0119-06160

AMEROK GEOSCIENCES LTD.

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GARY LEE

TOTAL MAGNETIC FIELD AND VLF-EM SURVEYS AT THE WILDCAT PROPERTY, RANCHERIA AREA, YUKON

M.A. Power
AMEROK GEOSCIENCES LTD.

CLAIMS

L1-2	YB62265-66
WILDCAT 1-29	YB87611-39
WILDCAT 31	YB87641
WILDCAT 33	YB87643
WILDCAT 35-46	YB87645-56
WILDCAT 47-48	YB91856-57
WILDCAT 51-58	YB91858-65

Location: 60° 03'N 130° 22'W
NTS: 105 B 1
Mining District: Watson Lake, YT.
Date: January 18, 1999

050 800

This report has been examined by the Geological Evaluation Unit under Section 53 (4) Yukon Quartz Mining Act and is allowed as representation work in the amount of $ 4500.00.

M. B[illegible]

for Regional Manager, Exploration and Geological Services for Commissioner of Yukon Territory.

0119-06160

SUMMARY

Total magnetic field and VLF-EM surveys were conducted on the Wildcat Property by Gary Lee and Ron Stack from October 8 to 22, 1998. A total of 8.4 line-km of grid was picketed and surveyed with a GEM magnetometer and EM-16 VLF receiver. Magnetic field data was corrected for temporal variation by tie-line looping and interpolation. The magnetic field was quiet throughout the survey. The VLF-EM survey was conducted using the Lualualei, Hawaii transmitter (NPM) which was oriented 45° west of the grid base line.

The geophysical surveys identified a 200 nT high with associated VLF conductors in the centre of the grid. The magnetic high is apparently offset by two VLF conductors which also form re-entrants and lows within the magnetic anomaly. The VLF conductors extend both north and south of the magnetic high and appear to be caused by a fault or shear zone which structurally disrupts the source of the magnetic field high. The magnetic field high is coincident with known pyrrhotite-sphalerite mineralization hosting gold and silver at depth.

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1.0 INTRODUCTION

This report describes total magnetic field and very low frequency electromagnetic (VLF-EM) surveys conducted on the Wildcat Property in the Rancheria area, southern Yukon Territory . A total of 8.4 line-km were surveyed on a grid centred on the known showings. The surveys were conducted between October 8 and 22, 1998 to locate structures and horizons hosting auriferous and argentiferous massive sulphides.

2.0 LOCATION AND ACCESS

The Wildcat Property is centred at 60° 03'N 130° 22'W, near Rancheria in the southern Yukon Territory. The property is located approximately 18 km east of the Rancheria Lodge and 90 km west of Watson Lake (Figure 1). The property is accessible by 4-wheel drive road from the Alaska Highway. The route to the property is as follows:

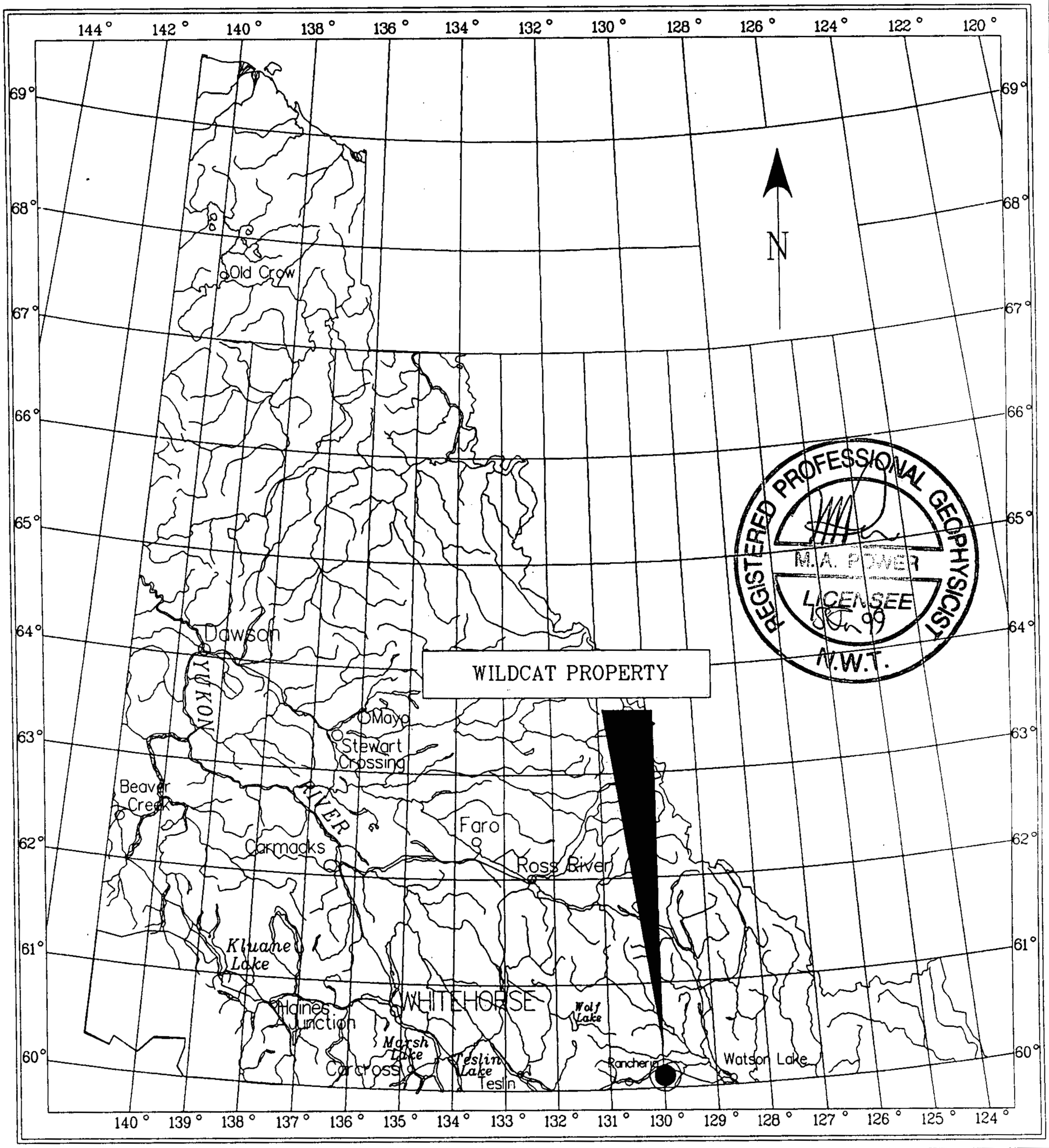
Watson Lake to Midway Project Road	94 km
Midway Project road to property road	9 km
Property road to main showing and grid	4.5 km

