Zymoetz R. Iron 015604

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PROPERTY FILE

Omineca MD

Seattle, Wash. October 31, 1913.

To the Directors,

North Pacific Iron Mines, Ltd.,

Prince Rupert, British Columbia.

Gentlemen:--

I hand you, herewith, a general report on the property owned and controlled by your Company. The conditions under which the examination was made were rather adverse for the making of accurate geological and mineralogical determinations; consequently this report is commercial rather than technical in its character.

GEOGRAPHY.

Reference to the appended sketch map will show the geographical location of the property of your Company. It is located on the head waters of Summit Creek, a tributary of Copper River, about 38 miles east of Copper City, which is at the junction of the Copper and Skeena Rivers, in the Omineca Mining Division, Coast District, British Columbia. The office of the Mining Recorder for this division is at Hazelton, B. C. where all records, assignments, etc. are filed.

GENERAL DESCRIPTION.

The property consists of nine full and fractional claims covering a total area of approximately 375 acres. Reference to the appended sketch map of the claims will show the location of the same in relation to each other. Summit Creek forms substantially the southern boundary line, the claims being located on the north slope

N

Iron Ridge

Iron Mask.

Iron Slope.

bluff

Iron Horse.

Old Ironsides.

Iron Stream.

G.T.P. Survey

Summit Creek

Government Trail
Copper City to Telkwa

Limonite.

cabin

Iron Mountain

Iron Valley

Sketch Map of the Iron Deposits controlled by North Pacific Iron Mines. Ltd.

of the valley and extending completely to the summit of the mountain, a distance of approximately 5,000 feet, with a difference in elevation between the creek and the northern boundary of the uppermost claim of about 2,200 feet. The property is well timbered and watered, there being a sufficient supply of both for all development purposes. Hydraulic power can be obtained from Summit Creek without prohibitive cost.

The attached photographs will furnish a fairly accurate idea of the general country.

Looking Northeast at the Iron Claims
from Summit Creek.

Looking due North at the Claims.

Prospector's Cabin on Claims.

On the south of Summit Creek the mountains are high and very precipitous with glaciers breaking through between the peaks and forming practically an impassable barrier. The attached photographs will show the conditions prevailing on the south side of the creek.

View of Glaciers to the South of Summit Creek.

ASSAY VALUES.

Samples taken from various portions of the property have been submitted to the Provincial Assayer in Victoria, British Columbia, and to Falkenburg & Laucks, Metallurgical Engineers of Seattle, Washington. The returns were substantially the same in both cases. The samples submitted to Falkenburg & Laucks were taken at points widely separated on the property and are as nearly an average as can be obtained at the present time.

No. 1 was taken on the surface directly under the moss; No. 2 was taken at a depth of ten feet, and No. 3 at a depth of twenty-five feet. The returns are as follows:

	No. 1	No. 2	No. 3
Iron (Fe)	53.2%	53.2%	54.0%
Sulphur (S)	2.65	1.89	1.15
Phosphorous (P)	.0016	.014	.002
Silica (SiO_2)	1.31	1.62	1.04
Weight per cu.ft. in place	141	125	132

The samples submitted to the Provincial Mineralogist at Victoria gave the following returns:

Iron	50.6%
Sulphur	.8
Phosphorous	Nil
Silica	1.7

Two samples of water were submitted to Falkenburg & Laucks with the following results:

	No. 1.	No. 2.
	PARTS PER MILLION	
Sulphuric Anhydride (SO_3)	101	196
Iron (Fe)	8.5	22.8

A composite of the samples submitted to Falkenburg & Laucks were assayed for gold and silver with the following results:

Gold	80¢ to the ton
Silver	$1.68 to the ton

making a total of $2.48 in precious metals to the ton of iron ore. These values are interesting from a scientific standpoint, but apparently have no commercial value.

GEOLOGY AND MINERALOGY.

As stated in the introductory paragraph of this report it was almost impossible, owing to weather conditions and limited time, to give sufficient study to the geological and mineralogical conditions prevailing to make an accurate determination of the genesis of these iron deposits. While the ore is properly classifiable as limonite, it apparently is not now in the same geological condition as when first formed.

