

# GM 13574

REPORT ON GEOLOGICAL AND MAGNETIC SURVEYS: PROJECT 820

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No GM- 13574

PUBLIC

SOGEMINES DEVELOPMENT COMPANY LIMITED.

FALCONBRIDGE NICKEL MINES LIMITED.

UNGAVA GOSSANS - - - PROJECT 820.

GROUP NO. 6.

REPORT ON THE GEOLOGY AND GEOPHYSICS.

September 10, 1963.

*H. D. McLeod*

H. D. McLeod.



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INTRODUCTION

Claims group no.6 of the Ungava Gossans project of Sogemines Development Company Limited and Falconbridge Nickel Mines Limited was staked in August 1962 to protect a zone of mineralized blotchy gabbro later designated as zone no.6.

Forty five claims were staked as follows to protect the showing and the favorable horizons to the southwest and east:

License 191554	✓	claims 1 to 5.
" 191555	✓	" 1 to 5.
" 191556	✓	" 1 to 5.
" 191557	✓	" 1 to 5.
" 191558	✓	" 1 to 5.
" 191559	✓	" 1 to 5.
" 193207	✓	" 1 to 5.
" 195398	✓	" 1 to 5.
" 197174	✓	" 1 to 5.

Development work consisting of detailed geological mapping, a magnetometer survey and trenching was started on July 12th and completed on July 30th, 1963.

All work was done under the supervision of the writer assisted by D.C. Cunningham and, for a few days, by A.C. Amos.

The work done is being applied for assessment credit on the following four claims:

License 191557	✓	claims 3 and 4.
" 191558	✓	" 2 and 3.

The work was done over an area of approximately six claims as can be seen on the accompanying maps, but allowance has been made for this and no credits are claimed for the work done outside the four claims outlined above.

The following maps accompany this report:

- (1) Detailed Geology of No.6 Zone -- Scale: 1" = 100'.  
 (2) Magnetometer Survey of Part of Group No.6 -- Scale: 1" = 100'.

#### LOCATION AND ACCESS

The claims are located in the Ungava Bay area of New Quebec at approximate co-ordinates  $59^{\circ}15'$  north and  $69^{\circ}49'$  west, a distance of three miles to the southwest of Hopes Advance Bay on the west shore of Ungava Bay and 100 miles approximately to the northwest of Fort Chimo.

Access to the claims is by float aircraft from Fort Chimo onto a large lake lying approximately 3 miles to the south of the claims.

#### GENERAL GEOLOGY

The southeast half of the claims area is underlain by basalts with random narrow siliceous and slaty schist bands and the northwest half by a complicated series of older sediments recrystallized to hornblende gneisses, hornblende schists and hornblende gabbros.

The contact between these two series strikes  $N30^{\circ}E$  in the southwest part of the map area. In the vicinity of the no.6 zone it folds sharply to the east and strikes  $N70^{\circ}E$  to east-west in the east part of the map area.

In the fold area a series of blotchy gabbro, peridotite and amphibolite sills have been intruded between the basalts and hornblende gneisses, the outlines shown on the accompanying map of the no.6 zone.

#### TABLE OF FORMATIONS

Blotchy gabbro sills  
 Amphibolite  
 Peridotite  
 Intrusive contact  
 Basalts  
 Graphitic slaty schist

Siliceous slaty schists

Hornblende gneiss, garnetiferous hornblende gneiss,  
hornblende schists, hornblende gabbro.

#### DESCRIPTION OF FORMATIONS

Blotchy Gabbro ---- Two blotchy gabbro sills are present, one above the peridotite and adjacent to the basalts and the other along the footwall contact of the peridotite sill.

The upper sill is larger and thicker than the lower one but, except for the southwest end, is normally barren. The greater part of the lower sill is mineralized with disseminated sulphides.

The blotchy gabbro here is the normal siliceous type composed of approximately 75% white feldspar in rounded porphyroblasts up to 3" in diameter in a dark green ferromagnesian matrix.

Amphibolite ---- Amphibolite is present as one large continuous intrusive and several shorter narrow sections in which it is obviously a fine grained contact phase of the blotchy gabbro sills. The large horizon lies in contact with the peridotite and may well be a fine grained more siliceous phase of that rock.

Normally it is a fine grained black rock composed of dark green to black ferromagnesian minerals with scattered flecks and grains of white feldspar.

Peridotite ---- The large peridotite sill consists of medium to coarse grained grey-green ferromagnesian minerals with considerable serpentine in places. The magnetometer survey indicates the presence of magnetite in sections of the intrusive although none was recognized.

A zone ranging to a maximum of 50 feet in width along the lower contact with the mineralized blotchy gabbro contains thinly disseminated sulphides.

Basalts ----- The basalts are the typical dark grey weathering schistose fine grained black flows of the area. The mineral constituents are not recognizable and no flow structures were seen.

Graphitic Slaty Schist -- This formation is a distinctive well bedded dark grey graphitic sediment more like a greywacke in composition than a slate. Narrow sections of quartzite, rusty sericitic quartzite, slate and massive sulphides are present in places.

Siliceous Slaty Schists --- The normal thinly bedded micaceous quartzites and graphitic slates of the area. All contain variable amounts of sulphides.

