3
Head	100.	.02	23.8	4.60	2.44		100.	100.	100.	100.
Combined Conc.	14.79	.05	20.0	4.60	2.40	18.84	78.4	89.06	94.7	83.4

Case 2- Lead Cleanser assaying 219.3 oz. Ag. per ton, .05 Lb per ton NaCN addition

Product	Weight %	Assays					% Recoveries			
		Au	Ag	Pb	Zn	Fe	Au	Ag	Pb	Zn
Lead Cleaner Concentrate	9.00	.45 .18	222. 219.3	51.0 49.63	3.45	13.84	74.7	84.2	95.5	13.
Zinc Recleaner Concentrate	3.51	.02	18.5	1.11	49.32	11.91	3.3	2.7	.8	72.6
Head	100.	.02	23.8	4.60	2.44		100.	100.	100.	100.
Combined Conc.	12.51						78.0	86.9	96.3	85.6

Case 3- Lead Cleaner concentrate assaying 233.7 oz.Ag. per ton, 0.1 lb. per ton NaCN add.

Product	Weight %	Assays					% Recoveries			
		Au	Ag	Pb	Zn	Fe	Au	Ag	Pb	Zn
Lead Cleaner		.48	233.7	57.5	3.2					
Concentrate	8.00	.19	233.7	55.07	3.3	10.31	67.3	80.0	94.9	10.7
Zinc recleaner										
Concentrate	3.81	.04	23.1	1.28	48.93	12.07	7.1	3.7	1.0	75.3
Head	100.0	.02	23.8	4.60	2.44		100.	100.	100.	100.
Combined Conc.	11.81						74.4	83.7	95.9	86.0

31

According to Pawson, a natural circuit is indicated for silver-lead flotation. Alkalinity provided by lime will have an adverse effect on some of the silver minerals. Pyrite depression with lime during lead flotation will depress the silver minerals, proussite, pyrargyrite and stephanite. Iron will have to be controlled with NaCN during cleaning.

Revenue

Expected revenue from a 50 TPD operation using current metal prices.	Case 1	Case 2	Case 3
Lead Conc.	3831.08	3742.11	3581.22
Zinc Conc.	184.46	232.86	276.50
	<u>4015.54</u>	<u>3974.97</u>	<u>3857.72</u>
Less 7.5% Royalty	301.16	298.12	289.32
	<u>3714.38</u>	<u>3676.85</u>	<u>3568.40</u>
Less Freight	420.00	366.00	360.00
	<u>3294.38</u>	<u>3310.85</u>	<u>3208.40</u>

Case 1 is being used in this illustration as sodium cyanide was not used and it is suggested that the use of sodium cyanide be avoided if at all possible. The 7½% royalty is due to Marcana during the first three years of operation.

Daily smelter returns	3294.38
Daily operating costs	<u>2751.35</u>
	543.03

Thus the following revenue before taxes and Government Royalties can be expected from the first year of operation.

$$543.03 \times 365 \times .89 = 176,403.29$$

The above figure has been reached using current metal prices and an average head grade which is expected to assay 20 ozs. silver, 4.6% in lead and 2.4% in zinc. Copper and Cadmium has not been used in valuation net smelter returns and will act as a contingency bonus.

An increase in the price of silver would also have an appreciable effect on the annual profit as illustrated below.

Silver price	Estimated Annual Operating Profit
4.25 per oz.	176,403.29
4.50 per oz.	314,342.38
5.00 per oz.	446,763.28

A daily increase of 10 tons per day which is probable would tend to increase the daily operating profit by approx. 14% after an allowance has been made for increased expenses.

The expected operating profit at 60 tons per day would be $176,403.29 + 24,696.46 = 201,099.75$

Marketing

A standard smelter contract supplied by Cominco has been used as a reference in this study. A tentative agreement has been made with Cominco in Trail B.C., however other avenues for concentrate sales are still under investigation by Atlin Silver Corp.

