REPORT ON
A COMBINED HELICOPTER-BORNE ELECTROMAGNETIC, MAGNETIC, AND VLF-EM SURVEY

SOUTHEAST PORTION
COVERING PARTS OF ALMA, SHEBA AND DUNMORE TWPS

BY
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MATACHEWAN ONTARIO

NTS
42 A/2

DATE
FEB 20 1998

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INTRODUCTION

This report covers part of an airborne survey totalling 1750km flown over parts of Alma, Sheba and Dunmore Twps during December 1996 and January 1997.

Earlier in the spring of 1996 the author was advised of logging activity in the area of the Matachewan Indian Reserve with access from the north. Prior to this activity, the area of interest was virtually inaccessible. As a matter of fact there is no recorded work in the Twp in the gov't assessment files located in Kirkland Lake at the office of the Resident Geologist, nor has there been any government mapping by the OGS nor GSC nor any recent airborne surveys flown.

The only work in the immediate area was some 5 km to the west in Robertson Twp where work by ESSO Minerals Canada (in which the author was involved), delineated chalcopyrite and sphalerite in diamond drill core in sediments along the top of the Kinojevis Group during follow-up on an INPUT anomaly. Subsequent work in that area was undertaken by Strike Minerals and Falconbridge.

The author discovered ultramafic rocks which were examined by Cobalt Resident Geologist Jim Ireland and with his encouragement some 30 claim units were staked.

Subsequently utilizing an OPAP Grant the author established a grid on a newly discovered ultramafic body east of Rocky Lake and conducted soil sampling and prospecting. Encouraging results prompted Gee-Ten Ventures and Camphor Ventures to option the property.

This report concerns the southeast map sheet totalling 442 line km, part of the larger survey which totals 1750km, flown in December 1996 and January 1997 as a result of the option.

PROPERTY DESCRIPTION, LOCATION & ACCESS

The claims covered by the southeast sheet total some 221 units as attached all staked subsequent to the airborne survey by the author on contract to the partners Gee-Ten Ventures and Camphor Ventures Inc. A helicopter was utilized to gain efficient access for the staking. Claim 1220071 is the only claim that was staked prior to the survey in December 1996 by the author and forms part of the option agreement with the Gee-Ten Ventures/ Camphor Ventures joint venture.

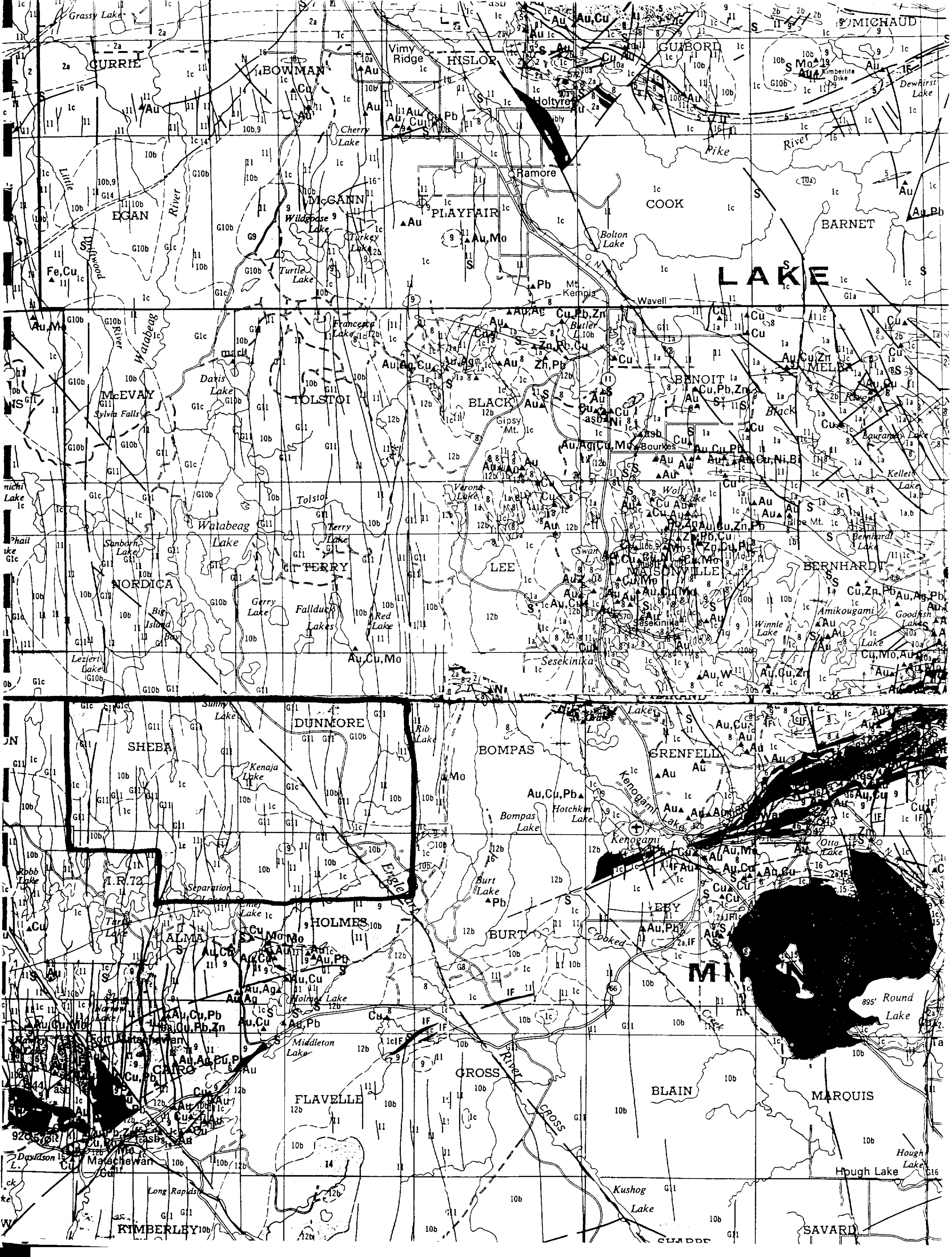
The portion of Alma, Sheba and Dunmore Twps covered by this report has varying cover and access. To the north is a cover of glacial sand, and access is gained by travelling from the town of Matheson down the Watabeag Road some 42 km and then onto the property by ATV in the summer or skidoo in the winter on a network of old, overgrown logging roads kept open mainly by moose and bear hunters. The northern portion is covered by jackpine, poplar and birch with good drainage and no outcrop.

The southern portion is much more rugged, with poorer drainage, beaver ponds, creeks, swamps etc. Access to the Blackburn Lake area can be gained from the Matachewan Highway up the Separation Lake road and then on a series of logging roads to Blackburn Lake and points north.

In the top end of Alma Twp access was gained through the Matachewan Indian Reserve by canoe and portage through Bird Lake etc.

Outcrop cover is about 20%, with rugged topography and thick bush cover consisting of mixed forest (cedar, pine, spruce, maple, birch, poplar etc).

The claims as listed on the following pages are held on a 50/50 % basis by Gee-Ten Ventures Inc, #298-1199 West Pender St, Vancouver BC V6E 2R1 and Camphor Ventures Inc, #1304-925 West Georgia St, Vancouver BC V6C 3L2.



Grassy Lake
CURRIE
BOWMAN
Vimy Ridge
HISLOP
GUIBORD
MICHAUD
Kimberlite Dike
Dewhirst Lake
Holtyre
Cherry Lake
Pike River
Ramore
COOK
BARNET
Little River
Driftwood
EGAN
River
McCANN
PLAYFAIR
Wildgoose Lake
Turkey Lake
Turtle Lake
Bolton Lake
LAKE
Mt. Kempis
Wavell
Watabeag River
Francesca Lake
Butler L.
McEVAY
Davis Lake
TOLSTOI
BLACK
Gipsy Mt.
BENOIT
MELBA
Black River
Laurant Lake
Sylvia Falls
Bourkes
Kellett Lake
Verona Lake
Tolstoi
Wolf Lake
Watabeag Lake
Sanborn Lake
Terry Lake
TERRY
LEE
Swan L.
Blue Mt.
Bernhardt Lake
BERNHARDT
NORDICA
Big Island Bay
Gerry Lake
Fallduck Lakes
Red Lake
Sesekinika
Winnie Lake
Amikougami
Goodfish Lake
Leziert Lake
Sesekinika
Sunny Lake
DUNMORE
Rib Lake
SHEBA
BOMPAS
GRENFELL
Kenaja Lake
Kenogami Lake
Hotchkin Lake
Bompas Lake
Kenogami
Otto Lake
Robb Lake
M.R.72
Separation Lake
Engle Creek
Burt Lake
EBY
HOLMES
ALMA
BURT
Crooked Creek
Round Lake
Holmes Lake
Narrow Lake
Fort Matachewan
Middleton Lake
CAIRO
GROSS
River
CROSS
BLAIN
MARQUIS
FLAVELLE
Matachewan
Davidson L.
Long Rapids
Kushog Lake
Hough Lake
KIMBERLEY
SAVARD

PROPERTY GEOLOGY & WORK IN THE AREA TO DATE

The Timmins-Kirkland Lake area is mainly made up of felsic to intermediate intrusive rocks, intruded into felsic and mafic intermediate metavolcanic rocks; with generally east-west oriented mafic to ultramafic metavolcanic rocks.(see report The Geology and Mineral Potential of the "Sheba Queen Property" by Thomas M Williams BSc., appended).

There has been no gov't mapping, nor exploration nor recent airborne on the property so little was previously known about the area. Some 5 km to the west in Roberston Twp ESSO Minerals Canada following-up on an airborne INPUT anomaly drilled and interesected chalcopyrite and sphalerite in sediments along the top of the Kinojevis Group and the bottom of the Blake River Group, which is underlain by alternating layers of iron-rich and magnesium-rich tholeiitic flows. This horizon is pyrite chalcopyrite, sphalerite-bearing and extends some 50km from McGarry to Benoit Twps. The property was later restaked by Strike Minerals and optioned to Falconbridge.

In southern Robertson Twp partners Hugh and Sam Kell discovered several occurences of galena, copper, platinum and zinc during prospecting in the early 1900's. Similarily the Thesauras Gold Mine was established to the west at the head of Matachewan Lake in the early 1900's.

It must be noted that some 3 twps to the NW are the McWatters and Langmuir Ni deposits. The Langmuir deposit is located in predominantly extrusive ultramafic volcanics. Pyrrhotite and pentlandite occur within 30m of the footwall contact with volcanics. Grade in 1976 was 857,528 tons @ 1.75% Ni and 0.6% Cu.

The McWatters deposit 4 km SW of the Langmuir was drilled on an old aeromag anomaly 1030m long and 60-120m wide. 60.6m of mineralization was intersected averaging 0.428% Ni. In this deposit a locally discordant ultramafic sill has intruded pyroclastic rocks of the Deloro Group.

To the west some 2 Twps the Texmont Deposit was reserves of some 3,800,000 tons grading 1% Ni. The mine is in a steeply dipping sequence of ultramafic flows which strike north-south and measure up to 300m thick. Rocks are locally carbonatized in the

vicinity of Fault Zones. Accounts of sulphide mineralization describe a mineralized zone near the central part of the ultramafic sequence (Pyke 1975). This zone can be traced over a length of 679m and a width of 58m. Minerals consist of pentlandite and pyrrhotite. At least 6 mineralized zones have been identified within the property.

To the SW in Midlothian Twp is the Sothman Deposit. The prospect was discovered in the 1950's when prospectors working for Dominion Gulf discovered Ni-bearing float on the property during the examination of an aeromag anomaly. Dacite to Rhyolitic metavolcanics occupy the central area of the Dome. Concordant ultramafic sills, flows, perodotite/gabbro bodies form a zone around the Dome. The peridotite which hosts the deposit is likely extrusive (spinifex texture). The sill hosting the deposit is 4.0km long, 200m thick and strikes east and dips steeply to the south. The deposit contains an estimated 210,000 tons @ 1.29% Ni and an additional 400,000 tons of lower grade material.

Client: 302667 - GEE-TEN VENTURES INC. Total Claims: 37

Township: ALMA

	Claim Number	Recording Date	Due Date	Claim Status		Percent /Option	Work Required	Work Applied		Total Reserve	Claim Bank
								No. UNITS			
L	1221986	1997-FEB-25	1999-FEB-25	A	*	50.00	800	2	0	0	0
L	1223503	1997-FEB-25	1999-FEB-25	A		50.00	4,800		0	0	0
L	1223504	1997-FEB-25	1999-FEB-25	A	*	50.00	5,600	14	0	0	0
L	1223505	1997-FEB-25	1999-FEB-25	A	*	50.00	6,400	16	0	0	0
L	1223506	1997-FEB-25	1999-FEB-25	A	*	50.00	3,600	9	0	0	0
L	1225119	1997-JUN-02	1999-JUN-02	A	*	50.00	4,800	12	0	0	0
L	1225120	1997-JUN-02	1999-JUN-02	A		50.00	3,600		0	0	0
L	1225122	1997-JUN-16	1999-JUN-16	A		50.00	800		0	0	0

(53)

Township: DUNMORE

	Claim Number	Recording Date	Due Date	Claim Status		Percent /Option	Work Required	Work Applied		Total Reserve	Claim Bank
L	1221983	1997-FEB-25	1999-FEB-25	A	*	50.00	1,600	4	0	0	0
L	1221984	1997-FEB-25	1999-FEB-25	A	*	50.00	1,600	4	0	0	0
L	1221985	1997-FEB-25	1999-FEB-25	A	*	50.00	6,000	15	0	0	0
L	1223507	1997-FEB-25	1999-FEB-25	A	*	50.00	4,800	12	0	0	0
L	1223509	1997-APR-04	1999-APR-04	A	*	50.00	800	2	0	0	0
L	1224046	1997-FEB-25	1999-FEB-25	A	*	50.00	6,400	16	0	0	0
L	1224047	1997-FEB-25	1999-FEB-25	A	*	50.00	6,400	16	0	0	0
L	1224048	1997-FEB-25	1999-FEB-25	A	*	50.00	3,200	8 0	0	0	0

(77)

Township: ROBERTSON

	Claim Number	Recording Date	Due Date	Claim Status	Percent /Option	Work Required	Work Applied	Total Reserve	Claim Bank
L	1223511	1997-FEB-25	1999-FEB-25	A	50.00	1,600	0	0	0
L	1224045	1997-FEB-25	1999-FEB-25	A	50.00	1,600	0	0	0

Township: SHEBA

	Claim Number	Recording Date	Due Date	Claim Status		Percent /Option	Work Required	Work Applied		Total Reserve	Claim Bank
L	1212492	1997-FEB-25	1999-FEB-25	A		50.00	2,400		0	8,117	0
L	1212497	1997-FEB-25	1999-FEB-25	A		50.00	400		0	0	0
L	1220079	1997-FEB-25	1999-FEB-25	A		50.00	800		0	0	0
L	1221934	1997-FEB-25	1999-FEB-25	A		50.00	400		0	1,353	0
L	1221978	1997-FEB-25	1999-FEB-25	A	*	50.00	800	2	0	0	0
L	1221979	1997-FEB-25	1999-FEB-25	A	*	50.00	4,000	10	0	0	0
L	1221980	1997-FEB-25	1999-FEB-25	A	*	50.00	6,400	16	0	0	0
L	1221981	1997-FEB-25	1999-FEB-25	A	*	50.00	4,800	12	0	0	0
L	1221982	1997-FEB-25	1999-FEB-25	A	*	50.00	3,600	9	0	0	0
L	1221987	1997-FEB-25	1999-FEB-25	A	*	50.00	2,400	6	0	0	0
L	1223502	1997-FEB-25	1999-FEB-25	A	*	50.00	6,400	16	0	0	0

(53)

Client: 302667 - GEE-TEN VENTURES INC. Total Claims: 37

							NO. UNITS			
L	1223503	1997-FEB-25	1999-FEB-25	A	50.00	4,800	~~12~~	0	0	0
L	1223504	1997-FEB-25	1999-FEB-25	A *	50.00	5,600	14	0	0	0
L	1223505	1997-FEB-25	1999-FEB-25	A *	50.00	6,400	16	0	0	0
L	1223507	1997-FEB-25	1999-FEB-25	A	50.00	4,800	~~12~~	0	0	0
L	1223508	1997-MAR-11	1999-MAR-11	A	50.00	400	1	0	0	0
L	1224049	1997-FEB-25	1999-FEB-25	A	50.00	6,400	~~16~~	0	0	0
L	1224050	1997-FEB-25	1999-FEB-25	A *	50.00	6,400	16	0	0	0
L	1224051	1997-FEB-25	1999-FEB-25	A	50.00	4,400	1	0	0	0

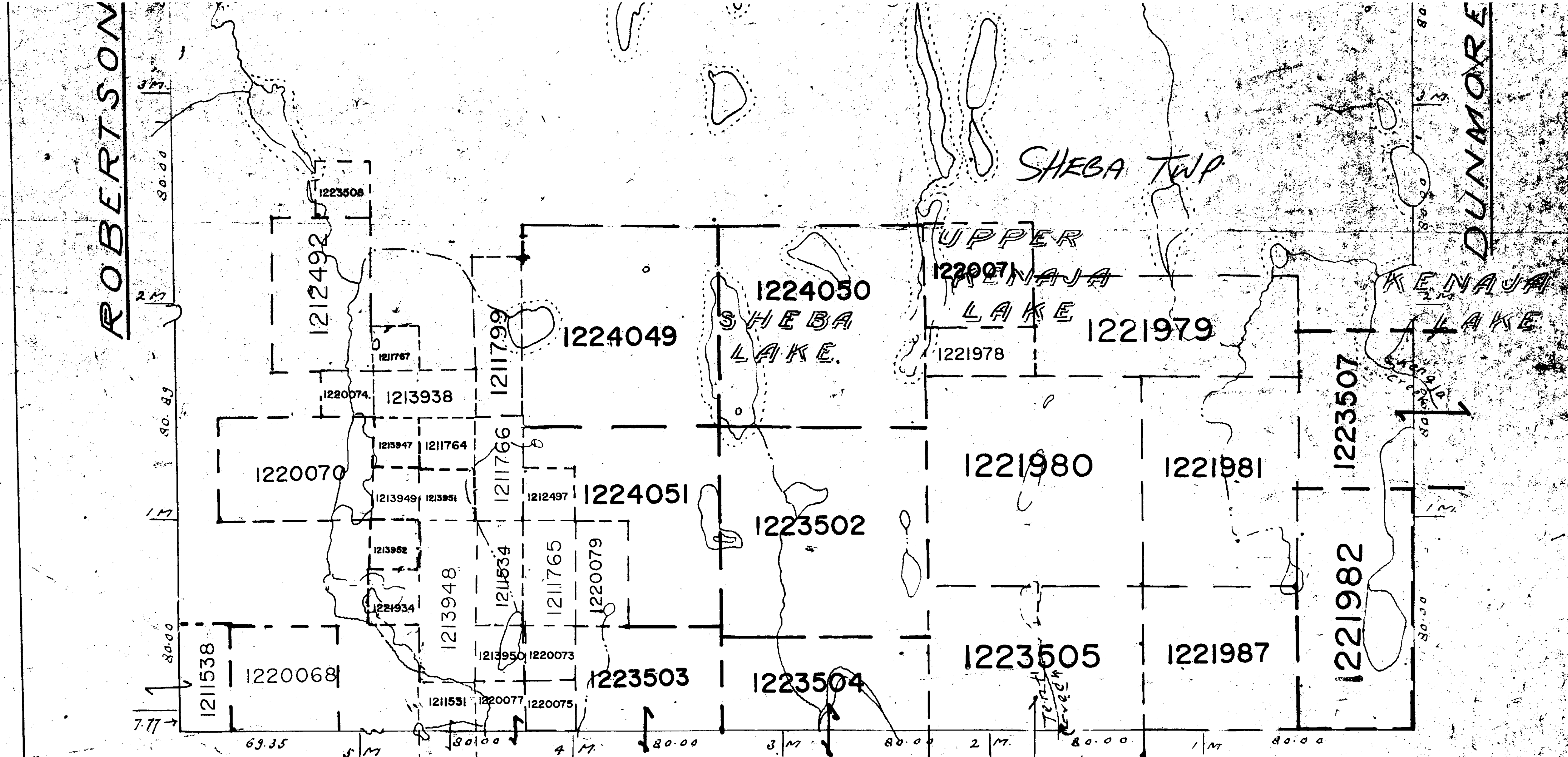
*** End of Report *** (16)

* 1223505 and 04 overlap into ALMA TWP. (counted on ALMA TALLY)

L 1220071 1996-DEC-18 1998-DEC-18 100.0 1600 (4) OPTIONED FROM GARY DUNN

* CLAIMS COVERED BY AIRBORNE SURVEY, SOUTHEAST MAP SHEET SUBJECT OF THIS REPORT.

GEE-TEN 217 CLAIM UNITS, AVERAGE 1.6 KM OVERFLOW EACH UNIT
+ 4 DUNN OR 2.0 KM (INCL. TIE-LINES) @ $70 per KM
221 = $140 per UNIT.



Notes.

Railways shewn
Paved Highways
Gravel "
Highway Route Nos.
Other Roads
Trails & Paths
Telephone & Telegraph Lines
Electric Power Lines
400' Surface rights reservation around all lakes and rivers.

Non-perennial streams
Bridges
Buildings
Swamps
Areas marked (P) are Patented.
(L) Leased.
L.O. Held under Licence of Occupation.

CROWN LAND SALE	C.S.
LOCATED LAND	LOC.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
CANCELLED	C.

FLOODING RIGHTS TO ELEV. 1059 FEET, ADJACENT TO THE WATABEAG R., WATABEAG L. AND ITS TRIBUTARIES, AS SHOWN ON PLAN R21-4 BY O.L.S. G.F. SUMMERS. L.O. 8649 F. 33693 V. 3.

ARCHIVED DECEMBER 18/91

SHEBA TOWNSHIP

BOMPAS TOWNSHIP

4M

3M

2M

1M

Sunny Lake

Kenaja Lake

Rib Lake

Rib Creek

English

Kenaja Creek

M.N.R. File 164586

2.2 km

1222501

1223509

1224048

1223507

1224047

1224046

1221983

1221985

UNDER CONSTRUCTION

1220072

DUNMORE TWP

HOLMES TOWNSHIP

FORMATION THAT
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RESERVATION
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SAND & GRAVEL

SCALE: 1 INCH

FEET 0 1000

0 200 METRES

TOWNSHIP

DUNM

M.N.R. ADMIN

KIRKLAND

MINING DIVIS

LARDER

LAND TITLES /

TIMISKAM

Ontario

Minist
Natura
Resou

Date FEBRUARY

ARCHIVED JAN. 13/95

CIRCULATED OCT. 06/93

Sheba Twp.

ALMA TWP.

5M 4M 3M 2M 1M

1223510 Staked July 11/11 GL

1220069

121153

1220077

1220076

1220078

1223503

1223504

1223505

1223506

CANOE

1225119

Blackburn

1221986

300 m

1225120

Con. 6

Con. 5

Con. 4

Con. 3

Squaw L.

Beaver L.

Bird L.

Jackson L.

Separation L.

Chief L.

