78-#178- # 6761

GEOPHYSICAL-GEOCHEMICAL REPORT

on

VLF-EM AND SOIL SAMPLE SURVEYS

AR CLAIM

KENTUCKY LAKE AREA, NICOLA M.D.B.C.

AR CLAIM:

:

:

Written for:

by:

Dated:

5.5 kms S40<sup>0</sup>E of Aspen Grove, B.C.

49<sup>°</sup> 120<sup>°</sup> NW

N.T.S. - 92H/15E

Belmont Resources Ltd., 404-850 West Hastings Street, Vancouver, B.C.

David G. Mark GEOTRONICS SURVEYS LTD. 420-890 West Pender Str Vancouver, B.C.

June 5, 1978



GEOTRONICS SURVEYS LTD. Engineering & Mining Geophysicists

VANCOUVER, CANADA

TABLE OF CONTENTS	MINERAL RESOURCES BRANCH ASSESSMENT REPORT
	NO
SUMMARY	i
CONCLUSIONS	ii
RECOMMENDATIONS	iv
INTRODUCTION AND GENERAL REMARKS	1
PROPERTY AND OWNERSHIP	2
LOCATION AND ACCESS	
PHYSIOGRAPHY	
HISTORY OF PREVIOUS WORK	3
GEOLOGY	
GOVERNMENT AEROMAGNETIC SURVEY	4
VLF-EM SURVEY	
1. Instrumentation and Theory	••• 5
2. Survey Procedure	
3. Compilation of Data	
SOIL GEOCHEMISTRY SURVEY	_
1. Survey Procedure	
2. Testing Procedure	
3. Treatment of Data	
DISCUSSION OF RESULTS	
1. VLF-EM Survey	
2. Copper	
3. Silver	
SELECTED BIBLIOGRAPHY	
GEOPHYSICIST'S CERTIFICATE	
AFFIDAVIT OF EXPENSES	

- - ----

# ILLUSTRATIONS

Back of Report	Figure
LOCATION MAP -	1
CLAIM MAP	2
CUMULATIVE FREQUENCY GRAPH SOIL GEOCHEMISTRY	3

In Pocket	Sheet
VLF-EM SURVEY FRASER FILTER DATA AND CONTOURS - 1:3,000	1
SOIL GEOCHEMISTRY - COPPER DATA AND CONTOURS - 1:3,000	2
SOIL GEOCHEMISTRY - SILVER DATA AND CONTOURS - 1:3,000	3

.

\_ ....

## SUMMARY

During the last half of May, 1978, a combined soil sampling and VLF-EM survey was carried out on the AR Claim. The AR claim is located 5.5 kms S40E of Aspen Grove and about 1 km due west of Kentucky Lake. Access to much of the property is easily gained by a two-wheel drive vehicle. The terrain consists of mainly moderate slopes forested with moderately dense coniferous trees. The purpose of the surveys was to extend the known zones of copper and silver mineralization.

Previous work on the property consists of several trenches and a shaft dug out some years ago.

The property is mainly underlain by Upper Triassic Nicola Group volcanics. The rock types are volcanic breccia, volcanic conglomerate, and lahar deposits with a division into a red sequence and a division into a green sequence. Dioritic intrusives are found on the southern part of the property. Faulting on the property is predominantly northsouth. Mineralization occurs as chalcopyrite, bornite and calcite as disseminations and with associated stringers within fracture or shear zones within the green volcanics.

The VLF-EM readings and the soil samples were taken every 30 meters on 120-meter separated east-west lines. The VLF-EM readings were Fraser-filtered, plotted and contoured. The soil samples were tested for copper and silver, and the results statistically analyzed, plotted and contoured.

#### CONCLUSIONS

 The VLF-EM anomalies have reflected mainly faults and some lithologic contacts. Some of these are related to copper soil anomalies.

Some of the most interesting parts of the VLF-EM anomalies are those that appear to indicate crossstructure since these would be prime areas to look for sulphide mineralization. Anomalies a, e, and g are indicative of cross-structure.

