ARIS SUMMARY SHEET

District Geologist, Nelson Off Confidential: 92.03.26

ASSESSMENT REPORT 21195 MINING DIVISION: Greenwood

PROPERTY: IXL
LOCATION: LAT 49 32 00 LONG 118 24 00
UTM 11 5487469 398696
NTS 082E09W
CLAIM(S): IXL 1-2,Bryan,Bystander,Waverley,Munster,Cottage,Last Chance Thuot
Grizzly 90,Burrell,Klin,Klin Fr.,Chance 1-4,Keen 1-2
OPERATOR(S): Canamax Res.
AUTHOR(S): Johnson, I.
REPORT YEAR: 1991, 39 Pages
COMMODITIES
SEARCHED FOR: Copper,Gold
KEYWORDS: Knob Hill Group,Volcanics,Sediments,Stockworks,Pyrite,Chalcopyrite
WORK
DONE: Geophysical
EMAB 250.0 km;VLF
Map(s) - 5; Scale(s) - 1:10 000
MAGA 250.0 km
Map(s) - 3; Scale(s) - 1:10 000
RELATED
REPORTS: 09584
MINFILE: 082ENE001,082ENE002,082ENE021,082ENE042

REPORT ON A COMBINED HELICOPTER-BORNE MAGNETIC, ELECTROMAGNETIC, VLF-EM SURVEY, GRAND FORKS AREA, B.C. IXL PROPERTY

FOR

CANAMAX RESOURCES INC.
SUITE 501 - 535 THURLOW STREET
VANCOUVER, B.C.
V6E 3L2

BY

AERODAT LIMITED
3883 NASHUA DRIVE
MISSISSAUGA, ONTARIO
L4V 1R3
PHONE: 416-671-2446

February 7, 1991

J9087-1

Ian Johnson, Ph.D., P.Eng.
Consulting Geophysicist

21195

Province of British Columbia | Ministry of Energy, Mines and Petroleum Resources

ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TYPE OF REPORT/SURVEY(S)	TOTAL COST
Airborne Geophysical	$31,327.46

AUTHOR(S) Ian Johnson, Ph.D., P.Eng. SIGNATURE(S) see Certificate of Qualifications

DATE STATEMENT OF EXPLORATION AND DEVELOPMENT FILED March 27, 1991 YEAR OF WORK 1991

PROPERTY NAME(S) IXL Property

COMMODITIES PRESENT Copper, Gold

B.C. MINERAL INVENTORY NUMBER(S), IF KNOWN

MINING DIVISION Greenwood NTS 82E/9W

LATITUDE 49° ~~40~~ 32' LONGITUDE 118° 24'

NAMES and NUMBERS of all mineral tenures in good standing (when work was done) that form the property [Examples: TAX 1-4, FIRE 2 (12 units); PHOENIX (Lot 1706); Mineral Lease M 123; Mining or Certified Mining Lease ML 12 (claims involved)]:

IXL 1-2 (1698-99), Bryan (3958), Bystander (3959), Waverley(3960), Munster(3961) Cottage(5167), Last Chance(5168), Thuot(5169), Grizzly90(5874), Burrell(5875), Klin 1(6024), Klin Fr.(6025), Chance 1-4(6026-29), Keen 1-2(6109-10)

OWNER(S)

(1) John W. Carson (2)

MAILING ADDRESS

P.O. Box 1977
Grand Forks, B.C.

OPERATOR(S) (that is, Company paying for the work)

(1) Canamax Resources INc. (2)

MAILING ADDRESS

501 - 535 Thurlow St.
Vancouver, B.C.
V6E 3L2

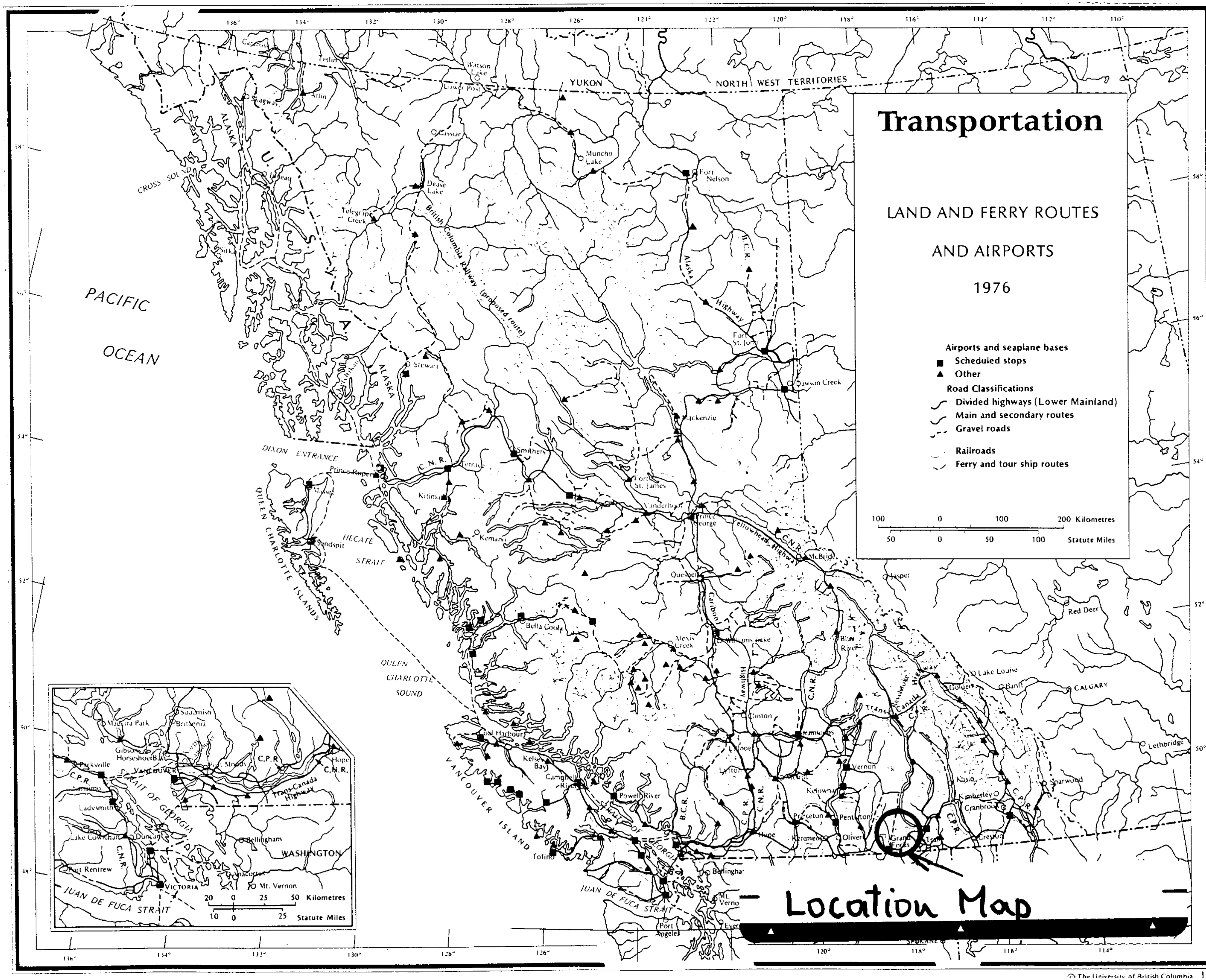
SUMMARY GEOLOGY (lithology, age, structure, alteration, mineralization, size, and attitude):

The IXL Showing consists of pyrite chalcopyrite (with anomalous gold) in disseminations and a stockwork of veins in volcanic and sedimentary rocks of the Knob Hill Group. This mineralization is exposed in trenches over an area 500 by 200m. A small amount of chalcopyrite-magnetite in a garnet-epidote skarn is exposed in one trench.

REFERENCES TO PREVIOUS WORK In 1968-69 Newmont carried out soil geochemistry, an IP survey, trenching and three diamond drill holes.

A.R. 9584

(over)


Transportation
LAND AND FERRY ROUTES
AND AIRPORTS
1976
Airports and seaplane bases
Scheduled stops
Other
Road Classifications
Divided highways (Lower Mainland)
Main and secondary routes
Gravel roads
Railroads
Ferry and tour ship routes
100 0 100 200 Kilometres
50 0 50 100 Statute Miles
PACIFIC
OCEAN
YUKON
NORTH WEST TERRITORIES
ALASKA
U.
A.
CROSS SOUND
DIXON ENTRANCE
HECATE STRAIT
QUEEN CHARLOTTE ISLANDS
QUEEN CHARLOTTE SOUND
VANCOUVER ISLAND
JUAN DE FUCA STRAIT
STRAIT OF GEORGIA
WASHINGTON
British Columbia Railway (proposed route)
Alaska Highway
Yellowhead Highway
Trans-Canada Highway
C.N.R.
C.P.R.
B.C.R.
Watson Lake
Lower Post
Atlin
Cassiar
Muncho Lake
Fort Nelson
Dease Lake
Telegraph Creek
Stewart
Dawson Creek
Mackenzie
Smithers
Terrace
Prince Rupert
Kitimat
Kemano
Fort St. James
Vanderhoof
Prince George
McBride
Jasper
Sandspit
Quesnel
Bella Coola
Alexis Creek
Williams Lake
Blue River
Red Deer
Lake Louise
Golden
Banff
CALGARY
Clinton
Kamloops
Vernon
Kelowna
Penticton
Princeton
Keremeos
Oliver
Grand Forks
Trail
Creston
Cranbrook
Kimberley
Kaslo
Sparwood
Lethbridge
Lytton
Hope
Powell River
Kelsey Bay
Campbell River
Port Hardy
Tofino
Bellingham
Mt. Vernon
Port Angeles
Squamish
Britannia
Gibsons
Horseshoe Bay
Vancouver
Port Moody
Parksville
Nanaimo
Ladysmith
Lake Cowichan
Duncan
Port Renfrew
VICTORIA
Anacortes
20 0 25 50 Kilometres
10 0 25 Statute Miles
Location Map

AERODAT LIMITED 3883 NASHUA DRIVE • MISSISSAUGA • ONTARIO • CANADA • L4V 1R3
Telephone: (416) 671-2446 Telex: 06-968872 Fax: (416) 671-8160

STATEMENT Date: March 11, 1991

AREA 1

Canamax Resources Inc.
Suite 600
535 Thurlow Street
Vancouver, B.C.
V6E 3L6

Attention: **Mr. Chris Hodgson**
Regional Manager,
Western Canada

In Account With:

Aerodat Limited
3883 Nashua Drive
Mississauga, Ontario
L4V 1R3

Re: Helicopterborne Geophysical Survey - Grand Forks area, southern B.C.

Mobilzation/demobilization	$ 2,778.00
Survey charges for 250 line kms @ $106.00/line km	26,500.00
Total Cost of Survey	$29,278.00
7% GST (R100067024)	2,049.46
Total Cost of Survey	**$31,327.46**

OK 7093 - 377 - 3 - 15

CJHodgson

TABLE OF CONTENTS

LIST OF MAPS

Maps are labelled according to area and map type. All maps are presented at a scale of 1:10,000.

BLACK LINE MAPS: Scale 1:10,000

Map Type	Description
1.	BASE MAP; Photomosaic base map plus survey area boundary, UTM reference corners and claims.
2.	FLIGHT PATH MAP; Photocombination of the base map with flight lines, fiducials and EM anomaly symbols.
3.	COMPILATION/INTERPRETATION MAP; Flight path map with interpretation.
4.	TOTAL FIELD MAGNETIC CONTOURS; with base map, flight lines and fiducials.
5.	VERTICAL MAGNETIC GRADIENT CONTOURS; with base map, flight lines and fiducials.
6.	APPARENT RESISTIVITY CONTOURS; Apparent Resistivity calculated for the 4600 Hz data, with base map, flight lines and fiducials.
7.	VLF-EM TOTAL FIELD CONTOURS; with base map, flight lines and fiducials.
9.	APPARENT WEIGHT PERCENT MAGNETITE CONTOURS; with base map, flight lines and fiducials.

REPORT ON A
COMBINED HELICOPTER-BORNE
MAGNETIC, ELECTROMAGNETIC, VLF-EM
AND RADIOMETRIC SURVEY, GRAND FORKS AREA, B.C.
BLOCK 1

1. INTRODUCTION

This report describes an airborne geophysical survey carried out on behalf of CANAMAX RESOURCES INC. (CANAMAX) by Aerodat Limited under a contract dated November 30, 1990. Principal geophysical sensors included a four frequency electromagnetic system, a high sensitivity cesium vapour magnetometer and a two frequency VLF-EM system. Ancillary equipment included a radar ranging navigation system, a colour video tracking camera, a radar altimeter, a power line monitor and a base station magnetometer.

The survey was carried out over an area of some 25 square kilometres located about 70 kilometres north of Grand Forks, B.C. Total survey coverage was approximatey 250 line kilometres (plus 3 magnetic tie lines). The flight line spacing was 100m. The Aerodat job number is J9087-1.

This report describes the survey, the data processing and the da ta presentation. Electromagnetic anomalies which are thought to be the response to bedrock conductors have been identified and appear on selected map products as EM anomaly symbols with interpreted source characteristics. Where EM and Magnetic results supported it, anomaly centers are joined to form conductor axes. Recommendations concerning areas with favourable geophysical characteristics are made with reference to a compilation/interpretation map.

2. SURVEY AREA

The survey area is centred some 70 km north of Grand Forks, B.C. Area topography is shown on the 1:50,000 scale Burrell Creek map sheet - NTS reference 82E/9.

Relief is moderate to high ranging from 2800 to over 4700 feet amsl. The survey area is centered on Mount McKinley at over 4700 feet. Mount Franklin (elevation 4600 feet) is located in the extreme north-east corner of the survey area. Mount Franklin is the center of an area of older exploration efforts. The survey area is largely tree covered with some logging.