3.0 PROPERTY

The Wildcat Property consists of 58 un-surveyed mineral claims staked under the Yukon Quartz Mining Act in the Watson Lake Mining District, Yukon Territory. Claim information is summarized below:

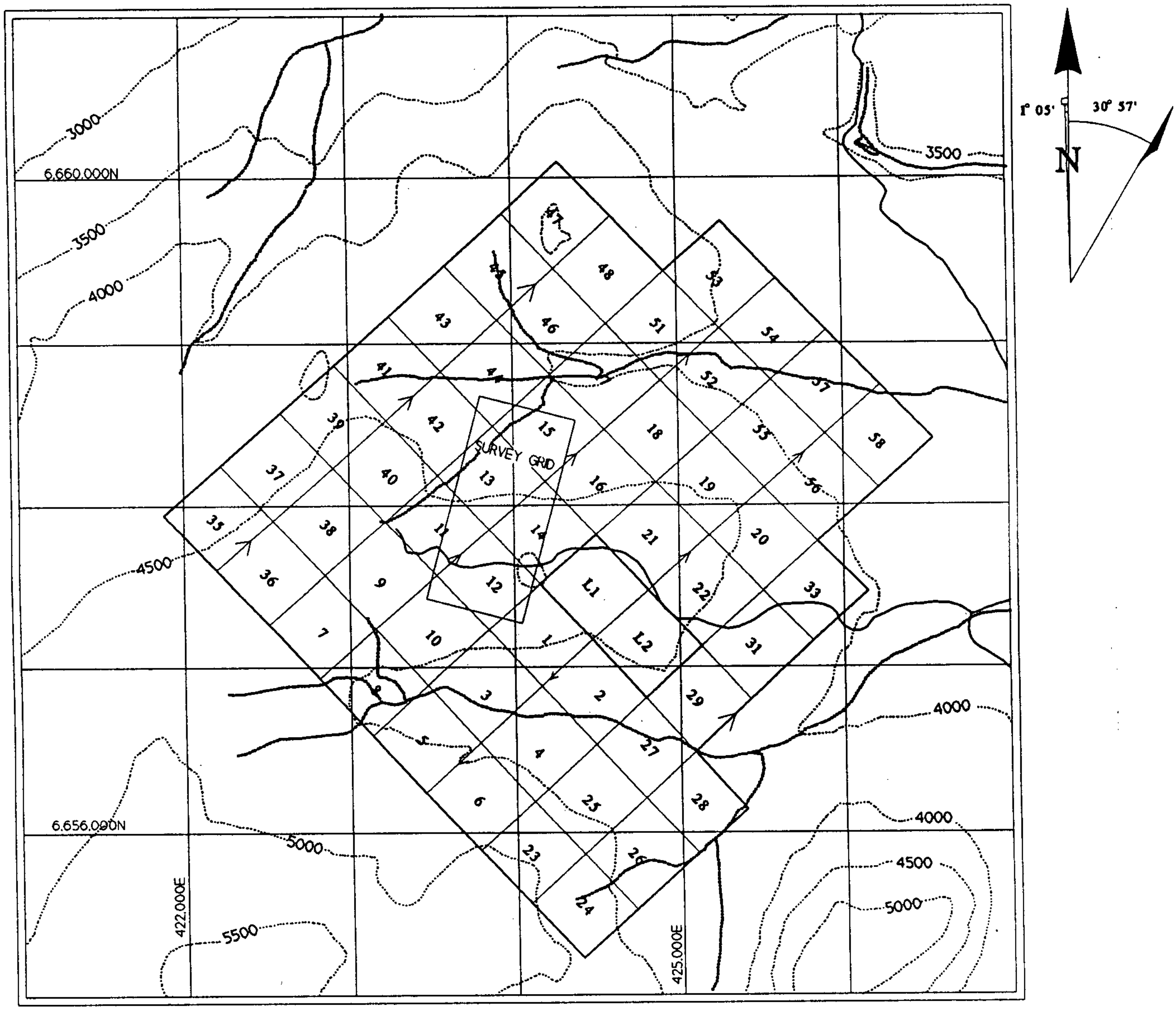
Claim	Grant No.	Owner	Expiry date[1]
L1-2	YB62265-66	Gary Lee (100%)	December 22, 1999
WILDCAT 1-29	YB87611-39	Gary Lee (100%)	October 16, 1999
WILDCAT 31	YB87641	Gary Lee (100%)	October 16, 1999
WILDCAT 33	YB87643	Gary Lee (100%)	October 16, 1999
WILDCAT 35-46	YB87645-56	Gary Lee (100%)	October 16, 1999
WILDCAT 47-48	YB91856-57	Gary Lee (100%)	October 28, 1999

[1] Expiry date of record on December 18, 1998.



0 200
km

GARY LEE	CLAIMS: WILDCAT 1-58, L1,L2	
WILDCAT PROPERTY PROPERTY LOCATION	MINING DISTRICT: WATSON LAKE	
	NTS: 105 B/1	SCALE: 1: 6 000 000
	DRAWN BY: MP	
AMEROK GEOSCIENCES LTD.	DATE: 18 JAN 99	FIGURE 1



UTM Datum: NAD1927

Elevations in feet above sea level

REGISTERED PROFESSIONAL GEOPHYSICIST
M. ... POWER
LICENSEE
N.W.T.

0 1000
metres

GARY LEE	CLAIMS: WILDCAT 1-58 L1, L2
WILDCAT PROPERTY CLAIM LOCATIONS	MINING DISTRICT: WATSON LAKE
	NTS: 105 B 1 — SCALE: 1:40,000
	DRAWN BY: M.P.
AMEROK GEOSCIENCES LTD.	DATE: 15 JAN 99 — FIGURE: 2

WILDCAT 51-58	YB91858-65	Ron Stack (100%)	October 28, 1999

Claim locations and the location of the survey grid are shown in Figure 2.

