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FILE NO:	

GEOPHYSICAL REPORT
 ON THE
 KAMA #100 MINERAL CLAIM
 KAMMA CREEK, NELSON MINING DIVISION
 BRITISH COLUMBIA

LOG NO: NOV 22 1991	RD.
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FILE NO:	

LATITUDE : 49⁰23' North
 LONGITUDE : 116⁰12' West
 N.T.S. : 82F/8

PREPARED FOR:

CALCO RESOURCES INC.
 VANCOUVER, B.C.

SUB-RECORDER RECEIVED MAY 22 1991 M.R. # \$..... VANCOUVER, B.C.
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MAY 15, 1991
 VANCOUVER, B.C.

WRITTEN BY:
 LLOYD C. BREWER

**GEOLOGICAL BRANCH
 ASSESSMENT REPORT**

21,343

SUMMARY

The Kama #100 claim of Calco Resources Inc., consists of 20 mineral claim units in the Purcell Mountains, 35 air kilometers from the town of Creston, British Columbia. Perry Creek and the Moyie River, which lie adjacent to the property, are two of the most productive placer gold producers in the East Kootenay District. Exploration for the source of this placer gold has been carried out in the area since the turn of the century.

There is no record of previous work on the Kama #100 claim. Therefore, a grass roots type exploration consisting of reconnaissance VLF-EM survey was implemented. The results of this survey is encouraging with several targets, warranting follow-up, having been located.

Geochemical and geophysical in conjunction with trenching and geological mapping is recommended as the next stage of exploration. this program would assist in determining the extent of the anomalous zones and would help to pinpoint their exact location.

The ground VLF-EM survey was conducted using a Sabre Electronics Instruments Ltd, VLF- EM unit.

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GEOPHYSICAL REPORT

ON THE

KAMA #100 MINERAL CLAIM

KAMMA CREEK, NELSON MINING DIVISION

BRITISH COLUMBIA

INTRODUCTION AND GENERAL REMARKS

This report discusses the survey procedure, compilation of data and the interpretation of a dip angle VLF-EM survey carried out on the Kama 100 Claim within the Kamma Creek area in the Nelson Mining Division, British Columbia between November 28 and December 3, 1990.

The object of the surveys was to aid in the geological mapping of lithology and structure for the purpose of exploration of the type of gold mineralization as is found in the Kamma Creek and Perry Creek areas. VLF-EM surveys have been proven to be a good geological mapping tools on adjoining properties.

PROPERTY AND OWNERSHIP

The KAMA #100 property consists of 1 metric claims totaling 20 units located in the Nelson Mining Division of British Columbia (Figure 2), further described as follows:

<u>Claim Name</u>	<u>Number Of Units</u>	<u>Record Number</u>	<u>Expiry Date</u>
KAMA #100	20	4981	February 24, 1992

