

4560

VLF - ELECTROMAGNETIC SURVEY

on the

"BLUE" GROUP OF MINERAL CLAIMS

"BLUE" GROUP

Northeast side of the Guichon Batholith,
Kamloops Mining Division

Western Longitude: 120°56'09"

Northern Latitude: 50°33'10"

Claims included: BCD #13, 14, 15, 16, 17, 18, 19, 20, 21, 22
23, 24, 25, 26, 27, 28, 38, 48, 51

OWNER: Comet Industries Ltd. (N.P.L.), Vancouver, B.C.
WORK BY: Arpad Fustos, B.S.F./For.Eng., B.Sc., P.Eng., Geologist.
SURVEY: July 1973
INTERPRETATION: August 1973
REPORT: August-September 1973

Department of	
Mines and Technical Resources	
Administrative Services	
NO. 4560	MAP

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MAPS

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INTRODUCTION

The Blue Group property, in all nineteen full sized mineral claims, was acquired by Comet Industries Ltd. (N.P.L.) in 1972. Although the property is located on the Guichon Batholith, which has played a prominent part in Canadian mining for well over ten years now, it was not seriously investigated to date.

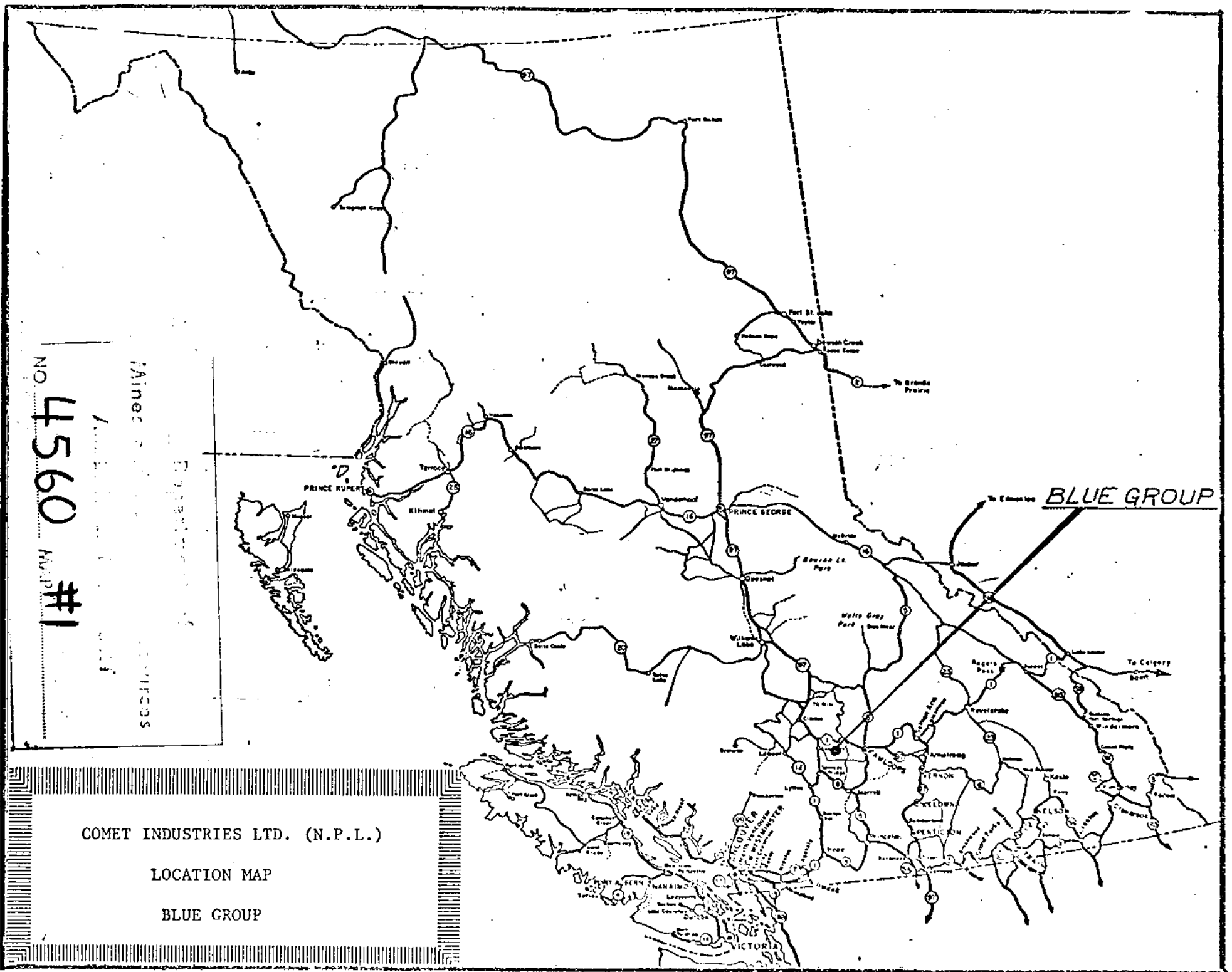
Comet Industries Ltd. (N.P.L.) has decided to start evaluating the merits of the property with fast and economic reconnaissance surveys before initiating more intensive exploration programs. As a first step, it was decided to proceed with a VLF-Electromagnetic reconnaissance survey. This operation was carried out in the second part of July 1973 under the supervision of the writer, and this report contains a description of the property, the survey and evaluation of the observed results.