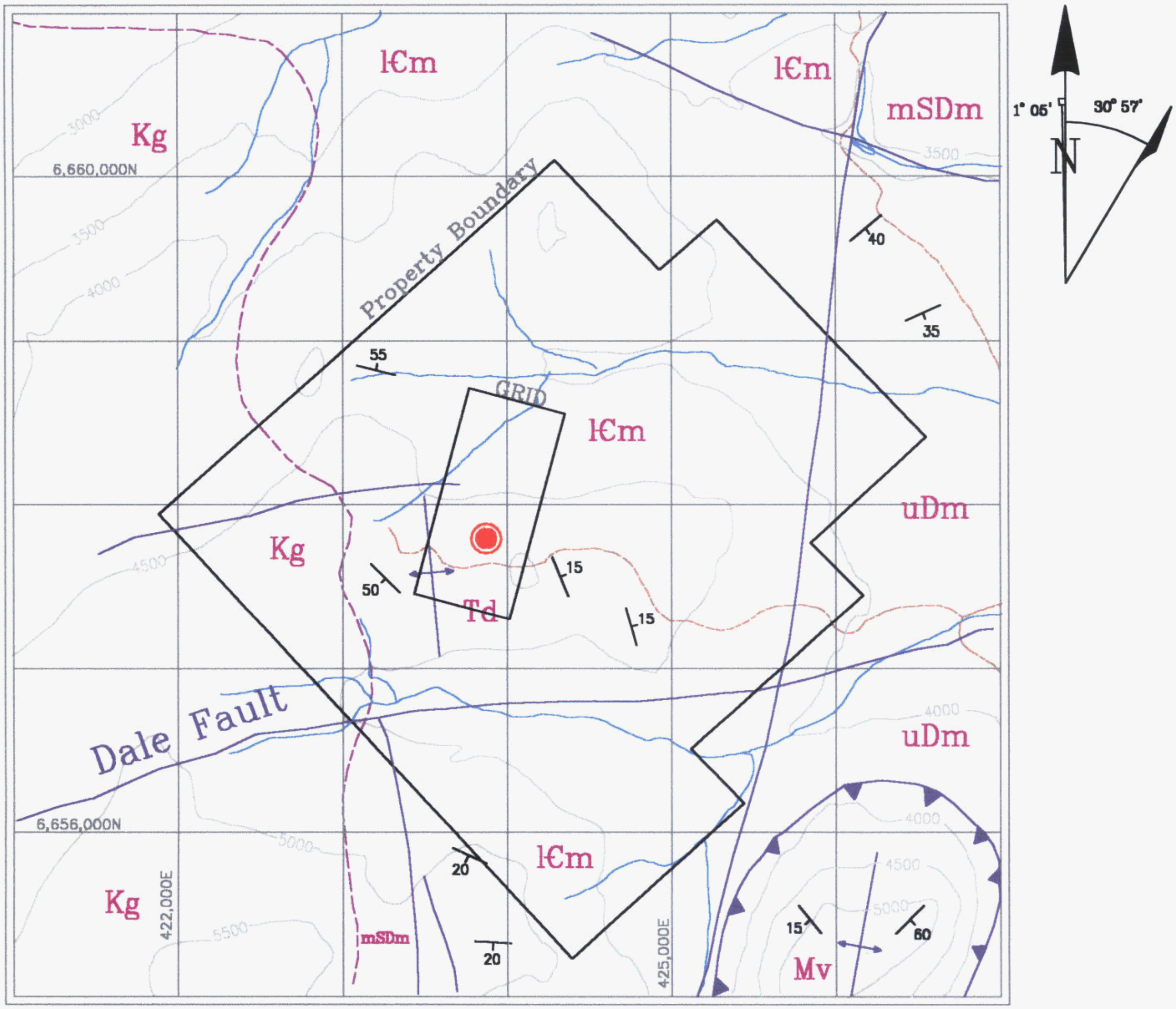
4.0 PHYSIOLOGY AND GEOLOGY

The geology and physiology of the area surrounding the Wildcat Property has been described by Lowey and Lowey (1985). The property is in the Cassiar Mountains of the southern Yukon Territory. Elevations range from 900 to 1700 m in the area of the property. The terrain consists of rounded hills, wooded up to an elevation of 1300 m, and rugged rocky terrain at higher elevations. The local climate is cool and wet with deep winter snow and abundant summer rain fall. Timber consists of black spruce and balsam fir, with willows and alder in burned over areas. The property drains north to the Rancheria River and water for drilling is available near the known showings. Temperatures range from 15 to 20° C during the summer period of mid-June through mid-August to -40° C during the coldest months of winter.

The Wildcat Property is in the Cassiar Terrane of the northern Cordillera (Wheeler and McFeely 1991). The geology in the area of the property, adapted from Lowey and Lowey (1985) is shown in Figure 3. The property is underlain by Lower Cambrian through mid-Devonian carbonates and metasediments, Mississippian agglomerate and intruded by Cretaceous granite and Tertiary felsic dykes. The stratigraphy on the property is summarized in Table I using a modification of the nomenclature of Lowey and Lowey (1985).

Table I. Stratigraphy

Rock unit (age)	Lithology
Td (Tertiary)	Porphyro-aphanitic felsic dykes with quartz and albite phenocrysts up to 1 m thick
Kg (Cretaceous)	Medium to coarse crystalline granite; equigranular and locally porphyritic, light grey weathering same.
Mv (Mississippian)	Intercalated andesite agglomerate and chert
uDm (Upper Devonian)	Quartzite and metaconglomerate with minor phyllite
mSDm (Silurian - Devonian)	Dolostone, quartzite, siltstone and limestone.



Td	Felsic dykes (Tertiary)
Kg	Granite (Cretaceous)
Mv	Volcanics and agglomerate (Mississippian)
uDm	Quartzite, conglomerate and phyllite (upper Devonian)
mSDm	Siltstone, quartzite and limestone (Silurian – Devonian)
l€m	Carbonates, phyllite and quartzite (lower Cambrian)

Anticline

20 Bedding (dip)

Fault

Geological contact

Water

Road

Showing

0 1000 metres

GARY LEE	WILDCAT 1–31,33, 35–56 L1, L2
WILDCAT PROPERTY GEOLOGY	MINING DISTRICT: WATSON LAKE
	NTS: 105 B1 — SCALE: 1:40,000
	DRAWN BY: M.P.
AMEROK GEOSCIENCES LTD.	DATE: 15 JAN 99 — FIGURE: 3

lCm (Lower Cambrian)	Carbonates with minor phyllite and quartzite at the base.

The area of the survey grid is underlain by the lowermost unit and intruded by the Tertiary dykes. Sinclair (1998) identified a large body of quartz feldspar porphyry up to 200 m wide in the vicinity of the main showing on the property. This feature was not identified by Lowey and Lowey (1985).

