Denver, CO February 20, 1979

841964 Cinola M466

JWS

SPECONGNA GOLD PROSPECT QUEEN CHARLOTTE ISLANDS, B.C.

MR. EARL DODSON Vancouver

At Dave Arscott's request I did a quick evaluation of Consolidated Cinola's Carlin type gold project.

The deposit is located along the Sandspit fault zone in silicified volcanics and sediments about 10 miles south of Port Clements, Queen Charlotte Islands, B.C. It was discovered and staked in 1971 by a prospector who optioned it successively to Kennco, Cominco, Canex Placer, Silver Standard, Quintana and now Consolidated Cinola. A total of only 34 holes were drilled prior to recent activities but Quintana published an ore reserve potential of 50 m tons. Grade in the first 100' of rock from surface, which gives 13.8 m tons in the area drilled, was reported to be 0.06 oz/ton Au. and 0.1 oz/ton Ag. Stripping ratio is very favorable and internal waste/ore, again from limited shallow drilling is 0.3:1. Deeper drill intersections available to Quintana gave slightly lower grade expectations and higher internal waste ratio.

Con Cin drilled 21 holes, in late 1978. The best hole cut 79' of 0.86 oz/ton. The most recent hole graded 0.07 oz/ton from surface to 513' and included 0.1 oz/ton from 0-282'.

My evaluation was based on an open pit deposit of 12 m tons grading 0.08 oz/ton recoverable Au (e.g. 0.1 oz @ 80% recovery). Gold price was assumed at \$200.00/oz U.S. Starting now with 6 years lead time to production, the overall rate of return was 17% with total profit of about \$60 m. At 7.5% discount rate there is a \$20 m present worth. If an investor accepts an after tax return of 7.5% and no risk on the deposit as described, then the 3 m issued shares would be worth \$6-7.00 each. The stock is being traded in the \$4-5.00 range now and the company is reported to have rejected an offer from Dennison to purchase an option on the property for an initial stock purchase of 200,000 shares at \$6.00.

Recent work I've done on this type of gold deposit at today's prices, but under U.S.tax laws, indicates grades below 0.1 oz/ton will be tough to mine profitably but that large tonnages in the 0.1 - 0.15 oz range could be very significant both in rate of return and total profit. Mr. Earl Dodson

To summarize, the Quintana results indicate very large tonnage potential and Con Cin has found some "sweeteners" to possibly bring the grade within the economic range. Gold prices in Canada are now about \$300.00/oz. I believe the "play" deserves consideration but it would be important to obtain some kind of evaluation option to prove the many assumptions I have made in recoverable grade and mining parameters.

I recommend we try to determine what kind of deal Con Cin would be attracted to, and proceed from there.

W. SIMPSON

JWS:mh

cc: # Bob Daniel San Francisco

> Wave Arscott Vancouver

San Francisco

Denver, CO February 22, 1979

Gare Dortson Vanconvey

MR. B. O. CHALKER Denver OPEN PIT GOLD MINE ECONOMIC MODEL

The Carlin Mine in Nevada originally had  $11\overline{M}$  tons grading 0.32 oz. per ton Au. Production commenced in 1965 when gold prices were \$35.00/oz. The Cortez mine began production in 1969 with reserves of 2.9M tons grading 0.28 oz/ton. Gold price in 1969 was \$41.00/oz.

Today gold prices are 6-7 times as high but construction and labor costs have only gone up 2-3 times. Therefore, if we believe the present day gold prices are representative of long term values then lower grade ores than Carlin can be an exploration target.

The attached charts show sensitivities of rates of return to grade and gold price for different tonnage ore bodies. The base case is as follows:

Ore Body:

10M tons grading 0.15 oz/ton.

Mine: Open pit with 1:1 strip ratio and 1:1, in pit, waste to ore.

<u>Mill</u>: 2,500 T.P.D. agitation leach with conventional grinding circuit.

Recovery: A tail factor of 0.015 oz/ton gives 90% recovery at 0.15 oz head grade.

Capital Costs: Mill \$25M, mine equipment 4.25M.

Operating Costs: Direct and indirect costs worked out to \$4.60/ton.

Overburden Removal: Contracted @ 25% above operating cost (in addition to the \$4.60/ton above).

Mine Life: 12 years.

Timing:

The economics start at an advanced evaluation stage with 2 years' work at 2M/year, then construction for years.