LOCATION, ACCESS and PROPERTY

The property is located at the foot of the eastern slope of Bose Hill, a relatively prominent geographical feature on the northern part of the Highland Valley. The approximate geographic location of the property's center is W 120°56'09", N 50°33'10". No usable approach exists directly to the property, but by utilizing old tracks and logging roads from the west side of Tunkwa Lake one can drive to the vicinity of its eastern boundary. Tunkwa

NO. 4560 #1

Map of British Columbia



COMET INDUSTRIES LTD. (N.P.L.)

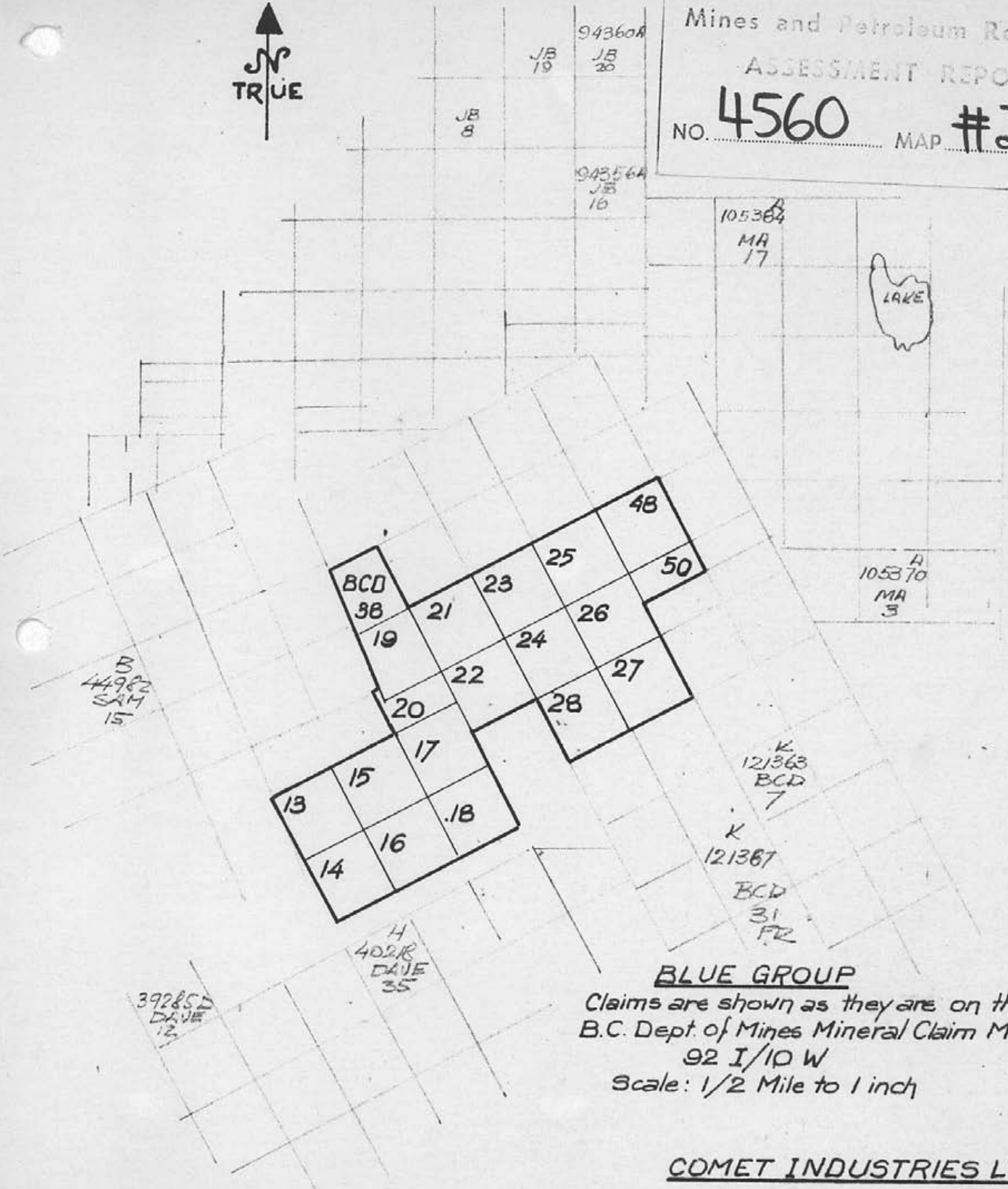
LOCATION MAP

BLUE GROUP



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NO. **4560** MAP **#2**



BLUE GROUP

Claims are shown as they are on the
B.C. Dept. of Mines Mineral Claim Map
92 I/10 W
Scale: 1/2 Mile to 1 inch

COMET INDUSTRIES LTD.

CLAIM MAP

Traced by: A. Füstös, P. Eng.
Date: Aug 1973

Lake in turn can be reached on a good all weather gravel surfaced road from Savona, B.C., in an hour of driving time. Savona is on the Trans-Canada Highway half way between Cache Creek and Kamloops, B.C.

The Blue Group consists of nineteen full sized mineral claims which are listed, together with their record numbers, as they were filed in a "Notice to Group" with the Sub-mining Recorder of Vancouver, B.C., on July 25, 1973.

<u>Name of Claim</u>	<u>Record No.</u>
BCD #13	121369K
#14	121370K
#15	121371K
#16	121372K
#17	121373K
#18	121374K
#19	121375K
#20	121376K
#21	121377K
#22	121378K
#23	121379K
#24	121380K
#25	121381K
#26	121382K
#27	121383K
#28	121384K
#38	121394K
#48	121404K
#51	121407K

A claim-map - $\frac{1}{2}$ mile to an inch and showing the Blue Group as it is shown on the B.C. Department of Mines Mineral Claim Map 92I/10W - is attached to this report.

PHYSIOGRAPHY

A series of relatively wide rocky ledges, trending northeast in strike

and diminishing southeast in elevation, dominate the area of the property. Mean elevation of the Blue Group is about 4600 feet ASL. Due to lack of continuous soil cover, the vegetation is not homogenous. It is a forest which is stunted in growth in many places and composed mainly of lodgepole pines. Intermittent copses of Interior Douglas Fir exist on the more humid areas, where small swamps developed due to a slight convexity of the bedrock which impedes the drainage. The convexities are the consequences of the bedrock's structure and glacial scouring.

