LOG NO: DEC 15 1992 RD.
ACTION.

FILE NO:

Geophysical Report

on the

Megabuck Property

Cariboo Mining Division B.C.
NTS 93A/03 & 06

Latitude: 52° 15' N
Longitude: 121° 23' W

Noranda Exploration Company Limited
(no personal liability)

by: Ken Robertson
Senior Geophysicist

Date: November 26, 1992

GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,670

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1. ABSTRACT

Exploration conducted by Noranda on the Megabuck Property during 1992 consisted of airborne electromagnetics, magnetics and radiometrics.

The airborne geophysical surveys detected a possible connection between the two main zones in the form of a coincident, sigmoidal magnetic, electromagnetic, total count potassium anomaly extending between them.

2. INTRODUCTION

The property, acquired by option (AB, LS, LP and Megabuck claims) and staking (MEG and MGBK claims) covers several porphyry style Cu-Au occurrences in alkaline to calc-alkaline island arc volcanics.

At least one of these, the Megabuck, has significant drill indicated grades and widths and appears open along strike and at depth. Geological, geochemical and geophysical surveys by previous operators also suggests good potential for other similar zones on the peripheral claims.

Noranda Exploration's work this summer was designed to evaluate the further potential of the known zones and the more prominent peripheral targets.

3.0 LOCATION and ACCESS

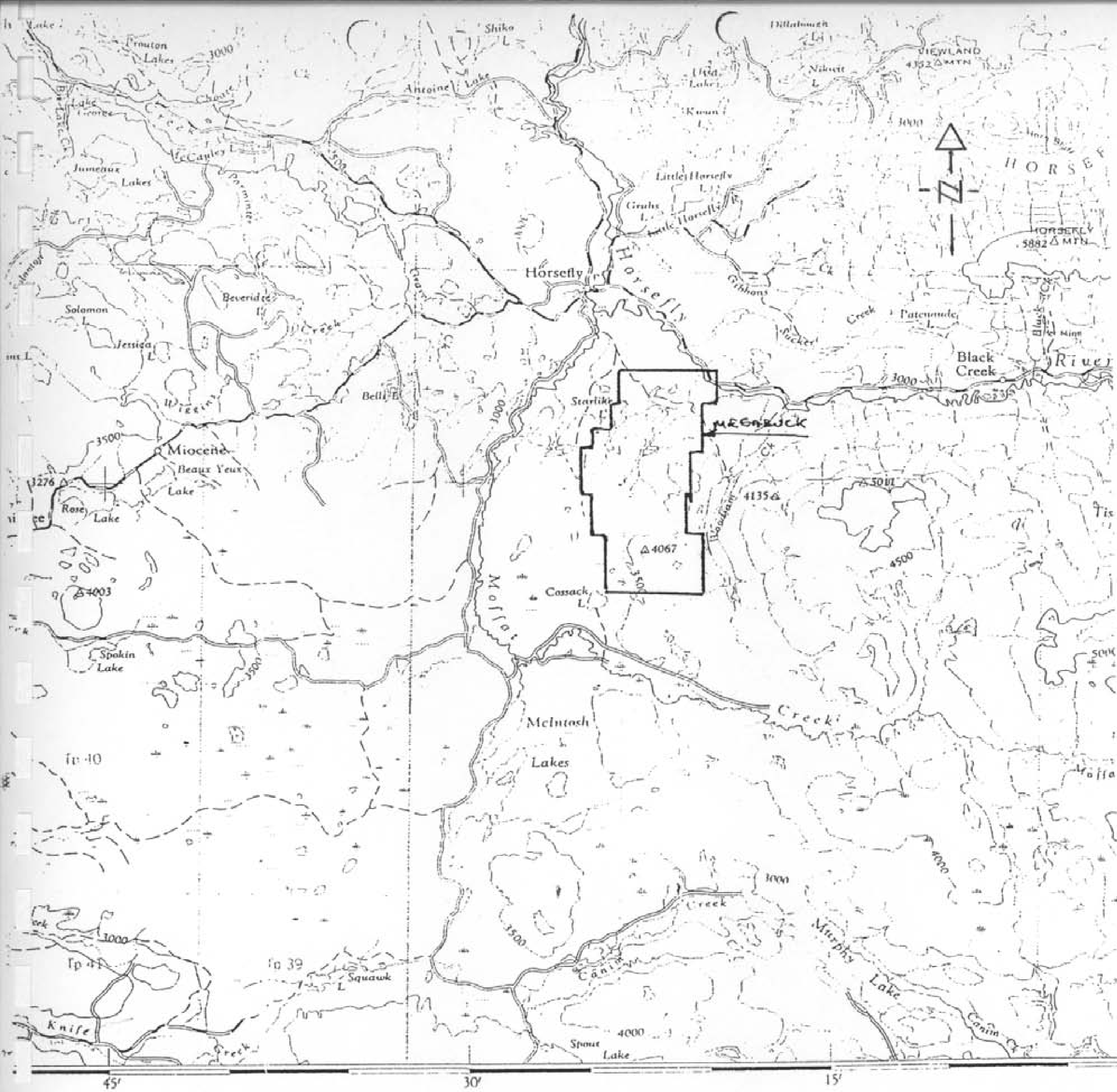
The property is located five km south of the village of Horsefly, B.C. (Fig. 1). Access is gained by travelling south on the Starlike Lake-Woodjam Creek logging road.

4. CLAIM STATUS

The property consists of the following claims (Fig. 2):

CLAIM	RECORD #	UNITS	OWNER	RECORD DATE
LS #1	1067	2	CM Rebagliati	11 July 1979
AB #3	1072	1	Andrew Babiy	18 July 1979
AB #4	1073	1	Andrew Babiy	18 July 1979
LP	2021	2	CM Rebagliati	6 Oct. 1980
MEGABUCK	4588	20	CM Rebagliati	22 Nov. 1982

.../2



Lac la Hache House 41 m

Compiled 1959, by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF MINES AND TECHNICAL SURVEYS. Revised 1963. Printed 1964.

Magnetic declination 1964 varies from 25°08′ easterly at centre of west edge to 25°45′ easterly at centre of east edge. Mean annual change 3.5′ westerly.

MEGABUCK PROPERTY
LOCATION MAP
Scale 1:250,000.

QUES

BRIT

Road	Route			
hard surface, all weather	pavée, toute saison	more than 2 lanes / plus de 2 voies	2 lanes / 2 voies	less than 2 lanes / moins de 2 voies
loose surface, all weather	de gravier, toute saison	2 lanes or more / 2 voies ou plus	less than 2 lanes / moins de 2 voies	dry weather / temps sec
wagon, cart track	chemin de terre	trail or portage	sentier ou portage	
Railway, normal gauge	Chemin de fer, écartement normal	station / gare; multiple track / voie multiple	stop / arrêt; single track / voie unique	abandoned / abandonnée
Depression contours	Courbes de cuvette	3000		
Spot Elevation in feet	Repère de nivellement en pieds	2550		
Power transmission line	Ligne de transport d'énergie			

