GEOPHYSICAL REPORT

CARAMELIA PROJECT
Camp McKinney, B.C.

WIARTON (L. 856) AND BROOK MINERAL CLAIMS
LAST CHANCE (L.751) AND FONTENOY (L.752) CLAIMS

Greenwood Mining Division
NTS 82E3 E½
(119°11'W, 49°07'N)

McKINNEY MINES CORP. (owner/operator)
FMC 131824
Vancouver, B.C.

by

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24 September 1993

C. A.R. Lammle P.Eng.

TABLE OF CONTENTS

	Page
INTRODUCTION	1
Summary of Work Done	1
Location, Access, Geography, Physiography, History	3
Property	4
GEOLOGY	5
EXPLORATION POTENTIAL	7
GEOPHYSICAL SURVEY RESULTS	8
General	8
Wiarton Crown Granted Claim	9
Interpretation - Wiarton Crown Grant	10
Brook Mineral Claim	11
Interpretation - Brook Mineral Claim	11
Last Chance and Fontenoy Areas	12
Interpretation - Last Chance and Fontenoy Claims	13
CONCLUSION	14
STATEMENT OF EXPENDITURES INCURRED	15
BIBLIOGRAPHY	16

LIST OF FIGURES

Figure 1, Camp McKinney Location Map	3
Figure 2, Index Map, Work Area on Wiarton C.G.	10
Figure 3, Index Map, Work Area on Brook Mineral Claim	12

LIST OF DRAWINGS

DWG. P 0, Caramelia Project, Property Map	4(a)
DWG. P 1, Wiarton C.G., Contoured Magnetometer Readings	9(a)
DWG. S 1, Wiarton C.G., Geophysical Profiles, Line 0+00	10(a)
DWG. S 2, Wiarton C.G., Geophysical Profiles, Line 0+50	10(b)
DWG. S 3, Wiarton C.G., Geophysical Profiles, Line 1+00	10(c)
DWG. P 2, Brook M.C., Geophysical Lines, and Workings	11(a)
DWG. S 4, Brook M.C., Geophysical Profiles, A Line	11(b)
DWG. S 5, Brook M.C., Geophysical Profiles, D Line	11(c)
DWG. S 6, Brook M.C., Geophysical Profiles, H Line	11(d)
DWG. S 7, Brook M.C., Geophysical Profiles, J Line	11(e)
DWG. P 3, Last Chance C.G., Vert. Field Magnetics	12(a)
DWG. P 4, Last Chance C.G., Fraser Filtered VLF-EM	12(b)
DWG. P 5, Fontenoy C.G., Vert. Field Magnetics	13(a)
DWG. P 6, Fontenoy C.G., Fraser Filtered VLF-EM	13(b)

INTRODUCTION

Summary of Work Done

During 22-25 June and 12-14 July, 1993, a program of detailed magnetometer and VLF-EM surveying, and some incidental geological work, was carried out over portions of McKinney Mines Corp.'s Wiarton Crown Grant and Brook Mineral Claim. Additional work of the same sort was done during 20-26 August 1993, on the Last Chance and Fontenoy Crown Grants. These claims cover underground- and surface-quartz vein workings at Camp McKinney, 22 km northeast of Osoyoos, B.C.

The June and July work was done by C.A.R. Lammle, PEng., and the August work was done by Dave Jenkins, PGeol., and Mike Twyman, MSc., both of Ainsworth-Jenkins Holdings Inc., Vancouver, B.C.

The field work has been processed by Lammle via SURFER/AutoCAD from field notes recorded as comma delimited ASCII files. This report covers all of the work and has been written by Lammle.

The purpose of the detailed work was twofold:

1.) to determine the effectiveness of detailed magnetometer and VLF-EM electromagnetometer surveying in tracing the thin gold-bearing fissure vein systems on the property. If found to be effective, similar detailed used of these geophysical instruments could be used to prospect for fault offset extensions of the veins; and

2.) to determine the effectiveness of detailed magnetometer surveys in detecting and outlining areas of possible skarn mineralization.

Areas of two distinct types of country rocks were chosen; firstly, quartz vein (or fissure system), and possibly skarn, in Anarchist Group `greenstone' on the Wiarton, Last Chance and Fontenoy claims; and secondly, quartz vein in granodiorite on the Brook M.C. On the Wiarton and Brook claims, short control base lines and cross lines were cut, chained and brushed out normal to the vein, and used for control of both mag and EM profile measurements at survey station

intervals of 2.5 metres. Additionally at Wiarton, ENE-trending lines normal to the stratigraphy were surveyed magnetically at 5 m intervals to check for the possible magnetic signature of skarn. The same lines were used for 1:100 orientation mapping of surface features (1:100) and the incidental geological work.

At Brook M.C., 350 m of profile line were surveyed in this fashion; at Wiarton, 300 m of profile line and 1360 m of additional magnetometer line were likewise surveyed.

At the Last Chance, 1.20 km of line was hip-chained, ribboned and surveyed with the same two instruments; while at the Fontenoy, 1.75 km of line was likewise established and surveyed.

The scale of the property index map provided, part of an AutoCAD drawing of a somewhat larger area, is 1:1000. Topography on this map was prepared by reading elevations from the 1:50,000 map at some 470 points (a 250 m grid), interpolating elevations to a 19 m grid by kriging, and then contouring to 10 m intervals. Hence, *although realistic-looking, the contours are not more* accurate than can be read from the topographic map. Most of the crown grant detail has been plotted exactly from copies of original BCLS notes available from the Surveyor General's office, and then `best-fitted' to the topography using details from 1:20,000 forest interim maps.

Outlines of underground workings, veins, faults, drill holes, etc., have been digitized three dimensionally from hand drafted maps dating back several decades. These data have now been tied to crown grant corner posts by surface traverse with brunton and chain, and then appropriately adjusted to fit mine data to surface data.

Location, Access, Geography, Physiography, History

Camp McKinney is located in the south-central part of the province, 22 km northeast of Osoyoos, and 12 km north of the Canada-USA border. Physiographically, this is in southern Okanagan Highlands, part of B.C.'s Southern Plateau and Mountain System. Access is 11 km northerly via the all weather Baldy Mtn. gravel road that joins paved Highway 3 at a point 3 km east of Bridesville. The general elevation of Camp McKinney is about 1340 metres, the topography being smoothly sculpted and veneered with drift. Drainage is towards the south via deeply entrenched McKinney and Rock Creeks. A small brook - Rice Creek - flows across the central part of the property.

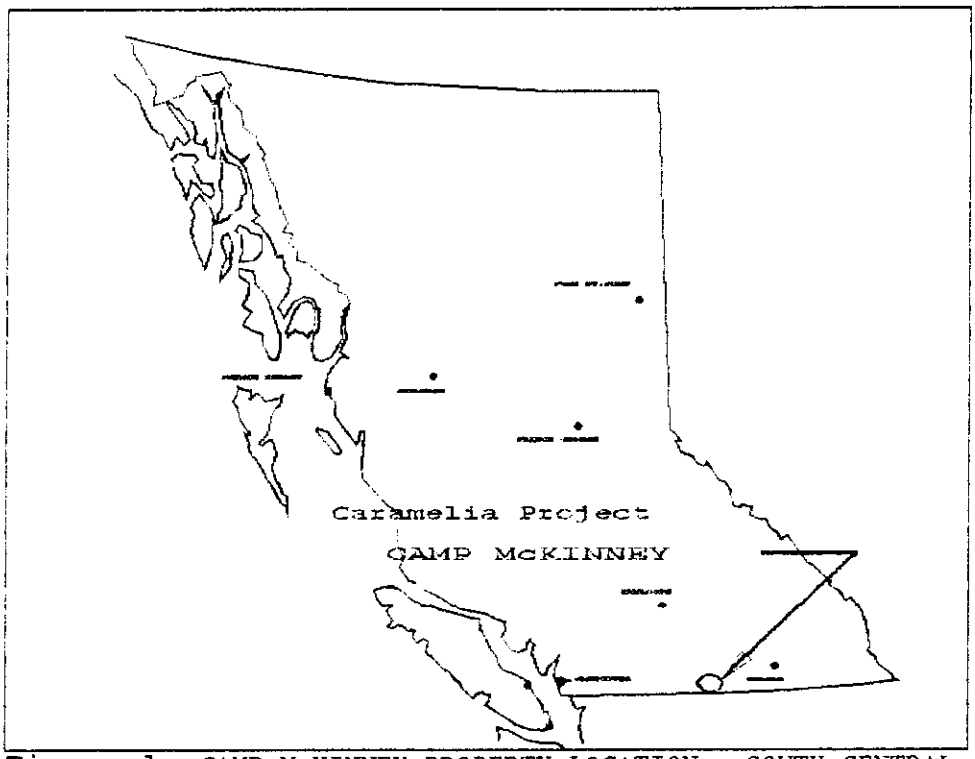


Figure 1 CAMP McKINNEY PROPERTY LOCATION - SOUTH CENTRAL OKANAGAN HIGHLANDS.

Much of the mixed coniferous-deciduous forest (pine, fir, larch, aspen) has been harvested by skidding to truck-landings. In the course of the last century, many of the original surveyed corner posts have been obliterated by the forest fires, by road building and by the logging work.