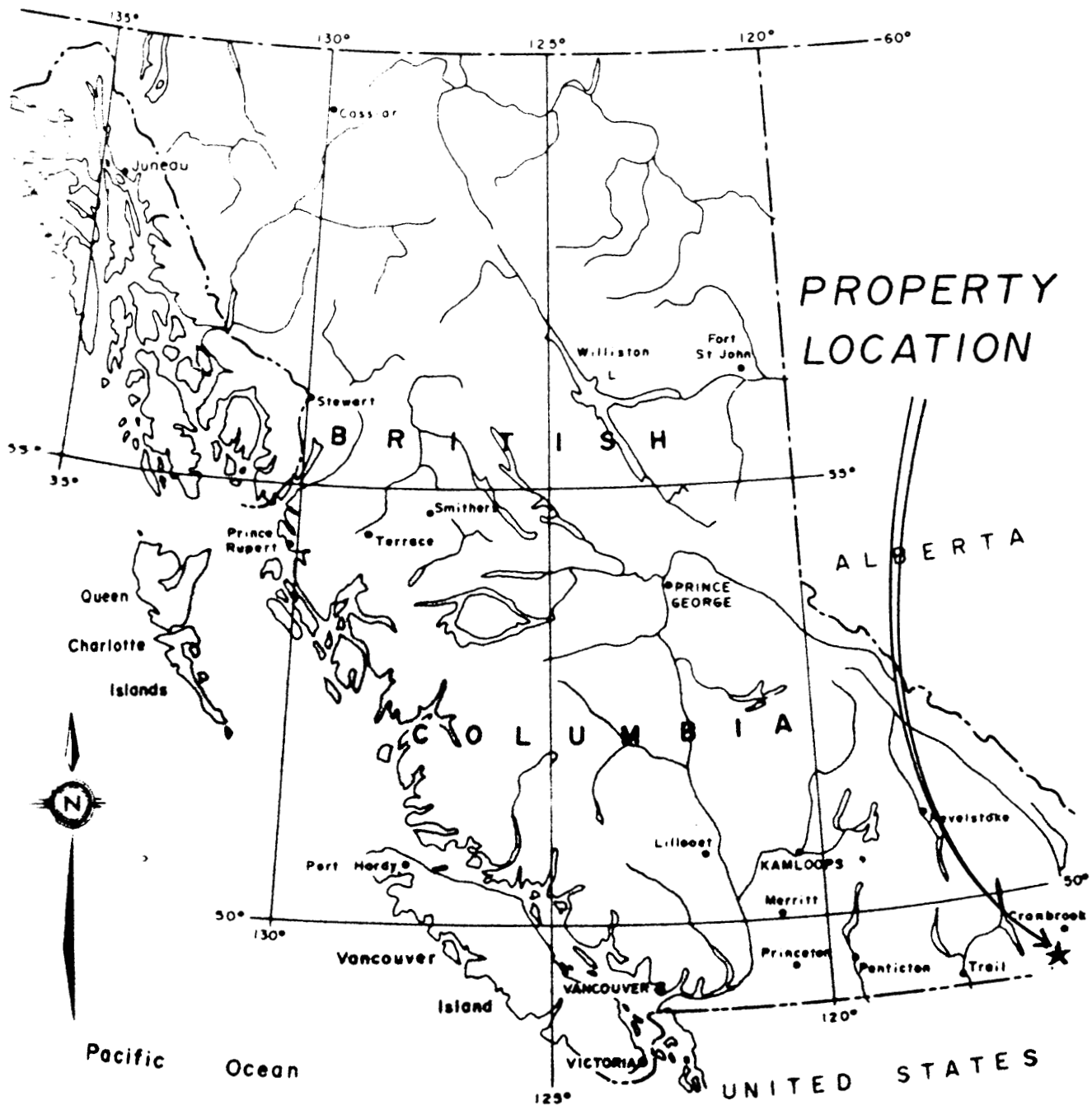
The property is held in trust by the author for Calco Resources Inc., of Vancouver, British Columbia.

LOCATION AND ACCESS

The Kama #100 Claim is located 35 air km northwest of the town of Creston which is in southeastern British Columbia (Figure 1). The claim is situated within National Topographic System area 92 F/8 and is centered approximately 116° 12' west longitude and 49° 23' north latitude.

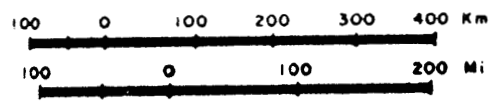
Access to the property from Highway 3A between Creston and Cranbrook is via the Leadville road which leaves the highway at the village of McConnel. The Leadville road divides at the 37 km marker. The north fork of this road passes through the Kama #100 claim at the 45 km marker. The road is passable by two-wheel drive truck.