Table 3

Case	Metal	Price	Payment Calculation
1	Au	130.00	.05x50x.749x.93=1.73x126.50
2	"	"	.05x50x.747x.93=1.73x126.50
3	"	"	.05x50x.673x.93=1.56x126.50
1	Ag	4.25	20x50x.888x.93=825.8x4.18
2	"	"	20x50x.842x.93=783.0x4.18
3	"	"	20x50x.800x.93=744.0x4.18
1	Pb	.16	.046x50x2000x.941x90=3895x.12
2	"	"	.046x50x2000x.955x90=3953x.12
3	"	"	.046x50x2000x.949x90=3928x.12
1	Zn	.33	.024x50x2000x.191x.60=27.5x.20
2	"	"	.024x50x2000x.130x.60=18.7x.20
3	"	"	.024x50x2000x.107x.60=15.4x.20

Deductions Base Charge 27.85 + Labour Rate 12.00=39.85

1	5.5 tons Conc. per day
2	4.4 " " " "
3	4.1 " " " "
1	5.5 x 20.70 = Iron penalty
2	4.4 x 13.84 = " "
3	4.1 x 10.31 = " "
1	5.5 x 5.50 = Arsenic Penalty (est)
2	4.4 x 5.50 = " "
3	4.1 x 5.50 = " "

Total Smelting Cost
 Net Smelter Return
 Freight Charge @ 60.00 Per ton
 Total

Case 1 (5.5 T/D) Conc	Case 2(4.4 T/D) Conc	Case 3(4.1 T/D) Conc
220.11		
	218.84	
		177.34
3451.84		
	3272.94	
		3109.92
467.40		
	474.36	
		471.36
55.00		
	36.40	
		30.80
4194.35	4002.54	3809.42
219.17		
	175.34	
		163.38
113.85		
	60.87	
		42.27
30.25		
	24.20	
		22.55
363.27	260.43	228.20
3831.08	3742.11	3581.22
330.00	264.00	246.00
<u>3501.08</u>	<u>3478.11</u>	<u>3335.22</u>

Table 4		Zinc Conc.		Case 1 1.5 T/D	Case 2 1.7 T/D	Case 3 1.9 T/D
Case	Metal	Price	Payment Calculation			
1	Au	130.00	.05x50x.035x.93=.081x126.50	10.25		
2	"	"	.05x50x.033x.93=.077x126.50		9.74	
3	"	"	.05x50x.071x.93=.165x126.50			16.50
1	Ag	4.25	20x50x.018x.93 =16.7x4.18	69.81		
2	"	"	20x50x.027x .93=25.1x4.18		104.92	
3	"	"	20x50x.037x.93 =34.4x4.18			143.79
1	Pb	0.16	.046x50x.006x.90x2000=24.8x.12	2.97		
2	"	"	.046x50x.008x.90x2000=33.1x.12		3.97	
3	"	"	.046x50x.010x.90x2000=46.0x.12			5.52
1	Zn	0.33	.024x50x.643x.60x2000=926x.20	185.20		
2	"	"	.024x50x.726x.60x2000=1045x.20		209.00	
3	"	"	.024x50x.753x.60x2000=1084x.20			216.80
				268.23	327.63	382.61
Deduction Base Charge - 27.85 + Labour Rate 12.00=39.85						
1	1.5 Tons Conc Per Day			59.77		
2	1.7 " " " "				67.74	
3	1.9 " " " "					75.71
1	1.5 x 12.0 Iron Penalty			18.00		
2	1.7 x 11.9 " "				20.23	
3	1.9 x 12.0 " "					22.80
1	1.5 x 4.0 Arsenic Penalty Est.			6.00		
2	1.7 x 4.0 " " "				6.80	
3	1.9 x 4.0 " " "					7.60
Total Daily Smelting Charge				83.77	94.77	106.11
Net Smelter Return				184.46	232.86	276.50
Freight Charge @ 60.00 Per Ton				<u>90.00</u>	<u>102.00</u>	<u>114.00</u>
				94.46	130.86	162.50

Conclusions

Work performed during the past summer, although limited did confirm the existance of good grade ore above the 4300 level. Conservative mining methods should maintain good production with no major dilution problem indicated.

Therefore it can be concluded that a 50-60 TPD mining and milling operation at the Atlin-Ruffner property can show a good annual operating profit at today's metal prices. The capital cost investment is expected to be repayed within 3 years of operations. The writer would expect that with the present optimistic outlook for an increase in the price of silver any increase in operating costs brought on by inflation, exploration and development will be more than offset.

For continued non-interrupted mining and milling new ore sources are needed. Since the potential for new ore is excellent, increased exploration and development during the second and third year of operation should quite easily maintain sufficient ore reserves.

Thus with 53,572 tons of proven and probable ore on the Atlin-Ruffner property and another 23,800 tons available on surrounding properties. A minimum of 3 years ore at 16,000 tons per year is available. With an average grade of .05 ozs. of gold, 20.0 ozs. of silver, 4.6% lead and 2.4% zinc and annual operating costs of \$383,362.20 an annual operating profit of \$176,403.29 can be expected.

Certificate

Dec. 20, 1975.