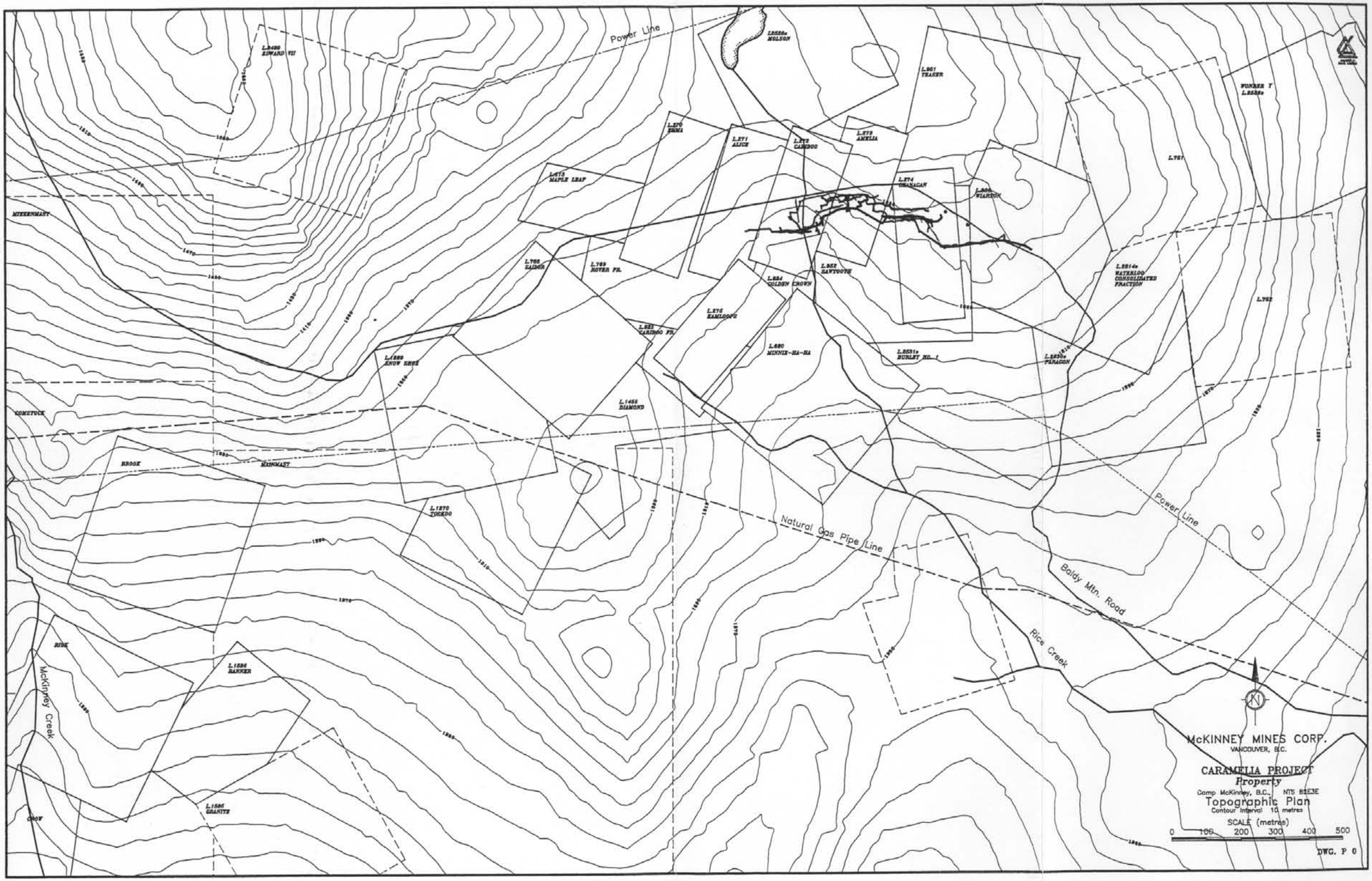
Camp McKinney was discovered in the mid 1880's, and became one of the first dividend-paying gold mines in British Columbia. The first claims were American style, with extralateral rights and dimensions 600' x 1500'. Although small tonnage-wise, the veins were, and still are important because of their richness. Recorded production was during three main periods:

1894-1903	? st -	73,500 oz Au @ 0.69 oz/st;	5,359 oz Ag
1940-1946	2,436 st -	1,632 oz Au @ 0.67 oz/st;	
1960-1962	11,292 st -	11,970 oz Au @ 1.06 oz/st;	14,261 oz Ag.

Property

The property consists of a number of crown granted mineral claims (CG); reverted and re-staked crown grants (RCG); and both two-post and metric claims. (See DWG. P 0, attached.) These are as follows:

NAME		LOT	RECORD	AREA	TYPE
Emma	CG	L.270		8.36	
Alice	CG	L.271		7.08	
Cariboo	CG	L.272		7.59	
Amelia	CG	L.273		6.27	
Okanagan	CG	L.274		8.07	
Maple Leaf	CG	L.613		5.25	
Last Chance	CG	L.751		18.95	
Fontenoy	CG	L.752		19.37	
Wiarton	CG	L.856		17.92	
Sawtooth	CG	L.952		2.80	
Molson	CG	L.2526S		17.58	
Paragon	CG	L.2530S		14.66	
Burley #1	CG	L.2531S		15.99	
Wonder Y	CG	L.2536S		20.36	
Minnie-Ha-Ha	RCG	L.680	214279	20.52	
Sailor	RCG	L.766	214280	17.00	
Diamond	RCG	L.1455	214281	8.69	
Toledo	RCG	L.1270	214282	13.57	
Snowshoe	RCG	L.1269	214283	17.47	
Teaser	RCG	L.951	214284	16.75	
Rover Fr.	RGC	L.769	214289	6.19	
Cariboo Fr.	RGC	L.925	214920	1.94	
Kamloops	RCG	L.275	214291	17.27	
Mizzenmast			215174		20 units
Mainmast			215175		9 units
Comstock 1			303413		2-post
Comstock 2			303414		2-post
Comstock 3			303415		2-post
Comstock 4			303416		2-post
Comstock 5			303417		2-post
Crow			310250		2-post
Brook			318207		2-post
Risk			318208		2-post


Power Line
L.2480 EDWARD VII
L.2526s NOLSON
L.951 TRAGER
FONDER 7 L.2528s
L.781
L.270 EMMA
L.271 ALICE
L.272 CARIBOO
L.273 AMELIA
L.274 OKANAGAN
L.275 MAPLE LEAF
L.276 WILKESON
MIKKENMAST
L.766 SALMON
L.769 ROYER FR.
L.824 GOLDEN CROWN
L.952 SAWTOOTH
L.2814s WATERLOO CONSOLIDATED FRACTION
L.782
L.275 KAMLOOPS
L.825 CARIBOO FR.
L.680 MINNIE-HA-HA
L.2531s BURLEY NO. 1
L.2530s PARAGON
L.1889 SNOW SHOE
L.1455 DIAMOND
COMSTOCK
BROOK
MAINMAST
L.1270 TUXEDO
Natural Gas Pipe Line
Power Line
Baldy Mtn. Road
Rice Creek
RISK
McKinney Creek
L.1586 BANKER
L.1585 GRANITE
CHIEF
N
McKINNEY MINES CORP.
VANCOUVER, B.C.
CARAMELIA PROJECT
Property
Camp McKinney, B.C., NTS 82E3E
Topographic Plan
Contour Interval 10 metres
SCALE (metres)
0 100 200 300 400 500
DWG. P 0

GEOLOGY

The geology of the area has been reported on in the literature and assessment report files numerous times. The most terse, comprehensive and understandable document is M.S. Hedley's Geology of Camp McKinney and of the Cariboo-Amelia Mine in Bulletin No. 6 of B.C. Dept. of Mines. No repetition of this fine description is needed. However, some description integrating data from more recent studies can be justified.

Anarchist Group is a poorly understood group of sea-floor sediments and volcanic rocks. On stratigraphic and scant fossil evidence, the age of the assemblage is bracketed between Permian and Triassic. It is believed that the strata were originally a veneer of sands, silts, and limy muds lying on the sea floor, and that during plate tectonic subduction of the heavier basalts, the lighter sediments and some slices of basalt from the floor itself were ploughed off, as if by bulldozer, and obducted up onto the edge of the continent - the blade being the metamorphosed leading edge of the craton, now represented by Shuswap Terrane. The rocks that descended to the mantle, eventually melted and formed granitic magmas. These slowly ascended again, like hot air balloons, and formed the stocks and batholiths now called Nelson, Okanagan and Valhalla Intrusions.

Given this scenario, Anarchist Group would have originated under conditions of east-west compression. Accordingly, large scale folding with north-trending axial planes should be suspected. However, this compression regime changed later to east-west tension, for this southern part of British Columbia is now characterized by strong, north-trending horst and graben block faults. Subduction, persisting for a long time and eventually lifting and expanding the surface from within, can also be credited with having changed the stress from compression to tension.

Now, after extensive erosion, the geology of this part of southern Okanagan Highlands can be characterized - somewhat imperfectly perhaps - as a large pendant of Anarchist Group (Permo/Triassic) rooted in granodiorite of Nelson Batholith (Jura-Cretaceous). The stratigraphic succession in the pendant - argillite, impure quartzite, quartz-biotite schist, limestone and calcareous greenstone - is not unlike the sediments and volcanics of some greenstone belts. However, the gross structure is probably anticlinorial, while most pre-Cambrian greenstone belts are synclinorial. The intrusive rocks are also similar petrographically, and although generally of acid to intermediate composition, range in composition to alkaline types. The older rocks were successively dyked, deformed, altered, intruded, faulted and dyked again.

On the property, the character of the contact between the greenstone and the granodiorite, being poorly exposed, is poorly

known; undoubtedly it is irregular both in plan and section. Importantly, the intrusive was reportedly exposed in underground workings in the early 1960's, on No.6 Level near the bottom of the Hill-Starck inclined shaft, and also, with much alteration, in the western end of No.3 Level. At these locations, the intrusive appears to cut off (or offset) the gold-bearing vein, suggesting that the intrusive is post-mineral. As veins elsewhere are present in the intrusive rocks, it is likely these formed from late stage fluids rising from the intrusion and filling conduits and fissures. Wall-rock of the veins was irregularly altered to sericite-quartz-ankerite. Near fissure vein system, silica-ankerite-sulphide alteration should be expected, and development of listwanite would not be unusual. Hence, it is likely that the veins are essentially contemporaneous with the granodiorite.

Contact metamorphic, metasomatic and structural effects can be expected in the older rocks at and near the contact. Some rock types (sandstones and shales, for instance) can be expected to have been hornfelsed and silicified; others (impure carbonate rocks) can be expected to be metasomatized to garnet-pyroxene-pyrrhotite skarns, and these would have excellent potential for large sized deposits of base and precious metals. All of the rocks could be expected to be faulted, particularly, the country rock overlying the intrusion.

The main productive vein at Camp McKinney was called the Cariboo, or Cariboo-Amelia, after the claims. It is near vertical and trends east. The quartz from it is bluish, semi-translucent, and faintly banded. It has mesothermal characteristics like the veins at Bralorne and like those in the Motherlode district of California. Mineralization consists of pyrite with visible gold. Small amounts of sphalerite, galena, chalcopyrite, tetrahedrite and some pyrrhotite are also present. Towards the west, the vein seems to branch out into northwest-, west- and southwest-trending subsystems, while towards the east the strike seems to change to the southeast.

Underground mining was greatly complicated by the complexity of the faulting.

After the vein was in place, one of the most likely effects of continued rising of the intrusion would be deformation and dislocation of the older strata and the vein itself. The author presumes that the present disrupted configuration of the vein was caused by the imperceptibly slow rising of the intrusive mass, and the accompanying compression, deformation and block faulting of the rocks at the contact and overlying the intrusion. Disruptive effects of the intrusion on the older rocks would diminish with increasing distance from the contact.

If the vein originally occupied a single linearly-continuous, near-vertical fissure, then its present configuration would be the

principal marker by which this disruption might be measured. Viewed three dimensionally in AutoCAD, the Cariboo-Amelia vein in the central sections of the old mine - the sections above the underground exposures of the intrusive - appear to have been shoved upwards and to the north on a series of thrust faults, a number of which are flat, and a number of which are steeply inclined. It appears that the flat faults were early, as two of the principal ones are themselves offset by one of the steeply inclined ones. The cumulative upwards and northerly dislocation is undoubtedly a result of the underlying intrusion making way for itself. Exploration targets can be located by using this concept to extrapolate likely positions of the vein.

