03G/8E GEOCHEMICAL REPORT ON THE

YELLOW, BLUE AND GREEN GROUPS

BANK AND BANKER M.C's

BANKS ISLAND, B.C. SKEENA M.D. Latitude 53⁰22'30"N, Longitude 130⁰12'00"W

N.T.S. 103-G-8



Vancouver, B.C. June 15, 1974

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Dr. I.L. Elliott

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GEOCHEMICAL SURVEY

YELLOW, BLUE AND GREEN GROUPS, BANKS ISLAND, B.C.

Introduction

Between April 29 and May 18th a geochemical survey involving seven Falconbridge Nickel Mines Limited and Wesfrob Mines Limited personnel was carried out on Yellow Group Bank 1 and 2 M.C's, Blue Group Bank 3 M.C., and Green Group Banker 141 M.C., Banks Island, B.C.

Location and Access

Banks Island is a northwesterly trending 40 mile by 20 mile uninhabited island on the east side of Hecate Straits approximately 60 miles east of the Queen Charlotte Islands on the B.C. northwest coast.

General Geology

Banks Island is largely underlain by granitic rocks of the Coast Intrusisons of which light coloured granodiorite, quartz monzonite and quartz diorite are most common, although darker dioritic to gabbroic phases are also present. These rocks intrude older sedimentary formations of which only remnants remain. The remnants lie in northwesterly trending belts. A series of northwesterly shear zones cut by easterly and northeasterly joint planes provide the locus of the mineralization present.

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Topography and Soils

The area surveyed is one of gentle to low relief characterized by numerous lakes with interconnecting drainage separated from each other by rocky hills. Soil development is poor with a thin colluvial mantle on the hill slopes grading into predominantly organic rich muck in the shallow valleys.

Method of Survey

To check the continuity of mineralized structures a number of soil sample traverses were made across the anticipated strike of these structures.

Soil samples were taken wherever possible from both A and B or C horizons. Although it is customary to take inorganic samples (B or C horizon), this type of material is not readily available. The effectiveness of sampling the more widespread organic horizon (A) was therefore examined. Because samples of at least 25 grams weight are required for gold analysis, samples large enough to yield at least this amount of minus 80 mesh material were collected. To alleviate the necessity for collecting such large samples, the usefulness of arsenic, mercury, zinc and silver as indicators of gold mineralization was examined.

Samples of organic material were obtained by digging into the organic horizons with a shovel and, after removing most of the undecomposed vegetation, packing the residual earthy material into water resistant paper bags.

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Inorganic samples were obtained by deepening the sample hole with the shovel to expose the soil between the organic layer and bedrock. This material was also collected in water resistant paper bags. About 1 lb. of raw material was obtained from each of the available layers at each site.

Samples were collected at 20 ft. intervals along lines sited over the extensions of known mineralization. In all 348 samples were collected which, by compositing to yield sufficient material for analysis, resulted in 216 samples being analysed for arsenic, mercury, zinc and silver. Twenty-two selected samples were analysed for gold to establish the relationship between gold and the pathfinder elements. Gold analyses were made by Bondar-Clegg laboratories; the other elements were determined in the Falconbridge laboratory in Vancouver.

Laboratory techniques

(a) Preparation.

The samples were dried in a gas fired, hot air oven, and hand screened through 80 mesh nylon screen. Where necessary, duplicate samples of the same material from the same site were composited in order to yield enough material for analysis.

Silver and zinc were determined on a one gram sample of the minus 80 mesh fraction of the samples by standard atomic absorption techniques following dissolution in hot 10% nitric acid.

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Arsenic was determined on 0.5 gram of the minus 80 mesh fraction of the samples by the standard Gutzeit technique (reaction of arsenic liberated by the action of zinc metal on the sample solution with mercuric chloride to form yellow brown mercury-arsenic compound the colour of which is proportionate to the amount of arsenic present), following dissolution in a hot mixture (1:3) of nitric and perchloric acids.

Mercury was determined on 0.5 gram portion of the minus 80 mesh fraction of the sample by the flameless atomic absorption technique following dissolution in concentrated nitric acid.

Gold was determined on 20-50 gram samples of the minus 80 mesh material by standard atomic absorption techniques following formation of a gold bead by fire assay methods, and subsequent dissolution of the bead in aqua regia.

Results and Interpretation

Analytical results are presented on Figures 2 and 14 for the Discovery, Kim and Bob zones. Variations in element concentrations over a known mineralized area are shown in Figures 15 and 16.

Concentration ranges for the various metals are summarised below.

(a)	Organic Soil	Range	Local Bkd.	Anomalous	Mode
	As	5-12,000	5 - 25	>25	5
	Hg	70-1,083	70 - 500	>500	300-350
	Zn	5-1,320	5 - 70	>70 ppm	25
	Ag	0.1-1.6	0.1-0.3	>0.3	0.1

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(b) Inorganic Soil

There is insufficient data to calculate statistics for inorganic soils.

The organic soils generally contain higher levels of metal than inorganic soils.

