

SHELL CREEK IRON & COAL DEPOSITS

DAWSON M.D. - 116 C/9  
64° 35' N., 140° 20' W.  
YUKON TERRITORY

by

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Selwyn Explorations Ltd. (N.P.L.)  
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This report has been examined, declared acceptable as Representation Work under Section 32 and Schedule B of the Canada Mining Regulations and valued in the amount of \$\_\_\_\_\_

Chief, *H. Woodward*

Date: *May 7 1969*

*Section 40  
OF THE TERRITORIAL  
COAL REGULATIONS*

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ILLUSTRATIONS

Fig. 1. - Shell Creek Iron Deposit (1968 Exploration) 1:50,000

Fig. 2. - Shell Creek Iron, Regional Geology 1" = 20 miles

SHELL CREEK IRON

DAWSON M.D. - 116 C/9

64° 35' N., 140° 20' W.

YUKON TERRITORY

1. INTRODUCTION

The properties which are the subject of this report were visited during the period August 14th to August 19th, 1968.

Dr. G.A. Gross of the Geological Survey of Canada was present during this same period, to classify this occurrence of a formational iron deposit for academic and long term resource evaluation purposes.

Dr. C. Findlay, Resident Geologist, Yukon and Southwest McKenzie District G.S.C. visited the property briefly on August 14th and may be expected to include this property in his Report on Activities for the current period.

Dr. P.H. Sevensma, President of Selwyn Explorations was present on August 14th to direct a helicopter reconnaissance of the area and point out geological features revealed by previous studies.

Mr. J. (Jack) Semple of Dawson City was employed to assist the field party. A Jetranger helicopter obtained on a split-charter basis was utilized for 3.6 hours on August 14th to position the party and carry out reconnaissance work. A G-2 helicopter, also on a split-charter basis, was used to return the party to Dawson City.

Existing camp facilities at Shell Creek augmented by supplies provided from Dawson and the Selwyn trailer at Coal Creek proved adequate.

## 2. IRON FORMATION

Due to the lateral extent of the known portion of this formational iron unit, and the widely spaced and incomplete nature of the exposures, any assessment made at this time will have to be regarded as subject to substantial revision.

Two quite distinct types of ferruginous material together with chert, quartzite, black slates, and schistose rocks of varying composition constitute the sequence of interest. The economic potential of the deposit is dependent mainly on the extent and volume of massive, fine to medium grained magnetite with chert or quartzite interbeds. Disseminated magnetite and thin bands of magnetite and minor amounts of hematite in slatey or schistose rocks, would be of interest only when it is mined in conjunction with ore of higher grade.

Depositional characteristics of this and other similar deposits are imparted which largely dictate the extent of the mining potential. Subsequent folding, faulting and evolution of the topographic surface may modify this picture but no major remobilization of iron occurs.

This deposit, as the only known magnetite iron formation in the area, is unique in that it appears to cover an area of only a few square miles rather than the hundreds of miles characteristic of iron formations of Eastern Canada and elsewhere in the world. The formation to which this deposit belongs may however be the source of much of the iron reported elsewhere in the Yukon and Alaska but which nowhere else displays the combination of grade, metallurgical quality and thickness evident at Shell Creek. The local and somewhat unique character of this deposit does not however preclude the possibility of a multimillion ton potential.

Folding is a pronounced feature of what may in fact have been the deepest part of the depositional basin. Some suggestion of preconsolidation

deformation is also evident but is probably of minor importance only.

The best exposure and possibly the central part of the formation is located just South of the camp and on the steep hillside to the East of Shell Creek. Tightly folded magnetite beds plunging gently to the East occur over a width of several hundred feet. A trench located about one-half mile West of the camp contains much material of a similar character but less evidence of folding is present. The other trenches generally showed more slaty material intercalated with the magnetite beds.

Work by Asbestos Corporation (Explorations) Ltd. was of great assistance in terms of the actual exposures sampled. The failure to sample exposures of folded iron formation East of Shell Creek is not easily accounted for in view of the fact that much material in the +40% Fe range is well exposed. Several hundred pounds of samples and specimens from various parts of the exposed formation were collected. All known workings were visited in the course of the examination.

### 3. ECONOMIC GEOLOGY

#### (a) Iron

An assessment of tonnage potential based on the foregoing considerations suggest a maximum of 200 million tons of  $\pm$  35% Fe on the East flank of Shell Creek. Extending Westward to trench No. 2 and perhaps beyond is a readily accessible and easily tested zone with a potential in the 50 to 100 million ton range at a possible grade of from 30 to 35% Fe. There is some field evidence to suggest that banded quartzose iron may extend Westward along structures not revealed by previous work but indicated by the airborne magnetic survey. It should be considered that perhaps 500 million tons of near surface iron formation with a grade potential of from 20 to 30% Fe warrants testing.