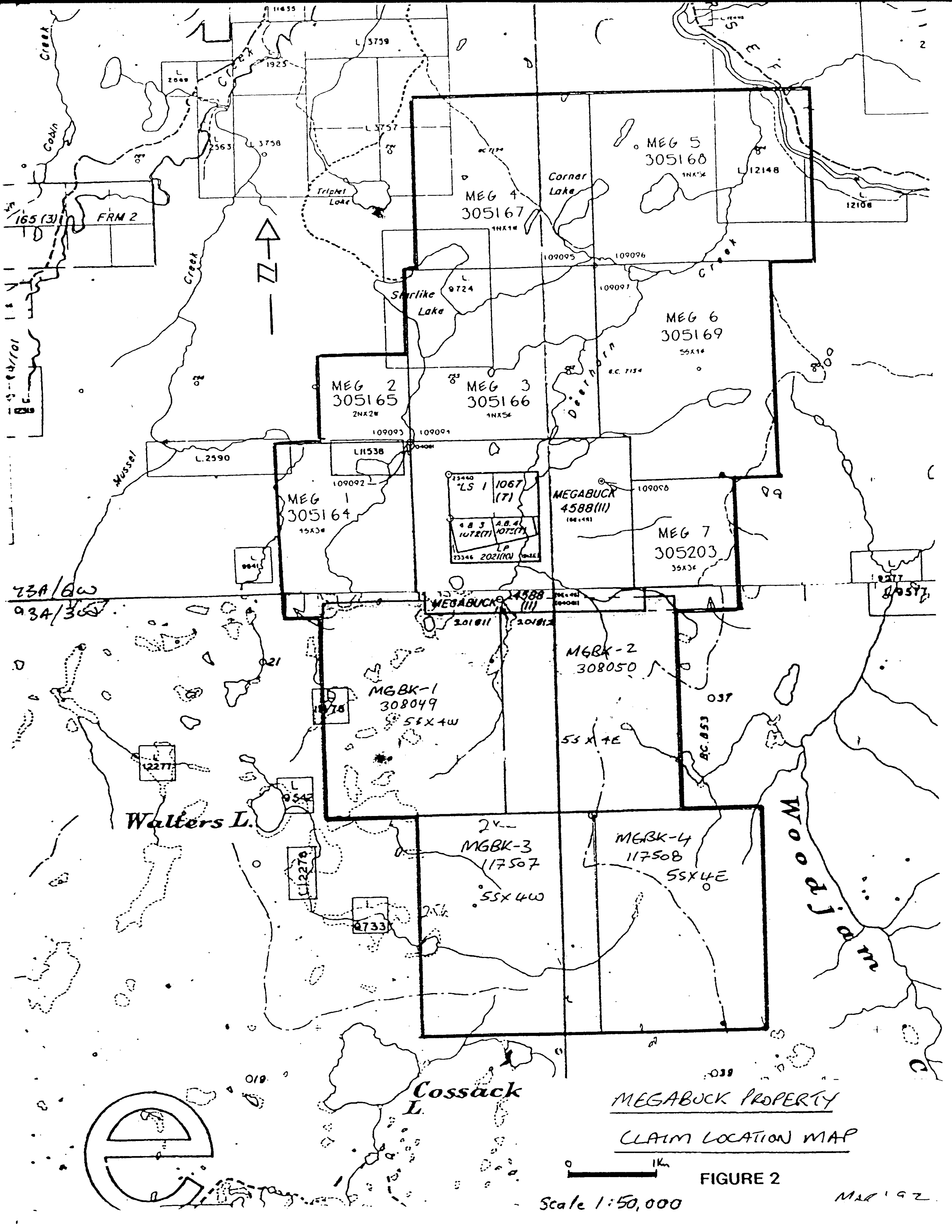
Sca

Miles 5 0 5

Kilometres 5 0 5

Tranverse Mercator Projection
North American Datum 1927
Contour Interval 500 feet
Elevations in feet above Mean Sea Level

FIGURE 1



MEGABUCK PROPERTY

CLAIM LOCATION MAP

FIGURE 2

Scale 1:50,000

MAR '92

MEG #1	305164	12	NOREX	3 Oct. 1991
MEG #2	305165	4	NOREX	2 Oct. 1991
MEG #3	305166	20	NOREX	3 Oct. 1991
MEG #4	305167	16	NOREX	4 Oct. 1991
MEG #5	305168	20	NOREX	4 Oct. 1991
MEG #6	305169	20	NOREX	3 Oct. 1991
MEG #7	305203	9	NOREX	2 Oct. 1991
MGBK #1	308049	20	NOREX	12 Mar. 1992
MGBK #2	308050	20	NOREX	12 Mar. 1992
MGBK #3	308051	20	NOREX	13 Mar. 1992
MGBK #4	308052	20	NOREX	14 Mar. 1992

5. PREVIOUS WORK

The Horsefly area, like the rest of the Cariboo region, has a history of placer gold mining beginning in the late 1800's.

From 1973 to 1977 Exploram Minerals Ltd conducted geological mapping, soil geochemistry, I.P. and magnetic surveys and two diamond drill holes on and around the Megabuck showings.

In 1983 and 1984 Placer Development Ltd completed additional geological, geochemical, magnetic, VLF-EM and I.P. surveys plus 16 diamond drill holes on the showing.

During 1986 and 1987 Archer-Cathro conducted further geological, geochemical, I.P., magnetic, VLF-EM surveys and trenching on the showing and surrounding claims on behalf of Big Rock Gold Ltd. No significant work has been performed since then.

6. GEOLOGY

6.1 REGIONAL GEOLOGY

The property lies within the southern Quesnel Trough, a litho-stratigraphic assemblage of Upper Triassic To Middle Jurassic alkalic to calc-alkalic island arc volcanics, sediments and coeval intrusives. These alkalic intrusives are currently the prime exploration focus for Cu-Au porphyry deposits such as Mt. Milligan, Cariboo-Bell, and Afton. The Late Triassic Takomkane Batholith lies east of the property and hosts the Boss Mountain molybdenum porphyry deposit. To the west the Quesnel Trough assemblage is covered by Tertiary flood basalts.

6.2 PROPERTY GEOLOGY

Outcrop in the property area is limited due to extensive Pleistocene cover. The claims are predominantly underlain by a northerly trending belt of Upper Triassic to Middle Jurassic alkalic to calc-alkalic volcanics, derived sediments and intrusives. The eastern margin of this belt is defined by a fault and intrusive contact with the Takomkane granodiorite batholith. The western margin by overlap with Tertiary flood basalts.

The east-north-east striking Mesozoic assemblage is dominated by a coarse pyroclastic package with intermixed flows in the north and fine grained bedded tuffs and tuffaceous sediment in the south. Between the two, in the vicinity of the Megabuck zone, fine to coarse grained volcanic wackes and lapilli tuffs dominate.

Compositionally the volcanics are alkaline to calc-alkaline andesites to trachy-andesites and judging by their oxidation state vary from sub-marine sediments in the south through mixed shallow marine to sub-aerial volcanics and sediments around the Megabuck zone to sub-aerial pyroclastics in the north.

At least three significant plugs intrude the Mesozoic assemblage. The intrusions vary from a coarsely potassic feldspar porphyritic syenite at Corner Lake through the pink and orange syenite-monzonite porphyry hosting the Megabuck zone to the white feldspar porphyritic granodiorite at the Takom zone. The Spellbound showing also appears to be associated with a diorite plug or marginal phase of the Takomkane batholith.

6.3 MINERALIZATION and ALTERATION

Three principle areas of mineralization and alteration occur on the property; Megabuck, Takom and Spellbound.

At Megabuck the Cu-Au mineralization within the intrusive consists of disseminated and vein cpy-py-magnetite in qtz-Kspar, epidote stockwork veins and as disseminations within the host rock. Associated alteration consists of local to pervasive Kspar flooding, minor secondary biotite, magnetite and in some areas silicification. Local gypsum/anhydrite was noted in drill core in the quartz stockwork veins.

Peripheral to this "potassic" zone is a zone of epidote-chlorite-pyrite and carbonate alteration primarily within the greenish coloured volcanics and sediments. Superimposed on this "propylitic" zone on the south and west sides of the intrusive is a zone of strong argillic alteration with local sericitic sections. This argillic-phyllic overprint is also common along faults and late stage fractures.

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Mapping of these alteration suites in outcrop and drill holes gives an overall concentric pattern about the intrusion which is elongate to the west parallel to the foliation/bedding trend in the volcanics. This alteration system is open to the west along this trend.

At both Takom and Spellbound Cu mineralization is again within quartz stockwork veining, however it appears to be entirely within the hornfelse and has significantly less sulphide in the wallrock. Associated alteration is propylitic with minor potassic alteration restricted to the quartz veins. Fine disseminated magnetite is fairly common. The intrusive at the Takom is heavily pyritized and locally sericitic but generally carries no base or precious metal values.

7. GEOPHYSICS

Appended to this report are; the "Report on a Combined Helicopter-Borne Magnetics, Electromagnetic, Radiometric and VLF-EM Survey of the Megabuck Area, B.C." and accompanying 1:20,000 scale maps submitted to Noranda Exploration Company, Limited by Aerodat Limited on July 15, 1992.

The Aerodat airborne geophysical survey was conducted under a contract dated May 21, 1992 and was completed in one survey flight on May 28, 1992. Total survey coverage was 65km^2 or approximately 222 line kilometres (210 km traverse lines plus 12 km of magneticws tie lines). The Aerodat job number is J9226.

The Aerodat report, written by R.W. Woolham, P. Eng. describes the survey, the data processing, data presentation and interpretation of the geophysical results.

8. CONCLUSIONS

The distribution of angular basalt float together with the pit results suggests that the Tertiary may completely overlie the Cu-Au zone extension. This may explain the lack of response from the previous shallow IP surveys in this area.

9. RECOMMENDATIONS

Diamond drilling is recommended to follow up the possible westerly extension of the Megabuck Cu-Au zone. Consideration should be given to conducting a deeper, higher powered IP survey over the Tertiary covered section of the claims.

.../5

A detailed follow up program consisting of soil geochemistry magnetics, IP and trenching is recommended.

10. REFERENCES

Campbell, S. and Pentland, W., 1983. Diamond Drill Report on the Horsefly Property. Assessment Report #12,522.

Campbell, S., 1984. Diamond Drill Report on the Horsefly Property. Assessment Report #12,301.

Holland, S.S., 1950. Placer Gold Production of British Columbia. BCMEMPR Bulletin 28, Victoria, B.C.

Panteleyev, A. and Hancock, K.D., 1989. Geology of the Beaver Creek - Horsefly River Map Area: BCMEMPR Open File 1989-14, 1:50,000, Victoria, B.C.

Peatfield, G.R., 1986. Megabuck Mineral Property. Unpublished report.

Watson, I.M., 1984. Report on the Starlike Property of Rockridge Mining Corporation. Unpublished report.

APPENDIX I

STATEMENT OF QUALIFICATIONS

I, Kenneth A. Robertson, of the City of Delta, Province of British Columbia, hereby certify that;

I am a geophysicist residing at 7540 Garfield Drive, Delta, B.C.

I graduated from the University of Toronto in 1977 with an H.B.S.C. in geology and geophysics.

I have worked in exploration since 1977.

I have been an employee of Noranda Exploration Company, Limited since February 27, 1984.

