WELCOME NORTH MINES LTD. (N.P.L.)
1027-470 Granville St., Vancouver, B.C. V6C 1V5 Telephone (604) 687-1658

GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL REPORT

CAL GAL 1-16 MINERAL CLAIMS

N.T.S. 105F-16

Latitude 61°51'N Longitude 132°12'W

WATSON LAKE MINING DISTRICT

YUKON TERRITORY

For Work Performed During the Period July 15 - August 31, 1975

by

John S. Brock

May, 1976

010045

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of $10,582.49

J B Craig

Resident ~~Geologist~~ or
~~Resident Mining~~ Engineer

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

B. R. BAXTER
Supervising Mining Recorder

for Commissioner of Yukon Territory

Office of The Supervising Mining Recorder
MAY 25 1976
WHITEHORSE
Yukon Territory

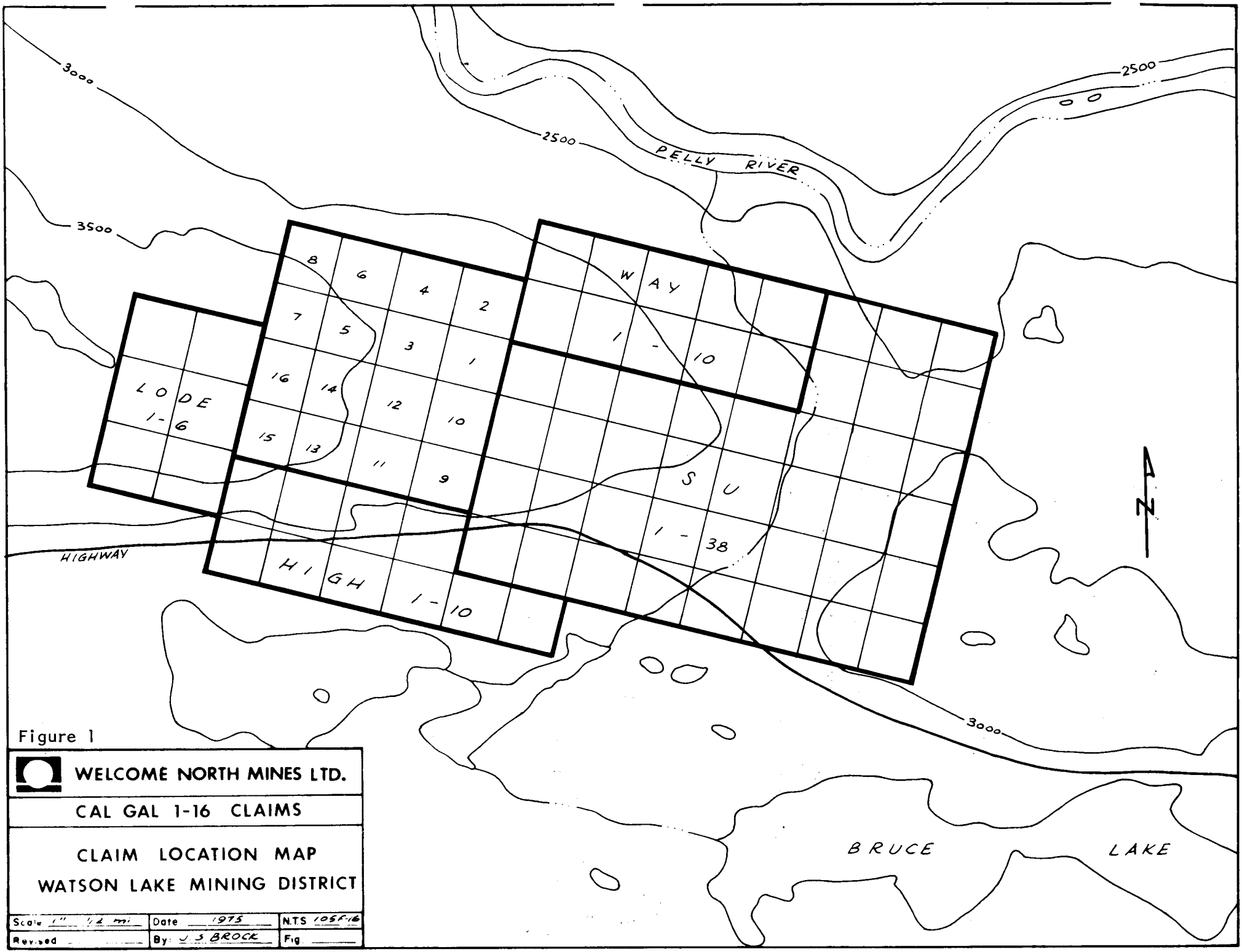

Figure 1

WELCOME NORTH MINES LTD.

CAL GAL 1-16 CLAIMS

CLAIM LOCATION MAP
WATSON LAKE MINING DISTRICT

Scale 1" = 1/2 mi	Date 1975	N.T.S 105F-16
Revised	By: J.S. BROCK	Fig

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Regional Gravity	In Pocket
Bouguer Gravity	In Pocket
Elevations	In Pocket

SUMMARY AND CONCLUSIONS

The CAL GAL 1-16 mineral claims were staked by Welcome North Mines Ltd. and Mackir Mining Ltd. during May, 1975. The claims were located over an area of sericite-limonite alteration of Precambrian phyllite rocks. The property is located on-strike to the northwest of a sulphide-rich gossan area that during 1974 and 1975 received some exploration attention by Silver Standard Mines.

The CAL GAL property was acquired as an exploration target indicative of massive sulphide mineralization. Accordingly, follow-up work consisted of linecutting, gravity surveys and some geochemical soil sampling. A well defined 2.0 milligal response obtained as a result of the gravity program indicated a potential massive sulphide body at depth.

Drill testing of the gravity anomaly was recommended, which program was carried out during the period November, 1975 to January, 1976 (see report: Diamond Drilling Program, SU - CAL GAL, by J.S. Brock, May, 1976).

Drilling failed to intersect sulphides, as a result of which further gravity surveys are proposed to better delineate the position and geometry of the causative mass.

