TWIN CREEK (N.B.C.) OPTION

Report by
Falconbridge Nickel Mines Limited

Lat. 55°40'N. - Long. 125°20'W.

Omineca Mining Division
N.T.S. 93-N-11

December 1971 673230 T. Gyr Vancouver

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TWIN CREEK (N.B.C.) OPTION

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SUMMARY

A portion of the Twin Claim Group was examined by means of geological mapping, shallow diamond drilling and a magnetometer survey over a limited area. Results of previous soil sampling and mapping were incorporated. The investigations have shown several discontinuous zones of low grade copper mineralization in the vicinity of an intrusive-volcanic contact.

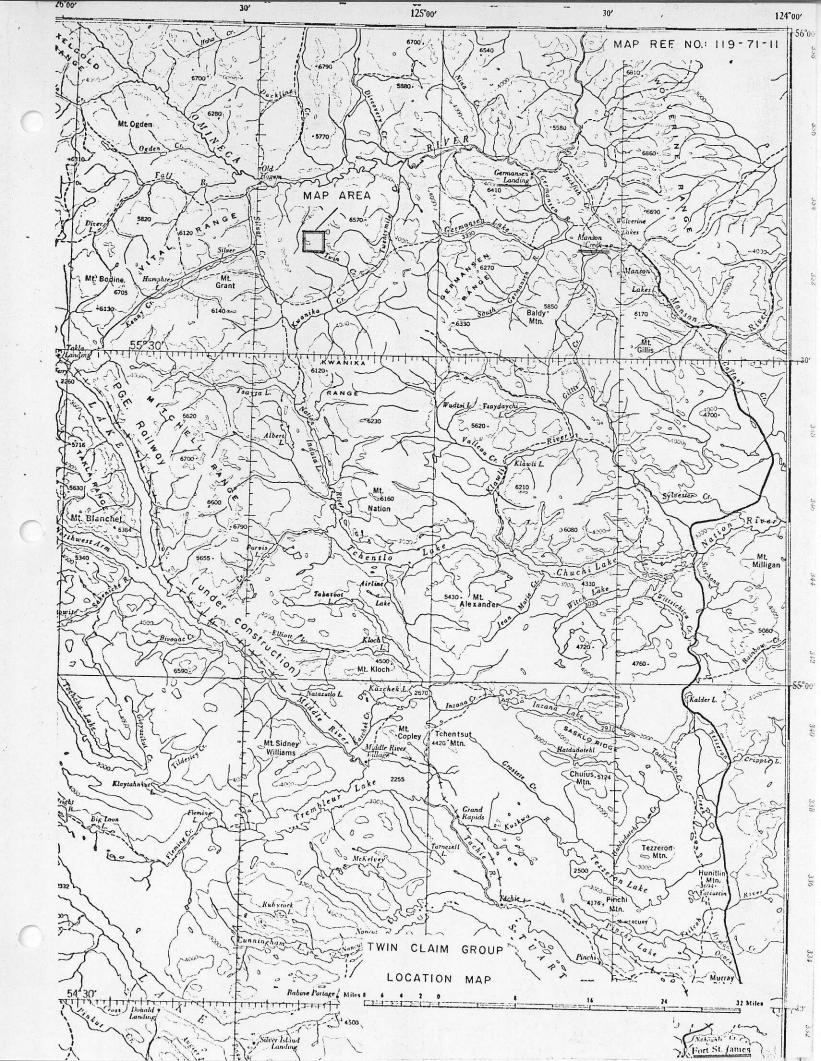
A. INTRODUCTION

On June 18, 1971 S. N. Charteris, G. Harper and the writer, in company with C. Stevens, examined the various copper occurrences on the Twin Claim Group. Particular attention was paid to the main copper showings in a distinct rusty weathered talus slope in the western part of the claim group.

A preliminary offer to option the property was made on June 21, 1971 and a final option agreement was signed on June 30, 1971 between Falconbridge Nickel Mines Limited and the members of the "N.B.C." Syndicate: Conwest Exploration Company Ltd., Cominco Ltd., The Granby Mining Company Ltd., Duval Corporation, W. R. Bacon, J. J. Crowhurst.

B. LOCATION AND ACCESS (see Location Map 119-71-11)

The claim group is situated approximately at Longitude 125° 20' W. and Latitude 55° 40' N. at the headwaters of Twin Creek, a tributary of Kwanika Creek which drains south into the Nation River between Tsayta Lake and Tchentlo Lake. The closest surface access is from Fort St. James via approximately 150 miles of gravel



road to the mouth of Twin Creek, from where the road, although in disrepair, continues on to Takla Landing. Access to the property at this time is best effected by helicopter.

C. PROPERTY

The claim group now under option to Falconbridge Nickel Mines Limited consists of 26 located Twin claims which were staked in August 1969 and recorded in the name of W. R. Bacon.

D. TOPOGRAPHY

The area investigated is a steep south-facing slope ranging in elevation from approximately 4800 to 6300 feet. The west end carries only a thin cover of talus and stony soil supporting grass and limited tree growth. Vegetation increases in abundance on the lower colluvial slopes. In the area of lines 92E to 104E (N.B.C.--soil sampling lines, map ref. 119-71-21), a large area of slumping is evident. East of the slump, trees become more abundant and overburden is deeper. Minor east-west gravelly ridges cause diversion of the surface drainage perhaps due to slumping or glacial smearing of moraine.

