

MAR 19570011: ZEPHYR CREEK

Received date: Dec 31, 1957

Public release date: Jan 01, 1959

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19570011
ECONOMIC MINERALS
FILE REPORT No.
FE-AF-015 (01)

REPORT ON THE ZEP IRON DEPOSIT

HIGHWOOD RIVER, ALBERTA.

PERMIT: 15

November, 1957.

H. C. Norman.

REPORT ON THE ZEP IRON DEPOSIT

HIGHWOOD RIVER, ALBERTA.

SUMMARY & CONCLUSIONS:

The work to date on the Zep iron deposit indicates that it is a sedimentary bed. It has been exposed in four places over a length of 700 feet and in this section there is indicated in the order of 700 tons per vertical foot. Another surface exposure occurs 1400 feet to the north and there is a good chance that the bed is continuous for the length of 2100 feet. Assuming an average width of 10 feet, this length would provide about 2000 tons per vertical foot.

The bed has not been delimited. It almost certainly extends further to the north and south. In fact, similar deposits have been reported by the Forest Ranger four or five miles to the south in the same valley. It is possible they are in the same bed, but it is more likely that they represent different beds.

No work has been done to extend the deposit to depth. This would require diamond drilling or exploratory shafts. In view of the fact the iron-bearing bed dips into the mountain at a relatively steep angle, it means that drilling tests can be made only with some difficulty. Such a method of investigation will help to determine continuity along strike, however, and there may be areas in which drilling to depth can be done expeditiously.

Information as to grade and amenability to treatment will be obtained in the tests which are now being conducted in the Department of Mines at Ottawa.

RECOMMENDATIONS:

Much will depend on the results of the Ottawa tests as to whether further exploration will be carried out. If more work is indicated

it would be advisable to survey some sections across the deposit with transit and chain or to produce a contour map before diamond drilling is started.

An estimate of costs of diamond drilling versus exploratory shafts and drifting should be made if more exploratory work is justified.

LOCATION AND ACCESSIBILITY:

The showings occur about 1 mile south of the Highwood River and 3 miles east of the Kananaskis Highway on Zephyr Creek.

There is a gravel highway to within one mile of the showings but there is no bridge over the Highwood River. There is not much difficulty in fording the river at this time, but it is much too high to ford with mobile equipment during spring run-off.

The deposit is 45 miles west of High River which is on the Canadian Pacific Railway. It is 75 miles by road from Coleman, which is in the Crow's Nest Pass.

GEOLOGY:

The general geology of the area has been described by R. J. W. Douglas in his G. S. C. Preliminary Paper 50-8 entitled "Mount Head".

The rocks in the vicinity of the showings are sediments which range in age from Mississippian (Rundle Formation) to Jurassic (Ferne Group). There are many thrust faults in the area, which strike about S25° E. and dip steeply to the west. The showings are in a draw which trends about S25° E. On the G. S. C. geological map a thrust fault has been shown along this draw. The presence of thrust faults might complicate the structure of the deposit and might limit its depth. However, all evidence suggests that this fault lies below the iron-rich bed because the faults outcrop in valley

bottoms and lie below resistant beds such as the one in question.

The bed in which the iron 'ore' is present is a dark grey to black, rather soft fine-grained rock, uniform in color and texture, probably a dolomitic limestone. It gives a brown streak on scratching with a knife. The weathered surface is rusty brown in color. The hanging wall rock is a light grey shale. On the footwall side of the 'ore' there is a band which contains blebs of pyrite in considerable abundance.

Some specimens of the 'ore' are being examined by Dr. Wickenden of the Geological Survey of Canada, Alberta Branch, in an attempt to fix the exact age of the deposit.

MINERALOGY:

The black mineral has been identified by Dr. Robinson at Ottawa as goethite, crystalline hydrous oxide of iron, considered to be the crystalline form of limonite which is amorphous or non-crystalline.

Dr. Robinson identified apatite, a phosphate of calcium. This suggests that it might be possible to separate the phosphorus by mechanical means. Carbonate and chlorite are also present.

BULK SAMPLING:

The deposit was opened up in three additional places near the original Main Showing as indicated on the accompanying sketch.

Three bulk samples, No. 1, 2 and 3 were obtained - No. 1 from the South Pit, No. 2 from the Main Showing and the new pit 75 feet north of it, No. 3 from the old pit about 1500 feet north of the Main Showing.

DESCRIPTION OF EXPOSURES:

The new South Pit exposed a width of at least 12 feet. A band 2 feet to 3 feet thick containing many blebs of pyrite lies on the footwall side of the 'ore', but it was not sampled.

NEW TRENCH:

The trench which was dug approximately mid-way between the Main Showing and the new South Pit exposed about 12 feet of the characteristic rusty-weathered rock of the 'ore' bed under about 8 feet of overburden. The footwall contact was not exposed as water entered the trench above it.