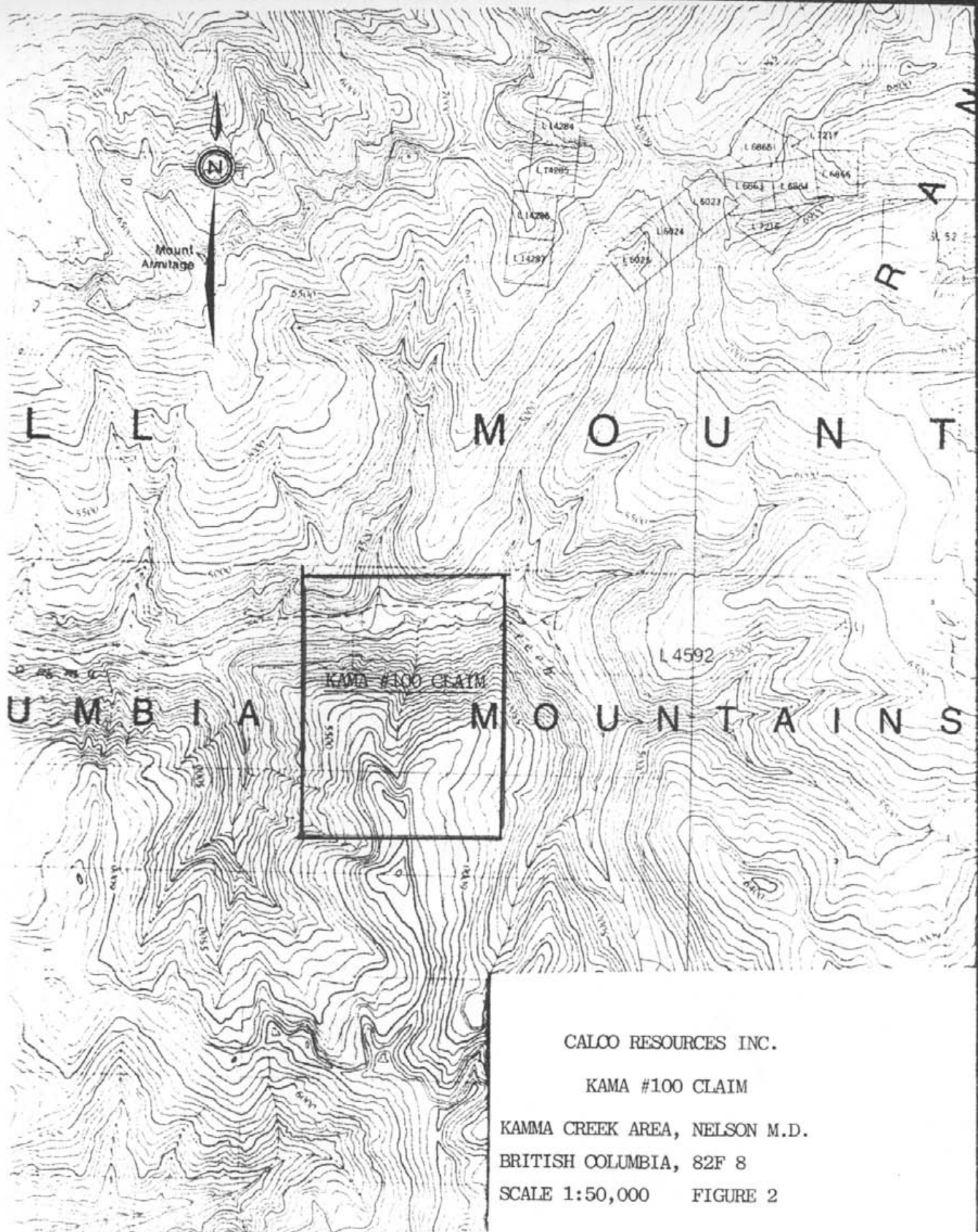
The property is situated within the Moyie Range of the Purcell Mountains. Topography is steep and elevations range from 1200 m to 2130 meters a.s.l. Vegetation at lower elevations is mature spruce, fir and pine whilst ridge tops support only alpine grasses. Annual precipitation averages about 120 cm with moderate winter snow pack.



