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Rec'd Jan 24/77

801189

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*Mainly in economics
of develop/production methods*

January 19, 1977.

Mr. W. M. Sharp, P.Eng.,
3280 Chesterfield Ave.,
North Vancouver, B. C. V7N 3M9.

Dear Bill:

Re: Silmonac Mines.

Further to our telephone conversation of January 5, 1977 and my study dated November 19, 1976, copy of which was sent to you, it is necessary to provide you with more data and information on my thinking and be more specific as to our plans.

gen.

The November 19 study was essentially a compilation of my own study, research, and experience gained over the past 6-7 years, and an evaluation of action possibilities. I also wanted to relate potential of the property to the risks involved in financing any major program, with the potential considered being limited generally to the so-called Standard Silversmith lode system. By no means does this suggest that there are no other lodes on Silmonac which might contain economic mineral deposits, but, we have little real information on such lodes.

gen.

For the past few years, essentially we have operated Silmonac on a salvage basis, although considerable amounts were spent on exploration and development, with the amounts generally limited to cash available from operations, plus, of course, the physical capability imposed by existing mine plant and manpower ability. Since 1974, very little ore or potential ore has been found lying above the 4,625 level, although admittedly strike exploration has been limited, actual total strike length about 2,400 ft. In the same period, new ore has been found below the 4,625 horizon, essentially extensions of the two main zones mined above the 4,625 level. Exploration below the 4,625 level has been relatively limited, both along strike and down the dip, about 1,200 ft. along strike in two areas, and to 4,550 elevation west of the main x-cut and to about 4,380 in the east block. Some deeper testing to perhaps 4,200 elevation was carried out over perhaps 200 ft. of strike length, and while results were disappointing, the value of this

gen.

WMS

testing is inconclusive for many reasons. The reason for the limited down dip testing is, of course, the very high cost of establishing drill bases, and the limited effective range of diamond drill holes. In this regard, the possibility of using inclined drill holes, collared in the F.W. or even on the lode, and using deflection of the holes to cut the lode down the dip, seems to merit study and testing.

Gen.

We decided to develop this ore lying below the 4,625 level, by driving declines and using L.H.D.'s, self-loading haulers, to both drive the decline and carry out the mining. The limitations of this approach and capacity of the equipment were understood and accepted. The area east of the main x-cut was developed, and has been providing most of the mill feed for the past two years and is supplying all mill feed at this time. A decline to develop the west block is in progress now, but, about 3 months are required before any production will be available from here.

*Explor'n
Develop
Consider*

In the east area, ore continues down dip and along strike to the east. However, the production capacity of a scooptram reduces directly as the haulage distance increases, and there are economic limits to the haul distance. We have reached these limits in this zone. The range and capacity of the 3 ton scooptram, under varying conditions will be discussed later.

Profitability of Production

Many factors affect profitability. Obvious factors are ore grades, metal prices and production costs (including marketing), amount of exploration and development required per ton of ore and production rates. We have no control over metal prices, limited control over metal grades e.g. controlling dilution and clean mining, some control over exploration and development costs, and, some control over production rates, up to, perhaps 4,000 tons per month which is maximum capacity of the mill as set up.

*Re: Metal Price →
Preamble
"Current
Production
&
Marketing
Costs"*

Fixed costs are relatively constant, no matter what the production rate, within limits of course. If monthly production is doubled, say from 2,000 tons to 4,000 tons, all at same grade, gross value of production will be double, whereas production costs may only increase by say, 50%, or, even less. The advantages of producing to mill capacity are obvious. For some time equipment capacity has been the major factor, controlling production rate. In addition to distance, the slope

*None of
needed
detail of how
this 50%
increase
derived.*

of the haulage route controls scooptram capacity. The declines are driven at 15%, and the capacity of a scooptram operating on the flat, as compared with 15% is 2.25 times greater. This is a very significant factor. To illustrate, with a one way haul distance of 2,000 ft. via a decline, the shift capacity of a scooptram is a maximum of 45 tons, or, per two shift day, about 90 tons. - ore or waste

Hauling on the flat, with a 3,000 ft. haul distance, the per shift capacity is about 76 tons or 152 tons per two shift day. Another critical fact is the ability to supply ventilation air. This controls the amount of equipment that can be used, either by numbers, or total horsepower.

These facts have a major bearing on the plan we have developed.