2. From the soil geochemistry results, the area of greatest economic interest is anomalous zone A because of its size, its high values, it appearing to be the center of the carbonate and epidote zone, its favourable underlying rock-type, the many faults and fractures

ii

in this area, and its relationship to a major fault as represented by VLF-EM anomaly e. Sookochoff has named this area the 'South Zone' Surprisingly, very little physical work appears to have been done in this area.

- 3. Anomalies D, E and I are of economic interest because of their correlation with cross-structure as illustrated by the VLF-EM results. Anomaly D is the only soil anomaly which may reflect both silver and copper mineralization. Anomaly E is labelled by Sookochoff as the 'Trench Zone.'
- 4. There could well be underlying mineralization below the lake at the south end of the property considering that the lake is probably caused by structure such as a fault or shear zone, and that copper anomalies occur around the edge of the lake.
- 5. Except for anomaly D, the silver geochemistry appears to show that there is no silver mineralization on the AR claim.

iii

## RECOMMENDATIONS

- It is felt the magnetic survey should still be carried out on the property, that is, when the frequency of the magnetic storms is much less. The magnetic survey should be quite useful in mapping structure as well as rock-types, especially the dioritic intrusive.
- 2. Detailed soil sampling should be done over the south part of the property. The station interval should be reduced to 15 meters and the line spacing to 60 meters. It would only be necessary to analyze for copper. It may be desirable to detail around some of the anomalies in the north part as well.
- 3. After the above work has been carried out, then the various anomalies, especially A, should be diamond drilled. The location and dip of the holes will depend upon the results of the above.

iv

#### GEOPHYSICAL-GEOCHEMICAL REPORT

on

VLF-EM AND SOIL SAMPLE SURVEYS

AR CLAIM

KENTUCKY LAKE AREA, NICOLA MD., B.C.

#### INTRODUCTION AND GENERAL REMARKS

This report discusses the survey procedure, compilation of data, and the interpretation of a soil sampling survey and a very low frequency electromagnetic (VLF-EM) survey carried out on the AR Claim over the last half of May, 1978.

The surveys were done under the supervision of the writer and under the field supervision of R.R. Fassler with the aid of a helper. A total of 424 soil samples were picked up and 13 line kms. of VLF-EM were done. The samples were tested for copper and silver.

It was intended at the same time to carry out a ground magnetic survey but magnetic storms were so frequent that it was impossible to carry out. Storms were checked for each day.

The primary purpose of the VLF-EM soil geochemistry surveys was to extend the known zones of copper mineralization found on the property. A secondary object of the VLF-EM survey was to delineate faults and/or shear zones.

## PROPERTY AND OWNERSHIP

The AR Claim consists of one claim of six units as shown on Figure 2 and as described below:

<u>Claim Name</u>	No.Units	Record No.	<u>Tag No</u> .	Expiry Date
AR	6	319(8)	36550	August 30, 1978

The property is owned by Belmont Resources Ltd of Vancouver, British Columbia.

#### LOCATION AND ACCESS

The legal post of the AR Claim is found about one km due west of Kentucky Lake and about 5.5 kms S40E of Aspen Grove.

The geographical coordinates are  $49^{\circ}$  53½'N latitude, and 120° 35'W longitude.

Access to the property is quite good and can be gained by a passenger car providing the road is dry (see Figure 2). One travels along Highway 5 for 30 kms south of Merritt or 5 kms south of Aspen Grove and then turns east on a wellused gravel road. About 2 kms on this road is a second turnoff to the south onto a dirt road. The AR Claim is about two kms along the dirt road.

#### PHYSIOGRAPHY

The AR Claim lies in the southern part of the physiographic division known as the Thompson Plateau which is part of the Interior Plateau System. The terrain is generally that of flat or rolling hills over most of the property. The general trend of the topography runs north-south. Elevations vary from 1,050 meters a.s.l. in the northwest corner to 1,300 meters a.s.l. in the southeast corner to give a relief of only 250 meters. The main water source is a large lake-type swamp on the southwest corner of the AR Claim. Kentucky Lake is only one kilometer due east of the eastern boundary of the claim.

Vegetation on the property is a lightly to moderately dense forest of mainly coniferous trees which consist of pine, fir and spruce.