PROPERTY
LOCATION

CALCO RESOURCES INC.
KAMA #100 Claim
Nelson M.D., B.C.





HISTORY OF PREVIOUS WORK

The Kama #100 property is situated immediately south of Perry Creek and west of the Moyie River which are two of the most productive placer gold producers in the East Kootenay district, Perry Creek has a recorded production of 3,338 ounces of placer gold while the Moyie River has produced 4,786 ounces, up to 1945. There is evidence of limited placer production with in the Kamma Creek valley.

Exploration for bedrock sources of the gold has had only limited success. Most of the exploration has taken place in the vicinity of Perry Creek which has uncovered a number of showings dating back to the early 1900's.

In the early 1980's, a staking rush took place, leading to exploration work undertaken mostly by junior resource companies. Little information has been made available to the public.

RECENT EXPLORATION

There is no published references to mineral exploration of what is now the Kama #100 claim. However, during examination of the property evidence of a seismic survey and of stream sediment sampling was observed. The seismic survey may have been part of an oil exploration program.

Calco Resources Inc. acquired the property in 1989 and carried out a limited amount of preparatory grid placement, for assessment work, in the same year.

REGIONAL GEOLOGY AND MINERALIZATION

The property lies within north-northeast trending segment of the Proterozoic portion of the Kootenay Arc which originated as a thick prograding clastic wedge along the western margin of the North American continental plate. Subsequent accretion of allochthonous plates has created major folding within the arc. Brittle faulting has continued almost to the present day in response to development along major structural zones which include the Rocky Mountain Trench.

The most prominent rocks in the area belong to the Proterozoic Purcell Supergroup. An uncomfortable succession of Lower Cambrian rocks overlies the Precambrian group throughout the drainage area in upper Goat River.

The lower-most rocks form the Aldridge Formation. It consists of three sub units: the Lower, Middle and Upper Aldridge. The most predominant is the Middle Aldridge characterized by fine grained quartzite, siltstone, argillite and this successions of alternating dark argillite and light grey siltstones. This unit is not less than 3,000 meters thick.

The most common unit is the Creston Formation. It also has been subdivided into Lower, Middle and Upper divisions. The lower Creston is dominantly thin -bedded alternating argillite and siltstone. Primary features, including mudcracks, pulling apart structures, small cut and fill features and ripple cross-laminations are common. The total thickness is approximately 1,000 meters.

The Middle Creston contact is marked with thicker bedded grey argillaceous siltstones with some dark argillite. This unit is approximately 1,000 meters thick.

The Upper Creston is characterized by deep green siltstone and very fine quartzite interbedded with green argillite. The unit is no more than 300 meters thick.

The Kitchener Formation stratigraphically overlies the Creston Formation. The contact is transitional and is mapped on the basis of the proportion of the carbonate bearing rocks, dolomitic siltstone and silty dolomite. The lower part contains green weathering argillite and siltstone.

The Dutch Creek Formation consists of interlayered black argillite and brown to grey siltstone. Very little carbonate is present.

The Lower Cambrian strata, consisting of the Cranbrook and Eager Formations are preserved as fault slices which are found east and west of the upper Goat River, Mallandaine Creek, and west of Hellroaring Creek. As they are area fault slices they unconformably overlie the Proterozoic rocks, as far down as Middle Creston.

The Cranbrook Formation consist mostly of white, medium to fine grained quartzite. Near the base, hematite rich quartzite, pebble conglomerate and green argillite can be present. The formation is 500 to 750 meters in thickness.

The Eager Formation lies conformably over the Cranbrook Formation. It is made up of thin bedded grey argillite and grey siltstone. Limestone and carbonate bearing argillite is found near the base. This formation is not less than 100 meters in thickness.

The Moyie Intrusions is the oldest intrusive rock and the youngest Proterozoic rock in the area. They occur mostly as sills in the Middle Aldridge, but are found in all Purcell Supergroup rocks except the Dutch Creek Formation. The sills consist of metadiorite granitoid rock.