Regional structure is dominated by the Kechika and Cassiar Faults to the east and west of the property respectively. Both of these are dextral strike slip faults involving significant displacement. Between these two faults is a zone of inferred compression. In the area of the property, structure is dominated by the east trending Dale Fault and by two north trending faults. These faults appear to be vertical and, in the case of the Dale Fault, involve normal displacement with the north side down. Rocks young to the east across the north trending faults but beds are folded on a large scale in this area and displacement across these faults is difficult to determine. A klippe of Mississippian agglomerate occurs near the property but appears to predate the vertical faults. The latter are probably associated with movement on the Cassiar and Kechika Faults. (Lowey and Lowey, 1985).

5.0 EXPLORATION HISTORY AND MINERALIZATION

The showings on the Wildcat Property were discovered by the Geological Survey of Canada in 1944. It was first staked in 1946 by Western Ranges Prospecting Syndicate which built a road and performed trenching. During 1948, limited hand cobbing of argentiferous galena was conducted but there is no record of any shipments. The property was repeatedly staked and explored with limited surface exploration programs by a large number of prospectors in the period from 1951 to 1980. In 1982, property holdings in the area were consolidated by Butler Mountain Minerals Corp. who conducted diamond drilling, geophysics, trenching and road building on the property from 1983 to 1985. The property lapsed in 1992 and was restaked by the current owners in 1995.

Mineralization on the Wildcat Property is described in the Minfile as the Lord Showing (105 B #1) and is described by Sinclair (1998) and Furneaux and Dawson (1985). They detail three styles of mineralization on the property:

1. Fracture fillings / veins in north to northeasterly trending fractures in dolomite, limestone and breccia zones.

2. Conformable lenses and beds in thinly laminated argillite

3. Irregular zones of veinlets, stringers and lenses associated with quartz feldspar porphyry dykes.

Type 1 mineralization consists of argentiferous steel galena with siderite and sphalerite in weathered pods and lenses. This style of mineralization was the focus of initial exploration and returns silver grades to 925 g/t in small pods and lenses.

Type 2 mineralization consists of conformable lenses and layers of up to 60% pyrrhotite and minor chalcopyrite in sections up to 30 m thick. Galena and sphalerite are rare in this style of mineralization and precious metal content is low.

Type 3 mineralization consists of irregular lenses and pipe-like bodies of altered rock containing sulphide stringers, veinlets and occasional massive to submassive lenses. Mineralization consists of vuggy concentrations of pyrrhotite, pyrite and sphalerite with varying but lesser amounts of galena, arsenopyrite and chalcopyrite in quartz-calcite-rhodochrosite gangue. This style of mineralization carries silver and, in one instance, gold mineralization. Best assays from this mineralization include 15.4 g/t Au, 13.4 g/t Ag and negligible base metals across 3.4 m at a depth of 231 m in hole 83-3. The hole was collared at 60W 5240N on the 1998 survey grid and drilled at an azimuth of 105^{O} and inclination of -45^{O}.

Type 3 mineralization occurs in zones or pipes of mineralization from 1 to 20 m wide, striking north to northeast and dipping moderately to steeply west. This style of mineralization is associated with quartz porphyry dykes and occurs over a strike length of 450 m. This mineralization is basically centred on the base line of the 1998 geophysical survey grid. Furneaux and Dawson (1985) compared this mineralization to epithermal chimney and manto deposits in northern Mexico.

W.D Sinclair examined the property during Butler Mountain's drill program during a Geological Survey of Canada program in the Rancheria District (Sinclair, 1998). He noted that the quartz feldspar porphyry occurs in two phases; an older topaz and tourmaline-bearing phase and a younger sericitized and fluorite-bearing phase. He observed that the main mineralized zones occur in the base of the limestone adjacent to its contact with the phyllite, near the quartz feldspar porphyry.

6.0 SURVEY GRID

The geophysical surveys were conducted on a picketed grid centred at 423800E 6657800N in the midst of the old workings (Figure 2). The grid consists of 8.4 line-km of survey lines turned from a 1.3 km base line oriented at 15°. Lines were slope-corrected and picketed at 25 m intervals. Only the base line was cut out.

7.0 PERSONNEL AND EQUIPMENT

The grid installation and surveys were conducted by Gary Lee and Ron Stack. They were equipped with the following instruments and equipment:

Field units: GEM proton precession magnetometer
Geonics EM-16 VLF receiver

Data processing: 486 laptop.

Other equipment: camp, 2-4x4 trucks, line cutting equipment, generator

The geophysical crew spent a total of 27 man-days on this project. The project log is attached as Appendix B.

8.0 SURVEY SPECIFICATIONS

The magnetometer and VLF-EM surveys were conducted according to the following specifications:

Station spacing: 12.5m

Magnetic drift correction tie-line looping with a return period of less than an hour

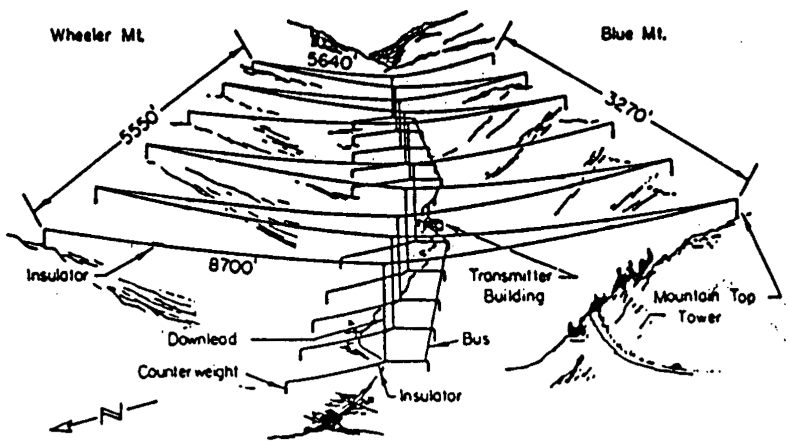
VLF Survey: Transmitting station NPM (23.4KHz) at Lualualei, Hawaii (azimuth approximately 240°). Reading direction - grid west.

9.0 VLF-EM THEORY

The VLF-EM method is well described in standard texts (eg. Telford *et. al.* 1990) and by McNeill and Labson (1990). Modulated radio waves in the range of 15.0 to 25.0 KHz are used to communicate with submerged submarines and are useful in mineral exploration. The antennas from which the signals are radiated are vertical wires, commonly located in valleys or craters to permit longer wire length (Figure VLF-1(a)). This antenna configuration generates a wave with a vertical electrical field and a horizontal magnetic field propagating away from the source. The wave propagates between the ionosphere and the earth's surface, reflecting off both at a shallow angle (Figure VLF-1(b)). At a great distance, the radius of curvature is so large that it is effectively a plane wave.