E. PREVIOUS WORK

Regional mapping and soil sampling were carried out in July 1970 under the direction of Bacon and Crowhurst, consultants, on behalf of the N.B.C. Syndicate. The two resulting maps, both on a scale of 1 in. to 400 feet, were made available to Falconbridge Nickel Mines Limited. A copy of the soil sampling map (map ref. 119-71-21) is included in the pocket of this report.

F. SCOPE AND METHOD OF 1971 WORK

The purpose of the present investigations was to examine the copper occurrences on the Twin Creek Property, in view of their possible economic potential, and to evaluate the large soil anomalies obtained during the previous soil sampling.

Initial prospecting and check soil sampling were followed by

limited surface trenching and detailed mapping (1 inch to 40 feet) in the area of the main copper occurrence. Shallow packsack drilling was applied subsequently to test the extent of the surface mineralization and in one case to sample the bedrock underneath a strong soil anomaly. A small scale magnetometer survey was carried out tentatively over the best surface mineralization area. Regional mapping on a scale of 1 inch to 200 feet concluded the 1971 operations.

The field crews were based consecutively in three different flycamps on the property and were fully supplied by helicopter.

G. GEOLOGY

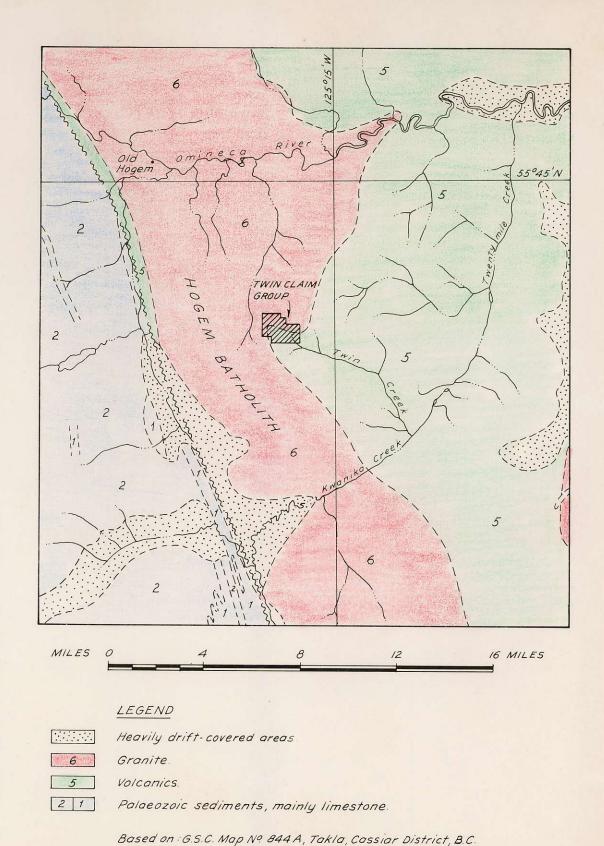
1. Introduction

The general area was mapped by J. E. Armstrong of the Geological Survey of Canada (Map 844-A, 1946). He shows the Twin Creek vicinity as being underlain by Takla Group, Upper Triassic and Jurassic volcanics with minor interbedded sediments. It forms a westerly extending tongue of strata protruding into the Upper Jurassic or Lower Cretaceous, granitic Omineca Intrusions. This particular intrusive mass is known as the Hogem Batholith. The contact between the volcanics and the batholith is considered to be typically intrusive rather than due to a major fault.

The property was previously mapped by N.B.C. Syndicate personnel. They recognized the main rock types in the area and positioned the intrusive/volcanic contact.

The lack of Government 1:50,000 scale topographic maps of the area, previously necessitated use of enlargements of 1:250,000 topographic maps as base maps. These are of little use as base maps for geological mapping in this steep terrain.

G. Harper and R. McGuire, assisted by surveyor G. Thomassen, regionally mapped the Twin Creek property from the 6th to the 11th September 1971. During this period snow falls hampered the operation slightly. Mapping on a scale of 1 inch to 200 feet, using transit and stadia control, covered an area about 5000 feet by 2000 feet along the hillslopes north of Twin Creek.



Prior to this D. Bell had laid out a small grid over the main copper mineralized area. His detailed mapping (map ref. 119-71-3) was mainly used to guide the subsequent packsack drilling.

G. 2. Outline of the Geology

Massive Takla volcanics outcrop patchily throughout the southeastern part of the map area (see map ref. 119-71-4). These are intruded by granite of the Hogem Batholith which outcrops to the north and northwest. It has a gradational thermally metamorphosed intrusive contact with the volcanics through most of the area. This contact strikes approximately 065° - 070° . The contact is displaced dextrally by a fault striking 145° . A series of extremely coarse-grained feldspar porphyry dykes intrude the granite along a strike direction of 155° to 165° .

Scattered sulfide mineralization is generally noticed in the vicinity of the intrusive/volcanic contact. The only mineralization of note, however, is that in the area investigated by means of the detailed grid, where abundant pyrite and minor chalcopyrite occur. This zone straddles the intrusive contact. The sulphides or replacement relic limonite occur mainly as disseminated fine grains, but to a certain extent as fracture fillings.