Structurally the region is characterized by abundant faults, all very steeply inclined. Two major fault systems exist, the Moyie fault, which cuts northeasterly across the southeast corner of the map area and St. Mary-Hall Lake fault that trends northerly across the western boundary. The St. Mary fault continuing easterly and the Hall Lake fault continuing northerly. Near the junction are wide zones of faulting and brecciation. East of the St. Mary-Hall Lake fault, a regular series of faults trend northerly to north-northeasterly.

Little information on the age(s) of the episode(s) of faulting is apparent. A Mesozoic age is tentatively assigned although there is evidence of an older age.

Gold mineralization in the Kamma Creek and Perry Creek areas occurs in three different geological settings. Large quartz veins up to 20 m wide generally carry gold values but in sub-economic amounts. Smaller quartz veins up to 2 m wide cut both country rock and the larger quartz veins. These smaller veins carry significant amounts of gold and assays up to several ounces have been reported. A good deal of exploration undertaken at the turn of the century has suggested that these veins have erratic gold distribution and are relatively small irregular features. The third, and perhaps most significant, setting for gold mineralization is in major shear (fault) zone up to 100 m in width which incorporate both brecciated and host rock. These zones are weakly pyritized and are known to contain gold but systematic assays have not been recorded in the public realm. Dandy and Troup (1985) suggest that gold distribution is related to quartz vein stockworks in siliceous zones adjacent to microdiorite bodies which are intrusive into the shear zones. These zones are frequently topographically recessive.

VLF-EM INTRODUCTION

A VLF-EM ground survey was carried out during this exploration program. A total of 8.2 line kilometers of the grid implaced during the previous year was utilized for the survey. The object of the survey was to assist with the geological and structural mapping of the property and to help establish targets for further exploration.

VLF-EM INSTRUMENTATION AND THEORY

A model 27 VLF-EM receiver unit manufactured by Sabre Electronics Instruments, of Burnaby, B.C., was used for this survey. The transmitting station used was Seattle, Washington, which transmits at a frequency of 24.8KHz. The station is located west southwest of the property.

The transmitter emits very low frequency radio waves, designed for communicating with submarines. These VLF waves induce electrical currents in conductors beneath the surface of the earth. These currents induce deviations in the normal VLF field strength and direction. Measurements of these deviations are made by the VLF-EM receiver.

Types of conductors that can create measurable deviations include faults, graphitic zones, fractures, zones of sulphide enrichment and creeks. Conductors which strike approximately in the direction of the transmitter produce the best results.

DATA HANDLING

All readings were recorded in a fieldbook as they were taken. The raw data was Fraser filtered as described by D.C. Fraser, 1969 (Geophysics V.34, No.6, p. 958-67).

SURVEY RESULTS

The raw data from the VLF-EM Survey is presented in Appendix I, with the filtered data plotted in profile form in Figure 3.

The strongest lineation produced by the survey is found on the southern end of the grid as shown on Figure 3. The northeasterly striking VLF-EM deflections here appear to be responses to the underlying Middle Creston Formation-Kitchener Formation faulted contact and an interpreted sub-parallel splay fault lying on the west side of the contact.

There are several single VLF-EM anomalies located in the survey. The strike and causative source of these is unknown.

All other anomalous VLF responses appear to be reflecting the topographic relief which is common to this type of survey.

RECOMMENDATIONS

Based on the results from the 1990 geophysical program as well as results from work completed on adjoining claims, I recommend that Calco Resources Inc., proceed with a second stage of gold exploration on the Kama #100 claim. The following program is recommended:

- 1) extend VLF-EM survey and grid to the east further define the anomolous zones discovered during this program,
- 2) complete reconnaissance soil sampling on a contour basis along every 500 foot contour elevation using 25 meter stations,
- 3) complete geological mapping at a scale of 1:5,000 or better along with rock geochemical sampling of all anomaious zones defined by the previous two surveys,
- 4) trenching of the above targets, as well as
- 5) follow-up diamond drilling on targets by the outcome of continued exploration.