A steeply-dipping conductor with a strike in the direction of the transmitter will be

(a)



(b)

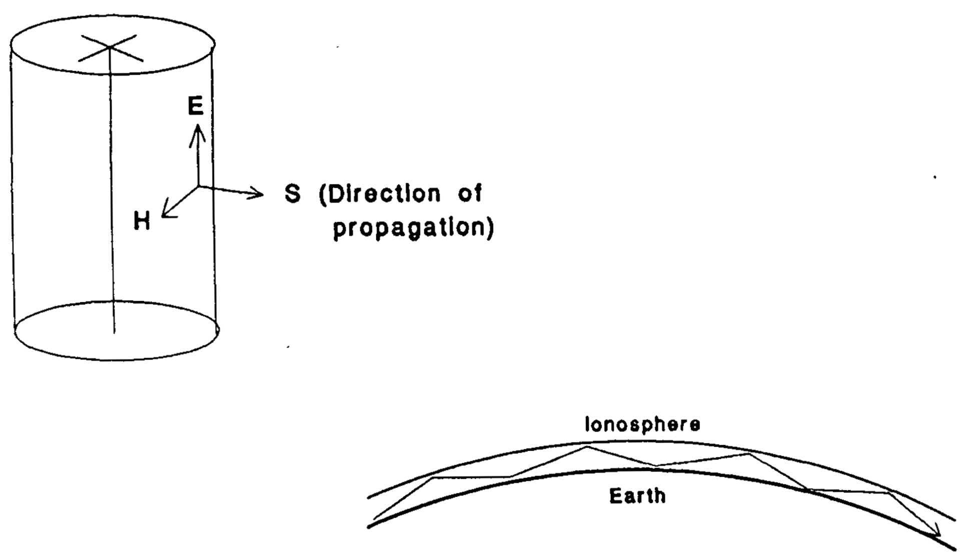


Figure VLF-1. VLF source fields and propagation. (a) Diagram showing Jim Creek, WA VLF transmitter (McNeill and Labson 1990). (b) Propagation of VLF field at a distance from the antenna. The VLF wave propagates between the earth's ionosphere and the surface with a vertical electrical field and horizontal magnetic field. At great distances the signal forms a plane wave.

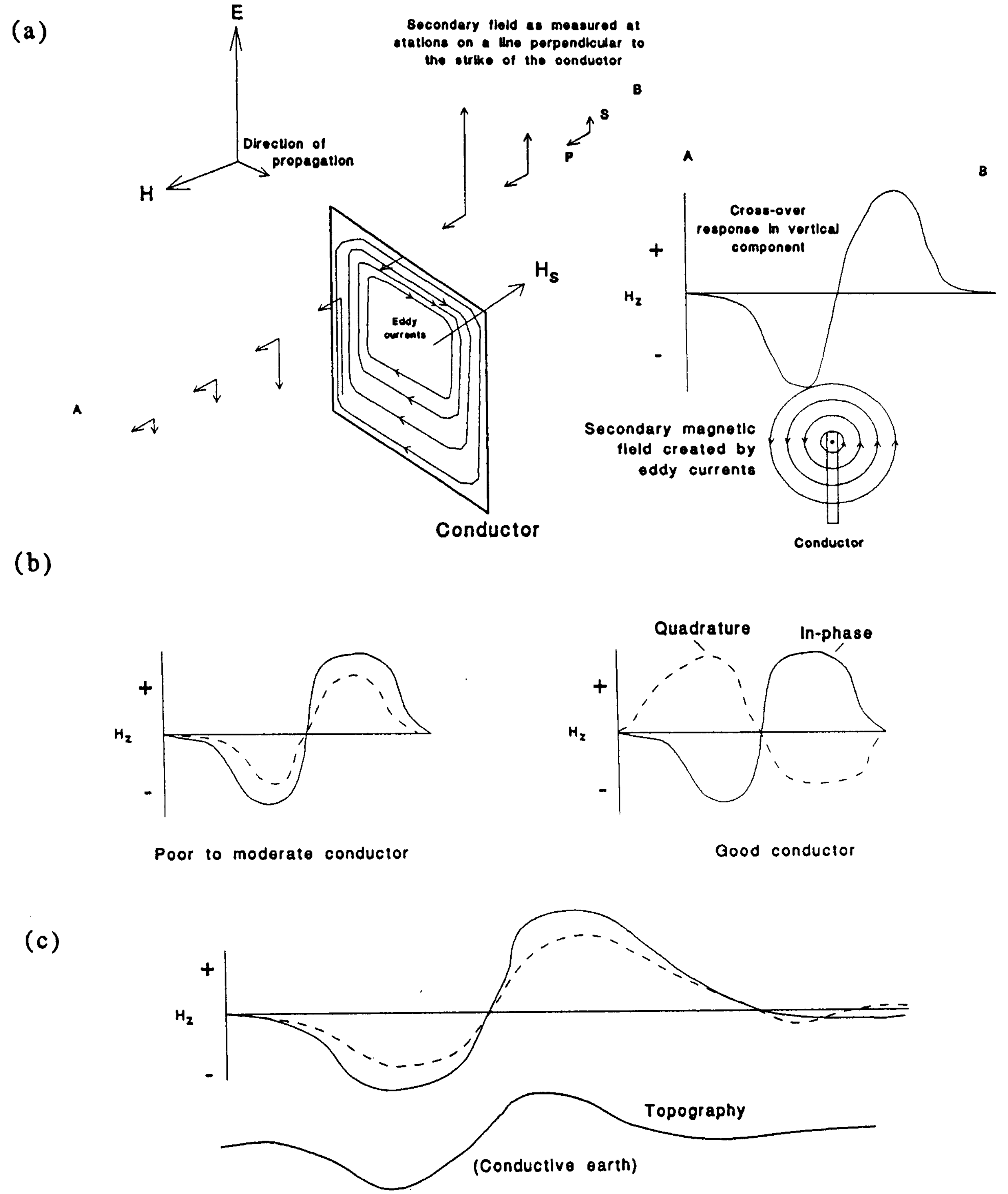


Figure VLF-2. VLF responses. (a) The horizontal magnetic flux from a VLF signal induces a secondary field in a conductor. This, together with the primary field, produces a cross-over response. (b) Quadrature sign can be determined by target conductance. (c) If the ground is conductive, topography can induce VLF responses similar to those expected from bedrock conductors.

optimally coupled to the horizontal magnetic flux. This magnetic flux will induce a secondary field in the conductor (H_s) which opposes the primary or source field. This is generated by circulating eddy currents which tend to concentrate at the top of the conductor (Figure VLF-2(a)). The current distribution can be considered to be a linear source located at the top of the conductor and consequently, the anomaly shape is relatively insensitive to the dip of conductor. The current at the top of the conductor produces a cylindrical magnetic field centred on the current axis. The primary horizontal magnetic field and the secondary field induced in the conductor add vectorially to produce a resultant magnetic field whose attitude traces out a sine wave or cross-over as shown in Figure VLF-2(a). The wavelength of the response in a general sense is proportional to the depth of the target. Deep targets tend to produce longer wavelength anomalies while shallow anomalies have a shorter wavelength. The distance between the peak and trough of the response is roughly equal to the depth to the current source.