Kenneth A. Robertson

APPENDIX II

NORANDA EXPLORATION COMPANY, LIMITED
STATEMENT OF COSTS

PROJECT: MEGABUCK DATE: November, 1992

CLAIMS: LP(204353), MEGABUCK(204669), MEG1(305164)

TYPE OF REPORT: Geophysical

a) Wages:
No. of Mandays : 1
Rate per Manday: $420.00
Dates From : November 25, 1992
Total Wages : $420.00 $420.00

b) Food & Accomodations:
No. of Mandays :
Rate per Manday:
Dates From :
Total Costs :

c) Transportation:
No. of Mandays :
Rate per Manday:
Dates From :
Total Costs :

d) Instrument Rental:
Type of Instrument:
No. of Mandays :
Rate per Manday:
Dates From :
Total Costs :

Type of Instrument:
No. of Mandays :
Rate per Manday:
Dates From :
Total Costs :

e) Analysis:
(See attached schedule)

f) Cost of preparation of Report:
Author :
Drafting:
Typing :

g) Other: Combined Magnetic, Electromagnetic,
VLF-Em Airborne Survey

Contractor: Aerodat Limited
3883 Nashua Drive
Mississauga, Ontario
L4V 1R3

h) Unit Costs for

No. of Mandays:	May 28, 1992		
No. of Units	:	62	
Unit Costs	:	$124.00/km	
Total Cost	:	62 x $124.00	$7,688.00

TOTAL COST $8,108.00

NORANDA EXPLORATION COMPANY, LIMITED
STATEMENT OF COSTS

PROJECT: MEGABUCK DATE: November, 1992

CLAIMS: MGBK1(308049), MGBK2(308050), MEG2(305165), MEG3(305166), MEG6(305169), MEG7(305203)

TYPE OF REPORT: Geophysical

a) Wages:
No. of Mandays : 1
Rate per Manday: $420.00
Dates From : November 26, 1992
Total Wages : $420.00 $420.00

b) Food & Accomodations:
No. of Mandays :
Rate per Manday:
Dates From :
Total Costs :

c) Transportation:
No. of Mandays :
Rate per Manday:
Dates From :
Total Costs :

d) Instrument Rental:
Type of Instrument:
No. of Mandays :
Rate per Manday:
Dates From :
Total Costs :

Type of Instrument:
No. of Mandays :
Rate per Manday:
Dates From :
Total Costs :

e) Analysis:
(See attached schedule)

f) Cost of preparation of Report:
Author :
Drafting:
Typing :

g) Other: Combined Magnetic, Electromagnetic,
Radiometric & VLF-Em Airborne Survey

Contractor: Aerodat Limited
3883 Nashua Drive
Mississauga, Ontario
L4V 1R3

h) Unit Costs for
No. of Mandays: May 28, 1992
No. of Units : 160 line km
Unit Costs : $124.00/km
Total Cost : 160 x $124.00 $19,840.00

TOTAL COST $20,260.00

APPENDIX III

REPORT ON A
COMBINED HELICOPTER-BORNE
MAGNETIC, ELECTROMAGNETIC
RADIOMETRIC AND VLF-EM SURVEY
MEGABUCK AREA
BRITISH COLUMBIA, CANADA
NTS 93 A/3, A/6

FOR

NORANDA EXPLORATION COMPANY, LIMITED
1050 DAVIE STREET
VANCOUVER, BRITISH COLUMBIA
V6E 1M4

BY

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

July 15, 1992

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

J9226

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LIST OF MAPS

The black line and colour maps are designated as follows:

BLACK LINE MAPS: (Scale 1:20,000)

Map No. Description

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

2. FLIGHT PATH MAP; photo-combination of the base map with flight lines, fiducials and EM anomaly symbols.

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

4. TOTAL FIELD MAGNETIC CONTOURS; with base map and flight lines.

5. VERTICAL MAGNETIC GRADIENT CONTOURS; with base map and flight lines.

6A. APPARENT RESISTIVITY CONTOURS; apparent resistivity calculated for the 935 Hz data, with base map and flight lines.

6B. APPARENT RESISTIVITY CONTOURS; apparent resistivity calculated for the 4,175 Hz data, with base map and flight lines.

6C. APPARENT RESISTIVITY CONTOURS; apparent resistivity calculated for the 4,600 Hz data, with base map and flight lines.

6D. APPARENT RESISTIVITY CONTOURS; apparent resistivity calculated for the 33,000 Hz data, with base map and flight lines.

7. VLF-EM TOTAL FIELD CONTOURS; with base map and flight lines.

COLOUR MAPS: (Scale (1:20,000)

MAGNETIC

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

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

RESISTIVITY

3A. APPARENT RESISTIVITY; calculated for the 935 Hz data with superimposed contours, flight lines and EM anomaly symbols.

3B. APPARENT RESISTIVITY; calculated for the 4,175 Hz data with superimposed contours, flight lines and EM anomaly symbols.

3C. APPARENT RESISTIVITY; calculated for the 4,600 Hz data with superimposed contours, flight lines and EM anomaly symbols.

3D. APPARENT RESISTIVITY; calculated for the 33,000 Hz data with superimposed contours, flight lines and EM anomaly symbols.

ELECTROMAGNETIC

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

5A. HEM OFFSET PROFILES; 935 Hz and 33,000 Hz data with flight lines and EM anomaly symbols.

5B. HEM OFFSET PROFILES; 4,175 Hz and 4,600 Hz data with flight lines and EM anomaly symbols.

COLOUR MAPS: (Continued)

RADIOMETRIC

6A. URANIUM COUNT with superimposed contours and flight lines.

6B. THORIUM COUNT with superimposed contours and flight lines.

6C. POTASSIUM COUNT with superimposed contours and flight lines.

6D. TOTAL COUNT with superimposed contours and flight lines.

STACKED PROFILES

7. MULTI PARAMETER PROFILES; profiles of all final recorded and calculated data channels for each flight line.

SHADOW DERIVATIVE: (Scale 1:20,000)

8. TOTAL FIELD MAGNETICS SHADOW MAPS;

(A) parallel to the flight lines
(B) perpendicular to the flight lines
(C) at 45° or 135° to the flight lines.

REPORT ON A
COMBINED HELICOPTER-BORNE
MAGNETIC, ELECTROMAGNETIC
RADIOMETRIC AND VLF-EM SURVEY
MEGABUCK AREA
WILLIAMS LAKE, BRITISH COLUMBIA

1. INTRODUCTION

This report describes an airborne geophysical survey carried out on behalf of Noranda Exploration Company Limited by Aerodat Limited under a contract dated May 21, 1992. Principal geophysical sensors included a four frequency electromagnetic system, a high sensitivity cesium vapour magnetometer, a radiometric system and a two frequency VLF-EM system. Ancillary equipment included a radar ranging and global positioning 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 about 65 square kilometres. The survey area is located approximately 50 km. east northeast of Williams Lake, British Columbia.

Total survey coverage was approximately 222 line kilometres (210 km traverse plus 12 km magnetic tie lines). The Aerodat Job Number is J9226.

This report describes the survey, the data processing, data presentation and interpretation of the geophysical results. Electromagnetic anomalies have been identified and appear on selected map products as EM anomaly symbols with interpreted source characteristics. Conductive areas of interest are indicated on an interpretation map with designation number or letter. Prominent structural features interpreted from the magnetic results are also indicated. Recommendations concerning areas with favourable geophysical characteristics are made with reference to this compilation/interpretation map.

2. SURVEY AREA

The centre of the survey area is about 15 km south of the western tip of Horsefly Lake and about 22 km south of Quesnel Lake. Area topography is shown on the 1:50,000 scale NTS map sheets - 93 A/3, A/6.

Local relief is relatively flat in the western half of the survey area. Elevations are about 3,300 feet above mean sea level. Slightly more rugged topographic relief is present in the eastern and north part of the survey area where elevations reach 3,600 to 4,000 feet above mean sea level.

The survey area is shown in the attached index map which includes local topography and latitude - longitude coordinates. This index map also appears on all black line map products. The flight line directions were approximately north 60° west. The flight line spacing was 300 m. A magnetic tie line was flown perpendicular to the flight lines in order to assist in levelling the magnetic data.

3. SURVEY PROCEDURES

The survey was flown on May 28, 1992 in one survey flight. Principal personnel are listed in Appendix IV.

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.

Following equipment installation and testing, the ground based transponders of the radar ranging navigation system were installed at sites near the survey area. The base lines (or line between transponders) were flown to determine their separation. The results are used to check the UTM coordinates assigned to each transponder based on published NTS maps. A total of two ground transponder locations were used.

A global positioning system (GPS) also was used for the survey consisting of a Trimble TANS GPS receiver plus the Polycorder data logger. Differential GPS data is processed in the field on a PC using software supplied by Trimble. One system is installed in the survey helicopter. This involves mounting the receiver antenna on the tail boom. A second system was used as the base station.

The UTM coordinates of survey area corners were taken from the published NTS maps. These coordinates are used to program the navigation system. A test flight was used to confirm that area coverage would be as required.

Thereafter the traverse lines are flown under the guidance of the navigation system. The operator also enters manual fiducials over prominent topographic features as seen on a topographic map. Survey lines which show excessive deviation were re-flown.

The magnetic tie line was flown using visual navigation in areas of low topographic and magnetic relief. Aircraft position was taken from the navigation system.

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 levels and radiometric base levels.

4. DELIVERABLES

The results of the survey are presented in a report plus maps. The report is presented in four copies. White print copies of all black line maps are folded and bound with the report. The colour maps are delivered in four copies. The shadow maps are delivered in two copies. The colour and shadow maps are rolled and delivered in map tube(s).

