

MAR 19570006: BURMIS

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Blairmore, Alberta.
1st October 1957.

ECONOMIC MINERALS

FILE REPORT No.

FE-AE-007(02)

IRON PROSPECTING PERMIT NO. 7.

GEOLOGICAL REPORT

The Area covered by this Permit extends from Township 4, Range 3, West 5th Meridian in almost a direct line north to Section 10, Township 10, Range 3, West 5th Meridian. Aerial Magnetometer and Ground Magnetometer surveys show that the most promising iron ore deposits are located in the area commencing about one mile north of the No. 3 Highway at Burmis in Section 13 Township 7, Range 3, West 5th Mer. and extending northward to Section 25, Township 8, Range 3, West 5th Meridian. consequently the greater portion of our exploratory efforts were concentrated within this area.

The following informations is taken from reports made by Mr. Robert Steiner, Professional Geologist, who with other geologists hired for the purpose, explored and prospected the areas covered by this Permit.

TOPOGRAPHY

The Burmis North area comprises a series of steep faced bluffs, sloping westerly, and terminating under the Livingstone Range. It is about 50% woodland, with the rest being made up of sparse grassland. In many places outwash has allowed only the hardiest of vegetation to grow, some parts may be considered good rangeland, but for the most part it is quite poor grazing land.

The topography apparently follows the sub-surface structure. Thus there are numerous streams cutting the formations transversely; and there are a number of small perennial lakes, which could be a supply of water. Summer water is estimated at about 5000 gallons per hour for most of the streams.

The land surface is quite rugged and broken. underlying sediments have a great influence on wet weather travel in that some parts become quite impassable where there are no roads.

The area is approximately 12 miles from Burmis, and 18 miles from Blairmore.

GEOLOGY

The area is made up of the western flank of a major anticline. This flank is deformed by northerly trending faults. The results is a series of step-like structures, sloping 30° to the west, and with steep, bluff-like faces to the east. There appear to be three major faults, which are important in that they determine the east-west extremities of the ore zone. These are from east to west, the Todd Creek and "Burmis" faults, and the Livingstone Thrust, between them are smaller local faults paralleling the main faults which further disrupt the terrain.

These faults have helped greatly in determining ore localities, generally the ore-bed can be seen quite readily on the bluff faces. It is apparently the most competent rock, and thus forms a cap-like skin over softer sediments. This cap is partially eroded at the

Iron Prospecting Permit No. 7.

Geology (cont)

at the bluff-faces, but where the formation is cut by creeks, considerable thicknesses of ore are exposed. Lately a new trench has been cut in Section 24-7-3-5, here there is an exposure of ore 55' in depth, grading 47%. It is probable that this depth is due to local thickening, since the section is very close to the "Burmis" fault. A trench put in by the Geological Survey at 6800' along the baseline shows a thickness of 5'. Here the ore is at the edge of a bluff, and it is assumed that at greater depth the bed probably thickens to the average of 26'. The ore is in bands and intercalations in a limonitic and/or sideritic matrix. It is not distinctly separate from the sideritic sandstone.

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The average dip of the ore bed is about 35° West, at some points as in Sec 24-7-3-5 the ore dips 20° West at others as at Sec 22-8-3-5 it dips 68° West.

Apparently the ore-bed extends up to the Livingstone Thrust, as the Belly River formation approaches the Thrust, the sediments tend to flatten. This may be due to grag folding on a major scale, if this feature holds for most of the area traversed by the Parasek baseline, then it is valid to assume that a large portion of this area is relatively flat lying, and at a depth of burial of not more than 150'.

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The terrain between Sec 24-7-3-5 and 22-8-3-5 has been prospected systematically. This work has disclosed ore for a distance of 12 miles. The ore is most certainly not in a continuous outcrop, due to stratigraphic separations caused by faults, and erosional features, such as creeks.

There is evidence that many sections of the area have ore thicknesses of upwards of 42', a sample from one such locality shows iron at 42.48% and titanium at 3.25%.

It is estimated from field observations, that the above area may contain 78 million tons of ore grading 42 to 47% iron.

The following excerpts taken from a report made 23rd February 1957.

Two seismic drills and one diamond drill were employed, the seismic drills explored six areas and the diamond drill did detailed work in one area explored by the seismic drills.

Climatic conditions were such that total drilling efficiency was reduced to less than 50% of that achieved in the summer months. i.e. summer drilling averaged 62' per day per rig, while winter drilling went as low as 10' per day. This was mainly due to frozen ground, engines and manpower.

Eight areas were drilled in the last two months. These areas were not all productive. However, no valid determinations can be made if they are based on a few holes, spaced widely in a very large area. Drilling indicated that much more intensive investigation should be carried out in Sections 26 & 35, Tp 7, Rge 3, W 5th N. and Sections 2, 10, 22, in Tp 8, Rge 3, W 5th N.

In the 8 areas (we have mentioned above) we have by drilling proven 17,380,000 tons of ore, and estimated 11,840,000 tons by surface examination, a potential of 29,220,000 tons. It is known that nowhere in the exploration area is there a constant thickness of ore. Consequently the ore thickness may vary from three feet in a comparatively flat horizon to as much as 140' in a plunging bed.

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Iron Prospecting Permit No. 7

Geology (cont.)

The average thickness of 13.1' has been derived as a result of the examination of 194 holes drilled wherever ore has been found to date. ~~If this figure be applied to areas where ore has been found to date.~~ If this figure be applied to areas where ore has been found, then the inferred potential can be placed around 20,000,000 tons, discovered by the winter's drilling.

Assays from trench samples show that the average grade of ore is between 42 and 47%. Since this grade holds true over 7 square miles, at widely separated collection points, it may be assumed that it will hold for all the area under exploration. The ore so far observed is mineable immediately. Drilling and magnetometer work will only prove the figure given, or probably increase the potential reserves. The titanium content appears to be appreciably lower than any other area thus far explored.