LITTLE CHIEF L.

BASTIAN L.

Turtle L.

L.U.P.

A-1

A-2 L.U.P.

A-3 L.U.P.

MATACHEWAN INDIAN RESERVE

I. R. 72

Baptiste L.

Baden Twp.

Holmes Twp.

THE

DIS

L

MINI

SCALE: 1-

PATENTED L

CROWN LAND

LEASES

LOCATED LAN

LICENSE OF

MINING RIGHT

SURFACE RIGH

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KING'S HIGHW

RAILWAYS

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MINES

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Matachewan Indi

400' Surface rig

rivers.

SUMMARY

To date two areas have been mapped and staked indicating ultramafic bodies. The whole rock results indicate rock that is favourable for the deposition of Ni, Cr Ore. That is high temperature, high magnesium, and copper depleted.

A grid consisting of some 15 km of cutline has been established @100m line spacing and 25m stations with all stations picketed.

The grid was utilized for control while prospecting. As well soil samples were collected from the B1 horizon over the grid. An anomalous area has been delineated on line 6+00 north near 1+00 east.(background 1-4 ppm Ni.....anomaly 68ppm Ni).

The ultramafic appears to be at least 1000m X 400m in extent with lenses of diorite running through in a north-south direction.

The zone is bounded by gabbro on both the east and the west sides.

Initial values of 1500 ppm Ni, 1500ppm Cr, low Cu (15 ppm), 27.26% MgO with low TiO2 (0.37%) have been obtained from the pyroxenite.

RESULTS ,CONCLUSIONS, & RECOMMENDATIONS

The airborne survey report by Aerodat follows. The HEM survey did not indicate any strong conductors that would indicate a massive sulphide body.

The airborne mag data is being used to target additional areas which are being staked. This as a result of recent activity in Nordica Twp to the north where Band-Ore Resources have optioned ground staked by prospectors Garry Windsor and Gary Edwards where significant platinum values have been obtained from ultramafic rock in a similar environment to the ultramafics seen on the subject property.

Any sulphide targets would likely be deeper than what the airborne survey could detect, or consist of disseminated sulphides which are not detectable by this method.

CERTIFICATION

I Gary Clayton Dunn do hereby certify that.....

1) I am the author of this report and was present on the property while the survey was being flown.
2) I am a graduate of the Haileybury School of Mines (3 year mining technolgy) and have practised my profession continuously in the mining industry since graduation in 1974.
3) I have had discussions with Cobalt Resident Geologist who has reviewed data and samples from the property and provided advice.

signed..... dated.....March 3/98.....

REPORT

ON A
COMBINED HELICOPTER-BORNE
ELECTROMAGNETIC, MAGNETIC AND VLF-EM SURVEY
ROBERTSON, SHEBA AND DUNMORE TOWNSHIPS
TEMISKAMING DISTRICT, NORTHERN ONTARIO
NTS 42 A/1, A/2

FOR

CAMPHOR VENTURES INC.
SUITE 1205, 789 WEST PENDER STREET
VANCOUVER, BRITISH COLUMBIA
V6C 1H2

BY

AERODAT INC.
6300 NORTHWEST DRIVE
MISSISSAUGA, ONTARIO
L4V 1J7
PHONE: 905 - 671-2446

March 4, 1997

R. W. Woolham, P. Eng.
Consulting Geophysicist
J9716

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COMBINED HELICOPTER-BORNE
ELECTROMAGNETIC, MAGNETIC AND VLF-EM SURVEY
ROBERTSON, SHEBA AND DUNMORE TOWNSHIPS
TEMISKAMING DISTRICT, NORTHERN ONTARIO

1. INTRODUCTION

This is a report on an airborne geophysical survey carried out for Camphor Ventures Inc. by Aerodat Inc. under a contract dated December 3, 1996. Principal geophysical sensors included a five frequency electromagnetic system, a high sensitivity cesium vapour magnetometer and a two frequency VLF-EM system. Ancillary equipment included a colour video tracking camera, Global Positioning System (GPS) navigation instrumentation, a radar altimeter, a power line monitor and a base station magnetometer.

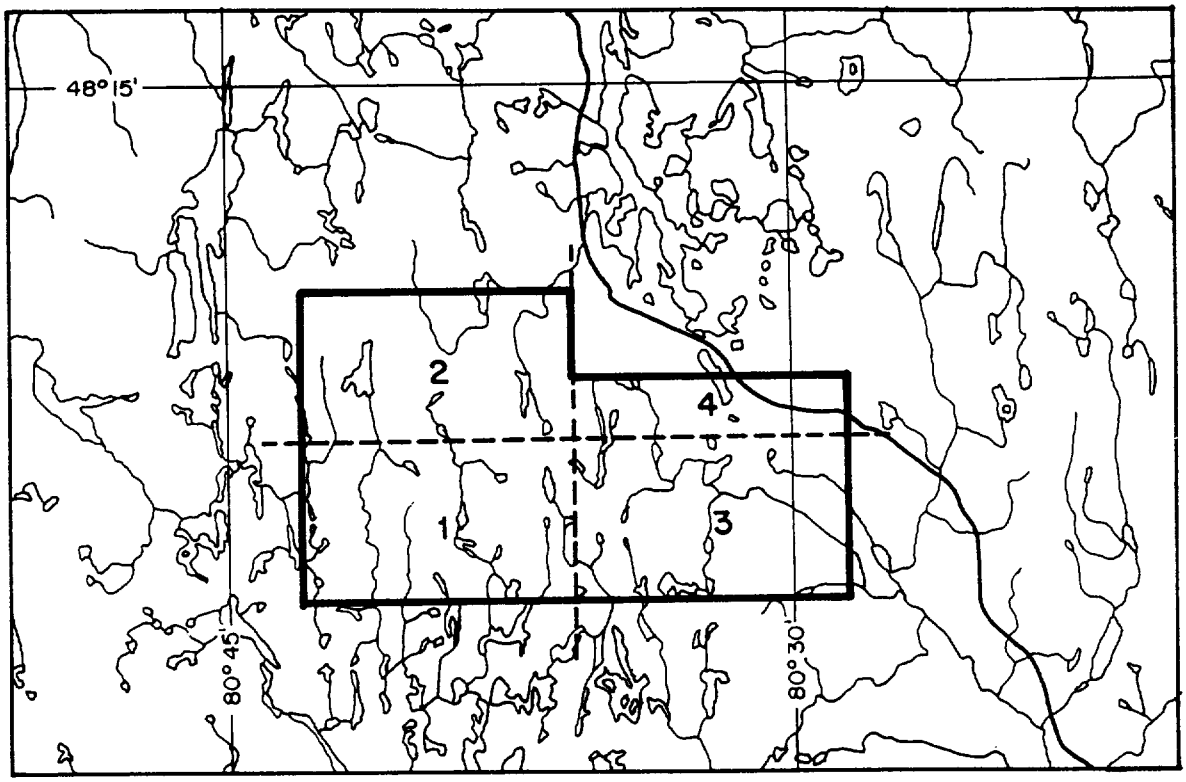
The survey covered an area of about 162 square kilometres located 40 km west of Kirkland Lake. Total survey coverage is approximately 1,750 line kilometres including 95 kilometres of tie lines. The Aerodat Job Number is J9716.

This report describes the survey, the data processing, data presentation and interpretation of the geophysical results. Identified electromagnetic anomalies appear on selected map products as anomaly symbols with interpreted source characteristics. The interpretation map indicates conductive areas of possible interest. It also shows prominent structural features interpreted from the magnetic results. Significant structural, conductive and/or magnetic associations are the basis for the selection of specific geophysical anomalies for further investigation.

2. SURVEY AREA

The area is centred on Sheba Township south and west of Watabeag Lake and northeast of Matachewan Lake. Topography is shown on the 1:50,000 scale NTS map sheets 42 A/1 and 42 A/2. Local relief is moderate with elevations ranging from 300 m to over 450 m above mean sea level. The survey area is shown in the attached index map that includes local topography and latitude - longitude coordinates. This index map also appears on all black line map products. The flight line direction is east-west. Line spacing is 100 metres.

INDEX MAP



3. AIRCRAFT AND SURVEY EQUIPMENT

3.1 Aircraft

The survey aircraft was an Aerospatiale AS 350BA helicopter, piloted by J. Breton, owned and operated by Abitibi Helicopters Ltd. G. Bissonnette and W. Thompson of Aerodat acted as navigator and equipment operators. Aerodat performed the installation of the geophysical and ancillary equipment. The survey aircraft is flown at a mean terrain clearance of 60 metres (200 feet) and speed of 60 knots.

3.2 Electromagnetic System

The Helicopter ElectroMagnetic system (HEM) is an Aerodat four or five frequency configuration. Two vertical coaxial coil pairs operate at frequency ranges of 935 Hz and 4,600 Hz and either two or three horizontal coplanar coil pairs at frequency ranges of 865, 4,175 Hz and 32 kHz. The actual frequencies used depend on the particular bird configuration. At the present time Aerodat has eight bird systems. This survey utilized the Kestrel and Falcon birds as there were two phases to the survey, one before Christmas 1996 (Kestrel) and the other in 1997 (Falcon) The various frequencies for the two birds are tabulated following:

Bird	Low Coaxial	Mid Coaxial	Low Coplanar	Mid Coplanar	High Coplanar
Falcon	918	4,470	-	4,088	32,540
Kestrel	915	4,382	864	4,781	33,070

The transmitter-receiver separation is about 7 metres. Inphase and quadrature signals are measured simultaneously for the each frequency with a time constant of 0.1 seconds. The HEM bird is towed 30 metres (100 feet) below the helicopter.

3.3 VLF-EM System

The VLF-EM System is a Herz Totem 2A. This instrument measures the total field and vertical quadrature components of two selected frequencies. The sensor is towed in a bird 10 metres below the helicopter.

VLF transmitters are designated "Line" and "Ortho". The line station is in a direction from the survey area, ideally, normal to the flight line direction. This is the VLF station most often used because of optimal coupling with near vertical conductors running perpendicular to the flight line direction. The ortho station is ideally 90 degrees in azimuth away from the line station.

The transmitters are:

GBR, Rugby, England broadcasting at 16.0 Khz. (ortho)

NAA, Cutler, Maine broadcasting at 24.0 kHz. (line)

NLK, Jim Creek, Washington broadcasting at 24.8 kHz. (ortho)

3.4 Magnetometer

A Scintrex H8 cesium, optically pumped magnetometer sensor, measures the earth's magnetic field. The sensitivity of this instrument is 0.001 nanoTesla at a sampling rate of 0.2 second. The sensor is towed in a bird 15 metres (50 feet) below the helicopter 45 metres (150 feet) above the ground).

3.5 Ancillary Systems

Base Station Magnetometer

A Gem Systems, Inc. GSM19 magnetometer is set up at the base of operations to record diurnal variations of the earth's magnetic field. Synchronization of the clock of the base station with that of the airborne system is checked each day to insure diurnal corrections will be accurate. Recording resolution is 1 nT with an update rate of four seconds. Magnetic field variation data are plotted on a 3" wide gridded paper chart analog recorder. Each division of the grid (0.25") is equivalent to one minute (chart speed) or five nT (vertical sensitivity). The date, time and current total field magnetic value are automatically recorded every 10 minutes. The data is also saved to digital tape.

Radar Altimeter

A King KRA-10 radar altimeter records terrain clearance. The output from the instrument is a linear function of altitude. The radar altimeter is pre-calibrated by the manufacturer and is checked after installation using an internal calibration procedure.

Tracking Camera

A Panasonic colour video camera records the flight path on VHS video tape. The camera operates in continuous mode. The video tape also shows the flight number, 24 hour clock time (to .01 second), and manual fiducial number.

Global Positioning System (GPS)

Global Positioning Systems utilize at present 25 active satellites orbiting the earth. The orbital period for each satellite is approximately 12 hours with an altitude of approximately 12,600 miles (~ 20,000 km). Each satellite contains a very accurate cesium clock which

is synchronized to a common clock by the ground control stations (operated by the U.S. Air Force).

The satellites radiate individually coded radio signals which are received by the user's GPS receiver. Along with timing information, each satellite transmits ephemeris (astronomical almanac or table) information which enables the receiver to compute the satellite's precise spatial position. The receiver decodes the timing signals from the satellites in view (4 or more for a three dimensional fix) and, knowing their respective locations from the ephemeris information, computes a latitude, longitude, and altitude for the user. This position fix process is continuous and can be updated once per second.

Differential GPS is employed to eliminate the problem of selective availability where the US Defence Department corrupts the satellite's timing signal. Differential GPS utilizes a GPS reference receiver which must be established within a few hundred miles from the survey aircraft. The GPS System computes differential corrections as a post-processing operation to achieve accuracies in the 2 to 5 metre range.

A Magnavox 9212 (12 channel) GPS receiver is used in the aircraft. Nortech differential GPS processing software is used to compute the differentially corrected GPS positions on a daily flight basis. The navigational unit in the aircraft supplies continuous information to the pilot and allows multiple way point entry.

The Picodas PNAV 2001 survey navigation system is utilized on the aircraft to provide a left/right indicator for the pilot. The single point GPS positions are logged onto the PICODAS or RMS digital acquisition systems along with the magnetometer data. The single point GPS accuracy is much better than 25 metres. The GPS positions are converted to NAD27 format for inclusion in the technical report and in the digital archive data.

Analog Recorder

An RMS dot matrix recorder displays the data during the survey. Record contents are as follows:

LABEL	PARAMETER	CHART SCALE
MAGF	Total Field Magnetics, Fine	2.5 nT/mm
MAGC	Total Field Magnetics, Coarse	25 nT/mm
VLT	VLF-EM, Total Field, Line Station	2.5% / mm
VLQ	VLF-EM, Vert. Quadrature, Line Station	2.5% / mm
VOT	VLF-EM, Total Field, Ortho Station	2.5% / mm
VOQ	VLF-EM, Vert. Quadrature, Ortho Station	2.5% / mm

LABEL	PARAMETER	CHART SCALE
L9XI	935 Hz, Coaxial, Inphase	2.5 ppm/mm
L9XQ	935 Hz,Coaxial,Quadrature	2.5 ppm/mm
M4XI	4,600 Hz, Coaxial, Inphase	2.5 ppm/mm
M4XQ	4,600 Hz, Coaxial, Quadrature	2.5 ppm/mm
L8PI	865 Hz, Coplanar, Inphase	10 ppm/mm
L8PQ	865 Hz, Coplanar, Quadrature	10 ppm/mm
M4PI	4,175 Hz, Coplanar, Inphase	10 ppm/mm
M4PQ	4,175 Hz, Coplanar, Quadrature	10 ppm/mm
H3PI	32,000 Hz, Coplanar, Inphase	20 ppm/mm
H3PQ	32,000 Hz, Coplanar, Quadrature	20 ppm/mm
BALT	Barometer	50 ft/mm
RALT	Radar Altimeter	10 ft/mm
PWRL	50/60 Hz Power Line Monitor	-

Data is recorded with positive - up, negative - down. The analog zero of the radar altimeter is 5 cm from the top of the analog record. A helicopter terrain clearance of 60 m (200 feet) should therefore be seen some 3 cm from the top of the analog record.

Chart speed is 2 mm/second. The 24-hour clock time is printed every 20 seconds. The total magnetic field value is printed every 30 seconds. The ranges from the radar navigation system are printed every minute.

Vertical lines crossing the record are manual fiducial markers activated by the operator. The start of any survey line is identified by two closely spaced manual fiducials. The end of any survey line is identified by three closely spaced manual fiducials. Manual fiducials are numbered in order. Every tenth manual fiducial is indicated by its number, printed at the bottom of the record.

Calibration sequences are located at the start and end of each flight and at intermediate times where needed.

Digital Recorder

A DGR-33 data system records the digital survey data on magnetic media. Contents and update rates are as follows:

DATA TYPE	RECORDING INTERVAL	RECORDING RESOLUTION
Magnetometer	0.1 second	0.001 nT
VLF-EM (4 Channels)	0.2 second	0.03%
HEM, (8 or 10 Channels)	0.1 second	
HEM, coaxial- 935 Hz/4,600 Hz		0.03 ppm
HEM, coplanar- 865 Hz/4,175 Hz		0.06 ppm
HEM, coplanar- 32,000 Hz		0.125 ppm
Position (2 Channels)	0.2 second	0.1 m
Altimeter	0.2 second	0.05 m
Power Line Monitor	0.2 second	
Manual Fiducial		
Clock Time		

4. SURVEY LOGISTICS AND CALIBRATION

4.1 Survey

The survey was completed in the periods December 16 to 20, 1996 and January 9 to 14, 1997. Principal personnel are listed in Appendix I. A total of 15 survey flights was required to complete the project. Aircraft ground speed is maintained at approximately 60 knots (30 metres per second) and mean terrain clearance of 60 metres consistent with the safety of the aircraft and crew.

4.2 Navigation

A global positioning system (GPS) consisting of a Magnavox MX 9212 operated in differential mode guides aircraft navigation and flight line control. Field processing of the differential GPS data in the field utilizes a PC using software supplied by the manufacturer. One system is installed in the survey helicopter. This involves mounting the receiver antenna on the casing ("bird") containing the magnetometer sensor. A second system acts as the base station.

The published NTS maps provide the Universal Transverse Mercator (UTM) coordinates of the survey area corners. These coordinates program the navigation system. A test flight confirms if area coverage is correct. Thereafter the navigation system guides the

pilot along the survey traverse lines marked on the topographic map. The operator also enters manual fiducials over prominent topographic features. Survey lines showing excessive deviation are re-flown.

The operator calibrates the geophysical systems at the start, middle (if required) and end of every survey flight. During calibration the aircraft is flown away from ground effects to record electromagnetic zero levels.

4.3 Calibration and Data Verification

The operator calibrates the geophysical systems including the barometric altimeter at the start, middle (if required) and end of every survey flight. Immediately after takeoff and before landing the altimeter values are compared with the 30 m separation between the helicopter and EM sensor. The geophysical systems are calibrated and monitored as follows:

Electromagnetics

The system is nulled and phased according to Aerodat's standard procedures. Any discrepancies from previous surveys require an external Q coil calibration. The External Calibration Procedure is done at the start of every survey and every week thereafter until the survey has been completed. There are four parts to the External Calibration Procedure. After system has warmed up, they are:

1.) Null each frequency
2.) Phase each frequency
3.) Set the gain for each frequency
4.) Note the response of the internal Cal-coil

The phasing is done with a ferrite bar. The gain calibration is done using a calibration coil which is mounted at a pre-set location off the end of the bird.

The phasing and calibration is checked with the internal Q coil. The internal Q coil is activated prior to and at the end of each flight with the system flying out of ground effect (250 m or higher) to assure correct EM calibration. Analog trace locations are corrected for all channels when the system is out of ground effect. If excessive drift is present on the EM system the preceding procedures are repeated as required.

Magnetics

The airborne magnetic data is monitored in the aircraft by means of a 4th difference of the data which is calculated and presented on the airborne analog recorder. Should the 4th difference exceed the allowable specification, the portion of the flight line thereby affected is reflown.

The fourth difference is defined as:

$$FD_i = X_{i+2} - 4x_{i+1} + 6x_i - 4x_{i-1} + X_{i-2}$$

where X_i is the i^{th} total field sample. The fourth difference in this form has units of nT. High frequency noise should be such that the fourth differences divided by 16 are generally less than ± 0.1 nT The fourth difference is displayed on analog at scales of 0.20 nT/cm.

VLF-EM

The most suitable VLF-EM stations for the specified flight direction are used. The VLF-EM system records two transmitter stations simultaneously. If a station shut-down occurs, the survey proceeds on an alternate station if available.

Selected VLF-EM stations are checked for operations and for correct reception gain. Occasional deficiencies or discontinuities of VLF-EM information due to VLF-EM transmission conditions are not grounds for rejection of acquired data.

Altimeters

The radar altimeter test is carried out before and after the survey and if any of the altitude equipment is changed. The radar altimeter reading is determined when flying at barometric altitudes of 60, 120, 180 and 240 meters above the base airstrip. Also, the barometric altimeter is calibrated pre-flight and post-flight using the radar altimeter to determine the drift and this drift is applied to the data in the subsequent data processing.

Video Flight Path Verification

The record from the video camera is monitored continuously in flight. The video tape is reviewed immediately after each flight to ensure that the quality is acceptable. Selective flight path verification is performed as necessary.

Lag Tests

Before survey production commences and when any major survey equipment modification or replacement occurs, a lag test is performed to determine the time difference between the magnetometer reading, the electronic navigation reading and the operation of the positioning equipment. These tests are flown at the survey flight altitude in two (2) directions across a distinct magnetic anomaly and a recognizable feature whose exact location is known.

5. DATA PROCESSING AND PRESENTATION

5.1 Base Map

The base map is taken from a photographic enlargement of the NTS topographic maps. A UTM reference grid (grid lines usually every kilometre) and the survey area boundaries are added. After registration of the flight path to the topographic base map, some topographic detail and the survey boundary are added digitally. This digital image forms the base for the colour and shadow maps.

5.2 Flight Path Map

Global Positioning System

The GPS receiver takes in coded data from satellites in view and there after calculates the range to each satellite. The coded data must therefore include the instantaneous position of the satellite relative to some agreed earth-fixed coordinate system.

A further calculation using ranges to several satellites gives the position of the receiver in that coordinate system (eg. UTM, lat/long.). The elevation of the receiver is given with respect to a model ellipsoidal earth.

Normally the receiver must see four satellites for a full positional determination (three space coordinates and time). If the elevation is known in advance, only three satellites are needed. These are termed 3D and 2D solutions.

The position of the receiver is updated every tenth of a second. The accuracy of any one position determination is described by the Circular Error Probability (CEP). Ninety-five percent of all position determinations will fall within a circle of a certain radius. If the horizontal position accuracy is 25 m CEP, for example, 95% of all trials will fall within a circle of 25 m radius centred on the mean. The system may be degraded for civilian use and the autonomous accuracy is then 100 m CEP. This situation is called selective availability (SA). Much of this error (due principally to satellite position/time errors and atmospheric delays) can be removed using two GPS receivers operating simultaneously. One receiver acting as the base station, is at a known position. The second remote receiver is in the unknown position. Differential corrections determined for the base station may then be applied to the remote station. Differential positions are accurate to five m CEP (for a one second sample). Averaging will reduce this error further.

Flight Path

The flight path is drawn using linear interpolation between x,y positions from the navigation system. These positions are updated every second (or about 3.0 mm at a scale of 1:10,000). Occasional dropouts occur when the optimum number of satellites are not available for the GPS to make accurate positional determinations. Interpolation is

used to cover short flight path gaps. The navigator's flight path and/or the flight path recovered from the video tape may be stitched in to cover larger gaps. Such gaps may be recognized by the distinct straight line character of the flight path.

The manual fiducials are shown as a small circle and labelled by fiducial number. The 24-hour clock time is shown as a small square, plotted every 30 seconds. Small tick marks are plotted every two seconds. Larger tick marks are plotted every 10 seconds. The line and flight numbers are given at the start and end of each survey line.