The survey area is shown in the attached index map which includes local topography and latitude - longitude coordinates. This index map also appears on map legends.

A flight line spacing of 100 m was used throughout. Flight line direction was east-west. Three magnetic tie lines were flown north-south.

3. SURVEY PROCEDURES

The survey was flown in the period January 10 to 19, 1991. Principal personnel are listed in Appendix IV. Four survey flights were required to complete the project.

The flight line spacing was 100 m. The aircraft ground speed was maintained at approximately 60 knots (30 metres per second). The nominal EM sensor height was 30 metres, consistent with the safety of the aircraft and crew.

As a general comment, the pilot uses the radar altimeter to monitor helicopter terrain clearance. In areas of thick forest cover, the radar altimeter gives the height of the helicopter above the top of the trees. In areas of thin or no forest cover, the radar altimeter gives the height of the helicopter above ground.

Following equipment installation and testing, the ground based transponders of the radar ranging navigation system are normally installed at two or more sites near the survey areas. The UTM coordinates of each site are taken from published 1:50,000 NTS maps. The base line (or line between transponders) is flown to determine their separation. The result is used to check the UTM coordinates assigned to each transponder.

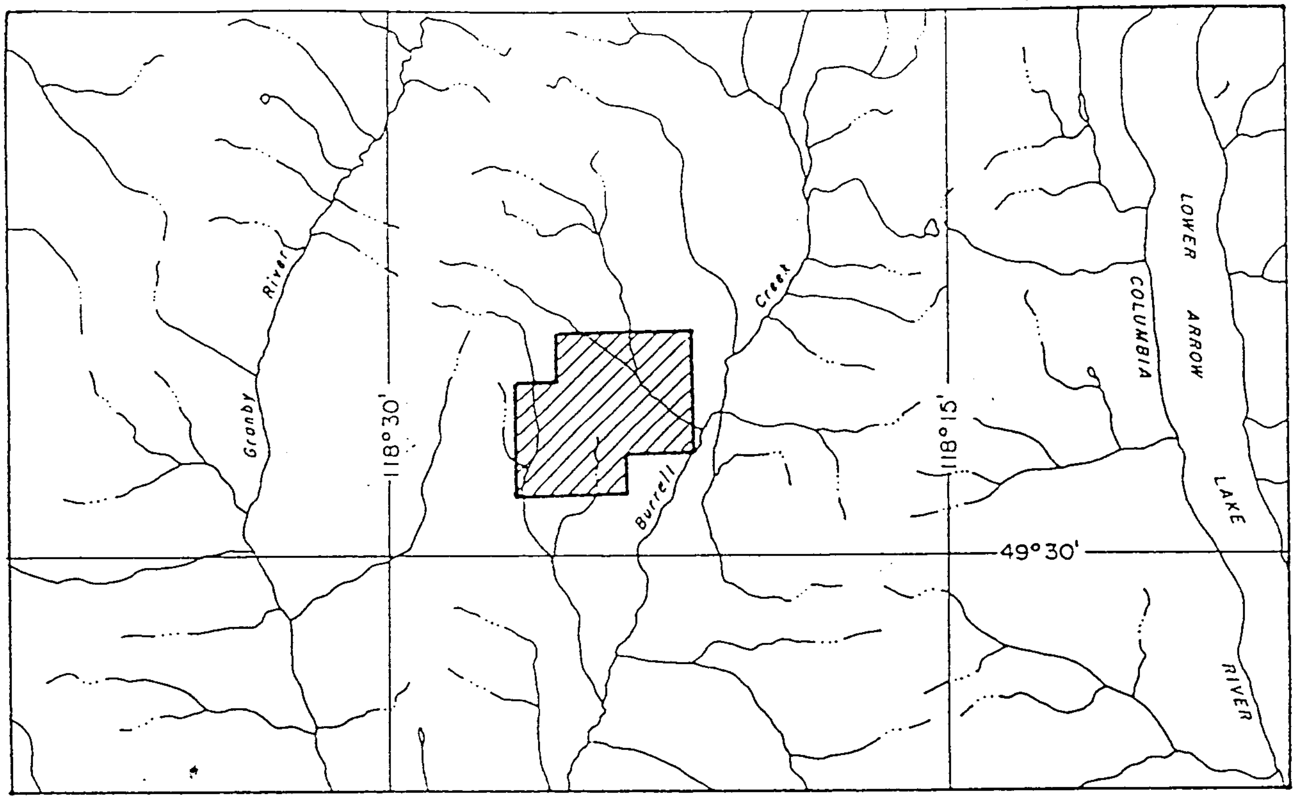
The survey area as outlined on topographic maps provided by Canamax is identified from the air. Prominent topographic features needed to program the navigation system are selected. A test flight is used to confirm that area coverage will be as required.

Due to area relief, complete coverage with the radar navigation system was not possible. As a result much of the area was flown visually using a 1:20,000 scale topographic map (2.5 times enlargement of the 1:50,000 scale NTS topographic map). During survey flying, the navigator marked fiducials of prominent topographic points on this map.

Calibration lines are flown at the start, middle (if required) and end of every survey flight. These lines are flown outside of ground effects to record electromagnetic zero.

4. DELIVERABLES

The results of the survey are presented in a report plus maps. White print copies of all black line maps are folded and bound with the report. The report and these maps are presented in four copies.



AIRBORNE GEOPHYSICAL SURVEY
on behalf of
CANAMAX RESOURCES INC.

GRAND FORKS, B.C. AREA

BY

AERODAT LIMITED
J9087-1

A full list of all map types is given at the beginning of this report. A summary is given here.

MAP TYPE	DESCRIPTION
1	Base Map (Black line)
2	Flight Path Map (Black line)
3	Compilation/Interpretation Map (Black line)
4	Total Magnetic Field Contours (Black line)
5	Vertical Magnetic Gradient Contours (Black line)
6	Apparent Resistivity - (Black line)
7	VLF-EM Total Field Contours (Black line)
9	Apparent Weight Percent Magnetite Contours (Black line)

The processed digital data is organized on 9 track archive tape. Both the profile and the gridded data are saved on tape. A full description of the archive tape(s) is delivered with the tape(s).

The original black line maps on mylar, the analog records, the base station magnetometer records and the flight path video tapes are delivered at the conclusion of the project.

5. AIRCRAFT AND EQUIPMENT

5.1 Aircraft

An Astar 350B helicopter, (C-FTPH), owned and operated by Peace Helicopters, was used for the survey. Installation of the geophysical and ancillary equipment was carried out by Aerodat. The survey aircraft was flown at a mean terrain clearance of 60 metres.

5.2 Electromagnetic System

The electromagnetic system was an Aerodat 4-frequency system. Two vertical coaxial coil pairs were operated at 935 Hz and 4,600 Hz and two horizontal coplanar coil pairs at 4,175 Hz and 33 kHz. The transmitter-receiver separation was 7 metres. Inphase and quadrature signals were measured simultaneously for the 4 frequencies with a time constant of 0.1 seconds. The HEM bird was towed 30 metres below the helicopter.

5.3 VLF-EM System

The VLF-EM System was a Herz Totem 2A. This instrument measures the total field and vertical quadrature components of two selected frequencies. The sensor was towed in a bird 15 metres below the helicopter.

VLF transmitters are designeted "Line" and "Ortho". The line station is that which is in a direction from the survey area which is 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 used were NAA, Cutler, Maine broadcasting at 24.0 kHz, and NLK Jim Creek, Washington broadcasting at 24.8 kHz. The line station was NLK (24.8 kHz). The ortho station was NAA (24.0 KhZ).

5.4 Magnetometer

The magnetometer employed was a Scintrex H8 cesium, optically pumped magnetometer sensor. The sensitivity of this instrument is 0.001 nanoTeslas at a 0.2 second sampling rate. The sensor was towed in a bird 15 metres below the helicopter.

5.5 Ancillary Systems

Base Station Magnetometer

An IFG-2 proton precession magnetometer was operated at the base of operations to record diurnal variations of the earth's magnetic field. The clock of the base station was synchronized with that of the airborne system to facilitate later correlation. Recording resolution was 1 nT. The update rate was 4 seconds.

Radar Altimeter

A King KRA-10 radar altimeter was used to record terrain clearance. The output from the instrument is a linear function of altitude.

Tracking Camera

A Panasonic colour video camera was used to record flight path on VHS video tape. The camera was operated in continuous mode. The flight number, 24 hour clock time (to.01 second), and manual fiducial number are encoded on the video tape.

Radar Ranging Navigation System

A Motorola Miniranger III positioning system was installed to guide the pilot over a programmed grid. The ranges to at least two ground stations were digitally recorded. The output sampling rate is 1 second. Ranges are recorded with a resolution of 0.1 m.

Analog Recorder

A RMS dot matrix recorder was used to display the data during the survey. Record contents are as follows:

Label	Contents	Scale
GEOPHYSICAL SENSOR DATA		
MAGF	Total Field Magnetics, Fine	2.5 nT/mm
MAGC	Total Field Magnetics, Course	25 nT/mm
VLT	VLF-EM, Total Field, Line Station	2.5%/mm
VLQ	VLF-EM, Vertical Quadrature, Line Station	2.5%/mm
VOT	VLF-EM, Total Field, Ortho Station	2.5%/mm
VOQ	VLF-EM, Vertical Quadrature, Ortho Station	2.5%/mm
CXI1	935 Hz, Coaxial, Inphase	2.5 ppm/mm
CXQ1	935 Hz, Coaxial, Quadrature	2.5 ppm/mm
CXI2	4600 Hz, Coaxial, Inphase	2.5 ppm/mm
CXQ2	4600 Hz, Coaxial, Quadrature	2.5 ppm/mm
CPI1	4175 Hz, Coplanar, Inphase	10 ppm/mm
CPQ1	4175 Hz, Coplanar, Quadrature	10 ppm/mm
CPI2	33 kHz, Coplanar, Inphase	20 ppm/mm
CPQ2	33 kHz, Coplanar, Quadrature	20 ppm/mm
ANCILLARY DATA		
RALT	Radar Altimeter	10 ft/mm
PWRL	60 Hz Power Line Monitor	-

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

Vertical lines crossing the record are operator activated manual fiducial markers. 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 recorded the digital survey data on magnetic media. Contents and update rates were as follows:

DATA TYPE	RECORDING INTERVAL
Magnetometer (1 Channel)	0.2 s
VLF-EM (4 Channels)	0.2 s
HEM (8 Channels)	0.1 s
Position (2 Channels)	0.2 s
Altimeter (1 Channel)	0.2 s
Power Line Monitor (1 Channel)	0.2 s
Manual Fiducial	
Clock Time	

6. DATA PROCESSING AND PRESENTATION

6.1 Base Map

The base map was prepared by five times photographic enlargement of a 1:50,000 scale topographic map (NTS 82E/9). The survey area boundaries and UTM reference points were added.

6.2 Flight Path Map

The flight path is taken from the 1:20,000 scale navigators map. Manual fiducials, marked by the navigator, were digitized. After expansion to a scale of 1:10,000, these digitized control points form the basis 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 2 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 flight path map is merged with the base map using a best fit match between selected flight path points over prominent topographic features and those same features as shown on the base map.

The flight path is drawn using non-linear interpolation between fiducial points. Small deviations in flight path may be introduced during magnetic levelling (see below).

6.3 Electromagnetic Survey Data

The electromagnetic data were recorded digitally at a sample rate of 10 per second with a time constant of 0.1 seconds. A two stage digital filtering process was carried out to reject major sferic events and the reduce 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.

The signal to noise ratio was further enhanced by the application of a low pass digital filter. This filter has zero phase shift which 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 was made using EM 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 were used in the determination of apparent resistivity (see below).

6.4 Total Field Magnetics

The aeromagnetic data were corrected for diurnal variations by adjustment with the recorded base station magnetic values. Where needed, the magnetic tie line results were used to further level the magnetic data. No corrections for regional variations were applied. The corrected profile data were 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 2nT. A grid cell size of 25 m (1/10th inch at map scale) was used.

6.5 Vertical Magnetic Gradient

The vertical magnetic gradient was 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 0.05 nT/m.

6.6 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 were interpolated onto a regular grid at a 25 metres true scale interval using an Akima spline techniqe and contoured using logarithmically arranged contour intervals. The minimum contour interval is 0.1 log (ohm.m).

The highest measurable resistivity using the 4600 Hz data is 10,000 ohm.m. Given the difficulties of inverting low amplitude signals, apparent resistivities over 5,000 ohm.m are probably indistinguishable.

6.7 VLF-EM

The VLF Total Field data from the Line Station (NLK, Jim Creek, 24.8 kHz) is levelled such that a response of 0% is seen in non-anomalous regions. The corrected profile data are interpolated onto a regular grid (grid cell size 25 m) using an Akima spline technique. The grid provided the basis for threading the presented contours. The minimum contour interval is 1%.

6.8 Apparent Weight Percent Magnetite

The apparent weight percent magnetite has been calculated from the 935 Hz inphase EM response. The algorithm is based on the HEM response to a non-conducting, magnetically polarizeable half-space. The calculation involves a correction to a sensor elevation of 30m followed by a conversion to weight percent. The elevation correction is based on the cubic fall-off of response amplitude with height. As a rule of thumb, a negative inphase response of 1 ppm in either coaxial channel will work out to a percent magnetite by weight of about 0.2%.

The results are misleading if the source is a near-vertical dyke or intrusion. In such cases, the calculated weight percent magnetite may be too little by a factor or 10 or more.

The calculated apparent percent magnetite data were interpolated on a square grid (25m grid cell size). The grid provided the basis for threading the presented contours. The minimum contour interval is 0.1%.