LOCATION AND ACCESS

The CAL GAL claims are located east of the Robert Campbell Highway and north of Bruce Creek. Access is by automobile from the settlement of Ross River, 25 miles by road to the north. A small lake located north of the CAL GAL is suitable for float equipped aircraft of the S.T.O.L. type and has been used by such aircraft in the past.

MINERAL CLAIMS

The CAL GAL 1 - 16 claims consist of the following 16 contiguous

mineral claims located in the Watson Lake Mining District of the Yukon:

	Grant No.	Recording Date
CAL GAL 1-16	Y84121-Y84136	May 14, 1975

The claims are held in the name of Welcome North Mines Ltd. but are subject to a 50% interest held by Mackir Mining Ltd. as well as options to earn interests by Silver Standard Mines Ltd. and Malabar Silver Mines Ltd.

GEOLOGY

The CAL GAL property is within the western margin of the Selwyn Basin (Gabrielse 1967) and lies within several miles northeast of the Tintina Trench.

Volcanic , phyllitic and schist units underlying the property are of probable Precambrian to Ordovician in age, however intense deformation and alteration tend to obscure distinguishing characteristics of the prognosticated Selwyn Basin type stratigraphy.

The rocks are lithologically similar and in part probably equivalent to those of Unit 3 of the Anvil area (Templeman-Kluit Bull. 208, 1972).

The following rock types have been noted on the property:

1. Greenstone of basaltic composition.
2. Acid volcanic, intensely altered, kaolinite, liminite hematite, sericite.
3. Graphitic phyllite.
4. Quartz, chlorite, sericite schist.

Exposed outcrop on the property is less than 5 percent, therefore a serious attempt toward geological mapping has not been made.

PREVIOUS WORK

To the best of the author's knowledge no previous work of any

detailed nature has been carried out on the property.

LINECUTTING

Linecutters from the settlement of Ross River were hired to cut a picket line grid over the property. Reference to specifications concerning the CAL GAL Grid may be found on page 1 of the report included in Appendix "A" (Galeski 1975).