The black line maps show topography, UTM grid co-ordinates and the survey boundary. A full list of all map types is given at the beginning of this report. A summary is given following:

MAP NO.	DESCRIPTION
	BLACK LINE
1	Base Map
2	Flight Path Map
3	Compilation/Interpretation Map
4	Total Field Magnetic Contours
5	Vertical Magnetic Gradient Contours
6A	Apparent Resistivity Contours - 935 Hz
6B	Apparent Resistivity Contours - 4,175 Hz
6C	Apparent Resistivity Contours - 4,600 Hz
6D	Apparent Resistivity Contours - 33,000 Hz
7	VLF-EM Total Field Contours

MAP NO.	DESCRIPTION
	COLOUR
1	Total Field Magnetics
2	Vertical Magnetic Gradient
3A	Apparent Resistivity - 935 Hz
3B	Apparent Resistivity - 4,175 Hz
3C	Apparent Resistivity - 4,600 Hz
3D	Apparent Resistivity - 33,000 Hz
4	VLF-EM Total Field
5A	HEM Offset Profiles - 935 Hz and 33,000 Hz
5B	HEM Offset Profiles - 4,175 Hz and 4,600 Hz
6A	Uranium Count Radiometric
6B	Thorium Count Radiometric
6C	Potassium Count Radiometric
6D	Total Count Radiometric
7	Stacked Profiles
8	Total Field Magnetic Shadow

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).

All gridded data are also provided on diskettes suitable for displaying on IBM compatible 286 or 386 microcomputers using the Aerodat AXIS (Aerodat Extended Imaging System) or RTI (Real Time Imaging) software package supplied with the report.

All analog records, base station magnetometer records, flight path video tape and original map cronaflexes are delivered with the final presentation.

5. AIRCRAFT AND EQUIPMENT

5.1 Aircraft

A Aerospatiale ASTAR B-2 helicopter, (CFXEC), piloted by L. Stanley owned and operated by Executive Helicopters Ltd., was used for the survey. S. Arstad of Aerodat acted as navigator and equipment operator. 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 and 32,000 Hz. 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 10 metres below the helicopter.

VLF transmitters are designated "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 VLF transmitters used were:

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

NSS, Annapolis, Maryland broadcasting at 21.4 kHz. (ortho)

5.4 Magnetometer

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

5.5 Gamma-Ray Spectrometer

An Exploranium GR-256 spectrometer coupled to 512 cubic inches of crystal sensor was used to record four channels of radiometric data. Spectrum stabilization is based on the 662 KeV peak from Cesium sources planted on the crystals.

The four channels recorded and their energy windows were as follows:

Channel	Window
Total Count (TC)	0.83 to 3.00 MeV
Potassium (K)	1.37 to 1.87 MeV
Uranium (U)	1.66 to 1.87 MeV
Thorium (Th)	2.41 to 2.82 MeV

The four channels of radiometric data were recorded at a 1 second update rate (counts per second - cps). Digital recording resolution is 1 cps.

5.6 Ancillary Systems

Base Station Magnetometer

An IFG-2 proton precession magnetometer was operated at the base of operations (Williams Lake, B.C.) 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.

External magnetic field variations were recorded on a 3" wide paper chart and in digital form. The analog record shows the magnetic field trace plotted on a grid. Each division of the grid (0.25") is equivalent to 1 minute (chart speed) or 5 nT (vertical sensitivity). The date, time and current total field magnetic value are printed every 10 minutes.

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. The radar altimeter is checked after installation using a line marked off at intervals of 100, 150, 200 and 245 ft. A heavy weight is tied onto one end of the line. The helicopter moves up over the weight and the operator notes the radar altimeter reading at the 100, 150, 200 and 245 foot marks.

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 Falcon 484 positioning system was used 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.

Global Positioning System (GPS)

The Global Positioning System is a U.S. Department of Defense program which will provide world-wide, 24 hour, all weather position determination capability . GPS consists of three segments:

- a constellation of satellites
- ground stations which control the satellites
- a receiver

The receiver takes in coded data from satellites in view and there after works out 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.

The final satellite constellation will consist of 21 satellites (18 active, 3 spare) in 12 hour orbits. Currently there are 16 satellites in place and some gaps in coverage can be expected.

Analog Recorder

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

Label	Contents	Scale
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, 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
CXI1	935 Hz, Coaxial, Inphase	2.5 ppm/mm
CXQ1	935 Hz, Coaxial, Quadrature	2.5 ppm/mm
CXI2	4,600 Hz, Coaxial, Inphase	2.5 ppm/mm
CXQ2	4,600 Hz, Coaxial, Quadrature	2.5 ppm/mm
CPI1	4,175 Hz, Coplanar, Inphase	10 ppm/mm
CPQ1	4,175 Hz, Coplanar, Quadrature	10 ppm/mm
CPI2	32,000 Hz, Coplanar, Inphase	20 ppm/mm
CPQ2	32,000 Hz, Coplanar, Quadrature	20 ppm/mm
TC	Total Count Radiometric	10 cps/mm
K	Potassium Count Radiometric	5 cps/mm
UR	Uranium Count Radiometric	2.5 cps/mm
TH	Thorium Count Radiometric	2.5 cps/mm
RALT	Radar Altimeter	10ft/mm
PWRL	60 Hz Power Line Monitor	-

Data is recorded with positive - up, negative - down. This does not apply to the VLF data as seen on the analog records which is inverted.

The analog zero of the radar altimeter is 5 cm from the top of the analog record. A helicopter terrain clearance of 60 m (197 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 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	RECORDING RESOLUTION
Magnetometer	0.2 s	0.001 nT
VLF-EM (4 Channels)	0.2 s	0.03%
HEM (8 Channels)	0.1 s	
coaxial		0.03 ppm
coplanar -4,175 Hz		0.06 ppm
coplanar -32 kHz		0.125 ppm
Radiometric	0.2 s	1.0 cps
Position (2 Channels)	0.2 s	0.1 m
Altimeter	0.2 s	0.05 m
Power Line Monitor	0.2 s	-
Manual Fiducial		
Clock Time		

6. DATA PROCESSING AND PRESENTATION

6.1 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 boundary were added.

After registration of the flight path to the topographic base map, topographic detail and the survey boundary are digitized. This digital image of the base map is used as the base for the colour and shadow maps.

6.2 Flight Path Map

Global Positioning System

The GPS receiver takes in coded data from satellites in view and there after works out 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 a number of 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 4 satellites for a full positional determination (3 space coordinates and time). If the elevation is know in advance, only 3 satellites are needed. These are termed 3D and 2D solutions.

The position of the receiver is updated every second. The accuracy of any 1 second position determination is described by the Circular Error Probability (CEP) . 95% of all position determinations will fall with 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 to 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 located 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 5 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 1.5 mm at a scale of 1:20,000). These positions are expressed as UTM eastings (x) and UTM northings (y).

Occasional dropouts occur when ranges to the ground transponders are lost or 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 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 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.

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 to 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 5 nT. A grid cell size of 25 m 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 0.2 nT/m. Grid cell sizes are the same as those used in processing the total field data.

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 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 is 0.1 log(ohm.m).

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

6.7 VLF-EM

The VLF Total Field data from the Line Station is levelled such that a response of 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.

6.8 Radiometric Data

The four channels of radiometric data are subject to a four stage data correction process.

The stages are
- low pass filter (seven point Hanning)
- background removal
- terrain clearance correction
- *compton stripping correction*

The Compton stripping factors used were

alpha	- 0.45 (Th into U)
beta	- 0.40 (Th into K)
gamma	- 0.83 (U into K)
a	- 0.09 (U into Th)
b	- 0.00 (K into Th)
g	- 0.03 (K into U)

where alpha, beta and gamma are the forward stripping coefficients and a, b, g are the backward stripping coefficients. These coefficients are taken in part from the sample checks done at the start of each flight.

The altitude attenuation coefficients used were 0.0072 (TC), 0.0085 (K), 0.0082 (U) and 0.0067 (Th). The units are metres $^{-1}$. These coefficients are taken from GSC publications for similar radiometric systems. Radiometric data were corrected to a mean terrain clearance of 60 m.

The corrected data were interpolated on a square grid (cell size 25m) using an Akima spline technique. The grids provided the basis for threading the presented contours. The minimum contour intervals are 5 cps (TC), 2 cps (K), 1 cps (U) and 1 cps (Th).

7. INTERPRETATION

7.1 Regional Geology

The regional geology consists of Nicola Group intermediate volcanic and sedimentary rocks intruded by granodiorite and quartz diorite stocks. Detailed geological information on the property area was not available.

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 non-magnetic 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 or flow horizons while semi-circular features with complex magnetic amplitudes may be produced by local plug like intrusive sources.

The calculated 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 zero contour of the magnetic gradient map 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 I) 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 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 these structures have been designated as fold/fault features.

7.3 Magnetic Survey Results and Conclusions

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

The background in the area is taken as 58,000 nanotesla.(nT) The survey area is dominated by numerous localized contorted high amplitude magnetic anomalies approximately 400 nT to 1,000 nT above background. Low amplitude and below background zones flank the magnetic complexes on the west and parts of the eastern survey boundary. A low amplitude magnetic area cross cuts the area in the south quarter of the survey block.