7. INTERPRETATION

7.1 General Comments

The exploration target is disseminated metallic sulphides. These may be associated with intrusions which are strongly magnetic and may appear in the aeromagnetic data as circular magnetic highs.

The sulphides are generally found in low volume percent (5%). Local concentration in vein-like features is possible. Mineralized areas may be weakly silicified.

The area geology is dominated by the Franklin group (greenstone, cherty, quartzite, altered tuff), the Kettle River formation (conglomerate, arkosic grit, acidic tuff) and an unnamed group (unit 1 - granodiorite, gneiss). Older mine workings are shown near Mount Franklin and McKinley Creek. All are shown in the Franklin group. The immediate vicinity of these workings is characterized by an absence of distinctive airborne geophysical response.

In the absence of a distinctive geophysical signature, target areas may be selected based upon one or more favourable characteristics such as

A. local, strong magnetics (seen in the countoured magnetic map or as negative inphase anomalies in the HEM offset profiles)
B. EM bedrock conductors which may be very weak and of short strike length.
C. Local apparent resistivity anomaly. Resistivity values may be only slightly less than background values.

There is some reason to select target areas which are within the Franklin Group.

Some general comments on interpreting airborne geophysical data are given in Appendix I.

Magnetics

Magnetic axes have been assigned to elongated magnetic highs. These axes appear on the compilation/interpretation map. These axes are used to give some idea of geologic strike.

Magnetic axes are drawn without reference to magnetic anomaly amplitude. Weak and strong magnetic highs are represented on the compilation map simply as magnetic axes. Magnetic anomalies which are circular or of short strike length are not well represented on the compilation map.

Magnetic zone boundaries which separate areas of different magnetic character are shown on the compilation map. They are labelled Z1 to Z4. Their characteristics and possible geologic correlation are as follows:

Z1: Areas of relatively strong magnetic relief. Anomaly amplitudes are 1000 to 2000 nT above background. These are the strongest features on the contoured aeromagnetic map. In the central and western parts of the survey area, these zones appear to be related granodiorite, greiss. In the area of Mount Franklin, this zone may be an expression of basaltic volcanics.

Z2: Area of moderate relief between two high gradient zones (Z1). The geology map shows Z2 as being rocks of the Franklin group.

Z3: A distinctive zone of low magnetic relief. A few small (less than 50nT) local anomalies are overprinted on a smooth regional gradient. The regional gradient is probably due to sources at large depths. This zone outlines rocks of the Franklin Group.

Z4: An area in the south-east part of the survey area with moderate magnetic relief. (Anomalies of up to 200nT).

The overwhelming strike of magnetic anomalies in the survey area is north-east/south-west. A few weaker anomalies striking north-west/south-east interrupt this pattern.

The map of calculated weight percent magnetite shows a number of anomalous areas. The more prominent areas have been transferred to the compilation map. Such areas represent anomalous near-surface concentrations of magnetite. They may or may not correspond to an anomaly in the total magnetic field contour map. Deep seated magnetic sources will not give a negative EM response. Different sensor-source geometries mean anomaly peaks (magnetic field and percent magnetite) may not coincide. The EM response may be the most reliabe indicator of the location of local near-surface concentrations of magnetite.

In this qualitative use of the aeromagnetic data, the vertical gradient results have not been used. The vertical gradient data and a more quantitative analysis could follow in areas of special interest. The vertical gradient results are calculated from the total field data. Small errors in position will produce misleading patterns in the contoured vertical gradient map. Such errors are expected in some parts of the survey area given the methods used to establish the flight path.

HEM

The apparent resistivity map is produced from the 4600 Hz coaxial HEM data. EM response amplitudes are low throughout most of the survey area. The result is moderate to high background apparent resistivities (over 2500 ohm-m).

Anomalous apparent resistivities have been assigned to values less than 1000 ohm.m. Areas of 1000 ohm.m or less are shown on the compilation map.

EM anomalies which are thought to be the response to bedrock conductors are picked from the analog records and offset profile maps. The selection criteria are outlined below. As a general comment, EM anomalies picked are weak and few in number. They are found mostly in the eastern part of the survey area.

7.2 Em Anomaly Selection and Analysis

The identification of possible bedrock coductors is based on picking all promising EM anomalies. Ideal anomaly characteristics are:

- a detectable 935 Hz inphase response
- a coincident positive peak in the 4600 Hz inphase channel
- a coincident low in the 4175 Hz inphase channel

Special care is required over magnetic anomalies - the quadrature channels may be the only indicators of a coincident conductors.

The requirement of a 935 Hz inphaze response has been waved and more stress has been placed on anomalies in the 4600 Hz inphase channel. This is because weak conductors which might have no 935 Hz expression may be of interest.

Broad, low amplitude EM anomalies which do not appear as the response to near vertical conductors are not picked. Such responses are best represented on the apparent resistivity map.

Having picked an EM anomaly, the 4600 Hz inphase and quadrature anomaly amplitudes are used to determine the conductance and depth of burial of a vertical thin sheet conductor model. These data appear in Appendix II.

The 4600 Hz inphase anomaly amplitude and the thin sheet conductance range as determined from the 4600 Hz response amplitudes are shown with the plotted anomaly symbols. Each anomaly is identified by flight line number and conductor letter.

EM anomalies due to cultural sources are so judged if there is a coincident response in the power line monitor (as seen on the analog records). If present, they are shown on the maps as open squares. Conductance range estimates and inphase response amplitudes are not plotted with the anomaly symbol. No cultural anomalies have been identified.

7.3 Compilation/Interpretation Map

The compilation map shows EM anomaly centres with flight lines, survey area boundary and topographic base map. The following have been added

- conductor axes
- magnetic axes
- magnetic zone boundaries
- areas of low apparent resistivity (less than 1000 ohm.m)
- areas of measurable weight percent magnetite

The Magnetic zones have been labelled Z1 to Z4. Comments on these zones are given above.

Five target areas have been selected for comment. They are labelled A1 to A5. The labelling order is geographic. These target areas are discussed below.

7.4 Discussion

Five targets or target areas have been selected for further discussion. They are labelled A1 to A5 on the compilation/interpretation map.

A1: Line 10530, Fid 9:41:45
This is a one line EM anomaly some 250m east of Franklin Creek at the northern edge of the survey area. The anomaly is more definite than most others in the survey. The conductance estimate is low (less than 1 mho).

The anomaly is in a low resistivity area. There is no coincident magnetic anomaly.

The magnetic zoning suggests this target may not be in the Franklin group. The geology suggests that it is.

The proximity to Franklin Creek should help to locate this small target.

A2: A number of apparent bedrock conductors near the summit of Mount Franklin. Conductors have coincident negative inphase indicating near-surface magnetite. The conductance estimates of less than 1 mho are too low. The area is one of a strong magnetic anomaly (500 nT).

The magnetic zoning suggests this target is not within the Franklin group.

A3: Line 10330, Fid 11:46:10
This is the most attractive EM anomaly in the survey area. Although conductance estimates are low (less than 1 mho), the response shapes in 4175 and 4600 Hz. Although shown as two separate conductors, the EM response is typical of a 100m wide flat-lying, near surface conductor.

The target is some 400 metres west of Franklin Creek and on the edge of a broad zone of low resistivities (which may be due in part to stream sediments).

The target has no coincident magnetic response (it is near a mag low). It is well within the Franklin group and some 500 meters north of older adits.

A4: Line 10260, Fid 11:19:11
This is a prominent negative EM response near Bluejoint Creek in the western part of the survey area. It is at the northern end of a narrow zone at low apparent resistivities. In combination, the target can be considered to be 1 km long northsouth striking geophysical anomaly which is over or near Bluejoint Creek. The whole target is also expressed as a prominent magnetic low (some 300 nT below background)

The strong indication of magnetite with no total field mag anomaly is intriguing. The low resistivity zone in other circumstances might be explained by stream sediments. The EM responses however are mostly inphase - conductive overburden is normally seen as quadrature anomalies. Any inference about bedrock conductors is uncertain given the weak EM responses.

A5: This is an area south of Franklin Creek of negative inphase responses, a number of weak EM conductors and moderate magnetic anomalies (250 nT). The target area is interpreted to be outside the Franklin group.

EM responses are less definite than those described in targets A1 and A3. Attention might focus on the negative inphase response at line 10210, Fid 10:58:20.

Based principally on the airborne geophysical data, the five target areas may be ranked as first priority (A1, A2, A3) and second priority (A4) and (A5).

8. CONCLUSIONS

High resolution helicopterborne geophysical surveys have been completed over an area near Grand Forks, B.C. Total coverage is about 250 line kilometres (plus three (3) tie lines). Results are presented on black line maps at a scale of 1:10,000. Map types include EM anomaly centres, apparent resistivity, contoured magnetic field, contoured vertical magnetic gradient, and contoured VLF total field.

Preferred geophysical characteristics have been built up from a model geological target. These characteristics have been extracted from various map products and transferred to a compilation/interpretation map. Favourable areas are discussed with reference to this compilation map.

Respetfully submitted,

Ian Johnson, Ph.D., P.Eng.
Consulting Geophysicist
for
AERODAT LIMITED
February 7, 1991

APPENDIX I
GENERAL INTERPRETIVE CONSIDERATIONS

Electromagnetic

The Aerodat four frequency system utilizes two different transmitter-receiver coil geometries. The traditional coaxial coil configuration is operated at two widely separated frequencies. The horizontal coplanar coil configuration is similarly operated at two different frequencies where one pair is approximately aligned with one of the coaxial frequencies.

The electromagnetic response measured by the helicopter system is a function of the "electrical" and "geometrical" properties of the conductor. The "electrical" property of a conductor is determined largely by its electrical conductivity, magnetic susceptibility and its size and shape; the "geometrical" property of the response is largely a function of the conductor's shape and orientation with respect to the measuring transmitter and receiver.

Electrical Considerations

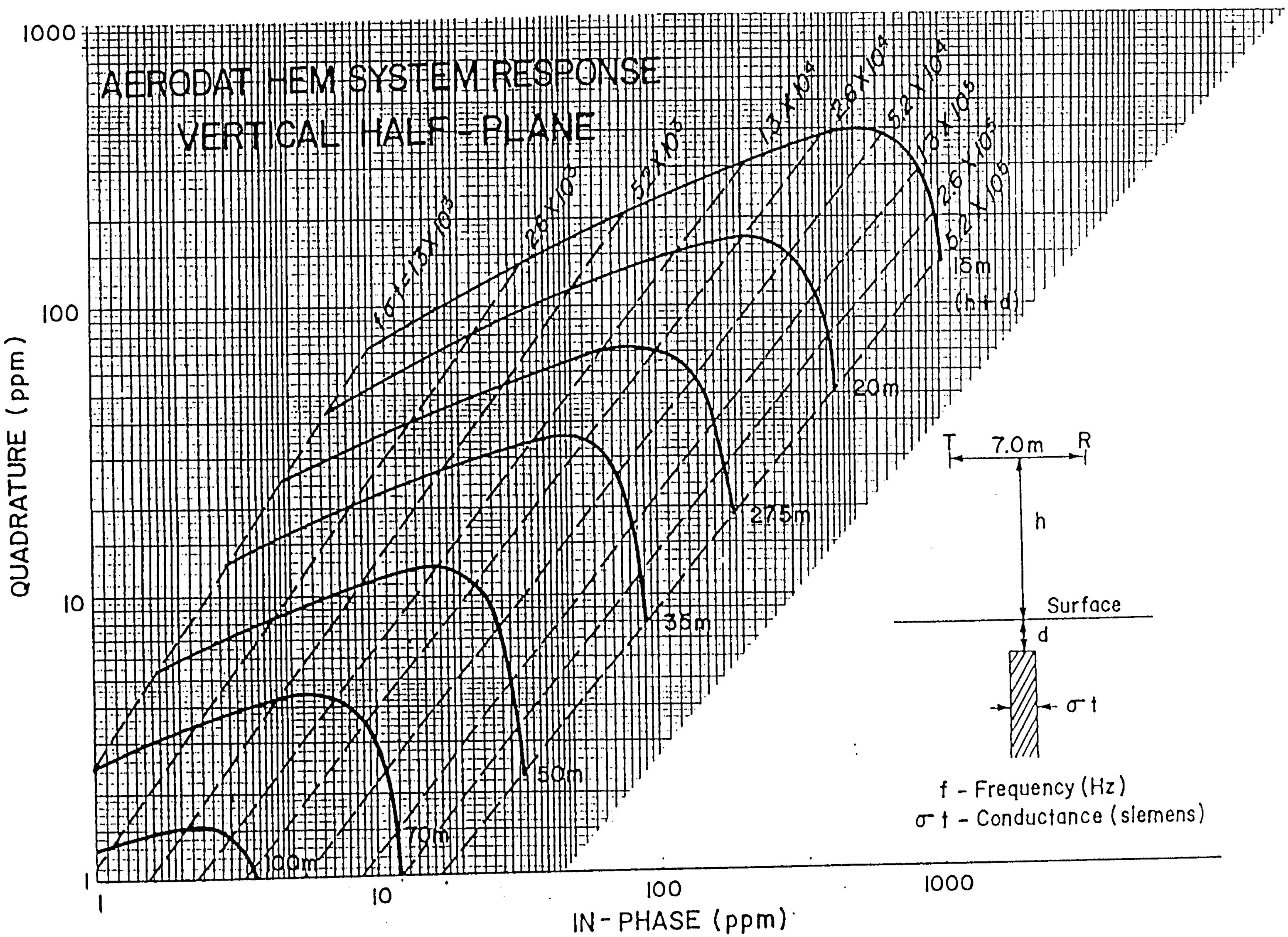
For a given conductive body the measure of its conductivity or conductance is closely related to the measured phase shift between the received and transmitted electromagnetic field. A small phase shift indicates a relatively high conductance, a large phase shift lower conductance. A small phase shift results in a large inphase to quadrature ratio and a large phase shift a low ratio. This relationship is shown quantitatively for non-magnetic vertical half-plane and half-space models on the accompanying phasor diagrams. Other physical models will show the same trend but different quantitative relationships.