The aircraft position is expressed in geographic latitude and longitude coordinates, using the international WGS84 spheroid. Any particular survey area located on the globe has a specific reference ellipsoid or projection zone. A further refinement for a better fit to the earth's surface at the survey location is applied by adding or subtracting slight x, y and/or z datum shifts (a few metres to hundreds of metres) to the origin of the ellipsoid. The geographic coordinates are converted to fit this ellipsoid before calculating the UTM coordinates. The UTM coordinates are expressed as UTM eastings (x) and UTM northings (y).

The flight path map is merged with the base map by matching UTM coordinates from the base maps and the flight path record. The match is confirmed by checking the position of prominent topographic features as recorded by manual fiducial marks or as seen on the flight path video record.

5.3 Electromagnetic Survey Data

The electromagnetic data are recorded digitally at a sample rate of 10 per second with a time constant of 0.1 seconds. A two stage digital filtering process rejects major sferic events and reduces system noise. Local sferic activity can produce sharp, large amplitude events that cannot be removed by conventional filtering procedures. Smoothing or stacking will reduce their amplitude but leave a broader residual response that can be confused with geological phenomena. To avoid this possibility, a computer algorithm searches out and rejects the major sferic events. This is referred to as a "surgical mute" in signal processing terms. The signal to noise ratio is further enhanced by the application of a low pass digital filter. This filter has zero phase shift that prevents any lag or peak displacement from occurring, and it suppresses only variations with a wavelength less than about 0.25 seconds. This low effective time constant gives minimal profile distortion.

Following the filtering process, a base level correction is made using electromagnetic zero levels determined during high altitude calibration sequences. The correction applied is a linear function of time that ensures the corrected amplitude of the various inphase and quadrature components is zero when no conductive or permeable source is present. The filtered and levelled data are the basis for the determination of apparent resistivity (see following section). The inphase and quadrature responses along the flight line are presented in profile form offset along the flight lines. Differentiation of the various profiles

is achieved using two colours (coaxial and coplanar) and two line weights (inphase and quadrature). For interpretation purposes the coaxial and coplanar data sets for a similar frequency range are presented together on one map (865/935 and 4,175/4,600).

5.4 Total Field Magnetics

The aeromagnetic data is corrected for diurnal variations by adjustment with the recorded base station magnetic values. No corrections for regional variations are applied. The corrected profile data are interpolated on to a regular grid using an Akima spline technique. The grid provided the basis for threading the presented contours. The minimum contour interval is 2 nT with a grid cell size of 25 m. Magnetic high areas are assigned warm colours (orange/red) while magnetic low areas show as cool colours (blue).

5.5 Calculated Vertical Magnetic Gradient

The vertical magnetic gradient is calculated from the gridded total field magnetic data. The calculation is based on a 17 x 17 point convolution in the space domain. The results are contoured using a minimum contour interval of 0.2 nT/m. Grid cell sizes are the same as those used in processing the total field data. The high and low amplitude responses are give the same colour representation as the total field contours.

5.6 Colour Relief or Shadow Map of Total Field Magnetics

A useful manipulation of the magnetic data is the production of a colour shadow map. It is an aid in the interpretation and presentation of the magnetic information. The shadow map displays two independent variables simultaneously on the same map. The two variables are the amplitude and the gradient of the quantity measured over the mapping region. At every point or grid cell on the map the hue represents the amplitude of the magnetic value and the lightness/darkness of the hue is varied according to the slope or gradient of the data at the cell location. The gradient is translated into a reflectance parameter with respect to a chosen illumination direction. Subtle magnetic structures having a specific trend are enhanced or attenuated depending on the position and angle to the horizon of the light source relative to the trend. If the light source is orthogonal to the trend there will be maximum shadow relief. Regional discontinuities representing fault structures are easily recognized with shadow enhancement.

5.7 Apparent Resistivity

The apparent resistivity is calculated by assuming a 200 metre thick conductive layer over resistive bedrock. The computer determines the resistivity that would be consistent with the sensor elevation and recorded inphase and quadrature response amplitudes at the selected frequency. The apparent resistivity profile data is re-interpolated onto a regular grid at a 25 metres true scale interval using an Akima spline technique and contoured using logarithmically arranged contour intervals. The minimum contour interval depends

on the selected frequency and is in units of log(ohm.m) in logarithmic intervals of 0.1, 0.5, 2.0, etc. The colour presentation assigns warmer colours (reds) to low resistivity or very conductive responses and cooler colours (blues) to high resistivity or poor conductivity responses.

The highest measurable resistivity is approximately equal to the transmitter frequency. The lower limit on apparent resistivity is rarely reached.

5.8 VLF-EM

The VLF Total Field data from the Line Station is levelled such that a response of less than 0% is seen in non-anomalous regions. The corrected profile data are interpolated onto a regular grid using an Akima spline technique. The grid provided the basis for threading the presented contours. The minimum contour interval is 1 %. Grid cell size is 25 m.

6. DELIVERABLES

The report on the results of the survey is presented in three copies. The report includes folded white print copies of all black line maps. Three copies of the colour and shadow maps are in accompanying map tube(s).

The black line maps show topography, UTM grid coordinates and the survey boundary. The survey data are presented on four sheets in a set of numbered maps in the following format:

I BLACK LINE MAPS: (Scale 1:10,000)

Map No. Description

1. BASE MAP; screened topographic base map plus survey area boundary, and UTM grid.

2. COMPILATION / INTERPRETATION MAP; with base map, flight path map and HEM anomaly symbols with interpretation .

3. TOTAL FIELD MAGNETIC CONTOURS; with base map, HEM anomaly symbols and flight lines.

4. VERTICAL MAGNETIC GRADIENT CONTOURS; with base map, HEM anomaly symbols and flight lines.

5A. APPARENT RESISTIVITY CONTOURS; apparent resistivity calculated for the coplanar 4,175 Hz data, with base map, HEM anomaly symbols and flight lines.

5B. APPARENT RESISTIVITY CONTOURS; apparent resistivity calculated for the coplanar 32,000 Hz data, with base map, HEM anomaly symbols and flight lines.

6. VLF-EM TOTAL FIELD CONTOURS; with base map HEM anomalies and flight lines.

II COLOUR MAPS: (Scale 1:10,000)

1. TOTAL FIELD MAGNETICS; with superimposed contours, flight lines and HEM anomaly symbols.

2. VERTICAL MAGNETIC GRADIENT; with superimposed contours, flight lines and HEM anomaly symbols.

3A. HEM OFFSET PROFILES; coplanar 865 Hz and coaxial 935 Hz data with flight lines and HEM anomaly symbols.

3B. HEM OFFSET PROFILES; coplanar 4,175 Hz and coaxial 4,600 Hz data with flight lines and HEM anomaly symbols.

3C. HEM OFFSET PROFILES; coplanar 32,000 Hz data with flight lines and HEM anomaly symbols.

4A. APPARENT RESISTIVITY; calculated for the coplanar 4,175 Hz data with superimposed contours, flight lines and HEM anomaly symbols.

4B. APPARENT RESISTIVITY; calculated for the coplanar 32,000 Hz data with superimposed contours, flight lines and HEM anomaly symbols.

5. VLF-EM TOTAL FIELD; with superimposed contours, flight lines, and HEM anomaly symbols.

III SHADOW DERIVATIVE: (Scale 1:10,000)

1. TOTAL FIELD MAGNETICS SHADOW MAP; with suitable sun angle

The processed digital data, including both the profile and the gridded data, is on CD ROM'S (ISO 9660). Profile data is written as columnar ASCII records and the gridded data as standard Geosoft PC grids. A full description of the format is included with the package. All gridded data can be displayed on IBM compatible microcomputers using the Aerodat AXIS (Aerodat Extended Imaging System) or RTI (Real Time Imaging) software package. The complete data package includes all analog records, base station magnetometer records, flight path video tape and original map cronaflexes.

7. INTERPRETATION

7.1 Area Geology

Based on the 1" = 4 mi. OGS Geological Compilation Series Map #2205, the northwest south central and southeast portions of the survey block are interpreted by the OGS to be underlain by mafic flows and pyroclastic rocks. This interpretation is based on airborne magnetic data as there is sparse outcrop in the area. The remaining area is underlain mostly by granitic rocks and all are intruded by generally north-south trending diabase dikes which are ubiquitous to the Kirkland Lake and Timmins regions.

North-south and northwest faults are the major structures in the survey area. Numerous base and precious metal showings are present to the west and south of the survey block. The survey area itself has been inaccessible up to recent times and confirmation of the OGS interpretation was never verified. Recent prospecting and mapping by Camphor Ventures Inc., however, has discovered the presence of mafic to ultramafic intrusive rocks such as dunite and peridotite. This environment is favourable for nickel copper mineralization similar to the Redstone Mine and associated deposits in Eldorado and Langmuir Townships which are about 30 km northwest of the present property.

7.2 Magnetic Interpretation

The total field magnetic responses reflect major changes in the magnetite content of the underlying rock units. The amplitude of the magnetic responses relative to the regional background help to assist in identifying specific magnetic and nonmagnetic units related to, for example, mafic flows or tuffs, mafic to ultramafic intrusives, felsic intrusives, felsic volcanics and/or sediments etc. Obviously, several geological sources can produce the same magnetic response. These ambiguities can be reduced considerably if basic geological information on the area is available to the geophysical interpreter.

In addition to amplitude variations, magnetic patterns related to the geometry of the particular rock unit also help in determining the probable source of the magnetic response. For instance, long narrow magnetic linears usually reflect mafic tuff/flow horizons or mafic intrusive dyke structures while semi-circular features with complex magnetic amplitudes may be produced by local plug-like intrusive sources such as pegmatites, carbonatites or kimberlites.

The vertical magnetic gradient assists considerably in mapping weaker magnetic linears that are partially masked by nearby higher amplitude magnetic features. The broad zones of higher magnetic amplitude, however, are severely attenuated in the vertical magnetic gradient results. These higher amplitude zones reflect rock units having magnetic susceptibility signatures. For this reason both the total and gradient magnetic data sets must be evaluated.

Theoretically the magnetic gradient zero contour line marks the contacts or limits of large magnetic sources. This applies to wide sources, greater than 50 metres, having simple slab geometries and shallow depth.(See discussion in Appendix II) Thus the gradient map also aids in the more accurate delineation of contacts between differing magnetic rock units.

The cross cutting structures, shown on the interpretation map as faults, are based on interruptions and discontinuities in the magnetic trends. Generally, sharp folding of magnetic units will produce a magnetic pattern indistinguishable from a fault break. Thus, if anomaly displacements are small such fault structures, where they mark an anomaly interruption, may actually represent a deformation node rather than faulting.

7.3 Magnetic Survey Results and Conclusions

To facilitate the following discussion of the magnetic results it is suggested the interpretation map be compared with the total field and vertical gradient magnetic colour contour maps either as overlays or side by side.

The magnetic background is interpreted to be approximately 57,825 nanoTesla (nT). Amplitudes range from about 225 nT below background to 1,625 nT above background. North-south linear horizons dominate the survey block. Amplitudes of these linear features range from about 100 nT to over 1,000 nT above background with local higher amplitudes in a few locations. Diabase dykes, ubiquitous to the area, are the source of these linears. In order to differentiate these dyke source linears from other magnetic features of possible interest they are shown with alternating dashed/dotted lines on the interpretation maps. The vertical gradient maps were the most useful in delineating the north-south linear magnetic structures.

Other magnetic anomaly trends, not thought to be reflecting dyke structures, are indicated with solid lines. Those magnetic responses less than about 400 nT above background are shown with thin lines while higher amplitude responses are designated with thick lines. Mafic volcanics and/or mafic to ultramafic intrusives, possibly sill structures, are the most likely source of these anomalies. These features are often interrupted or displaced by the north-south dyke structures as would be expected as the diabase dykes reflect late stage tectonic activity.

There are two locations, on the northwest and southeast sheets, where very high amplitude localized magnetic anomalies are present and stand out as major features on the total field magnetic maps. These anomalies are outlined and shown with cross

hatching. They may represent more significant intrusive events and are accordingly specifically designated.

One other magnetic signature of possible interest comprises isolated circular bull's eye type anomalies typical of the response from a vertical pipe-like source. These could be reflecting local mafic intrusive bodies and are shown as a circle with a plus sign in the centre and are numbered with a P letter prefix for identification. Comments on each sheet follow:

Northwest Sheet

This sheet contains the most active and complex magnetic responses. East-west to east-northeast striking sinuous magnetic horizons are present in the west and central part of the sheet. They are interrupted to the east by a high amplitude north-northwest to northwest striking horizon originally thought to be a diabase dyke structure. On the east side of this interruptive feature there is a suggestion of a nose fold and weak northwest trending horizons further east which can be traced intermittently through to the southeast sheet where the only other high amplitude features are present. Anomalies A and B stand out as specific features and may represent late mafic to ultramafic intrusive bodies.

Northeast Sheet

This small area contains mostly north-south dyke structures with some low amplitude east-west linears present in the east half of the sheet. These linears probably reflect narrow intermediate volcanic or tuff units possibly remnants within granitic rocks and of little interest.

Southwest Sheet

In addition to the north-south dyke structures this sheet contains a long horizon in the northwest sector of the sheet. It enters the sheet in the northwest corner trending east-west then bends south to continue in a east-southeast direction terminating in the middle of the sheet. The horizon increases in amplitude as it is crossed by the dyke anomalies but this is considered to be caused by the additive effect of the additional magnetic dyke structures and not a change in the magnetic characteristics of the horizon.

The features of possible interest on this sheet are the bull's eye type anomalies described previously. Four of these types of responses are interpreted on this sheet and are designated P-1 to P-4. Anomalies P-1,P-2 and P-3 are relatively subtle features more noticeable on the vertical gradient map. Anomaly P-4, however, in the extreme southeast corner of the sheet is a much larger and relatively higher amplitude response. One other circular type anomaly is unique to the survey block. Anomaly C is just south of anomaly P-2 and is a doughnut shaped anomaly. The ring structure is typical of multi-phased intrusions often associated with carbonatites. Usually such structures are very large with diameters in hundreds of metres to kilometres. Good examples are present in the James

Bay Lowlands. This anomaly shape may have been produced by the chance emplacement of short dyke structures similar to the ones north and south of the anomaly, and may have nothing to do with an intrusive vertical plug-like body but is worth investigation.

Southeast Sheet

One of the very highest amplitude anomalies is present in the west central part of this sheet. Anomaly D is an elongated slightly arcuate cigar shaped northeast striking feature with a northwest trending western "tail". It probably reflects a major mafic to ultramafic intrusive body and is possibly part of the same complex of lower amplitude less well defined sinuous anomalies to the northwest which can be traced through to the northwest sheet.

The other obvious feature is the long straight west-northwest striking linear on the east side of the sheet. It is interpreted to end in a nose fold at its west end however intersecting north-south dyke structures in this region may be contributing to the effects somewhat but it is a definite pattern on the vertical gradient map. This anomaly may reflect a mafic volcanic unit or an intrusive mafic sill-like body. The subtle horizon trending southeast in the southern central part of the sheet as well as short east-west weak linears may be the remaining traces of intermediate volcanic units within granitic rocks.

There are five small bull's eye type anomalies interpreted on this sheet. They are derived from the anomaly patterns seen on the vertical gradient map. There are probably more than presently indicated. The most obvious is P-7 which flanks the major high amplitude anomaly D. It may be an integral part of anomaly D but does seem to be a specific separate feature on the vertical gradient map.

7.4 VLF Electromagnetic Survey

This high frequency type of survey, utilizing fixed government communication transmitter stations, tends to detect long strike length and/or surficial poor conductivity sources such as swamps, creeks and rivers. Conductors that are optimum coupled with the primary field will usually predominate over those with other strike directions. In some instances anomalies will be produced by variations in topographic relief.

For this survey the VLF results are dominated by a west-northwest striking bias which has no relationship to topography, conductive or magnetic structures. The direction could have something to do with conductive alluvial material related to glaciation. In any event, the HEM results are a more diagnostic tool for evaluating conductive structures and will be discussed following.

7.5 Electromagnetic Anomaly Selection/Interpretation

Vertical to Near Vertical Tabular Conductive Sources

Usually two sets of stacked colour coded profile maps of one coaxial and one coplanar inphase and quadrature responses are used to select conductive anomalies of interest. These HEM intercepts are automatically plotted on the various map products listed previously. Selection of HEM anomaly intercepts is based on conductivity as indicated by the inphase to quadrature ratios of the 935 Hz and/or 4,600 Hz coaxial data, anomaly shape, and anomaly profile characteristics relative to coaxial and corresponding coplanar responses. The peak of the coaxial responses is picked for digitizing as that defines the position of any near vertical to dipping tabular source.

These response shapes are illustrated in Appendix II, in the figure entitled "HEM Response Profile Shapes .....". Profile A illustrates the coaxial and coplanar signature of a vertical source while profiles B and C show the effect of dip on the coplanar and coaxial profiles. For a gently dipping source the small up-dip tail of the coplanar profiles B and C is not present and there is just a shift of the coplanar peak down dip from the coaxial peak.

Flat Lying Conductive Sources

Flat lying responses are characterized by identically shaped coaxial and coplanar response profiles. Profile I, Appendix II, illustrates a flat source response. Ordinarily the anomaly peaks from flat lying sources are not selected for plotting as HEM intercepts. Their locations have little meaning if the source is flat lying. Nevertheless, if the sources are gently dipping the peaks sometimes have line to line continuity and may show the "grain" of the underlying geology. A much better presentation of conductive flat lying sources is achieved by the resistivity calculations and map plots. Comparison of the resistivity data with geological information can then ascertain if the source of the responses are of possible geological interest.

It is difficult to differentiate between responses associated with the edge effects of flat lying conductors and actual poor conductivity bedrock conductors on the edge of or overlain by flat lying conductors. Extensive flat lying to gently dipping conductors often have an "edge effect" anomaly which is a coaxial peak on the flank of the coplanar responses similar to one side of profile E, G or H, Appendix II. Often only one edge can be seen if the source is dipping. Such edge effect anomalies are often seen marking the perimeter of lakes or swamps containing conductive material. These are the main sources of most of the HEM picks on this property.

Poor conductivity bedrock conductors having low dips will also exhibit responses that may be interpreted as surficial overburden conductors. In such cases, where the source of the conductive response appears to be ambiguous, the coaxial peak of the anomaly is still selected for plotting. In some situations the conductive response has line to line

continuity and some magnetic association thus providing possible evidence that the response is related to an actual bedrock source.

Flat lying limited width ribbon type conductive responses with some strike length are sometimes also present. These responses are characterized by a "M" shaped coaxial anomaly with a single peaked coplanar anomaly centred in the trough between the two coaxial peaks. This is illustrated in Appendix II in the same figure as previously mentioned (see profile shape E or G). The actual geometry of the source of these ribbon type responses is difficult to determine. They could represent a synclinal structure such as would be produced by combining dipping profiles C and B.

Negative Inphase Responses

In some areas the inphase profile component exhibits a negative anomaly response usually over obvious magnetic areas. This is produced by local concentrations of magnetite and usually occurs when the sensor is flying close to the ground surface. If only magnetite is present there will be no quadrature response associated with the negative inphase response. If conductive material is present, however, such as graphite or sulphides, a positive quadrature response will be evident with the negative inphase response. In this case the anomaly is selected for plotting and evaluation and designated as a magnetic/conductive response.

Depth and Conductivity Calculation

The calculation of the depth to the conductive source and its conductivity is based on the 4,600 Hz data assuming a thin vertical sheet model. The amplitude of the inphase and quadrature responses are used for the calculations which are automatically determined by computer. These data are listed in Appendix III and the depth and conductivity values are shown with each plotted anomaly. Further detailed discussion and illustration of the determination of these values is contained in Appendix II. Note the depth calculation for those conductors having a gently dipping to flat lying profile signature will not be accurate although the conductivity value will have some relative meaning.

The selected HEM intercepts are automatically categorized according to their conductivity and amplitude. The calculation of the conductivity of low amplitude anomalies can be very inaccurate. Therefore, anomalies having amplitudes below a certain level and/or low conductivity value are given a zero rating with the category increasing for increasing conductivity values that are statistically reliable.

7.6 Electromagnetic Survey Results and Conclusions

Conductive flat lying to gently dipping material is contributing to the electromagnetic responses in various degrees throughout the survey block. There is a definite correlation between low resistivity and topographically low areas along drainage gulleys, swamps and especially lakes. All of the responses have very poor conductivity and with

topographic correlations immediately suggests conductive surficial material is the main source of the conductive effects. Many of the HEM intercepts are edge effect anomalies associated with the sharp conductive edges of lake bottom sediments. Nevertheless, the conductive responses have been carefully compared to topography and the higher amplitude magnetic anomalies. Where there is not a definite correlation of a conductor with low lying topography or water covered areas and there is an association of the conductor with a significant magnetic response it is circled and designated with a number on the interpretation maps. Comments on each sheet follow:

Northwest Sheet

Only one conductor is designated on this sheet. Anomaly 1 is just south of magnetic anomaly A and is close to a long linear magnetic horizon. The conductor is part of a longer zone associated with a drainage gulley and is an edge effect response. It was selected for its position close to the magnetic zone.

Northeast Sheet

There are five conductors on this sheet. Numbers 3, 4 and 5 are coincident with mafic dyke structures while 2 parallels a dyke. Number 6 straddles a weak east-west linear. Anomalies 2 and 3 have the best profile characteristics.

Southwest Sheet

Conductors 7 and 8 are designated on this sheet they have a spatial association with north-south dyke structures. The responses are very subtle and are not considered significant.

Southeast Sheet

Conductors 9, 10 and 11 do not have any obvious topographic expression and are coincident with dyke structures. All are related to edge effect type profile responses.

8. RECOMMENDATIONS

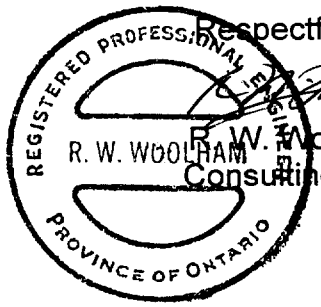
Designation of geophysical anomalies for further investigation is based on the amplitude and geometry characteristics of the magnetic responses and the topographic location and magnetic correlations of conductive intercepts as explained in the main body of the report. Any of the designated major magnetic features, A, B, or D, as well as the small plug-like anomalies C and P-1 to P-9 may be reflecting nickel hosting mafic to ultramafic bodies. Unfortunately, none of these features have associated conductive responses that can be attributed to bedrock sources. This suggests any base metal mineralization that may be present in these environments is probably not related to material having electrical continuity.

The designated conductive zones, numbers 1 to 11, are recommended for investigation. They are all low amplitude very poor conductivity responses but their correlation and associations with dyke structures enhances their potential.

For references purposes, the designated magnetic and conductive anomalies for each sheet are tabulated following:

Sheet	Magnetic Anomalies		Conductors
	Plug-like Anomalies	Possible Ultramafic Centres	
Northwest	None	A, B	1
Northeast	None	None	2, 3, 4, 5, 6
Southwest	C and P-1 to P-4	None	7, 8
Southeast	P-5 to P-9	D	9, 10, 11

The magnetic and conductive anomalies recommended for investigation represent a first phase exploration program. Additional work will be contingent on the results of this program. More detailed geological information used in conjunction with geophysics may help to direct further exploration efforts.