Discovery Zone (Figs. 2-6)

All the elements determined are anomalous over the known mineralization traversed by the two lines, despite the fact that on Line DI the mineralization is covered by 10 ft. of overburden. Arsenic and Silver are clearly superior to Zinc, and Mercury in locating the zone. Although Zinc anomalies are high their background level is very erratic. Similarly a high level of mercury is present, but the variations from sample to sample are so great as to make definition of the mineralization difficult. On the other hand, arsenic and silver with a very low stable background concentration show very strong anomaly contrast in the vicinity of mineralization (Figs. 15, 16)

Kim Zone (Figs. 7-10)

The traverse K1 which crosses known mineralization gives anomalous values for all four elements in the vicinity of the mineralization. Very few anomalous values are found on line K2; the small group of higher As values at the north end of the line may represent the extension of mineralization exposed in the pits on the K1. The high silver and arsenic values at site 16S should be investigated by trenching. Bob Zone (Figs. 11-14)

As in the Kim and Discovery zones the organic soil over known mineralization is clearly anomalous in all four elements. There is little indication of continuation of the zone as far east as line B1. The elevated As values at sites 6-8 on line B1 should be investigated by trenching.

Gold values

It can be seen from Table 1 that there is a very good correlation of gold and arsenic in the organic soils of the area sampled. This being so, means that gold mineralization can be traced using the cheaper arsenic analysis, and eliminates the need for collecting very large samples in the reconnaissance stage of exploration.

Conclusions

Arsenic and silver are useful pathfinder elements in locating gold mineralization on Banks Island. Zinc and mercury are not suitable pathfinder elements. In the Discovery zone only the presently known zone is present in the area surveyed. In the Bob zone, a weak arsenic on line Bl between 6S-8S should be investigated by trenching. In the Kim zone, a strong but restricted arsenic-silver anomaly at site 6S on line K2 should be investigated by trenching.

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1.L. Elliott

ILE:pb June 15, 1974 A P P E N D I C E S

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], David H. Brown		
of #500 - 1112 West Pende	r Street, Vancouver B C V6F 283	M.R. Vancouver, S. C.

in the Province of British Columbia, do solemnly declare that the following expenses were incurred in carrying out three separate geochemical grid surveys on claims Bank 1, 2 (Green Gp.), Bank 3 (Blue Gp.) and Banker 141 (Yellow Gp.) of the Banks Island property.

Period 1974 Nam	<u>ne</u>	Daily Rate	Yellow Gp. Bank 1,2 mc	Blue Gp. Bank 3 mc	Green Gp. Banker 141 mc		Total
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Supervision & Re	eport Writing						
Apr. 29-30) J. May 3-10) J. May 16-18) I	J. McDougall, P.Eng. .L. Elliott	(63.69)	267.94	272.09	287.99		828.02
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Camp Supplies			195.82	198.85	210.47		605.14
Printing and Dra	fting		20.69	21.02	22.25		63.96
Geochem. Sample	Analyses		601.61	429.69	396,70	1,	428.00
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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."

, in the

, A.D.

Declared before me at the City

S.H. Brown

Province of British Columbia, this 2/

June. 1974

Vancouver

day of

of

A Commissioner for taking Affidavits within British Columbia or A Notary Public in and for the Province of British Columbia.

SUB-MINING RECORDER

APPENDIX B



FALCONBRIDGE NICKEL MINES LIMITED 1112 West Pender Street, Vancouver 1, B.C., Canada Telex 04-53245 Telephone (604) 682-6242

June 15, 1974

The Chief Mining Recorder, Skeena Mining Division, Prince Rupert, B.C.

Dear Sir,

Re : Statement of Qualifications

This is to certify that the geochemical work done on the Bank and Banker M.C's and presented in this report was done under my direction.

The geochemical work was done under the guidance of Mr. J.J. McDougall, P. Eng., and Dr. Ivor Elliott, P. Eng., of the Falconbridge staff.

Messrs. McPhee, Christensen and Zastavnikovich are prospectors and technicians of long standing on Falconbridge and Wesfrob staffs who were trained by Dr. Elliott, company chief geochemist, in techniques and field procedures. Mr. Esson is a trained surveyor and draftsman of high qualifications. Mr. R. Downing is a B.Sc., M.Sc., geologist (1973) who has worked with the Falconbridge organization since 1971.

I am a graduate in engineering geology from the University of British Columbia, and a member of the Associaton of Professional Engineers of Ontario and British Columbia.

> Yours truly, FALCONBRIDGE NICKEL MINES LTD.,

Reli Grown

D.H. Brown, P. Eng.

ILLUSTRATIONS

TABLE	1

Sample No.	Sample Wt. gms.	Gold p.p.b.	Arsenic p.p.m.
·· ····			<u>+</u>
34,103	10.7	< 10	5
34,109	50.6	5	17
34,117	12.4	120	450
34,123	30.6	100	400
34,127	11.6	< 10	15
34,131	19.5	< 5	5
34,139	12.5	10	17
34,121	38.4	490	1,100
34,133	32.5	10	15
34,291	27.0	2,000	200
34,286	38.9	11,600	5,200
34,418	12.1	10	70
34,417	119.0	< 5	40
34,114	10.1	65	5
34,023	21.2	110	10,000
34,027	10.3	17,000	10,000
44,033	19.6	9,400	10,000
34,037	15.8	2,300	10,000
34,344	56.2	90	25
34,345	13.2	15	40
34,343	57.0	40	15
34,349	32.9	5	70

Relation between gold and arsenic in organic soil.

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