

SULLIVAN Pb-Zn-Ag MINE

82F/9E

LOCATION

Within the city limits of Kimberley, B.C.

Approximately 1500 crown-granted and located claims.

OWNERSHIP

Cominco Limited

GEOLOGY

The Sullivan deposit is on the eastern flank of a broad, northerly plunging anticline and contained within a 100-300 ft (30-90 m) interval of well-laminated argillite at the base of the Middle Aldridge Formation. ^(Proterozoic) The orebody lies above the conglomerate marker bed, separating the lower and middle members. The ore zone and favourable stratigraphy are truncated to the north by a major steeply dipping fault with over 3000m of stratigraphic displacement. It is bounded to the west by Moyie intrusions, and to the east mineralization passes gradually outward into an iron sulphide zone which persists laterally up to 3km.

The principal sulphides are galena, sphalerite, pyrrhotite and pyrite. Magnetite is common and cassiterite occurs in small but commercially recoverable amounts. Most of the ore is distinctly layered.

Beneath the central part of the orebody, and extending for more than 1500 feet below the footwall of the ore zone, is a roughly funnel-shaped zone of tourmalinized wall-rock. Alteration in the hanging-wall has affected considerably less rock and has resulted in chloritization and albitization of the metasediments more-or-less directly above the "iron zone" in the ore and the central part of the tourmaline "pipe". Perhaps the tourmaline-rich

pipe represents the feeder zone through which the ore-bearing solutions penetrated the footwall sediments to reach the sea floor, at which point deposition of sulphides took place.

Besides the Sullivan, at least three other small deposits also occur in the Aldridge and bear many similarities to the Sullivan ore.

RESERVES

(1978)
~~Pre-production~~: 136 MT 6.0% Zn 4.5% Pb to 15% Combined.
~~Res~~

HISTORY

The Sullivan orebody was discovered in 1892 and has been in production since 1900. A 39° inclined 3-compartment shaft extends to 2350 ft. level. Declines have been driven in recent years and mechanized mining has been used since 1978.

REFERENCES

- 1) Exploration in BC 1978 pg. E 58
- 2) Tectonic History + Mineral Dep.
 CIM Special Vol. 8 1966 py. 263 - 294
- 3) GSC Paper 72-22 Sangster 1973 py 32-35
- 4) Handbook of Strata-bound & Stratiform Ore Deposits 1976 Pg 65-72
- 5) Economic Geology Vol. 75 p 916-926 1980

VALUATION: Sullivan Pb-Zn-Ag Mine

Assumptions: 48,000,000 Tons: 5% Pb, 6% Zn, 1.5 oz/T Ag, ? Sn.

Recovery 92% Pb, Zn, Ag; 27% Sn.

Production 4,000,000 Tons/yr

Productive Life 12 years

Capital Costs: assume this has been recovered

Pb = \$ 0.40/lb CAN

Zn = \$ 0.45/lb CAN

Ag = \$ 12.00/oz CAN

Operating Costs: \$ 40.00/ton.

Annual Revenue

\$ 412,100,000

Operating Costs

\$ 160,000,000

Taxes 55%

NPV (15%)

\$ 615,200,000

ESTIMATED CASH FLOW - SULLIVAN MINE

(\$000,000)

	1	2	3	4	5	6	7	8	9	10	→ 12
REVENUE	412.1	→									
OPERATING COSTS	160.0	→									
NET INCOME BEFORE ALLOWANCES	252.1	→									
DEPRECIATION ALLOWANCE	-										
TAXABLE INCOME	252.1	→									
TAX (55%)	138.6	→									
TAX CREDIT	-										
TAX PAYABLE	138.6	→									
NET INCOME AFTER TAXES	113.5	→									
CAPITAL COSTS	-										→ 12
AFTER TAX CASH FLOW	113.5										113.5



Net Present Value (1982)

$$NPV = (CPVF_{12}^{15}) 113.5$$

$$= (5.42) 113.5$$

$$= 615.2$$