Respectfully submitted,

R. W. Woolham, P.Eng.
Consulting Geophysicist

for

AERODAT INC.

J9716

March 4, 1997

APPENDIX I

PERSONNEL

FIELD

Flown	December 16 to 20, 1996 and January 9 to 14, 1997
Pilot(s)	J. Breton
Operator(s)	G. Bissonnette and W. Thompson

OFFICE

Processing	Mike Lawton George McDonald
Report	R. W. Woolham

APPENDIX II

GENERAL INTERPRETIVE CONSIDERATIONS

GENERAL INTERPRETIVE CONSIDERATIONS

Magnetics

The Total Field Magnetic Map shows contours of the total magnetic field, uncorrected for regional variation. Whether an EM anomaly with a magnetic correlation is more likely to be caused by a sulphide deposit than one without depends on the type of mineralization. An apparent coincidence between an EM and a magnetic anomaly may be caused by a conductor which is also magnetic, or by a conductor which lies in close proximity to a magnetic body. The majority of conductors which are also magnetic are sulphides containing pyrrhotite and/or magnetite. Conductive and magnetic bodies in close association can be, and often are, graphite and magnetite. It is often very difficult to distinguish between these cases. If the conductor is also magnetic, it will usually produce an EM anomaly whose general pattern resembles that of the magnetics. Depending on the magnetic permeability of the conducting body, the amplitude of the inphase EM anomaly will be weakened, and if the conductivity is also weak, the inphase EM anomaly may even be reversed in sign.

The interpretation of contoured aeromagnetic data is a subject on its own involving an array of methods and attitudes. The interpretation of source characteristics for example from total field results is often based on some numerical modelling scheme. The vertical gradient data is more legible in some aspects however and useful inferences about source characteristics can often be read off the contoured VG map.

The zero contour lines in contoured VG data are often sited as a good approximation to the outline of the top of the magnetic source. This only applies to wide (relative to depth of burial) near vertical sources at high magnetic latitudes. It will give an incorrect interpretation in most other cases.

Theoretical profiles of total field and vertical gradient anomalies from tabular sources at a variety of magnetic inclinations are shown in the attached figure. Sources are 10, 50 and 200 m wide. The source-sensor separation is 50 m. The thin line is the total field profile. The thick line is the vertical gradient profile.

The following comments about source geometry apply to contoured vertical gradient data for magnetic inclinations of 70 to 80°.

Outline

Where the VG anomaly has a single sharp peak, the source may be a thin near-vertical tabular source. It may be represented as a magnetic axis or as a tabular source of measurable width - the choice is one of geological preference.

Where the VG anomaly has a broad, flat or inclined top, the source may be a thick tabular source. It may be represented as a thick body where the width is taken from the zero contour lines if the body dips to magnetic north. If the source appears to be dipping to the south (i.e. the VG anomaly is asymmetric), the zero contours are less reliable indicators of outline. The southern most zero contour line should be ignored and the outline taken from the northern zero contour line and the extent of the anomaly peak width.

Dip

A symmetrical vertical gradient response is produced by a body dipping to magnetic north. An asymmetrical response is produced by a body which is vertical or dipping to the south. For southern dips, the southern most zero contour line may be several hundred meters south of the source.

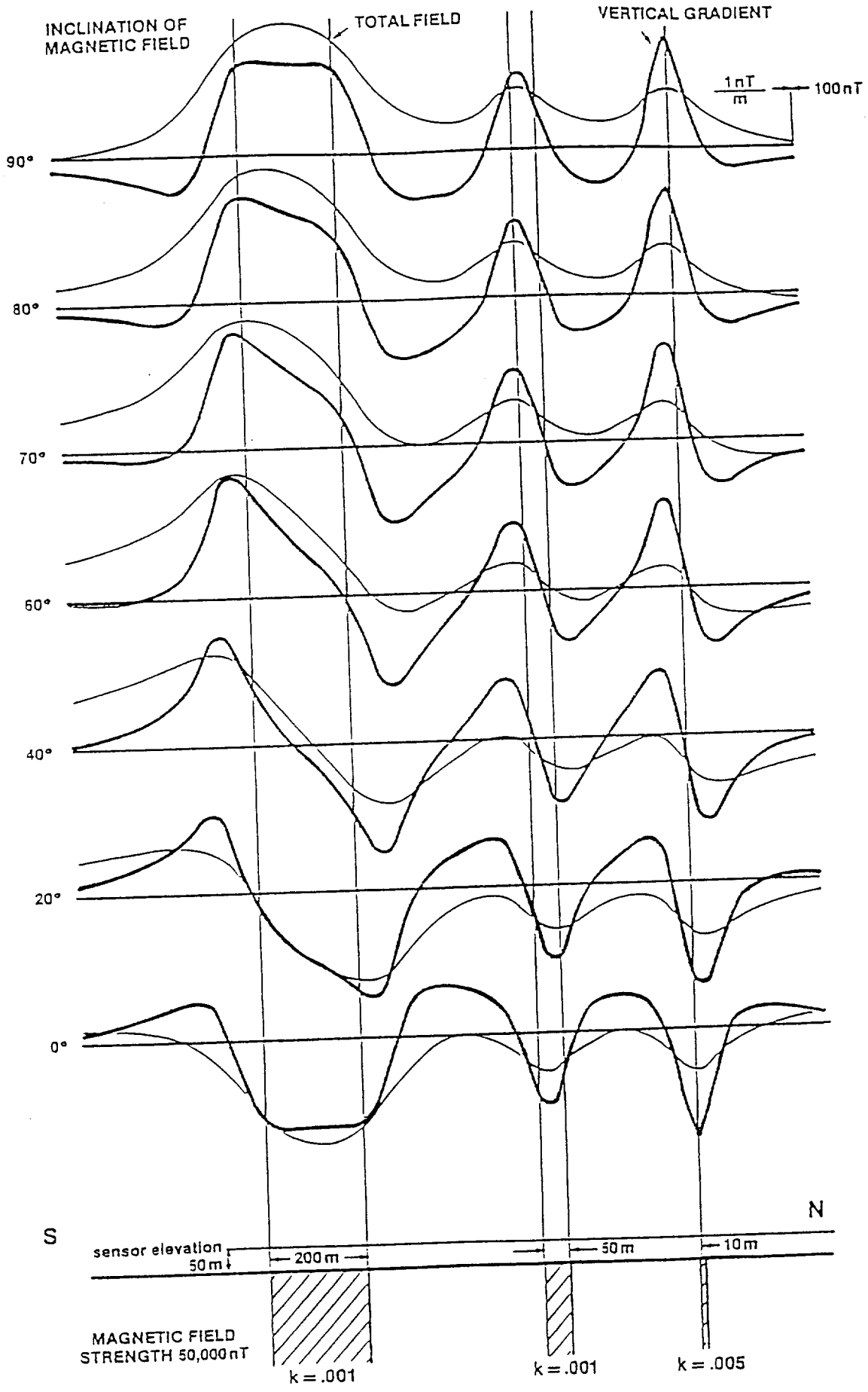
Depth of Burial

The source-sensor separation is about equal to half of the distance between the zero contour lines for thin near-vertical sources. The estimated depth of burial for such sources is this separation minus 50 m. If a variety of VG anomaly widths are seen in an area, use the narrowest width seen to estimate local depths.

VLF Electromagnetics

The VLF-EM method employs the radiation from powerful military radio transmitters as the primary signals. The magnetic field associated with the primary field is locally horizontal and normal to a line pointing at the transmitter.

The Herz Totem uses three coils in the X, Y, Z configuration to measure the total field and vertical quadrature component from two VLF stations. These stations are designated Line and Ortho. The line station is ideally in a direction from the survey area at right angles to the flight line direction. Conductors normal to the flight line direction point at the line station and are therefore optimally coupled to VLF magnetic fields and in the best situation to gather secondary VLF currents. The ortho station is ideally 90 degrees in azimuth from the line station.


INCLINATION OF MAGNETIC FIELD
TOTAL FIELD
VERTICAL GRADIENT
1nT/m
100nT
90°
80°
70°
60°
40°
20°
0°
S
N
sensor elevation 50m
200m
50m
10m
MAGNETIC FIELD STRENGTH 50,000nT
k = .001
k = .001
k = .005

The relatively high frequency of VLF (15-25) kHz provides high response factors for bodies of low conductance. Relatively "disconnected" sulphide ores have been found to produce measurable VLF signals. For the same reason, poor conductors such as sheared contacts, breccia zones, narrow faults, alteration zones and porous flow tops normally produce VLF anomalies. The method can therefore be used effectively for geological mapping. The only relative disadvantage of the method lies in its sensitivity to conductive overburden. In conductive ground to depth of exploration is severely limited.

The effect of strike direction is important in the sense of the relation of the conductor axis relative to the energizing electromagnetic field. A conductor aligned along a radius drawn from a transmitting station will be in a maximum coupled orientation and thereby produce a stronger response than a similar conductor at a different strike angle. Theoretically, it would be possible for a conductor, oriented tangentially to the transmitter to produce no signal. The most obvious effect of the strike angle consideration is that conductors favourably oriented with respect to the transmitter location and also near perpendicular to the flight direction are most clearly rendered and usually dominate the map presentation.

The total field anomaly is an indicator of the existence and position of a conductor. The response will be a maximum over the conductor, without any special filtering, and strongly favour the upper edge of the conductor even in the case of a relatively shallow dip.

Conversely a negative total field anomaly is often seen over local resistivity highs. This is because the VLF field produces electrical currents which flow towards (or away from) the transmitter. These currents are gathered into a conductor and are taken from resistive bodies. The VLF system sees the currents gathered into the conductor as a total field high. It sees the relative absence of secondary currents in the resistor as a total field low.

As noted, VLF anomaly trends show a strong bias towards the VLF transmitter. Structure which is normal to this direction may have no associated VLF anomaly but may be seen as a break or interruption in VLF anomalies. If these structures are of particular interest, maps of the ortho station data may be worthwhile.

Conductive overburden will obscure VLF responses from bedrock sources and may produce low amplitude, broad anomalies which reflect variations in the resistivity of thickness of the overburden.

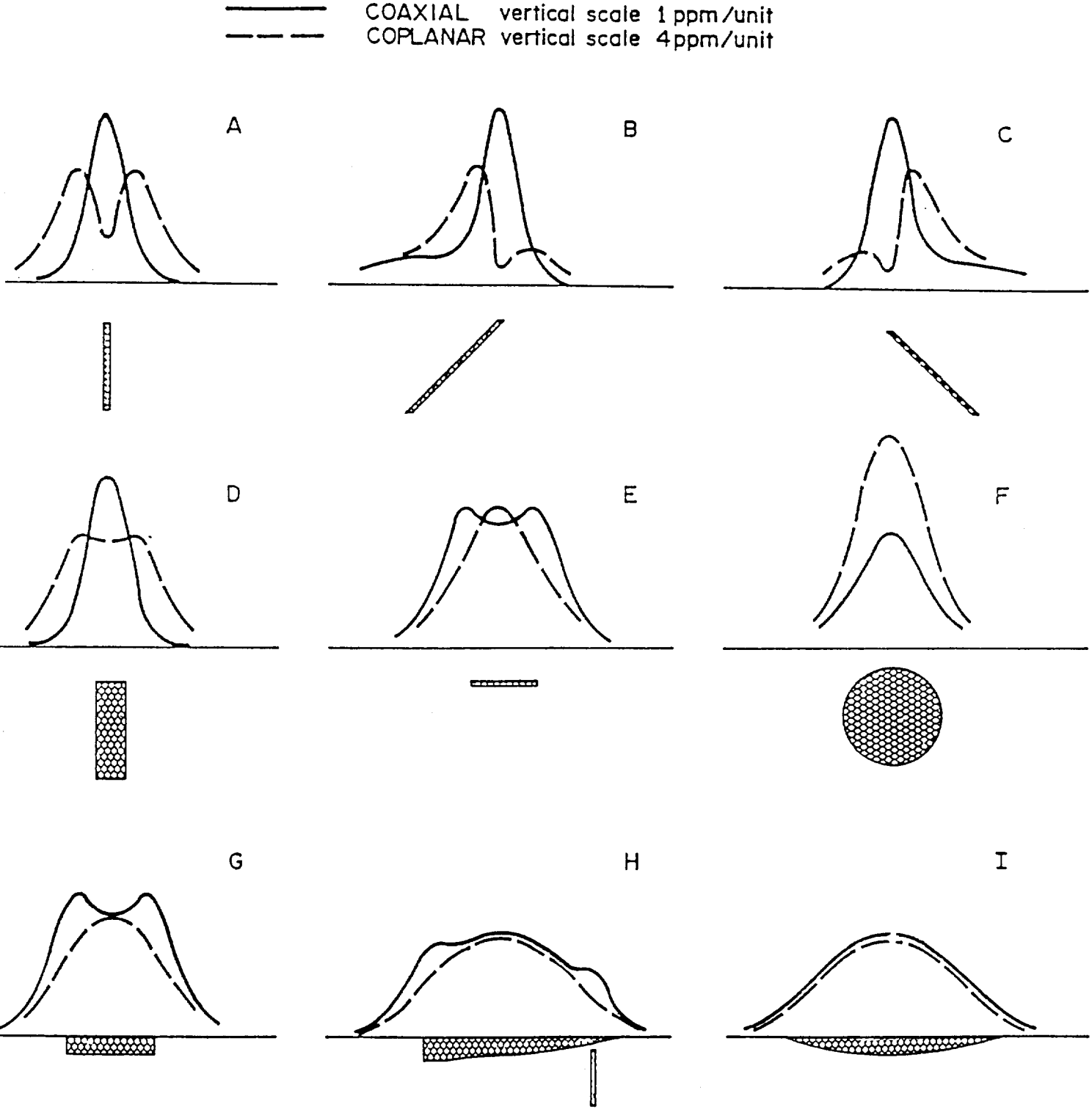
Extreme topographic relief will produce VLF anomalies which may bear no relationship to variations in electrical conductivity. Deep gullies which are too narrow to have been surveyed at a uniform sensor height often show up as VLF total field lows. Sharp ridges show up as total field highs.

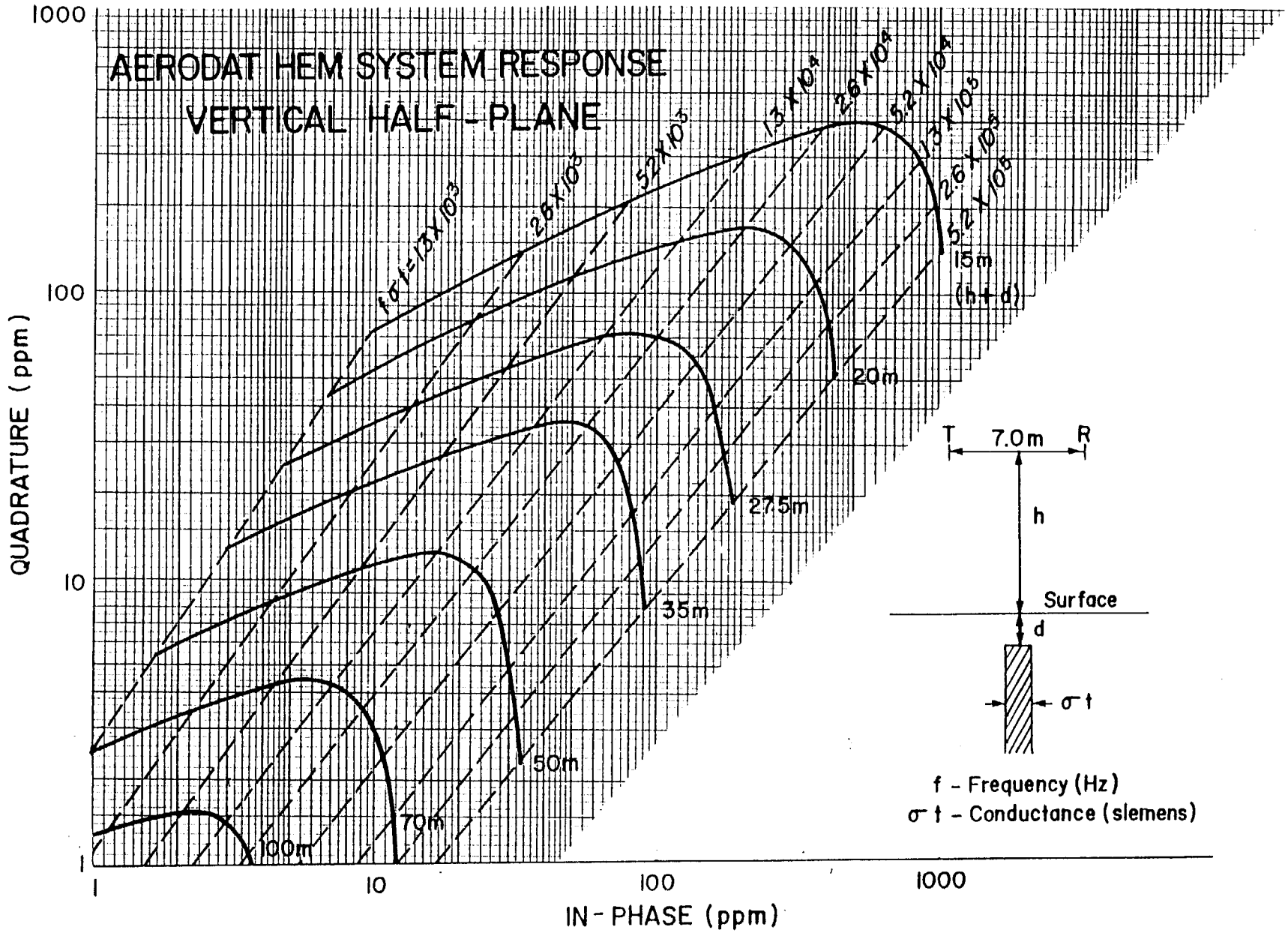
The vertical quadrature component over steeply dipping sheet-like conductor will be a cross-over type response with the cross-over closely associated with the upper edge of the conductor.

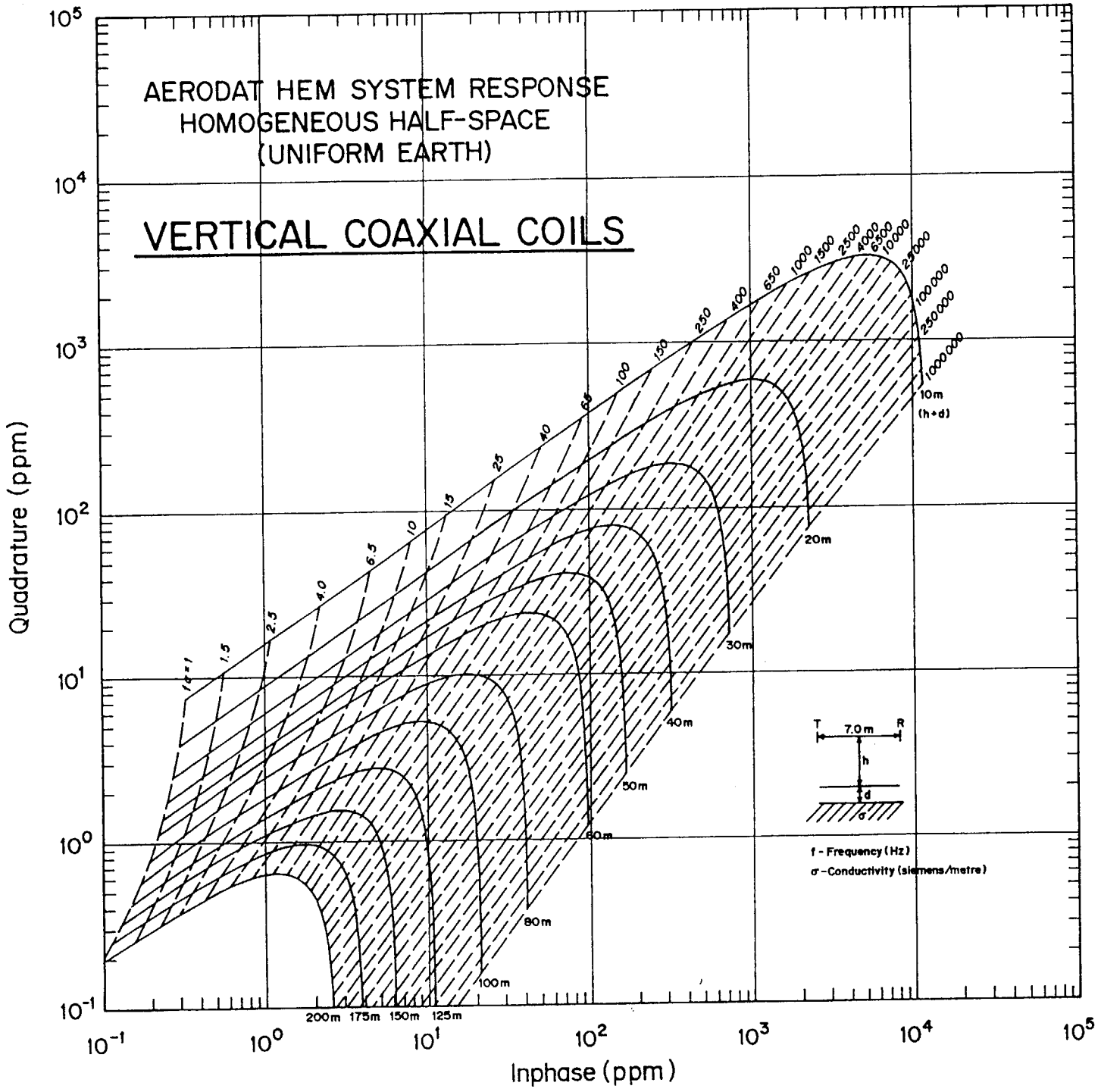
The response is a cross-over type due to the fact that it is the vertical rather than total field quadrature component that is measured. The response shape is due largely to geometrical rather than conductivity considerations and the distance between the maximum and minimum on either side of the cross-over is related to target depth. For a given target geometry, the larger this distance the greater the depth.