Limonite along fractures near the walls of the widest feldspar porphyry dyke suggest a sulphide zonation within it. However, pyrite was the only sulphide observed.

No strongly developed fracture systems were recognized.

G. 3. The Takla Group Volcanics

The limited outcrops of these rocks do not permit elucidation of a stratigraphic succession. All the volcanic rocks observed were massive; no bedding features, contacts or intercalated sedimentary bands were found.

The commonest rock type is an aphanitic, dark green rock of dacitic to andesitic composition. Towards the east it patchily contains up to 15% by volume of 1-2 mm white feldspar phenocrysts

randomly distributed. Weathered outcrops patchily have a vesicular texture. Cavities now occur in place of the vesicles. When the fresh rock is broken open the vesicular minerals are not recognizable.

Other volcanic rock types noted, either as sporadic outcrops or as occasional float, include:

- (a) A version of the dark green andesite which contains 10%-20% of black fine-grained hornblende. This occurs as minor lenses in the volcanics in the southwest near the granodiorite contact.
- (b) An aphanitic grey-coloured massive dacite or rhyodacite. This also occurs in the west, fairly abundantly. It possibly represents a silicified version of the andesite in the vicinity of the intrusive contact. More probably, though, it represents a primary rock type as no macroscopic indications of widespread silicification occur through it.
- (c) A fine-grained grey and white speckled rock consisting of 60%-70% mafic minerals and 30%-40% white feldspar uniformly distributed through the mafics. It has the appearance of an aphyric microdiorite. Field evidence suggests that it must be a variety of andesite though, as it does not appear to intrude the volcanics. It occurs mainly in the west, adjacent to the intrusive contact. The patchy development of the white feldspar in places suggests that it has been partly recrystallized during intrusion of the granodiorite.
- (d) At survey station #10.8 a single outcrop was found of a very fine-grained white rhyolite. It is predominantly quartz (80%) with 15%-18% white kaolinized feldspar as very fine crystals within the quartz groundmass. The remainder is limonite, largely as minute disseminated grains but also coating all the joint planes. No

sulphides were observed in this altered rock, but it is likely that all the limonite is after pyrite. This is because, south of Twin Creek on the opposite side valley slopes, there are abundant outcrops of extremely similar gossanous altered rhyolite, containing pyrite as the only sulphide.

G. 4. The Hogem Batholith Intrusives

Three main intrusive rock types were distinguished within the mapping areas: granite, granodiorite and diorite. The contacts between the different types are gradational.

(a) The granite, where fresh and unaltered, is a distinctive rock. It is uniformly medium-grained with locally a slight preferred orientation to the mafic grains. It consists of 30%-40% pink potash feldspar crystals frequently occurring surrounding 20% of pale green calcic feldspar crystals. Quartz forms 10%-20% of the rock. Apart from minor accessories the rest of the rock consists of dark green hornblende (20%) and fine-grained crystals of black biotite (5%-10%).

Away from the contacts the granite is remarkably uniform and unvarying. Near contacts it tends to become finer grained and there is an increase in mafic minerals and the proportion of calcic feldspar. Lenses of volcanics become common.

(b) The intrusive rocks of the detailed grid area are mainly granodiorites (see map ref. 119-71-2). They are medium grained, relatively quartz poor (5%-15%) and show varying K-feldspar contents between 5%-20%. The calcic feldspars form 30%-50%, hornblende and chlorite 20%, and biotite 5% of the rock. Minor epidote increases towards the volcanic contacts as fracture fillings and disseminations.

The feldspars and the mafics are often partly or totally decomposed (kaolin, zeisite, chlorite). These white-weathered rock types were mapped as altered granodiorites.

(c) The diorites are fine-medium grained with 20%-30% dark hornblende and 50%-70% pale green plagioclase. Epidote is the major accessory and occasionally forms up to 20% of the rock. It occurs in irregular shaped eyes and lenses of up to ½-inch diameter. Accessory quartz and K-feldspar are of less importance. Limited disseminated pyrite (less than ½%) and occasional chalcopyrite are observed in epidote rich specimens.

The mapping in the detailed grid area was made difficult by the fact that many rocktypes have to be classified as hybrid rocks or mixtures of volcanics with intrusives. The present map (ref. 119-71-2) is therefore basically the result of an arbitrary classification of rocktypes and their distribution.

G. 5. Feldspar Porphyry Dykes

Other than narrow lenses of granite cutting the volcanics, these feldspar porphyry dykes are the only dykes mapped on the property. Four dykes, all vertically dipping and striking 155°-165°, were mapped. The typical dyke rock consists of 50%-60% fine-grained groundmass. Grains discernible in the groundmass include black hornblende, biotite and feldspar. Scattered through the groundmass with no preferred orientation are 10%-15% of 2-3 mm anhedral-subhedral quartz grains, 20%-25% of 2-6 mm subhedral-euhedral white plagioclase laths, and 5%-10% of euhedral pink or white translucent 5-10 mm potash feldspar phenocrysts. There is little variation between the four dykes.

The actual contacts were only observed in the narrow dyke in the extreme northwest. They were abrupt with virtually no chilled margin developed. Only in one dyke was any zoning observed. In the wide dyke in the northwest the outer third on either side has a limonitic gossanous appearance from a concentration of limonite after pyrite on all the fractures near the walls. In the centre and in the other dykes there is no significant pyrite development.

