

2544

GEOLOGICAL REPORT

ON BARB CLAIM GROUP

HOUSTON, B.C.

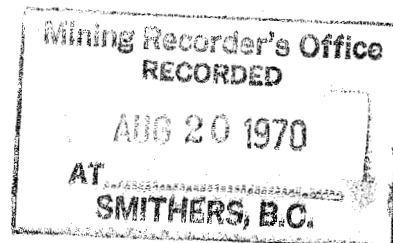
Lat. 54°25' N., Long. 126°40' W.

N.T.S. 93 L-7-W.

Smithers, B.C.

Gerald Harper

August 7, 1970



C O N T E N T S

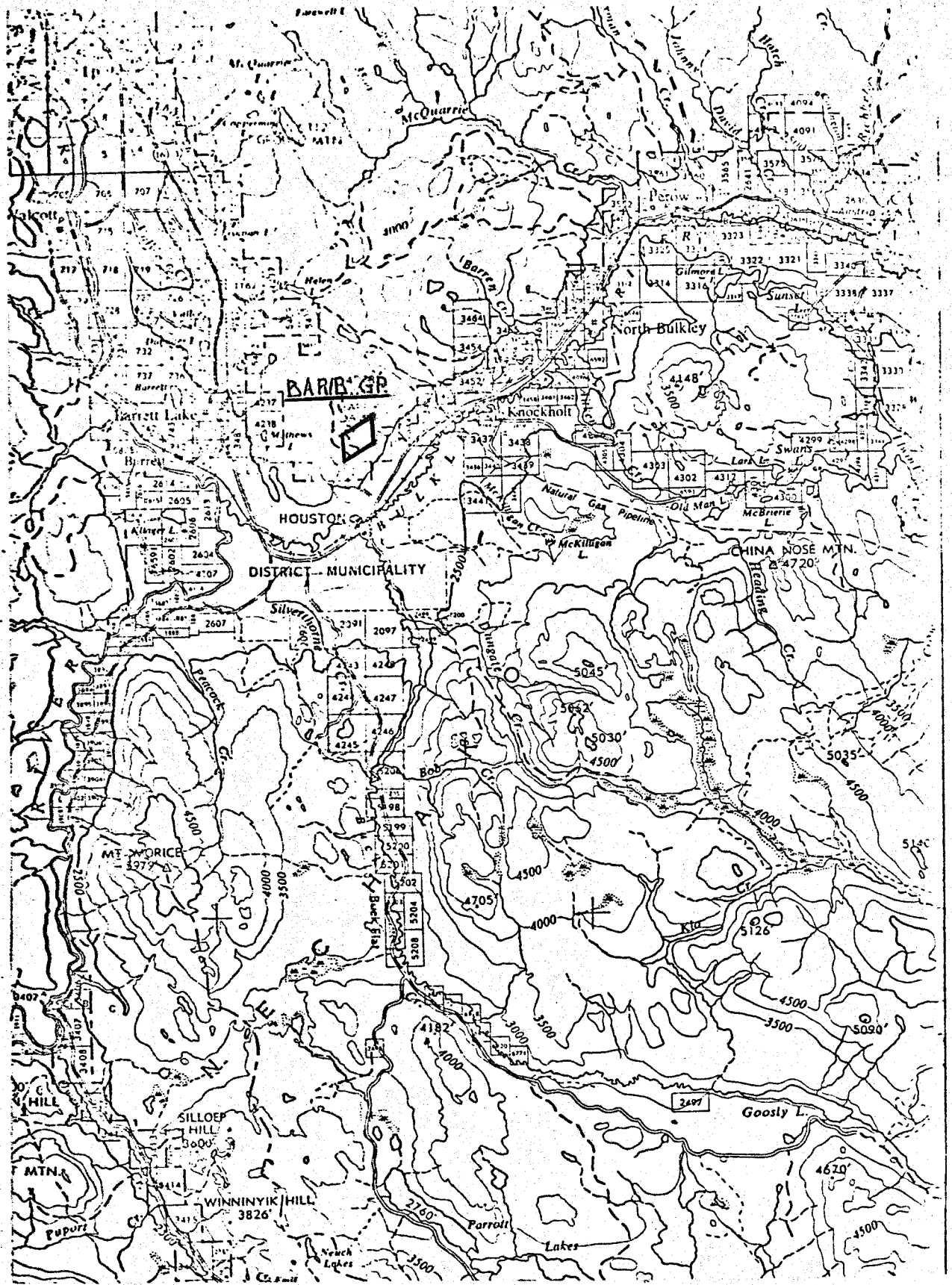
	<u>Page</u>
INTRODUCTION	1
HISTORY AND PREVIOUS WORK IN THE AREA	2
REGIONAL GEOLOGY	3
LOCAL GEOLOGY	3
STRUCTURE	6
COPPER MINERALIZATION	7
CONCLUSIONS AND RECOMMENDATIONS.....	7
REFERENCES	8
STATEMENT OF WORK	9
STATEMENT OF QUALIFICATIONS - G. Harper	10
STATEMENT OF QUALIFICATIONS - D. H. Brown	11