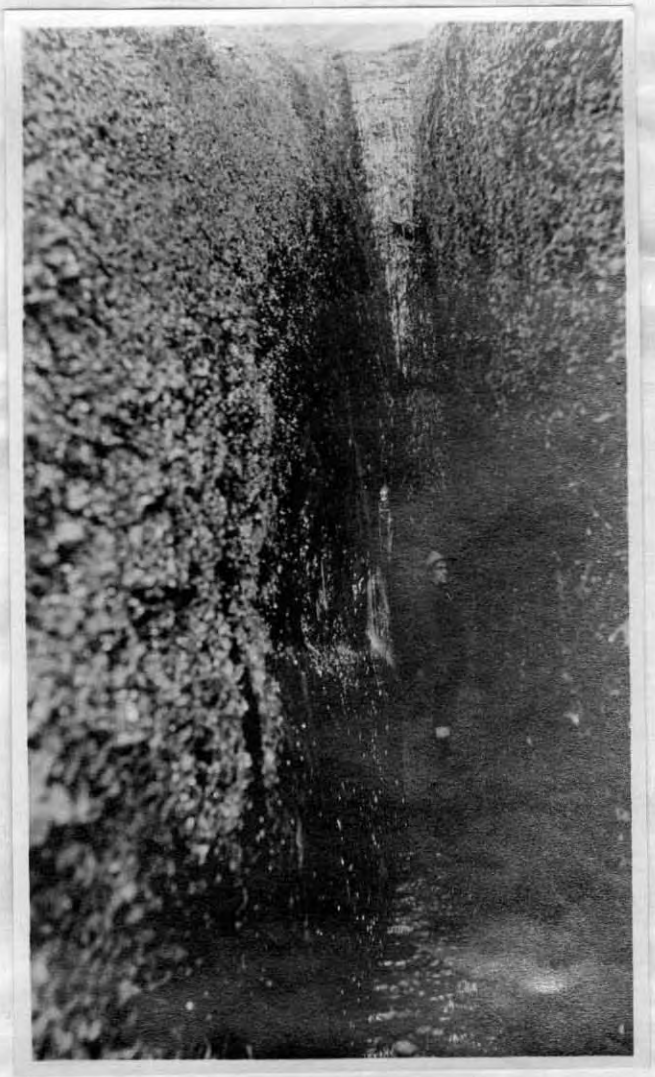
There are several theories of genesis applicable to these deposits, but without entering into the scientific and geo-chemical phases and the relative merits of each, pending further and more accurate study, it is a fair assumption that this ore was originally deposited on a practically horizontal plane in the form of bog-iron. At a later geological date there was an eruptive intrusion which

tilted the plane of deposition to an angle of approximately thirty degrees. This is evidenced by the difference in elevation between the lower and the upper boundaries of the property and by the rock formation at the upper boundaries. There are several local marshes and pools varying in area from one-half to two or three acres wherein the process of formation still continues, but the writer believes that the circulating and percolating underground and surface waters, which are highly mineralized, are simply agents of transfer from one portion of the property to another. These waters evidently pick up their mineral constituents in one portion of the property and transfer the iron, either physically or chemically, to some other portion without, however, actually continuing the process of formation. These scientific features are of no great value at the present time, except as they might aid in the determination of the depth and extent of the deposit.

Reference to the assay returns will show that these ores come well within the limit set for producing Bessemer pig-iron. The sulphur is possibly a little high, but this is accounted for by the fact that the determinations for sulphur were made for both sulphides and sulphates which would be combined under blast furnace treatment. The amount of phosphorous present is practically negligable and comes well within the Bessemer limit. Unless some appreciable quantity of apatite is encountered, evidence of which is lacking, the danger of excess phosphorous is practically eliminated.

The attached photographs give some idea of the mineralogical features of the deposit.

Photograph showing nature of deposit after timber and moss have been cleared. Everything shown is iron ore.



The writer standing in open cut 43 ft. long 24 ft. deep, all solid iron.

TONNAGE ESTIMATES.

The accompanying sketch map of the claims shows where the most important openings have been made. These are all in the form of trenches and open cuts with a depth varying from four or five feet to thirty feet. These open cuts were made entirely with pick and shovel, no explosives being necessary, and have been made practically at random at various points on the claims. There are many other openings not shown on the sketch, and the measurement of the showings justifies the conclusion that of the 375 acres in the group at least 200 acres are underlain by the iron deposits to the minimum depth of fifteen feet. The prospecting work performed to date substantially demonstrates this fact. Prospect work done on other sections on the property has demonstrated the existence of iron ore, but to what extent it is deposited is impossible at the present time accurately to determine. The following estimate of tonnage is based solely on demonstrable showing and eliminates the acreage where the work done does not prove quantities.

Reference to the paragraph headed "Assay Values" will show that the minimum weight per cubic foot in place determined by specific gravity tests is 125 lbs. At this weight per cubic foot in place the weight per acre foot is 2500 tons, which is considerably lower than the average weight at which sedimentary iron deposits are calculated.

As above stated the prospect work has demonstrated the existence of this ore to an average depth of at least fifteen

feet extending over an area of 200 acres. Simple mathematical calculation on these data gives practically a known deposit of 7,500,000 tons. How much more tonnage is available must be determined by further work and can be accurately determined only by the use of drills.

TRANSPORTATION.