EXPLORATION POTENTIAL

It is very likely that additional mineable vein reserves can be discovered at Camp McKinney, with persistent, detailed and methodical work. During the early days of the mine (prior to 1960), ore was not mined below No.4 Level in the productive central section of the old mine, the main vein apparently not having been discovered there. (To explore there thoroughly, long crosscuts to drill stations and many fans of holes would have been required, and was not done.) Despite the fact that the old time miners apparently did not find ore below No.4 Level, there is no known reason to suspect absence of the vein at this depth in this area. Given the genesis scenario described above, one would certainly expect the vein to be present in the central sections of the mine below No.4 Level.

Where to look, then?

Being closer to the intrusion, the disruption below No.4 Level due to shouldering-aside is likely greater than in the more distant productive levels above No.4. Since some early but well placed surface exploratory drill holes from the south have apparently failed to core the downward extension of this ore, it seems very likely that the extension will be found further to the north than the stopes of the central sections. Deep drilling from the north would give the best chance for proving (or disproving) this theory; (deep drilling from the south for a particular target could miss the vein by passing through a flat fault, but if the same target were drilled from the north, the vein would be cored twice, once above and once below the flat fault).

Also, there are very good possibilities for finding more vein ore, as did W.E. McArthur, by exploring blocks of ground successively to the southeast, each block having a relative faulted displacement downwards and southwards from previously blocks. With a little stretching of the imagination, one can envision a tenuous relationship between the Cariboo-Amelia quartz-fissure system and the system in the Dayton Camp. It is therefore reasonable to conclude

that there are good exploration possibilities between the two camps. The geophysical work described herein was designed to search for branches or projections of the vein or its fissures eastwards from the 1960 Hill-Starck workings.

Skarn - identifiable with difficulty - containing precious and base metals, is present in Anarchist Group at Camp McKinney and in the same general strata in the same geological setting elsewhere in this part of British Columbia, and also, importantly, in northern Washington State. This type of mineralization has the potential for much greater tonnage than the vein type. Consider the tonnages in the Hedley, Phoenix and Buckhorn Mountain mining areas.

One 1979 drill hole at Camp McKinney with a 9.5 metres intercept of good base- and precious-metal mineralization may have been partly in skarn. Some of the diamond drill hole logs make note of skarn alteration, and pieces of rock from a number of waste dumps have been identified as skarn. Mineralization is described as being replacement-type, as opposed to fissure-vein, at the foot of the ventilation raise, and also at one place immediately above No.2 Level; this `replacement' ore may be skarn.

The potential for appreciable tonnages of skarn at Camp McKinney has been recognized only relatively recently. Most exploration in the area since this potential was realized has been limited by a combination of budget, and assessment work requirements. Old time miners did not abide by these limitations; they found gold by detailed, persistent and painstaking work with crude tools. If a similar approach is made with today's tools, additional mineable reserves will surely be found. As areas of skarn alteration can be expected to have increased content of pyrrhotite and magnetite, detection under overburden can accomplished by magnetometer surveying. This was the purpose of the described magnetometer work.

GEOPHYSICAL SURVEY RESULTS

General

Geophysical Instruments used were as follows:

Magnetometer - Geometrics G 816 Proton Precession
(Vertical field)
(Serial Number 60708)

VLF-EM - Phoenix VLF-EM
(Model VLF-2)
(Serial Number L1173)

Mag and EM field notes were transferred to spreadsheet for diurnal variation correction, and Fraser filtering. ASCII files of the

corrected and filtered data were prepared in a form suitable for reduction by SURFER, and automatic AutoCAD drafting. Profiles were drawn automatically via simple LISP programs. All data has been added to the comprehensive three dimensional Camp McKinney AutoCAD database.

In Wiarton and Brook areas the detailed work shows sharp magnetic lows directly over the vein, or presumed strike extension of the vein. Some distance further eastwards from the known productive vein at Last Chance and Fontenoy, the magnetics have vague easterly components superimposed on the NNW-trending grain that is due to the stratigraphic trend. On Last Chance, Fraser filtering of the VLF-EM work reveals an easterly-trending conductor, coincidental with a magnetic trend; while on Fontenoy, the survey appears to reflect stratigraphy mainly, with the exception of a coincident magnetic high and small but strong conductor.

VLF transmitting stations located at Seattle and Hawaii were used, depending on the strike of the conductor searched for. Hawaii was chosen for the work at Wiarton because the vein there strikes more towards Hawaii than Seattle. For the same reason, the Seattle transmitter was chosen for the work on the Brook mineral claim. At Last Chance and Fontenoy, both stations were used initially, but because of trouble reading Hawaii, results presented are based on readings from Seattle.

In general, EM response was variable, and somewhat camouflaged by VLF noise.

It can be concluded that careful magnetometer work is probably the most simple and reliable geophysical means available for locating the vein.

Wiarton Crown Granted Claim

At the Wiarton Crown Grant, three 100 metre, northerly-trending lines were laid out to cross the suspected projection of the vein system at right angles. Mag and EM readings were taken along these lines at 2.5 m intervals. The fissure system at Wiarton strikes in the general direction of the Hawaii VLF-EM transmitter. Therefore, it was the only station used for this portion of the EM work. The orientation of electromagnetic flux emanating from the Seattle transmitter would nearly parallel the fissure system, and accordingly would not generate strong eddy currents in any conductor with strike comparable to the passing electromagnetic flux.

Eight additional lines were laid out to cross the stratigraphy at right angles, and to detail some small magnetometer highs that had been roughly defined during earlier work programs. These lines totalled about 1.4 km, and magnetometer readings were taken along

CEMETERY

AMELIA CG
L. 273

Approx. location
Crown Grant Iron Pine

200 E Mine Grid

OKANAGAN CG
L. 274

WIARTON CG
L. 856

Logging road

Landing

LINE 0+50

LINE 1+00

LINE 0+00

Dislodged Sawtooth
Crown Grant wooden post

0 N Mine Grid

Ruined cabin

L. 0+00

L 0+25S

L 0+50S

L 0+75S

L 1+00S

L 1+25S

L 1+50S

L 1+75S

Gate

BALDY MTN. ROAD

Bldg

SAWTOOTH
CG

HILL-STARCK
INCLINED SHAFT

Bldg

SHAFT

Backhoe Trench

Backhoe Trench

Diamond Drill
Hole Collars

SAWTOOTH CG
L. 952

Bravo Road

McKINNEY MINES CORP.
VANCOUVER, B.C.

CARAMELIA PROJECT
Wiarton Crown Grant
Camp McKinney, B.C., NTS 82E3E

Magnetometer & VLF-EM Lines

MAGNETIC FIELD OF THE EARTH
VERTICAL COMPONENT

Contour Interval – 50 nT
(above a base of 56,000 nT)

SCALE (metres)
0 20 40 60 80 100

DWG. P 1

them at 5 m intervals. The field readings were carefully corrected for diurnal variations in the earth's field, and then detailed by computer contouring and plotting.

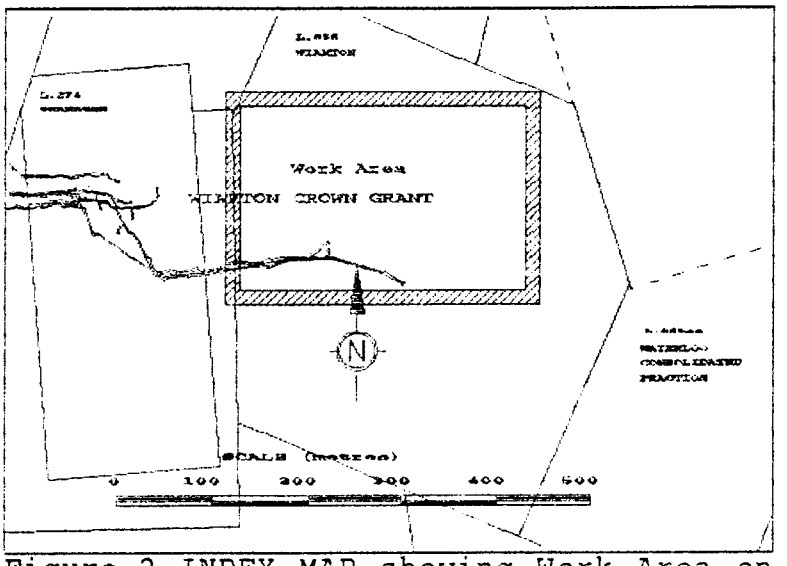


Figure 2 INDEX MAP showing Work Area on the Wiarton Crown Grant.

In this vicinity, the Cariboo-Amelia vein is offset - relatively downwards and to the southeast. Appreciable work including trenches, drill holes and shafts, has been done over the years to find the vein and to elucidate the nature of the offset. One vertical drill hole here yielded a short sections of high grade gold at a depth of 11.58 metres, but a shaft sunk on the collar apparently did not find the main vein.

Interpretation - Wiarton Crown Grant

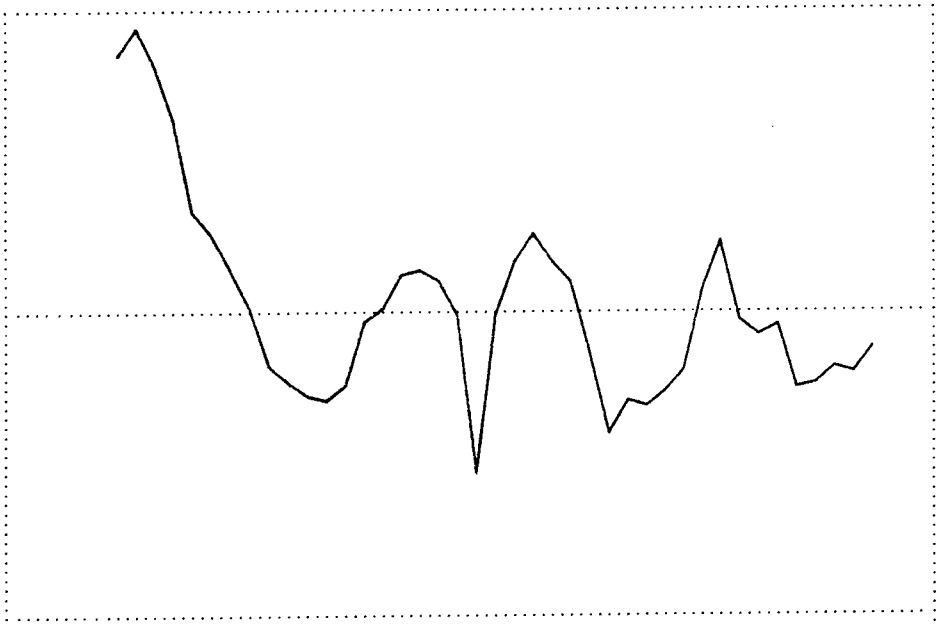
A local but very strong magnetic high, some 800 Nt, (see DWG. P 1 and DWG. S 2, attached) is detailed by this work immediately to the north of this intriguing shaft and drill hole, and a continuous linear ENE magnetic low, just to the south of the shaft, would appear to reflect the fissure system or the vein itself. The vertical drill hole with gold at 18.58 metres - now replaced by the exploration shaft is on the immediate south side of this strong mag high, but on the north edge of the linear low. It is possible for this magnetic high to be caused by a local increase in magnetic mineral content (magnetite, pyrrhotite?) because of skarn metasomatism. There are other possible causes, of course, such as mafic dykes or slices of sea floor basalt having been churned up in the melange. The shaft itself is sunk on an area of non-conductive rocks, as indicated by the VLF-EM work.