LIST OF ILLUSTRATIONS

Fig. 1 #1 Location Map showing position of claims

Fig. 2 #2 Geological Map

Department of	
Mines and Petroleum Resources	
ASSESSMENT REPORT	
NO. <u>2544</u>	MAP.....



LOCATION MAP

Figure 1.

Scale - 1" = 4 mi

GEOLOGICAL REPORT

ON

BARB CLAIMS

Houston Area, B. C.

INTRODUCTION

The Property

Barb Mineral Claims #1-8, 9 Fr., 10 Fr., 11-36, 101-119.

Total 55 M.Cs. (See Fig. 1)

Ownership

Falconbridge Nickel Mines Ltd. 504 - 1112 W. Pender
Street, Vancouver 1, B. C.

Location

Houston Mountain (Microwave Hill) area, 1/2 mile north
of Houston, B. C.

Access

From Highway 16 east of Houston and the new Babine logging
road.

Examination

Geological mapping of the Barb M.Cs. was undertaken
by G. Harper assisted by R. Chataway during the period: June 26th -
July 1st 1970, inclusive. This report was prepared on the 30th/31st
July 1970.

Physiography

The Barb M.Cs. extend eastwards from the eastern slopes of Houston Mountain down into flat, swampy country. The whole area is thickly forested.

HISTORY AND PREVIOUS WORK IN THE AREA

The Barb M.Cs. were staked in 1969 by Falconbridge Nickel Mines Ltd. They adjoin and extend north, south and eastwards from a group of M. Cs. owned by E. Westgarde of Houston, B. C.

The Westgarde M.Cs. were optioned by Texas Gulf Sulphur in 1969. They undertook geochemical and geophysical surveys and a small drilling programme.

Geochemical surveys by Texas Gulf on the Westgarde M.Cs. and by Falconbridge on the Barb M.Cs. showed the environment to be unsuitable for geochemistry. Soil samples taken right over cupri-ferous rocks did not have anomalous copper contents.

An I. P. survey carried out for Texas Gulf showed three parallel, slightly west of north trending linear anomalies suggestive of fault zones. These anomalous zones coincide with outcrops containing malachite, azurite, chalcopyrite, bornite and, patchily, pyrite.

The central cupri-ferous zone, where exposed on the Babine logging road, is in sheared green andesite on a fault contact with purple andesite. Where the central zone is exposed along a track east from the Microwave Hill road, copper mineralization occurs on joint planes in rhyolites and purple andesites near their vertical contact.

The western zone is exposed part way up the Microwave Hill road. Copper mineralization here occurs on joint planes in rhyolite close to an andesite contact. The eastern zone is not exposed.