The entire area is exposed toward the southeast. This type of exposure facilitates rapid evaporation of excess precipitation, consequently a proper drainage pattern had no opportunity to develop. The small watercourses are active only during the spring run-off. With the continuously sinking ground-water table in the Highland Valley, it is safe to predict that the Blue Group's area will revert in its ecology to a "grassland" situation, which is the dominant ecological type of the Interior "dry-belt" at lower elevations.

HISTORY

Judging from the numerous old claim-posts, the area was repeatedly staked during the past two decades. Aside from these, there are no signs of any mineral exploration activity. The area is "raw" from the point of view of mining, holding only a promise of possibilities due to its location on the Guichon Batholith. The VLF-Electromagnetic reconnaissance survey serves as an initial step to clarify the value of the Blue Group.

GEOLOGY

Highland Valley, perhaps the most prominent location of copper mining in the Canadian Cordillera, is within the boundaries of the Lower Jurassic Guichon Creek Batholith. The Blue group is located on the northeast rim area of this prominent geological feature. The bedrock of the property belongs to the Guichon variety of the Highland Valley phase of the Batholith. It is a pink, medium grained granodiorite. At several places throughout the Blue group, the rock of the outcrops shows signs of secondary potassium feldspar enrichment. The topography suggests northeast trending faulting. Both of these features could offer favourable situations for porphyry copper mineralization. To ascertain the presence of such occurrence, systematic, many-sided investigations are necessary. Outcropping is numerous on the property. Systematic geological mapping, as the first major exploratory action, would be advisable.