The continuous ENE-trending, linear magnetic low, passing 40 m to the south of the shaft, is caused by the relative absence of magnetic minerals. In this setting, destruction of magnetic minerals would be the probable reason for such absence. Hence, the linear magnetic low should be suspected, at least, as being caused by hydrothermal alteration that was channelled by the fissure system. It might well reflect the vein itself. There could be appreciable offset along this feature (left lateral if related to obduction).

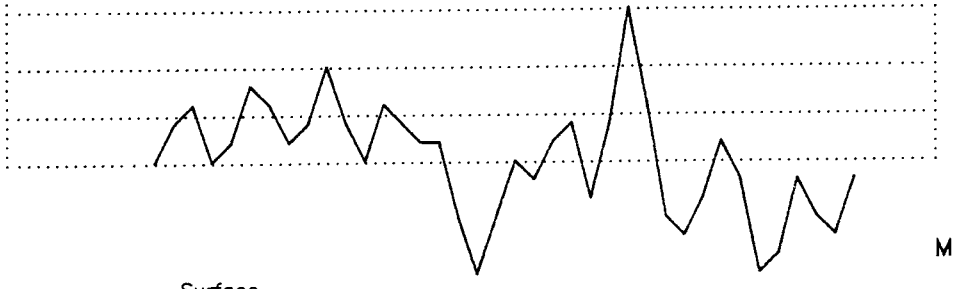
North

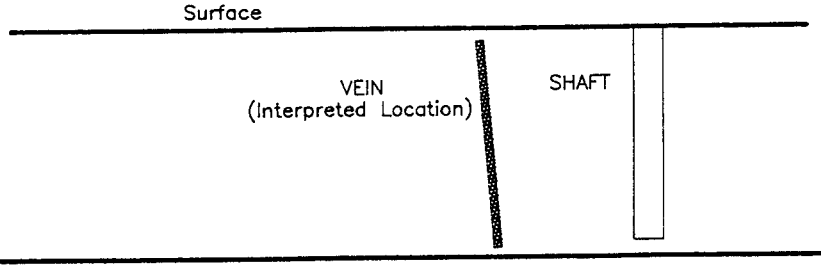
South

MAGNETOMETER (Geometrics G 816)



VLF–EM (Phoenix VLF–2) (Hawaii)





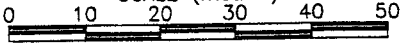
DWG. S 1

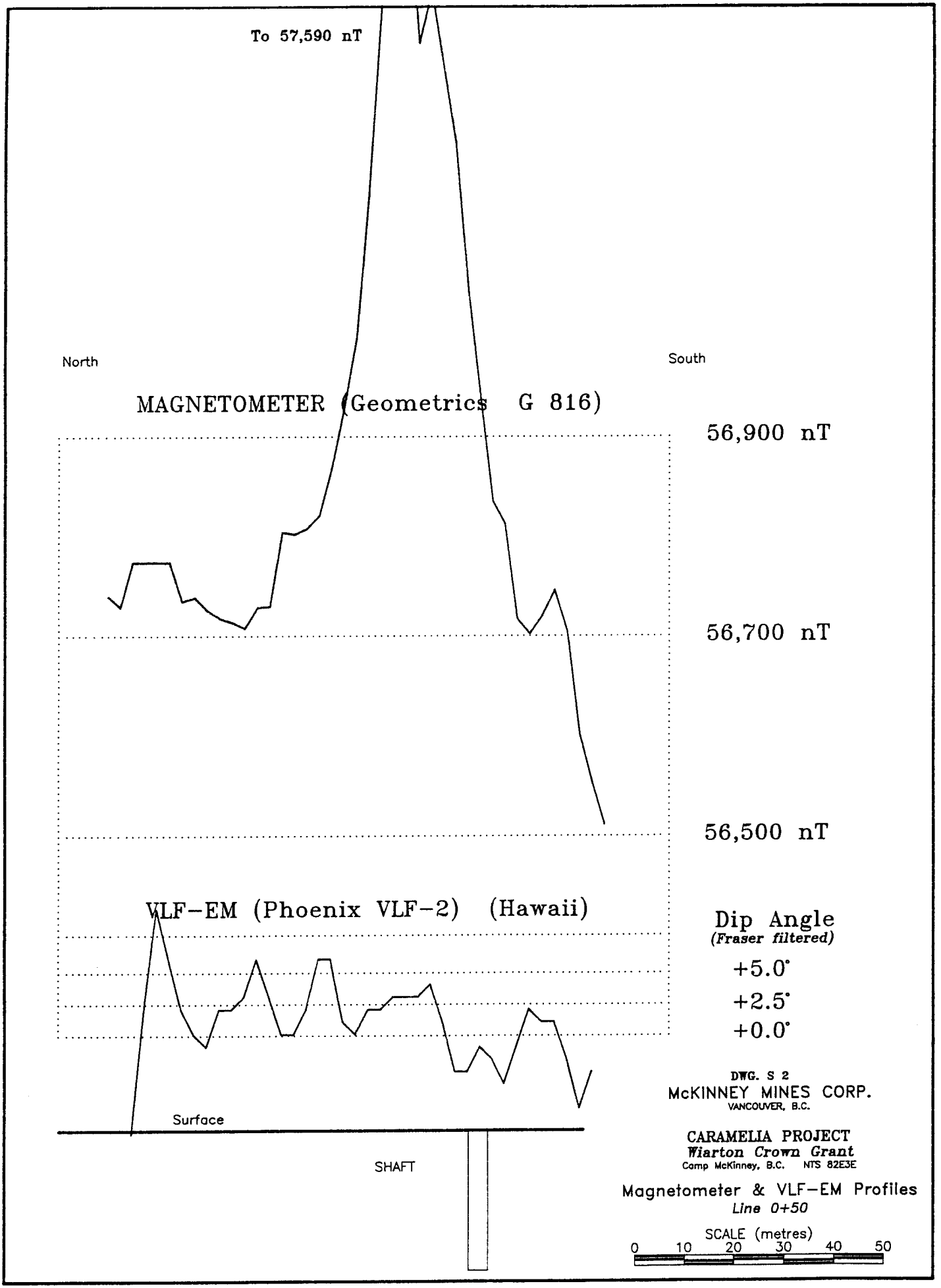
McKINNEY MINES CORP.
VANCOUVER, B.C.

CARAMELIA PROJECT
Wiarton Crown Grant
Camp McKinney, B.C. NTS 82E3E

Magnetometer & VLF–EM Profiles
Line 0+00

SCALE (metres)

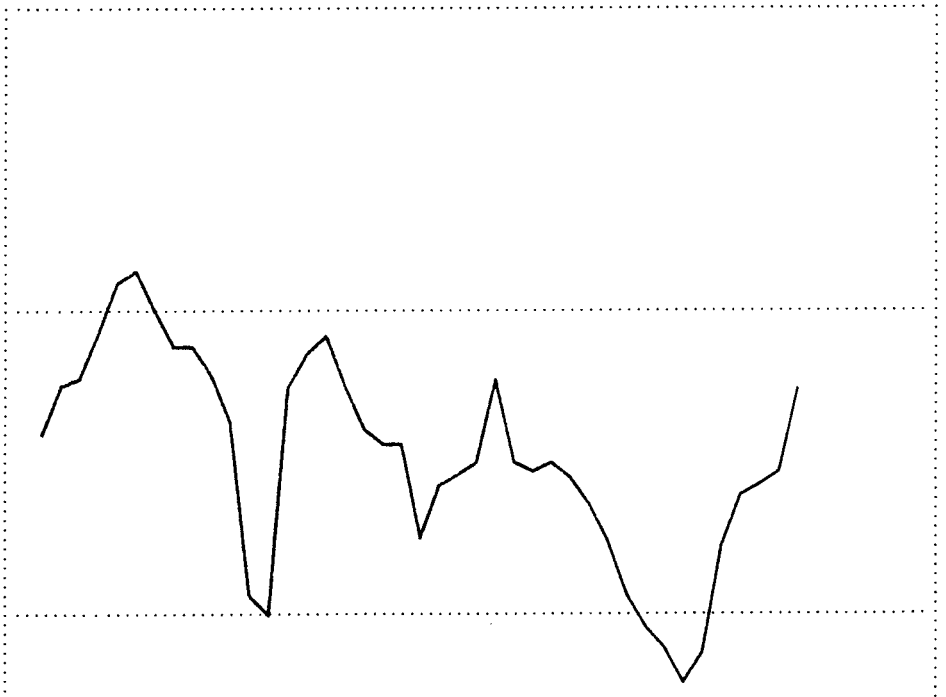



To 57,590 nT
North
South
MAGNETOMETER (Geometrics G 816)
56,900 nT
56,700 nT
56,500 nT
VLF-EM (Phoenix VLF-2) (Hawaii)
Dip Angle
(Fraser filtered)
+5.0°
+2.5°
+0.0°
Surface
SHAFT
DWG. S 2
McKINNEY MINES CORP.
VANCOUVER, B.C.
CARAMELIA PROJECT
Wiarton Crown Grant
Camp McKinney, B.C. NTS 82E3E
Magnetometer & VLF-EM Profiles
Line 0+50
SCALE (metres)
0 10 20 30 40 50

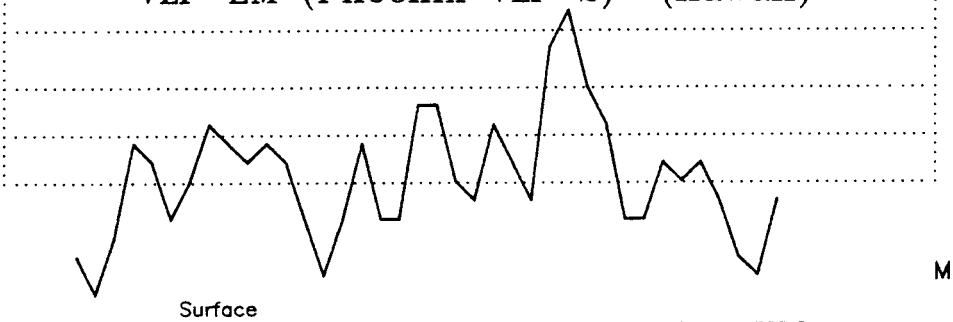
North

South

MAGNETOMETER (Geometrics G 816)



VLF–EM (Phoenix VLF–2) (Hawaii)



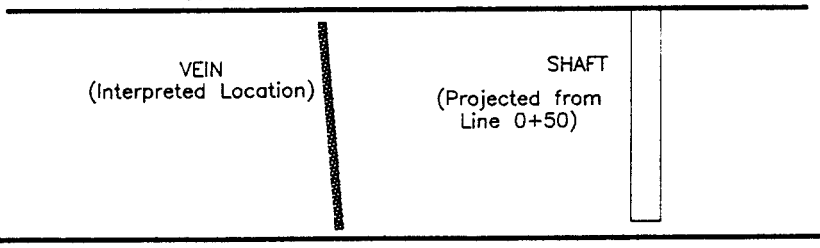
Dip Angle
(Fraser filtered)

+5.0°

+2.5°

+0.0°

Surface



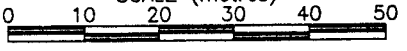
DWG. S 3

McKINNEY MINES CORP.
VANCOUVER, B.C.