Potential of the Main lode on Silmonac

I refer, of course, to the undeveloped and unexplored portions. In evaluating this potential, I have considered all known data, and applied a statistical approach to arrive at figures. I have used the same tools to localize the most favourable vertical interval, i.e. between 3,800 and 5,000 ft. This zone is a deeply buried zone. I doubt if the localization of favourable conditions can be projected any reasonable distance. I can see no reason why mineral concentrations of ore grade will not occur well below the 4,000 ft. level although there is obviously a basement limit. Some ore may occur above the 5,000 ft. elevation as well. I have merely selected what appears to be the most favourable vertical interval. The first priority should be to explore the extensions of known mineralized areas, both down dip and on strike.

Currently, indicated or probable ore reserves are not large using definition and classifications approved by A.P.E.O. However, possible reserves, as defined by A.P.E.O. are very substantial.

I realize that estimates of potential ore are just that, estimates, and have no standing with Security Commissions and Stock Exchanges, but, they do help to evaluate properties. Considering the tonnage that we have already extracted in the limited strike and dip interval, I think my estimate of potential is quite conservative

We have learned a great deal, and are still learning, about exploring for ore zones on the Silver Ridge lodes. There is no question of being able to find the ore zones, but, the problem remains that of doing so on an economic basis.

"preliminary
current
production
mineralizing
costs"

Hence
2 - operating
Scooptrams
adequate for
all foreseeable
production
rates.

The most
possible or
potential

Some ore may occur above
5,000 and below
3,800 ft.

omit

omit

As I have pointed out, the exploration area is a plane area of about 14,000,000 sq. ft., perhaps more. We have explored an area of perhaps 1,000,000 sq. ft. about 30% of which has been ore. The exploration cost has been very high, and many mistakes have been made, from which we have learned a great deal. It is reasonable to think we will benefit in future exploration from this experience. Despite what we have learned, exploring 14,000,000 sq. ft. of lode which is deeply buried, to locate ore deposits is a major undertaking, and, almost certainly, exploration has to be carried out from U.G. openings, and, be a staged program.

Substitute on 9000' or more strike length and a 1000'-1500' dip length of the lode.

The major fundamentals of our planning must be as follows:

- 1) We must know, or find out, the location and attitude of the lode or lodes, for a specific strike interval. 2) Then provide bases, i.e. drifts, crosscuts, etc., for exploratory diamond drilling, to locate mineralized areas, or areas where geological conditions for ore deposits are favourable. The drill basis will be a pattern, to obtain maximum area testing
- 3) Detailed drilling of mineralized areas to provide data to assess tonnage, grade and economics of development. 4) Development and production. The major mistake made in the past was to allow the drill bases to get too far ahead of diamond drill data, i.e. geological information. On a local basis, lode strikes and dips cannot be projected very far, and favourable geological conditions change rapidly, and, in our opinion, cannot be projected, although regional geology can be interpreted and perhaps projected over long distance.

Exploration Development Considerations
This should be included in the preamble of the Development Alternatives
the outline of the Development Alternatives
the preamble

of significantly change across of the lode
the failure to coordinate

hence 5) Flexibility

Proposed Development program

In considering the *the alternative for solution of operational* and long term exploration methods to solve the current problems, *and also those* many aspects have to be considered. These include the following: 1) Extraction rate of probable reserves is limited, and, well below mill capacity. Due to high fixed costs, this reduces the profitability of these reserves substantially. To illustrate, assume a net mine value of \$75.00 per ton and production of 2,000 T.P.M. Value is \$150,000. Costs will be about \$115,000 providing profit of \$35,000. If monthly rate can be increased to 3,000 tons, net value would be \$225,000. Production costs would only increase by about \$20,000 to \$135,000 and a profit of \$90,000 would be realized, or \$30.00 per ton as compared with \$17.50. Time is obviously important. The capacity to produce will decline with time and could soon become uneconomic.

figures?

- 2) Capital costs involved. 3) Flexibility and finally, 4) operating costs.

Plan 3, reactivating the Silmonac ~~3,990~~ ⁴⁰⁰⁰ level has some disadvantages, but, it possesses more advantages than other plans, and, in any event, would probably have to be reactivated in the future.

put in outline of alternatives here, then follow with text

Summary remarks re "Preferred Plan" of Exploration-Development Considerations.