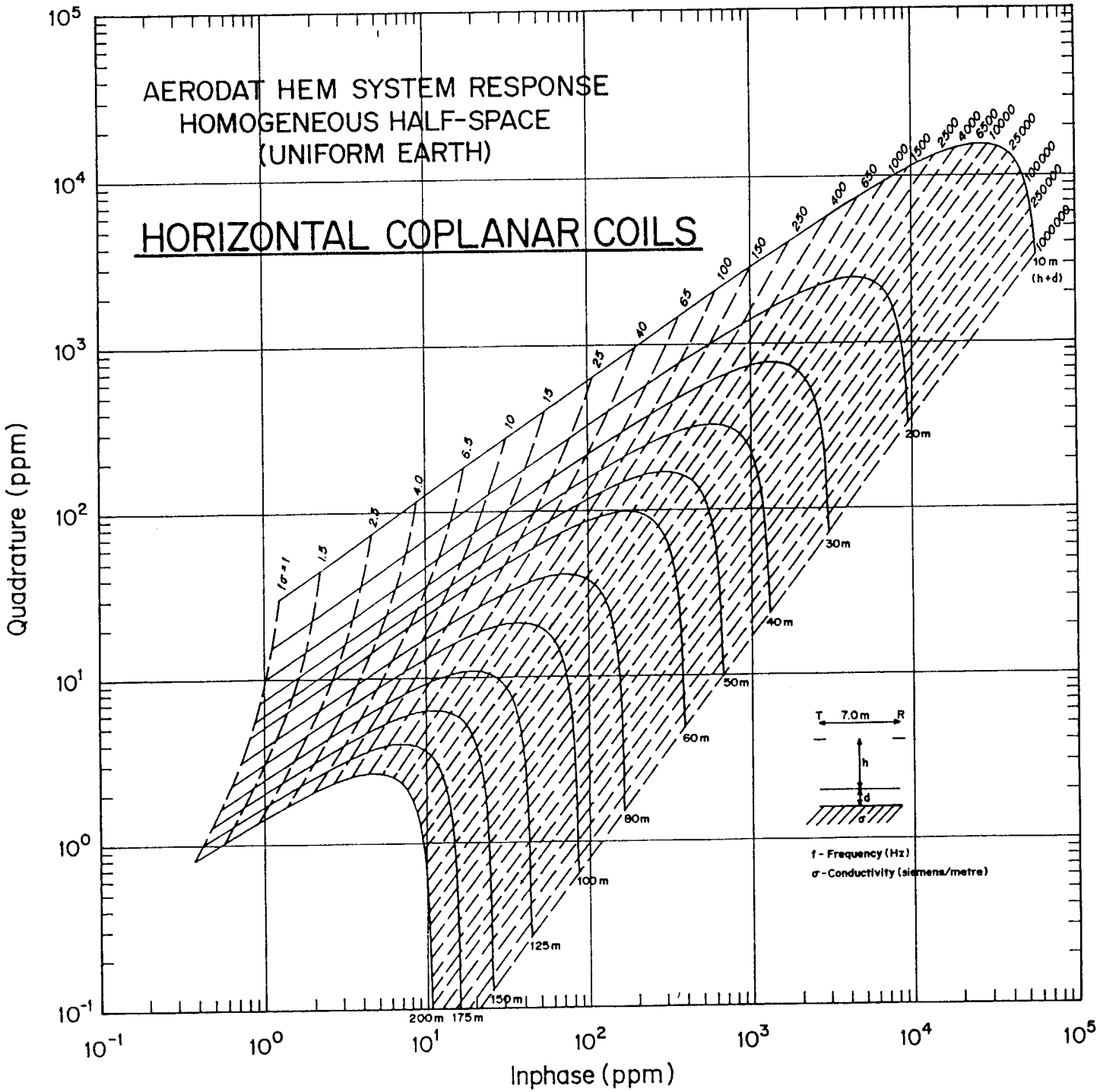
The vertical quadrature component is rarely presented. Experience has shown the total field to be more sensitive to bedrock conductors and less affected by variations in conductive overburden.

HEM RESPONSE PROFILE SHAPE AS AN INDICATOR OF CONDUCTOR GEOMETRY




AERODAT HEM SYSTEM RESPONSE
VERTICAL HALF-PLANE
1000
100
10
1
QUADRATURE (ppm)
1
10
100
1000
IN-PHASE (ppm)
fσt=13X10³
2.6X10³
5.2X10³
1.3X10⁴
2.6X10⁴
5.2X10⁴
1.3X10⁵
2.6X10⁵
5.2X10⁵
15m (h+d)
20m
27.5m
35m
50m
70m
100m
T
7.0m
R
h
Surface
d
σt
f - Frequency (Hz)
σt - Conductance (siemens)


AERODAT HEM SYSTEM RESPONSE
HOMOGENEOUS HALF-SPACE
(UNIFORM EARTH)
VERTICAL COAXIAL COILS
Quadrature (ppm)
Inphase (ppm)
10m (h+d)
20m
30m
40m
50m
80m
100m
200m 175m 150m 125m
T 7.0m R
h
d
σ
f - Frequency (Hz)
σ - Conductivity (siemens/metre)


AERODAT HEM SYSTEM RESPONSE
HOMOGENEOUS HALF-SPACE
(UNIFORM EARTH)
HORIZONTAL COPLANAR COILS
Quadrature (ppm)
Inphase (ppm)
10 m (h+d)
20m
30m
40m
50m
60m
80m
100m
125m
150m
175m
200m
T 7.0m R
h
d
σ
f - Frequency (Hz)
σ - Conductivity (siemens/metre)

APPENDIX III

ANOMALY LISTINGS

RADISSON AND KIRKLAND LAKE, TEMISKAMING DISTRICT, NORTHERN ONTARIO

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS		
7	10500	A	0	19.5	40.5	0.4	0	35	536490.6	5331405.5
7	10510	B	0	0.9	7.2	0.0	0	38	530941.4	5331532.5
7	10510	C	0	5.0	23.6	0.0	0	34	533607.8	5331531.5
7	10510	D	0	18.7	33.7	0.5	0	38	536479.0	5331494.5
7	10520	A	0	3.9	23.4	0.0	0	30	533876.1	5331608.5
7	10520	B	0	3.4	19.7	0.0	0	35	533624.4	5331595.0
7	10520	C	0	2.1	14.9	0.0	0	38	533412.4	5331599.5
7	10530	A	0	0.4	16.5	0.0	0	33	533441.4	5331702.0
7	10530	B	0	2.5	27.0	0.0	0	28	533878.6	5331689.5
7	10540	A	0	1.2	12.4	0.0	0	41	533430.3	5331813.5
7	10540	B	0	4.9	23.3	0.0	0	35	532616.6	5331786.5
7	10550	A	0	-0.3	14.8	0.0	0	36	531041.1	5331910.0
7	10550	B	0	4.1	17.7	0.0	0	35	532805.3	5331873.0
7	10550	C	0	0.3	11.3	0.0	0	37	533436.6	5331877.0
7	10550	D	0	2.6	16.2	0.0	0	30	538311.4	5331917.0
7	10560	A	0	-0.5	9.0	0.0	0	33	533843.3	5331949.0
7	10560	B	0	0.9	6.7	0.0	0	39	531269.4	5332005.5
7	10560	C	0	0.8	9.1	0.0	0	37	530984.1	5332001.5
6	10570	A	0	0.3	9.4	0.0	0	38	531010.7	5332076.5
6	10570	B	0	0.9	10.9	0.0	0	33	531285.9	5332078.5
6	10570	C	0	2.5	12.7	0.0	0	34	532819.6	5332081.5
6	10580	A	0	4.2	20.9	0.0	0	28	534227.4	5332214.0
6	10580	B	0	3.1	9.3	0.1	3	38	531241.9	5332185.5
6	10590	B	0	1.0	9.3	0.0	0	39	530980.3	5332317.0
6	10590	C	0	11.9	23.7	0.4	6	28	535606.8	5332320.0
6	10600	A	0	4.0	15.9	0.0	0	32	534257.8	5332361.0
6	10600	B	0	2.5	13.1	0.0	0	33	532721.6	5332388.0
6	10600	C	0	0.8	13.1	0.0	0	29	531229.8	5332412.0
6	10620	A	0	2.6	11.2	0.0	2	33	532988.7	5332581.0
6	10620	B	0	3.3	12.6	0.0	0	39	532779.4	5332567.5
6	10620	C	0	1.0	13.6	0.0	0	34	531337.3	5332574.0
6	10620	D	0	1.1	13.5	0.0	0	34	531222.1	5332574.0
6	10620	E	0	0.9	8.0	0.0	0	39	530917.1	5332570.5

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

RADISSON AND KIRKLAND LAKE, TEMISKAMING DISTRICT, NORTHERN ONTARIO

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	AMPLITUDE (PPM) QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS		
6	10630	B	0	0.9	33.1	0.0	0	27	531346.9	5332693.0
6	10640	A	0	2.1	10.0	0.0	3	33	534259.8	5332801.0
6	10640	B	0	0.9	19.2	0.0	0	31	531355.5	5332782.0
6	10640	C	0	1.3	23.8	0.0	0	29	531308.8	5332780.5
6	10640	D	0	0.6	6.9	0.0	0	48	530861.1	5332778.0
5	10650	A	0	1.8	15.4	0.0	0	32	531370.4	5332905.5
5	10650	B	0	5.3	20.2	0.1	2	28	533074.2	5332910.0
5	10660	A	0	2.4	12.7	0.0	2	29	534282.9	5332995.0
5	10660	B	0	1.1	12.9	0.0	0	33	531337.5	5332972.5
5	10680	A	0	2.5	19.2	0.0	0	33	537421.9	5333242.0
5	10680	B	0	0.9	10.8	0.0	0	32	536840.6	5333222.0
5	10680	C	0	4.9	20.8	0.0	0	30	532902.3	5333229.0
5	10680	D	0	1.8	12.1	0.0	0	34	532235.5	5333229.5
5	10680	E	0	0.8	7.9	0.0	0	38	532017.4	5333191.5
5	10690	B	0	0.5	13.8	0.0	0	29	532233.1	5333305.5
5	10690	C	0	1.3	12.0	0.0	0	35	536900.8	5333312.0
5	10690	D	0	1.3	17.6	0.0	0	28	537464.4	5333295.0
5	10700	A	0	2.1	13.4	0.0	0	33	536863.0	5333400.5
5	10700	B	0	2.5	10.9	0.0	4	32	532214.0	5333403.0
5	10710	B	0	1.9	9.9	0.0	3	32	531903.8	5333548.0
5	10710	C	0	2.0	9.0	0.0	2	35	532161.7	5333531.5
5	10710	D	0	2.8	16.7	0.0	0	33	537397.5	5333531.5
5	10710	E	0	2.2	10.7	0.0	0	34	537647.5	5333530.0
5	10720	A	0	5.9	24.1	0.1	0	29	538617.2	5333610.5
5	10720	B	0	0.3	10.4	0.0	0	36	537634.4	5333591.5
4	10730	C	0	3.9	18.1	0.0	0	33	538654.7	5333676.0
4	10740	A	0	2.1	12.8	0.0	0	31	532616.8	5333798.0
4	10750	B	0	4.0	22.1	0.0	0	34	532035.2	5333923.0
4	10750	C	0	3.0	8.5	0.1	7	37	532562.7	5333942.0
4	10760	A	0	3.5	17.6	0.0	0	33	531899.8	5334000.0

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

RADISSON AND KIRKLAND LAKE, TEMISKAMING DISTRICT, NORTHERN ONTARIO

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	AMPLITUDE (PPM) QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS		
7	10510	A	0	1.0	5.9	0.0	2	37	526508.8	5331482.0
7	10560	D	0	0.0	11.8	0.0	0	32	524502.1	5331989.5
7	10560	E	0	-0.1	21.3	0.0	0	28	522165.9	5331962.5
7	10560	F	0	1.2	16.0	0.0	0	32	521222.6	5331973.5
6	10580	C	0	0.4	10.9	0.0	0	37	525730.8	5332242.5
6	10580	D	0	0.8	12.9	0.0	0	38	525595.3	5332233.5
6	10590	A	0	1.2	17.7	0.0	0	37	525693.8	5332328.5
6	10600	D	0	1.0	11.7	0.0	0	28	529101.7	5332417.5
6	10600	E	0	0.8	14.4	0.0	0	34	525737.9	5332404.0
6	10600	F	0	2.5	23.1	0.0	0	32	525573.8	5332385.5
6	10610	A	0	2.1	30.6	0.0	0	30	525571.5	5332494.0
6	10610	B	0	1.1	19.8	0.0	0	33	525710.1	5332493.0
6	10610	C	0	0.0	14.6	0.0	0	29	529139.4	5332512.0
6	10630	A	0	-0.5	10.5	0.0	0	34	525516.9	5332683.0
6	10640	E	0	0.0	5.1	0.0	0	39	521092.4	5332763.5
5	10670	A	0	-0.1	5.4	0.0	0	46	528393.9	5333095.5
5	10670	B	0	-1.5	5.2	0.0	0	41	529196.0	5333083.5
5	10680	F	0	0.2	8.2	0.0	0	34	528384.1	5333181.5
5	10690	A	0	-0.5	6.4	0.0	0	39	528413.2	5333304.0
5	10710	A	0	0.1	8.2	0.0	0	35	523266.7	5333492.5
5	10720	C	0	1.6	11.2	0.0	0	33	523297.4	5333593.0
5	10720	D	0	0.3	12.9	0.0	0	27	523007.7	5333593.5
4	10730	A	0	0.6	12.0	0.0	0	34	523014.5	5333712.0
4	10730	B	0	0.3	11.2	0.0	0	31	528450.1	5333717.0
4	10740	B	0	1.3	12.7	0.0	0	30	528436.9	5333812.5
4	10740	C	0	3.1	18.2	0.0	0	32	523237.4	5333789.5
4	10740	D	0	2.2	18.6	0.0	0	28	523006.1	5333770.0
4	10750	A	0	2.0	12.4	0.0	0	38	523275.9	5333895.0
4	10760	B	0	1.8	13.3	0.0	0	30	522904.9	5333977.5

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

RADISSON AND KIRKLAND LAKE, TEMISKAMING DISTRICT, NORTHERN ONTARIO

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	AMPLITUDE (PPM) QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS		
4	10760	C	0	0.0	7.9	0.0	0	33	522665.3	5333982.5
4	10770	A	0	1.2	5.7	0.0	2	41	528333.2	5334097.0
4	10780	A	0	-0.1	9.4	0.0	0	35	528916.8	5334198.0
4	10780	B	0	0.7	12.9	0.0	0	30	523232.0	5334181.0
4	10780	C	0	0.9	13.5	0.0	0	29	522917.0	5334186.5
4	10790	A	0	1.0	8.1	0.0	0	39	522650.5	5334270.5
4	10790	B	0	1.5	15.4	0.0	0	33	523076.2	5334275.0
4	10800	A	0	0.0	9.0	0.0	0	32	524341.9	5334413.0
4	10800	B	0	-0.1	8.4	0.0	0	36	523967.6	5334415.0
4	10800	C	0	0.9	13.5	0.0	0	30	523215.6	5334403.5
4	10800	D	0	1.4	15.3	0.0	0	32	523082.5	5334412.0
4	10810	A	0	-1.1	23.2	0.0	0	28	524079.5	5334518.0
4	10820	A	0	-0.9	16.4	0.0	0	33	524110.7	5334579.5
4	10820	B	0	0.0	16.7	0.0	0	31	523181.9	5334589.0
4	10830	A	0	0.3	15.7	0.0	0	37	524138.7	5334672.5
3	10860	A	0	0.3	10.8	0.0	0	37	524160.8	5334970.0
3	10870	A	0	0.0	10.5	0.0	0	36	524204.5	5335062.0
3	10890	A	0	0.2	10.1	0.0	0	40	524167.5	5335269.0
3	10900	A	0	1.2	12.6	0.0	0	37	524126.1	5335362.5
3	10960	A	0	3.5	18.9	0.0	0	39	524154.2	5336046.5
3	10960	B	0	0.3	8.2	0.0	0	39	523048.7	5336030.5
3	10980	A	0	1.0	10.4	0.0	0	35	527058.4	5336209.0
3	10980	B	0	-2.0	9.1	0.0	0	36	522945.7	5336218.5
2	10990	A	0	-0.3	10.6	0.0	0	34	527143.5	5336329.5
2	11000	A	0	0.4	6.2	0.0	0	35	527531.9	5336410.0
2	11020	A	0	1.0	15.8	0.0	0	33	527091.4	5336582.5
2	11030	A	0	0.9	31.6	0.0	0	29	527158.3	5336695.5
2	11040	A	0	1.7	17.3	0.0	0	35	527156.2	5336793.5

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RADISSON AND KIRKLAND LAKE, TEMISKAMING DISTRICT, NORTHERN ONTARIO

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS		
2	11040	B	0	2.5	24.1	0.0	0	33	527016.3	5336798.0
2	11051	A	0	3.6	34.3	0.0	0	30	527035.9	5336905.5
2	11051	B	0	3.7	35.1	0.0	0	31	527091.2	5336905.5
2	11051	C	0	2.1	22.6	0.0	0	34	527186.8	5336906.0
2	11051	D	0	-0.8	8.9	0.0	0	32	529737.9	5336903.5
2	11061	A	0	2.1	5.9	0.1	10	40	529828.4	5336997.0
2	11061	B	0	3.4	21.1	0.0	0	30	527223.5	5336978.5
2	11061	C	0	3.5	25.2	0.0	0	30	527063.6	5336976.0

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RADISSON AND KIRKLAND LAKE, TEMISKAMING DISTRICT, NORTHERN ONTARIO

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS		
7	10490	B	0	16.9	39.2	0.4	0	34	536420.1	5331294.5
7	10500	A	0	19.5	40.5	0.4	0	35	536490.6	5331405.5
7	10510	B	0	0.9	7.2	0.0	0	38	530941.4	5331532.5
7	10510	C	0	5.0	23.6	0.0	0	34	533607.8	5331531.5
7	10510	D	0	18.7	33.7	0.5	0	38	536479.0	5331494.5
13	20100	A	0	1.9	9.0	0.0	0	42	532234.9	5326487.0
13	20200	A	0	4.0	8.6	0.2	3	44	532261.4	5326599.0
14	20400	A	0	1.3	6.8	0.0	0	43	531865.3	5326796.5
14	20400	B	0	3.4	9.9	0.1	0	41	532236.1	5326793.0
15	20500	A	0	4.7	17.3	0.1	0	35	532173.9	5326891.5
15	20500	B	0	3.6	22.3	0.0	0	33	531843.9	5326906.5
15	20600	B	0	2.5	14.6	0.0	0	36	532185.2	5326977.0
15	20600	C	0	1.6	10.9	0.0	0	33	532973.4	5326971.5
15	20700	A	0	-2.7	6.3	0.0	0	40	538934.7	5327095.0
15	20700	B	0	3.2	13.4	0.0	0	41	532175.1	5327104.0
15	20700	C	0	3.6	13.7	0.0	0	35	532049.8	5327104.5
15	20800	D	0	3.6	11.6	0.1	0	38	532073.6	5327201.0
15	20800	E	0	3.9	14.6	0.0	0	38	532206.8	5327205.0
15	20800	F	0	0.5	11.3	0.0	0	31	533178.3	5327196.5
15	20800	G	0	1.7	11.8	0.0	0	39	538946.3	5327190.0
15	20900	A	0	3.5	16.0	0.0	0	40	538899.3	5327300.0
15	20900	B	0	-0.6	6.3	0.0	0	29	533185.3	5327303.0
15	20900	C	0	1.7	17.3	0.0	0	34	532217.5	5327294.0
15	20900	D	0	1.9	14.1	0.0	0	34	532100.8	5327297.0
15	20900	E	0	0.6	6.1	0.0	0	45	531876.3	5327301.0
15	21100	A	0	1.8	12.3	0.0	0	45	538840.3	5327490.5
15	21300	A	0	5.3	18.4	0.1	0	37	538867.0	5327696.0
15	21400	A	0	1.8	12.9	0.0	0	35	530044.8	5327793.5
15	21400	B	0	1.6	7.7	0.0	0	46	531204.6	5327808.0
15	21400	C	0	2.4	8.8	0.0	0	43	531862.1	5327796.5
16	21500	A	0	4.1	10.0	0.1	3	41	531835.6	5327900.0

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RADISSON AND KIRKLAND LAKE, TEMISKAMING DISTRICT, NORTHERN ONTARIO

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	AMPLITUDE (PPM) QUAD.	CONDUCTOR CTP MHOS	CONDUCTOR DEPTH MTRS	BIRD HEIGHT MTRS		
16	21500	B	0	4.2	9.4	0.2	4	41	531181.8	5327899.0
16	21900	A	0	4.3	16.8	0.0	0	34	538676.0	5328308.5
16	21900	B	0	6.3	19.7	0.1	0	37	534523.3	5328307.5
16	21900	C	0	6.1	18.1	0.1	0	34	534339.5	5328301.5
16	22000	A	0	3.4	12.3	0.0	0	40	531737.9	5328396.5
16	22000	B	0	7.0	29.2	0.1	0	32	534346.0	5328395.0
16	22000	C	0	4.8	15.8	0.1	1	33	534588.7	5328392.0
16	22100	A	0	2.1	9.9	0.0	0	39	530735.0	5328496.5
16	22200	A	0	3.6	9.0	0.1	7	38	530756.9	5328602.5
16	22230	A	0	2.8	18.4	0.0	0	33	530790.7	5328703.0
16	22230	B	0	4.2	22.1	0.0	0	28	530721.3	5328701.0
17	22500	A	0	3.2	17.0	0.0	0	33	534347.9	5328907.5
17	22500	B	0	2.7	11.1	0.0	0	37	530752.8	5328897.0
17	22600	E	0	2.1	7.9	0.0	0	41	530743.8	5329004.0
17	22600	F	0	1.7	8.5	0.0	0	45	534025.1	5328995.5
17	22600	G	0	15.4	27.2	0.5	0	42	538817.4	5328978.5
17	22700	A	0	0.4	8.5	0.0	0	39	537537.7	5329100.5
17	22700	B	0	1.9	10.4	0.0	0	40	533991.8	5329102.5
17	22800	B	0	1.1	6.7	0.0	0	41	530693.9	5329207.5
17	22800	C	0	3.3	11.7	0.0	0	42	531561.2	5329195.0
17	22800	D	0	3.2	16.1	0.0	0	41	533244.4	5329206.0
17	22800	E	0	3.4	13.1	0.0	0	44	534065.4	5329193.5
13	22900	C	0	2.1	8.3	0.0	0	41	530683.6	5329290.5
13	22900	D	0	4.2	17.2	0.0	0	43	531618.4	5329286.0
13	22900	E	0	7.5	24.0	0.1	0	36	531794.2	5329299.5
13	22900	F	0	3.7	23.9	0.0	0	39	533241.3	5329305.0
13	22900	G	0	1.7	20.4	0.0	0	37	534091.6	5329269.5
13	23000	A	0	0.3	14.3	0.0	0	36	537322.8	5329402.0
13	23000	B	0	3.5	19.3	0.0	0	38	531757.3	5329404.5
13	23000	C	0	3.6	18.3	0.0	0	38	531643.8	5329406.0
13	23000	D	0	1.5	5.2	0.0	3	46	530681.1	5329404.0
12	23100	C	0	1.6	8.1	0.0	0	40	530753.8	5329494.0
12	23100	D	0	4.2	20.7	0.0	0	38	531706.9	5329501.0