GEOCHEMICAL SURVEYS

1. Method of Survey

The CAL GAL property is generally covered with overburden varying in depth from a few feet to in excess of 50 feet in thickness. The overburden consists primarily of glacial till as well as unsorted river deposits related to the Pelly River drainage.

Soil samples were collected along line 0+00 in order to gain additional data in the vicinity of the previously defined gravity anomaly in that area.

Previous results from other 'grid controlled' geochemical surveys were made available from the adjoining SU claims for review and interpretation.

All soil samples were obtained with a prospector's grub hoe, which was found adequate as a tool for cutting through heavy layers of organic material overlying the soil.

Certain areas determined as being anomalous in lead, zinc, and copper from previous surveys were further investigated with rock geochemistry to determine if the geochemical anomalies in soils were either in situ or transported. All geochemical samples were collected in Kraft brown paper bags and shipped for testing to Acme Analytical Laboratories in Ross River, Yukon.

2. Method of Analysis

All samples were analysed by Acme Analytical Laboratories Ltd. at Ross River. When the samples were received, each was dried while in its Kraft bag, then screened to 80 mesh, weighed out to 0.5 grams and digested in hot aqua regia. Rock samples were crushed and pulverized before undergoing this process. Samples were then diluted, clarified for 20 hours and then tested for copper, lead and zinc content on an atomic absorption spectrophotometer. The 'AA' unit used was a Perkins Model 305B and accuracy of the instrument ideally is 1% of the amount of metal present. Individual cathode lamps were used for each element determination, a direct readout being given in parts per million of the element being tested.

3. Interpretation of Results

No anomalous response in either copper, lead or zinc was obtained over the gravity anomaly in the vicinity of its peak at Station 9S on line 0+00. In view of the depth interpretation to the causative structure this would be expected (see Fig. ii).

Of significant interest is lead and zinc content in soils in the vicinity of Station 28S where anomalous values in the order of 4 times background have been encountered. This anomalous area is coincident with a horizontal plane of theoretical groundwater emergence (Fig. ii) or could represent anomalous metal content associated with "Target No. 2" at a depth of 650 feet.

GEOPHYSICAL SURVEYS

The geophysical work performed on the property consisted entirely of gravimetric surveys. The survey was performed on a contractual basis by Airborne Geophysical Surveys Ltd. A detailed report concerning results obtained is presented as Appendix "A" of this report.