REGIONAL GEOLOGY

The Houston area lies about 60 miles east of the eastern edge of the coast range batholith and is underlain chiefly by volcanic flows considered to belong to the Hazelton Group of Upper Jurassic age. The area lies on the northwest flank of a basin-like structure which is filled by Tertiary volcanics. No major intrusives are mapped on the immediate area although small diorite stocks on sills are known locally.

Houston Mountain is shown on Geological Survey of Canada Map 671 A as being underlain by undivided Hazelton Group volcanics. These volcanics include andesite, agglomerate, water-lain tuff, minor basalt and rhyolite.

The lower slopes of the mountain and surrounding flat country are largely covered by a thick layer of drift. Outcrops are therefore restricted to ridges and cliffs high up the mountain and to man-made cuttings.

LOCAL GEOLOGY

A. General

The limited outcrop indicates that the claim area is underlain by fine to coarse grained fragmental and extrusive rocks. They are crystal-lithic and vary in composition from andesitic to rhyolitic. Massive purple and green andesites are most abundant. These are

commonly porphyritic with plagioclase phenocrysts.

The rocks are essentially fresh, unaltered and unmetamorphosed. Very little secondary or deuteric alteration has taken place although occasionally large zoned plagioclase phenocrysts have their centres altered to a felted chloritic mass. Minor epidote and chlorite was observed. Veins of calcite and quartz have intruded along shear planes in fault zones.

Bedding was rarely observed while flow and pillow structures were not observed. Intense jointing and in places numerous fault, shear zones indicate that the rocks have undergone some tectonics. With the lack of sedimentary features in the limited outcrop it is not possible to interpret the overall structural pattern on a stratigraphic succession.

B. Descriptions of the Major Rock Units

(i) Andesite

Fine grained purple and green andesites, purple porphyritic andesites and coarse grained fragmental purple andesites were recognised in the field and are distinguished on the map. (Fig. 2) Locally one variety was seen grading into another. They apparently represent local facies changes and not continuous sub-units.

The andesite is essentially a very fine grained, massive rock, too fine for individual mineral grains to be identified. It is generally a dark reddish purple colour but contains dark green or grey bands. In most exposures the green-grey bands are in close proximity to shear zones, quartz and calcite vein systems which are mineralized with copper and/or iron sulphides. In these cases the

green colour could have resulted from reduction of the iron in purple andesite during tectonics. Elsewhere none of the above features were found near outcrops of green andesite so that the colour is assumed to be a primary feature.

Where indicated on Fig. 2, the fine grained purple andesite contains white plagioclase phenocrysts. The phenocrysts average 1-2 mm in size but range up to 5 mm. Phenocrysts may form up to 20% of the volume of the rock but generally form between 5 and 10%. Occasionally the phenocrysts are zoned.

The fragmental andesite contains angular to round dark green, purple and grey lithic fragments. They average 2-3 mm in size but are unsorted and range up to 1.5 cm in length. Phenocrysts also occur in the fragmental andesites. The fine grained groundmass of the fragmental andesite locally becomes siliceous and the fragmental andesites grades into fragmental dacite.

(ii) Trachyte

Very few outcrops of trachyte were mapped; possibly partly because it is a soft easily weathered rock. Outcrops are generally deeply weathered.

The trachyte is essentially a very fine grained homogeneous rock. The only minerals recognisable now are chlorite and quartz.

The fragmental trachyte has the same fine grained groundmass but contains 2-3 angular to rounded, unsorted green-grey and purple lithic fragments.

(iii) Basalt

This outcrops in three places, once on the Babine logging road in the area of Westgarde's claims and twice in a creek in the extreme west.

The road exposure is a very fine grained black basalt cut by calcite filled joints. This basalt has intrusive dyke relations with the andesitic country rock.

In the extreme west the fine grained black basalt contains white plagioclase phenocrysts 1-2 mm in diameter. Bedding is visible in it here indicating that it was extruded.

(iv) Dacite

Grey-white, pale purple on green fragmental dacite contains unsorted angular to rounded green and purple lithic fragments and quartz and feldspar grains in a very fine grained siliceous groundmass. Fragments, which form up to 50% of the rock are up to 2 cm across but average 5 mm.