The phasor diagram for the vertical half-plane model, as presented, is for the coaxial coil configuration with the amplitudes in parts per million (ppm) of the primary field as measured at the response peak over the conductor. To assist the interpretation of the survey results the computer is used to identify the apparent conductance and depth of selected anomalies. The results of this calculation are presented in anomaly listings included in the survey report and the conductance and inphase amplitude are presented in symbolized form on the map presentation.

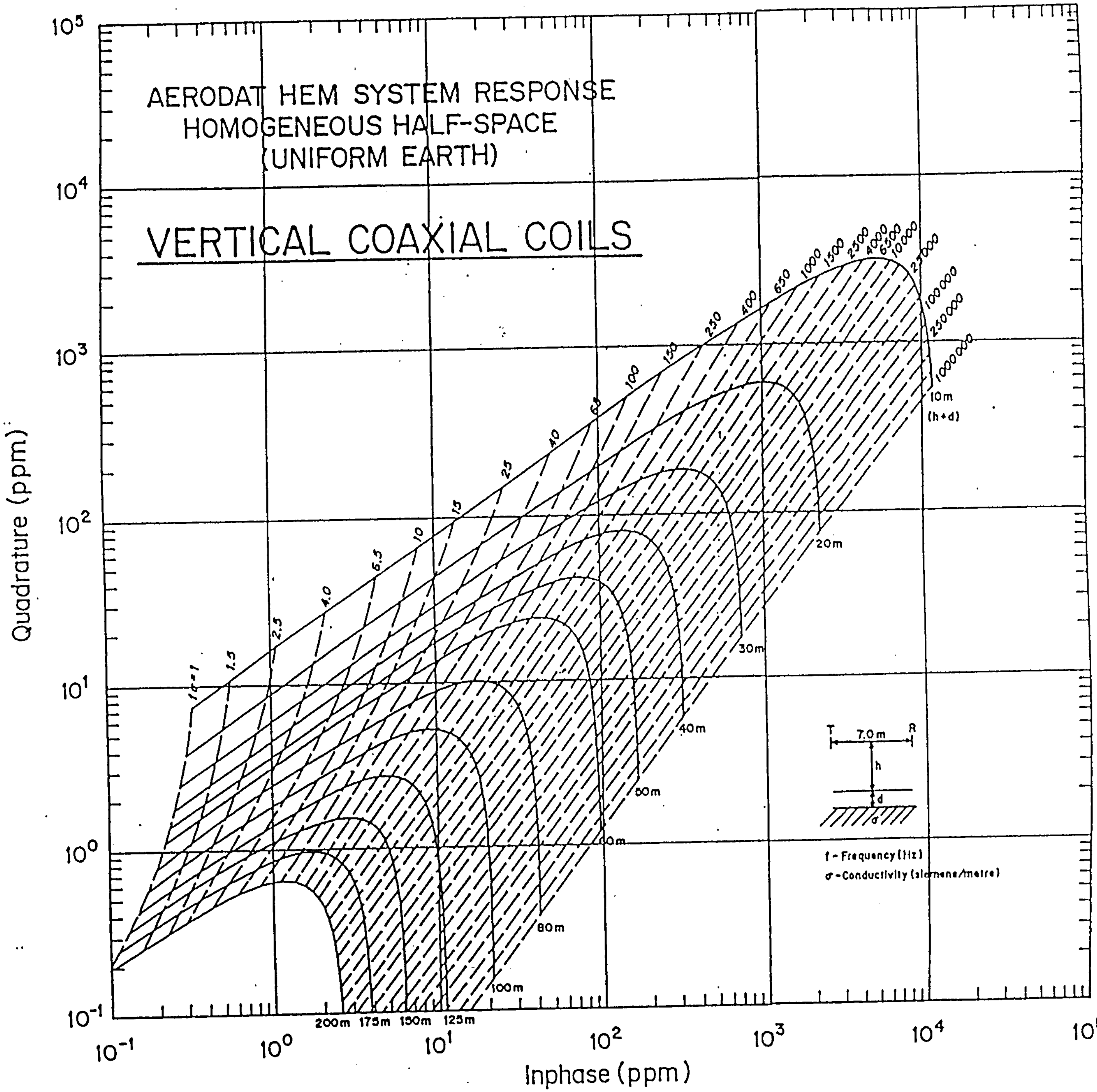
The conductance and depth values as presented are correct only as far as the model approximates the real geological situation. The actual geological source may be of limited length, have significant dip, may be strongly magnetic, its conductivity and thickness may vary with depth and/or strike and adjacent bodies and overburden may have modified the response. In general the conductance estimate is less affected by these limitations than is the depth estimate, but both should be considered as relative rather than absolute guides to the anomaly's properties.

Conductance in mhos is the reciprocal of resistance in ohms and in the case of narrow slab-like bodies is the product of electrical conductivity and thickness.

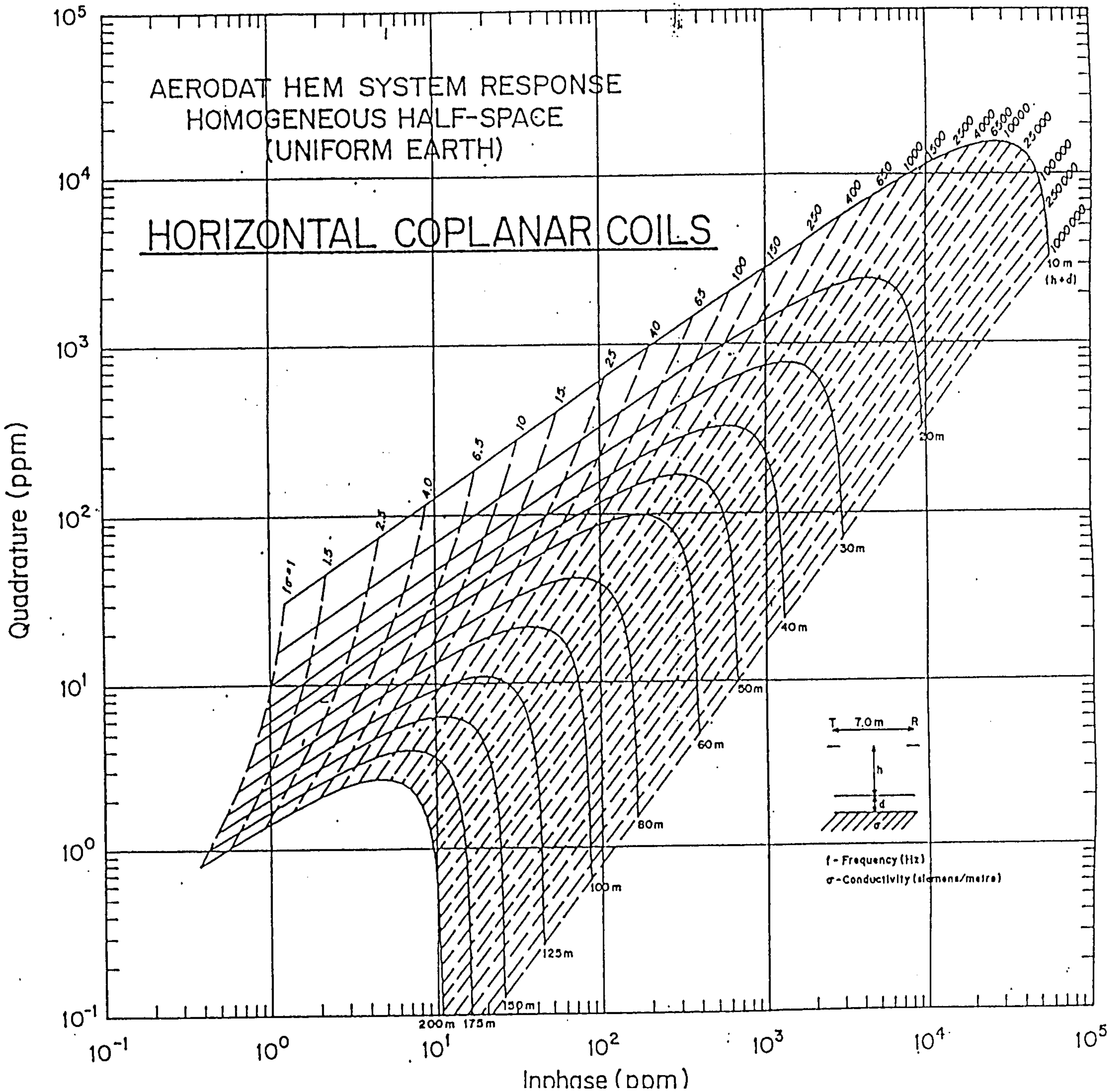
Most overburden will have an indicated conductance of less than 2 mhos; however, more



AERODAT HEM SYSTEM RESPONSE
VERTICAL HALF-PLANE
QUADRATURE (ppm)
IN-PHASE (ppm)
1000
100
10
1
1
10
100
1000
15m
(h+d)
20m
27.5m
35m
50m
70m
100m
T
7.0m
R
h
Surface
d
σ t
f - Frequency (Hz)
σ t - 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
7.0m
T
R
h
d
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 7.0 m R
h
d
σ
f - Frequency (Hz)
σ - Conductivity (siemens/metre)

conductive clays may have an apparent conductance of say 2 to 4 mhos. Also in the low conductance range will be electrolytic conductors in faults and shears.

The higher ranges of conductance, greater than 4 mhos, indicate that a significant fraction of the electrical conduction is electronic rather than electrolytic in nature. Materials that conduct electronically are limited to certain metallic sulphides and to graphite. High conductance anomalies, roughly 10 mhos or greater, are generally limited to sulphide or graphite bearing rocks.

Sulphide minerals, with the exception of such ore minerals as sphalerite, cinnabar and stibnite, are good conductors; sulphides may occur in a disseminated manner that inhibits electrical conduction through the rock mass. In this case the apparent conductance can seriously underrate the quality of the conductor in geological terms. In a similar sense the relatively non-conducting sulphide minerals noted above may be present in significant consideration in association with minor conductive sulphides, and the electromagnetic response only relate to the minor associated mineralization. Indicated conductance is also of little direct significance for the identification of gold mineralization. Although gold is highly conductive, it would not be expected to exist in sufficient quantity to create a recognizable anomaly, but minor accessory sulphide mineralization could provide a useful indirect indication.

In summary, the estimated conductance of a conductor can provide a relatively positive identification of significant sulphide or graphite mineralization; however, a moderate to low conductance value does not rule out the possibility of significant economic mineralization.

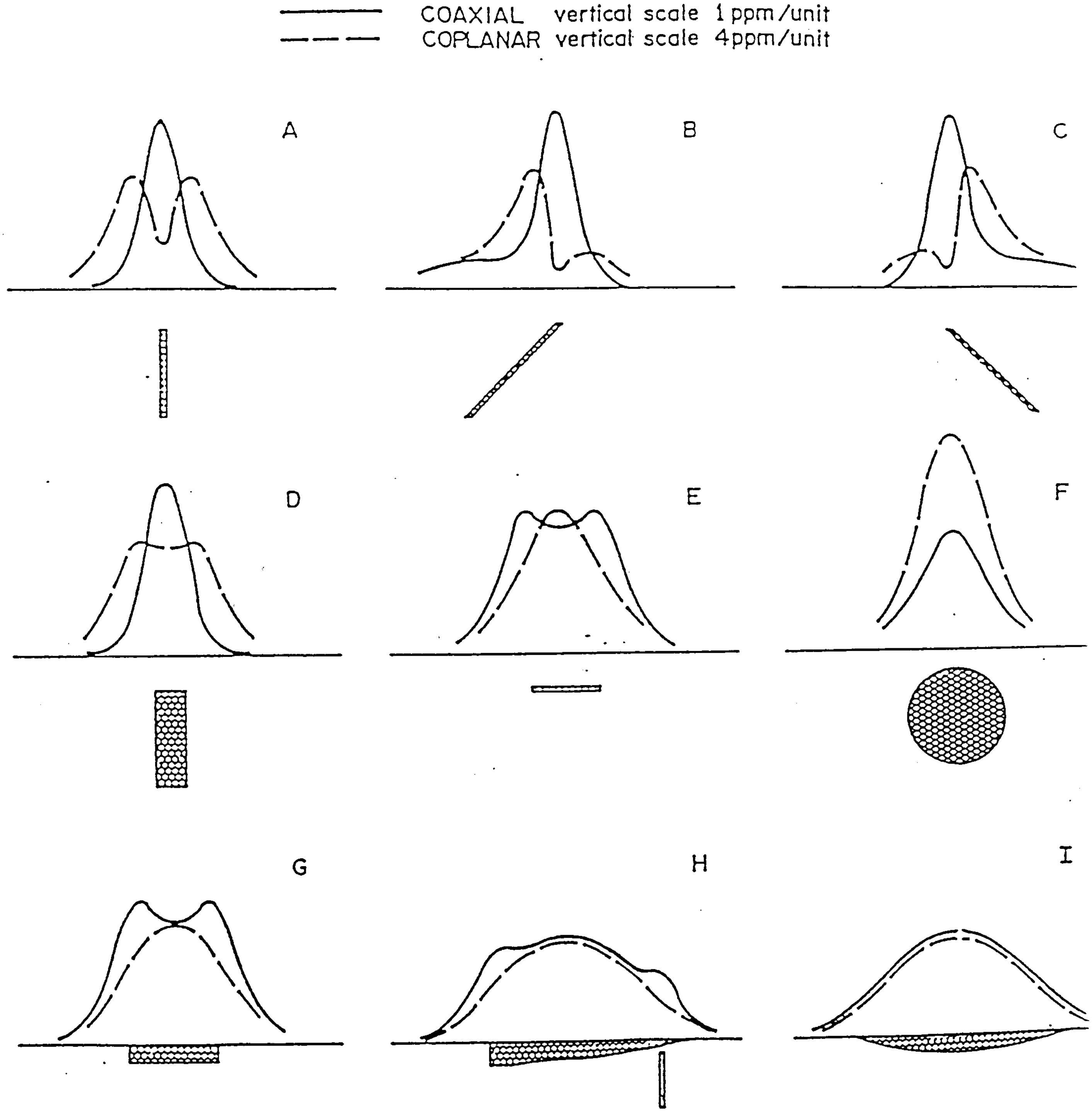
Geometrical Considerations

Geometrical information about the geologic conductor can often be interpreted from the profile shape of the anomaly. The change in shape is primarily related to the change in inductive coupling among the transmitter, the target, and the receiver. The accompanying figure shows a selection of HEM response profile shapes from nine idealized targets. Response profiles are labelled A through I. These labels are used in the discussion which follows.