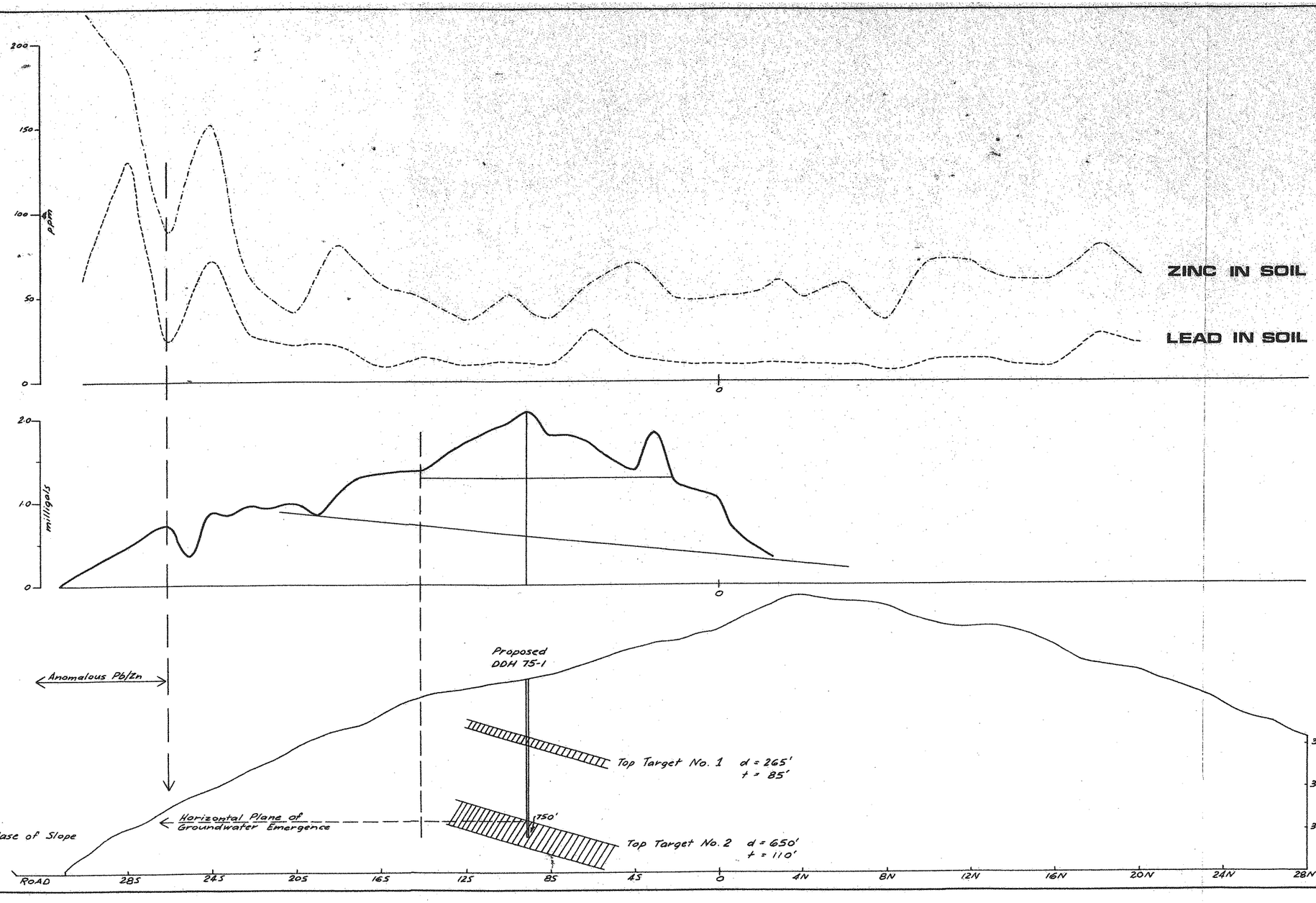
WELCOME NORTH MINES LTD

CAL GAL MINERAL CLAIMS

Geophysical - Geochemical
Profile Compilation

Line 0+00

Scale: 1 INCH : 400 FT.	Date: OCTOBER 1975	N.T.S. 105 F/
Revised:	By: J. S. BROCK	Plate



RESIDUAL GRAVITY PROFILE

TOPOGRAPHIC PROFILE

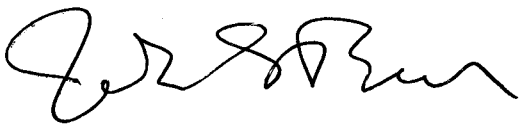
LINE 0+00

Fig. 2

RECOMMENDATIONS

Based on the report of Airborne Geophysical Surveys Ltd. (Appendix "A"), one diamond drill hole is proposed to test the gravity anomaly at Station 9+00S line 0+00W. The hole should be drilled at -90° to a depth of 750 feet.

Respectfully submitted



John S. Brock

CERTIFICATE

I, John S. Brock, of 3029 Procter Avenue, West Vancouver, British Columbia, DO HEREBY CERTIFY:

1. That I am a geologist and geophysicist with a business office at 1027-470 Granville Street, Vancouver, B.C.

2. That I am a graduate in geology and geophysics of the University of British Columbia (B.Sc. - 1964).

3. That I am a Fellow of the Geological Association of Canada (1967), a member of the Canadian Institute of Mining and Metallurgy (1966), and a member of the Society of Exploration Geophysicists (1968).

4. That I have practiced my profession as a geologist and geophysicist for the past twelve years.

5. That the information, opinions, and recommendations in the attached report are based on personal knowledge of the property gained from work in the field in the period August 14, 17 and 18, 1975 and on general knowledge of the Yukon gained over the past thirteen years.