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RADISSON AND KIRKLAND LAKE, TEMISKAMING DISTRICT, NORTHERN ONTARIO

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12	23100	E	0	5.7	23.3	0.1	0	37	531787.6	5329498.5
12	23100	F	0	2.8	16.4	0.0	0	37	533240.6	5329498.0
12	23200	A	0	2.3	10.4	0.0	0	45	531773.5	5329612.5
12	23300	D	0	1.7	12.6	0.0	0	40	531771.1	5329706.5
12	23300	E	0	4.7	21.3	0.0	0	35	535262.5	5329702.0
12	23400	A	0	20.5	43.2	0.4	0	35	538854.9	5329755.0
12	23400	B	0	3.0	15.8	0.0	0	38	535227.4	5329790.5
12	23400	C	0	1.4	7.7	0.0	0	51	531761.3	5329779.5
12	23500	A	0	2.2	9.5	0.0	0	53	531827.1	5329888.5
12	23500	B	0	5.8	23.4	0.1	0	36	532023.7	5329870.0
12	23500	C	0	6.1	17.2	0.1	0	41	532335.2	5329893.0
12	23500	D	0	3.5	14.1	0.0	1	32	534536.8	5329896.0
12	23600	A	0	5.1	19.5	0.1	0	39	532011.6	5329997.0
12	23600	B	0	1.8	9.5	0.0	0	46	531755.2	5330005.0
12	23700	B	0	2.8	12.9	0.0	0	49	533026.5	5330105.0
12	23700	C	0	4.6	21.6	0.0	0	34	533205.5	5330103.5
12	23800	A	0	8.5	32.9	0.1	0	30	535267.8	5330191.0
12	23800	B	0	4.7	21.6	0.0	0	34	534941.0	5330188.5
12	23800	C	0	7.0	27.6	0.1	0	39	533030.8	5330191.5
12	23900	D	0	3.4	26.3	0.0	0	30	532960.6	5330287.0
12	23900	E	0	5.1	27.6	0.0	0	32	533292.2	5330290.5
12	23900	F	0	5.6	28.9	0.0	0	29	534994.6	5330296.0
12	24000	A	0	8.0	33.9	0.1	0	36	532978.1	5330401.0
12	24000	B	0	1.9	10.3	0.0	0	42	530773.9	5330394.0
11	24100	B	0	2.9	17.8	0.0	0	34	533395.4	5330498.5
11	24100	C	0	10.3	35.4	0.1	0	31	534444.1	5330503.0
11	24300	B	0	5.5	24.0	0.0	0	35	533335.2	5330694.5
11	24300	C	0	2.1	10.0	0.0	0	39	534081.1	5330703.0
11	24400	A	0	4.5	17.5	0.1	0	38	534245.3	5330786.5
11	24500	C	0	2.6	9.1	0.0	0	44	530874.8	5330904.0
11	24500	D	0	2.8	15.8	0.0	0	36	531021.0	5330908.5
11	24500	E	0	0.1	10.5	0.0	0	35	531699.4	5330906.0

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RADISSON AND KIRKLAND LAKE, TEMISKAMING DISTRICT, NORTHERN ONTARIO

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	AMPLITUDE (PPM) QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS		
11	24500	F	0	5.0	12.8	0.1	0	45	532423.4	5330907.5
11	24600	A	0	4.3	13.4	0.1	0	44	532409.3	5330997.0
11	24600	B	0	3.0	9.1	0.1	0	42	531683.4	5331004.0
11	24600	C	0	4.8	14.0	0.1	0	39	530964.3	5330988.0
11	24600	D	0	4.6	13.8	0.1	0	39	530885.6	5330985.5
11	24700	A	0	3.3	12.6	0.0	0	38	531705.7	5331103.5

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RADISSON AND KIRKLAND LAKE, TEMISKAMING DISTRICT, NORTHERN ONTARIO

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	AMPLITUDE (PPM) QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS		
7	10490	A	0	0.0	6.0	0.0	0	42	526405.1	5331294.5
7	10510	A	0	1.0	5.9	0.0	2	37	526508.8	5331482.0
13	20100	B	0	1.4	9.7	0.0	0	37	524235.7	5326497.5
14	20300	A	0	0.2	7.3	0.0	0	32	527763.8	5326698.5
15	20500	C	0	0.3	9.2	0.0	0	33	527783.2	5326893.0
15	20600	A	0	0.1	9.3	0.0	0	36	523856.2	5327031.5
15	20700	D	0	1.9	10.1	0.0	0	36	521432.3	5327104.5
15	20800	A	0	3.5	11.6	0.1	0	45	521415.9	5327204.0
15	20800	B	0	2.4	9.0	0.0	2	38	523893.2	5327190.0
15	20800	C	0	1.8	8.8	0.0	0	39	524672.0	5327197.5
15	20900	F	0	-2.5	7.2	0.0	0	31	523982.2	5327303.5
15	20900	G	0	-0.6	3.8	0.0	0	40	522210.4	5327308.5
15	20900	H	0	-0.9	6.0	0.0	0	36	522097.7	5327299.0
15	20900	J	0	4.5	19.9	0.0	0	38	521386.5	5327302.0
15	21000	A	0	-0.5	5.5	0.0	0	42	523958.3	5327389.0
15	21100	B	0	-0.9	6.5	0.0	0	39	522443.2	5327499.5
15	21400	A	0	1.8	12.9	0.0	0	35	530044.8	5327793.5
16	21500	C	0	3.6	9.3	0.1	0	44	522812.0	5327902.0
16	21500	D	0	4.9	9.3	0.3	7	41	521339.3	5327916.0
16	21600	A	0	3.1	11.6	0.0	0	41	521386.2	5328001.0
16	21600	B	0	3.9	17.7	0.0	0	32	522871.1	5327993.5
16	22400	A	0	4.8	13.7	0.1	1	36	523284.2	5328789.0
17	22500	C	0	1.9	11.7	0.0	0	35	523723.7	5328894.5
17	22500	D	0	2.6	10.1	0.0	0	41	523234.0	5328904.5
17	22500	E	0	2.6	11.0	0.0	0	44	523007.8	5328892.0
17	22500	F	0	2.5	10.7	0.0	0	40	521370.6	5328891.0
17	22600	A	0	0.5	9.2	0.0	0	41	521414.3	5328998.5
17	22600	B	0	2.5	13.9	0.0	0	34	523278.7	5329006.0

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RADISSON AND KIRKLAND LAKE, TEMISKAMING DISTRICT, NORTHERN ONTARIO

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	AMPLITUDE (PPM) QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS		
17	22600	C	0	1.2	7.6	0.0	2	34	523701.1	5328991.5
17	22600	D	0	3.5	14.7	0.0	1	31	529221.7	5328992.0
17	22700	C	0	1.9	11.1	0.0	0	36	529122.7	5329107.0
17	22700	D	0	3.1	12.3	0.0	0	37	523191.6	5329098.0
17	22700	E	0	2.3	9.5	0.0	3	34	521422.8	5329102.0
17	22800	A	0	3.8	18.0	0.0	0	35	529116.8	5329194.0
13	22900	A	0	3.1	10.7	0.0	0	38	526169.1	5329304.0
13	22900	B	0	3.3	17.7	0.0	0	30	529813.0	5329305.5
13	23000	E	0	3.0	12.3	0.0	1	34	523242.1	5329388.0
12	23100	A	0	0.1	12.6	0.0	0	33	521371.3	5329481.5
12	23100	B	0	2.0	6.6	0.0	7	39	523014.6	5329492.0
12	23200	B	0	2.2	11.6	0.0	0	40	527689.6	5329618.5
12	23200	C	0	3.6	17.4	0.0	0	34	521056.4	5329608.5
12	23300	A	0	-0.3	13.7	0.0	0	33	521037.3	5329699.5
12	23300	B	0	1.7	14.8	0.0	0	33	527705.1	5329695.5
12	23300	C	0	1.7	13.8	0.0	0	39	527898.1	5329700.5
12	23400	D	0	0.5	12.6	0.0	0	36	520999.4	5329792.0
12	23600	C	0	0.5	5.4	0.0	0	38	529775.7	5330004.0
12	23600	D	0	1.4	9.0	0.0	0	42	527264.1	5330005.5
12	23600	E	0	1.4	8.2	0.0	0	39	521042.7	5330007.5
12	23700	A	0	0.7	13.2	0.0	0	34	521306.6	5330078.5
12	23800	D	0	0.8	8.3	0.0	0	36	529096.3	5330197.5
12	23800	E	0	1.0	6.8	0.0	0	43	526289.4	5330180.0
12	23800	F	0	1.9	5.9	0.0	0	49	521321.7	5330215.0
12	23800	G	0	1.3	9.0	0.0	0	32	521149.8	5330220.0
12	23900	A	0	0.8	7.6	0.0	0	43	521320.4	5330306.5
12	23900	B	0	2.9	7.9	0.1	0	46	529102.1	5330295.0
12	23900	C	0	3.7	16.8	0.0	0	33	529228.9	5330295.0
12	24000	C	0	0.1	4.8	0.0	0	43	527488.4	5330403.0
11	24100	A	0	1.0	6.8	0.0	0	39	527525.0	5330498.5
11	24200	A	0	0.5	22.5	0.0	0	31	527475.4	5330602.0

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

RADISSON AND KIRKLAND LAKE, TEMISKAMING DISTRICT, NORTHERN ONTARIO

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	AMPLITUDE (PPM) QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS		
11	24300	A	0	2.2	15.9	0.0	0	37	527485.6	5330684.5
11	24500	A	0	4.1	9.9	0.1	0	47	526303.3	5330901.0
11	24500	B	0	3.0	9.6	0.1	0	44	529756.8	5330893.5
11	24600	E	0	1.5	9.2	0.0	1	32	529083.3	5330986.5

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

APPENDIX IV

CERTIFICATE OF QUALIFICATION

I, Roderick W. Woolham of the town of Pickering, Province of Ontario, do hereby certify that:-

1. I am a geophysicist and reside at 1463 Fieldlight Blvd., Pickering, Ontario, L1V 2S3

2. I graduated from the University of Toronto in 1961 with a degree of Bachelor of Applied Science, Engineering Physics, Geophysics Option. I have been practising my profession since graduation.

3. I am a member in good standing of the following organizations: Professional Engineers Ontario (Mining Branch); Society of Exploration Geophysicists; South African Geophysical Association; Prospectors and Developers Association of Canada.

4. I have not received, nor do I expect to receive, any interest, directly or indirectly, in the properties or securities of Camphor Ventures Inc. or any affiliate.

5. The statements contained in this report and the conclusions reached are based upon evaluation and review of maps and information supplied by Aerodat.

6. I consent to the use of this report in submissions for assessment credits or similar regulatory requirements.

REGISTERED PROFESSIONAL ENGINEER
R. W. WOOLHAM
PROVINCE OF ONTARIO

R. W. Woolham, P.Eng.

Pickering, Ontario

J9716

March 4, 1997

Ontario Ministry of Northern Development and Mines

Declaration of Assessment Work Performed on Mining Land

Mining Act, Subsection 65(2) and 66(3), R.S.O. 1990

Transaction Number (office use)
W9880.00145
Assessment Files Research Imaging

42A01NW2001 2.18268 DUNMORE 900

of subsections 65(2) and 66(3) of the Mining Act. Under section 8 of the review the assessment work and correspond with the mining land holder. Recorder, Ministry of Northern Development and Mines, 6th Floor,

Instructions: - For work performed on Crown Lands before recording a claim, use form 0240.
- Please type or print in ink.

2.18268

1. Recorded holder(s) (Attach a list if necessary)

Name: GARY DUNN	Client Number: 128032
Address: BOX 117 MATACHEWAN ONT P0K1M0	Telephone Number: (705) 565 2217
	Fax Number: (705) 565 2506
Name	Client Number
Address	Telephone Number
	Fax Number

2. Type of work performed: Check (✓) and report on only ONE of the following groups for this declaration.

☑ Geotechnical: prospecting, surveys, assays and work under section 18 (regs) ☐ Physical: drilling, stripping, trenching and associated assays ☐ Rehabilitation

Work Type: AIRBORNE SURVEY (HELICOPTER) HEM, VLF, MAG, RESISTIVITY	Office Use
	Commodity
	Total $ Value of Work Claimed: 560
Dates Work Performed From: 03 (Day) 12 (Month) 96 (Year) To: 04 (Day) 03 (Month) 98 (Year)	NTS Reference
Global Positioning System Data (if available) Township/Area: SHEBA	Mining Division: Larder Lake
M or G-Plan Number: M-385	Resident Geologist District: Kirkland Lake

Please remember to: - obtain a work permit from the Ministry of Natural Resources as required;
- provide proper notice to surface rights holders before starting work;
- complete and attach a Statement of Costs, form 0212;
- provide a map showing contiguous mining lands that are linked for assigning work;
- include two copies of your technical report.

3. Person or companies who prepared the technical report (Attach a list if necessary)

Name: GARY DUNN EXPLORATION	Telephone Number: (705) 565 2217
Address: BOX 117 MATACHEWAN ONT P0K1M0	Fax Number: (705) 565 2506
Name: AERODAT INC / RW WOOLHAM P.ENG	Telephone Number: (905) 621 2446
Address: 6300 NORTHWEST DR. MISSISSAUGA ONT L4V1J7	Fax Number
Name	Telephone Number
Address	Fax Number

RECEIVED
MAR - 9 1998
GEOSCIENCE ASSESSMENT OFFICE

RECEIVED
LARDER LAKE
MINING DIVISION
MAR 6 1998
10:50 AM

4. Certification by Recorded Holder or Agent

I, GARY C DUNN (Print Name), do hereby certify that I have personal knowledge of the facts set forth in this Declaration of Assessment Work having caused the work to be performed or witnessed the same during or after its completion and, to the best of my knowledge, the annexed report is true.

Signature of Recorded Holder or Agent: [signature] Date: March 6/98

Agent's Address: BOX 117 MATACHEWAN ONT P0K1M0 Telephone Number: (705) 565 2217 Fax Number: (705) 565 2506

0241 (03/95)

Deemed June 4/98

5. Work to be recorded and distributed. Work can only be assigned to claims that are contiguous (adjoining) to the mining land where work was performed, at the time work was performed. A map showing the contiguous link must accompany this form.

	Mining Claim Number. Or if work was done on other eligible mining land, show in this column the location number indicated on the claim map.	**Number of Claim Units.** For other mining land, list hectares.	**Value of work performed** on this claim or other mining land.	**Value of work applied** to this claim.	**Value of work assigned** to other mining claims.	**Bank.** Value of work to be distributed at a future date.
eg	TB 7827	16 ha	$26, 825	N/A	$24,000	$2,825
eg	1234567	12	0	$24,000	0	0
eg	1234568	2	$ 8, 892	$ 4,000	0	$4,892
1	1220 71	4	560	560		
2						
3						
4	2.18263					
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
	Column Totals		560	560		

I, Gary C Dunn (Print Full Name), do hereby certify that the above work credits are eligible under subsection 7 (1) of the Assessment Work Regulation 6/96 for assignment to contiguous claims or for application to the claim where the work was done.

Signature of Recorded Holder or Agent Authorized in Writing — Date: March 6/98

6. Instructions for cutting back credits that are not approved.

Some of the credits claimed in this declaration may be cut back. Please check (✓) in the boxes below to show how you wish to prioritize the deletion of credits:

- ☐ 1. Credits are to be cut back from the Bank first, followed by option 2 or 3 or 4 as indicated.
- ☐ 2. Credits are to be cut back starting with the claims listed last, working backwards; or
- ☐ 3. Credits are to be cut back equally over all claims listed in this declaration; or
- ☐ 4. Credits are to be cut back as prioritized on the attached appendix or as follows (describe):

RECEIVED
MAR - 9 19
GEOSCIENCE ASSESSMENT OFFICE

Note: If you have not indicated how your credits are to be deleted, credits will be cut back from the Bank first, followed by option number 2 if necessary.

For Office Use Only

Received Stamp: RECEIVED LARDER LAKE MINING DIVISION MAR 6 1998 10:50 AM

Deemed Approved Date	Date Notification Sent
Date Approved	Total Value of Credit Approved
Approved for Recording by Mining Recorder (Signature)	

0241 (02/96)

Ontario Ministry of Northern Development and Mines

Statement of Costs for Assessment Credit

Transaction Number (office use) W9880.00165 & .00160

Personal information collected on this form is obtained under the authority of subsection 6(1) of the Assessment Work Regulation 6/96. Under section 8 of the Mining Act, the information is a public record. This information will be used to review the assessment work and correspond with the mining land holder. Questions about this collection should be directed to the Chief Mining Recorder, Ministry of Northern Development and Mines, 6th Floor, 933 Ramsey Lake Road, Sudbury, Ontario, P3E 6B5.

2.18268

Work Type	Units of Work Depending on the type of work, list the number of hours/days worked, metres of drilling, kilometres of grid line, number of samples, etc.	Cost Per Unit of work	Total Cost
AIRBORNE SURVEY (HEM, VLF-EM, MAG, RESISTIVITY)	442 km	$70/km	30,940
Associated Costs (e.g. supplies, mobilization and demobilization).			
Transportation Costs			
Food and Lodging Costs			
	Total Value of Assessment Work		30,940

RECEIVED
MAR - 3 1998
GEOSCIENCE ASSESSMENT OFFICE

RECEIVED
LARDER LAKE
MINING DIVISION
MAR 6 1998
10:50 AM

Calculations of Filing Discounts:

1. Work filed within two years of performance is claimed at 100% of the above Total Value of Assessment Work.
2. If work is filed after two years and up to five years after performance, it can only be claimed at 50% of the Total Value of Assessment Work. If this situation applies to your claims, use the calculation below:

TOTAL VALUE OF ASSESSMENT WORK × 0.50 = Total $ value of worked claimed.

Note:
- Work older than 5 years is not eligible for credit.
- A recorded holder may be required to verify expenditures claimed in this statement of costs within 45 days of a request for verification and/or correction/clarification. If verification and/or correction/clarification is not made, the Minister may reject all or part of the assessment work submitted.

Certification verifying costs:

I, Gary C. Dunn (please print full name), do hereby certify, that the amounts shown are as accurate as may reasonably be determined and the costs were incurred while conducting assessment work on the lands indicated on the accompanying Declaration of Work form as AGENT and RECORDED Holder (recorded holder, agent, or state company position with signing authority) or I am authorized to make this certification.

Signature: [signature] Date: March 6/98

Ontario Ministry of Northern Development and Mines

Declaration of Assessment Work Performed on Crown Lands

Mining Act, Subsection 65(2), R.S.O. 1990

Transaction Number (office use): W9880.00166

Assessment Files Research Imaging

Personal information collected on this form is obtained under the authority of subsection 66(2) of the Mining Act. Under section 8 of the Mining Act, this information is a public record. This information will be used to review the assessment work and correspond with the mining land holder. Questions about this collection should be directed to a Provincial Mining Recorder, Ministry of Northern Development and Mines, 3rd Floor, 933 Ramsey Lake Road, Sudbury, Ontario, P3E 6B5.

Amendment

DUPLICATE COPY

2.18268

Instructions: - For work performed on mining lands, use form 0241.
- Please type or print in ink

1. Recorded holder(s) (Attach a list if necessary)

Name: (1) Lec-Ten Ventures Inc	Client Number: 302667
Address: #298 - 1199 West Pender St.	Telephone Number: (705) 565 2217
Vancouver BC V6E 2R1	Fax Number: (705) 565 2506
Name: (2) Camphor Ventures Inc	Client Number: 302668
Address: #1304 - 925 West Georgia St	Telephone Number: Same as above
Vancouver BC V6C 3L2	Fax Number:
(3) Gary Dunn	CIN 128032
Box 117 Matachewan Ont P0K1M0	# Same as above

2. Type of work performed. Only regional surveys and prospecting work are allowed on Crown Lands before recording. For work performed after recording a claim or on other mining lands, use form 0241.

Work Type: Helicopter-Borne Airborne Survey HEM, VLF, MAG, Resistivity	Office Use
	Commodity
	Total $ Value of Work Claimed: 30,380
Dates Work Performed: From 05 12 96 To 20 02 98	NTS Reference
Global Positioning System Data (if available)	Township/Area: Dunmore G-3630, Alma M-202, Cheese M-33; M or G-Plan Number	Mining Division: Larder Lake
	Resident Geologist District: Kirkland Lake

Please remember to: - complete and attach a Statement of Costs, form 0212;
- provide a map showing contiguous mining lands that are linked for assigning work;
- include two copies of your technical report;
- provide proper notice to surface rights holders before starting work.

3. Person or companies who prepared the technical report (Attach a list if necessary)

Name: Gary Dunn	Telephone Number: (705) 565 2217
Address: Box 117 Matachewan Ont P0K1M0	Fax Number: (705) 565 2506
Name: Aerodat Inc (R.W. Wickham P.Eng)	Telephone Number: (905) 671 2446
Address: 6300 Northwest Dr.	Fax Number
Name: Mississauga Ont L4V 1J7	Telephone Number
Address	Fax Number

RECEIVED
MAR - 9 1998
GEOSCIENCE ASSESSMENT OFFICE

4. Certification by Recorded Holder or Agent

I, Gary C. Dunn (Print Name), do hereby certify that I have personal knowledge of the facts set forth in this Declaration of Assessment Work having caused the work to be performed or witnessed the same during or after its completion and, to the best of my knowledge, the annexed report is true.

Signature of Recorded Holder or Agent: [signature] Date: March 6/98

Amended April 1/98

Agent's Address: Box 117 Matachewan Ont P0K1M0 Telephone Number: (705) 565 2217 Fax Number: (705) 565 2506

0240 (03/97)

RECEIVED
LARDER LAKE MINING DIVISION
MAR 6 1998
10:50 am

Deemed June 4/98.

5. **Work to be recorded and distributed.** Work that is performed on Crown Lands that are subsequenty staked as a mining claim, can be claimed at 100% of its value (state this amount in column "a" below). If work is performed on Crown lands and not enclosed within a subsequently recorded claim, it can be claimed at 25% of its value (state this amount in column "b" below). Work can only be assigned to claims that are contiguous to (adjoining) the lands where work was performed at the time work was performed. A map showing the contiguous link must accompany this form.

W9880.00166

	Mining Claim Number	No. of Claim Units	Value of work performed before recording a mining claim (a) Work now within a claim. Show 100% of cost	(b) Work on adjacent Crown lands. Show 25% of cost.	Value of work applied to this claim	Value of work assigned to other mining claims	Bank. Value of work to be distributed at a later date
eg	1234567	4	$4980	$725	$1600	2 3600 @	1 $1305
eg	1234568	2	N/A	N/A	$ 600	N/A	N/A
11	122198[illegible]	2	~~280~~ (70) → 70			70	~~280~~
12	122350[illegible]	14	~~1960~~ (490) → 490			490	~~1960~~
13	122350[illegible]	16	~~2240~~ (560) → 560			560	~~2240~~
14	122350[illegible]	9	~~1260~~ (315) → 315			315	~~1260~~
100 → 15	122511[illegible]	12	~~1680~~		4935		~~1680~~
16	122198[illegible]	4	~~560~~ (140) → 140			140	~~560~~
17	122198[illegible]	4	~~560~~ (140) → 140			140	~~560~~
18	122198[illegible]	11	~~2100~~ (525) → 525			525	~~2100~~
19	122350[illegible]	12	~~1680~~ (420) → 420			420	~~1680~~
100 → 10	122350[illegible]	2	~~280~~ (70) → 70			70	~~280~~
11	122404[illegible]	16	~~2240~~ (560) → 560			560	~~2240~~
12	122404[illegible]	16	~~2240~~ (560) → 560			560	~~2240~~
13	122404[illegible]	8	~~1120~~ (280) → 280			280	~~1120~~
14	122197[illegible]	2	~~280~~ (70) → 70			70	~~280~~
15	122197[illegible]	10	~~1400~~ (350) → 350			310	~~1400~~
	Column Totals		Cont'd			Cont'd	

I, _____ (Print Full Name), do hereby certify that the above work credits are eligible under subsection 7 (1) of the Assessment Work Regulation 6/96 for assignment to contiguous claims or for application to the claim where the work was done.