In the case of a thin, steeply dipping, sheet-like conductor, the coaxial coil pair will yield a near symmetric peak over the conductor. On the other hand, the coplanar coil pair will pass through a null couple relationship and yield a minimum over the conductor, flanked by positive side lobes.(Profile A) As the dip of the conductor decrease from vertical, the coaxial anomaly shape changes only slightly, but in the case of the coplanar coil pair the side lobe on the down dip side strengthens relative to that on the up dip side.(Profiles B and C).

As the thickness of the conductor increases, induced current flow across the thickness of the conductor becomes relatively significant and complete null coupling with the coplanar coils is no longer possible.(Profile D) As a result, the apparent minimum of the coplanar response over the conductor diminishes with increasing thickness, and in the limiting case of a fully 3

HEM RESPONSE PROFILE SHAPE AS AN INDICATOR OF CONDUCTOR GEOMETRY



dimensional body or a horizontal layer or half-space, the minimum disappears completely.

A horizontal conducting layer such as overburden will produce a response in the coaxial and coplanar coils that is a function of altitude (and conductivity if not uniform). The profile shape will be similar in both coil configurations with an amplitude ratio (coplanar:coaxial) of about 4:1*.(Profiles E and G).

In the case of a spherical conductor, the induced currents are confined to the volume of the sphere, but not relatively restricted to any arbitrary plane as in the case of a sheet-like form. The response of the coplanar coil pair directly over the sphere may be up to 8* times greater than that of the coaxial pair.(Profile F)

In summary, a steeply dipping, sheet-like conductor will display a decrease in the coplanar response coincident with the peak of the coaxial response. The relative strength of this coplanar null is related inversely to the thickness of the conductor; a pronounced null indicates a relatively thin conductor. The dip of such a conductor can be inferred from the relative amplitudes of the side-lobes.

Massive conductors that could be approximated by a conducting sphere will display a simple single peak profile form on both coaxial and coplanar coils, with a ratio between the coplanar to coaxial response amplitudes as high as 8*.

Overburden anomalies often produce broad poorly defined anomaly profiles.(Profile I) In most cases, the response of the coplanar coils closely follows that of the coaxial coils with a relative amplitude ratio of 4*.

Occasionally, if the edge of an overburden zone is sharply defined with some significant depth extent, an edge effect will occur in the coaxial coils. In the case of a horizontal conductive ring or ribbon, the coaxial response will consist of two peaks, one over each edge; whereas the coplanar coil will yield a single peak.(Profile H)

* It should be noted at this point that Aerodat's definition of the measured ppm unit is related to the primary field sensed in the receiving coil without normalization to the maximum coupled (coaxial configuration). If such normalization were applied to the Aerodat units, the amplitude of the coplanar coil pair would be halved.

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.

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 elliptically polarized in the vicinity of electrical conductors. The Herz Totem uses three coils in the X, Y, Z configuration to measure the total field and vertical quadrature component of the polarization ellipse.

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 the 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 response is an indicator of the existence and position of a conductivity anomaly. 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.

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 amplitude of the quadrature response, as opposed to shape is a function of target conductance and depth as well as the conductivity of the overburden and host rock. As the primary field travels down to the conductor through conductive material it is both attenuated and phase shifted in a negative sense. The secondary field produced by this altered field at the target also has an associated phase shift. This phase shift is positive and is larger for relatively poor conductors. This secondary field is attenuated and phase shifted in a negative sense during return travel to the surface. The net effect of these 3 phase shifts determine the phase of the secondary field sensed at the receiver.

A relatively poor conductor in resistive ground will yield a net positive phase shift. A relatively good conductor in more conductive ground will yield a net negative phase shift. A combination is possible whereby the net phase shift is zero and the response is purely in-phase with no quadrature component.

A net positive phase shift combined with the geometrical cross-over shape will lead to a positive quadrature response on the side of approach and a negative on the side of departure. A net negative phase shift would produce the reverse. A further sign reversal occurs with a 180 degree change in instrument orientation as occurs on reciprocal line headings. During digital processing of the quadrature data for map presentation this is corrected for by normalizing the sign to one of the flight line headings.

APPENDIX II

ANOMALY LISTINGS

J9087

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
13	10170	A	0	3.7	6.6	0.2	0	61
13	10180	A	0	2.7	7.7	0.1	0	53
13	10190	A	0	2.6	8.9	0.0	0	41
13	10190	B	0	2.6	8.4	0.0	0	53
14	10210	A	0	3.3	8.1	0.1	0	69
14	10210	B	0	-0.3	12.0	0.0	0	54
14	10210	C	0	-0.9	14.5	0.0	0	40
14	10210	D	0	0.4	11.1	0.0	0	47
14	10220	A	0	1.5	8.5	0.0	0	50
14	10230	A	0	1.3	7.9	0.0	0	44
14	10230	B	0	1.8	10.2	0.0	0	39
14	10230	C	0	0.7	11.8	0.0	0	53
14	10230	D	0	2.1	6.4	0.0	0	53
14	10240	A	0	2.2	8.0	0.0	1	41
14	10240	B	0	1.1	5.9	0.0	3	38
14	10250	A	0	1.1	8.4	0.0	0	32
14	10250	B	0	0.4	9.2	0.0	0	34
14	10260	A	0	1.8	6.6	0.0	4	41
14	10270	A	0	1.6	6.7	0.0	2	40
14	10300	A	0	2.3	7.7	0.0	0	49
14	10300	B	0	3.4	5.3	0.3	7	54
14	10310	A	0	4.7	8.4	0.3	0	56
14	10310	B	0	5.3	8.7	0.3	3	47
14	10330	A	0	1.1	9.9	0.0	0	30
14	10330	B	0	3.6	19.0	0.0	0	31
14	10330	C	0	5.6	16.8	0.1	0	36
14	10330	D	0	5.1	9.1	0.3	0	58
14	10350	A	0	1.7	3.6	0.1	4	60
14	10350	B	0	1.7	9.9	0.0	5	28
14	10360	A	0	3.2	8.6	0.1	0	46

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.

J9087

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
14	10360	B	0	4.6	10.4	0.2	0	48
15	10380	A	0	1.7	15.4	0.0	0	34
15	10380	B	0	2.1	5.5	0.1	0	56
15	10390	A	0	2.0	5.3	0.1	0	59
15	10421	A	0	1.8	9.0	0.0	0	46
15	10421	B	0	1.9	11.1	0.0	0	49
10	10450	A	0	1.8	6.6	0.0	0	49
10	10450	B	0	0.0	8.1	0.0	0	53
10	10460	A	0	1.6	8.6	0.0	0	42
10	10480	A	0	-15.6	18.0	0.0	0	28
10	10480	B	0	-7.6	20.1	0.0	0	27
10	10490	A	0	-0.2	7.5	0.0	0	43
10	10490	B	0	0.8	8.4	0.0	0	57
10	10500	A	0	-12.5	11.5	0.0	0	26
10	10510	A	0	-10.5	12.7	0.0	0	24
10	10510	B	0	1.3	8.2	0.0	0	56
10	10530	A	0	12.4	18.5	0.6	0	52
10	10540	A	0	2.6	6.8	0.1	3	46
10	10550	A	0	1.1	11.1	0.0	0	39

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.

J9089

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
2	10310	AA	0	5.8	17.4	0.1	0	91
2	10310	A	0	-2.4	7.6	0.0	0	49
2	10310	B	0	-1.8	14.7	0.0	0	42
2	10310	C	0	0.7	15.7	0.0	0	44
2	10310	D	0	-2.2	13.8	0.0	0	40
2	10300	A	0	2.6	13.3	0.0	0	44
2	10300	B	0	0.8	11.1	0.0	0	37
2	10300	C	0	0.6	11.2	0.0	0	41
2	10300	D	0	-1.4	13.4	0.0	0	37
2	10300	E	0	-0.7	10.3	0.0	0	51
2	10300	F	0	5.5	15.3	0.1	0	52
2	10300	G	0	1.3	10.7	0.0	0	49
2	10290	A	0	2.1	11.0	0.0	0	61
2	10290	B	0	2.1	16.2	0.0	0	37
2	10290	C	0	-0.5	9.5	0.0	0	52
2	10290	D	0	0.0	10.5	0.0	0	55
2	10290	E	0	0.0	12.0	0.0	0	55
2	10290	F	0	0.0	12.7	0.0	0	58
2	10290	G	0	-1.1	11.0	0.0	0	54
2	10290	H	0	0.0	16.1	0.0	0	54
2	10280	A	0	1.3	12.9	0.0	0	51
2	10280	B	0	0.4	9.9	0.0	0	46
2	10280	C	0	0.6	13.1	0.0	0	48
2	10280	D	0	-0.1	8.6	0.0	0	57
2	10280	E	0	0.9	8.0	0.0	0	66
2	10270	A	0	-1.3	10.3	0.0	0	58
2	10270	B	0	0.3	11.9	0.0	0	54
2	10270	C	0	-0.7	10.5	0.0	0	46
2	10270	D	0	-0.1	9.9	0.0	0	50
2	10270	E	0	-0.1	9.1	0.0	0	49
2	10270	F	0	0.4	12.3	0.0	0	52
2	10260	A	0	2.3	12.5	0.0	0	47
2	10260	B	0	0.8	10.3	0.0	0	54
2	10260	C	0	0.5	10.0	0.0	0	53
2	10250	A	0	4.2	9.5	0.2	0	52
2	10250	B	0	-0.1	10.4	0.0	0	52
2	10250	C	0	-1.7	22.1	0.0	0	32
2	10250	D	0	2.1	20.7	0.0	0	37

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.

J9089

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
2	10240	A	0	1.1	12.3	0.0	0	47
2	10240	B	0	0.1	10.8	0.0	0	50
2	10240	C	0	-0.8	13.2	0.0	0	42
2	10240	D	0	0.5	9.8	0.0	0	46
2	10240	E	0	-4.3	6.9	0.0	0	44
2	10240	F	0	8.5	15.0	0.4	0	48
2	10230	A	0	0.3	6.9	0.0	0	47
2	10230	B	0	1.7	10.3	0.0	0	49
2	10230	C	0	-2.4	13.4	0.0	0	42
2	10230	D	0	0.2	14.2	0.0	0	37
2	10230	E	0	2.9	20.2	0.0	0	40
2	10230	F	0	3.3	22.0	0.0	0	40
2	10230	G	0	2.8	15.0	0.0	0	48
2	10220	A	0	2.4	7.4	0.0	0	58
2	10220	B	0	3.0	8.1	0.1	0	58
2	10220	C	0	1.1	9.3	0.0	0	50
2	10220	D	0	0.1	8.4	0.0	0	49
2	10220	E	0	1.3	11.8	0.0	0	36
2	10220	F	0	0.3	19.6	0.0	0	33
2	10220	G	0	-1.0	12.5	0.0	0	37
2	10220	H	0	-1.6	7.2	0.0	0	37
2	10210	A	0	6.0	14.1	0.2	0	55
2	10210	B	0	-0.1	8.3	0.0	0	47
2	10210	C	0	1.2	6.9	0.0	0	58
2	10210	D	0	3.2	14.5	0.0	0	42
2	10210	E	0	4.1	16.7	0.0	0	40
2	10201	A	0	4.3	10.7	0.1	0	59
2	10201	B	0	5.1	15.6	0.1	0	50
2	10201	C	0	-1.1	7.7	0.0	0	51
2	10201	D	0	2.0	11.7	0.0	0	56
2	10190	A	0	1.3	7.8	0.0	0	49
2	10190	B	0	-0.3	10.9	0.0	0	38
2	10190	C	0	2.5	14.2	0.0	0	52
2	10190	D	0	8.9	21.7	0.2	0	42
2	10180	A	0	2.8	11.1	0.0	0	50
2	10180	B	0	2.2	11.4	0.0	0	43
2	10170	A	0	0.9	10.8	0.0	0	44

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.