John S. Brock

DATED at Vancouver, British Columbia this 14 day of May, 1976.

APPENDIX "A"

CALGAL CLAIMS

ROSS RIVER AREA

YUKON

GRAVITY INTERPRETATION

FOR

MACKIR MINING, LTD.

BY

R.B. & J.R. GALESKI

AIRBORNE GEOPHYSICAL SURVEYS, LTD.

SEPTEMBER, 1975

INTRODUCTION

Field work was conducted on the Calgal Claims by Airborne Geophysical Surveys, Ltd. between 15 July and 30 July, 1975. Programme consisted of seven parallel north-south lines, each about 6200' long, spaced at 800' intervals. In addition, there is one 4800' east-west tie line and one 3200' intermediate north-south line. A total of approximately ten line-miles of surveying and metering were completed.

Data were reduced with an elevation correction factor of 0.06 (2.67 surface density) and a conventional latitude correction. Terrain corrections were not made. Bouguer and elevation profiles and maps were constructed. These form an integral part of this report.

In addition, regionals were applied to prints of the profiles, tied, adjusted and contoured. Residuals were extracted from the profiles and contoured. The regional and residual maps also form an integral part of this report.

ELEVATION MAP

Elevations vary from a high of 3590' in the southwest part of the area (23S, line 48W) to a low of 2808' at the southeast corner (31S, line 0+00). A local topographic high exists at 4N, line 0+00. It loses relief gradually in a westerly direction, finally disappearing at 3N, 40W. The high at 23S, 48W, is broader; and it plunges easterly, finally disappearing at 14S, 16W.

The northern half of the prospect slopes evenly to the north at an average rate of about 900'/mile. Steepest slope is in the southeast corner where the rate is 1800'/mile.

BOUGUER MAP

The Bouguer map is contoured at an interval of 0.2 mgal. It shows a gravitational low plunging from 5N, line 0+00, across the area to 16N, line 4E. It coincides roughly with the topographic high crossed by lines 0+00 and 8W, but then wanders northwesterly along the northerly dipping topographic slope. It separates two westerly plunging noses: a weak one in the northeast corner of the area and a strong one in the south half of the area. The latter has closure between lines 0+00 and 4W. The gradient between the strong positive and the negative to the north is steep just north of the base line.

REGIONAL MAP

The regional map (contoured at a 0.5 mgal interval) shows highest values at the north and south ends of line 0+00. Lowest values are along the north half of line 48W. In essence, they define a westerly plunging negative across the area with axis extending from the intersection of 0+00 with the base line to about 12N on 48W. The implication is that the area is underlain by slightly lighter rocks than is the surrounding area.

RESIDUAL MAP

The residual map (C.I. = 0.2 mgal) is the key map of this report. It shows one huge positive extending across the entire area and open at both ends. Relief throughout exceeds 1.4 milligals, but the apex is at 9S, line 0+00, where amplitude is 2.0 mgal. It should be noted that terrain corrections, were they made, would alter the shape of this anomaly somewhat. It is estimated (based on test calculations) that amplitude would be lowered by 0.3 mgal. at the east end and by 0.5 mgal at the west end. Also, at the east end, the north flank would be steepened slightly and the gradient on the south flank would be lessened.

Should the causative mass be an orebody, the following assumptions and calculations would apply:

1. Shape is a slab, with edges near the 1.0 contour.
2. Orientation is flat in the western part, but body dips south on the east end at a rate slightly in excess of surface slope.
3. Gross tonnage between lines 0+00 and 48W = 125± MM.
4. At station 9S, line 0+00: depth to top = 375', thickness = 150'.

There is some indication that this anomaly may have two component causative masses, but it was not practical to split into the two components with the data at hand. However, if this is so, the writer would expect the upper mass to be encountered at 9S, 0+00, at a shallower depth than the 375' mentioned above. Also, the deeper one should be expected at closer to 650'. Gross thickness would not be altered, but would be split between the two zones with the upper one having less than half. If there are two zones, it is

unlikely the upper one extends westerly as far as the west end of the prospect, but the lower one certainly should.