G. 6. Structural Relations

The Takla Volcanics have been intruded by the granite, granodiorite and diorite of the Hogem Batholith. The intrusive contact appears to strike 065° - 070° . No abrupt contact was observed nor was it expected as there is rather a contact zone some 500 feet wide. In this zone there is a gradual change from typical intrusives through:

- (a) Mafic enriched granite and granodiorite with relict partially assimilated lenses of volcanics.
- (b) Potash feldspathized and silicified microdiorite and volcanics containing lenses and "dykes" of intrusive material.
- (c) Grey dacitic and other altered volcanics still with occasional dioritic lenses, into unaltered massive volcanics.

The lenses of one rock type within the others generally dip near vertically, suggesting that the overall contact attitude is similar. A major fault striking 145° has subsequently offset the contact some 1200' - 1400' laterally. This fault is indicated by a marked topographic break in the cliffs along the north edge of the mapped area. However, there was insufficient exposure in its vicinity to actually observe the plane. There is a noticeable orientation of variably dipping fractures along this strike direction.

The feldspar porphyry dykes are exposed only within the intrusives. Their lack of chilled margins suggests that they were intruded prior to complete cooling and consolidation of the granitic magma. It is not certain whether they cut the volcanics as well; as exposures of debatable granitic or porphyry material in the southeast may not be outcrop but large blocks transported downslope. Consequently, it is not possible to say for certain whether the dykes are pre or post the fault. It is likely that the dykes predate the fault though, as the fault appears to have cleanly displaced cold solidified granite.

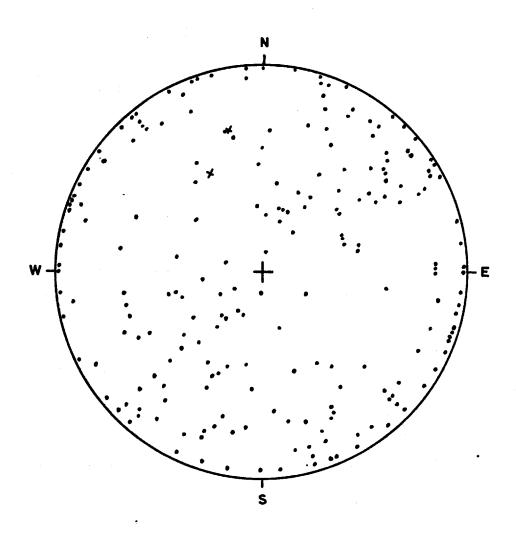
G. 7. Alteration

Alteration is restricted almost entirely to the detailed grid area. In the volcanics there is only patchy weak development of epidote and/or chlorite along random fractures. Limonite staining after pyrite occurs locally in both the volcanics and the intrusives near their contact and abundantly in the volcanics south of Twin Creek; i.e., south of the mapped area. K-feldspar alteration seems to be predominant in the detailed grid area where at least all mineralized outcrops show an increase in K-feldspar. This feldspar, occasionally pink in its fresh stage, is usually xenomorphic and is generally partly or totally kaolinized.

In general, the feldspar porphyry dykes are less resistant to weathering than the granite and form negative topographic features. The wide dyke in the northwest corner has a zoned limonitic gossanous appearance, as mentioned in section G.5. Outside of the grid area the only noticeably altered material mapped is that in the area of survey station #10.8. Here, as described in G.3.(d), is a gossanous, kaolinized, silicified, rhyolite.

G. 8. Fracturing

All fractures recorded during the regional mapping are indicated on map 119-71-4. They have been plotted to show strike and dip, frequency of occurrence, and occurrence or otherwise of copper mineralization along them. Inspection showed that the fractures naturally fell into three groups of spacing. Fractures six inches or more apart do not generally represent a persistent direction. Weakly developed joint systems have fractures two to six inches apart. Only fractures closer than two inches apart are sufficiently abundant to act as hosts to economic mineralization. These closespaced fractures are locally commonly developed but do not form a general highly fractured trend in the intrusives, volcanics or both. Unfortunately, only in the small area of the detailed grid did close-spaced fractures contain any copper minerals. Elsewhere, not even alteration minerals are commonly developed on the close-spaced fractures.



TWIN CREEK (N.B.C. OPTION) - P.N. 163
Plot of all measured joints and lineations.
Schmidt Equal Area Projection.

- Pole to Jointx Lineation

In Figure 1 (map ref. 119-71-20) poles to all measured fractures are plotted on an Equal Area Projection. This shows that there is no strong orientation of joint directions. There is a suggestion that a series of fractures striking southeast have rotated about a horizontal axis striking NW.-SE. This resulted in a fan of fractures of similar strike but variable dip. This fan of fractures could have been induced by the southeast-striking fault. The only other possible concentration of fractures is a vertical set striking 060° - 070° . These fractures parallel the intrusive/volcanic contact. In the detailed grid area the predominant mineralized fractures strike approximately N.30°E. dipping 70° SE. and N.160°E. dipping 60° W.

G. 9. Mineralization

Rusty iron staining occurs on the talus slopes at the east end of the property and on the north facing slope across the valley. Staining is due mainly to relatively abundant pyrite. Minor malachite staining is also found indicating the presence of some copper.