The high amplitude magnetic areas have been designated on the interpretation map and are possibly mafic phases of granodiorite intrusives. All except the extreme southerly anomalies occur in areas of high topographic relief further suggesting the sources are related to rock types resistive to weathering, such as granodiorite. Magnetic anomalies in areas of low topographic relief may reflect mafic volcanic flow units within non-magnetic sediments.

7.4 Electromagnetic Anomaly Selection/Interpretation

Two sets of stacked colour coded profile maps, at a scale of 1:20,000, of the 935 Hz, 4,600 Hz (coaxial) and 4,175 Hz and 32,000 Hz (coplanar) inphase and quadrature responses were used to select conductive anomalies of interest. Selection of anomalies is based on conductivity as indicated by the inphase to quadrature ratios of the 935 Hz and 4,600 Hz coaxial data, anomaly shape, and anomaly profile characteristics relative to coaxial and coplanar responses.(see discussion and figure in Appendix I) 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. 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 anomaly is still selected for plotting. In some situations the conductive response has line to line continuity and some magnetic association providing possible evidence that the response is related to a actual bedrock source.

The calculation of the depth to the conductive source and its conductivity is based on the 935 Hz data using 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 II 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 I.

The selected anomalies 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.

7.5 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.

The VLF results showed very low amplitude short conductive north northeast trends. There is no obvious correlation between areas of conductivity mapped by the helicopter four frequency electromagnetic system and the VLF anomalies.

7.6 Electromagnetic Survey Results and Conclusions

The electromagnetic responses consisted of broad zones of medium to poor conductivity and multiple peaked anomalies. It is difficult to identify any line to line correlation of specific anomalous responses. In some cases the anomaly profile characteristics of the coplanar/coaxial responses indicated the source or sources were flat lying. Some profiles suggested a dipping source was producing the response. This effect varied from line to line.

It was concluded that the broad areas of medium to poor conductivity reflected a series of low dipping conductive sediments such as graphitic shales. In some areas surficial conductive material may be the source of the conductivity. As it is difficult and probably meaningless to attempt to indicate line to line continuity of specific anomaly peaks, the conductors were lumped together and designated as conductive areas on the interpretation maps of each area.

These conductive areas are generally peripheral to the zones of high amplitude magnetics marked by higher topographic relief.

7.7 Radiometric Interpretation

The ability to detect natural occurring radiation, whether on the ground or from an airborne platform, depends on a number of factors listed as follows:

Count Time
Measurements or count rate statistics are more reliable the longer the detector is in position over a particular location. Therefore in airborne surveying, traverse speed is an important factor in detecting radiation sources. For this reason STOL aircraft and helicopters are a favoured platform for radiometric surveys.

Detector size
The detector crystal volume and thickness determine the sensitivity of the radiometric system to radiation. For accurate measurement and differentiation of higher energy levels of radiation, a large crystal volume is a pre-requisite.

Distance from Source (Altitude)
The attenuation or absorption of radiation in air, although not a significant factor in ground surveys, is a factor in airborne surveys. Normalization of the radiation amplitude data for altitude variations of the aircraft during the survey is necessary. The attenuation is not significant for large areal sources of radiation but is quite severe for localized point sources.

Overburden Cover
Radiation can be completely masked by one foot of rock or three feet of unconsolidated overburden.

Source Geometry
A large exposed outcrop of slightly radioactive material, such as granite which usually has a high potassium count, will be easily detectable from the air. A small outcrop of highly radioactive material, containing an appreciable amount of pitchblende for instance, may not be detectable unless the sensor passes directly over the outcrop and/or is quite close to it.

Source Characteristics
The type and percentage concentration of radioactive minerals present in the rock will determine radiation amplitudes and therefore the ability of the sensor to measure the radiation.

The above factors must be taken into consideration when evaluating and interpreting radiometric surveys. Variations in radiation amplitudes may only be a factor of overburden cover. As a result, an outcrop map of the survey area is very useful for initial evaluation of radioactive element concentrations.

Shales and felsic intrusives tend to have high potassium and thorium levels. Mafic intrusives, sandstone and especially limestone have concentrations of one half to one tenth of the highest levels. Specific intrusives types, such as pegmatites, can have levels of potassium, uranium and thorium, in the order of three to four times the amounts normally present. Uranium ore can contain concentrations of radioactive minerals one to four orders of magnitude greater than normally encountered.

Thus, interpretation of the source of radioactive anomalies, even when the uranium, thorium and potassium thresholds are separated, can be difficult and ambiguous. In some geological environments, specific rock units have higher or lower uranium/thorium, uranium/potassium, or thorium/potassium ratios. Additional diagnostic information is sometimes available when such ratio maps are generated and compared to known geological parameters.

7.8 Radiometric Survey Results and Conclusions

As just described, it is difficult to interpret radiometric data without an outcrop map and some indication of the radiometric signature of specific rock units. The radiometric responses could be dominated by high potassium granitic intrusives and/or shale units. The former are of interest in this geological environment and the latter are not. Detailed analysis of the total count, potassium, thorium and uranium responses is not possible with the present information available. Potassium anomalies are good indicators of possible alteration zones associated with intrusive activity, however, and therefore major potassium count anomalies have been indicated on the interpretation map.

The background potassium count is in the order of 10 to 15 cps. Areas where the count rate exceeds 25 cps (1.5 to 2.5 times background) are designated on the interpretation map. There are only three areas where the count rate exceeds 25 cps. Two of the areas have a spatial association with magnetic responses interpreted to reflect intrusive sources which is encouraging.

8. *RECOMMENDATIONS*

Recommendations for further investigations of the project area are based on the presence of geophysical signatures that may reflect intrusive and/or alteration zones. In this area the higher amplitude magnetic responses, at least in areas of high topographic relief, are interpreted to reflect intrusive sources. In some geological environments, however, altered intrusives are marked by magnetic lows. This area has a large selection of both types of magnetic signatures making it difficult to prioritize anomalies unless some detailed geological information is available. Nevertheless, four areas have been recommended for primary investigation based on their magnetic, potassium and structural attributes. Geological and geochemical information may indicate more favourable areas for detailed work.

Area A is located in an area of background magnetic response and occurs in a non-conductive window within the interpreted conductive sediments. Most importantly, a potassium anomaly is located in Area A.

Areas B and D cover high amplitude, possibly fault bounded, magnetic zones both having associated potassium anomalies.

Area C does not have any related potassium anomaly but is bisected by an interpreted fault structure.

All four areas are suggested for further detailed ground investigation.

Respectfully submitted,

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Consulting Geophysicist

for

AERODAT LIMITED

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APPENDIX I

GENERAL INTERPRETIVE CONSIDERATIONS

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 at least 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.

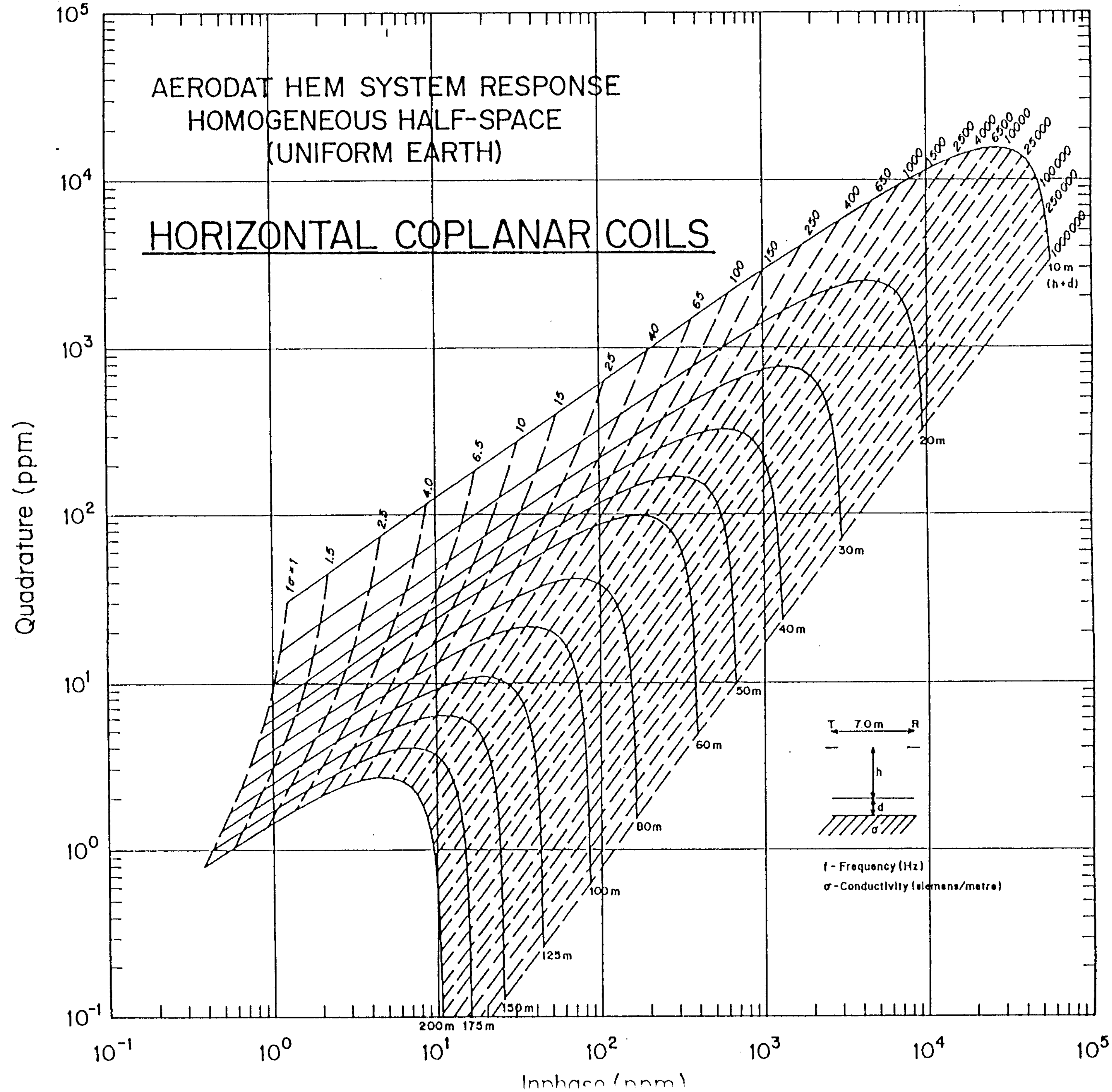
Electrical Considerations

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.