Summing up, the proposed development program is designed to - 1) make it possible to mine the indicated reserves at the maximum profit per ton and, 2) provide a base and facilities that will allow exploration to be continued below the 4,625 level to the 4,000 ft. level, and make development and extraction possible.

Our current thinking is to use the scooptram to drive the laterals and provide haulage, at water grade inclinations, i.e. about 1%. The range will be about a 3,000 ft. radius from the transfer and service raises. The laterals would be connected, for servicing, by ramps driven at minus 15%. The vertical interval between laterals will be determined by lode dips, i.e. slushing distances and could be about 100 ft.

Ultimately, it would be necessary to advance the 4,000 ft. level to the west, at least 3,000 ft. ^{beyond the final set of service and transfer raises.} and drive service and transfer raises. This would make it possible to continue exploration and development, for a further 3,000 ft. to the west over the dip length from 4,000 ft. to at least 4,800 ft. elevation.

Economics and cash flows

CASH-FLOW PROJECTIONS

We are going to want you to include ^{net} cash flow projections in your report. It is our plan to raise capital by either - 1) selling shares to the public, 2) selling debentures, or 3) possibly borrowing the funds. The total funds required will be about \$750,000 net to the company. Negotiations are currently in progress to return the lease to Silmonac and for Silmonac to acquire the Carnegie mill and the mine plant and equipment held by the current operators i.e. Kam-Kotia. These assets would be acquired for Silmonac shares. When all the above is completed, Silmonac would have complete control of its claims and have physical assets as described with a balance sheet value of about \$1,200,000, but, would have no cash, or, very little. Kam-Kotia would own over 50% of the shares and would advance working capital as required, secured by notes. We estimate that, from start time, about 10 months (minimum) would be required to complete, after which benefits would flow, i.e. reduced costs and increased production. Estimating the cost of the program is, of course, difficult. In the November 19 study, I estimated direct costs of about \$550,000. This, of course, assumes that overhead expenses are absorbed by operating costs and, ^{net} cash flow being adequate to cover these costs. Not included in the \$550,000, is cost of supplying cookhouse, bunkhouse and possibly other accommodation. Obviously more staff and crew will be required.

← omission here caused much thinking around

"Cash-Flow Projections mixed with operations - Development Considerations"
"Cash-Flow Projections"
ATCO?

do not count amount of financing from concurrent production

The figures in the November 19 study should have a 20% factor applied, bring this cost to \$660,000, and, \$90,000 for accommodation, for a total of \$750,000. This amount would be what Silmonac would have to raise.

It is possible, even probable, that operations would provide some net cash flow, while the program is underway, but any such funds would be used to repay Kam-Kotia's advances and build up working capital.

Obviously you must get complete data on past operating costs and current marketing costs, i.e. sales contracts for concentrates. All this information is available at New Denver, and, while copies could be sent to you, it might be best to plan on getting material right at the mine office. Essentially, your report will be a feasibility report, and tentatively cash flows for the next 5 years should be shown.

Both ^{operating} production and marketing costs will probably increase over this period, but, at a much lower rate than for the past few years. Projecting metal prices over a 5 year period is, of course, a judgement matter, but, overall, I would expect prices to rise at a higher rate than costs, on a percentage basis. The price of silver is most important, as silver accounts for nearly 70% of production income (1976 figures), and the probability of higher silver prices is better than for most other metals as consumption continues to be greater than new production. While the factors that affect any metal price are complex and interrelated, over the long terms, supply/demand ratio is most critical. In any event, metal prices for the projected period, will directly affect cash flows and profits. We can discuss this aspect in future meetings.

Maps, illustrations and Drawings

For any report, maps and illustrations are very important, and certain maps are mandatory and must be included as part of the report.

Unless you are in disagreement with my ideas and proposals, your report is essentially designed to assist in financing a specific program at Silmonac. The use of charts, graphs, and illustrations are most valuable and helpful in conveying ideas. A long section along the strike of the lode, showing areas already mined and tonnage mined in relation to the potential area still to be developed gives a graphic picture of the potential. The use of colours is also helpful.

time consuming.

*rel to preferred plan
"Explor'n Development Considerations"*

ALSO re CASH-FLOW PROJECTIONS

** rel to Cash Flow Projections*

Future metal price considerations & FUTURE PRODUCTION COST CONSIDERATIONS

omissions & contingencies

name provided for it and base + estimated cost of land

mention that but show table requirements without learning on production

So neglect any possibly concern but not cash flow

note VSE's concept of feasibility study - How many to discuss 5. working of petfectible. possible from use of such a title.