The 0.6 mgal positive in the northeast corner is suggestive of overburden effects. However it may be the end of a larger, more definitive feature to the east.

RECOMMENDATIONS

1. Acquire an interest in property east of the Calgal Claims.
2. Drill at 9S, line 0+00, to 600'.
3. If an ore body is intersected above 400' and it is less than 100' thick, continue drilling to 750' to determine whether or not a second zone is present.
4. If ore is found, acquire land interest west of the Calgal Claims.
5. Consider additional gravity work east of 0+00 to further evaluate both anomalies.

Respectfully submitted,

Robert B. Galeski, P. Geoph.

John R. Galeski, Geologist

APPENDIX "B"

APPENDIX "B"

SUMMARY EXPLORATION COSTS

PHASE I GEOPHYSICAL/GEOCHEMICAL SURVEYS

CAL GAL MINERAL CLAIMS

					Ch. No.
1.	GEOLOGY	Salaries	J.S. Brock	$72.71	August payroll
		Maps	Western Reproducers	17.62	1581
			Sub Total	90.33	
2.	GEOCHEMISTRY	Salaries	J.S. Brock	145.41	August payroll
		Analysis	Acme Labs	77.60	1469
		Analysis	Acme Labs	40.00	1486
			Sub Total	263.01	
3.	GEOPHYSICS	Contract	Airborne Survey	10,009.24	--
4.	FREIGHT	Aircraft	Terr Air.	50.00	1472
5.	CAMP OPERATION	Field Costs	Misc. Expenses	31.00	1652
6.	EXPEDITING	Telephone calls	CN Telegraph	44.70	1587, 1411 1511, 1693
			Misc.	30.00	--
			Sub Total	74.70	
7.	ADMINISTRATION	Direct	Misc. expenses	12.10	1693
		Indirect @ 10% of non contract charges		52.11	
			Sub Total	64.21	
				$10,582.49	

APPENDIX "C"

AFFIDAVIT

SUPPORTING SUMMARY OF COSTS APPENDIX "B"

OF GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL REPORT

CAL GAL 1-16 MINERAL CLAIMS

I, John S. Brock, geologist and President of Welcome North Mines Ltd. (N.P.L.) do hereby swear that I was personally present and supervised the exploration work detailed within the above-captioned report.

I, John S. Brock, also swear that to the best of my knowledge and belief the charges and costs as summarized within Appendix "B" of the above-captioned report are both true and correct.

John S. Brock

14 May /76

Date

SWORN BEFORE ME at the City of Vancouver, in the Province of British Columbia, this 14 day of May, 1976.

A Notary Public in and for the Province of British Columbia.

APPENDIX "D"

PERSONNEL

NAME	OCCUPATION	DATES WORKED
John S. Brock 3029 Procter Avenue West Vancouver, B.C.	Geologist	Aug. 14, 17, 18, 1975.

APPENDIX "E"

6455 Laurel St., Burnaby 2, B.C.

WELCOME NORTH MINES LTD.
8-1161 MELVILLE ST.,
VANCOUVER, B.C.
V6E 2X7

ANALYSES CERTIFICATE

File No. K-5057

Type of Samples

Disposition

No.	Sample		Cu	Pb	Zn									No.
01	Calgal 0-2N		14	12	52									01
02	4		8	10	50									02
03	6		8	10	58									03
04	8		6	8	36									04
05	10		14	12	72									05
06	12		20	12	70									06
07	14		12	10	60									07
08	16		14	10	62									08
09	18		60	28	80									09
10	0-20N		14	22	64									10
11	0-BL		24	12	50									11
12	0-2S		20	10	50									12
13	4		12	14	70									13
14	6		16	30	60									14
15	8		20	10	38									15
16	10		14	12	50									16
17	12		10	10	36									17
18	14		14	14	48									18
19	16		14	10	56									19
20	18		22	22	80									20
21	20		10	22	40									21
22	22		16	26	60									22
23	24		36	72	152									23
24	26		12	24	86									24
25	28		36	130	196									25
26	0-30-S		64	60	220									26
27														27
28	BLO-2W		12	20	62									28
29	6		12	10	42									29
30	8		28	20	60									30
31	10		66	22	72									31
32	12		24	16	48									32
33	14		10	12	40									33
34	BLO-16W		14	16	52									34
35	LO-18S	R	6	10	20									35
36	LO-18S		18	14	70					Silt				36
37	LO-20S	R	42	20	68									37
38	LA-BL		20	14	50									38
39	Calgal 1.		12	20	36									39
40														40

All reports are the confidential property of clients.