The completed mapping and prospecting indicates that copper mineralization of more than fracture extent is restricted to the detailed grid area. Here the mineralization is related to narrow K-feldspar rich zones within the altered granodiorites. The minerals occur mainly disseminated (up to 4 Vol.%) as fine-grained pyrite and chalcopyrite. Occasional isolated fractures carry magnetite and sulfides.

The proportion of pyrite to chalcopyrite varies considerably; pyrite being present always at least in the same amounts as chalcopyrite. There is no obvious fracture pattern or generally increased fracturing related to the mineralization and the control seems to be mainly lithological.

Surface trenches on the best mineralized outcrops were chip sampled. Samples out of the trench at D.D.H.s 1 and 2 assayed 0.1 oz/t Ag, 0.13% Cu over 65 feet, and trace Ag, 0.23% Cu over 15 feet from volcanics immediately south of this same trench. A high

grade sample out of the trench assayed 0.3 oz/t Ag, 1.28% Cu, while a similar sample out of a trench south of D.D.H.#5 assayed 0.2 oz/t Ag, 0.47% Cu. (For mineralization in the drill cores see drill logs in appendix.)

Outside of the detailed grid area copper mineralization is restricted to a few isolated fractures filled with chalcopyrite and pyrite. Occasional stringers and lenses exhibit up to two inches of massive sulphides.

H. GEOCHEMISTRY

On July 28 the area was re-examined in company with I. L. Elliott, Chief Geochemist, Falconbridge Nickel Mines Limited, and the problems of the geochemical soil anomalies were discussed on the spot.

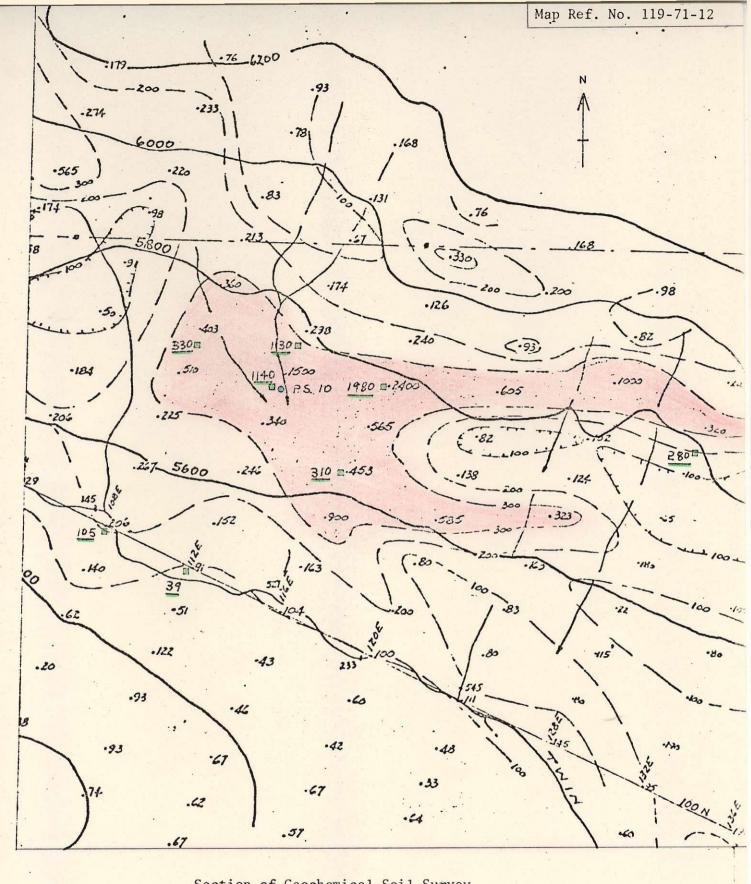
H. 1. Method

Previous soil sampling, under the direction of Bacon and Crowhurst, was carried out at 200-foot intervals on NE-SW lines 400 feet apart located on the north side of the 100N base line. Sampling conditions are good. Samples were reportedly analysed for hot extractable copper by atomic absorption following a nitric-perchloric acid attack. This attack can be expected to release copper occurring in the form of sulphides, oxides and carbonates and from most silicate minerals.

H. 2. Geochemical Results

During the 1971 season a limited number of soil samples were collected for check purposes. The copper values obtained compare positively with the previous values (see map ref. 119-71-12).

Copper values range from 30-3000 ppm. Unaltered volcanics under overburden carry less than 80 ppm Cu. The areas of altered rock with thin overburden carry 100-200 ppm Cu. The anomalous threshold was set at 350 ppm Cu which is a reasonable level. Anomalous areas range from 350-800 ppm Cu with sporadic values higher than this.



Section of Geochemical Soil Survey
by N.B.C. Syndicate (1970, Fig. V)
with Check Samples
by Falconbridge (1971)

and

Drill Hole Location

O'
400'
Scale:

P.S. 10

O'
400'
800'

Three principal anomalous areas can be distinguished.