Taxes:

Severance of property tax were included at 3% of gross sales. No landowner royalties or bonus payments are included. Probably the least accurate estimate of costs is for milling. My estimate was derived by inflating numbers given in a Mountain States Resources paper presented in 1974 to the American Mining Congress meeting.

#### Conclusions

- (1) Our economic standards for production could probably be met if we found a 10M ton deposit grading about 0.15 oz/ton gold.
- (2) Lower grades might make it but below about 0.1 oz/ton, there is a sharp drop in rate of return due to lower recoveries at these extremely low grades (0.1 oz/ton = 3-4 ppm)
- (3) Tonnage below 10M tons does not give enough profit to be really attractive at 0.15 oz/ton but at 0.2 oz/ton a 5M ton deposit gives \$87M in undiscounted profit which would probably be attractive enough to justify the risks of production.

J. W. SIMPSON

JWS:mjh



FULH 179

OPEN PIT GOLD MINE

R.O.R VS GRADE



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Feb 26/79

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Im

Vancouver, B. C. 1982-11-10

#### CINOLA GOLD DEPOSIT

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Memo #41/82-212

JOHN JEWITT:

After reestablishing contact with Geoff Burrill in Saskatoon (Exploration Manager, Energy Reserves Canada, Tel. 306-664-8983) we obtained a copy of Cinola's Summary Report of their Feasibility Study. The study was prepared by Cinola Operating Company, with no specific authors indicated.

I had a long telephone conversation with Geoff Burrill who says that outside statements like "possible 6 M t @ .15 ozs/ton" are highly speculative and would require considerable underground exploration work and drilling from both surface and underground to prove. The possibility of being successful, however, does exist. It appears that there are a basic .015 to .02 ozs Au/ton which are irrecoverable, which means that overall recovery ranges from 60% at a head grade of .035 to 80% - 85% at a head grade of 0.1.

Burrill sees two possible approaches to the situation:

- a) spend about 500,000\$ to confirm the present interpretation of ore reserves, or
- b) spend 2 3 M \$ to prove a smaller higher grade tonnage to an extent to facilitate a reengineered feasibility study.

Cinola, i.e. Ken Samnders, of course, believe in the larger size operation and will be difficult to convince to go the other route.

Burrill stated the following possible deal:

- 1) The farm-in party would earn a 50% equity by providing funds from here to production.
- 2) All invested money (including Energy Reserves' 17 M \$) would first be recovered from 90% of cash flow with interest at prime plus 1 or 2%.
- Energy are also looking for some as yet undetermined royalty based on price.

Consolidated Cinola will have to be convinced that this is the route to go, especially if the new party goes into production at a smaller scale, but may be better ROR.

Geoff also commented that an underground operation may find a lot less resistance from the local population which includes a troublesome band of Indians and from the environmentalists.

The Summary Report does, in my own opinion, raise more questions than it answers. One would again have to go back to the raw data. I am particularly skeptic about the interpretation of the subhorizontal "ore lenses" which appear to be lines connecting grade - intersections across the lithologies. This seems strange in view of some angle holes which intersect the projected lenses but do not confirm the grade. There is also no doubt that the higher grade mineralization is mostly vertically controlled by steep dipping quartz veins.

All in all, however, I think it is worth a renewed effort, if one can convince Ken Saunders that a completely different approach, i.e. towards a smaller (maybe 1000 - 1500 tpd) underground operation, should be envisioned with all the necessary underground exploration and reengineering of mine and mill.

Enclosed is a copy of what I received. Please do not distribute this material too widely. I had to sign personally for copy 28 of 30.

1. Dotes

H. WOBER

HW:am Encls.

San Francisco, CA March 18, 1983

### CINOLA GOLD

MR. H. H. WOBER:

On November 10, 1982, you wrote a memo to me on the above-captioned depoisit, and forwarded copy number 28 of the "Summary, Final Feasibility Study" (enclosed). Based on discussions with Geoff Burrill, you indicated that the possibility existed for identifying a smaller "high grade" zone within the larger pit reserves, which might be economically recoverable by underground mining methods. Your memo also contained farm-in terms suggested by Burrill.