Signature of Recorded Holder or Agent Authorized in Writing	Date
	April 1/98

6. **Instruction for cutting back credits that are not approved.**

Some of the credits claimed in this declaration may be cut back. Please check (✓) in the boxes below to show how you wish to prioritize the deletion of credits:

- ☐ 1. Credits are to be cut back from the Bank first, followed by option 2 or 3 or 4 as indicated.
- ☐ 2. Credits are to be cut back starting with the claims listed last, working backwards; or
- ☐ 3. Credits are to be cut back equally over all claims listed in this declaration; or
- ☐ 4. Credits are to be cut back as prioritized on the attached appendix or as follows (describe):

RECEIVED
MAR - 9 1998
GEOSCIENCE ASSESSMENT OFFICE

Note: If you have not indicated how your credits are to be deleted, credits will be cut back from the Bank first, followed by option number 2 if necessary.

For Office Use Only

Received Stamp	Deemed Approved Date	Date Notification Sent
	Date Approved	Total Value of Credit Approved
	Approved for Recording by Mining Recorder (Signature)	

0240 (03/97)

RECEIVED
GOLDEN LAKE
MINING DIVISION
MAR 6 1998
10:50 AM

5. Work to be recorded and distributed. Work that is performed on Crown Lands that are subsequently staked as a mining claim, can be claimed at 100% of its value (state this amount in column "a" below). If work is performed on Crown lands and not enclosed within a subsequently recorded claim, it can be claimed at 25% of its value (state this amount in column "b" below). Work can only be assigned to claims that are contiguous to (adjoining) the lands where work was performed at the time work was performed. A map showing the contiguous link must accompany this form.

W9880.00166

	Mining Claim Number	No. of Claim Units	Value of work performed before recording a mining claim: (a) Work now within a claim. Show 100% of cost	(b) Work on adjacent Crown lands. Show 25% of cost.	Value of work applied to this claim	Value of work assigned to other mining claims	Bank. Value of work to be distributed at a later date
eg	1234567	4	$4960	$725	$1600	$800	$3306
eg	1234568	2	N/A	N/A	$ 600	N/A	N/A
1	1221980	16	~~2240~~ (560)	→ 560		~~2240~~ 560	0
2	1221981	12	~~1680~~ (420)	→ 420		~~1680~~ 420	0
3	1221982	9	~~1260~~ (315)	→ 315		315	~~1260~~ 0
4	1221987	6	~~840~~ (210)	→ 210		210	~~840~~ 0
5	1223502	16	~~2240~~ (560)	→ 560		560	~~2240~~ 0
6	1224050	16	~~2240~~ (560)	→ 560		560	~~2240~~ 0
7	1220071	4			3920		
8							
9						-	
10						2.18268	
11							
12							
13							
14							
15			1680			7175	0
	Column Totals	221	~~3920~~	7175	3920	~~7175~~	~~0~~

I, Gary Dunn (Print Full Name), do hereby certify that the above work credits are eligible under subsection 7 (1) of the Assessment Work Regulation 6/96 for assignment to contiguous claims or for application to the claim where the work was done.

Signature of Recording Officer or Agent Authorized in Writing | Date: April 1/98

6. **Instruction for cutting back credits that are not approved.**

Some of the credits claimed in this declaration may be cut back. Please check (✓) in the boxes below to show how you wish to prioritize the deletion of credits:

- [✓] 1. Credits are to be cut back from the Bank first, followed by option 2 or 3 or 4 as indicated.
- [ ] 2. Credits are to be cut back starting with the claims listed last, working backwards; or
- [ ] 3. Credits are to be cut back equally over all claims listed in this declaration; or
- [ ] 4. Credits are to be cut back as prioritized on the attached appendix or as follows (describe):

RECEIVED
MAR - 9 1998
GEOSCIENCE ASSESSMENT OFFICE

Note: If you have not indicated how your credits are to be deleted, credits will be cut back from the Bank first, followed by option number 2 if necessary.

For Office Use Only

Received Stamp	Deemed Approved Date	Date Notification Sent
	Date Approved	Total Value of Credit Approved
	Approved for Recording by Mining Recorder (Signature)	

0240 (03/97)

MAR 9 1998
10:50 AM

Ministry of
Northern Development
and Mines

Ministère du
Développement du Nord
et des Mines

Ontario

Geoscience Assessment Office
933 Ramsey Lake Road
6th Floor
Sudbury, Ontario
P3E 6B5

Telephone: (888) 415-9846
Fax: (705) 670-5881

Visit our website at:
www.gov.on.ca/MNDM/MINES/LANDS/mlsmnpge.htm

May 28, 1998

GARY CLAYTON DUNN
HOUSE 17, MATACHEWAN FIRST NATION
BOX 117
MATACHEWAN, ONTARIO
P0K-1M0

Dear Sir or Madam:

Submission Number: 2.18268

Subject: Transaction Number(s):		**Status**
	W9880.00165	Approval
	W9880.00166	Approval

We have reviewed your Assessment Work submission with the above noted Transaction Number(s). The attached summary page(s) indicate the results of the review. WE RECOMMEND YOU READ THIS SUMMARY FOR THE DETAILS PERTAINING TO YOUR ASSESSMENT WORK.

If the status for a transaction is a 45 Day Notice, the summary will outline the reasons for the notice, and any steps you can take to remedy deficiencies. The 90-day deemed approval provision, subsection 6(7) of the Assessment Work Regulation, will no longer be in effect for assessment work which has received a 45 Day Notice. Allowable changes to your credit distribution can be made by contacting the Geoscience Assessment Office within this 45 Day period, otherwise assessment credit will be cut back and distributed as outlined in Section #6 of the Declaration of Assessment work form.

Please note any revisions must be submitted in DUPLICATE to the Geoscience Assessment Office, by the response date on the summary.

If you have any questions regarding this correspondence, please contact Lucille Jerome by e-mail at jeromel2@epo.gov.on.ca or by telephone at (705) 670-5858.

Yours sincerely,

ORIGINAL SIGNED BY
Blair Kite
Supervisor, Geoscience Assessment Office
Mining Lands Section

Correspondence ID: 12332

Copy for: Assessment Library

Work Report Assessment Results

Submission Number: 2.18268

Date Correspondence Sent: May 28, 1998 **Assessor:** Lucille Jerome

Transaction Number	First Claim Number	Township(s) / Area(s)	Status	Approval Date
W9880.00165	1220071	SHEBA	Approval	May 27, 1998

Section:

15 Airborne Geophy AEM
15 Airborne Geophy AMAG
15 Airborne Geophy AVLF

Transaction Number	First Claim Number	Township(s) / Area(s)	Status	Approval Date
W9880.00166	1225119	DUNMORE, ALMA, SHEBA, HOLMES	Approval	May 27, 1998

Section:

15 Airborne Geophy AEM
15 Airborne Geophy AMAG
15 Airborne Geophy AVLF

Assessment work credit has been redistributed, as outlined on the attached Distribution of Assessment Work Credit sheet, to better reflect the location of the work.

Correspondence to:

Resident Geologist
Kirkland Lake, ON

Assessment Files Library
Sudbury, ON

Recorded Holder(s) and/or Agent(s):

GARY CLAYTON DUNN
MATACHEWAN, ONTARIO

GEE-TEN VENTURES INC.
VANCOUVER, BC

CAMPHOR VENTURES INC.
VANCOUVER, BC

Correspondence ID: 12332

Distribution of Assessment Work Credit

The following credit distribution reflects the value of assessment work performed on the mining land(s).

Date: May 28, 1998

Submission Number: 2.18268

Transaction Number: W9880.00166

Claim Number	Value Of Work Performed
1221978	70.00
1221979	350.00
1221980	560.00
1221981	420.00
1221982	315.00
1221983	140.00
1221984	140.00
1221985	525.00
1221986	70.00
1221987	210.00
1223502	560.00
1223504	490.00
1223505	560.00
1223506	315.00
1223507	420.00
1223509	280.00
1224046	560.00
1224047	560.00
1224048	280.00
1224050	560.00
1225119	1,680.00
Total: $	9,065.00

Correspondence ID: 12332

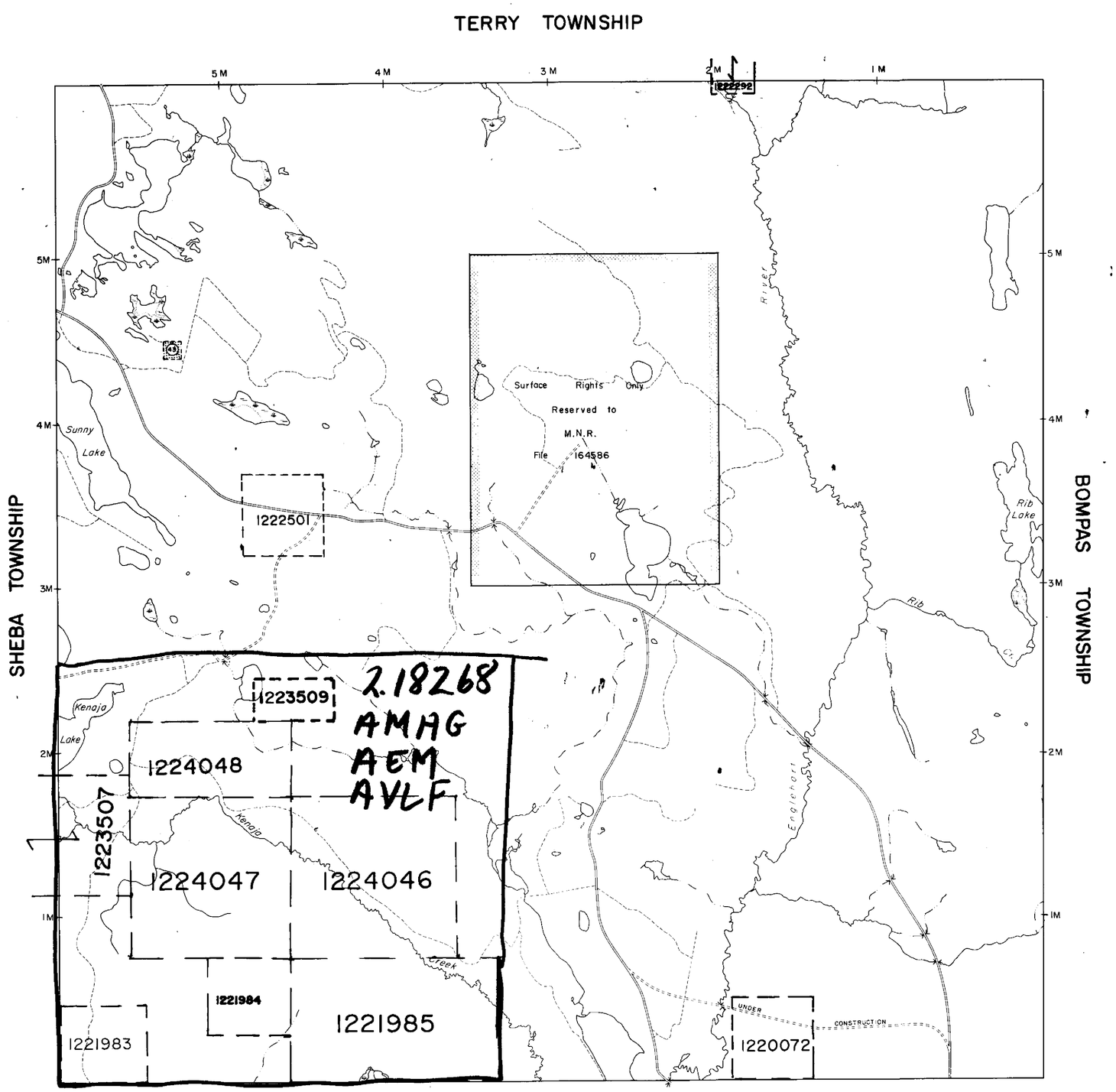
REFERENCES

AREAS WITHDRAWN FROM DISPOSITION

M.R.O. – MINING RIGHTS ONLY
S.R.O. – SURFACE RIGHTS ONLY
M.+ S. – MINING AND SURFACE RIGHTS

Description	Order No.	Date	Disposition	File
(43)	W.6 / 74	21/2/74	S R O	185417

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.



CIRCULATED OCT. 06/93

LEGEND

- HIGHWAY AND ROUTE No.
- OTHER ROADS
- TRAILS
- SURVEYED LINES:
  - TOWNSHIPS, BASE LINES, ETC.
  - LOTS, MINING CLAIMS, PARCELS, ETC.
- UNSURVEYED LINES:
  - LOT LINES
  - PARCEL BOUNDARY
  - MINING CLAIMS ETC.
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON-PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN
- RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" , SURFACE RIGHTS ONLY	◒
" , MINING RIGHTS ONLY	◒
LEASE, SURFACE & MINING RIGHTS	■
" , SURFACE RIGHTS ONLY	◧
" , MINING RIGHTS ONLY	◨
LICENCE OF OCCUPATION	▼
ORDER-IN-COUNCIL	OC
RESERVATION	⊗
CANCELLED	⊗
SAND & GRAVEL	⊙

SCALE: 1 INCH = 40 CHAINS

FEET 0 1000 2000 4000 6000 8000
METRES 0 200 1000 (1 KM) 2000 (2 KM)

DATE OF ISSUE

MAY 2 1 1998

PROVINCIAL RECORDING OFFICE - SUDBURY

TOWNSHIP

DUNMORE

M.N.R. ADMINISTRATIVE DISTRICT

KIRKLAND LAKE

MINING DIVISION

LARDER LAKE

LAND TITLES / REGISTRY DIVISION

TIMISKAMING

Ontario Ministry of Natural Resources
Ministry of Northern Development and Mines

Date FEBRUARY 1990

ARCHIVED JAN. 13/95
ARCHIVED JULY 28/97

Number G-3630

G-3630

DUNMORE TWP.

G-3630

NOTICE OF FORESTRY ACTIVITY

THIS TOWNSHIP / AREA FALLS WITHIN THE ELK LAKE MANAGEMENT UNIT

AND MAY BE SUBJECT TO FORESTRY OPERATIONS. THE MNR UNIT FORESTER FOR THIS AREA CAN BE CONTACTED AT:

P.O. BOX 129
SWASTIKA, ONTARIO
P0K 1T0
705-642-3222

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

M.385

PLAN OF

SHEBA T'WP.

LARDER LAKE MINING DIVISION

DISTRICT OF TIMISKAMING.

—Scale 40 chains to an inch.—

North. W. E. S.

NORDICA T'WP

WATABEAG LAKE

LEZIERT LAKE

Lezieret Creek

L&F GRAVEL
PIT NO 55
FILE 164586 VOL 2

WATABEAG LAKE

LUP'd

reservated dam mkt

SRO Reserved
Sec. 39(d) Mg. Act
File 164586

Public Access

SUNNY LAKE

ROBERTSON T'WP

DUNMORE T'WP

ALMA T'WP

1228517 1228518 1222694 1222693 1222692 1222691 1224049 1224050 1220071 1221979 1221978 1221980 1221981 1223507 1221982 1224051 1223502 1220070 1222794 1222795 1213948 1211538 1220068 1226207 1223503 1223504 1223505 1221987

SHEBA LAKE

UPPER KENAJA LAKE

KENAJA LAKE

2.18268 AMAC AULC AEM

Notes.

Railways shewn
Paved Highways
Gravel "
Highway Route Nos. (2)
Other Roads
Trails & Paths
Telephone & Telegraph Lines
Electric Power Lines

400' Surface rights reservation around all lakes and rivers.

Non-perennial streams
Bridges
Buildings
Swamps
Areas marked (P) are Patented.
" " (L) " Leased.
" " L.O. " Held under Licence of Occupation.

CROWN LAND SALE	C.S.
LOCATED LAND	Loc.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
CANCELLED	C.

FLOODING RIGHTS TO ELEV. 1059 FEET, ADJACENT TO THE WATABEAG R., WATABEAG L. AND ITS TRIBUTARIES, AS SHOWN ON PLAN R21-4 BY O.L.S. G.F. SUMMERS. L.O. 8648 F. 33693 V. 3.

2.18268 AMAG AVLF AEM

Sheba Twp.

Baden Twp.

Holmes Twp.

Cairo Twp.

5M 4M 3M 2M 1M

1223510 1220069 1211531 1220078 1220077 1220076 1223503 1223504 1223505 CANOE 1225119

1223506 1225150 1221966 1225122

Con. 6 Con 5 Con 4 Con 3 Con 2 Con. 1

Squaw L. Beaver L. Bird L. Jackson L. Blackburn L.

MATACHEWAN INDIAN RESERVE

Turtle L. Chief L. Separation L. LITTLE CHIEF

I. R. 72

Baptiste L. Steve L. McNaughton L. WEIDY

BASTIAN BROWNING McDONNEL

1225082 1225081 1221766 1221656 1180148 1206320 1206321 1180149 1206322 1223369 1223278 1225275 1225273 1225274 1223370 1223279 1225276 1221961 1221996 1118094 1118093 1222855 1222064. 1222196 1203417 1206259

MR P 7080 7081 7082 7079 5611 5612 7078 7077

1M 2M 3M 4M 5M

E B 10 C

COPY OF THIS MYLAR ARCHIVED JUNE 25/92
COPY OF THIS ARCHIVED AUGUST 16, 1994
ARCHIVED JUNE 11/96

THE TOWNSHIP OF

ALMA

DISTRICT OF TIMISKAMING

LARDER LAKE MINING DIVISION

SCALE: 1-INCH=40 CHAINS

LEGEND

PATENTED LAND	(P)
CROWN LAND SALE	C.S.
LEASES	(L)
LOCATED LAND	Loc.
LICENSE OF OCCUPATION	L.O.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
ROADS	
IMPROVED ROADS	
KING'S HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	
CANCELLED	C.

NOTES

Matachewan Indian Reserve shown thus:-

400' Surface rights reservation around all lakes and rivers.

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON

DATE OF ISSUE

MAY 2 1 1998

PROVINCIAL RECORDING OFFICE - SUDBURY

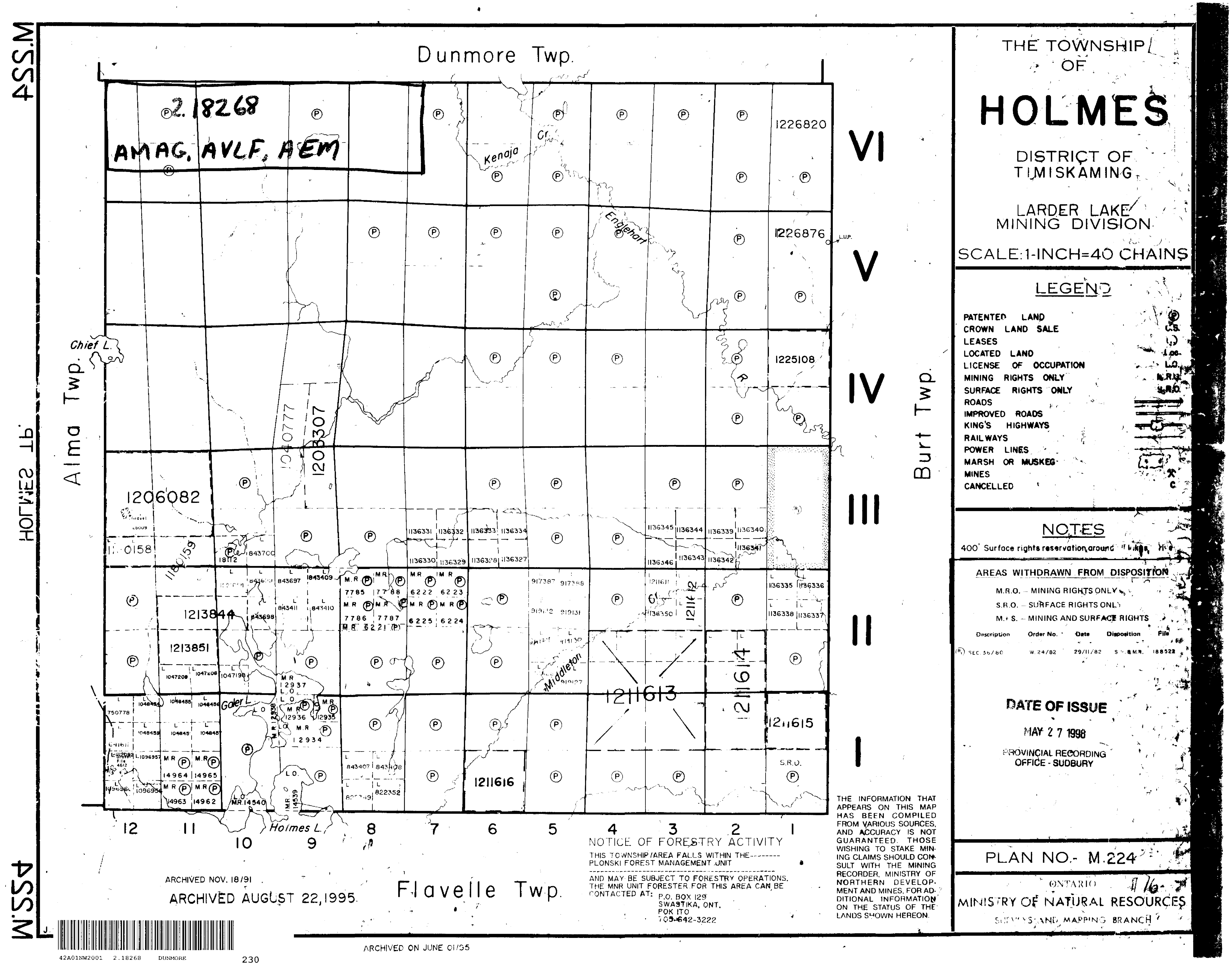
PLAN NO.- M-202

ONTARIO #3

MINISTRY OF NATURAL RESOURCES

SURVEYS AND MAPPING BRANCH

42A01NW2001 2.18268 DUNMORE 220



THE TOWNSHIP OF
HOLMES
DISTRICT OF TIMISKAMING
LARDER LAKE MINING DIVISION
SCALE:1-INCH=40 CHAINS
LEGEND
PATENTED LAND
CROWN LAND SALE
LEASES
LOCATED LAND
LICENSE OF OCCUPATION
MINING RIGHTS ONLY
SURFACE RIGHTS ONLY
ROADS
IMPROVED ROADS
KING'S HIGHWAYS
RAILWAYS
POWER LINES
MARSH OR MUSKEG
MINES
CANCELLED
NOTES
400' Surface rights reservation around all lakes
AREAS WITHDRAWN FROM DISPOSITION
M.R.O. - MINING RIGHTS ONLY
S.R.O. - SURFACE RIGHTS ONLY
M.+S. - MINING AND SURFACE RIGHTS
Description Order No. Date Disposition File
SEC.36/80 W.24/82 29/11/82 S.+M.R. 188522
DATE OF ISSUE
MAY 2 7 1998
PROVINCIAL RECORDING OFFICE - SUDBURY
PLAN NO.- M.224
ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH
Dunmore Twp.
Flavelle Twp.
Alma Twp.
Burt Twp.
HOLMES TP.
4SS.M
2.18268
AMAG, AVLF, AEM
VI
V
IV
III
II
I
12 11 10 9 8 7 6 5 4 3 2 1
Kenaja Cr.
Englehart R.
Middleton
Chief L.
Galer L.
Holmes L.
1226820
1226876
1225108
1040777
1203307
1206082
1213844
1213851
1211613
1211614
1211615
1211616
NOTICE OF FORESTRY ACTIVITY
THIS TOWNSHIP/AREA FALLS WITHIN THE PLONSKI FOREST MANAGEMENT UNIT
AND MAY BE SUBJECT TO FORESTRY OPERATIONS. THE MNR UNIT FORESTER FOR THIS AREA CAN BE CONTACTED AT: P.O. BOX 129 SWASTIKA, ONT. P0K 1T0 705-642-3222
THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.
ARCHIVED NOV. 18/91
ARCHIVED AUGUST 22,1995
ARCHIVED ON JUNE 01/95
42A01NW2001 2.18268 DUNMORE
230

Square: Grid North
Star: True North
Arrow: Magnetic North

Angles presented are approximate mean deviations for centre of NTS sheet.
Use diagram for reference only.

