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	W.S.R.	
	R.I.B.	
✓	E.G.C.	
	H.P.P.	
	F.	
	B.I.	
	G.F.F.	
	E.L.D.	
	J.I.K.	
✓	(E.C.J.)	

105

007580

23 January 1959

Mr. D.R.E. Whitmore  
 Dept. of Mines & Technical Surveys  
 Geological Survey  
 Motor Building  
 Ottawa, Ontario

Dear Dunc:

As requested, attached is completed Massive Sulphide Deposit Form, giving what data I have on massive sulphide deposits in the Yukon.

Kind regards.

Yours very truly

EOC-da  
 Encl.

E.O. Chisholm  
 Chief Geologist

COPY

Partial information  
is better than none.

MASSIVE SULPHIDE DEPOSIT

105  
Fill out one form  
for each deposit.

NAME VANGORDA MINES LIMITED

LOCATION Lat. 62° 15' Long. 133° 14' Elevation 3,500 A.S.L.

Other data: 125 miles north-east Whitehorse, Yukon Territory

SIZE & GRADE Length 3,200' Breadth 490' Depth 51'

Tons 9,400,000 Average Grade 3.15% Pb.: 4.96% Zn.: 0.27% Cu.: 1.76 oz. Au. 0.02 oz.  
Plus 12,600,000 tons of low grade to barren sulphides to a depth of 300 ft.  
Series of flay lying, overlapping elliptical lenses.

SHAPE

STRUCTURAL CONTROLS Possible tensional openings in monoclinial flexures, in flat

lying series of sediments fed through regional thrust fault channel ways.

<u>ASSOCIATED ROCKS</u>	<u>NAME OF FRESH ROCK</u>	<u>ALTERED ROCK (List the Secondary Minerals.)</u>	<u>CHEMICAL CHANGES</u>	<u>WIDTH OF ALTERED ZONE</u>
In the ore:	1) Argillaceous Carbonaceous Sandstone	Quartzite - Quartz, Sericite, Graphite, Chlorite & replacement by various ore minerals	Silicification and Carbonatization	Intense sericitization-chloritization approx. 200 ft. surrounding deposit
	2) Tuffaceous, argillaceous Sandstone	Sericite - Chlorite, Talc, Chlorite, Sericite, Biotite, Schist, Tourmaline, Rutile, Epidote, Graphite, Magnetite, Carbonates		
	3) Carbonaceous, Siltstone	Graphite - Graphite, Quartz, Schist, Calcite, Chlorite, Pyrrhotite		

MINERALOGY - List Mineral names with approximate %, if possible.

<u>Gangue Minerals</u>	<u>Ore Minerals</u>	<u>Grain Size</u>	<u>Additional Spectrographis Trace Metals:</u>
Quartz	Pyrite - 35%	.01 to 0.3 mm av. about 0.1 mm	Cadmium; Tin;
Actinolite	Sphalerite - 25%	.01 to 0.2 mm	Nickel; Chromium;
Barite	Galena - 15%	.01 to 0.3 mm aggregates up to 2 mm	Titanium; Vanadium;
Witherite	Pyrrhotite - 10%	.01 to 0.3 mm	Zirconium; Cobalt;
<del>Strontianite</del>	Chalcopyrite - 6%	.01 to 0.1 mm	Molybdenum; Man-
Calcite	Arsenopyrite - 5%		ganese; Gold
Textures:	Magnetite - 3%	Covellite - Sparse	
	Marcasite - 1%	Matildite - Sparse ( $Ag_2S, Bi_2S_3$ )	
	Tennantite - Sparse		

Paragenesis: Magnetite, Arsenopyrite; Pyrite, Pyrrhotite, Sphalerite, Chalcopyrite, Galena, Tennantite, Marcasite, Covellite.

The assemblage of high temperature minerals indicates a hypothermal replacement deposit.

Age and how known: Not known - host rocks thought to be Yukon Series of Precambrian by earlier investigators (Johnson, J.R. - 1936 G.S.C. Memoir 200)

(Additional information should be entered on the back).

(over)

The main ore minerals are iron rich sphalerite and galena, with minor chalcopyrite. Other minerals are pyrite, which is very abundant, Arsenopyrite, Magnetite, Pyrrhotite, Marcasite, and very small amounts of Tennantite, Covellite, Matildite and two undetermined minerals. High temperature minerals were deposited first, followed by Zinc, Copper and Lead minerals in that order. Temperature range of sequence is from about 500 to 300 C. Evidence of Pyrrhotite, Sphalerite, Chalcopyrite in solution has been found.

Gangue minerals are quartz, Actinolite, Barite, Witherite, Strontianite or Celestite, with Calcite and possibly other carbonates.

Spectrographic analysis has shown the gold is contained in pyrite or arsenopyrite and silver occurs with galena in form of matildite ( $Ag_2S.Bi_2S_3$ ). The Sphalerite contains small amounts of cadmium. The ore is fine grained and crushing to -100 mesh is necessary to achieve a fairly clean separation.

The ore minerals appear to replace a favourable quartzite member in a series of argillaceous sediments. The mineralization extends from bedrock to a depth of 300 feet and no other mineralization was encountered underneath the deposit to a depth of 1,000 feet.

Mineralogical Determinations made by: V.E. Papizek  
Thin Section Determinations by: Dr. W.W. Moorehouse  
Report by: E.O. Chisholm



CANADA

QUOTE FILE:

DEPARTMENT  
OF  
MINES AND TECHNICAL SURVEYS

105  
GEOLOGICAL SURVEY OF CANADA

Geological Survey,  
Motor Building,  
Ottawa, Ontario,  
December 9, 1958.

Mr. E.O. Chisholm,  
1483 Rometown Drive,  
Port Credit, Ontario.

Dear Ted:

I have been asked to act as chairman of a subcommittee compiling data on massive sulphide deposits in the Yukon and Northwest Territories for a forthcoming symposium on such deposits in Canada, proposed for the 1959 Annual Meeting by the Geology Division of the C.I.M.

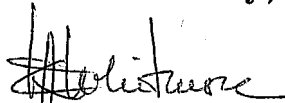
Dr. J.E. Gill, 1958-59 Chairman of the Geology Division C.I.M., felt that the time might be ripe for such a symposium. So much exploration for such deposits has gone on in Canada in the last few years that he felt it would be a pity if no attempt were made to put as much information as possible on record and to correlate it, however crudely. One session at the Symposium would comprise a series of summaries of these occurrences, including non-commercial ones, in various parts of Canada. Another session would be devoted to papers on the genesis of sulphide deposits.

Could I call upon you to provide the committee with a summary of information on sulphide occurrences in the Yukon with which you are acquainted at first hand. I am thinking particularly of the lead-zinc deposits at Vangorda Creek and the copper-nickel showings of the Quill Creek-Kluane Lake area, but I would appreciate information on others as well. I enclose some blank forms prepared by Dr. Gill for your use in preparing summaries and also to show the type of information the Committee is interested in compiling. I realize that there may be restrictions on the information you may provide, but, as is noted on the form, partial information is better than none.

My function in this is merely to act as compiler and co-ordinator. Full credit will of course be given to the sources of the information both at the Symposium; and in any publication which may develop from it. The plan is to concentrate on massive sulphide deposits. A lower size limit of 1,000 square feet in horizontal cross-section has been suggested, consisting 80% or more of sulphides, but these figures should not be regarded too rigidly.

With best wishes for the coming holiday season.

Yours sincerely,

  
D.R.E. Whitmore.

DREW/eo