(b) Coal

Time and access considerations did not permit an examination of the coal deposits but a small dump sample was obtained from the old Coal Creek workings which may be useful in assessing the metallurgical and thermal properties of these deposits.

Helicopter reconnaissance of the terrain between Coal Creek and Cliff Creek confirmed the practicability and need for an extensive program of bulldozer trenching to expose at intervals the coal seams which at present are exposed only where they are cut by stream channels.

4. ACCESS ROAD and AIRSTRIP(a) Forty Mile Bridge to Yukon River

This portion of the tote trail is constructed on terrain suitable for winter use and for the purpose intended was well located.

(b) East Bank of Yukon River to Shell Creek

The road here follows the river bank as it is the only well drained soil in the area. The road bed is composed of silt and fine sand. No feasible alternate route is evident on this side of the river.

(c) Air-strip

The site has been cleared of trees and brush and appears to be well located for drainage which would be essential. The sub-soil is reported to be sand and clearing the organic surface matter would present no problem. Unless an all weather road can be constructed to this site, it will be necessary to employ a tracked vehicle. Evaluation of sites closer to the property should be given priority over completion of this strip.

(d) Camp and Fuel Supplies

Two areas near the mouth of Shell Creek were cleared and a trailer camp for a two man crew was established. The major part of an 8,000 gallon fuel inventory is located at these points. A suitable ferry landing is located nearby. A freight sleigh and tanker trailer provide means whereby fuel and other supplies may be mobilized to job sites on the coal and iron properties.

(e) General

The frequent availability of jet helicopters in the Dawson area has greatly changed the economics of this type of support for field work. The high speed and increase payload of these aircraft renders practical the movement of men and material over substantial distances.

A river ferry based at Dawson, and maintained by the Territorial Government as a stand-by unit is available for charter work in connection with development projects. The ferry has a rated capacity of 37 tons and is thus able to handle up to a D-7 caterpillar tractor.

5. SUMMARY

Bulldozer trenching is virtually the only method whereby the nature and continuity of the coal measures can be exposed for examination.

Logistic considerations favour the construction of a tote trail from the Yukon River to selected sites along the strike of the iron formation.

Construction of a system of access roads, helicopter landing pads and a ferry landing ramp down stream from Shell Creek would be essential to the efficient conduct of a major program of this property. The fuel and equipment presently located on the property will materially

assist in the expedient initiation of further work. Higher ground should be selected for future road construction.

Examinations, Technical and Market evaluation studies, and the preparatory field work completed to date provide a substantial basis on which to assess the merit, and the nature of the problems, which will determine the future of this property.

