

September 1st 1954
5 cc

June 27/55
Ink figures from
Feb '55 Report
Dept of Mines, Ottawa

Assume that the average grade of Vangorda ore will be

- Pb - 3.05%
- Zn - 4.84%
- Cu - 0.30%
- Ag - 1.84 ozs. per ton
- Au - 0.02 ozs. per ton

Further assume that 50% of the copper is recoverable in the lead concentrate, 80% of lead, 75% of zinc, 65% of silver and 80% of gold.

Lead

- 75.2 - Lead content of ore - 3.05% - 61 lbs. per ton
- 38 - Recovery in lead concentrate - 80% - 48.8 lbs. per ton ore
- 55 } Assume 60% lead concentrate - 73.7 - 1,200 lbs. per ton concentrate
- 51.7 } Ratio of concentration - $\frac{1200}{48.8}$ - 24.59
- Lead paid for in concentrate (.925 x 1200) - 1,110 lbs. per ton concentrate
- 45.1 lbs. per ton ore

Zinc

- 62.9 - Zinc content of ore - 4.84% - 96.8 lbs. per ton
- 48.4 - Recovery in zinc concentrate - 75% - 72.6 lbs. per ton ore
- 50 } Assume 52% zinc concentrate - 65 - 1,040 lbs. per ton concentrate
- 48.5 } Ratio of concentration - $\frac{1040}{72.6}$ - 14.3
- Zinc paid for in concentrate (.82 x 1040) - 852.8 lbs. per ton concentrate
- 59.6 lbs. per ton ore.

Copper

- 24.26 x 3 = 72.8 - Copper content of ore - 0.30% - 6 lbs.
- Recovery in lead concentrate - 50% - 3 lbs. per ton of ore
- Copper in lead concentrate (24.59 x 3) - 73.8 lbs. per ton concentrate
- Copper paid for in concentrate (less 1 unit) - 53.8 - 52.8 lbs. per ton concentrate
- 2.2 lbs. per ton ore
- 2.17

Silver

- Silver content of ore - 1.84 ozs. per ton
- Total recovery - 65% - 1.20 ozs. per ton ore
- Paid for in lead concentrate $(.95 \times 1.20 \times 24.59) - 1$
- 24.59 - 1.10 ozs. per ton ore

X - Figures suggested by W.S.R.

With graph from
Schubert's magazine

Gold

Gold content of ore - 0.02 ozs. per ton
 Total recovery - 80% - 0.016 ozs. per ton ore
 Paid for in lead concentrate
 (.95 x 0.016) - 0.0152 ozs. per ton ore

Smelter, Transportation, Etc.

Lead

Treatment charge - \$15.00 - (30 x .10) - \$12.00 per ton concentrate 12.00
 Refinery - 2.70¢ per lb. - 29.97 " " " - 24.47
 Sampling & assaying - .30 " " " .30
 Road transportation - 15.75 " " " 15.75
 Rail & ocean transport - 27.50 " " " 27.50

 85.52 " " " 80.02
 Credit 5 units silica @ 14¢ - .70 " " " - .70

 84.82 " " " 79.32
 \$ 3.45 per ton ore \$ 3.27

Zinc

Treatment charge - \$12.00 per ton concentrate 12.00
 Iron penalty - say 3 units @ 50¢ - 1.50 " " " 1.50
 Refinery - 4¢ lbs. - 34.11 " " " 32.80
 Sampling & assaying - .30 " " " .30
 Road transportation - 15.75 " " " 15.75
 Rail & ocean transport - 27.50 " " " 27.50

 91.16 " " " 89.85
 6.37 " " ore 5.66

Total smelter, transportation, refinery charges, etc. \$9.82 per ton ore - 3.27

 \$ 8.93

Ore Valuation

In computing the value of the ore, the following metal prices have been taken:

- Copper - 30¢ per lb.
- Lead - 14, 15 and 16¢ per lb.
- Zinc - 11, 12 and 13¢ per lb.
- Gold (\$34.50 - 1.25) - \$33.25 per oz.
- Silver - 82¢ per oz.

Moisture 3

Copper 2

1/2

- 3 -

	Recoveries Per Ton Ore	Value Per Ton Ore		
		14¢ Pb 11¢ Zn	15¢ Pb 12¢ Zn	16¢ Pb 13¢ Zn
Copper	2.2 Lbs.	\$.66	\$.66	\$.66 - 2.2
Lead	45.1 Lbs.	6.31	6.77	7.22
Zinc	59.6 Lbs.	6.56	7.15	7.75
Gold	0.0152 Ozs.	.51	.51	.51
Silver	1.10 Ozs.	.90	.90	.90
		<u>14.94</u>	<u>15.99</u>	<u>17.04</u>
Smelting, transport, etc.		<u>9.82</u>	<u>9.82</u>	<u>9.82</u>
Net Value		\$ 5.12	\$ 6.17	\$ 7.22

CLC:JK

	Cu @ 24¢ Zn @ 9¢ Pb @ 12¢	Cu @ 30¢ Zn @ 12¢ Pb @ 15¢
Copper - 2.2 Lbs.	.53	.66
Lead - 41.9	5.03	6.29
Zinc - 51.6	4.64	6.19
Gold - .0152 oz.	0.51	0.51
Silver - 1.10 oz.	0.90	0.90
	<u>11.61</u>	<u>14.55</u>
	8.93	8.93
	\$ 2.68	\$ 5.62