All results are in parts per million.

DATE SAMPLES RECEIVED 9-8-75

DATE REPORTS MAILED 11-8-75

ACME ANALYTICAL LABORATORIES LTD.

Assaying & Trace Analysis
6455 Laurel St., Burnaby 2, B.C.

Tel 299-5242

ANALYSES CERTIFICATE

[illegible] North
[illegible] Creek

File No. [illegible]
Type of Samples [illegible]
Disposition

No	Sample		Cu	Pb	Zn
01	[illegible]		390	42	1400
02	[illegible] 1		1'0	58	370
03	2		141	172	350
04	3		300	40	510
05	4		480	40	1000
06	5		156	20	360
07	Su-ET 6+00		240	160	2000
08					
09	Su ET P100		1[illegible]	68	280
10	2		76	32	450
11	3		126	20	340
12	4		18[illegible]	44	300
13	5		164	42	260
14	P 6		84	30	150
15	Su-ET P 7		142	32	270
16					
17	SNOOP 1	S	34	28	170
18	2	S	32	22	150
19	SNOOP [illegible]	S	36	22	100
20					
21	SE[illegible] CRK 1	[illegible]	24	22	54
22	[illegible] Zn		84	20	110
23					
24	[illegible] 1		225	30	162
25	[illegible]		24	16	52
26	[illegible]		10	10	28
27	4		44	18	78
28	[illegible]		16	14	36
29	6		12	8	20
30	7		8	10	30
31	8		36	14	50
32	9		30	32	26
33	10		10	8	44
34	11		10	10	64
35					
36					
37					
38					
39					
40					

Handwritten annotations beside the table: "Cirque" (beside rows 01–15); "YUKON OEX" (beside rows 17–22); "Cirque" (beside rows 24–34).

All results are in parts per million.

DATE SAMPLES RECEIVED [illegible]
DATE REPORTS MAILED [illegible]
ANALYST [illegible]

48 W
40 W
32 W
24 W
16 W
8 W
0
28 N
20 N
12 N
4 N
4 S
12 S
20 S
28 S
41.5
42.0
42.5
43.0
43.5
41.0
4W

Claim Posts, as located on gov.'t claim map

WELCOME NORTH MINES LTD.

REGIONAL GRAVITY

CALGAL PROPERTIES, Y.T.

C.I. : 0.50 mgals
Scale : 1" = 400'

R.B. Galeski
Sept., 1975

AIRBORNE GEOPHYSICAL SURVEYS

48 W 40 W 32 W 42.0 24 W 16 W 8 W 43.0 0

28N 20N 12N 4N 4S 12S 20S 28S

41.0 42.0 43.0 44.0 4W

Claim Posts, as located on gov.'t claim map

WELCOME NORTH MINES LTD.

BOUGUER GRAVITY

CALGAL PROPERTIES, Y.T.

C.I. : 0.20 mgals
Scale : 1" = 400'

R.B. Galeski
Sept., 1975

AIRBORNE GEOPHYSICAL SURVEYS

48W 40W 32W 24W 16W 8W 0

28N 20N 12N 4N 4W 4S 12S 20S 28S

3,000' 3,250' 3,500'

Claim Post, as located on gov.'t claim map

N

WELCOME NORTH MINES LTD.	
ELEVATIONS CALGAL PROPERTIES, Y.T.	
C.I. : 50' Scale : 1" = 400'	R.B. Galeski Sept., 1975
AIRBORNE GEOPHYSICAL SURVEYS	