J9089

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
2	10170	B	0	0.2	13.0	0.0	0	42
2	10160	A	0	2.6	13.6	0.0	0	44
2	10160	B	0	-1.1	10.3	0.0	0	44
2	10140	A	0	2.6	12.4	0.0	0	52
2	10140	B	0	4.0	13.4	0.1	0	47
2	10130	A	0	3.5	9.5	0.1	0	48
2	10130	B	0	4.5	9.5	0.2	0	53
2	10130	C	0	-0.8	13.3	0.0	0	42
2	10120	A	0	-1.7	9.6	0.0	0	52
2	10120	B	0	2.0	17.6	0.0	0	50
2	10110	A	0	2.1	12.0	0.0	0	54
2	10100	A	0	2.3	14.5	0.0	0	51
2	10100	B	0	0.0	13.1	0.0	0	56
2	10100	C	0	5.5	16.8	0.1	0	48
2	10090	A	0	0.9	21.5	0.0	0	41
2	10090	B	0	6.2	22.6	0.1	0	41
2	10090	C	0	5.3	16.8	0.1	0	45
2	10090	D	0	1.5	12.0	0.0	0	51
2	10090	E	0	1.7	11.0	0.0	0	48
2	10090	F	0	1.2	11.3	0.0	0	62
2	10081	A	0	1.1	16.8	0.0	0	50
2	10081	B	0	-1.0	7.9	0.0	0	48
2	10081	C	0	-0.6	7.6	0.0	0	59
2	10081	D	0	1.6	10.8	0.0	0	61
2	10071	A	0	2.6	10.9	0.0	0	51
2	10071	B	0	1.0	8.5	0.0	0	47
2	10071	C	0	0.0	8.0	0.0	0	37
2	10071	D	0	3.5	12.1	0.1	0	45
2	10071	E	0	1.3	9.0	0.0	0	45
2	10071	F	0	0.8	6.1	0.0	0	50
2	10071	G	0	2.0	9.6	0.0	0	61
2	10071	H	0	4.2	13.9	0.1	0	52
2	10061	AA	0	6.2	13.1	0.2	0	49
2	10061	A	0	5.0	15.9	0.1	0	51
2	10061	B	0	2.9	13.5	0.0	0	54

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.

J9089

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
2	10061	C	0	0.3	9.0	0.0	0	47
2	10061	D	0	1.1	8.9	0.0	0	44
2	10061	E	0	2.2	10.5	0.0	0	51
2	10061	F	0	0.3	6.2	0.0	0	49
2	10061	G	0	-1.8	5.7	0.0	0	67
2	10051	A	0	3.5	12.2	0.1	0	39
2	10051	B	0	1.3	10.0	0.0	0	43
2	10051	C	0	0.6	10.2	0.0	0	46
2	10051	D	0	3.0	16.3	0.0	0	51
2	10051	E	0	5.8	16.1	0.1	0	52
2	10051	F	0	4.7	17.7	0.1	0	51
2	10041	A	0	3.6	7.7	0.2	0	81
2	10041	B	0	6.4	26.0	0.1	0	35
2	10041	C	0	5.1	16.5	0.1	0	53
2	10041	D	0	2.9	15.9	0.0	0	53
2	10041	E	0	0.6	10.1	0.0	0	49
2	10041	F	0	0.0	10.5	0.0	0	43
2	10031	A	0	9.2	25.4	0.2	0	32
1	10040	A	0	4.0	5.0	0.5	17	48
1	10040	B	0	6.4	8.6	0.5	0	55
1	10040	C	0	5.2	10.1	0.3	8	38
1	10030	A	0	10.5	13.6	0.7	6	40
1	10030	B	0	10.8	14.6	0.6	5	38
1	10020	A	1	10.0	9.5	1.0	15	39
1	10020	B	0	5.4	7.7	0.4	14	41

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 III

CERTIFICATE OF QUALIFICATIONS

I, IAN JOHNSON, certify that:

1. I am registered as a Professional Engineer in the Province of Ontario.

2. I reside at 38 Tinti Place in the town of Thornhill, Ontario.

3. I hold a Ph.D. in Geophysics from the University of British Columbia, having graduated in 1972.

4. I have been continuously engaged in both professional and managerial roles in the minerals industry in Canada and abroad for the past fourteen years.

5. The accompanying report was prepared from published or publicly available information and material supplied by Canamax Resources Inc. and Aerodat Limited in the form of government reports and proprietary airborne exploration data. I have not personally visited the specific property.

7. I have no interest, direct or indirect, in the property described nor in Canamax Resources Inc.

8. I hereby consent to the use of this report in a Statement of Material Facts of the Company and for the preparation of a prospectus for submission to the appropriate securities commission and/or other regulatory authorities.

Signed,

Ian Johnson, Ph.D., P. Eng.

REGISTERED PROFESSIONAL ENGINEER
I. M. JOHNSON
PROVINCE OF ONTARIO

J9087-1
Thornhill, Ontario
February 7, 1991

APPENDIX IV

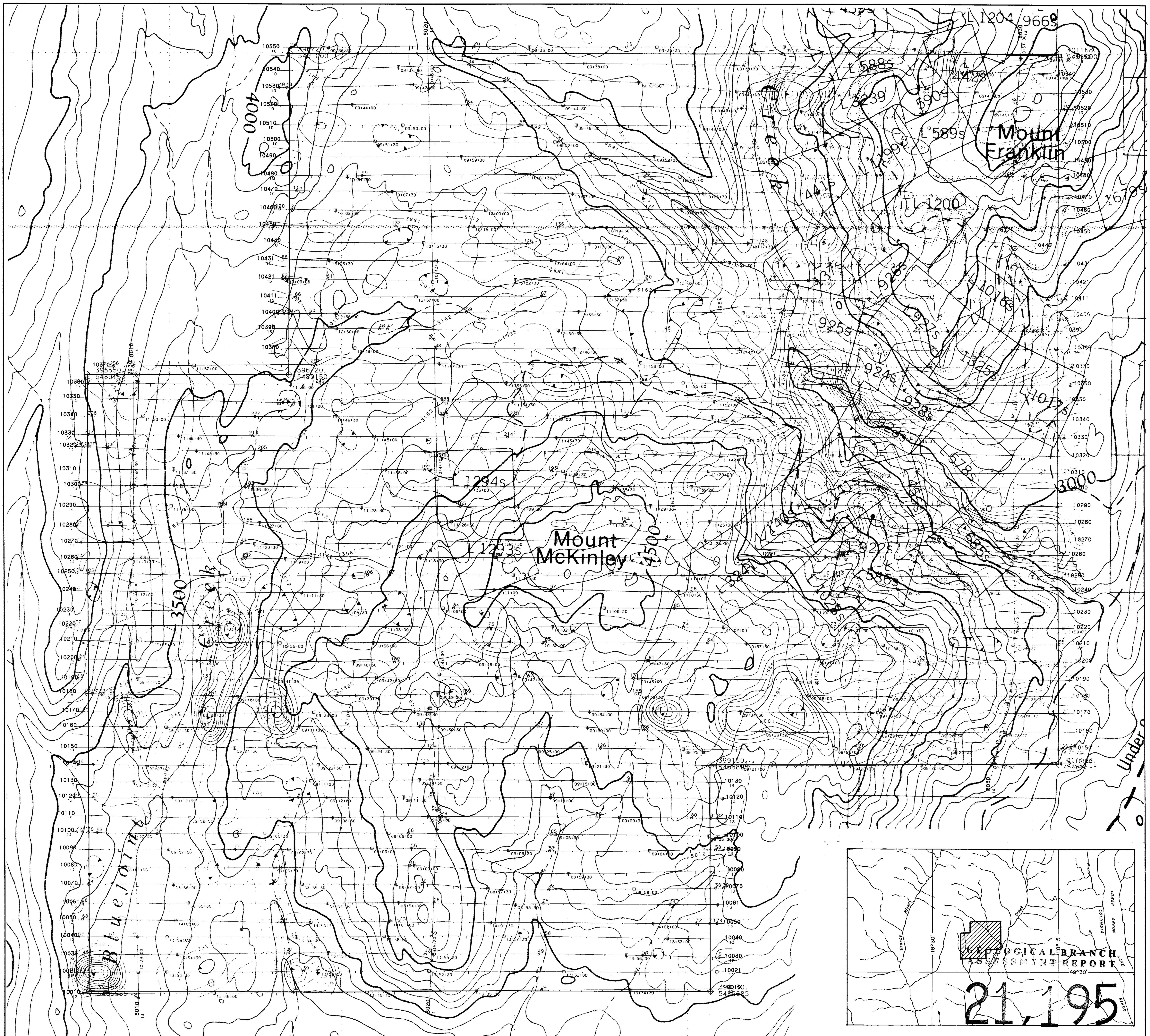
PERSONNEL

FIELD

Flown	January 10 to 19, 1991
Pilot	Gord Suthern
Operators	Steve Arstad

OFFICE

Processing	Doug Oneschuk George McDonald
Report	Ian Johnson



Flight Path

Flight path recovery from VHS video tape.
Average terrain clearance 60m
Average line spacing 100m

Apparent Resistivity

Calculated from 4600 Hz coaxial EM response assuming a 200 m conductive layer.

Contouring in ohm•m at logarithmic intervals.

Sensor elevation 30m

Map contours are multiples of those listed below

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

N

CANAMAX RESOURCES INC.

APPARENT RESISTIVITY CONTOURS

AREA 1

Grand Forks, B.C.

SCALE 1:10,000

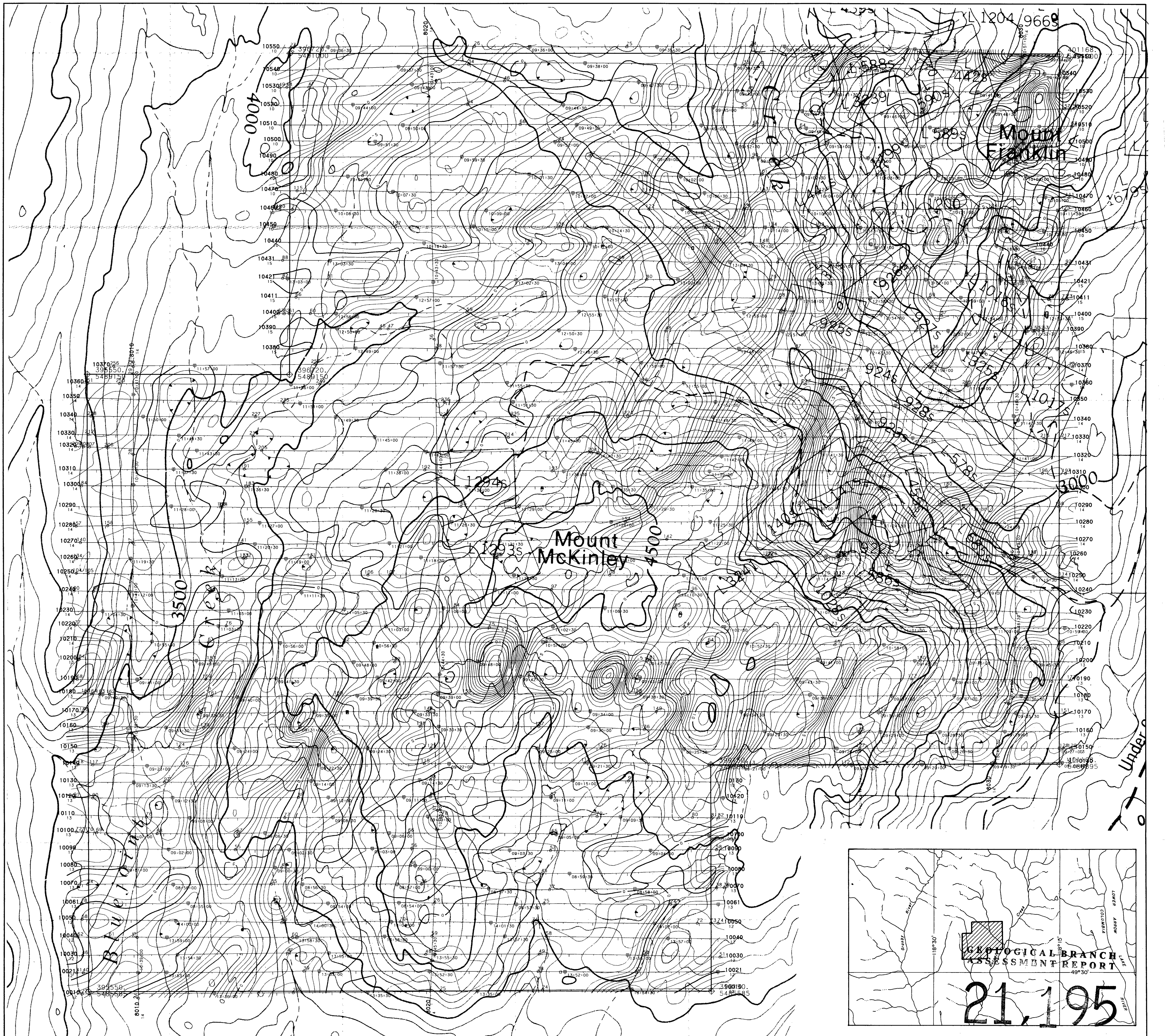
0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

AERODAT LIMITED

DATE:	Dec. 1990
NTS No:	82E/9
MAP No:	6

J9087



Flight Path

Flight path recovery from VHS video tape.
Average terrain clearance 60m
Average line spacing 100m

VLF-EM

VLF-EM Total Field intensity in percent.

Station: NAA
Cutler, Maine
24.0 kHz

Sensor elevation 45m

Map contours are multiples of those listed below

- 1 %
- 5 %
- 10 %

N

CANAMAX RESOURCES INC.

VLF-EM TOTAL FIELD CONTOURS

AREA 1

Grand Forks, B.C.