VLF-ELECTROMAGNETIC SURVEY

Between July 17th and July 23rd, 1973 (inclusive), a VLF-Electromagnetic survey was conducted on the Blue group of mineral claims.

The writer of this report as operator and three helpers, formed the survey party. A Scopas SE-80 (S/N 101016, R/N 1216) VLF Receiver Unit was used as instrument.

The description of the instrument is as follows:

Primary Field: From any selected VLF transmitting station in frequency range between 15.4 KHz to 25 KHz.

Station Selection: By means of an eight step switch and variable control covering full range.

- Measured Values:
- a). The azimuth of horizontal field.
 - b). The dip of the axis of the coil at the minimum field, measured from the vertical.
 - c). The amplitude of the horizontal field strength in any direction.
 - d). The amplitude of the vertical field strength.

The phase angle between the maximum horizontal and vertical field can be calculated from measured values.

Normal Reading Accuracy: Amplitude \pm 2%
 Azimuth \pm 2°
 Dip \pm 1° - Dependent on signal strength.

Batteries: Two 9 Volt dry cells.

Dimensions: 9.66" x 3.68" x 5.80" or
 24.5 cm x 9.4 cm x 14.7 cm

Weight: 3 lbs. (1.35 Kg)

The Scopas VLF System employs VLF radio stations in the 15 to 25 KHz range as primary field sources. The undisturbed field from these remote sources is essentially horizontal and of relatively constant strength. When conductors are present, the geometry and amplitude of the field are locally

distorted and polarization of the field may occur.

With the unit all amplitudes and geometric parameters, as well as the characteristics of the polarization ellipse, can be measured. For fast reconnaissance surveys, dip-angle and field directions can be rapidly determined. For detailed surveys, amplitude relations and the elliptical polarization in the horizontal and vertical planes can be determined as well. The operator can select the parameters most useful for his search problem.

A survey line was designed in such a way that it would parallel, as far as possible, the topographic contour lines on the property to minimize the secondary disturbing effects of the surface topography on the primary VLF field. The line, called "B", is shown on the attached map. A second line, called "C", runs along a topographic feature, thought to be a fault trench. The two lines are tied together. "B" line is 5850 feet long with 40 survey stations on it at 150 foot intervals. "C" line is 1200 feet long and stations, eight of them, are the same distance apart as on the "B" line. The lines were laid out with compass and chain. All stations were flagged and numbered. Several test and check runs were made on different parts of the lines before the actual survey started. Forty-eight stations were used in the survey and on each of these the following observations were made:

- A: Azimuth of VLF field, 90 degrees to maximum signal.
- B: Value of minimum signal.
- C: Value of maximum signal.
- D: Vertical component in plane of maximum signal.

E: Tilt angle.

F: Value in plane of tilt angle.

The recorded data were tabulated and the data of "A", "D" and "E" were plotted in profiles. Sketch map of the traverses, data-tables and plotted profiles form a part of this report.

LINE "B"

Station	Distance from prev.sta., ft.	A	B	C	D	E	F	Direction to Station
1	+150	176	10	100	35	-24	8	NW
2	+150	180	9	100	26	0	26	NW
3	+150	188	8	100	24	0	24	NW
4	+150	178	8	100	24	-28	4	NW
5	+150	160	7	100	30	-40	8	NW
6	+150	172	6	100	18	-24	10	NW
7	+150	180	10	100	18	- 8	8	NW
8	+150	174	8	100	30	-24	16	NW
9	+150	184	16	100	36	-40	18	NW
10	+150	162	10	100	40	-38	8	NW
11	+150	150	12	100	32	-16	4	SW !
12	+150	150	11	100	4	0	4	SW
13	+150	170	10	100	10	-22	1	SW
14	+150	174	12	100	12	-22	2	SW
15	+150	170	6	100	10	-14	4	SW
16	+150	166	7	100	17	-20	2	SW
17	+150	174	10	100	18	-22	2	SW
18	+150	182	14	100	30	-22	22	SW
19	+150	184	12	100	30	-40	6	SW
20	+150	184	8	100	34	-32	22	SW
21	+150	160	8	100	30	-24	6	SW
22	+150	176	7	100	32	-34	6	NW !
23	+150	170	6	100	42	-40	4	SW !
24	+150	170	9	100	40	-40	4	SW
25	+150	166	6	100	34	-18	0	SW
26	+150	164	9	100	22	-18	0	SW
27	+150	172	12	100	26	-18	2	SW
28	+150	170	9	100	28	-18	4	SW
29	+150	158	6	100	34	-22	4	SW
30	+150	162	6	100	24	-12	0	SW
31	+150	156	6	100	30	-18	0	SW
32	+150	158	6	100	22	- 8	6	NW !
33	+150	160	10	100	26	-18	10	SW !
34	+150	164	6	100	20	-12	10	SW !
35	+150	156	12	100	26	-14	10	S !
36	+150	148	6	100	32	-14	10	S
37	+150	164	12	100	44	-36	4	S
38	+150	168	7	100	26	-16	0	S
39	+150	164	6	100	20	-12	0	S
40	+150	158	6	100	44	-22	0	S