Using the horizontal component as a phase reference, it is possible to partition the secondary vertical field into in-phase and quadrature components. If the conductor is a poor to moderate conductor, the sign of the quadrature will follow that of the in-phase component. If the target conductance is high, the quadrature will display a sign opposite that of the in-phase component (Figure VLF-2(b)). The operator faced grid west during the survey described in this report and consequently a normal crossover consists of a negative to positive crossover moving from west to east.

Cross-over responses may also be induced by interfering responses from nearby conductors, sometimes producing false-crossovers with senses opposite to that normally occurring over a discrete conductor. In addition, topography can generate false cross-over responses. VLF-EM waves follow the surface topography to some extent with the degree of correlation determined by the conductivity of the local earth. In very conductive ground, the VLF wave follows topography quite closely and cross-over responses similar to those expected from a bedrock conductor can be generated by undulating topography with suitable spatial wavelengths (Figure VLF-2(c)). In poorly conductive ground, the wavelength of the topographic effect is much longer, reflecting the greater depth of penetration by the VLF-EM wave. In these situations, it is relatively easy to discriminate between bedrock conductors and topographic anomalies.

10.0 RESULTS

Digital data is appended to this report on disk. The magnetic field data is in the following format:

Line Station UTM_E UTM_N Corr_field

where Corr_field is the corrected magnetic field. The VLF-EM data is in the following format:

Line Station UTM_E UTM_N IP Q

where IP and Q are the in-phase and quadrature component. IP and Q are recorded in percent.

The following plots at 1:3,000 are appended to this report in the back pockets:

Figure 4.	Total magnetic field stacked profiles
Figure 5.	VLF-EM stacked profiles - Hawaii

The total magnetic field survey identified a 200 m wide, 200 nT high extending from L4800 N 0E to L5600N 0W. The high is asymmetric with a steeper slope on the west flank of the anomaly, suggesting a shallow dip to the east. In detail, the anomaly consists of two highs and several embayments or re-entrants of significance occur on the north and south flanks.

The VLF survey identified two low spatial frequency anomalies and one high spatial frequency anomaly running parallel to the base line and coincident with known mineralization.

Conductor **A** extends from L5900N 138W to L5300N 150W and consists of a weak, broad (100 m) cross-over in the in-phase with no quadrature crossover. The anomaly appears to be caused by a deep source. Conductor **B** extends from L4700N 75W to L5400N 75W and consists of a weak, broad (150 m) cross-over in the in-phase with no quadrature crossover. The anomaly appears to be caused by a deep source. Conductor **C** extends from L4700N 88E to L4900N 163N and consists of a sharp (10 m) crossover in both in-phase and quadrature. This anomaly appears to be caused by a shallow, poorly conductive source.

11.0 DISCUSSION

The broad magnetic high is generally coincident with the known mineralization on the property. Gold mineralization was intersected at a depth of 231 m in hole 83-3 at a grid location of 5240N 80E, east of Conductor **B**. The conductors appear to indicate the location of faults or shears disrupting the source of the magnetic field anomaly and are not likely to contain significant quantities of pyrrhotite as they generally follow magnetic lows and re-entrants in the magnetic field highs.

12.0 CONCLUSIONS

The results of the magnetometer and VLF-EM surveys conducted on the Wildcat Property suggest the following conclusions:

a. A broad 200 nT magnetic high is roughly coincident with pyrrotite-sphalerite-chalcopyrite mineralization associated with quartz feldspar porphyry dykes.

b. Three VLF-EM conductors were identified on the property. Conductors **A** and **B** appear to be segments of a large fault or shear disrupting the source of the magnetic anomaly. The conductors follow relative magnetic lows and are unlikely to contain significant pyrrhotite.

13.0 RECOMMENDATIONS

The following recommendations are made based on the conclusions of this work:

a. Geophysical surveys and geological mapping should be extended on strike to the north and south of the current grid location.

b. Geological mapping and follow-up geophysics should focus on locating the lower Cambrian phyllite-limestone contact and any nearby quartz feldspar porphyry bodies. This seems to be the most favourable location for the development of significant tonnages of economic mineralization.

c. Total magnetic field and VLF-EM surveys would be the most effective means of delineating potential mineralization at lower elevations north of the main showing.

Respectfully submitted,
AMEROK GEOSCIENCES LTD.

Michael A. Power, M.Sc., P.Geo.
Geophysicist

References Cited

Furneaux, B.T. and J.M. Dawson (1985) Summary Report of the 1984 and 1985 Field Seasons on the YP Property for Butler Mountain Minerals. Unpublished summary report.

Lowey G.W. and J.F. Lowey (1985). Geology of Spencer Creek and Daughney Lake. INAC Open File 1986-1 (Text with 2 maps).

McNeill, J.D. and V.F. Labson (1990) Geological Mapping Using VLF Radio Fields. in: Nabighian, M.N. (ed.) Investigations in Geophysics No. 3. Electromagnetic Methods in Applied Geophysics. Volume 2, Application , Part B. Tulsa: Society of Exploration Geophysics.

Sinclair, W.D. (1998, pers comm.) Letter to G.Lee re: YP Claims. Unpublished.

Telford, W.M., L.P. Geldart and R.E. Sheriff (1990) Applied Geophysics (2nd Edition) New York: Cambridge University Press.

Wheeler, J.O. and P. McFeely (comp.) (1991) Tectonic Assemblage Map of the Canadian Cordillera and adjacent parts of the United States of America; GSC Map 1712A. scale: 1:2,000,000

APPENDIX A. CERTIFICATE

I, Michael Allan Power, with residence and business address in Whitehorse, Yukon Territory do hereby certify that:

1. I hold a B.Sc. (Honours) in Geology granted in 1986 and M.Sc. in Geophysics granted in 1988, both from the University of Alberta.