CARAMELIA PROJECT
Wiarton Crown Grant
Camp McKinney, B.C. NTS 82E3E

Magnetometer & VLF–EM Profiles
Line 1+00

SCALE (metres)



The geophysical signatures of the other two Wiarton sections on lines 0+00 and 1+00 (see DWG. S 1 and S 2) both have prominent, relatively broad mag lows (50-100 nT lows) on the flanks of weak EM conductors. This type of response is expectable from the vein, but there is no absolute assurance that the vein is actually being detected here. In other words, the vein that would normally be expected here may be dislocated to the south and east by a steep dipping northeast-trending fault. Accordingly, without additional detailed investigations, it is not possible to state that the geophysical signatures developed by this part of the work actually reflect a quartz vein. Confounding the matter is the most prominent mag low on Line 0+00, which coincides with the area of non-conductivity. Regardless, it is clear that these detailed geophysical profiles provide accurate targets for surface work.

It is very intriguing that such a distinctive magnetic high occurs at one of the most intriguing drill holes in the area. Other similar magnetic highs, might reflect faulted segments of skarn mineralization. Detailed magnetic work over a much larger area could reveal a pattern - a property-wide thumb print signature - caused by skarn metasomatism. The work accomplished to date is inadequate in areal coverage to be very useful. Further work along these lines could be very rewarding and should be done.

Brook Mineral Claim (see DWG. P 2, attached)

As the vein on the Brook Mineral Claim strikes in the general direction of the Seattle VLF-EM transmitting station, this was the only station used for this portion of the EM work. Because of the orientation of this station, the flux transmitted would progressively and repetitively pass along the vein, generating eddy currents and secondary electromagnetic fields in it.

Interpretation - Brook Mineral Claim

In areas of granodiorite country rock as on the Brook M.C., it appears that veins may be detected by the combination of detailed mag and VLF-EM work. The magnetic lows (up to 100 nT) defined over the projected position of the vein are the lowest or among the lowest on the profiles, and are usually the broadest. The EM response is again variable and camouflaged by noise, but the limited data suggests there may be some correlation.

The known position of the veins on the Brook claim appear to be accurately defined by the detailed mag-EM combination. (see DWG. S 4, S 5, S 6, attached). Mag lows with relatively broad but weak conductors appear to reflect the vein, but interpretation of surveys having large area coverage would be complicated by background geophysical noise.

POWER LINE RIGHT-OF-WAY

No.1 Post
BROOK M.C.

Iron Pin (cairn)
N.W. Anarchist?

O

N

M
Traverse line
and stations

No.1 Posts
Comstock 3&4
No.2 Posts 1&2

Backhoe trench

L

-2000 W Mine Grid

-800 S

Backhoe trench

K

LINE J

J

Dump
(mainly quartz)

SHAFT

Open Cut

quartz

Shaft
(shallow)

G

H

LINE H

F

Shaft
(shallow)

Skidder trail

Granodiorite

LINE D

Quartz vein

Shaft
(shallow)

D

E

Dump

Granodiorite

Granodiorite

B

C

Open Cut

A

LINE A

Small Log
Landing

N

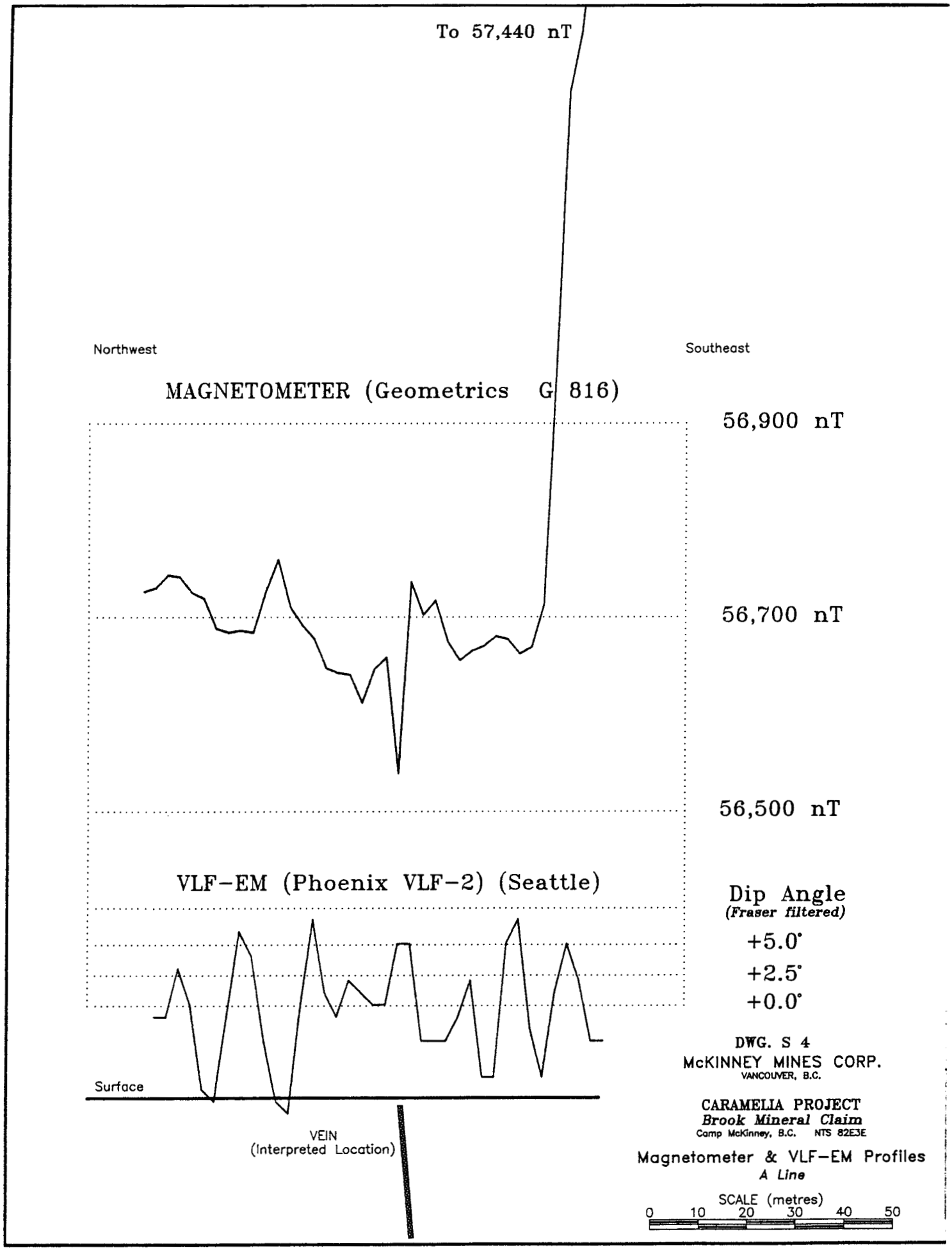
McKINNEY MINES CORP.
VANCOUVER, B.C.

CARAMELIA PROJECT
Brook Mineral Claim
Camp McKinney, B.C., NTS 82E3E

Magnetometer & VLF-EM Lines

SCALE (metres)
0 20 40 60 80 100

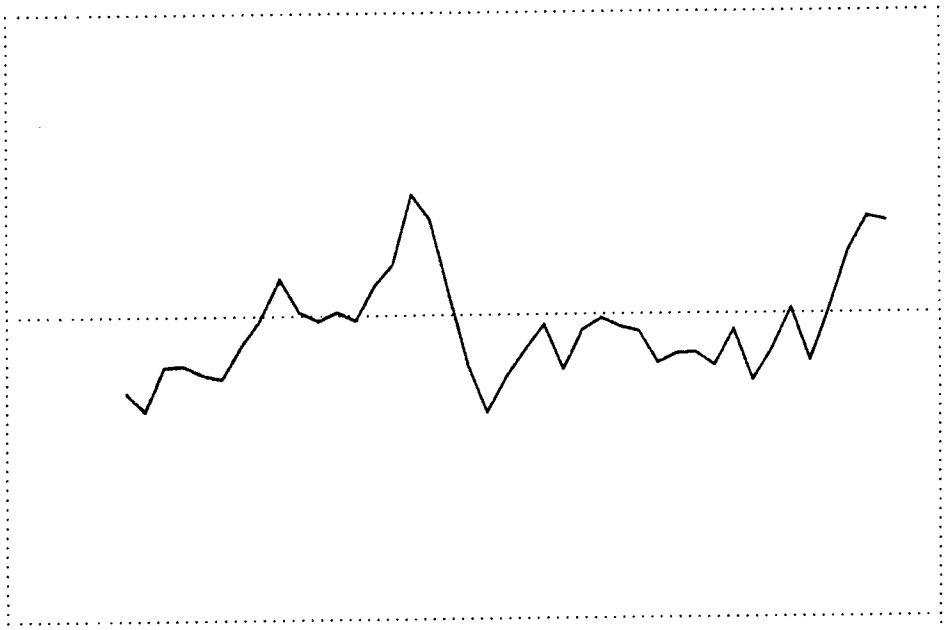
DWG. P 2


To 57,440 nT
Northwest
Southeast
MAGNETOMETER (Geometrics G 816)
56,900 nT
56,700 nT
56,500 nT
VLF-EM (Phoenix VLF-2) (Seattle)
Dip Angle
(Fraser filtered)
+5.0°
+2.5°
+0.0°
Surface
VEIN
(Interpreted Location)
DWG. S 4
McKINNEY MINES CORP.
VANCOUVER, B.C.
CARAMELIA PROJECT
Brook Mineral Claim
Camp McKinney, B.C. NTS 82E3E
Magnetometer & VLF-EM Profiles
A Line
SCALE (metres)
0 10 20 30 40 50

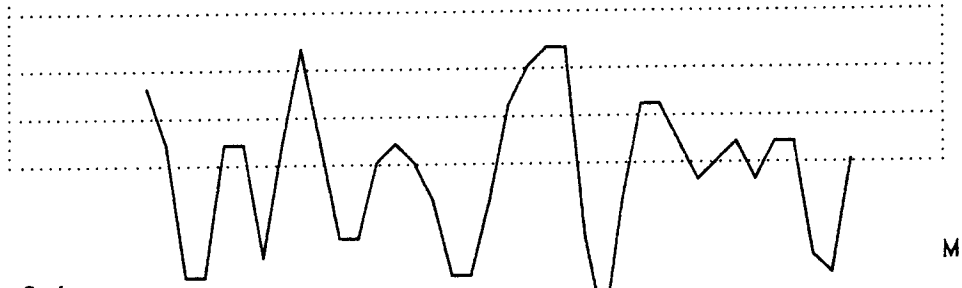
Northwest

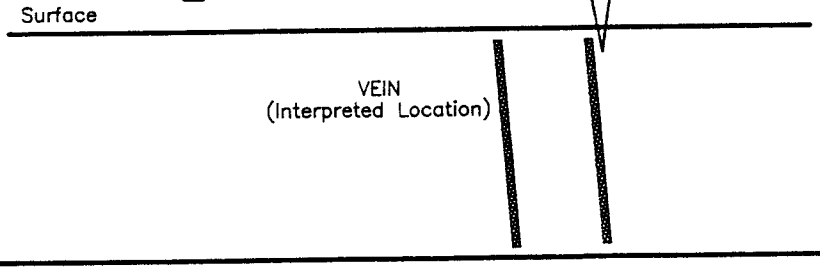
Southeast

MAGNETOMETER (Geometrics G 816)



VLF-EM (Phoenix VLF-2) (Seattle)



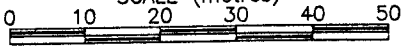


DWG. S 5

McKINNEY MINES CORP.
VANCOUVER, B.C.