Range
188-148
= 40°

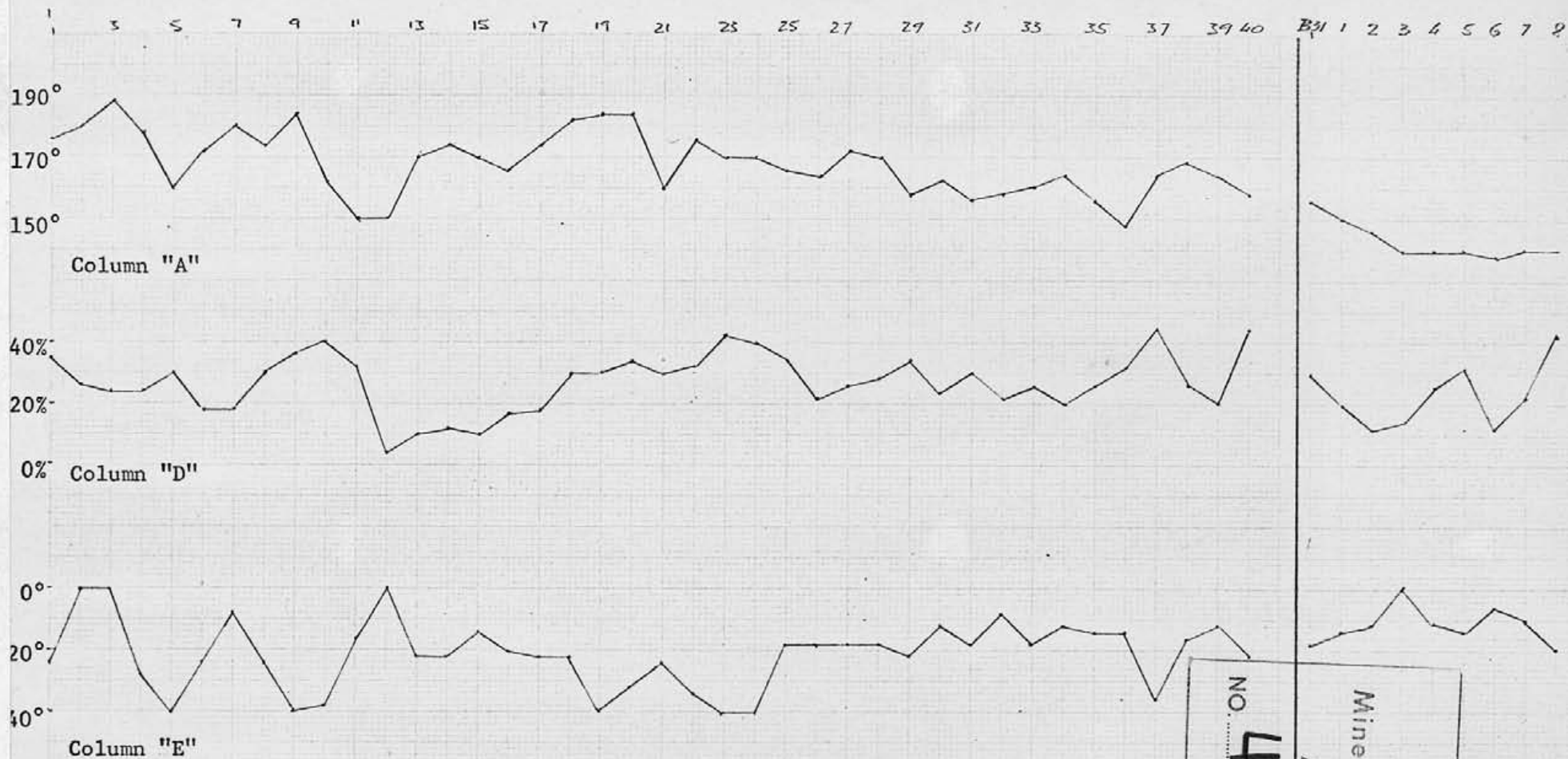
Range Range
44-4 0 -40
= 40% = 40°

B31 as start

LINE "C"