The fragmental dacite commonly grades into fragmental trachyte or andesite.

(v) Rhyolite

The rhyolite is a hard, massive, cryptocrystalline siliceous rock. It is generally grey white in colour but has a purplish tinge near andesite contacts. In the vicinity of sulphide enriched zones, weathered surfaces are covered with rusty brown, fine grained limonite.

Patchily, the rhyolite contains up to 20% by volume of 2-3 mm, pink euhedral to subhedral feldspar phenocrysts.

STRUCTURE

Very little structural information was obtained because of limited outcrop. What bedding attitudes that were obtained suggest by their steepness and variability that the rocks must be folded.

The cupriferous zone outcropping on the Babine logging road (in Westgarde's claim area) occurs in an intensely sheared

fault zone. Geophysical surveys run for Texas Gulf indicate that this and parallel fault zones each side strike slightly west of north and extend north and south into the area of the Barb M.Cs.

COPPER MINERALIZATION

Near the corner on the eastern power line is a group of outcrops of andesite. Two of these outcrops contained trace quantities of malachite, azurite and bornite on joint planes. No other copper mineral occurrences or gossanous zones were found in the area of the Barb M.Cs.

CONCLUSIONS AND RECOMMENDATIONS


The general geology of the Westgarde and Barb M.Cs. is similar; faulted and probably folded andesites with minor bands of rhyolite, dacite trachyte and basalt.

Copper mineralization exists along three west of north trending fault, shear zones indicated by geophysics. Where exposed these zones coincide with contacts between green and purple andesites or acid and basic volcanics. These are both favourable environments for concentration and/or enrichment of copper minerals. All copper mineralization seen was on joint planes or in quartz and calcite veins and is presumably of epigenetic, hydrothermal origin.

The outcrop containing copper minerals on the Barb M.Cs. lie along the strike of the western zone on the Westgarde M.Cs. The only M.Cs. in the Barb Group which are likely to contain extensions of the Westgarde cupriferous deposits are # 3, 4, 5, 6, 17 and 19. It is recommended that the remainder of the Barb M.Cs. be forfeited.

In view of the thick cover of drift over most of Barb.

#3-6, 17 and 19 M.Cs. it is difficult to recommend a programme of work not involving major expenditure which is not justified at this stage. As yet no significant copper mineralization of ore grade has been proved on the Westgarde M.Cs. If further work, in progress at present, on the Westgarde M.Cs. indicates a body of copper ore then joint work on the Westgarde and remaining Barb M.Cs. is justified. This should include a geophysical survey of the remaining Barb M.Cs. followed, if favourable, by a programme of short diamond drill holes to check the attitude, extension and grade of the zones at depths up to 100 ft.



G. Harper

Vancouver, B. C.

August 7, 1970

REFERENCES

Geological Survey of Canada Map 671 A
Texas Gulf Sulphur - Report on the Westgarde Option,
Microwave Hill, Houston, Omineca Mining Division, 93 L, J. R.
Forsythe, March 1970.

DOMINION OF CANADA:
PROVINCE OF BRITISH COLUMBIA.
To Wit:

In the Matter of GEOLOGICAL SURVEY OF THE
BARB CLAIM GROUP, HOUSTON, B.C.

I, David H. Brown

of 500 - 1112 W. Pender St., Vancouver 1, B. C.

in the Province of British Columbia, do solemnly declare that the following work was performed under my direction at a cost as outlined:

Geologist	Dr. Gerald Harper	7 days	\$ 409.00
Geological Asst.	R. Chataway	7 days	<u>304.00</u>
			\$ 713.00

Six Hundred Dollars (\$600.00) of the above to be applied as one year assessment to cover Barb Claims Nos. 3, 4, 5, 6, 17 19.

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the City
of Vancouver, in the
Province of British Columbia, this 18th
day of August 1970, A.D.

