MAR 19570001: DUNGARVAN CREEK

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IRON PROSPECTING PERMIT NO. 5.

GEOLOGICAL REPORT

After a long and intensive period of prospecting and exploration both from the air and on the ground our efforts were concentrated in Sections 11, 12, 13, 14 of Township 3, Range 30, West of the 4th Meridian, where indications showed the most promise.

The following are excerpts from the report of Mr. Robert Steiner, Professional Geologist, submitted to West Canadian Magnetic Ores Ltd. of his work and findings in the above area:

ACCESSIBILITY & TOPOGRAPHY

The general area is 2 or 3 miles west of No. 6 Highway, and a railway now being built will terminate about 12 miles to the N.E. The area consists of a series of low-lying rolling hills immediately east of the Rocky Mountain Front range.
The land is sparsely wooded, and is, for the most part a combination of parkland and grass land. Dungarvan Creek flows along the southern perimeter and supplies the area with year round water.

GEOLOGY

There are very few outcrops in this area due to the relatively flat terrain and a fairly heavy drift cover, the average depth of overburden is 45'. The gently rolling topography tends to follow the structural attitudes of the underlying rocks, these for the most part belong to the Belly River series of Upper Cretaceous age, the ore itself occupies a section which can be considered basal or Lower Belly River. Drilling has determined two reliable marker horizons, a light brown soft sandstone overlying the ore, and a grey sideritic hard sandstone underlying the ore.
The area consists of a series of gently folded synclines and anticlines which are trending parallel to the Indian Springs fault, these folds have been deformed by northerly trending faults, so that in some areas the ore forms a series of rather complex pockets. Some of the anticlines have been trenched with a cat, this trenching has given valuable information:

The thickness of ore, (magnetite in sideritic matrix), averages about 18'. The magnetite was probably laid down in finely disseminated grains in dune-like or wave-like deposits. Some cores show a varve-like deposition, with magnetite forming increasingly thickening bands and intercalations in a sideritic matrix or ground mass. Lateral extensions of the ore appears to be in the order of 500' by 2000' in rough ellipsoids. This is due to the fact that to date only 150' of the tops of the anticlines have been drilled. It is possible to double this area if the bottoms of the synclines are also taken into account. However, assuming the desired economical stripping limit to be 150', no concrete estimate can be given as to what may be found at depth.

Permit No. 5.

Folding and faulting have deformed the bedrock in such a manner that in some cases great vertical depths of ore have been found. The local faulting tends to parallel the flanks of the anticlines, and also to cut across them perpendicularly to the axes. Thus, when the folds are faulted across their axes, the resulting structures are long, deep valley, usually occupied by small streams or sloughs, Little ore has been found in these valleys, and this is probably due to erosion, since these faults are relatively flat. The other type of faulting, which parallels the folds, is more important. It has created a series of dragfolds in such a manner that the ore horizon stands vertical, or nearly so. The total depth of ore in such dragfolds has not yet been determined, since some of the drilling has been inconclusive. It is ~~considered~~ estimated, however, that there is a considerable ore potential, if there is horizontal continuity to these vertical ore sections. Thus far the vertical beds have been traced for at least 1200', with an average depth of 50'. Since the holes are vertical and the bed eventually flattens out, no true stratigraphic thickness can be determined. This type of structure is very well suited to strip mine methods.

Proven ore reserves run upwards of 5 million tons of 46% iron. If a suitable method of mining the sideritic sandstone can be instituted, then the proven reserves are better than 14 million tons of 26% iron ore. This is ore that is immediately mineable.

Potential ore reserves are apparently quite large. No drilling has been carried to the depth of 300' plus, at which point it is assumed that the bottoms of the synclines might be contacted. If ore is present at this depth, and this is indicated, eg: magnetic lows of comparative intensities to magnetic highs, then the potential can be safely doubled .

The trenching has proven invaluable as a guide to further drilling, the area has very few continuous outcrops. This has made surface geological mapping quite difficult. However, the trenching done, particularly that trench at 7200' on the baseline, has facilitated the lining-up of new drill-sites, which have, more or less, been in ore since the inception of the change in the drilling pattern.

Although a grid pattern has proven very ~~x~~ useful, the method of drilling along strike will eliminate much time wasting probing. continuity has been established between a number of holes in western area of the base-line. The information gained from drilling and trenching tends to support the magnetometer work.

Hand line cutting was not as efficient as it could have been. Thus many of the lines were cut by the cat. In view of the fact that cat work was considerably faster, it is suggested that the cat be used wherever feasible for line-cutting or trenching.

CONCLUSION

This area appears to be underlain by a commercially workable deposit of a sedimentary bed of magnetite. The ore appears to be of good quality, as borne out by assays.

The proven tonnage can be placed between 5 and 14 million tons.

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