KRS-0-416-361-0402
G.W. W. Res 0-416-231-5407

Mr. W. M. Sharp, P.Eng. - 7 - January 19, 1977.

Some typical cross sections showing the various stages from exploration, to development and ultimate mining are also of great value. The proposed program and the method of continuing exploration should be clearly illustrated.

add them to app. make see p. 5

Further notes on Cash flow projections

Economics and ^{net?} cash flow depend on production rate, costs, and metal prices. For our purposes, at this time, production will be limited to mill capacity. As I have pointed out earlier, mine production capacity has been the limiting factor, for the past several years, and not mill capacity. Hopefully, this will change, as the program is completed, and, in time, the mill capacity could control production. While we have treated as much as 4,000 tons per month, in the past, we should use 3,500 tons per month as average capacity for cash flows.

Rel. to "Cash Flow Projections" *

The mill capacity can be increased, of course, and could ultimately be increased. However, for this project, higher mill capacity will not be considered, and, on completion of the development program, we would expect to mine and mill 3,500 tons of ore per month.

Financing

Silmonac is listed on the Vancouver Stock Exchange curb market, and, the Vancouver Stock Exchange facilities will probably be used to arrange financing. Your report will form part of a prospectus or statement of material facts and must conform to the exchange requirements.

what proportion of total financing?

Ore Reserves

Your report will include a statement on ore reserves. This will be a very critical part of the report and require much consideration and discussion. There is little proven and developed ore, and an estimate of probable ore may also be somewhat limited. Using the definitions and guidelines set out in performance standards for professional engineers by A.P.E.O., a statement of possible ore reserves can be quite liberal as long as the risk factor is defined. I believe the standards in B.C. are similar, and you should check this carefully. I can send you a copy of A.P.E.O.'s performance standards for reporting on mineral properties if you wish.

most of this consideration is in previous sections of the report - a quite properly so!

ORE RESERVES
Request this

His "background" advises that:
G.W.W. Feb 2/77, p. 4 "The key to supporting the proposed develop-
ment is the magnitude of the possible reserves"

June 27
Called a bit too late this
aft. to reach you at the office;
KKB Toronto Off. 0-416-361-0402
GWW Residence 0-416-231-5407

Mr. W. M. Sharp, P. Eng. - 8 - January 19, 1977.

Authorization *Get a feel for metal price* *Effect by to climb*

Kam-Kotia is authorizing and requesting you to prepare and submit your report on the Silmonac property, near Sandon, B.C. relative to the development required to maintain and increase production and profitability. Your report should be directed to - The Board of Directors, Kam-Kotia Mines Limited, Attention: G. W. Walkey. Kam-Kotia guarantees payment of your fee and costs for preparing this report.

G.W.W phone call
Comprehensive report required to incl. all relevant aspects of project.

The report should be compiled for any reproduction and inclusion in a filing statement or prospectus.

The report should be classified as confidential, until Kam-Kotia agrees to make it public through a filing statement.

The mine staff at New Denver have been authorized to give you any information you require as well as any assistance possible. Information given to you will be confidential and for your use only in making this report. I will also provide all possible assistance and will meet with you as required for further discussions, either at Vancouver or New Denver.

N.B.!

I hope I have clarified and outlined the scope and purpose of the report. If you are in doubt on any point, please let me know at once by telephone at Toronto. Time is very important, as far as we are concerned. We would like to have your finished report by the end of February, and a draft outline for discussion sometime in early February. However, there is some flexibility on timing and we understand you have certain other obligations. I would like to be advised as soon as possible in the event that delays are anticipated. As discussed, we expect to meet in New Denver with you to consider the report, and, I would like to know your time preference for this meeting when you can settle the date.

March 15
may probably
del. info
- may
Second batch
reason for
delay

Please call me at any time for discussions or clarification.

Yours very truly,
KAM-KOTIA MINES LIMITED,

G.W.W.
G. W. Walkey,
Vice-President and General Manager.

GWW/rk

Jan 27: Graham says I try to get a feel for (mining + equip) cost & (metal) price trends -- so that forecasting will be possible.

Jan 27 G.W.W. requested I call home after I have had a few days at the mine (prev after return to Van.), Graham not too concerned about title of report as long as content indicates we are on a (wms -> Interim Ec. Study or equiv.) content is the theme.