Respectfully submitted
White Wolf Explorations Ltd.



Lloyd C. Brewer
President

May 15, 1991

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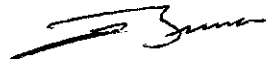
CERTIFICATION

I, Lloyd C. Brewer, of the City of Vancouver, in the Province of British Columbia, Canada, do hereby certify:

That I am owner and President of White Wolf Explorations Ltd., with offices located at #1122 - 470 Granville Street, Vancouver, B.C.

I further certify:

1. I am President of Columbia Airborne Geophysical Services (1984) Ltd., and have been employed full time in the mineral exploration industry for the past ten years in Canada, United States and Mexico.
2. This report is based upon information gathered by field crews of White Wolf Explorations Ltd., whom carried out the above described VLF-EM survey on the Kama #100 mineral claim, during November and December 1990.
3. I was project manager for the above described program.
4. I have no direct or indirect interest in the shares or business of the property which is the subject of this report or the property holder.



LLOYD C. BREWER
President

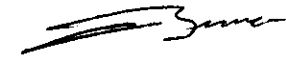
May 15, 1991

AFFIDAVIT OF COSTS

I, Lloyd C. Brewer, President of White Wolf Explorations Ltd., certify that the VLF-EM survey was conducted between November 28th and December 3rd, 1990 at a total cost of \$ \$2,500 broken down as follows:

Gordon Wilson (geo-tech)	5 days @ \$160.00/day	\$ 800.00
John Monks (assistant)	5 days @ \$125.00/day	625.00
Room & Board	10 days @ \$35.00/day	350.00
Truck/Skidoo rental	5 days @ 75.00/day	375.00
VLF-EM rental & supplies		100.00
Compilation Report		<u>250.00</u>
Total cost of Program		<u>\$ 2,500.00</u>

Respectfully submitted,



LLOYD C. BREWER
President

WHITE WOLF EXPLORATIONS ,LTD

MAY 15, 1991

APPENDIX #1

RAW VLF-EM DATA

VLF-EM RAW DATA

L121+00N 95+00E -6
 95+25E -7
 95+50E -7
 95+75E -6
 96+00E -6
 96+25E -8
 96+50E -8
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 103+25E +2
 103+50E 0
 103+75E -2
 104+00E -1
 104+25E 0
 104+50E +1
 104+75E +1
 105+00E +4

VLF-EM RAW DATA

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	95+75E	+3		95+75E	-1
	96+00E	0		96+00E	-3
	96+25E	-4		96+25E	-4
	96+50E	-4		96+50E	-4
	96+75E	-6		96+75E	-6
	97+00E	-10		97+00E	-6
	97+25E	-8		97+25E	-4
	97+50E	-10		97+50E	-4
	97+75E	-10		97+75E	-2
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105+00E	-3		105+00E	+2	