- (a) 60E to 80E. This extensive area of 300-1000 ppm Cu values occurs mainly over the talus covered slope known to contain mineralization. Copper is being spread downslope by soil creep and in solution. The copper levels are commensurate with those found in the rock by trenching and packsack drilling. The valley bottom anomaly at 76E probably represents groundwater seepage.
- (b) 76E to 100E, north of 110N. This anomaly occurs on an area of thin soil and like the first area probably directly reflects primary levels of mineralization. The anomaly on 96E occurs in a talus slide consisting mainly of andesitic feldspar porphyry. It took some diligent prospecting before any evidence of mineralization was found. The large area of background values south of the anomalies is mostly occupied by landslide material.
- (c) 108E to 136E. This anomaly occurs on well-treed, overburdened slopes with apparent gravel ridges paralleling the main valley. The copper levels in the soil range from 300-2400 ppm. The long extension of copper values at about 114N seem likely to be due to structurally controlled mineralization rather than secondary concentration. The main body of the anomaly at 116E is likely to be at least partly secondary accumulation in the overburden.

I. GEOPHYSICS

The isolated occurrences of magnetite in association with the copper mineralization (see page 10) were the reason for the test magnetometer survey carried out over the detailed grid area. The results as shown on map ref. 119-71-10, however, reflect essentially the distribution of intrusives and volcanics at the surface.

J. DIAMOND DRILLING

In order to better test the various mineralized surface outcrops, nine packsack holes totalling 463 feet were drilled in the main-showing area. (See map ref. 119-71-2 and cross sections 119-71-3.) The rock types and mineralization encountered vary little from the surface outcrops. (Drill logs with assays, see appendix.)

The drill core (EX) was split in half, sampled in ten feet sections, and assayed for copper and, in part, for silver. The silver values are negligible, never exceeding 0.1 oz/t Ag. The best single high grade copper section assayed 0.56% Cu over 10 feet, and the best average over 50 feet assayed 0.35% Cu.

Between August 10 and August 12 several attempts were made to collect representative rock samples from various pseudo and true outcrops in the area of the most eastern soil anomaly, by diamond drilling. However, only one packsack hole (D.D.H.#10) of several attempted was able to penetrate 20 feet of possible outcrop, and there were still signs of probable slumping. The rock type encountered was fresh andesite void of signs of alteration or mineralization (for location see map 119-71-12). In this locality packsack drilling did not give a satisfactory answer as to the nature of the underlying bedrock.

K. CONCLUSIONS

Geological mapping of the Twin Claims in the vicinity of the copper-containing outcrops has shown the general history to be: a volcanic sequence intruded along northeast lines by a granite-diorite sequence, subsequently cut by feldspar porphyry dykes, and finally disturbed by a southeasterly-striking fault.

The completed mapping and shallow drilling in the detailed grid area suggest several narrow zones of discontinuous low-grade copper mineralization restricted to the vicinity of the intrusive/volcanic contact. No significant alteration occurs outside the detailed grid area, and there are no pervasive sets of close-spaced

fractures covering sufficiently large areas to be host to widely-developed porphyry-type mineralization. There is little indication that conditions would necessarily change with depth. Deeper drilling could only be guided by intuition.

The source of the most easterly soil anomaly is uncertain due to heavy overburden, but is believed to be similar to that which is well exposed to the west.

T. Gyr J. Syr

Vancouver, B.C. December 1971

COSTS INCURRED TO DATE

Detail Mapping, July 4-18 (15 days):	
D. Bell, junior geologist, at \$45/day	\$675.00
K. H. Christensen, prospector, at \$45/day	675.00
Packsack Drilling, July 16-17, July 29-August 2, August 8-12:	٠
10 holes totalling 483 feet at \$15/foot	7,245.00
Regional Mapping, September 6-11 (6 days):	
G. Harper, geologist, at \$60/day	360.00
R. McGuire, junior geologist, at \$45/day	270.00
G. Thomassen, surveyor, at \$45/day	270.00
Magnetometer Survey, August 26:	
G. Thomassen, geophys. Op., at \$45/day	45.00
Geochemical Report, July 28:	
I. L. Elliott, at \$100/day	100.00
Assays of drill core and rock specimen:	•
53 Cu determinations at \$3.25	172.25
14 Ag determinations at \$3.50	49.00
Supervision:	
T. Gyr, 3 days at \$60/day	180.00
Total Expenditures:	\$10,041.25

\$3,990 worth of drilling was applied for assessment work to bring all 26 claims into good standing until August 7, 1973.

APPENDIX

Diamond Drill Records

NORTH 108' N EAST -80' E ELEV. 5230' BEARING 320° DIP 60		FALCONBRIC DIAMOND DRILL RE PROPERTY TWIN CREEK (NBC) C	see ma	For location see map ref. 119-71-2 LOGGED BY D. Bell; T. Gyr		AIM TW	C #1 in 14 AB	
FOOTAGE	DESCR	IPTION	SAMPLE	FOOTAGE	C. L.	Ag.oz,	t Cu.%	Core Re
0-24	Hybrid rock (mixture of in light grey, fine-grained, silicified. Diss. cp and 2 Vol.% over 1 foot. Fractore, with iron stain and inclusions (1-2 mm), poss. Similar rocktype, but feld fracturing more intense. 1%) mainly pyrite. Malach	K-feldspar rich, partly py, each up to approx. tures at 35° and 75° to malachite. Few dark hornblende. spars kaolinized and Visible sulfides (approx.		0.10' 10-20' 20-30' 30-40' 40-50' 50-60' 60-70'	10' 10' 10' 10' 10' 10'	0.1 tr. tr. 0.1 0.1 tr.	0.56 0.23 0.25 0.46 0.25 0.03 0.16	90% 70% 80% 90% 95%
38-47	Hybrid rock as above, with			Averag	0-50		ļ	
47-57 57-60	disappearing. As above, visible sulfides mainly pyrite, at 50' chlo at 45° to core, fractures As above, epidote in irreg	rite-calcite veinlet at 75° to core.		·	50'		0.35	Cu.
60-70	no visible cp. As above, but dark grey, d 1-2 inches, occasional dis	•						
70'	End of Hole.							