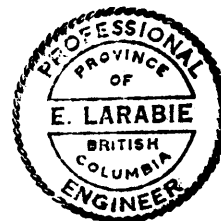
I, Eugene N. Larabie with a resident address in Kelowna, British Columbia, do hereby certify that:

1. I am a geological-engineer.
2. I am a member of the Professional Engineers Association of British Columbia and Ontario.
3. I am a graduate of the Provincial Institute of Mining in Healeybury, Ontario 1957.
4. Since 1957, I have been employed in small underground mining operations. I held responsible positions including, chief engineer and geologist, mine superintendent, and assistant manager in several silver and base metal mines in Ontario and British Columbia.
5. I have during the summer of 1975 examined and supervised the operations at the property.
6. I have studied and examined all available data and thus reached the conclusions made in this study.

Respectfully submitted

E. N. Larabie

E.N.Larabie P.Eng.
Kelowna B.C.



Acknowledgements and References

- Snell, J.C. Production Feasibility Study, Maps
April, 1975.
- Dolmage-Campbell Final Feasibility Report
& Jan. 1969
Associates
- Wallis, J. Progress Report
August 1968
- Clifford, J.A. Private Company Report
Dec. 1969
- Interprovincial Maps, Plans, Assays and Diamond
Mines Drill Logs.
- Britton, John W.P. Metallurgical Tests
Sample Silver-Lead-Zinc ore
submitted Interprovincial Silver
Mines Ltd. Progress Report No.1
- Cummins, Giver Mining Engineering Handbook
Volume 1 and 2

TABLE -1 ORE RESERVE COMPARISON

Vein No.	Level Location	J.E.Wallis (Aug.68) Proven & Probable	Dolmage & Campbell (Oct.68) Proven & Probable	J.A. Clifford (Nov.69) Proven & Probable	J.C. Snell (April 75) Proven & Probable	E.N. Larabie (Dec. 75) Proven & Probable	Average
2	3900-2	Possible Ore	Possible Ore	Possible Ore	Possible Ore	Possible Ore	-----
2	4100-2	33,900 Tons @	30,580 Tons @	23,200 Tons @	47,645 Tons @	37,520 Tons @	34,569 Tons @
2	4300-2	14.7 ozs. Ag.	24.1 ozs. Ag.	15.7 ozs. Ag.	22.9 ozs. Ag.	21.7ozs. Ag.	20.3 ozs. Ag.
2	5000-2	4,430 Tons @ 18.5 ozs. Ag.	3,640 Tons @ 13.3 ozs. Ag.	Possible Ore	Possible Ore	Possible Ore	-----
2	5600-2	4,000 Tons @ 10.0 ozs. Ag.	2,800 Tons @ ???	1,100 Tons @ 12.8 ozs. Ag.	3150 Tons @ 26.2 ozs. Ag.	3150 Tons @ 26.2 ozs. Ag.	* 2,280 Tons @ 19.2ozs. Ag.
2	5800-2	7,175 Tons @ ???	Possible Ore	Possible Ore	Not included	-----	-----
4	5150-4	10,000 Tons @ 24.0 ozs. Ag.	1,870 Tons @ 21.6 ozs. Ag.	5,500 Tons @ 28.0 ozs. Ag.	5787 Tons @ 27.0 ozs. Ag.	6850 Tons @ 21.5 ozs. Ag.	6,000 Tons @ 24.6 ozs. Ag.
4	5300-4	8,000 Tons @ 18.0 ozs. Ag.	1,920 Tons @ 18. ozs. Ag.	2,100 Tons @ 17.2 ozs. Ag.	2612 Tons @ 15.6ozs. Ag.	2612 Tons @ 15.6 ozs. Ag.	3448 Tons @ 17.1 ozs. Ag.
4	5700-4	4,000 Tons @ 16.2 ozs. Ag.	1,470 Tons @ 51.5 ozs. Ag.	2,300 Tons @ 18.4 ozs. Ag.	4725 Tons @ 28.7 ozs. Ag.	3440 Tons @ 29.2 ozs. Ag.	3187 Tons @ 26.3 ozs. Ag.
Total		72,140 Tons 16.6 [@] ozs. Ag	46,980 Tons 27.2 [@] ozs. Ag.	34,200 Tons 18. [@] ozs. Ag.	63,920 Tons @ 18.6 ozs. Ag.	53,572 Tons @ 20.2 ozs. Ag.	49,484 Tons @ 20.7 ozs. Ag.
Total	Possible Ore	36,775 Tons	63,090 Tons	45,000 Tons	No Tonnage Noted	25,000 Tons	-----

* 2800 tons as per Dolmage and Campbell not included.