#### HISTORY OF PREVIOUS WORK

There is evidence of much physical work having been done on the property, but the writer is unsure of the dates. The trenches and one shaft, however, probably predate 1940.

## GEOLOGY

This is quoted from the engineering report on the property by Sookochoff.

"The AR Claim covers a sequence of Upper Triassic Nicola rocks which are the host rocks for the copper deposits of Copper Mountain and at Craigmont in addition to numerous prospects and occurrences found within the Nicola Belt.

"Within the confines of the Kentucky Lake property, the Nicola rocks consist of volcanic breccia, conglomerate and lahar deposits designated as a massive red sequence or a massive green sequence.

"Dioritic intrusives which may be in part the results of volcanic recrystallization outcrop within the southern portion of the property.

- 3 -

"Three large scale northerly-trending faults are indicated on the property. This northerly fault system is part of the Alleyne-Kentucky regional fault system indicated to project to the Copper Mountain camp. A resulting fracture system at  $300^{\circ}$  and at  $040^{\circ}$  is evident in outcrops throughout the property.

"Mineralization in the Aspen Grove camp is principally of bornite and chalcopyrite with the occasional occurrence of chalcocite generally occurring within Nicola Volcanic rocks in zones of considerable shearing and alteration. At Missezula Lake the host rock for the copper deposits is an altered diorite.

"Mineralization on the AR Claim occurs as fine disseminations of chalcocite in addition to splashes of malachite within a siliceous fine-grained diorite. The mineralized area is located midway along the western portion of the property and is exposed in a trenched area of approximately 50 meters square.

"A selected sample over a 20-foot section of this zone assayed .001 oz Au/ton; .04 oz Ag/ton and .27% Cu."

#### GOVERNMENT AEROMAGNETIC SURVEY

The survey was flown for the Federal and Provincial governments by Geoterrex Limited from October 1969 to April 1972 with a terrain clearance of 300 meters.

The Belmont property sits fairly much in the centre of a northerly-trending series of aeromagnetic highs. One of these highs is found on the southern part of the Belmont property and has an intensity of over 58,000 gammas.

- 4 -

In correlating with the geological map of Preto, et al, the anomalous highs seem to be reflecting dioritic rocks. (an intrusive or a dioritic phase of the Nicola volcanics).

The writer has interpretted two major north-trending aeromagnetic lineations with one occurring through Kentucky Lake and the other just west of Highway No. 5. A third lineation, striking northwest, is found to run through the northeastern part of the AR Claim. These lineations, especially the north-striking ones, very likely reflect major faults. They are shown on Figure No. 2.

### VLF-EM SURVEY

# 1. Instrumentation and Theory:

A VLF-EM Receiver, Model 27, manufactured by Sabre Electronic Instruments Ltd. of Burnaby, B.C. was used for the survey. This instrument is designed to measure the magnetic component of a very low frequency (VLF) electromagnetic field. The U.S. Navy submarine transmitter located at Seattle, Washington and transmitting at 18.6 KHz. was used.

In all electromagnetic prospecting, a transmitter produces an alternating magnetic field (primary) by a strong alternating current usually through a coil of wire. If a conductive mass such as a sulphide body is within this magnetic field, a secondary alternating current is induced within it which in turn induces a secondary magnetic field that distorts the primary magnetic field. It is this distortion that the EM receiver measures. The VLF-EM uses a frequency range from 16 to 24 KHz. whereas most EM instruments use frequencies ranging from a few hundred to a few thousand Hz. Because of its relatively high frequency, the VLF-EM can pick up bodies of a much lower conductivity and therefore is more susceptible to clay beds, electrolyte-filling

GEOTRONICS SURVEYS LTD. --

fault or shear zones and porous horizons, graphite, carbonaceous sediments, lithological contacts as well as sulphide bodies of too low a conductivity for other EM methods to pick up.

Consequently, the VLF-EM has additional uses in mapping structure and in picking up sulphide bodies of too low a conductivity for conventional EM methods and too small for induced polarization (in places it can be used instead of IP). However, its susceptibility to lower conductive bodies results in a number of anomalies, many of them difficult to explain and, thus, VLF-EM preferably should not be interpreted without a good geological knowledge of the property and/or other geophysical and geochemical surveys.