Station	Distance from prev. st. ft.	A	B	C	D	E	F
1	+ 150	150	10	100	20	-14	3
2	+ 150	146	8	100	12	-12	2
3	+ 150	140	14	100	14	0	14
4	+ 150	140	14	100	26	-11	4
5	+ 150	140	6	100	32	-14	2
6	+ 150	138	8	100	12	- 6	2
7	+ 150	140	4	100	22	-10	2
8	+ 150	140	14	100	42	-20	0

Bearing of "C" line B31 - C8: N55E



Survey on "Blue Group", see B & C lines on attached sketch
 For distances between stations see attached tables.
 Plotted as profiles, from top to bottom, columns A, D and E

LINE "B"

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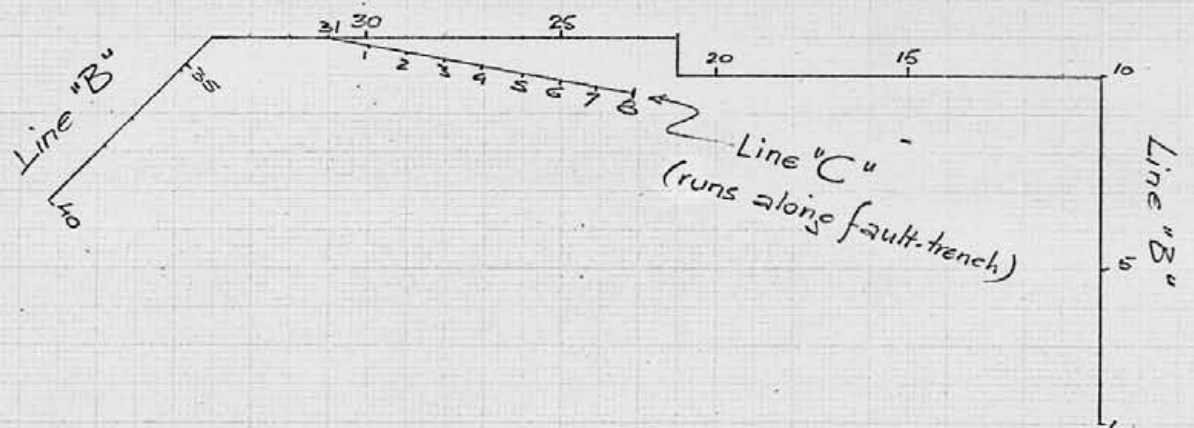
NO. 4560 MAP #3

LINE "C"

Azimuth UTM field
 90° to max. Signal
 Scale: 1:100,000

Vert. comp.
 in dir. of max. Signal
 Scale: 1:100,000

Tilt angle
 45° to 0°
 bottom to top
 Scale: 1:100,000



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NO. **4560** MAP **#4**

Lines "B" and "C"

Sketch map of
VLF-AM traverse on
"BLUE GROUP"

Scale: 1cm = 300 feet

This is a true copy of the original.

Arpad Fustos, P.Eng.

Arpad Fustos P.Eng.

SCINTREX SURVEYS LIMITED

GEOPHYSICAL CONSULTANTS & CONTRACTORS

A DIVISION OF SCINTREX LIMITED

September 14th, 1973

Arpad Fustos, P.Eng.
4165 West 11th Avenue
Vancouver, B. C.

Dear Sir:

Re: VLF Electromagnetic Survey over the "Blue Group" grid
in the Guichon Batholith area, British Columbia

A reconnaissance survey employing the Scintrex Scopas (single coil phase, amplitude and strike) SE-80 VLF (very low radio frequency) electromagnetic receiver has been completed over the "Blue Group" grid in the Guichon Batholith area of British Columbia.