SCALE 1:10,000

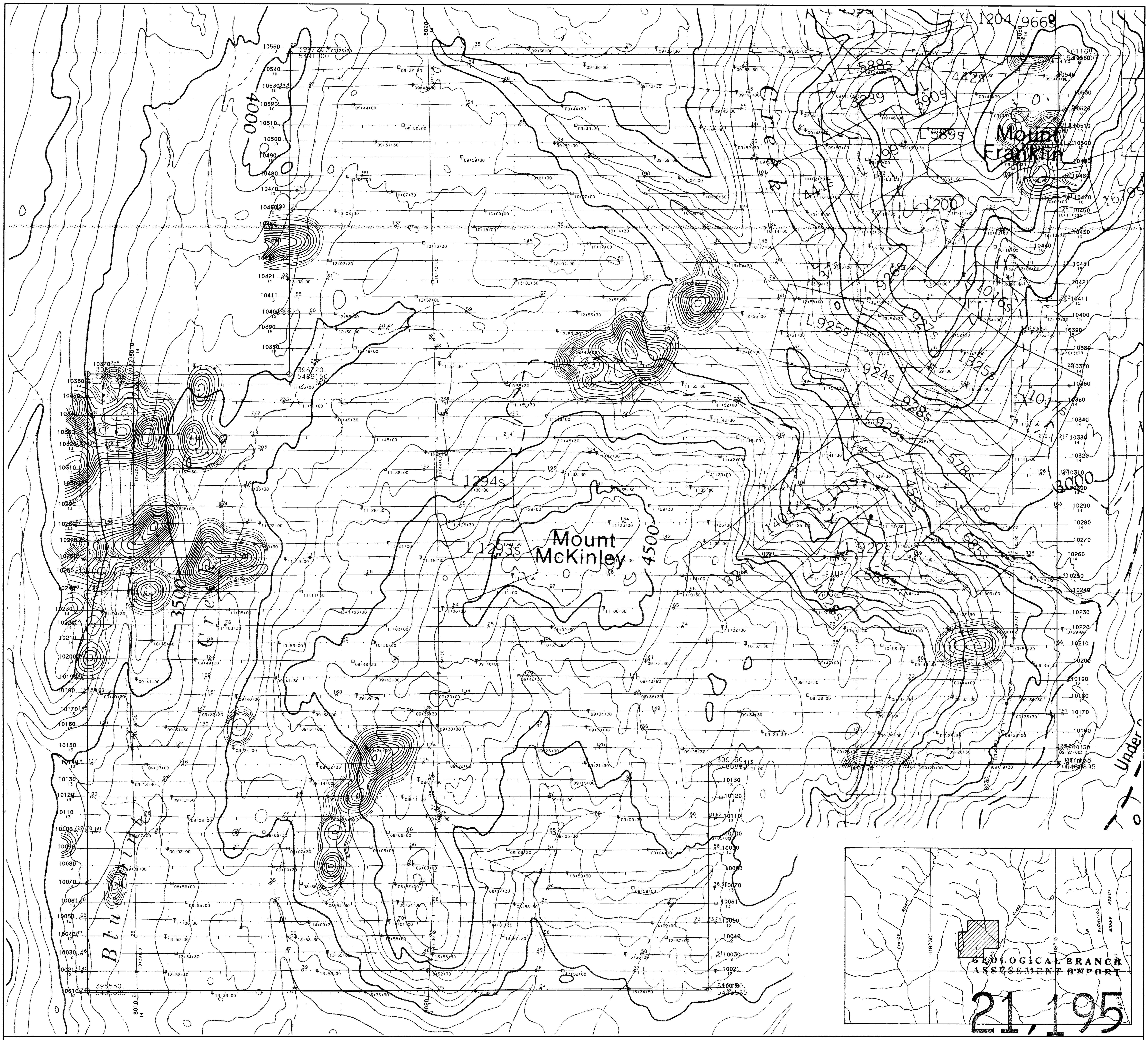
0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

AERODAT LIMITED

DATE:	Dec. 1990
NTS No:	82E/9
MAP No:	7

J9087



Flight Path

Flight path recovery from VHS video tape.
Average terrain clearance 60m
Average line spacing 100m

Magnetite

Magnetite calculated from 935 Hz electro-magnetics
Contours in percent.
Sensor elevation 30m

Map contours are multiples of those listed below

- 0.1 %
- 0.5 %
- 2.0 %
- 10 %

N

CANAMAX RESOURCES INC.

CALCULATED PERCENT MAGNETITE CONTOURS

AREA 1

Grand Forks, B.C.

SCALE 1:10,000

0 330 660 1320 2640 Feet

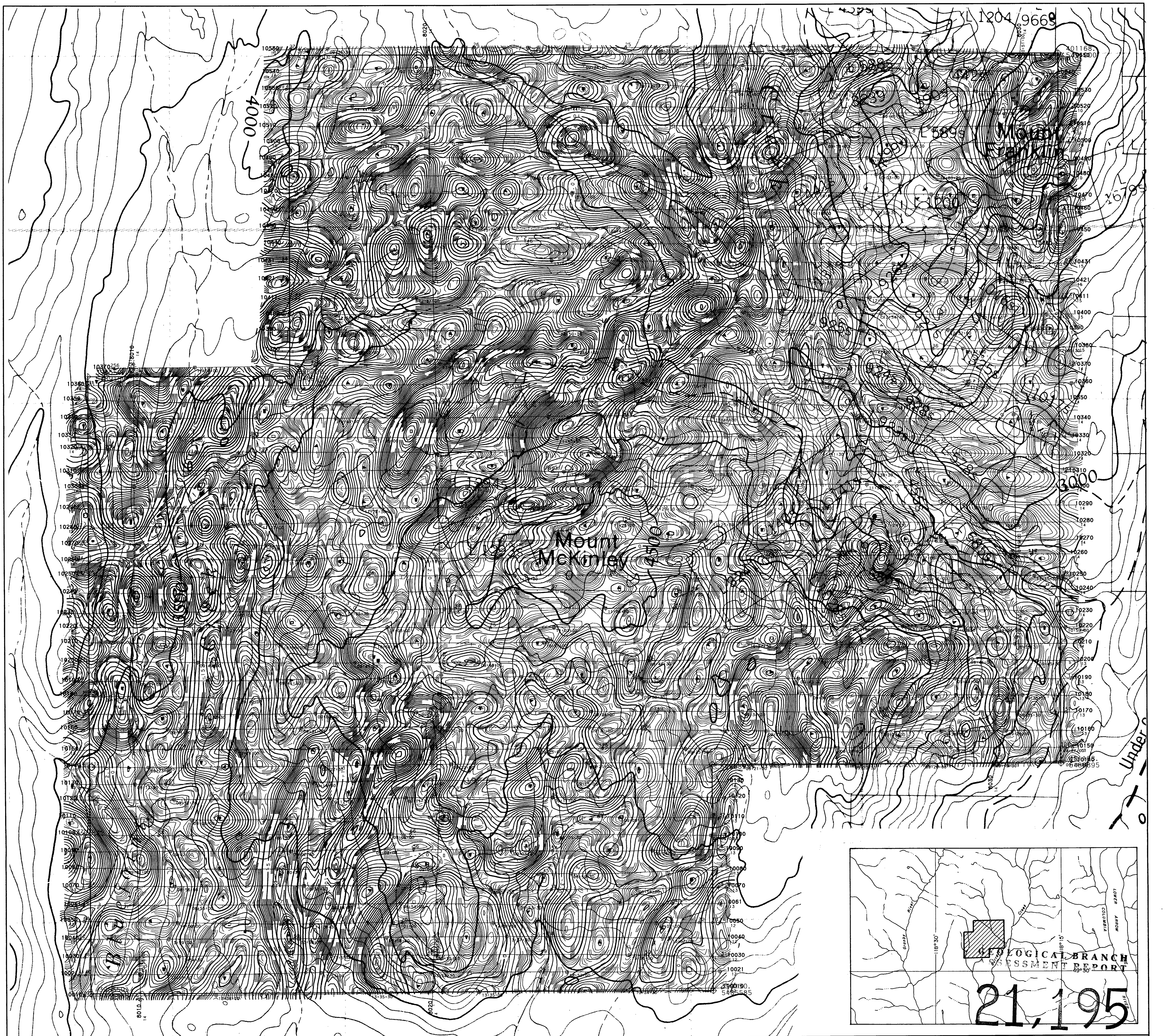
0 100 200 500 1000 Metres

AERODAT LIMITED

DATE: Dec. 1990

NTS No: 82E/9

MAP No: 9 J9087



Flight Path

Flight path recovery from VHS video tape.

Average terrain clearance 60m
Average line spacing 100m

Vertical Gradient

Vertical Magnetic Gradient calculated from the total field magnetic intensity in nT/m.

Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

- 0.1 nT/m
- 0.5 nT/m
- 2.0 nT/m
- 10 nT/m
- 50 nT/m

CANAMAX RESOURCES INC.

CALCULATED VERTICAL MAGNETIC GRADIENT

AREA 1

Grand Forks, B.C.

SCALE 1:10,000

0 330 660 1320 2640 Feet

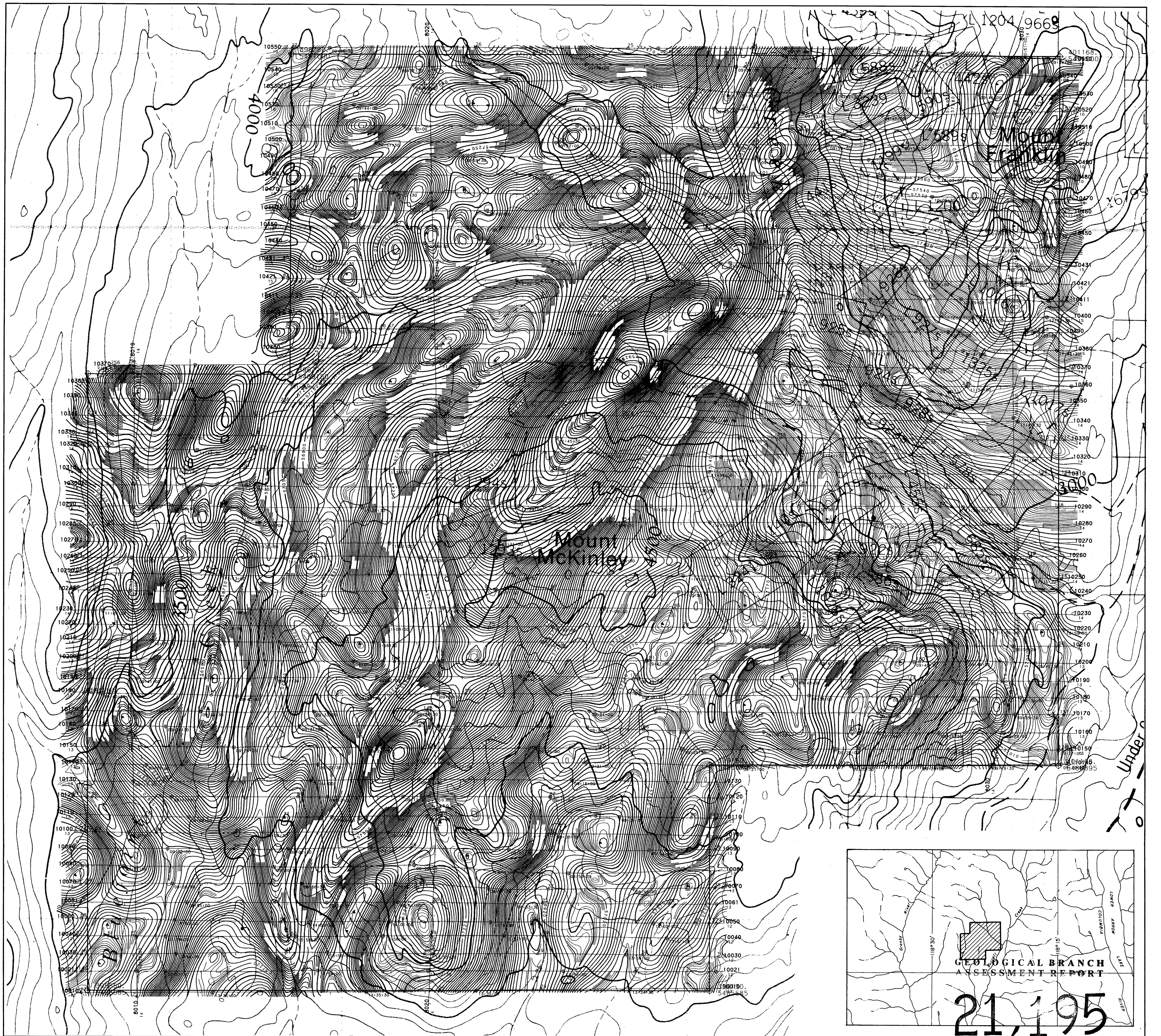
0 100 200 500 1000 Metres

AERODAT LIMITED

DATE: Dec. 1990

NTS No: 82E/9

MAP No: 5 J9087



21,195

N

Flight Path

Flight path recovery from VHS video tape.

Average terrain clearance 60m
Average line spacing 100m

Magnetics

Total Field Magnetic Intensity Contours in nT.

High sensitivity cesium magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

- 2 nT
- 10 nT
- 50 nT
- 250 nT
- 500 nT

CANAMAX RESOURCES INC.

TOTAL FIELD MAGNETIC CONTOURS

AREA 1

Grand Forks, B.C.