Reference to the accompanying sketch map will show the location of the property in relation to present and future transportation facilities. The main line of the Grand Trunk Pacific Railway is at present thirty-eight miles by trail from the property. The original survey of the Grand Trunk Pacific Railway passed directly through the claims. This original route would have been considerably shorter than the adopted one, but owing to the desire of the builders of the Grand Trunk Pacific to keep the maximum gradient under one per cent it was deemed advisable to follow the water route of the Bulkley and the Skeena Rivers. From Copper City to Prince Rupert the distance is 100 miles. From Copper City to Kitimat, the nearest tide water at which harbour facilities are obtainable, is 40 miles. From Telkwa to the Iron Property is about 40 miles. From the Iron Property to Copper City by the original survey line of the railroad the distance is about 60 miles, but by trail is only 38 miles, and there are no great engineering difficulties to be overcome in constructing a railroad from Copper City to Telkwa substantially along the lines of the original survey with the exception of the point marked on the map "Possible cut-off". The total distance from Telkwa to Copper City

by a railroad, wherein maximum gradients of 3% were utilized, would be approximately 85 miles. This country is so rich in natural resources that this road will undoubtedly be built in the very near future, either by the Grand Trunk Pacific as a freight cut-off or by outside interests controlling the timber and minerals in the district. At a rough estimate, $30,000 per mile would cover the construction cost of a freight railroad from Telkwa to tide water at Kitimat, or to a junction with the Grand Trunk Pacific at Copper City.

NATURAL RESOURCES.

The writer paid particular attention to the natural resources of the country in making the examination of your iron properties, in order to determine roughly the feasibility of building a railroad through the country. From Telkwa to the summit of the divide the country is heavily mineralized with copper, gold, lead and silver, with considerable showings of coal. About 30 miles north of the Iron Property there are extensive deposits of coal, owned and controlled by the National Finance Company of Vancouver, development work on which seems to indicate the existence of a grade of coal adapted not only for ordinary fuel but for coking and other commercial purposes. The only outlet for this coal is to the south by branch line to connect with a railroad from Telkwa to Copper City.

Between these properties and Copper City the country is heavily mineralized with coal and precious and base metals. There are also some very valuable timber limits, the best of which are

Cedar. All of these natural r esources simply await the advent of transportation facilities in order to afford proper development and exploitation. Roughly speaking and assuming a market for the various commodities in this district, there is available at the present time about 3,000 tons of freight per day for any railroad entering the district. This will naturally increase when transportation facilities are afforded.

Timber on Banks of Copper River
on Surveyed Right-of-way.

Photographs showing country through which proposed Railroad will pass.

RECOMMENDATIONS.

In order to make an accurate determination of the quantity of iron ore on your property, so that a basis for negotiations for sale might be established, the writer suggests the installation of some form of drilling machinery as soon as weather conditions permit in the spring. Probably the most feasible way to make these

determinations is by drilling a series of holes on a contour roughly based on the northern boundary of the "Iron Mountain" claim and continuing the drilling both north and south of this contour line on a contour approximately equal to the depth of the deposit as shown by the drillings on the original contour line. This will establish the plane of the bed and allow a fairly accurate determination of existent quantity. The writer also suggests the making of a rough contour map of the property this winter in order to facilitate the drilling work in the spring.

RESUME'

Considering the availability of your deposits, once transportation facilities are afforded, the depth and extent of the ore-body, the ease with which the timber and moss, which are directly over the iron, are removed, the low cost of steam-shovel extraction, the increasing necessity for the establishment of blast furnaces and steel plants on the Pacific Coast, and the fact that there are no other known extensive deposits of any form of hematite ore in western British Columbia, the writer is of the unqualified opinion that your properties are of great potential value and will in the near future be one of the dominant factors in the development of the steel industry of this section.

Respectfully submitted,

John V. Rittenhouse

Consulting Mining & Civil Engineer.

SKETCH MAP OF DISTRICT DRAINED BY SKEENA, COPPER, BULKLEY and TELKWA RIVERS ~

OMINECA MINING DIVISION.

B.C.

J.V. Rittenhouse
Con. Min. Eng
Seattle, Wash.

Heavy mineral deposits

HAZELTON

SUSKWA RIVER

ROCKERS DEBOULES MTS

Sharp Peaks 7000' holding glaciers

BULKLEY

KITWANGA

SEVEN SISTERS MTNS.

MORICETOWN

owned and controlled by National Finance Co. Vancouver B.C.

Coal Lands

ZYMOETZ RIVER

Zymoetz lake

HUDSON BAY MTS.

Heavy mineral deposits

Hills to 5000 feet

pass

TELKWA

ALDERMERE

RIVER

SKEENA RIVER

HAZELTON

Possible Cut-Off

Property owned and controlled by North Pacific Iron Mines Ltd.

Telkwa pass

summit cr.

bridge

COPPER CITY

CASCADE

deposits of Gold, Silver and Lead.

CREEK RIVER

Heavy cedar timber

S FORK COPPER RIVER

RANGE

MOUNTAINS