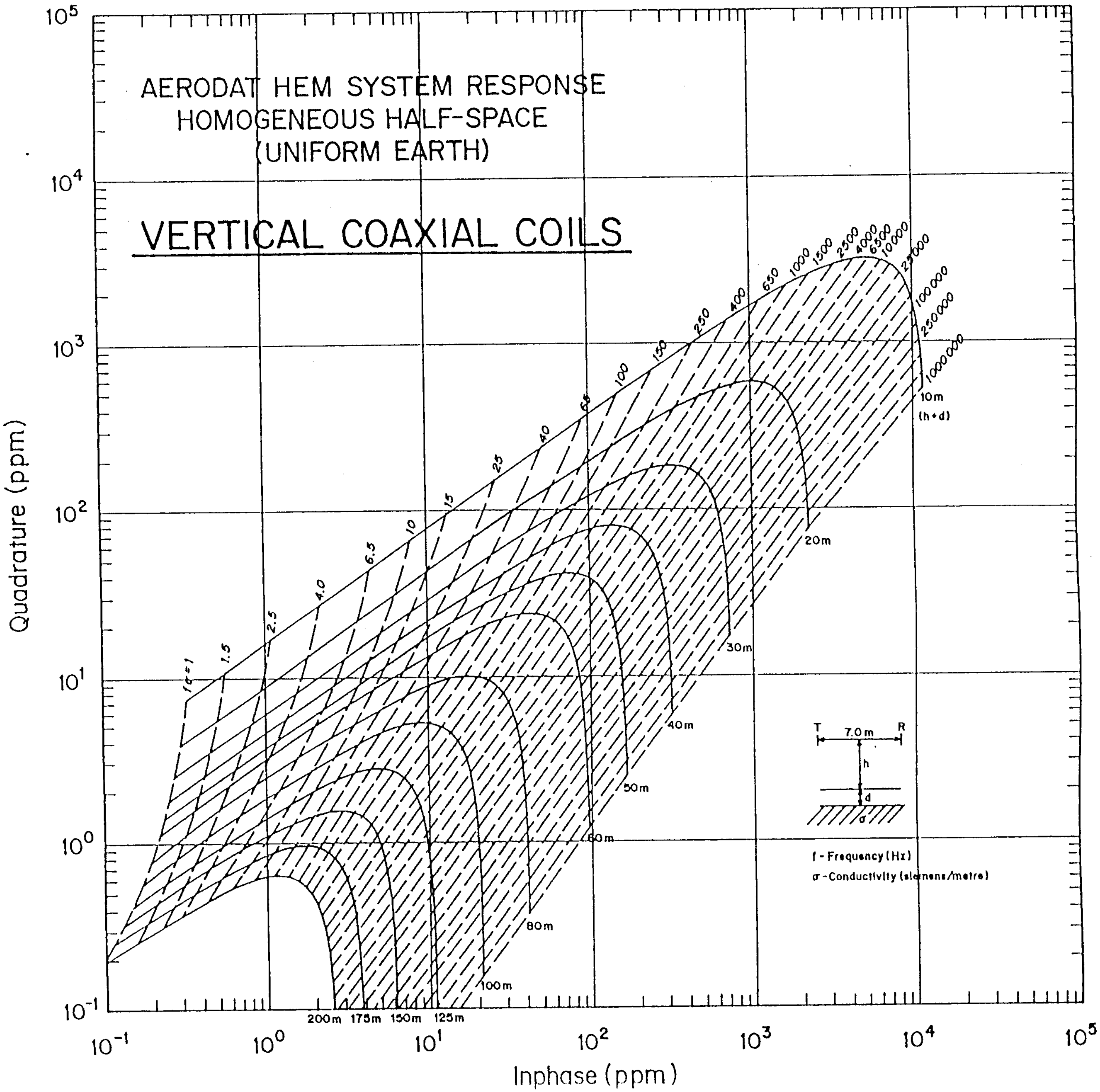
The phasor diagram for the vertical half-plane model, as presented, is for the coaxial coil configuration with the amplitudes in parts per million (ppm) of the primary field as measured at the response peak over the conductor. To assist the interpretation of the survey results the computer is used to 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 estimate is most reliable when anomaly amplitudes are large and background resistivities are high. Where the EM anomaly is of low amplitude and background resistivities are low, the conductance estimates are much less reliable. In such situations, the conductance estimate is often quite low regardless of the true nature of the conductor. This is due to the elevated background response levels in the quadrature channel. In an extreme case, the conductance estimate should be discounted and should not prejudice target selection.

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, or may be strongly magnetic. Its conductivity and thickness may vary with depth



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)



AERODAT HEM SYSTEM RESPONSE
HOMOGENEOUS HALF-SPACE
(UNIFORM EARTH)
VERTICAL COAXIAL COILS
Quadrature (ppm)
Inphase (ppm)
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
fσ=1
1.5
2.5
4.0
6.5
10
15
25
40
65
100
150
250
400
650
1000
1500
2500
4000
6500
10000
25000
100000
250000
1000000
10m
(h+d)
20m
30m
40m
50m
60m
80m
100m
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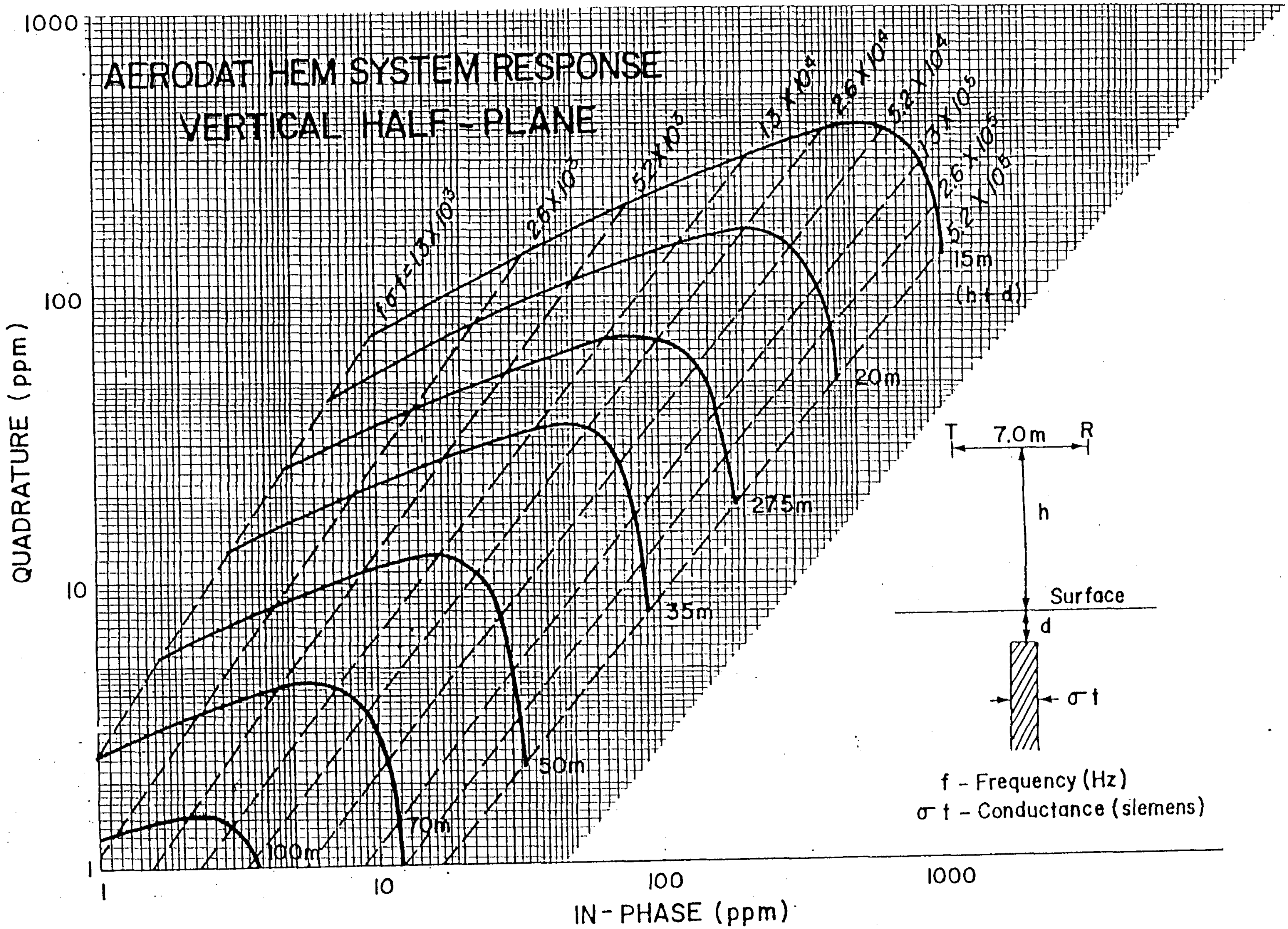
R
h
d
σ
f - Frequency (Hz)
σ - Conductivity (siemens/metre)


AERODAT HEM SYSTEM RESPONSE
VERTICAL HALF-PLANE
QUADRATURE (ppm)
IN-PHASE (ppm)
1000
100
10
1
1
10
100
1000
fσt=1.3X10³
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)

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.