### 2. Survey Procedure:

The VLF-EM survey was run on a grid in which the lines run east-west at 120-meter intervals from a baseline running due south from the legal claim post. Dip angle readings were taken every 30 meters with the instrument facing towards the transmitter at Seattle. Fluorescent pink flagging was placed at each 30-meter station with the grid coordinates marked thereon.

## 3. Compilation of Data:

The readings were reduced by applying the Fraser Filter. Filtered data, as shown on Sheet 4, are plotted between the reading stations. The positive filtered values were contoured at intervals of  $5^{\circ}$  starting at  $50^{\circ}$ .

The Fraser filter is essentially a 4-point difference operator which transforms zero crossings into peaks, and a low pass smoothing operator which reduces the inherent high frequency noise in the data. Therefore, the noisy, noncontourable data are transformed into less noisy, contourable

- 6 -

GEOTRONICS SURVEYS LTD. ++

data. Another advantage of this filter is that a conductor that does not show up as a cross-over on the unfiltered data quite often will show up on the filtered data.

#### SOIL GEOCHEMISTRY SURVEY

# 1. <u>Survey Procedure</u>:

The soil samples were picked up at the 30-meter stations. The samples were picked up with a D-handled shovel at about a 15-centimeter depth. The horizon sampled was B except where it could not be obtained, then horizon C was sampled. Samples were placed in brown wet-strength paper bags with grid coordinates marked thereon.

### 2. Testing Procedure:

All samples were tested by Acme Analytical Laboratories Ltd of Burnaby, B.C. The sample is first thoroughly dried and then sifted through a -80 mesh screen. A measured amount of the sifted material is then put into a test tube with subsequent measured additions of aqua regia. This mixture is next heated for a certain length of time. The parts per million (ppm) copper or silver is then measured by atomic absorption.

## 3. Treatment of Data:

The values in ppm copper were grouped into logarithmic intervals of 0.10. The cumulative frequency for each interval was then calculated and then plotted against the correlating interval to obtain the logarithmic cumulative frequency graph as shown on Figure 3.

The data population included the results of a soil survey carried out at the same time on the AM Claim to the immediate east to give a total of 858 samples. The coefficient of deviation, indicative of the range or spread of values was calculated for copper to be 0.29, a moderately low figure. Therefore, the range of values is somewhat narrow. This statistical parameter is indicative of how well the element has been mechanically or chemically dispersed. Considering the lower than average value, one could then say the dispersion rate for copper is somewhat low.

The graph shows a break at the 19% level which, therefore, indicates that there is an excess of high copper values on the AR and AM Claims. This is usually the case where copper sulphide mineralization occurs.

The graph for copper shows the mean background value to be about 20 ppm taken at the 50% level. The sub-anomalous threshold value, (a term used by the writer to denote the minimum value that is not considered anomalous but still important as an indicator of mineralization) is taken at one standard deviation from the mean background value which is at the 16% level and is in this case 40 ppm. The anomalous threshold value is two standard deviations away at the 2½% level and is on this property 75 ppm.

The copper values were plotted on Sheet 2, contoured at an interval of one standard deviation starting at the subanomalous contour (40 ppm). This contour was dashed in and the anomalous contours (75, 150, 300, 600, 1200, and 2400) were drawn in solid.

The silver geochemistry data was not enalyzed with a cumulative frequency graph due to the way the data was distributed. Rather, the statistical parameters for silver were 'eye-balled' as follows:

- 8 --

Mean background level0.1 ppmSub-anomalous threshold value0.2 ppmAnomalous threshold value0.4 ppm

The contours for silver were:

Sub-anomal	lous contour	0.2	ppm
Anomalous	contours	0.4	ppm

The silver values were plotted on Sheet 3, and contoured with the sub-anomalous contour dashed in and the anomalous contour drawn in solid.

#### DISCUSSION OF RESULTS

#### 1. VLF-EM Survey:

The major cause of VLF-EM anomalies, as a rule, are geologic structures such as fault, shear and breccia zones. It is therefore logical to interpret VLF-EM anomalies to likely be caused by these structural zones. Of course, sulphides may also be a causitive source. But in the writer's experience, when VLF-EM anomalies correlate with sulphide mineralization, the anomalies are usually reflecting the structure associated with the mineralization rather than the mineralization itself.