The grid consisted of two lines labelled "B" and "C" along which observations were noted at consecutively numbered stations from 1 to 40 on line B and from 1 to 8 on line C. The inter-station spacing was 150' yielding a total coverage of 7050'.

The receiving unit was tuned into the 300 Kw radio station at Jim Creek, Washington, U.S.A. which transmits at 18.6 KHz. Six components of this electromagnetic source were measured at each station so that 288 separate readings were made.

An initial review of the data indicated that the optimum diagnosis of the primary field could be obtained by interpretation of the following three components of the primary source:-

- (1) A - Azimuth of VLF field 90° to maximum signal - vertical scale 1 cm = 20°.
- (2) D - Vertical components in direction of maximum signal - vertical scale 1 cm = 20%.
- (3) E - Tilt Angle - vertical scale 1 cm = 20°.

. 2

Arpad Fustos, P.Eng.
September 14, 1973

Page 2

Background variations of these components were quite large ($\pm 20\%$ or 20°) but no significant above-background distortions of the electromagnetic field were noted. Furthermore, stations 1 to 8 on line "C" show relatively poor correlation with Stations 30 to 23 on Line "B", indicating the complexity of the data.

It must be concluded that no good sulphide conductors were evident from the data collected. However, if geological and geochemical considerations are particularly encouraging, an induced polarization survey of the area may be warranted.

Respectfully submitted,

SCINTREX SURVEYS LIMITED

A handwritten signature in cursive script, reading "P. R. Bailey".

P. R. Bailey, M.Sc., D.I.C.
Operations Manager

PRB:lm

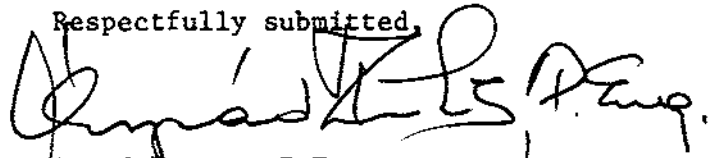
CONCLUSIONS and RECOMMENDATIONS

1. The VLF-Electromagnetic survey on the Blue Group did not produce conclusive results. See attached letter from Scintrex Surveys Ltd.

2. To clarify the property's merits, a geological mapping program, connected with a reconnaissance-type rock-geochemical survey seems to be most feasible as an introductory step.

3. Such a combined program should take approximately one month, with a geologist and two helpers. The program should be carried out at such time as the property is snow-free.

Respectfully submitted,



Arpad Fustos, P.Eng.,
Geologist.

AF:jlc

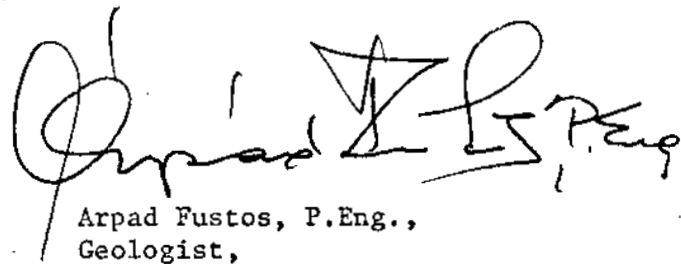
SUMMARY OF COSTS

Geophysical (VLF-AM) Survey	\$ 1,450.00
Room & Board for 17 man-days @ \$28	476.00
Report and geophysical interpretation	1,100.00
Trusk and instrument rental	<u>200.00</u>
TOTAL:	\$ 3,226.00