Grid North - True North : 0.56°
Grid North - Magnetic North : -12.36°
Annual change (from 1968) : 0.18°

FLIGHT PATH

Navigation and flight path recovery was conducted using a Global Positioning System (GPS) satellite navigation system.

Lines were flown at an azimuth of 90 - 270°, with an average line spacing of 100m.

Average helicopter-terrain clearance of 60m was monitored by radar and barometric altimeters.

EM ANOMALIES

EM anomalies selected by computer algorithm and manually confirmed. Selection is based on the response correlation to theoretical sources such as a steeply dipping conductor.

Calculation of conductance is based on the response of the 4600 Hz coaxial data, and forms the basis for anomaly classification.

Letter codes are used to identify individual anomalies on a line, and the inphase amplitude of the 4600 Hz response is annotated opposite.

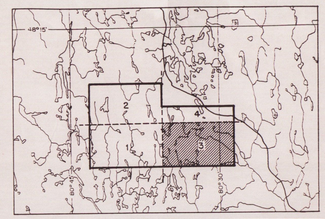
- 0 - 1 mhos
- 1 - 2 mhos
- 2 - 4 mhos
- 4 - 8 mhos
- 8 - 16 mhos
- 16 - 32 mhos
- > 32 mhos

PROJECTION

North American Datum 1927
Clarke 1866 Ellipsoid
Local Transformation: DX=-10.0 DY=158.0 DZ=187.0
UTM Projection
Central Meridian: 81 W

INTERPRETATION

- High amplitude magnetic zone, possible ultramafic centre
- High amplitude magnetic trend, mafic or ultramafic horizons
- Isolated magnetic circular feature, possible vertical pipe-like source
- Other magnetic trend
- Conductive zone
- Fault/contact structure interpreted from magnetics
- P-1, B — Anomalous magnetic response designated for investigation
- 3 — Anomalous conductive response designated for investigation
- Long linear north south magnetic horizon, probable dyke structures.



CAMPHOR VENTURES INC.

INTERPRETATION

KIRKLAND LAKE, RADISSON LAKE
TEMISKAMING DISTRICT, ONTARIO

SCALE 1:10 000 2.18268

250 0 100 200 500 1000 metres

aerodat
AERODAT INC.

Date Flown : DEC. 1996 - JAN. 1997
NTS : 42A/1 - 42A/2
Project : J9716 Map Ref : 3 - 2

530000 E 531000 E 532000 E 533000 E 534000 E 535000 E 536000 E 537000 E 538000 E 539000 E

80° 35' 35" W

48° 36' 34" N

5390000 N 5385000 N 5380000 N 5375000 N 5370000 N 5365000 N 5360000 N 5355000 N 5350000 N

Square: Grid North
Star: True North
Arrow: Magnetic North

Angles presented are approximate mean deviations for centre of NTS sheet. Use diagram for reference only.

Grid North - True North : 0.56°
Grid North - Magnetic North : -12.36°
Annual change (from 1968) : 0.18°

TOTAL FIELD MAGNETICS

Total field magnetic intensity contour data, measured by a cesium high sensitivity magnetometer at an average sensor elevation of 45m, and corrected for diurnal variation.

Map contours are in nanoTeslas, and are multiples of those listed below:

- 2 nT
- 10 nT
- 50 nT
- 250 nT
- 1000 nT

FLIGHT PATH

Navigation and flight path recovery was conducted using a Global Positioning System (GPS) satellite navigation system.

Lines were flown at an azimuth of 90 - 270°, with an average line spacing of 100m.

Average helicopter-terrain clearance of 60m was monitored by radar and barometric altimeters.

EM ANOMALIES

EM anomalies selected by computer algorithm and manually confirmed. Selection is based on the response correlation to theoretical sources such as a steeply dipping conductor.

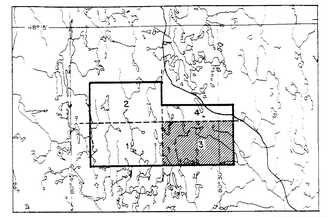
Calculation of conductance is based on the response of the 4600 Hz coaxial data, and forms the basis for anomaly classification.

Letter codes are used to identify individual anomalies on a line, and the inphase amplitude of the 4600 Hz response is annotated opposite.

- 0 - 1 mhos
- 1 - 2 mhos
- 2 - 4 mhos
- 4 - 8 mhos
- 8 - 16 mhos
- 16 - 32 mhos
- > 32 mhos

PROJECTION

North American Datum 1927
Clarke 1866 Ellipsoid
Local Transformation: DX=-10.0 DY=158.0 DZ=187.0
UTM Projection
Central Meridian: 81 W



CAMPHOR VENTURES INC.

TOTAL MAGNETIC INTENSITY

KIRKLAND LAKE, RADISSON LAKE
TEMISKAMING DISTRICT, ONTARIO

SCALE 1:10 000

250 0 100 200 500 1000 metres

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Date Flown : DEC. 1996 - JAN. 1997
NTS : 42A/1 - 42A/2
Project : J9716 Map Ref : 3 - 3

42A19961001 2.19269 DUNMORE 250

530000 E 531000 E 532000 E 533000 E 534000 E 535000 E 536000 E 537000 E 538000 E 539000 E

80° 35' 35" W

48° 36' 34" N

5539000 N 5538000 N 5537000 N 5536000 N 5535000 N 5534000 N 5533000 N

Square: Grid North
Star: True North
Arrow: Magnetic North

Angles presented are approximate mean deviations for centre of NTS sheet. Use diagram for reference only.

Grid North - True North : 0.56°
Grid North - Magnetic North : -12.36°
Annual change (from 1968) : 0.18°

VERTICAL GRADIENT

Vertical magnetic gradient contour data, calculated from the gridded total field magnetics data by an FFT algorithm.

Map contours are in nanoTeslas/metre, and are multiples of those listed below:

- 0.2 nT/m
- 1 nT/m
- 5 nT/m
- 25 nT/m
- 100 nT/m

FLIGHT PATH

Navigation and flight path recovery was conducted using a Global Positioning System (GPS) satellite navigation system.

Lines were flown at an azimuth of 90 - 270°, with an average line spacing of 100m.

Average helicopter-terrain clearance of 60m was monitored by radar and barometric altimeters.

EM ANOMALIES

EM anomalies selected by computer algorithm and manually confirmed. Selection is based on the response correlation to theoretical sources such as a steeply dipping conductor.

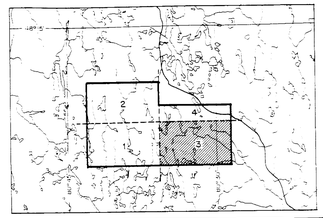
Calculation of conductance is based on the response of the 4600 Hz coaxial data, and forms the basis for anomaly classification.

Letter codes are used to identify individual anomalies on a line, and the inphase amplitude of the 4600 Hz response is annotated opposite.

- 0 - 1 mhos
- 1 - 2 mhos
- 2 - 4 mhos
- 4 - 8 mhos
- 8 - 16 mhos
- 16 - 32 mhos
- > 32 mhos

PROJECTION

North American Datum 1927
Clarke 1866 Ellipsoid
Local Transformation: DX=-10.0 DY=158.0 DZ=187.0
UTM Projection
Central Meridian: 81 W



CAMPHOR VENTURES INC.

VERTICAL MAGNETIC GRADIENT

KIRKLAND LAKE, RADISSON LAKE
TEMISKAMING DISTRICT, ONTARIO

SCALE 1:10 000

250 0 100 200 500 1000 metres

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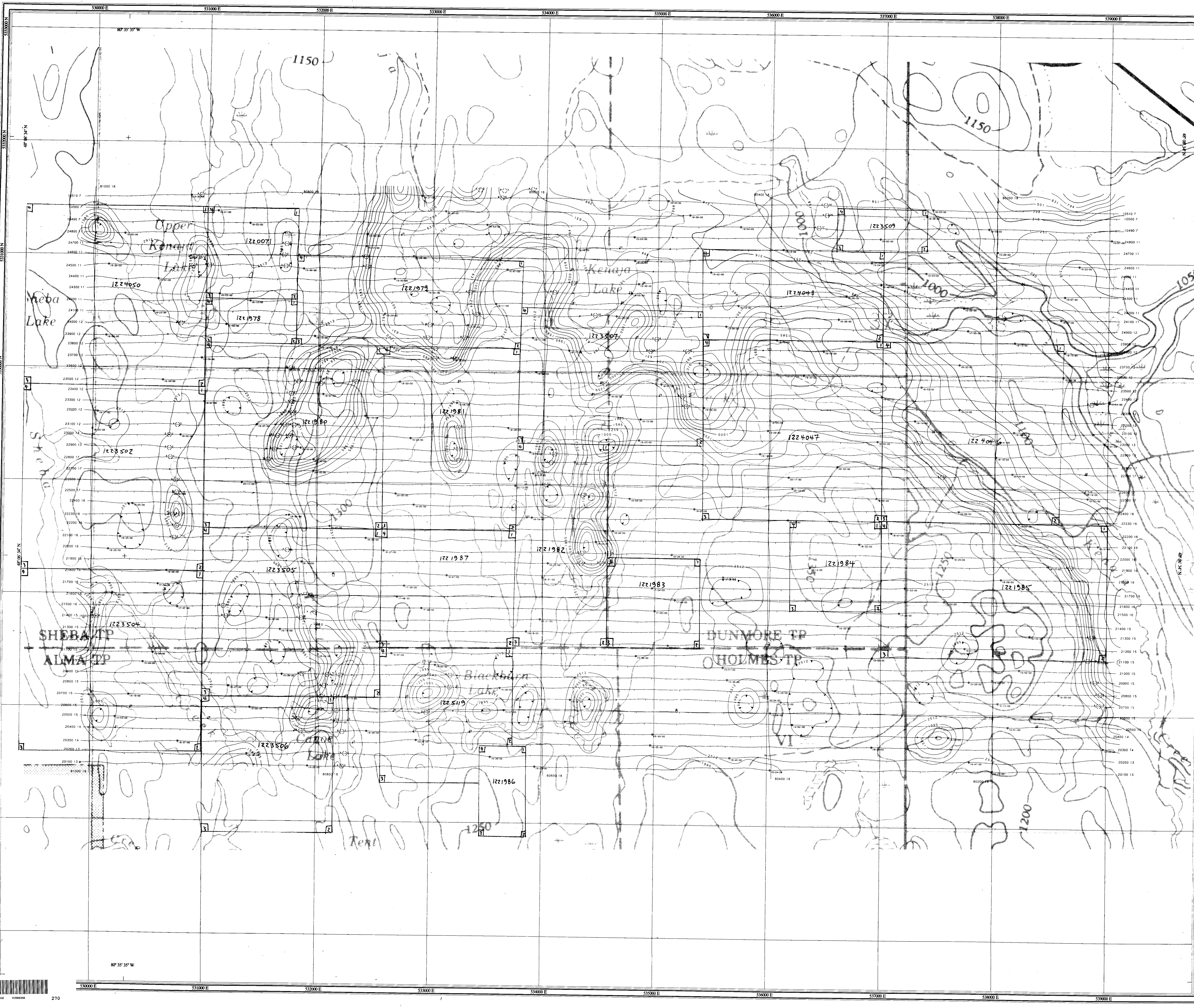
Date Flown : DEC. 1996 - JAN. 1997
NTS : 42A/1 - 42A/2
Project : J9716 Map Ref : 3 - 4



Square: Grid North
Star: True North
Arrow: Magnetic North

Angles presented are approximate mean deviations for centre of NTS sheet. Use diagram for reference only.

Grid North - True North : 0.56°
Grid North - Magnetic North : -12.36°
Annual change (from 1968) : 0.18°

APPARENT RESISTIVITY

Apparent resistivity calculated from the measured 4175 Hz coplanar EM response, assuming a resistive half-space (200m) model. Average sensor elevation was 30m.

Map contours are in ohm·m, at logarithmic intervals, in multiples of those listed below:

0.1 log(ohm·m)
0.5 log(ohm·m)
2.0 log(ohm·m)

FLIGHT PATH

Navigation and flight path recovery was conducted using a Global Positioning System (GPS) satellite navigation system.

Lines were flown at an azimuth of 90 - 270°, with an average line spacing of 100m.

Average helicopter-terrain clearance of 60m was monitored by radar and barometric altimeters.

EM ANOMALIES

EM anomalies selected by computer algorithm and manually confirmed. Selection is based on the response correlation to theoretical sources such as a steeply dipping conductor.

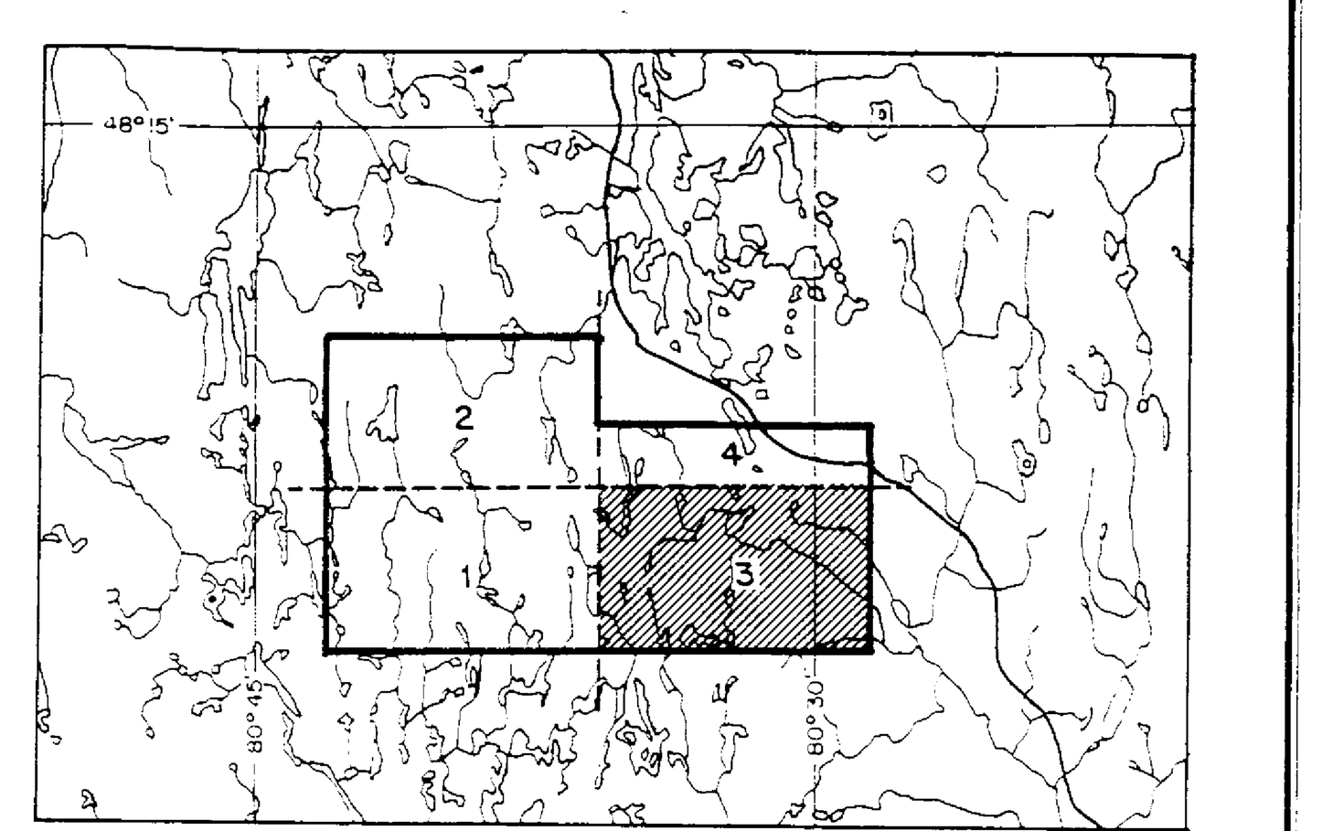
Calculation of conductance is based on the response of the 4600 Hz coaxial data, and forms the basis for anomaly classification.

Letter codes are used to identify individual anomalies on a line, and the inphase amplitude of the 4600 Hz response is annotated opposite.

0 - 1 mhos
1 - 2 mhos
2 - 4 mhos
4 - 8 mhos
8 - 16 mhos
16 - 32 mhos
> 32 mhos

PROJECTION

North American Datum 1927
Clarke 1866 Ellipsoid
Local Transformation: DX=-10.0 DY=158.0 DZ=187.0
UTM Projection
Central Meridian: 81 W



CAMPHOR VENTURES INC.

APPARENT RESISTIVITY
4175 Hz COPLANAR

KIRKLAND LAKE, RADISSON LAKE
TEMISKAMING DISTRICT, ONTARIO

SCALE 1:10 000
250 0 100 200 500 1000 metres

AERODAT INC.

Date Flown : DEC. 1996 - JAN. 1997
NTS : 42A/1 - 42A/2
Project : J9716 Map Ref : 3 - 5A

Squares: Grid North
Star: True North
Arrow: Magnetic North

Angles presented are approximate mean deviations for centre of NTS sheet. Use diagram for reference only.

Grid North - True North : 0.56°
Grid North - Magnetic North : -12.26°
Annual change (from 1988) : 0.19°

APPARENT RESISTIVITY

Apparent resistivity calculated from the measured 32 kHz coplanar EM response, assuming a resistive half-space (200m) model. Average sensor elevation was 30m.

Map contours are in ohm-m, at logarithmic intervals, in multiples of those listed below:

- 0.1 log(ohm-m)
- 0.5 log(ohm-m)
- 2.0 log(ohm-m)

FLIGHT PATH

Navigation and flight path recovery was conducted using a Global Positioning System (GPS) satellite navigation system.

Lines were flown at an azimuth of 90 - 270°, with an average line spacing of 100m.

Average helicopter-terrain clearance of 60m was monitored by radar and barometric altimeters.

EM ANOMALIES

EM anomalies selected by computer algorithm and manually confirmed. Selection is based on the response correlation to theoretical sources such as a steeply dipping conductor.

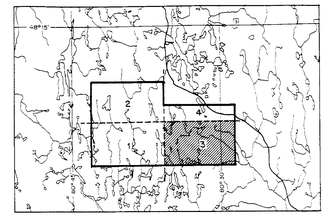
Calculation of conductance is based on the response of the 4600 Hz coaxial data, and forms the basis for anomaly classification.

Letter codes are used to identify individual anomalies on a line, and the inphase amplitude of the 4600 Hz response is annotated opposite.

- 0 - 1 mhos
- 1 - 2 mhos
- 2 - 4 mhos
- 4 - 8 mhos
- 8 - 16 mhos
- 16 - 32 mhos
- > 32 mhos

PROJECTION

North American Datum 1927
Clarke 1866 Ellipsoid
Local Transformation: DX=-10.0 DY=158.0 DZ=187.0
UTM Projection
Central Meridian: 81 W



CAMPHOR VENTURES INC.

APPARENT RESISTIVITY
32 kHz COPLANAR

KIRKLAND LAKE, RADISSON LAKE
TEMISKAMING DISTRICT, ONTARIO

SCALE 1:10 000

250 0 500 1000 metres

aerodat
AERODAT INC.

Date Flown : DEC. 1996 - JAN. 1997
NTS : 42A/1 - 42A/2
Project : J9716 Map Ref : 3 - 5B

42A01SW2001 2.11268 DOMAGNE 280

530000 E 531000 E 532000 E 533000 E 534000 E 535000 E 536000 E 537000 E 538000 E 539000 E

80° 35' 35" W

Square: Grid North
Star: True North
Arrow: Magnetic North

Angles presented are approximate mean deviations for centre of NTS sheet. Use diagram for reference only.

Grid North - True North : 0.56°
Grid North - Magnetic North : -12.36°
Annual change (from 1968) : 0.18°

TOTAL FIELD VLF-EM

Total field VLF-EM contour data, measured by a Herz Totem 2A sensor at an average elevation of 45m.

The station utilized was:
NAA, Cutler Maine, 24.0 kHz.

Map contours are in percent, and are multiples of those listed below:

1 %
5 %
25 %

FLIGHT PATH

Navigation and flight path recovery was conducted using a Global Positioning System (GPS), satellite navigation system.

Lines were flown at an azimuth of 90 - 270° with an average line spacing of 100m.

Average helicopter terrain clearance of 60m was monitored by radar and barometric altimeters.

EM ANOMALIES

EM anomalies selected by computer algorithm and manually confirmed. Selection is based on the response correlation to theoretical sources such as a steeply dipping conductor.

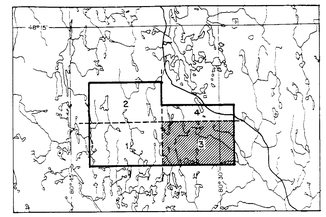
Calculation of conductance is based on the response of the 4600 Hz coaxial data, and forms the basis for anomaly classification.

Letter codes are used to identify individual anomalies on a line, and the nominal amplitude of the 4600 Hz response is annotated opposite.

0 - 1 mhos
1 - 2 mhos
2 - 4 mhos
4 - 8 mhos
8 - 16 mhos
16 - 32 mhos
> 32 mhos

PROJECTION

North American Datum 1927
Clarke 1866 Ellipsoid
Local Transformation: DX = -7.0 DY = 158.2 DZ = 187.0
UTM Projection
Centre Meridian 81° W



CAMPHOR VENTURES INC.

TOTAL FIELD VLF-EM
LINE STATION
KIRKLAND LAKE, RADISSON LAKE
TEMISKAMING DISTRICT, ONTARIO

SCALE 1:10 000
250 0 100 200 300 1000 metres

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AERODAT INC.

Date Flown : DEC. 1996 - JAN. 1997
NTS : 42A/1 - 42A/2
Project : J9716 Map Ref : 3 - 6

42A01NW2003 2.18268 DUNMORE 290