The major trend of the VLF-EM anomalies, as seen on Sheet 1, is both north and north-northwest. Considering the VLF-EM anomalies are likely reflecting structure, the major strike of structure on this property is concluded to be in both these directions. This is in agreement with the geological map produced by Preto, et al, which shows one major faultcontact trending north-northwesterly across the property, and a fault trending northerly.

~ 9 -

There is considerable variation in intensity from one VLF-EM anomaly to the next. This may not only be due to the conductivity of a causitive source, but also the direction it strikes relative to the direction to the transmitter. In other words, those conductors lying closer to the same direction as the direction to the transmitter (S25W in this case), can be picked up easier than those that are lying at a greater angle. Depending upon its conductivity, a conductor may not be picked up at all if it's at too great an angle.

For ease of identification, the VLF-EM anomalies have been lettered by the small letters, a to g.

The strike of anomaly a varies from north-northeast to northnorthwest but, in general, runs northerly. The variation in strike is quite probably due to a variation in causitive sources. For example, the section of the anomaly from L-108S and south is quite probably due to a lithological contact. Part of the anomaly correlates directly with a contact as mapped by Sookochoff, and the strike of the anomaly is the same as a number of contacts within this area as mapped by Preto. The rest of the anomaly, that is, north of L-108S, is likely due to a fault (or a series of faults). Anomaly a has a minimum length of 1,500 meters and is open at both ends.

Anomaly b is quite likely due to a fault splaying out from anomaly a.

Anomaly c is also likely due to a fault or shear zone. It strikes southerly into the lake which has a southerly trend as well. The lake is probably caused by a fault or shear zone.

- 10 -

As for anomaly d, even though there are no mapped faults that are seen to correlate with d, its causitive source is probably a fault (or faults) since the causitive source of almost all the other anomalies appear to be faults.

Anomaly e with its leg e', is the strongest and most interesting anomaly. It strikes north-northwesterly with the leg e' striking north to north-northeasterly. It is open on both the north and south ends and, therefore, has a minimum length of 1,500 meters. At several points along its length, it correlates directly with faults as mapped by Sookochoff. It also appears to correlate directly with a main northerly striking fault in this area as mapped by Preto.

The most interesting part of this anomaly is the point on Line 60S where the leg e' joins anomaly e. This is indicative of cross-structure and should, therefore, be a focal point in the search for sulphide mineralization. In fact, as will be discussed later copper anomaly I occurs at this point.

Anomaly f varies in strike but seems to strike generally north; is open to the northeast and northwest; and has a minimum length of 600 meters. Its causitive source is quite likely a fault, since two mapped faults are found to correlate directly with the anomaly. Anomaly f could well join and be a part of anomaly g.

Anomaly g is composed of two legs with one leg striking north-northeast, and the other, north-northwest. The northnorthwest leg has a length of 400 meters and correlates excellently with two mapped occurrences of a fault. The northnortheast leg has a minimum length of 350 meters being open to the north-northeast and correlates quite well with one mapped occurrence of a fault.

- 11 -

As with anomaly e, the most interesting part of this anomaly is that part where the two legs join, which is on line 36S. This joining indicates cross-structure which is where the mineralization generally occurs. In fact, in this area, Sookochoff has mapped cross-structure (off of the anomaly) and copper mineralization and has labelled it the 'Shaft Zone.'

The correlation of the VLF-EM anomalies with the soil anomalies will be discussed below.

## 2. Copper:

The soil anomalies have been labelled by the letters A to J, respectively.

Anomaly A is by far the most interesting from the viewpoint of economic mineralization. It appears to consist of a number of closely spaced anomalies (5) and, therefore, should be termed more correctly an anomalous zone. The zone measures about 500 meters wide, probably strikes southerly, and is open to the south. It varies in intensity up to 440 ppm. Sookochoff has mapped much cross-faulting as well as copper mineralization within this area and has labelled it the 'South Zone.' The anomaly appears to occur within the green volcanics.