HOLE No. NBC #1

NORTH EAST ELEV BEARING	108' N -80' E 5230' 140° 60°	COMPLETED 62' DIA	ALCONBRIDG AMOND DRILL RECO PROPERTY . WIN CREEK (NBC) OPTIC	RD		ocation	n . 119-7	— HOLI — CLAI 1-2 SECT Gyr OFFS	M	BC #2 in 14 AB
DIP								PLOT		b 5
ļ	FOOTAGE	DESCRIPTION	SA/	MPLE	FOOTAGE	С. L.		Ag.oz/	Cu %	Core Rec
	0-5 5-26	Hybrid rock (mixture of intrusives and light grey, in parts pink, K-feldspart (approx. 50%), diss. cp and py each adecreasing with depth. Rocktype as above, very limited cp be finely diss. Fractures at 20-30° to fine-grained coatings (amphibole, ch.	r rich approx. 2 Vol.% ut up to 5% py core with dark		0-5' 5-15' 15-25' 25-35' 35-45' 45-55' 55-62'	5' 10' 10' 10' 10' 7'		0.1 tr. 0.1	0.58 0.10 0.20 0.31 0.15 0.15	95% 100% 100% 95% 80% 60% 70%
	26-31 31-38	Breakdown of drill - re-start July 29 Rocktype as above, white-grey, K-felokaolinized, py 1-2%, cp less than 1% Same as 5-26', py up to 5%.	dspar partly		Avera	ge 62'	0.62'		0.24%	Cu.
	38-43 43-62 <u>62'</u>	Same as above, increased iron stain, Same as above, feldspars completely (kaolin.), iron stain predominant, no py up to 4%. 49-51' and 56-57': conground. End of Hole.	altered o visible cp,			•				
	•									,
									•	

NORTH EAST ELEV BEARING	TWIN CREEK (NBC) OPTION		For location see map ref. 119-71- LOGGED BY D.Bell; T. G			CLAI	CLAIM Twin 14 SECTION AB				
DIP					PLOTTED						
	0-11 11-17 17-41 41-52 52'	Andesite, massive, dark green Fractures with epidote at 20 mafics (amphibole, magnetite Malachite on fractures at 80 Same as above, core complete As above, extremely broken at 1-2 inch wide K-feldspar rick Abundant iron stain, no visit Granodiorite, white, medium-kaolinized, diss. cp approx. End of Hole.	n, fine-grained. O to core, and with) at 45 ⁰ and 65 ⁰ to core. O to core. ly broken. nd partly ground core. h zones. ble sulfides. grained, K-feldspars	SAMPLE	0-10 10-20 20-30 30-40 40-52'	10' 10' 10' 10' 12' 0-52'		0.06 0.10 0.15 0.11 0.26	95% 75% 60% 70% 85%	с.	

HOLE No. .

NORTH . EAST ELEV BEARING DIP	-140' 5140' 320 ^C		FALCONBRI DIAMOND DRILL I PROPERTY TWIN CREEK (NBC)	RECORD	For see ma	locatio	119-71-2 s ; T. Gyr	LAIM TWIN	14 AB
	FOOTAGE	DESCRIPTION	1	SAMPLE	FOOTAGE	C. L.	Cu.%	Core Re	ŧ.
	0-18	Andesite, massive, fine-graine Fractures with epidote at 60° Diss. py up to 2%, no visible At 3' scattered moly flakes. 1-3 inch sections with K-feld End of Hole. (drill rods bro	to core. cp.		0-10' 10-18' Average	10' 8' 0-18'	0.09		
					·	18'	0.09	5% Cu.	
					·				

HOLE No. NBC #4

FNM	18	TMP	

NORTH	-144' N.	STARTED August 1, 1971
EAST	-144' E.	COMPLETED
ELEV.	5075'	LENGTH501
BEARING	140 ⁰	
	600	

FALCONBRIDGE

DIAMOND DRILL RECORD

PROPERTY

TWIN CREEK (NBC) OPTION:

PURPOSE	HOLE No.	NBC #5
For location	CLAIM	Twin 14
see map ref. 119-71-2	SECTION	AB
LOGGED BY D. Bell; T. Gyr		

NBC #5

HOLE No.

Cu.% Core Red. **FOOTAGE** DESCRIPTION SAMPLE FOOTAGE C. L. 0 - 15Granodiorite, fine-grained, dark grey with pink 0.07 95% 0-10' 10' K-feldspars and approx. 10% epidote. 10-20' 101 0.26 80% Scattered py - less than 1/2%. 0.17 20-30' 101 80% 15-31 Same as above, increased K-feldspar (>50%), 30-401 10' 0.08 90% mostly kaolinized. Malachite on fractures at 40-501 10' 0.12 90% 45° and 60° to core. 31-50 Same as above, pink-white, K-feldspars up to 70% (granite). Fractures (1/8") filled with fine-grained mafics (amphiboles). Average | 0-50' Less than 1/2% sulfides, malachite on fractures. 501 End of Hole. 50' 0.14% Cu.