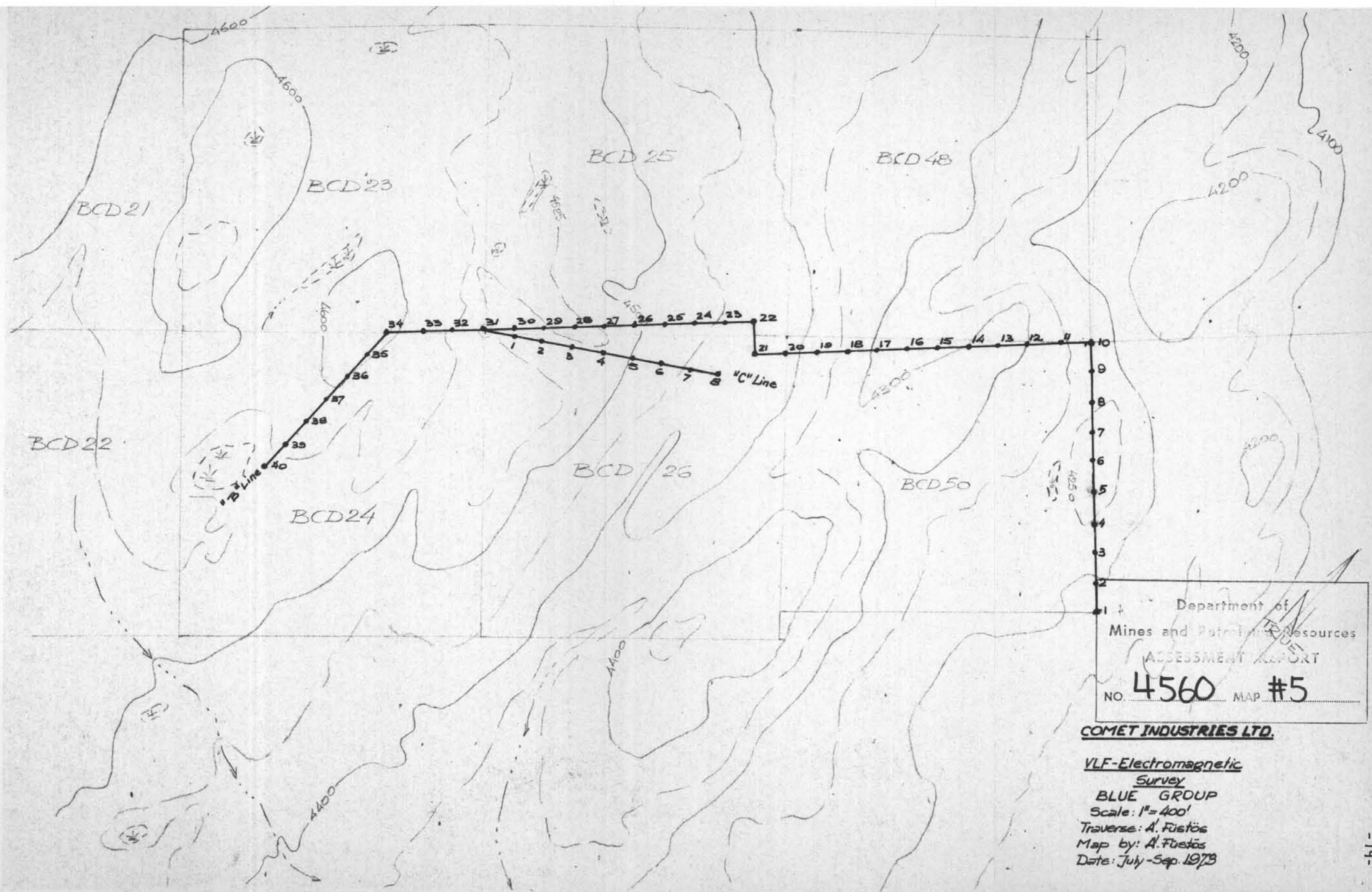
CERTIFICATE

I, ARPAD FUSTOS, hereby certify that:

1. I am a graduate of the University of British Columbia and hold the following degrees:-
 1. Bachelor of Science of Forestry/Graduate Forest Engineer.
 2. Bachelor of Science (Geology).
2. I have taken post-graduate studies in Mineral Exploration at the University of British Columbia, Department of Geology, and directed studies in Application of Soil Sciences to Mineral Exploration at the University of British Columbia, Department of Soil Sciences.
3. I have taken the following courses at the British Columbia Institute of Technology:-
 1. Introduction to Geophysical Prospecting Methods.
 2. Geophysical Prospecting Tutorial.
4. I am a Registered Professional Engineer of the Province of British Columbia.
5. I have been active in mineral exploration and mine development for the past twenty years.
6. I have planned and executed the VLF-Electromagnetic survey project on the BLUE group of mineral claims.
7. I have no interest either in the claims of Comet Industries Ltd. (N.P.L.) or in the Company itself.


Arpad Fustos, P.Eng.,
Geologist,
Vancouver, B.C.

Dated: September 1973.



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ASSESSMENT REPORT
NO. **4560** MAP #5

COMET INDUSTRIES LTD.

VLF-Electromagnetic
Survey
BLUE GROUP
Scale: 1" = 400'
Traverse: A. Fustös
Map by: A. Fustös
Date: July-Sep. 1973