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C. Rutherford Mining Engineer

Y Ore Position and Estimated Profits in Sight at Sunshine Lardeau Property as at October 1st, 1952.

The following report is an entirely factual one as the property is viewed by the writer. No attempt is being made to review History, Location, Geology, Topography, etc.

The ore reserve totals shown are by no means to be construed as being the entire potential of the property. They are just what is considered the reasonable tonnage and grade that can be seen from present workings. Actually very little exploration has been done looking for ore, and it would be surprising if more is not found in the immediate vicinity of the ore already known.

Mainly because of the way the 6th level was developed, driving drift in hanging wall of ore, rather than along the ore, the writer found it very difficult to arrive at a true width of the ore. The block of ore between the 6th and 5th level is assured as to continuity of course, due to 614 raise showing highgrade all the way. However there is ore in the footwall of this raise, also there is ore in the footwall of the subdrift. The total width of 10.5' is inferred from only four locations, 2 x-cuts on 6th level and two slashed out locations in 614 sub-drift. Of this 10.5' width, 4.8' was taken as width of higher grade since that was the average width of samples taken by the mine staff and myself. Values shown in this block are an average of samples in 514 drift, 614 raise and 614 sub-drift. The other 5.7' of this 10.5' width was taken as footwall ore of lower grade shown in samples cut by the writer. While there are stringers of ore in the wall of 514 drift which might make ore when the drift is slashed, this wider width was only taken to 75' above the 6th level. It was also extended to 50' below 6th level.

In the block below the 6th level no high grade section was allowed for, although undoubtedly it is there. This again because there was no data obtainable from the 6th level development.

Ore Reserves follow:

Reasonably Assured - (14 area)

Location	Tons	Au.	Ag.	Pg.	Zn.
High grade above 614 Sub	5355	.32 oz.	89.9 oz.	24.2%	7.3%
Same in Pillar	1100	.32	89.9	24.2	7.3
Footwall ore above 614 Sub.	3850	.10	25.7	7.0	6.5
Below 600 level	<u>7550</u>	<u>.10</u>	<u>25.7</u>	<u>7.0</u>	<u>6.5</u>
Total & Averages	20025	.17	46.4	12.7	6.7

Probable Ore

Location	Tons	Au.	Ag.	Pb.	Zn.
Below 600 level	3650	0.09 oz.	21.8 oz.	9.9%	10.9%
Around DDH #23	1250	0.08	17.9	12.8	15.4
Above 614 N. Dr.	1400	.09	48.3	16.4	12.3
Below 614 N. Dr.	<u>1560</u>	<u>.09</u>	<u>48.3</u>	<u>16.4</u>	<u>12.3</u>
Total & Averages	7860	.09	31.2	12.8	12.0

524 Section  
Reasonably Assured

Broken ore	975	0.03	10.8	5.8	8.5
Above 524 Stope	1250	.03	10.7	4.5	6.3
Below 524 Stope	<u>2190</u>	<u>.03</u>	<u>11.0</u>	<u>7.2</u>	<u>10.7</u>
Total & Averages	4415	.03	10.8	6.1	8.9

Overall Total & Averages	32300	.13	37.8	11.8	8.3
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Allowing 15% for dilution and resultant drop in values gives:

	37145	.11	32.1	10.1	7.1
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With gold taken at \$34.00 ox., silver at 80¢ oz., lead at 15¢ lb. and zinc at 13.5¢ lb. Gross Value: \$2,901,954.85

Ore Position and Estimated Profits  
Sunshine Lardeau Mines Ltd. as at  
October 1, 1952.

Working towards net values.

There is shown between 6th and 5th levels some 6455 tons of "high grade." Since the high grade could not be seen in floor of 6th level, or properly sampled if it were possible, none has been allowed below the level. There undoubtedly will be more shipping ore than is shown in the following, and since it is more profitable, more profit.

Estimating that one third of the high grade shown will be shipped direct, and allowing it the average values of the five carloads already shipped, we have:

2150 tons shipping ore x Smelter Net (\$140.48) -	\$ 262,032.00
Less:	
Trucking to Arrowhead 2150 x 4.00 -	9600.00
Mining and overhead 2150 x 12.00 -	<u>25800.00</u>
	35,400.00

Operating Profit

226,632.00

Note: Allowance for the 1¢ per lb. drop in lead allowed for in Smelter Net.

Subtracting this tonnage, and metal contained, from the total ore reserves leaves for milling:

<u>Tons</u>	<u>Au.</u>	<u>Ag.</u>	<u>Pb.</u>	<u>Zn.</u>
34,995	0.10 oz.	29.0 oz.	8.67%	7.58%

While recoveries in the Mill to date have only been in the nature of 75-80%, they are rapidly improving, and with less oxidized ore being supplied to the mill should approximate: Au. 90%; Ag. 90%; Pb. 90%; Zn. 95%. Using these recoveries, previously quoted metal prices, and smelter schedules of Consolidated Mining & Smelting, net value per ton of the average grade of ore reserves would be:

Au.	.10 oz.	x 90% Rec.	x 95% Paid	x (34.00 - 1.25)	-	2.80
# Ag.	29.0 oz.	x 90% Rec.	x 90% Paid	x 80¢		18.79
Pb.	173 lbs.	x 90% Rec.	x 92.5	Paid x (15 - 3.00)		17.28
Zn.	151 lbs.	x 95% Rec.	x 82%	Paid x (13.5 - 3.25)		<u>11.95</u>

Net Value at Smelter \$ 50.82

#Note: Silver taken at 90% paid instead of 95% since some will go with zinc.

Estimating on a basis of 60% lead concentrate and a 52% zinc concentrate, ratio of concentration of lead would be approximately 7.7 to 1 and zinc 7.2 to 1. Using factor of 7.5 to 1, concentrate costs would be:

Hauling to Arrowhead	\$ 4.00
Freight to Trail	16.00
Treatment Costs Trail	14.00

Cost per ton concentrate 34.00

Cost per mine ton (3.75 to 1) 9.06

Cost mining, milling and administrative 26.00

Total Cost 35.06

Operating Profit per ton or ore (50.82 - 35.06) - \$ 15.75

Operating Profit of milling ore taken is 34,995 x 15.75 - \$ 551,521.20

Recapitulating estimated operating profit:

Profit from shipping ore - \$ 226,632.00

Profit from milling ore - 551,521.20

778,153.20

Estimating costs at a shipping-milling property such as this is difficult, and those shown can well be high - I feel sure they are not low. The

fact that at times mining will be taking place in stopes that make a lot of shipping grade, then probably the mill will be short of ore hence bringing up costs, at other times the reverse will be true.

For a property in the early stages, metal prices low and costs high, mill and most other facilities already provided, the above calculations are rather outstanding.

General.

The Staff at the property appeared to be keen and efficient. Mill records are excellently kept and some extra attention should be put on mine records.

The property lacks housing accomodation, which it needs to keep its personnel. At the time of my visit it was short a truck, but change in utilization of present trucks was being made which will solve this difficulty.

Underground there were not enough working places to adequately supply mill and ship ore at same time, but when 8th level intersects ore this will be changed considerably. Further exploration for ore should be taken in hand at the earliest opportunity.

However, over the whole, Sunshine Bardeau Mines Ltd., in the opinion of the writer, can be one of our outstanding profitable companies.

All of which is respectfully submitted.

C. Rutherford  
P. Eng. (Mining)

October 10, 1952