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MINNOVA INC. **Memorandum**

SAMATOSUM PROJECT

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As ic New Nadina to seed staff

DATE:	**August 21, 1990**
TO:	**Alex Davidson**
COPIES TO:	
FROM:	**John Purkis**
SUBJECT:	**New Nadina Mines/Silver Queen Mine**

If one assumes for now that we could get the same recoveries and payments that we get for Sam ore, the NSR per tonne would be $120/tonne at these prices:

$ 1.00 - Cu)
0.60 - Zn)
0.38 - Pb) and a $1.15 exchange rate
5.00 - Ag)
360.00 - Au)

Our cost structure at 465 tpd is as follows:

Mill	-	$27.50/t	(all incl. of assay, metallurgy, maintenance)
Administration	-	9.50/t	
Services	-	2.50/t	
		$39.50/t	Say $40/t milled.

I would estimate transport from Houston, B.C. at $30/t which leaves only $50/tonne for mining and profits. As this is probably a more difficult ore (barite,pyrite) than Samatosum and, we are entering a period of uncertainty re. prices, upside potential on the NSR per tonne milled is probably not great.

There are several scenarios that could be considered:

1. Custom Mill 1991 (i.e. displace Phase 2 feed).
2. Supplement underground production (start in 1992).
3. Displace U/G production.
4. Feed once Samatosum Phase 2 and U/G depleted.

Option 1 is probably not feasible given permitting times and time to carry out feasibility studies, but, the others warrant analysis as they could represent profitable scenarios.

To analyse whether we have further interest, I would like to have the following:

1. Actual Milling Experience 1971-1973.

2. All Metallurgical Data including Minerology Studies.

3. Reasons for non-compatability with Equity Silver.

My initial opinion is that a mutually attractive situation does not exist. The property itself has too low an NSR/tonne to be of much interest to Minnova at the predicted reserves so I recommend we look at it on a payment basis; i.e., we would buy the ore as delivered and pay on a treatment charge plus percentage of NSR basis. Minimums, etc. would apply to ensure a minimum profitability for Minnova.

We could also go the fixed charge route, but, this limits our flexibility and ability to make gains at higher prices, feed grades, recoveries, etc.

Although this deposit may not be matched well with Samatosum's mill and current mine plan, the concept of buying ore or custom milling cannot be ignored. Although I have not completed my Chu Chua analysis, this project looks equivalent if not better suited to us than Chu Chua.

Our 1991 Plan and 5-Year Plan analysis will identify the points in time where alternative feed sources will be required. Once this is completed (late September), then the urgency of soliciting proposals will become evident and we can actively pursue them. In the meantime, I recommend we ask New Nadina Mines to supply the requested information.

JOHN PURKIS
Mine Manager

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