The final feasibility study contained the following results for their Base Case (Table 0-20):

Reserves:	34.316 $\overline{M}$ tonnes
Grade Au Ag	0.060 oz/tonne 0.060 oz/tonne
Recovery Au Ag	71% 50%
Mill Rate	13,500 tonnes/day
Project Life	7 <b>.</b> 26 years
Capital (Net)	\$200 M
Operating Cost	\$12 <b>.</b> 97/tonne
Prices Au Ag	U.S. \$500.00/oz U.S. \$12.00/oz
Project IRR	19.6% (C.D. Basis)

The terms suggested by Burrill indicated that Chevron would put up the \$200  $\overline{M}$  capital for a 50% interest, but would receive 90% of the cash flow until our investment had been returned with interest at prime plus I or 2%. Obviously, Chevron's ROR would be substantially less than 19.6% unless the prime rate was in that area too. In any case, I doubt that we could sell a 20% project today –

#### MR. H. H. WOBER

especially where we had to risk \$200  $\overline{M}$ . Also, I'm sure you will agree that their proposal to mine out the deposit in seven years at the rate of 13,500 tonnes/day is unrealistic.

On January 18, Ralph Fitch and I met with Geoff Burrill of Energy Reserve in the Denver offices of their consultant, Dr. Jerry Whiting (Jerry is President of Resources U.S.A. Inc., and was responsible for developing the final feasibility study. He also is a member of the Management Committee for Cinola Operating Company.) We reviewed plans and sections to examine the concept that a mineable 6  $\overline{M}$  tons at 0.15 oz/ton Au could be developed. We were persuaded by Geoff Burrill that this is improbable; however, two areas within the pit were identified which offer the possibility of significant grade improvement. These areas contain high grade values in vein material, which is contained in zones of vertical shearing. Burrill has proposed a program to drill a series of angle holes across these zones to prove or disprove the theory (\$500 M program). Jerry Whiting and Geoff Burrill concurred that these zones could contain 10 M tonnes with grades ranging from .067 to .100 oz/tonne. If so, this would uplift the reserves by 10%, to an overall grade of .066 oz/tonne. Furthermore, the metallurgical recovery of the high-grade zones is better, and would have the effect of raising the overall recovery from 70% to 73.6%.

At the writer's request, Jerry Whiting re-ran the economics by incorporating the above improvements, and taking into consideration mining of the higher grade areas in the early years of the project. This had the effect of uplifting the IRR from 19.6% to 28.3% (C.D. Basis). This rate of return begins to look interesting, as it leaves Chevron room to develop an offer which may be acceptable to all parties. However, the economics are still based on a gold price of \$500.00 per ounce, which is highly speculative - unless we can lock-in the price for a significant share of the production by means of a metal lease or some other creative financing mechanism such as those currently under review with J. Aron Company.

On February 8, 1983, I received a letter from Herb Henderson, who is M-K's mining manager in Canada (Vancouver), to advise that Falconbridge is offering for sale their Wesfrob facilities at Tasu Inlet on Moresby Id to the South. He suggested that the copper circuit at Wesfrob could easily be modified to accommodate the Cinola ore. This may be true, but it would be necessary to relocate the concentrator to Graham Id, because Cinola ore is too low grade to consider trucking from site to site - including the ferry crossing. (If there is access to Rennell Sound from Cinola, then one might consider trucking crushed ore from the pit to Rennell and then barging the ore to the Wesfrob mill which is on tidewater at Tasu. However, I'm sure this would be totally impractical.) Nevertheless, a major reduction in capital expenditures would be realized in purchasing the Wesfrob mill. Cinola estimates a cost of \$81  $\overline{M}$  for metallurgical facilities. If Wesfrob has its own power plant, additional savings could be realized here too. Cinola estimates \$27  $\overline{M}$  for a power plant (Table 0-18).

Henderson also mentioned that J. C. Simplot is very interested in acquiring the Cinola project. Personally, I don't propose to investigate the matter further at this time – unless you, or others receiving this memo have some ideas. In my

#### MR. H. H. WOBER

opinion, we have already failed to respond to a much more attractive opportunity in California, Jamestown, and are continuing to evaluate another more attractive opportunity in the U.S., Round Mountain. (Jamestown, has 800 M oz. of recoverable gold, is higher-grade, has lower capital and operating cost per ton, and offers a 30% ROR with the deal rolled in, based on a gold price of \$450.00/oz. Also, it appears to be less sensitive environmentally than Cinola, and has no "Indian" problem.)

JEWITT

JWJ:kyb Attachment

cc: Mr. R. E. Daniel Mr. E. D. Dodson Mr. R. G. Fitch Mr. J. D. Mancuso Mr. J. W. Simpson