NORTH EAST ELEV BEARING	5075' 320°	E. COMPLETED LENGTH51°	FALCONBRIDO DIAMOND DRILL RECUPROPERTY . TWIN CREEK (NBC) OPT	ORD	For 1	ocation p ref.	n 119-71-2 l; T. Gyr	_ CLAI	M	in 14 AB
DIP	5	ე0						PLOT	TED	
	FOOTAGE	DESCRIPTIO	ON	SAMPLE	FOOTAGE	C. L.	(ն.%	Core Re	£
	0-20	Andesite, fine-grained, dark 1-3 inch nests of diorite. and in 1-inch lenses. Malac on fractures at 30° and 55°	Epidote on fractures hite and iron stain to core.		0-10' 10-20' 20-30' 30-40'	10' 10' 10' 10'		0.05 0.11 0.11 0.19	90% 95% 40% 90%	
	20-31 31-37	Same as above, intensely fra Diorite material up to 30%. Diorite with 10-20% andesiti			40-51'	11'	(0.20	65%	
	37-51	medium-grained. Fractures a Diorite, white, no volcanic Isolated specks of malachite abundant iron stain.	inclusions.		Average	0-51'				
	<u>51'</u>	End of Hole.			·	51').13%	Cu.	ì
·								•	•	

HOLE No. NBC #6

	N. STARTED	August 8, 1971	FALCONBRI	DGE		cation		CLAIMTwin 38		
5020			DIAMOND DRILL I	RECORD	see ma	p ref.	119-71-			
	53 ⁰		PROPERTY · TWIN CREEK (NBC) OPTION		LOGGED BY D.Bell; T.					
FOOTAGE		DESCRIPTION		SAMPLE	FOOTAGE	C, L.			ore Re	· .
0-43 43-51' 51'	porphyritic with malachi core. Occas	ional diss. sulfic creased kaolinizat	lase. Fractures at 60 ⁰ and 40 ⁰ to		0-10' 10-20' 20-30' 30-40' 40-51'	10' 10' 10' 10' 11'		0.36 0.25 0.36 0.36 0.20	90% 90% 90% 85% 85%	
	1				Average	0.51'				· .
	1					51'		0.30%	Cu.	
		,								
	•									
								,		
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HOLE No. NBC #7

NORTH . EAST ELEV BEARING DIP	5020' LENGTH 49'		FALCONBRIDGE DIAMOND DRILL RECORD PROPERTY TWIN CREEK (NBC) OPTION		For location see map ref. 119-71-2 LOGGED BY D. Bell; T. Gy			CLAIM Twin 38		
	FOOTAGE DESCRIP		SAMPLE		FOOTAGE	C. L.	Cu.%	Cu.% Core Rec.		
	0-31' 31-38' 38-49' 49'	Diorite, white-pink, feldspachlorite increasing with dep fractured at 20°, 45° and 65 Diss. py <\%, limited malach Andesite, medium-grained, py malachite. Diorite, same as 0-31'. End of Hole.	oth. Heavily 5 ⁰ to core. nite on fractures.		0-10 10-20 20-30 30-40 40-49	10' 10' 10' 10' 9'	0.42 0.29 0.15 0.17 0.15	75% 75% 70%		

NORTH EAST _ ELEV BEARING	ELEV. 5340' LENGTH 60'		FALCONBRID DIAMOND DRILL RE PROPERTY TWIN CREEK (NBC) 0	CORD ·	For location see map ref. 119-71-2 LOGGED BY D.Bell; T. Gyr			CLAI	CLAIM Twin 14		
DIP _	Vertical							PLOT	TED		
	FOOTAGE	DESCRIPTIO	N	SAMPLE	FOOTAGE	C. L.		Cu.% (ore Rec	•	
	0-38 38-46 46-60 60'	Andesite, massive, fine-grain 1/8" veinlets of quartz, epid Isolated fractures and lenses with magnetite, amphibole, su Rock strong magnetic. Fractucore. Same as above, completely she ground core. Andesite, same as 0-38'. End of Hole.	ote and cp. (up to 2 inches thick) 1fides (py >cp). res at 30° and 60° to		0-10 10-20 20-30 30-40 40-50 50-60	10' 10' 10' 10' 10' 10'		0.17 0.27 0.30 0.10 0.13 0.06	100% 100% 100% 95% 70% 100%		
						60'		0.17%	Cu.		
					,						
								•	•	·	

EAST		STARTED August 12, 1971 COMPLETED LENGTH201	FALCONBRID DIAMOND DRILL RE PROPERTY TWIN CREEK (NBC) O	For location see may	CIAI	HOLE No. NBC #10 CLAIM TWIN 8 12 SECTION			
DIP	Vertic	cal					PLO	TED	
	FOOTAGE	DESCRIPTION		SAMPLE	FOOTAGE	C. L.	Cu.%	Core Rec	
	0-20'	Andesite, sl. coarser than in inches with pink K-feldspar. with epidote and py (<4%) at 4 core. No visible copper.	NBC #9, at 8' two Irregular fractures 5°, 60° and 80° to		0-10' 10-20'	10'	0.04	90% 90%	
	20'	End of hole.			Average	0-20			
				·		20'	0.04%	Cu.	
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