VLF-EM RAW DATA

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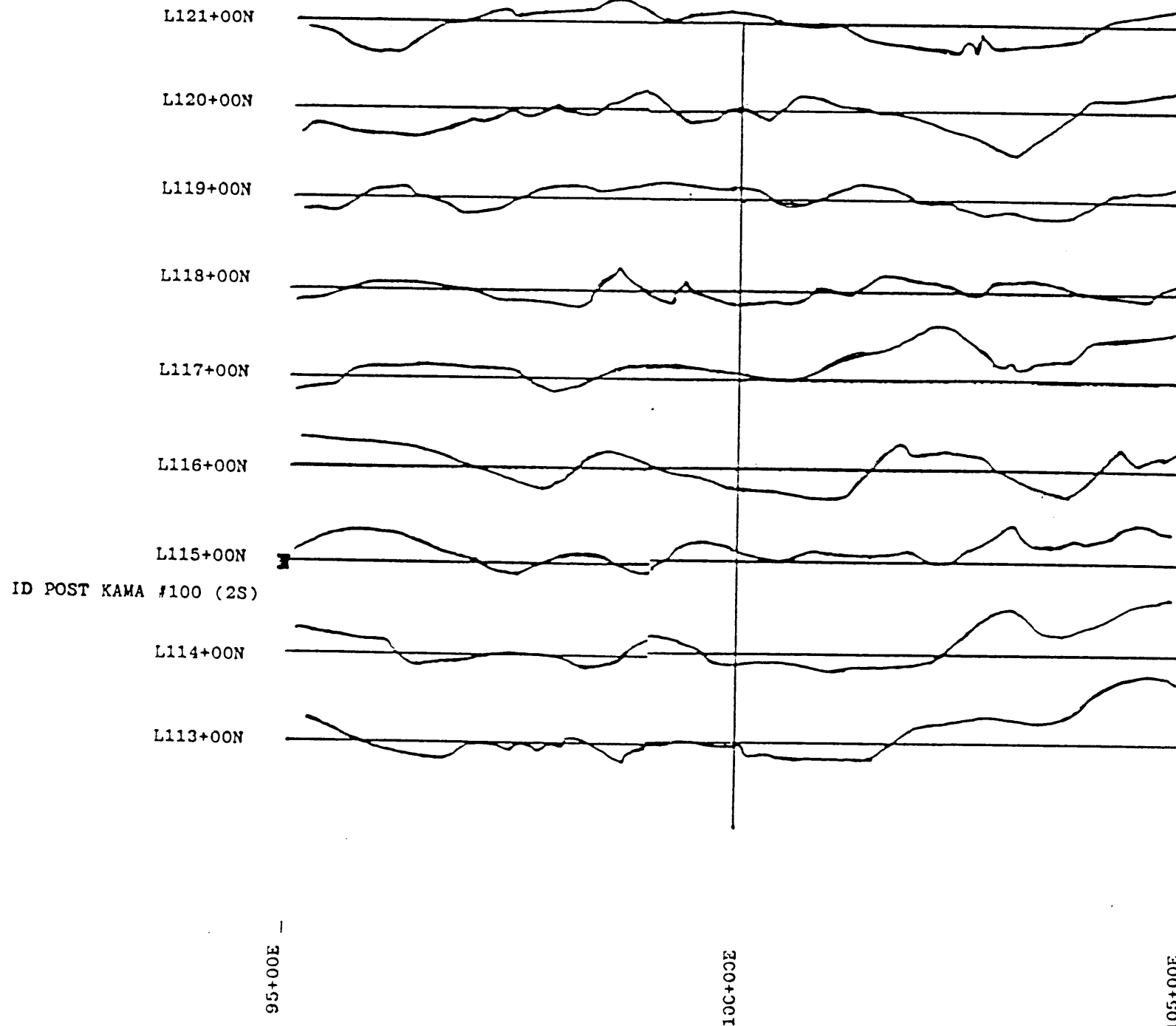
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VLF-EM RAW DATA

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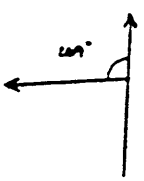
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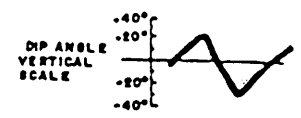
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VLF-EM TRANSMITTER DIRECTION



SEATTLE TRANSMITTER
70.9 KH₂



Survey Carried Out By:
WHITE WOLF EXPLORATIONS LTD.

To accompany Report By LLOYD C. BREWER

CALCO RESOURCES INC			
KAMA #100 CLAY			
KAWA CREEK YOTIE RIVER AREA NELSON MIXING DIVISION, BRITISH COLUMBIA			
VLF-EM DIP ANGLE SURVEY PROFILES (FRASER FILTERED)			
SCALE: 1:10,000	S.T.S.: 82F/1	DATE: OCT 91	DRAFTED BY: LCB/LLW