VLF-EM Anomaly c, which is indicative of a major fault, runs through Anomaly A. This anomaly also appears to be the center of a carbonate and epidote zone that Sookochoff has mapped.

Anomaly B strikes southerly, has a minimum length of 120 meters, is open to the south, and has a high of 124 ppm.

It correlates with faulting as well as a major contact and appears to be underlain by green volcanics as well. It is interesting to note that this anomaly as well as Anomaly A and a sub-anomaly all occur around the lake, which leads one to think of the possibility of the bedrock below the lake being mineralized.

Anomaly C is by far the highest anomaly on the property, having a value of 2,450 ppm. It is principally a l-value high, occurs on one corner of the property, (and therefore the strike can't be determined, and appears to be underlain by the dioritic intrusive phase, the freak highness of this anomaly is probably caused by the soil sample being picked up very close to copper mineralization, whether it be in float or in place.

Anomalies D, E and G, correlate directly with VLF-EM anomaly a and, therefore, indicate the causitive source of these soil anomalies to be structure-related.

Anomaly D occurs at a point where the VLF-EM anomaly indicates cross-structure, quite possibly a fault crossing a contact. It has a high of 360 ppm, strikes southerly, has a minimum length of 480 meters with the sub-anomalous values, and is open to the south. It appears to be underlain by both the dioritic intrusive phase and the green volcanics. Two trenches are found within this anomaly, and within one of these occurs chalcopyrite and pyrite mineralization.

Anomaly E occurs within the inside of a curve of VLF-EM anomaly a. It is composed of only two values reaching a high of 88 ppm. Consequently, the strike and length are uncertain. However, it does correlate with trenching and copper sulphide mineralization. Sookochoff has labelled this area the 'Trench Zone'. The underlying rock-type appears to be the green volcanics.

Anomaly G occurs on the edge of the survey area and, therefore, its strike and dimensions cannot be determined. It is composed of only one value which is 136 ppm, and seems to be underlain by the red volcanics.

Anomaly F, also underlain by red volcanics, correlates with VLF-EM anomaly b. It strikes northerly, has a length of 240 meters, and reaches a high of 168 ppm.

Anomaly H is a l-value high of 94 ppm that appears to have a length of up to 240 ppm and strikes northerly. The underlying rock-type is the green volcanics. The anomaly is sub-parallel to VLF-EM anomaly d. Anomaly H could well join Anomaly I, which would therefore give it a length of over 360 meters and a strike of northeast.

Anomaly I, by itself, has a length of around 200 meters, strikes northeasterly, and reaches a high of 82 ppm. It occurs within the contact area of the red and green volcanics and also correlates with the joining of anomaly e with leg e'. As mentioned above, this is indicative of cross-structure.

Anomaly J is a l-value high of 152 ppm that correlates directly with cross-faulting and a rock outcrop mapped as varying from green volcanics to feldspar porphyry.

No copper soil anomaly occurs within Sookochoff's Shaft Zone which is centered on the baseline at L-36S. Possibly the reason for this is that the soil development in this area is poor, or else the pH of the soil is too basic, and would limit the mobility of copper ions.

### 3. <u>Silver</u>

As can be seen on sheet 3, the silver results are generally quite low. As defined by the writer, there are many subanomalous values but only a few anomalous values. Those silver sub-anomalies or anomalies that correlate with copper soil anomalies, have been labelled by the correlating copper soil anomaly. These are anomalies A, C, D, F, and I.

The only silver anomaly that is indicative of silver mineralization that could be of economic interest is anomaly D. It has two highs of 1.1 and 0.7 ppm, respectively. The anomaly strikes northerly and appears to be about 150 meters by 130 meters.

It is interesting to note that to the south on the Bluey Claim, there are strong silver anomalies and these correlate quite well with the copper anomalies.

It can be seen on Sheet 3 that the silver content within the soil increases quite significantly on the southern part of the AR Claim. This could be due to very minor (to the point of being insignificant) silver mineralization occurring with the copper mineralization within this area. Or, possibly, it may simply be due to an increase in the background content of silver within the bedrock.