CARAMELIA PROJECT
Brook Mineral Claim
Camp McKinney, B.C. NTS 82E3E

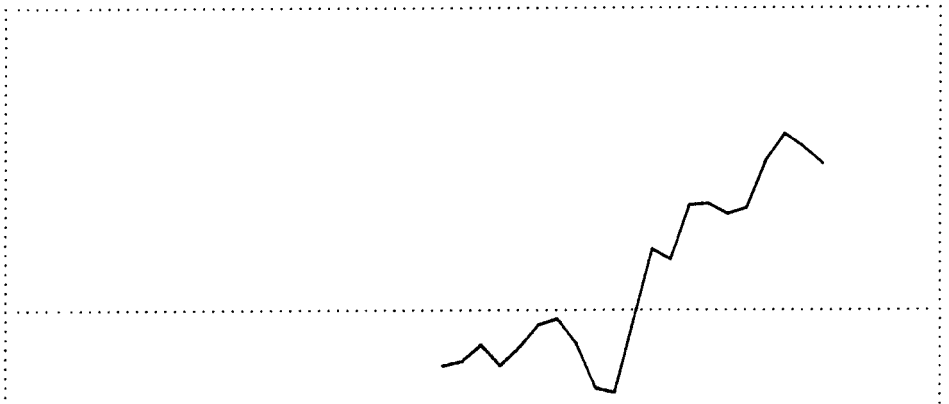
Magnetometer & VLF-EM Profiles
D Line



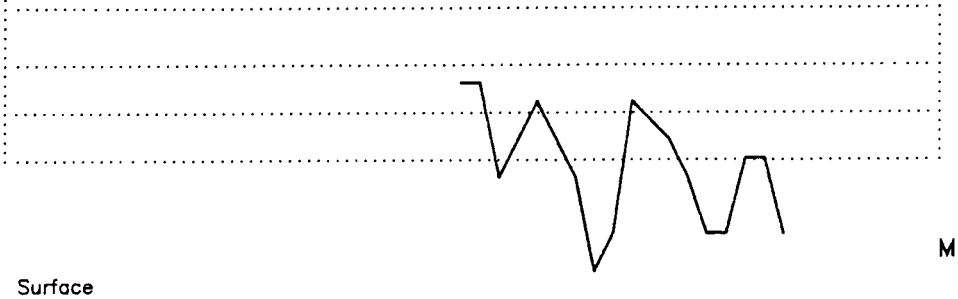
Northwest

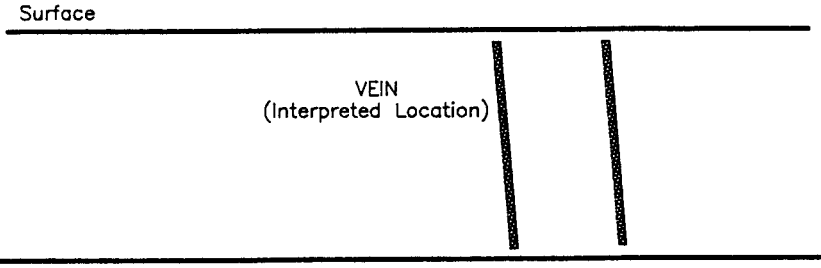
Southeast

MAGNETOMETER (Geometrics G 816)



VLF-EM (Phoenix VLF-2) (Seattle)





DWG. S 6

McKINNEY MINES CORP.
VANCOUVER, B.C.

CARAMELIA PROJECT
Brook Mineral Claim
Camp McKinney, B.C. NTS 82E3E

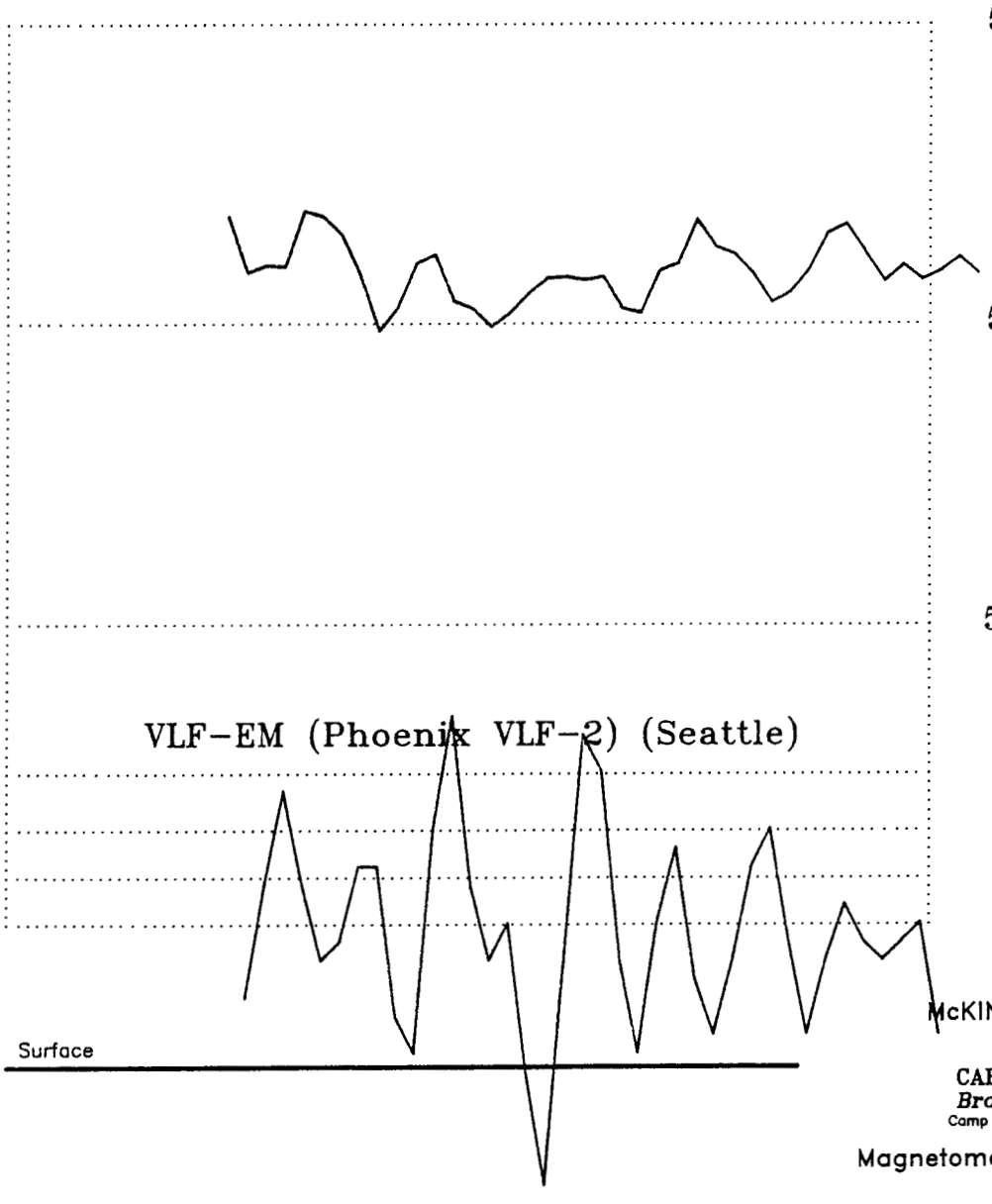
Magnetometer & VLF-EM Profiles
H Line

SCALE (metres)
0 10 20 30 40 50

Northwest

Southeast

MAGNETOMETER (Geometrics G 816)



DSWG. S 7

McKINNEY MINES CORP.
VANCOUVER, B.C.

CARAMELIA PROJECT
Brook Mineral Claim
Camp McKinney, B.C. NTS 82E3E

Magnetometer & VLF-EM Profiles
J Line

SCALE (metres)
0 10 20 30 40 50

The north strike extension of the vein was searched for by trenching by previous workers, but apparently the vein was not found. The profile developed along J Line (DWG. S 7) does not show the typical mag low - weak Conductor combination, and a possible conclusion is that the vein does not persist in this area.

