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GEOLOGY AND ORE RESERVES
FARO AREA
ROSE CREEK, YUKON TERRITORY
CANADA

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INTRODUCTION

The following is a brief account of the geology and the ore reserves of the Faro zone near Rose Creek, Yukon Territory, Canada.

In this zone we have now found three ore bodies containing zinc, lead, silver and a little copper. The most important is the Faro No. 1, which amounts to over 40 million tons. About 3,000 feet southeast of No. 1 is the No. 2 ore body. Some 3 million tons of ore are now known to occur in the No. 2 ore deposit, but its full size has not yet been determined. In between No. 1 and No. 2 is the No. 3 ore deposit, presently being drilled. It is now known to contain about 4 million tons, but its limits also have not yet been reached.

GEOLOGY

The Faro ore zone is found on the southwest flank and just outside of a large body of granitic rock. The main mass of this

intrusive near Rose Creek is about 8 miles long and 1½ miles wide at the surface.

The ore occurs within a group of metamorphic rocks made up of schist, phyllite, argillite and quartzite that borders the granitic body on its southwest side. These rocks, of sedimentary origin, strike NW-SE and dip to the southwest at moderate inclinations, away from the granitic core.

The principal metallic minerals in the ore are sphalerite, galena, chalcopyrite, pyrite and pyrrhotite. These appear as fine-textured aggregates to form a massive ore, as elongated streaks to make a banded ore, and as disseminations dispersed in the host rock. The massive sulfide ore is the predominant variety.

The host of the Faro No. 1 deposit is a quartzite, or a variety of metamorphic rock related to quartzite.

The Faro No. 1 ore deposit appears to lie about conformable with the layering of its metamorphic host. As now known it is about 3,000 feet long with a width varying from 500 to 1,500 feet. Its thickness is variable, ranging from 25 to 250 feet.

The ore zone is covered and masked by glacial sands and gravels with an average thickness of about 55 feet, under which the ore body crops out on the buried bedrock surface. From this so-called sub-outcrop the Faro No. 1 deposit plunges down to the southeast under bedrock and attains a rock cover of some 500 feet depth on the far southeast.

The average dip of the Faro No. 1 is about 10 to 15 degrees to the southwest; however, on its northeast margin, toward the east, it locally steepens to 35 degrees as it approaches the surface. The deposit is broken on the southeast by a strong cross-fault that drops the ore down on the southeast for a distance of 100 feet or more.

Whether the three Faro ore bodies (Nos. 1, 2 and 3) occur in the same quartzite layer that has been faulted to different elevations, or whether there are several overlapping favorable horizons, has not yet been determined. Future drilling will eventually give the answer to this important question.

ORE RESERVES

The Faro No. 1 deposit has been explored by some 72 vertical diamond drill holes, most of which range in depth from 300 to

800 feet. Most of these are located at the corners of grids that are 283 feet square, although a few are located at half-intervals.

Diamond drill core recovery in the ore zone was generally satisfactory (about 90% in 1966). The core was split and made up into samples for assaying at a custom assay office in Whitehorse. Checks of all samples were run by other custom assay offices, and the Whitehorse assay returns were proved to be reliable.

The drill holes were plotted on vertical cross-sections and also on longitudinal sections. The ore intervals were set down and the ore blocks and their grades were determined. The ore blocks on the cross-sections were made conformable with those on the longitudinal sections where the two sets of sections intersect, and vice versa.

The ore and waste blocks on the cross-sections were measured by planimeter, and the measurements were reduced by appropriate factors to give their sizes. The metal content of the various blocks was then averaged to obtain the grade. The factor used was 8.5 cubic feet of ore in place in the ground equals 1 short ton.

from where?

One phase of the calculations was to determine the amount of ore falling within the limits of an open pit designed for the extraction of the Faro No. 1 deposit. This pit design was furnished by Parsons-Jurden Corporation and is that particular design noted as "Tentative Ultimate Pit", which was received by me on January 27, 1967.