Respectfully submitted, GEOTRONICS SURVEYS LTD., David G. Mark, Geophysicist

June 5, 1978

### SELECTED BIBLIOGRAPHY

Aeromagnetic Map, Aspen Grove, B.C. Geol. Survey of Canada, Map 8532G, Sheet 92H/15, 1973.

Dawson, J.M., <u>Report on the Snowflake</u>, <u>Bluey and Prize</u> <u>Properties</u>, <u>Aspen Grove Area</u>, <u>Nicola M.D., B.C.</u> for F. Gingell. Kerr, Dawson & Assoc. Ltd., July 9, 1975.

Fraser, D.C. Contouring of VLF-EM Data, Geophysics, Vol. 34, No. 6 (December), 1969.

Lepeltier, Claude, A Simplified Statistical Treatment of Geochemical Data by Graphical Representation, Economic Geology, Vol. 64, pp. 538-550, 1969.

Mark, David G. <u>Geophysical-Geochemical Report on VLF-EM</u> and Soil Sample Surveys, Bluey Claim Group, Bluey Lake, Nicola M.D., B.C. Geotronics Surveys Ltd. Jan. 1977.

Preto, V.A., Kalvins, T.E., Thomson, N.A., and Nebocat, J. <u>Preliminary Geological Map of Aspen Grove Area (parts</u> <u>of 92H/15 and 92I/2E</u>), B.C. Department of Mines and Petroleum Resources, Map 15, 1974.

Rice,H.M.A., <u>Geology & Mineral Deposits of the Princeton</u> <u>Map Area, British Columbia, Geol. Survey of Canada,</u> <u>Me. 243, 1960.</u>

Sookochoff, L. <u>Geological Report on the Kentucky Lake Property</u> of Belmont Resources Ltd., Pan-American Consultants Ltd. September, 1977.

Sookochoff, L. <u>Geological Report on the Kentucky Lake Property</u> (AR Claim) of Belmont Resources Ltd., Pan-American Consultants Ltd. June 1978.

Yorke-Hardy, H.W. <u>Geochemical Report Covering the Bluey Group</u> of Claims, Aspen Grove Area, Nicola M.D., B.C. July 16, 1976.

## GEOPHYSICIST'S CERTIFICATE

I, DAVID G. MARK, of the City of Vancouver, in the Province of British Columbia, do hereby certify:

THAT I am a Consulting Geophysicist of Geotronics Surveys Ltd., with offices at 420-890 West Pender Street, Vancouver, British Columbia.

I further certify:

- I am a graduate of the University of British Columbia (1968) and hold a B.Sc., degree in Geophysics.
- 2. I have been practising my profession for the past ten years and have been active in the mining industry for the past thirteen years.
- 3. I am an active member of the Society of Exploration Geophysicists and a member of the European Association of Exploration Geophysicists.
- This report is compiled from data obtained from VLF-EM and soil sampling surveys carried out under the supervision of myself during the last part of May, 1978.
- 5. I am a director of Belmont Resources Ltd., and hold 5,000 shares.

David/ G.

Geophysicist

June 5, 1978

GEOTRONICS SURVEYS LTD. -----

- 17 -

# - 18 -

# AFFIDAVIT OF EXPENSES

The soil geochemistry and VLF-EM surveys were carried out on the AR Claim, Kentucky Lake, Nicola M.D., B.C. to the value of the following:

## FIELD

Geophysical Technician and helper 40 hours at \$35/hour	\$ 1,400.00
Vehicle rental, 7 days at \$60/day	420.00
Room and Board, 2 men at \$30/man day, 8 days	480.00
Survey supplies	40.00
VLF-EM instrument rental, 1, week at \$75/week	75.00
	\$ 2,415.00
LAB	
Soil testing, 424 samples at \$2/sample	848.00
REPORT	
Geophysicist, 15 hours at \$30/hour	\$ 450.00
Office Assistant, 15 hours at \$15/hour	225.00
Drafting and printing	300.00
Typing, xeroxing and compilation	120.00
	\$ 1,095.00
TOTAL	\$ 4,358.00
Respectfully submitted, GEOTRONICS SURVEYS LTD. David G. Mark, Manager	

