2. I have been actively involved in mineral exploration in the northern Cordillera and in the Northwest Territories since 1988. I am a professional geoscientist registered with the Association of Professional Engineers and Geoscientists of British Columbia (Registration number 21131).

3. I prepared this report based on information and data provided to me by Gary Lee, P.Eng., which I believe to be true and correct.

Dated this 18th day of January 1999 in Whitehorse, Yukon Territory.

REGISTERED PROFESSIONAL GEOPHYSICIST
M. A. POWER
LICENSEE

Michael A. Power, M.Sc. P.Geo.
Geophysicist

APPENDIX B. SURVEY LOG

Thu	08 Oct 98	Ron Stack (RS) mobilizes to the Wildcat Property with camp. Stuck on the access road for the night in deep snow.
Fri	09 Oct 98	RS finishes mob into camp and begins construction.
Sat	10 Oct 98	RS builds and sets up camp.
Sun	11 Oct 98	RS relocates grid; Gary Lee (GL) mobilizes to camp.
Mon	12 Oct 98	GL, RS put in grid.
Tue	13 Oct 98	GL - mag survey / RS - VLF survey
Wed	14 Oct 98	GL - mag survey / RS - VLF survey and put in lines.
Thu	15 Oct 98	GL - mag survey / RS - VLF survey and put in lines.
Fri	16 Oct 98	GL - mag survey / RS - VLF survey and put in lines.
Sat	17 Oct 98	Supply run for snowshoes and magnetometer batteries.
Sun	18 Oct 98	GL - mag survey / RS - VLF survey and put in lines.
Mon	19 Oct 98	Weather day; high winds and snow.
Tue	20 Oct 98	GL - mag survey / RS - VLF survey and put in lines.
Wed	21 Oct 98	Staking additional claims.
Thu	22 Oct 98	Demob to Whitehorse.

<u>Man days:</u>

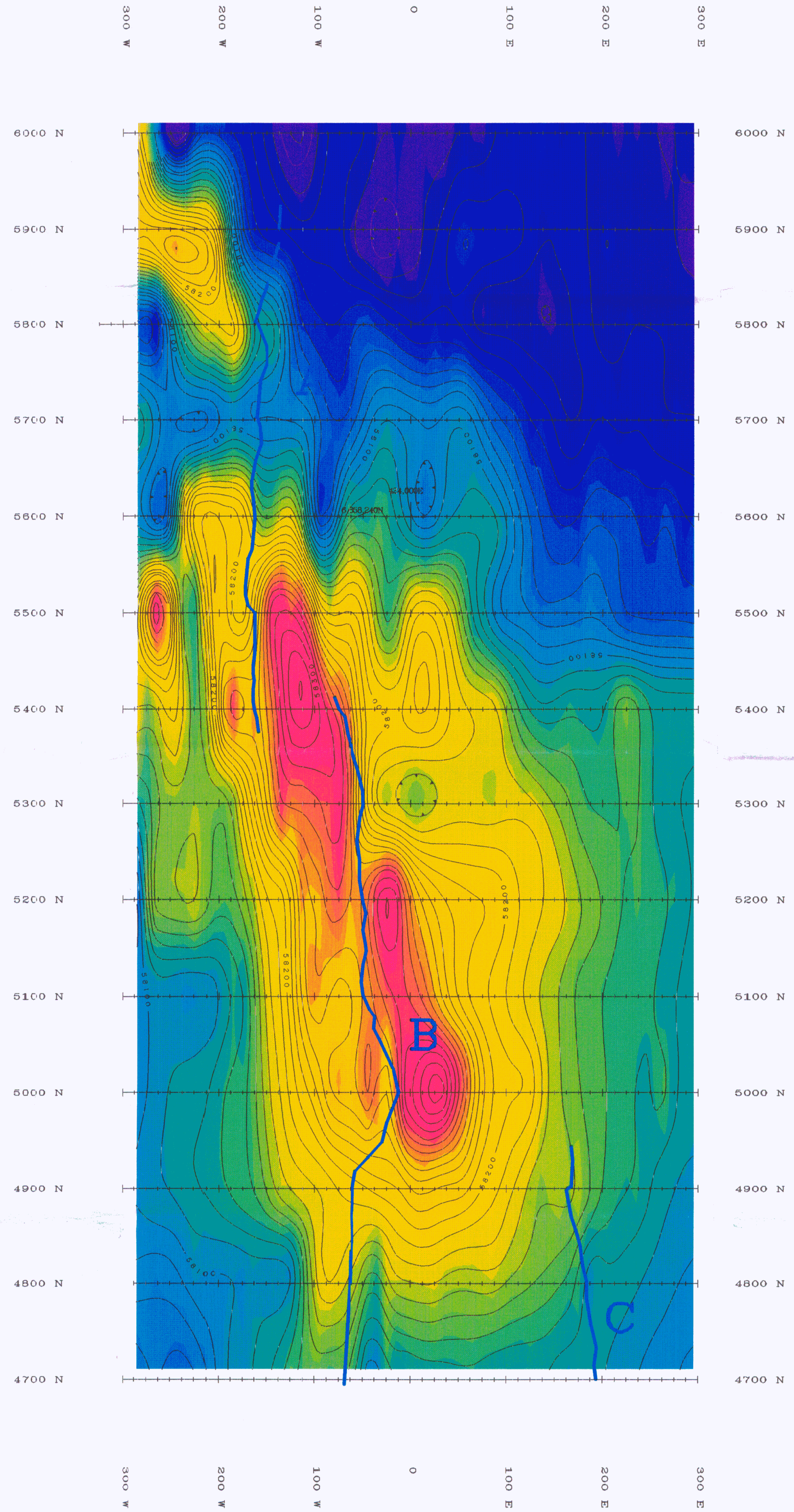
Camp / mobe / demobe:	6
Gridding / geophysics:	15
Staking:	2
Supply run / weather:	4

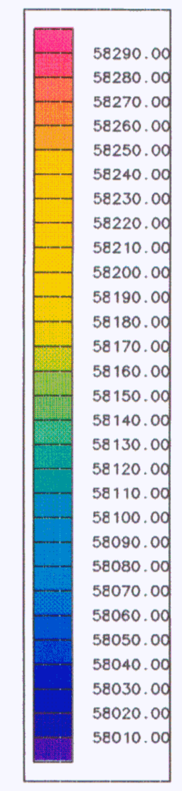
APPENDIX C. STATEMENT OF EXPENDITURES

Mobilization / demobilization	
Truck rental: 2 trucks / 3 days	$300
Truck mileage: 1400 km @ $0.30	$420
Gas	$200
3 man days @ $250 /day	$750
Camp	
Camp rental and groceries	$800
Geophysics	
Engineer: 7 days @ $290	$2,030
Technician: 8 days @ $250	$2,000
GEM mag rental: 8 days @ $90	$720
Geonics EM-16 rental: 8 days @ $25	$200
Generator & computer rental: 8 days @ $25	$200
Report	
Data processing, CADD and report	$1,200
Total exploration expenses	***$8,820***

I certify that these expenses are correct to the best of my knowledge.