The estimated ore reserves are as follows:

Faro No. 1 Ore Body

(1) Proved Ore Within the Pit (Not Diluted)

37.01 million tons with an average metal content of

3.86% lead) 10.17% combined lead and zinc
6.31% zinc)
1.23 ounces of silver per ton
0.134% Cu

(2) Internal Waste Occurring as Layers Within the Ore Body
(Layers average about 40 feet in thickness)

2.50 million tons with an average metal content of

0.78% lead
1.44% zinc
0.46 ounces of silver per ton

It is estimated that about 30% of this will contaminate the ore body; in other words, 0.75 million tons of this low-grade material will become intermixed with the ore during open pit mining.

- (3) Top and Bottom Waste that Will Contaminate the Ore During Mining

3% of 37.01 million tons or 1.11 million tons with an assumed grade of

0.75% lead

1.50% zinc

0.50 ounces silver per ton

- (4) Combining Items 1, 2 and 3 we have the diluted ore body that will be mined, which contains:

38.87 million tons with an average metal content of

3.71% lead) 9.74% combined lead and zinc

6.08% zinc)

1.19 ounces silver per ton

- (5) The Faro No. 1 ore zone is covered by glacial material, and the following amount of this overburden must be stripped from the top of the pit:

12.80 million cubic yards

- (6) In order to free the Faro No. 1 ore body falling within the pit design, the following amount of waste rock must be removed from above the ore, from its margins, and from below the deposit:

52.52 million cubic yards

(7) To Item 6 should be added the internal waste that will be removed and sent to the waste dump. This amounts to 2.50 million tons minus 0.75 million tons or 1.75 million tons, having a volume of:

0.55 million cubic yards

(8) Ore Outside of and Beneath the Pit

4.51 million tons with an average metal content of

3.37% lead) 9.04% combined lead and zinc
5.67% zinc)
1.24 ounces silver per ton

Faro No. 2 Ore Body

Only an approximate estimate of the Faro No. 2 ore body can be made at present, because more holes must be drilled in this area to determine the ultimate size of the deposit.

As presently outlined by seven drill holes, this ore body contains:

3.1 million tons with an average metal content of

3.06% lead) 8.42% combined lead and zinc
5.36% zinc)
1.38 ounces silver per ton
0.05% Cu

The No. 2 deposit as now known is about 35 feet thick and is covered by about 30 feet of glacial material plus about 65 feet of barren rock cover.

Faro No. 3 Ore Body

The estimate of the ore in Faro No. 3 ore body is also an approximate figure because drilling is still going on in this area.

As outlined by six drill holes the Faro No. 3 deposit contains:

4.3 million tons with a metal content of

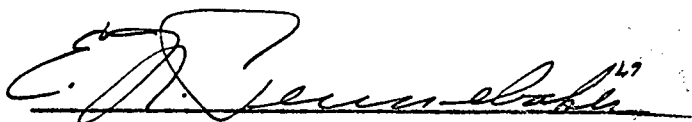
2.23% lead)	6.52% combined lead and zinc
4.29% zinc)	
1.35 ounces of silver	
0.16% copper	

The No. 3 deposit as now known is about 76 feet thick and is covered by about 30 feet of glacial material plus about 175 feet of barren rock cover.

RECAPITULATION

No. 1 Pit Ore Body (diluted)	=	38.87 million tons
No. 1 Ore Below Pit	=	4.51 million tons
No. 2 Ore Body	=	3.1 million tons
No. 3 Ore Body	=	<u>4.3 million tons</u>
Total		50.78 million tons

No. 1 Ore Body, Pit Ore (diluted), 38.87 million tons with a volume of	12.24 million cubic yards
Waste of all kinds to be removed from the Pit	<u>65.87 million cubic yards</u>
Total Pit Excavation	78.11 million cubic yards



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