D.H. Brown

J.P. Philips

A Commissioner for taking Affidavits within British Columbia or
A Notary Public in and for the Province of British Columbia,
Sub-mining Recorder

FALCONBRIDGE NICKEL MINES LIMITED

1112 WEST PENDER STREET

VANCOUVER 1, B. C., CANADA

TELEPHONE: 682-6242

TELEX: 04-5938

August 7, 1970

The Mining Recorder,
Omineca Mining Division,
Smithers, B. C.

Dear Sir:

The author graduated from the University College of Rhodesia, a college of London University in 1966 after which he worked for a short period as assistant to a consultant geologist investigating nickel prospects.

In 1967, he joined the South African Council for Scientific and Industrial Research and spent 6 months as a marine geologist operating out of Cape Town. The project was intended to investigate phosphate and manganese deposits on the continental shelf of Southern Africa.

Returning to Rhodesia in mid 1967, the author commenced geological mapping of a large copper concession area for Anglo American Corporation. In 1970, having completed mapping of this area of intensely deformed late Precambrian sediments he wrote a thesis on the structure and stratigraphy which was presented for the Ph.D. degree.

He joined Falconbridge Nickel Mines Ltd. in Vancouver in June 1970.

Yours very truly,

FALCONBRIDGE NICKEL MINES LIMITED

G. Harper



FALCONBRIDGE NICKEL MINES LIMITED

1112 WEST PENDER STREET

VANCOUVER 1, B. C., CANADA

TELEPHONE: 682-6242

TELEX: 04-5938

August 7, 1970

STATEMENT OF QUALIFICATIONS

The Mining Recorder,
Omineca Mining Division,
Smithers, B. C.

Dear Sir:

This is to certify that the geological work on the Barb mineral claims near Houston, B. C. was done under my supervision.

The geological field work was performed by Dr. Gerald Harper who is a graduate of University College of Rhodesia and carried out a wide variety of geological work in Africa. Since his arrival in Canada Dr. Harper has demonstrated his abilities as a field geologist to the Company's satisfaction and I can faithfully endorse this report as being true and factual.

I am a graduate in geological engineering from the University of British Columbia and am a member in good standing of the Associations of Professional Engineers of British Columbia and Ontario.

Yours very truly,

FALCONBRIDGE NICKEL MINES LIMITED



D. H. Brown, P. Eng. (B.C.)



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2544 MAP #2

LEGEND

- ROAD OR TRACK
- CREEK DRAINING INTO SWAMP AREA
- POWER TRANSMISSION LINE
- PERIMETER OF CLAIM AREA
- CLAIM POSTS
- DIAMOND DRILL HOLE
- OUTCROP
- CONTACT
- FAULT
- STRIKE AND DIP OF INCLINED BEDDING
- STRIKE OR DIP OF INCLINED JOINT OR FAULT
- STRIKE OR DIP OF VERTICAL JOINT OR FAULT

- RHYOLITE
- DACITE FRAGMENTAL
- BASALT PORPHYRITIC
- TRACHYTE FINE GRAINED
- TRACHYTE FRAGMENTAL
- ANDESITE FINE GRAINED PURPLE
- ANDESITE FINE GRAINED GREEN
- ANDESITE FRAGMENTAL
- ANDESITE PORPHYRITIC

- Mal Malachite
- Az Azurite
- Cp Chalcopyrite
- Bn Bornite
- Py Pyrite

2544

Figure 2. *OH Brown*



SCALE: 1 INCH TO 500 FEET

COMPANY . . . FALCONBRIDGE NICKEL MINES LTD.
PROPERTY . . . BARB CLAIMS
LOCATION . . . 1/2 MILE NORTH OF HOUSTON, B.C.

WORKING PLACE . . .
TYPE OF MAP . . . GEOLOGICAL
BASED ON . . .

DATE . . . JULY 30th, 1970
DRAWN BY . . . G. HARPER
DATE OF WORK . . . JUNE/JULY 1970