Gary Lee, P.Eng.
Geological Engineer





Total Field (nT)

GRID CELL SIZE: 10 m
CONTOUR INTERVALS: 10, 100, 500 nT

A — CONDUCTOR AXIS

500,000E
6,600,000N — UTM registration point

REGISTERED PROFESSIONAL GEOPHYSICIST M. A. POWER LICENSEE 15Ja99 N.W.T.

0 200
metres
Scale: 1:3,000

GARY LEE

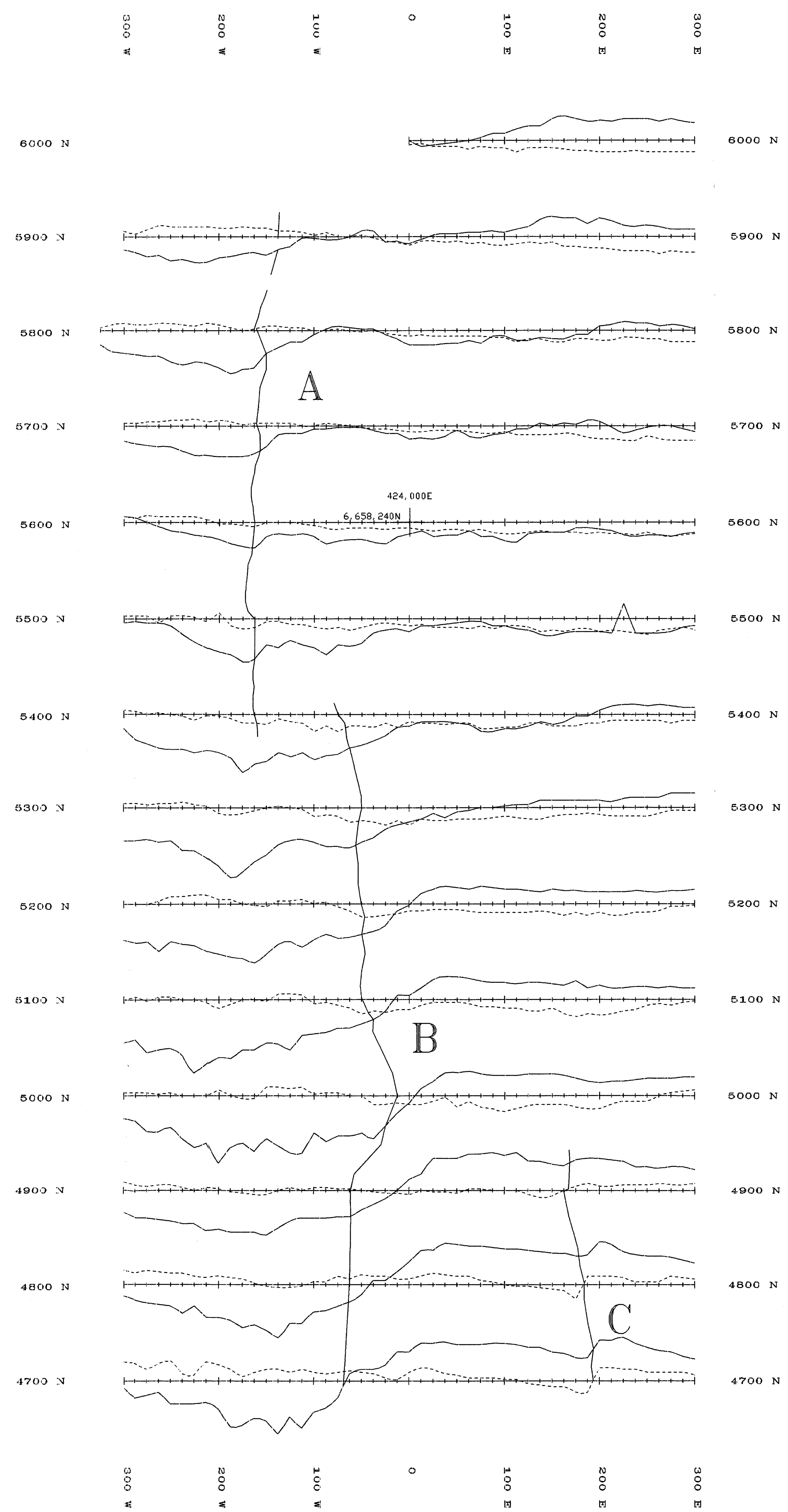
WILDCAT PROPERTY

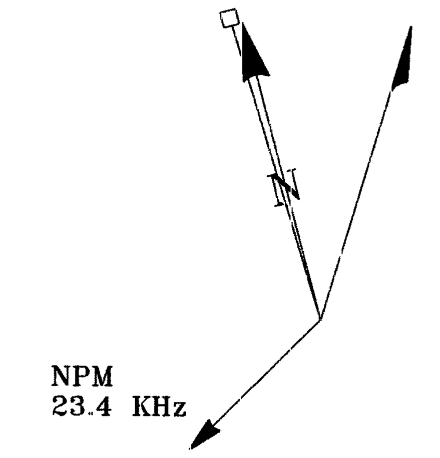
TOTAL MAGNETIC FIELD CONTOUR MAP

FIGURE 4.

NTS: 105 B/1	Datum: NAD1927
Mining District: Watson Lake	
Job: 99-3	Date: 15 Jan 98

AMEROK GEOSCIENCES LTD.





Hz (%) +20 −20 In-phase Quadrature

A — CONDUCTOR AXIS

500,000E 6,600,000N + – UTM registration point

0 200 metres

Scale: 1:3,000

093939

DWG ⑦

GARY LEE

WILDCAT PROPERTY

VLF–EM SURVEY STACKED PROFILES

FIGURE 5.

NTS: 105 B/1	Datum: NAD1927
Mining District: Watson Lake	
Job: 99-3	Date: 15 Jan 98

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