6. CONCLUSION

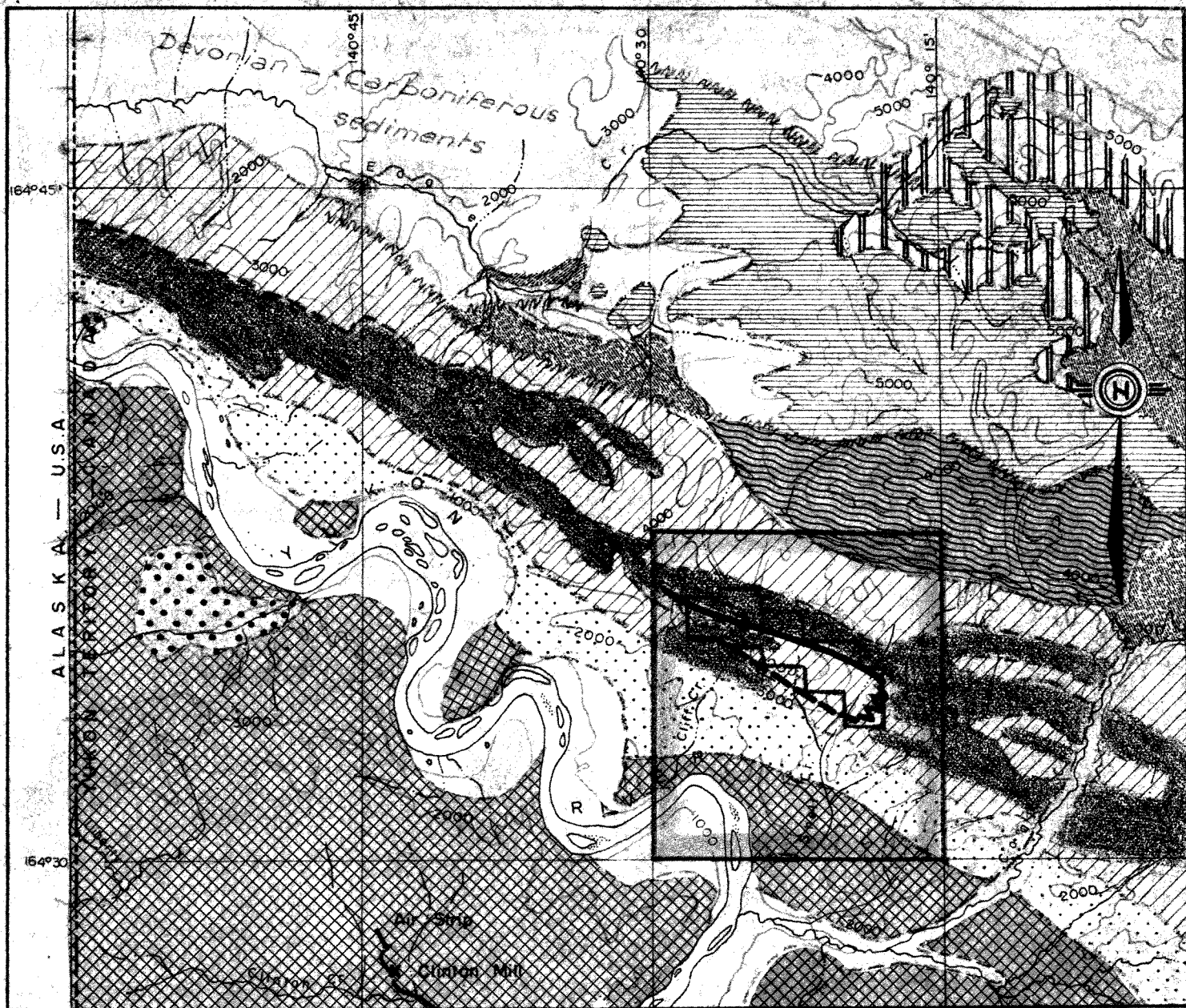
The purpose of this brief report has been to provide a resume of the activities, and an assessment of results of work, conducted to date. Market and Transportation studies suggest that the objective of confirming by drilling the potential for both the coal and iron, which are so fortuitously located appears timely in view of a developing Northern economy based on mineral resources.

Respectfully submitted,

H.S. Aikins, Director,  
Selwyn Explorations Ltd. (N.P.L.)

February 11, 1969.





L E G E N D

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>PRECAMBRIAN</b><br/>Mainly black shale &amp; slate, and platy sandstone; minor black limestone, quartzite, orange weathering dolomite and conglomerate.</p> <p><b>PRECAMBRIAN AND/OR CAMBRIAN</b><br/>Mainly buff, brown, and rusty-weathering, gritty quartzite, sandstone &amp; quartz-pebble conglomerate; various coloured slates, schistose quartzite, quartz chlorite schist, quartz-mica schist &amp; phyllite; minor limestone and black chert; iron formation thin to medium bedded, grey limestone.</p> <p><b>PRECAMBRIAN AND/OR LATER</b><br/>Dark brown and green weathering dark green volcanic rocks, calcite filled vesicles, breccia, tuff, and agglomerate.</p> <p><b>CAMBRIAN, ORDOVICIAN &amp; SILURIAN</b><br/>Grey &amp; buff dolomite &amp; limestone.</p> | <p><b>ORDOVICIAN &amp; SILURIAN</b><br/>Mainly interbedded chert and black &amp; grey-green argillite; minor quartzite.</p> <p><b>CRETACEOUS(?)</b><br/>fine to coarse-grained granites, granodiorite &amp; biotite quartz monzonite.</p> <p><b>CRETACEOUS(?) &amp; TERTIARY</b><br/>brown, buff, and grey, arkosic and micaceous sandstone, shale, conglomerate.</p> <p><b>QUATERNARY</b><br/>Alluvial deposits</p> <p><b>Yukon Schists</b></p> <p><b>Fault</b></p> <p><b>Iron formation</b></p> |
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FIG. 2

**SELWYN EXPLORATIONS LTD (NPL)**  
**SHELL CREEK IRON**

P. H. Sevensma Consultants Ltd Vancouver B.C.

September 1967 116-C-9 SCALE 20 Mile