The higher ranges of conductance, greater than 2-4 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 massive sulphides or graphites.

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 concentrations in association with minor conductive sulphides, and the electromagnetic response will 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. Minor accessory sulphide mineralization may however 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. A moderate to low conductance value does not rule out the possibility of significant economic mineralization.

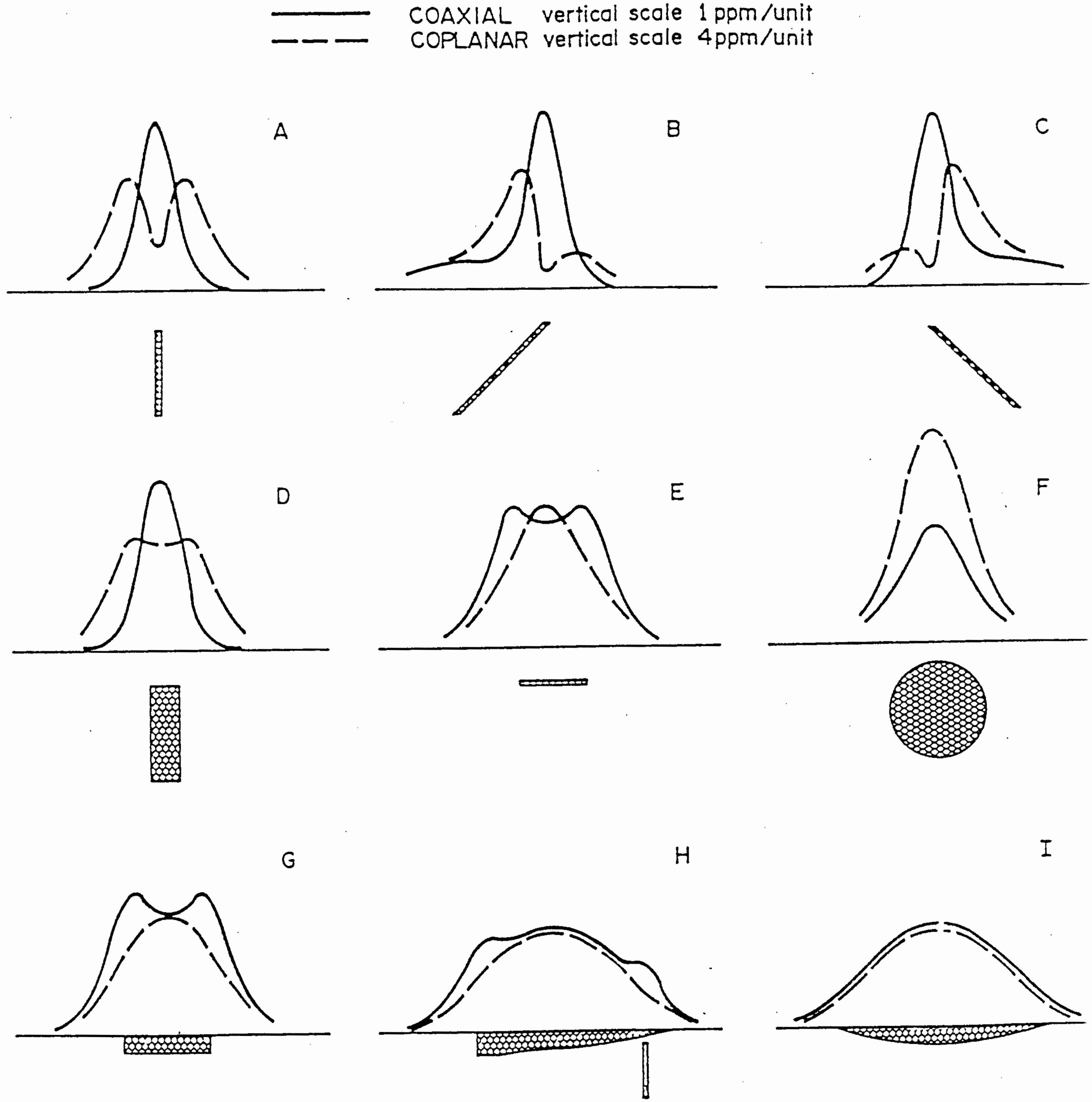
Geometrical Considerations

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

HEM RESPONSE PROFILE SHAPE AS AN INDICATOR OF CONDUCTOR GEOMETRY



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

A horizontal conducting layer such as a horizontal thin sheet or 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.

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.

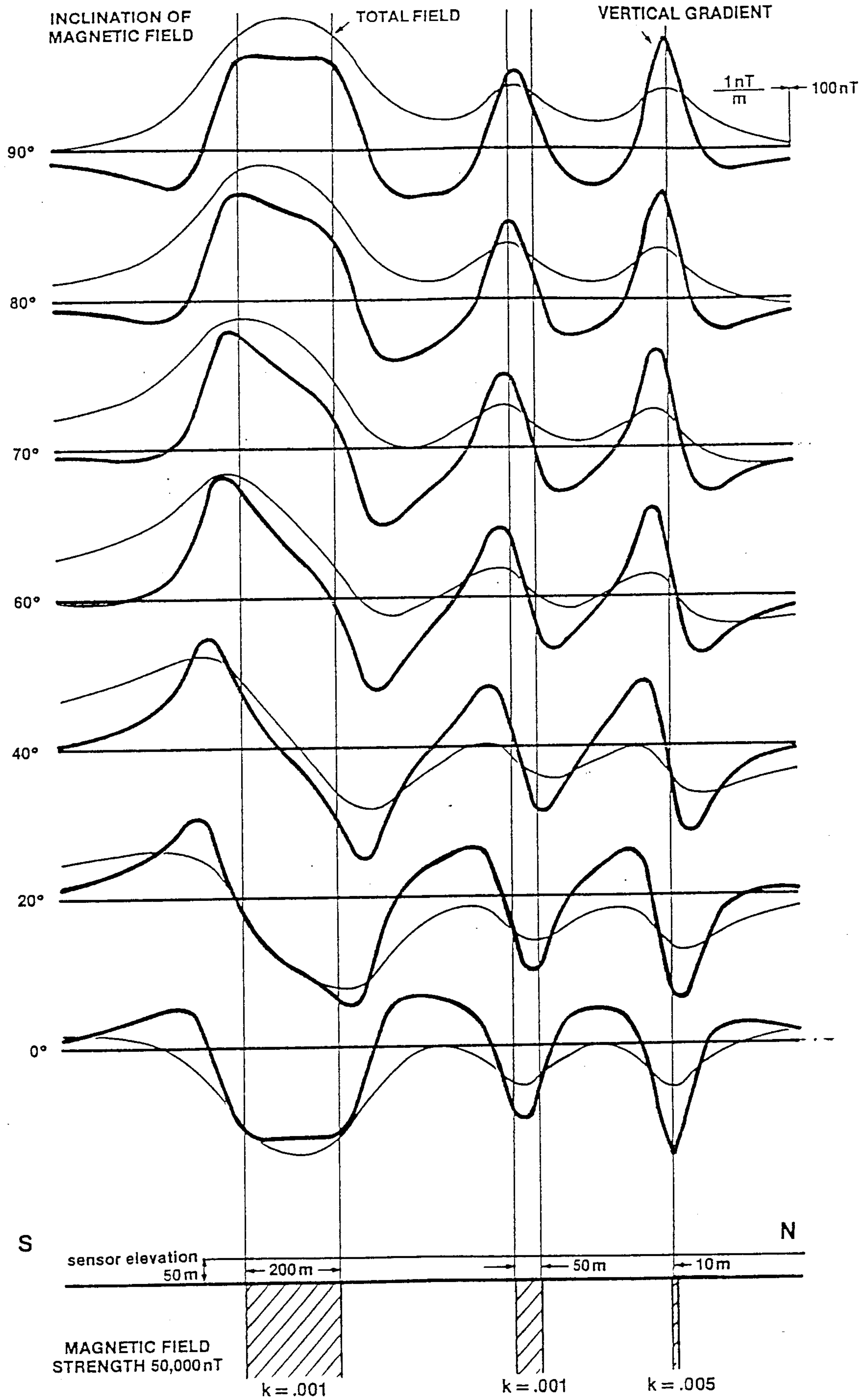
Theoretical profiles of total field and vertical gradient anomalies from tabular sources at a variety of magnetic inclinations are shown in the attached figure. Sources are 10, 50 and 200 m wide. The source-sensor separation is 50 m. The thin line is the total field profile. The thick line is the vertical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



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

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.