Hornblende Gneisses --- The hornblende gneisses and related rocks apparently are a highly recrystallized sedimentary series, the individual members of which could be outlined by careful geological mapping. Distinctive changes in mineral content are evident across the series.

The various types noted in the mapping are as follows:

Hornblende gneiss -- a lineated fine to medium grained mixture of approximately 60% black hornblende and 40% white feldspar and quartz.

Hornblende schist -- a sheared and thinly banded phase of the hornblende gneiss.

Garnetiferous Hornblende Gneiss -- the normal hornblende gneiss with small rounded red garnets comprising up to 30% of the volume of the rock.

Hornblende Gabbro -- a medium to coarse grained, massive, uniform phase with the same mineral content as the gneiss.

Garnetiferous Hornblende Gabbro -- contains up to 20% small rounded red garnets.

#### STRUCTURE

The structure of the map area is relatively simple. A series of blotchy

gabbro - amphibolite - peridotite sills have been intruded along the contact between the basalts and recrystallized sediments at a point where that contact is sharply folded. Strike of formations changes from approximately N30°E to approximately east-west in a distance of 5500 feet. Dip varies from 45° to 60° to the south.

Drag folding is evident in several places. One in the northeast corner of claim 191558 no.3 sharply warps the peridotite - blotchy gabbro contact. A second is indicated in the southwest corner of claim 191557 no.4 and a third at the southwest edge of the map area. Smaller drag folds are present in the banded rocks in many places.

#### MINERALIZATION

Sulphides are present in both blotchy gabbro sills, the basal contact section of the peridotite and in all the schist bands.

The lower blotchy gabbro and adjacent section of the peridotite forms the no.6 zone. This zone contains pyrrhotite and chalcopyrite in disseminated grains, patches and blebs which, in places, comprise up to 20% of the volume of the rock. This zone has an indicated length of 1900 feet with widths varying from 10' to 100' in places.

The southwest end of the upper blotchy gabbro sill is mineralized with thinly disseminated grains of pyrrhotite and chalcopyrite as are limited sections of the remainder of the sill.

The schist bands all contain veins or narrow beds of massive pyrrhotite with varying amounts of pyrite. The extent of these is uncertain due to the rusted and broken nature of the surface expression of the horizons but they would appear to be remarkably persistent considering their narrow width. No chalcopyrite was seen in this mineralization.

#### MAGNETOMETER SURVEY

A detailed magnetometer survey with stations at 50-foot intervals along

lines spaced at 200-foot intervals was made over the no.6 zone area. All readings were tied in to permanent base stations and check readings to establish diurnals were taken at 1 to  $1\frac{1}{2}$  hour intervals. The survey was done with an Askania torsion balance magnetometer having a scale constant of 236.4 gammas per scale division. The contoured results are shown on the accompanying plan.

The survey outlines and has been used as an aid in tracing the lower mineralized blotchy gabbro sill and the mineralized schist beds. Several long narrow anomalies have been interpreted as schist horizons. The broad anomaly over the peridotite probably indicates the presence of magnetite within that rock.

#### TRENCHING

Five trenches were blasted across the more heavily mineralized section of the no.6 zone in an attempt to expose fresh rock and mineralization for sampling. More trenching was planned but the plugger broke down and the necessary spare parts were not available. The trenching, in places, penetrated below the zone of oxidation and detailed chip sampling was done.

#### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The no.6 zone area was tested by detailed geological mapping, a detailed magnetometer survey and some trenching in July 1963. This work outlined one blotchy gabbro sill reasonably well mineralized with pyrrhotite and chalcopyrite. The copper and nickel content, however, proved to be low and the size, and thus the potential tonnage, too small to warrant drilling or any further work.

No further work on the claims is recommended, however the work done to date should be applied for assessment credit in order to hold four claims as long as is possible.

ASSESSMENT CREDITS

Line cutting -- H.D. McLeod, 12 Dixon Ave., Kirkland Lake, Ontario.

July 12 to 13, 1963 --- 2 days.

D.C. Cunningham, Port Cunningham, Ontario.

July 12 to 13, 1963 --- 2 days.

Total --- 4 -- 12 hr. days -- 6 days.

Geology ---- H.D. McLeod -- July 14 to 24, 1963 ---- 11 days.

A.C. Amos, 1 Gov't. Rd. E., Kirkland Lake, Ontario.

July 14 to 16, 1963 ---- 3 days.

Total -- 14 -- 12 hr. days.

----- 21 days x 7 ----- 147 days.

Magnetometer survey -- H.D. McLeod - July 29 - 30, 1963 -- 2 days.

D.C. Cunningham - July 17 to 28, 1963 -- 12 days.

Total -- 14 -- 12 hr. days.

----- 21 days x 7 ----- 147 days.

Trenching -- D.C. Cunningham --- July 28 - 30, 1963 --- 3 days.

A.C. Amos ----- July 25 - 27, 1963 --- 3 days.

H.D. McLeod ----- July 25 - 28, 1963 --- 4 days.

Total -- 10 -- 12 hr. days

----- 15 days x 2 --- 30 days.

Maps and reports -- H.D. McLeod -- Aug. 28 to Sept. 5, 1963 -- 6 days.

A.C. Amos ----- Aug. 28 to Sept. 4, 1963 -- 4 days.

Total ----- 10 days x 7 --

70 days.

Total credit --- 400 days.