MAIN SHOWING:

The width of 'ore' exposed in the Main Showing was 16 feet. This was not the full width, since the footwall contact was not exposed.

NEW PIT NO. 2:

The new pit 75 feet north of the Main Showing exposed part of the 'ore', but the hanging wall was not uncovered. The pyrite-bearing band was present on the footwall side as in the South Pit #1.

NORTH PIT:

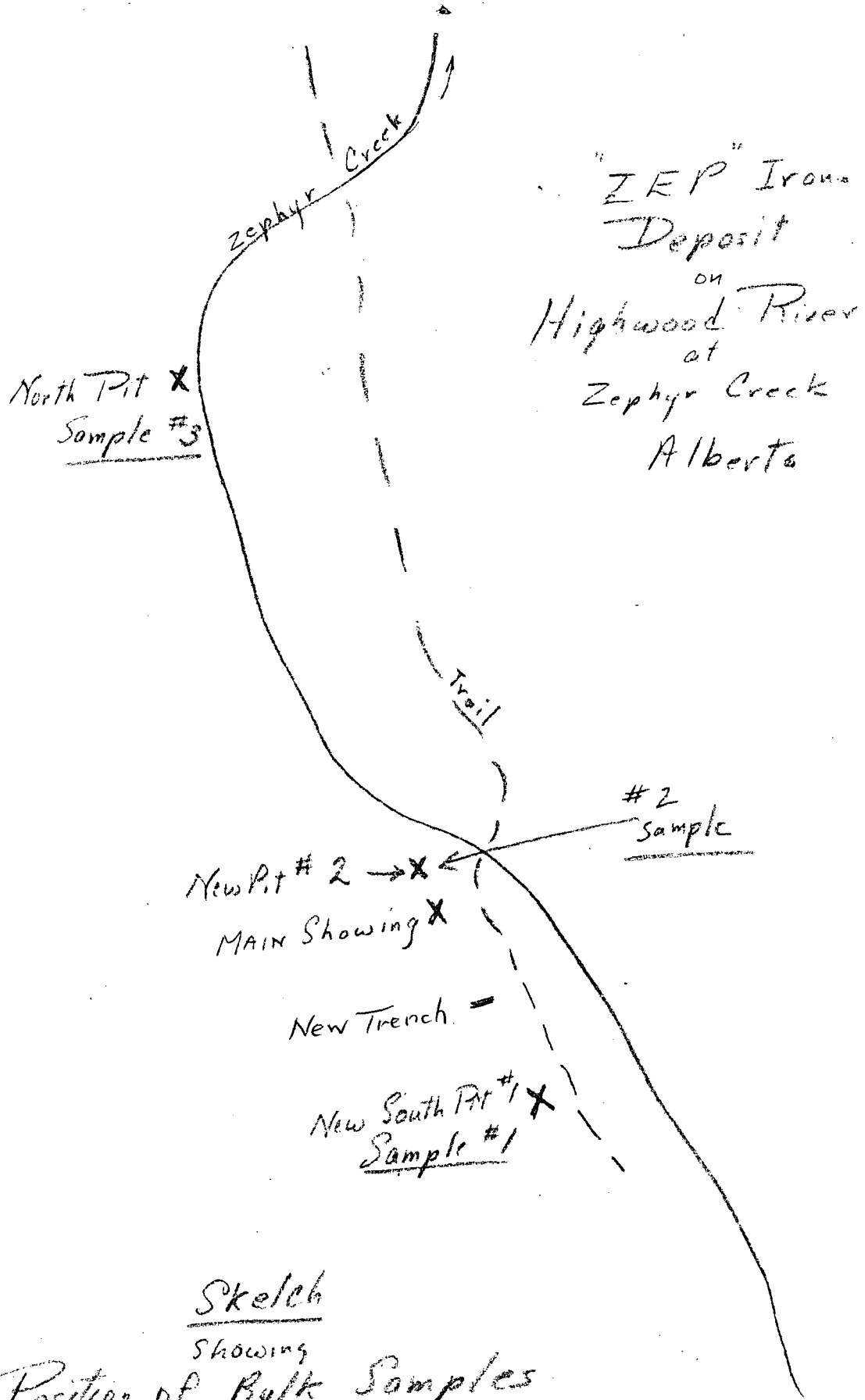
The width of the 'ore' in the original North Pit is at least 8 feet wide, but is not determined. The rock is highly broken up by weathering and slumping, and an excessive amount of work would be required to reach fresh rock at this stage.

There are some additional narrow (1' - 2') parallel bands of 'ore' exposed about 100 feet south of the pit.



November, 1957.

H. C. NORMAN.



Sketch
Showing
Position of Bulk Samples

Scale approx 1" = 40'

Nov. 1957