SCALE 1:10,000

0 330 660 1320 2640 Feet

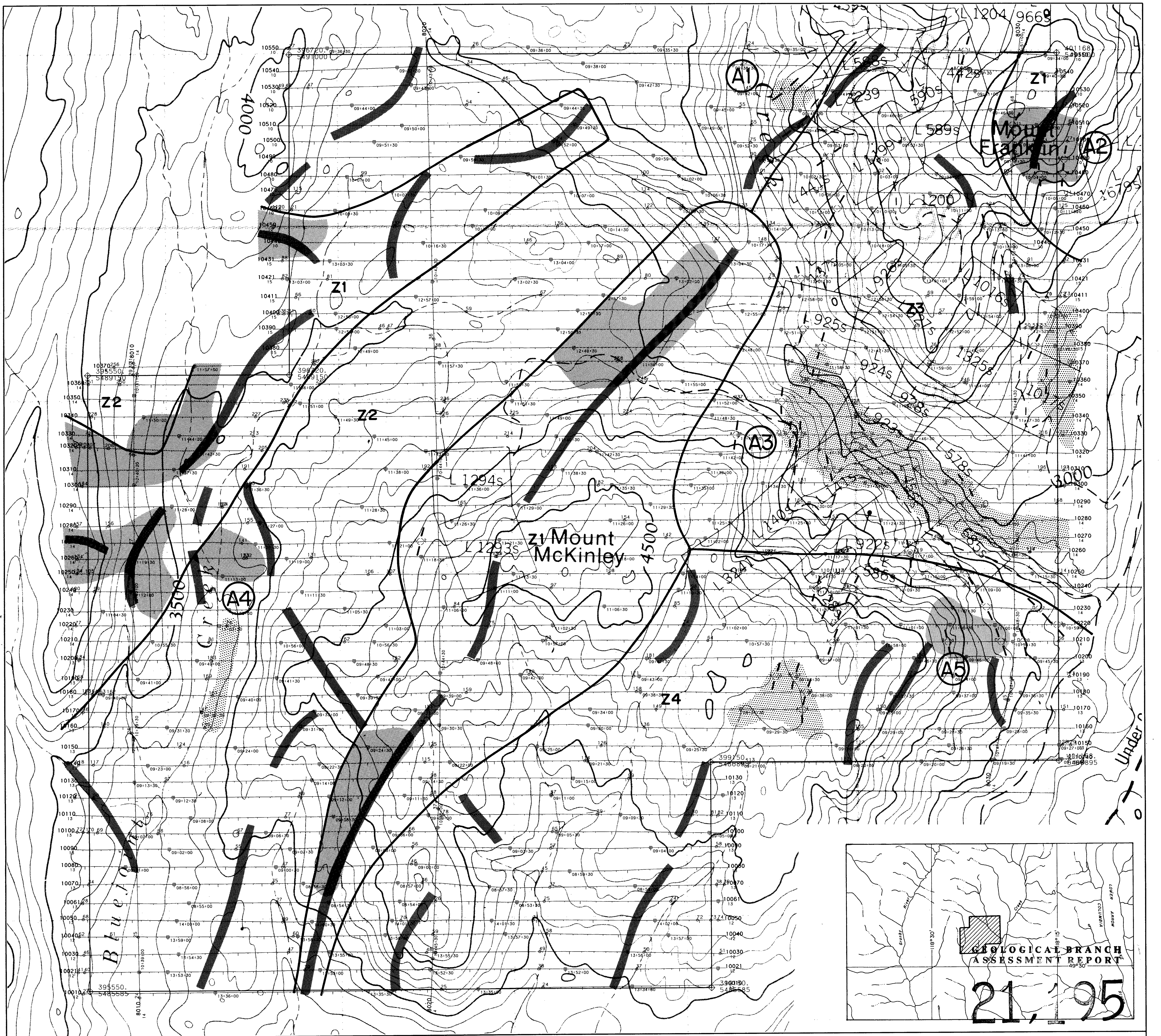
0 100 200 500 1000 Metres

AERODAT LIMITED

DATE: Dec. 1990

NTS No: 82E/9

MAP No: 4 J9087



Flight Path

Flight path recovery from VHS video tape.

Average terrain clearance 60m
Average line spacing 100m

EM Anomalies

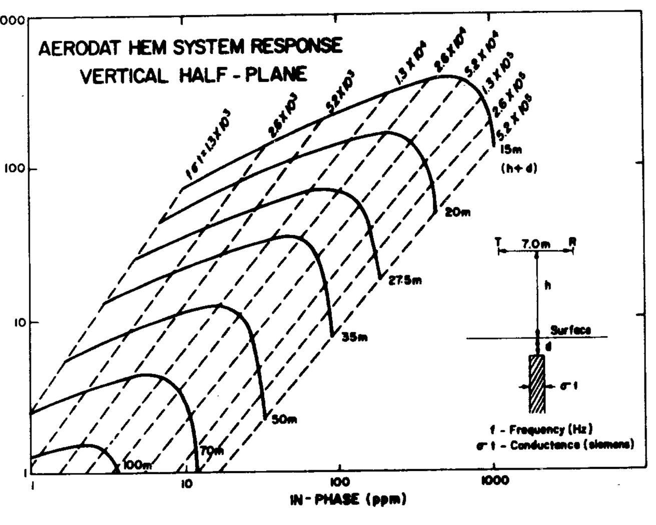
Conductivity Thickness (mhos)

- 0 - 1
- 1 - 2
- 2 - 4
- 4 - 8
- 8 - 15
- 15 - 30
- > 30

EM Anomaly A, 4600 Hz inphase amplitude 7 ppm. Conductivity thickness 1-2 mhos (see code).

INTERPRETATION LEGEND

- Conductor Axis
- Magnetic Zone Boundary
- Z1 Magnetic Zone Number
- Magnetic Axis
- Low Resistivity Area (<1000 ohm. m)
- Area of Measurable Magnetite



CANAMAX RESOURCES INC.

INTERPRETATION

AREA 1

Grand Forks, B.C.

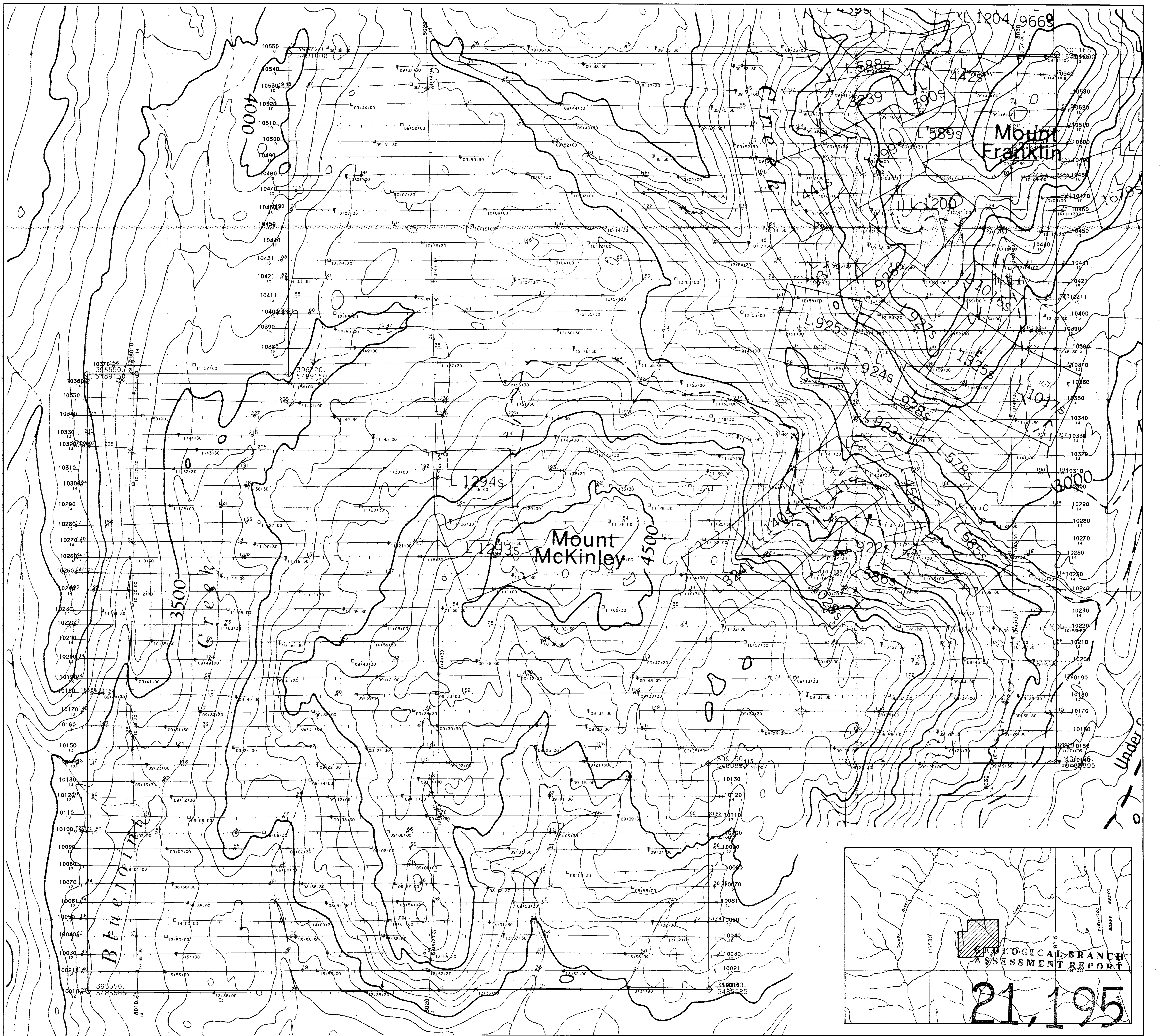
SCALE 1:10,000

0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

AERODAT LIMITED

DATE:	Dec. 1990
NTS No:	82E/9
MAP No:	3 J9087



Flight Path

Flight path recovery from VHS video tape.
Average terrain clearance 60m
Average line spacing 100m

N

EM Anomalies

Conductivity Thickness (mhos)

- 0 - 1
- 1 - 2
- 2 - 4
- 4 - 8
- 8 - 15
- 15 - 30
- > 30

EM Anomaly A, 4600 Hz inphase amplitude 7 ppm. Conductivity thickness 1-2 mhos (see code).

CANAMAX RESOURCES INC.

FLIGHT PATH

AREA 1

Grand Forks, B.C.

SCALE 1:10,000

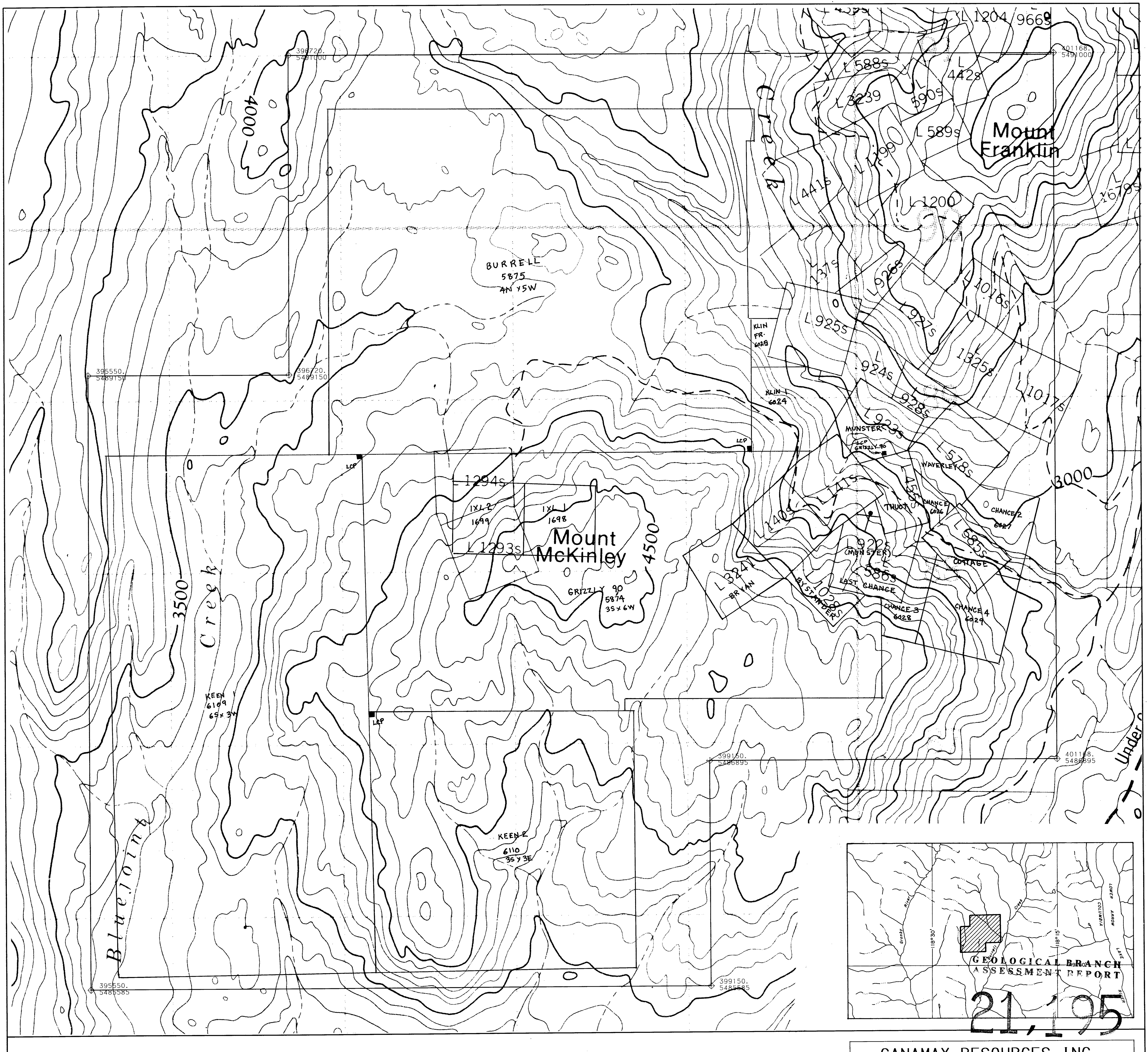
0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

AERODAT LIMITED

DATE:	Dec. 1990
NTS No:	82E/9
MAP No:	2

J9087



CANAMAX RESOURCES INC.

BASE MAP
CLAIMS

AREA 1

Grand Forks, B.C.

SCALE 1:10,000

0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

AERODAT LIMITED

DATE: Dec. 1990
NTS No: 82E/9
MAP No: 1
J9087