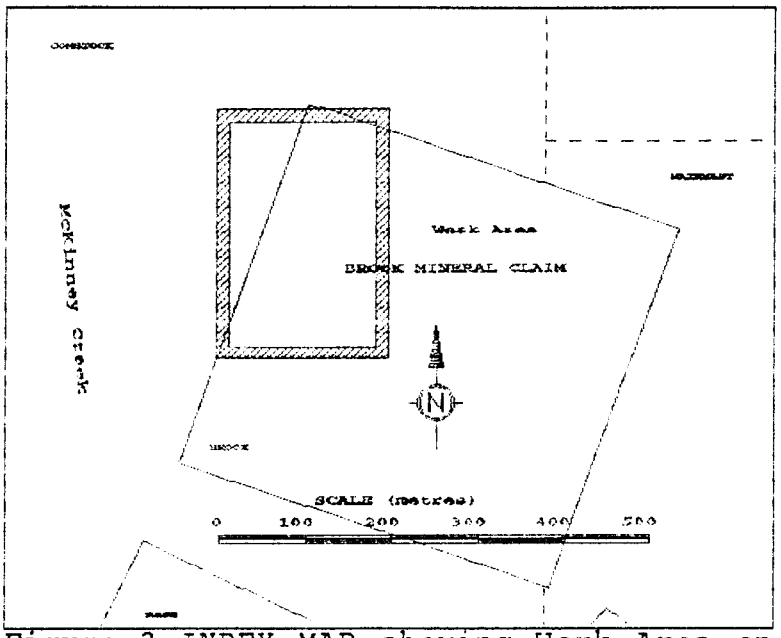


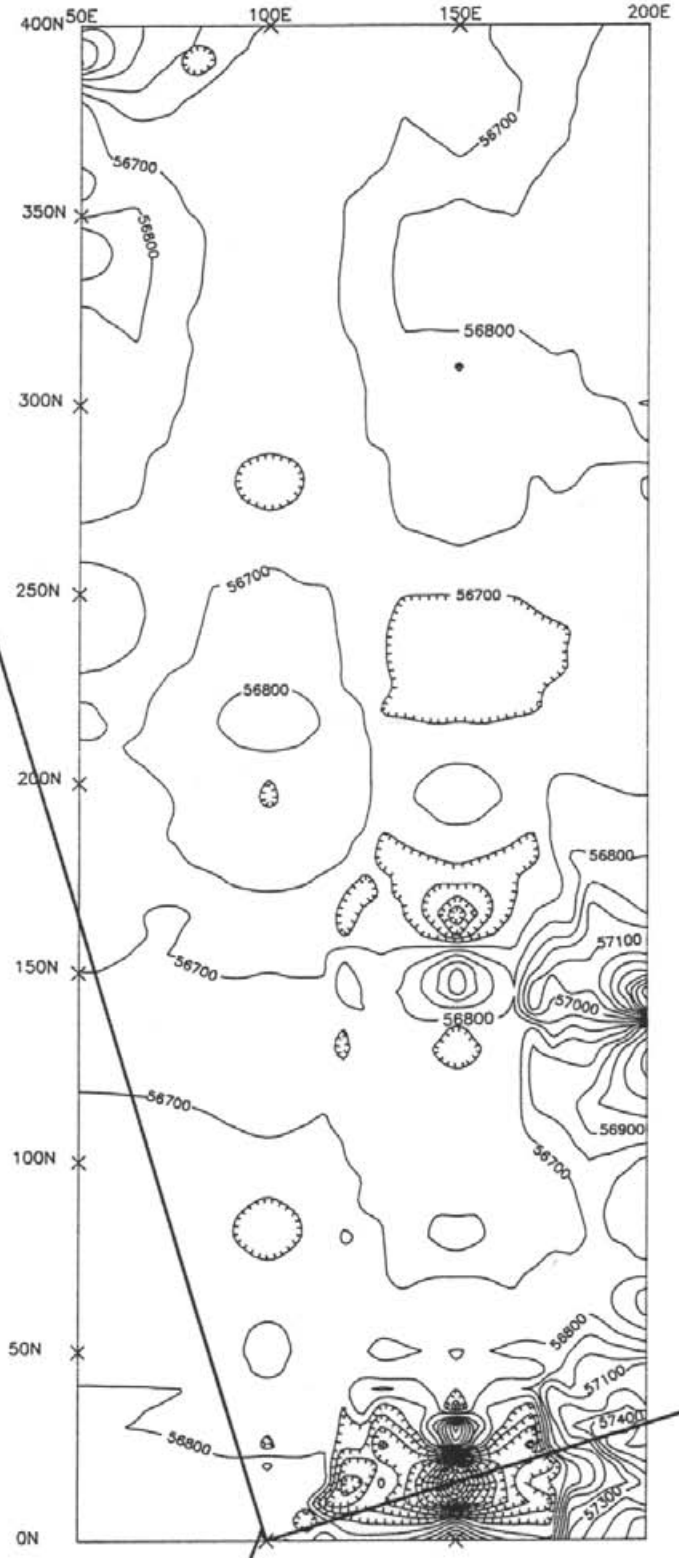
Figure 3 INDEX MAP showing Work Area on the two-post Brook Mineral Claim.

In areas of Anarchist Group country rock, a more diverse response can be expected. Mag lows and weak electromagnetic conductors similar to those described above can be expected to be widespread and common. However, because of more diverse conductive materials in the greenstone (graphitic slips, etc.), a more diverse and erratic response EM response will be common. Skarn metasomatism related to acid or basic intrusions can be expected in the area. Accordingly, strongly anomalous mag highs, masking projected vein positions, or being well separated from the veins, could reflect introduction of magnetic minerals. Gold and silver minerals might well be associated with such magnetic minerals.

Last Chance and Fontenoy Areas

At the Last Chance, four north-south lines totalling 1.2 km were laid out by compass, hip-chain and ribbon, spaced at 50 m, and were surveyed at 5 m with both magnetometer and VLV-EM instruments. At Fontenoy, seven N60°E lines totalling 1.75 km were laid out by compass, hip-chain and ribbon and surveyed with both instruments at 5 m intervals. Electromagnetic dip angles and out-of-phase components were measured (only positive conductive values of the Fraser filtered data are contoured - negative values are considered to be on the flanks of conductors). Readings along several of the lines had to be repeated because of spurious looking results, and because of electronic problems with the instruments.

Both of these claim areas are prospective for gold as each is on the possible eastwards extension of the productive Cariboo-Amelia vein.



L.751
LAST CHANCE

N

McKinney Mines Corp.
VANCOUVER, BRITISH COLUMBIA

CARAMELIA PROJECT
Camp McKinney
NTS 82E3 GREENWOOD M.D., B.C.

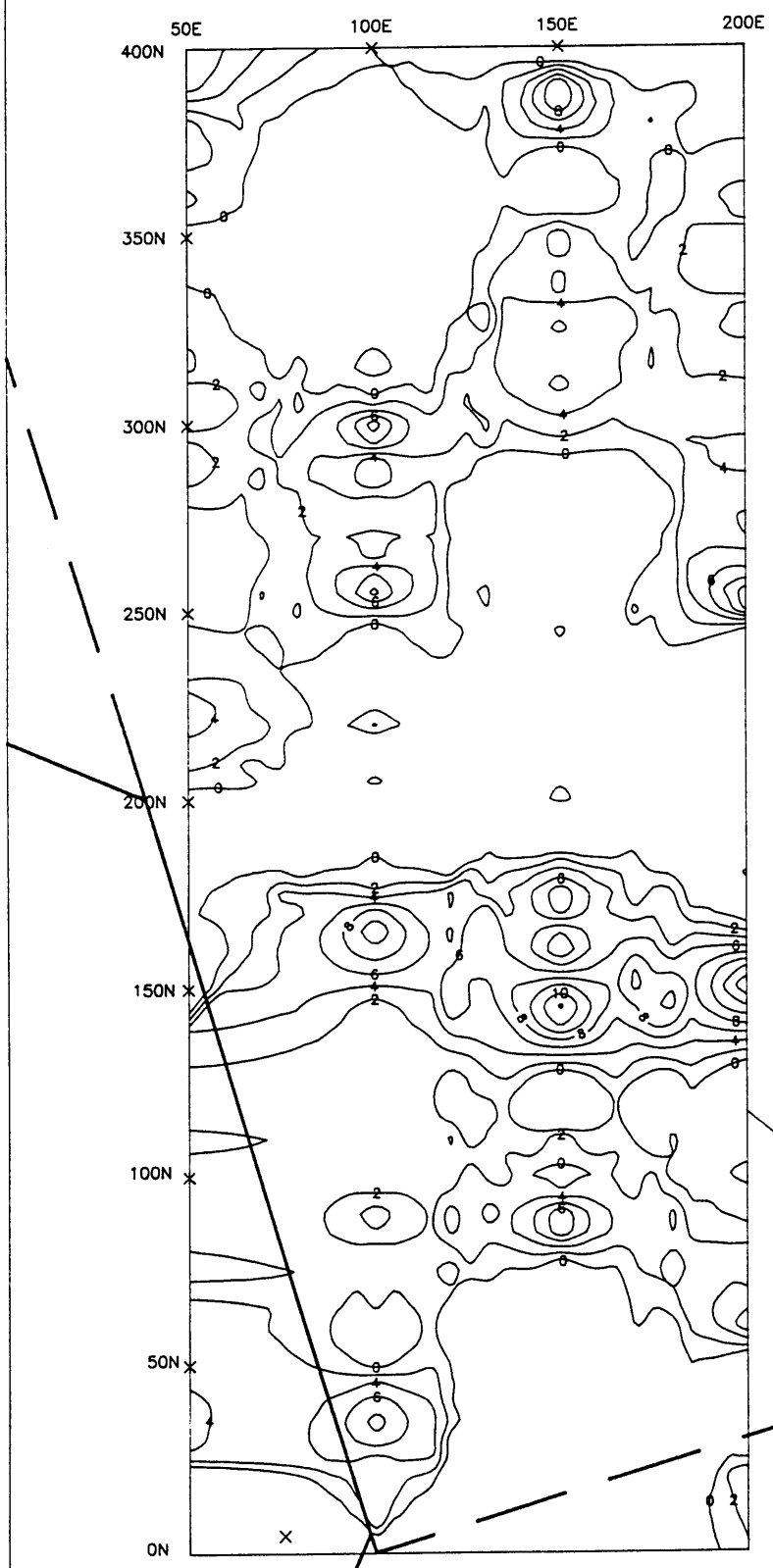
LAST CHANCE CROWN GRANT
VERT. FIELD MAGNETICS

SCALE (metres)
0 25 50 75 100 125

CONTOUR INTERVAL 100 NANA TESLA

L.2814s
WATERLOO

DWG. P. 3



L.751
LAST CHANCE

N

McKinney Mines Corp.
VANCOUVER, BRITISH COLUMBIA

CARAMELIA PROJECT
Camp McKinney
NTS 82E3 GREENWOOD M.D., B.C.

LAST CHANCE CROWN GRANT
FRASER FILTERED VLF-EM

SCALE (metres)
0 25 50 75 100 125

DIP ANGLE CONTOUR INTERVAL – 2 DEGREE

LIMIT OF SURVEY

L.2814s
WATERLOO

L.752
FONTENC

DWG P. 4

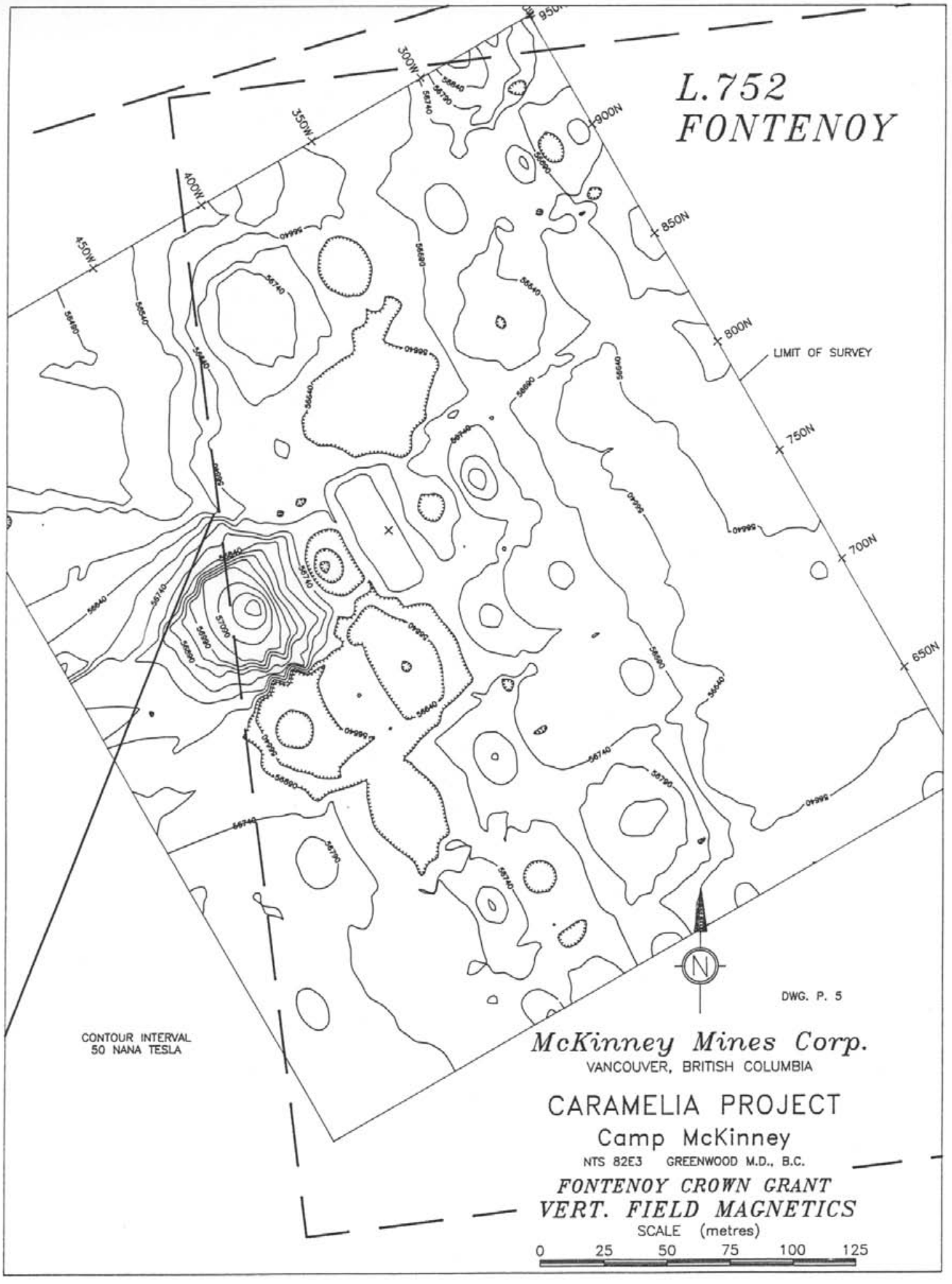
At Last Chance, magnetic relief is generally flat and in the order of 100 nT. A poorly defined mag high (relief to 200 nT), trending east-west in an area 130 m north of the southwest corner of the claim, crosses the area surveyed. Otherwise the southeast corner of the survey area shows abrupt magnetic relief in the form of a sharp low (several hundred nT) flanked to the east by a generalized high (500 nT); neither feature being fully delineated. A VLF-EM conductive zone is coincident with the east-trending magnetic high north of the corner post, while the magnetic features at the southeast are shown to be in an area that is not conductive. The northern third of the area surveyed is generally conductive, but lacks any sharply defined magnetic or electromagnetic anomaly.

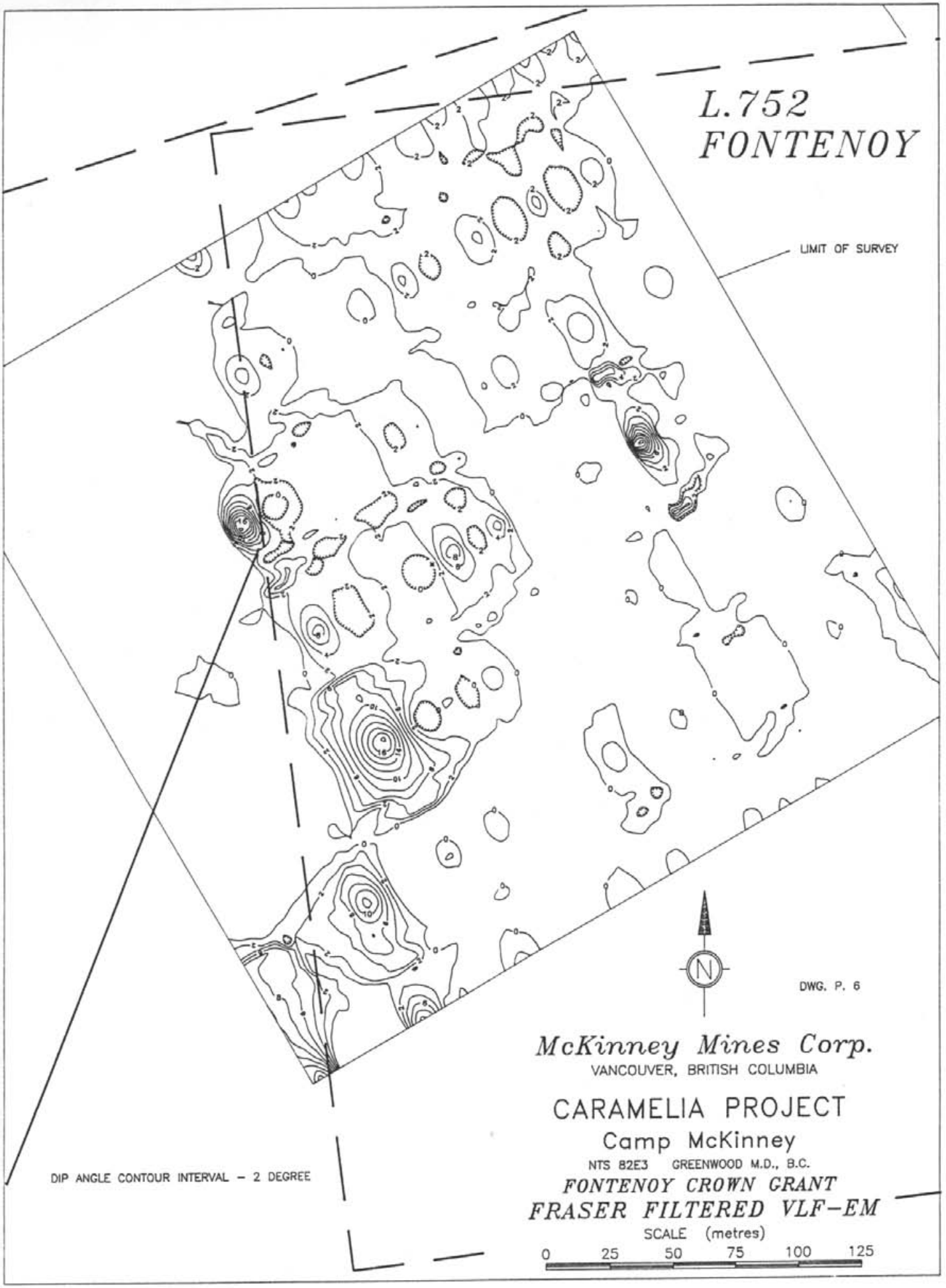
At Fontenoy, the geophysical results appear to generally reflect stratigraphy which, by M. Hedley's Bulletin 6, trends N15°-20°W. General relief is similar to that at Last Chance. Both the magnetic and electromagnetic plans show a rectilateral pattern, which is parallel with the traverse lines, and which probably reflects some extraneous related noise.

On the west boundary of the claim, however, 250 m north of the southwest corner post, a strong but local magnetic high having relief of 500 nT appears to have an associated strong (18° dip), but much more localized VLF-EM conductor. A disjointed pattern of conductors, without associated magnetic anomalies, trails off to the south, probably reflecting the blocky faulting of the stratigraphy.

Interpretation - Last Chance and Fontenoy Areas

The most promising interpretive results from the work on Last Chance and Fontenoy, is the east-trending magnetic high with associated conductor that is located 130 m north of the southwest corner post of the claim. This trend is perpendicular to stratigraphic strike, and it is also parallel to the strike of the known portion of the Cariboo-Amelia vein system. Accordingly, the presence of quartz, or of sheared rock in which magnetic minerals have been destroyed, is suspect. This zone is good prospective ground for the continuation of the fissure and/or vein system.


L.752
FONTENOY
950N
900N
850N
800N
750N
700N
650N
300N
350W
400W
450W
LIMIT OF SURVEY
N
DWG. P. 5
CONTOUR INTERVAL
50 NANA TESLA
McKinney Mines Corp.
VANCOUVER, BRITISH COLUMBIA
CARAMELIA PROJECT
Camp McKinney
NTS 82E3 GREENWOOD M.D., B.C.
FONTENOY CROWN GRANT
VERT. FIELD MAGNETICS
SCALE (metres)
0 25 50 75 100 125


L.752
FONTENOY
LIMIT OF SURVEY
N
DWG. P. 6
McKinney Mines Corp.
VANCOUVER, BRITISH COLUMBIA
CARAMELIA PROJECT
Camp McKinney
NTS 82E3 GREENWOOD M.D., B.C.
FONTENOY CROWN GRANT
FRASER FILTERED VLF-EM
SCALE (metres)
0 25 50 75 100 125
DIP ANGLE CONTOUR INTERVAL – 2 DEGREE

CONCLUSION

The use of painstaking and detailed magnetometer surveys along projected strike extensions of veins in the Camp McKinney area, and in other prospective areas in this geological environment, appears to be a valuable and viable prospecting and mapping tool. On the basis of the limited amount of work accomplished, similarly detailed VLF-EM work in this same environment appears to have more limited application for general prospecting, largely because of signal strength and general electromagnetic noise.

Respectfully submitted,

C.A.R. Lammle, PEng.

STATEMENT OF EXPENDITURES INCURRED

Professional Services			
C.A.R. Lammle	22-25Jun93	4 days @ $350/day	$ 1400.00
	12-14Jul93	3 days @ $350/day	$ 1050.00
Meals/Accommodation			
C.A.R. Lammle	22-25Jun93	7 days (motel/cafe)	195.00
	12-14Jul93		
Mob/Demob Vancouver-Rock Creek-Vancouver			130.00
Equipment Rental			
Geometrics G816 Proton Precession Magnetometer			300.00
Phoenix VLF-2 VLF-EM Electromagnetometer			300.00
Professional Services - Ainsworth-Jenkins Holdings			
Dave Jenkins (20-26Aug1993)			
Mike Twyman (20-26Aug1993)			
(includes vehicle, lodging, meals, supplies			5000.00
(turnkey contract arrangement)			
Field supplies			25.00
Report Preparation, drafting, typing, etc.			
C.A.R. Lammle	7Jul-24Sep93	5 day @ $350/day	1750.00
Total Expenditures Claimed			$ 10150.00

C.A.R. Lammle, PEng.

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McKinney Mines Corp. Office Files - Miscellaneous reports, records, files, maps, field notes, etc.