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 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 or 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.

AERODAT LIMITED
June, 1991.

APPENDIX II

ANOMALY LISTINGS

J9226

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	10011	A	0	15.9	23.8	0.7	0	48
1	10021	A	0	24.4	35.2	0.9	0	44
1	10021	B	1	24.2	30.9	1.0	0	39
1	10021	C	0	19.0	24.1	0.9	0	49
1	10021	D	0	15.3	21.6	0.7	0	49
1	10021	E	0	14.5	22.0	0.6	0	42
1	10030	A	0	11.2	17.5	0.5	0	48
1	10030	B	0	15.7	20.9	0.8	0	48
1	10030	C	1	21.1	20.9	1.3	0	47
1	10040	A	0	21.6	29.6	0.9	0	41
1	10040	B	1	23.0	18.2	1.9	0	44
1	10040	C	1	18.1	15.6	1.5	0	50
1	10040	D	0	17.0	23.2	0.8	0	43
1	10040	E	0	12.4	16.1	0.7	0	46
1	10040	F	0	6.7	11.9	0.3	0	48
1	10050	A	0	12.9	17.3	0.7	0	55
1	10050	B	1	15.1	16.0	1.1	0	48
1	10050	C	2	32.4	22.0	2.6	0	41
1	10060	A	1	22.9	18.8	1.8	0	45
1	10060	B	1	16.0	17.8	1.0	0	48
1	10060	C	1	13.1	13.0	1.1	0	51
1	10060	D	1	16.0	14.3	1.4	0	52
1	10060	E	1	17.9	15.9	1.5	0	52
1	10060	F	1	10.0	9.4	1.1	0	53
1	10060	G	1	10.7	8.9	1.3	0	59
1	10070	A	1	11.6	9.8	1.3	0	58
1	10070	B	1	22.1	27.1	1.0	0	47
1	10070	C	1	21.3	23.2	1.2	0	44
1	10070	D	1	22.5	26.0	1.1	0	41
1	10070	E	1	12.0	12.9	1.0	0	49
1	10070	F	1	12.7	13.7	1.0	4	42
1	10070	G	2	14.6	7.1	3.1	4	52
1	10080	A	1	13.1	9.2	1.8	3	51
1	10080	B	0	7.8	10.5	0.6	0	53
1	10080	C	0	10.0	16.9	0.5	0	41
1	10080	D	1	17.3	18.2	1.2	0	49
1	10080	E	1	14.9	14.6	1.2	0	51

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.

J9226

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	10090	A	0	2.7	9.1	0.0	0	55
1	10090	B	0	6.5	13.0	0.3	0	57
1	10090	C	1	17.0	17.8	1.1	0	54
1	10090	D	1	14.1	13.2	1.2	0	56
1	10090	E	1	18.8	21.4	1.1	0	51
1	10100	A	1	18.8	18.4	1.3	0	50
1	10100	B	1	20.1	19.6	1.4	0	48
1	10100	C	1	17.6	14.8	1.6	0	61
1	10100	D	1	20.4	19.5	1.4	0	48
1	10100	E	1	15.3	13.8	1.4	0	54
1	10100	F	0	12.4	15.9	0.8	0	59
1	10100	G	0	6.6	15.8	0.2	0	63
1	10100	H	0	14.7	20.1	0.7	0	59
1	10100	J	1	22.3	28.3	1.0	0	52
1	10110	A	1	20.8	24.1	1.1	0	49
1	10110	B	0	12.3	19.4	0.6	0	58
1	10110	C	1	19.2	20.0	1.2	0	62
1	10110	D	1	20.3	16.8	1.7	0	58
1	10110	E	2	29.9	24.1	2.0	0	46
1	10110	F	1	41.7	49.8	1.4	0	39
1	10110	G	1	30.6	29.4	1.6	0	51
1	10120	A	1	22.0	20.4	1.5	0	50
1	10120	B	1	21.4	22.2	1.3	0	46
1	10120	C	1	18.7	19.7	1.2	0	51
1	10120	D	1	20.7	16.4	1.8	0	59
1	10120	E	1	23.2	22.7	1.4	0	51
1	10120	F	0	15.2	24.8	0.6	0	54
1	10120	G	0	12.4	27.6	0.3	0	53
1	10120	H	0	22.5	46.8	0.5	0	42
1	10120	J	0	18.6	35.5	0.5	0	42
1	10130	A	0	23.9	45.1	0.6	0	37
1	10130	B	0	22.8	38.5	0.7	0	41
1	10130	C	1	17.3	20.8	1.0	0	60
1	10130	D	0	9.3	26.0	0.2	0	50
1	10130	E	0	9.5	15.5	0.5	0	48
1	10130	F	1	34.0	43.3	1.1	0	42
1	10140	A	1	25.9	30.4	1.2	0	49
1	10140	B	2	34.1	25.4	2.4	0	47
1	10140	C	0	20.2	25.8	0.9	0	50

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.

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	10140	D	0	20.7	26.4	0.9	0	48
1	10140	E	1	21.9	26.4	1.0	0	51
1	10140	F	0	14.0	18.3	0.8	0	47
1	10140	G	0	6.6	15.2	0.2	0	47
1	10140	H	0	10.3	24.5	0.3	0	58
1	10140	J	0	9.5	41.3	0.1	0	45
1	10140	K	0	12.6	34.2	0.2	0	42
1	10150	A	0	3.5	20.9	0.0	0	52
1	10150	B	0	-1.0	18.4	0.0	0	55
1	10150	C	0	3.3	23.1	0.0	0	51
1	10150	D	0	1.9	17.9	0.0	0	40
1	10150	E	0	4.7	18.1	0.1	0	40
1	10150	F	0	18.7	26.1	0.8	0	48
1	10150	G	0	17.6	30.5	0.6	0	40
1	10150	H	1	19.9	25.0	1.0	0	42
1	10160	A	0	11.5	14.5	0.8	0	51
1	10160	B	0	10.9	16.8	0.5	0	48
1	10160	C	0	10.7	12.2	0.8	0	57
1	10160	D	0	-7.0	13.8	0.0	0	37
1	10160	E	0	-6.8	14.9	0.0	0	39
1	10160	F	0	0.6	18.4	0.0	0	45
1	10170	A	0	-3.1	19.6	0.0	0	41
1	10170	B	0	0.3	17.7	0.0	0	44
1	10170	C	0	-3.5	8.8	0.0	0	51
1	10170	D	0	5.8	15.8	0.2	0	54
1	10170	E	0	11.5	20.6	0.4	0	48
1	10170	F	1	15.6	17.8	1.0	0	48
1	10170	G	1	11.7	12.5	1.0	0	60
1	10170	H	0	15.8	22.9	0.7	0	49
1	10180	A	1	16.1	18.4	1.0	0	56
1	10180	B	0	22.5	31.0	0.9	0	42
1	10180	C	0	15.1	18.9	0.9	0	47
1	10180	D	0	15.4	21.7	0.7	0	52
1	10180	E	0	9.3	24.6	0.2	0	44
1	10180	F	0	13.9	22.5	0.6	0	49
1	10180	G	0	3.0	13.7	0.0	0	45
1	10180	H	0	2.8	14.0	0.0	0	48
1	10190	A	0	3.9	11.3	0.1	0	53
1	10190	B	0	5.2	16.0	0.1	0	49
1	10190	C	0	8.8	16.7	0.4	0	49

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.

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	10190	D	0	16.7	25.1	0.7	0	53
1	10190	E	0	19.6	37.4	0.5	0	43
1	10190	F	0	8.7	16.6	0.4	0	56
1	10190	G	0	15.0	19.4	0.8	0	56
1	10190	H	1	17.4	20.7	1.0	0	47
1	10190	J	1	20.6	23.4	1.1	0	52
1	10200	A	0	21.2	29.3	0.9	0	48
1	10200	B	0	15.8	22.6	0.7	0	42
1	10200	C	0	17.5	31.1	0.6	0	44
1	10200	D	0	15.5	30.9	0.4	0	44
1	10200	E	0	7.4	19.0	0.2	0	53
1	10200	F	0	7.0	19.9	0.2	0	48
1	10210	A	1	20.1	24.9	1.0	0	50
1	10210	B	1	18.2	21.5	1.0	0	52
1	10210	C	0	15.8	23.9	0.7	0	51
1	10210	D	0	16.4	25.6	0.6	0	44
1	10210	E	0	19.3	27.6	0.8	0	44
1	10210	F	1	19.7	21.0	1.2	0	53
1	10210	G	2	23.9	16.1	2.4	0	48
1	10210	H	2	23.9	17.4	2.1	0	50
1	10220	A	1	31.8	28.8	1.8	0	40
1	10220	B	2	29.9	17.1	3.2	0	58
1	10220	C	1	28.8	30.9	1.4	0	45
1	10220	D	0	23.5	32.4	0.9	0	42
1	10220	E	0	19.5	26.8	0.8	0	43
1	10220	F	1	22.2	23.7	1.2	0	51
1	10220	G	2	33.2	25.0	2.3	0	48
1	10220	H	1	26.4	25.3	1.5	0	52
1	10220	J	0	19.7	28.0	0.8	0	44
1	10220	K	0	13.3	30.2	0.3	0	37
1	10220	M	0	8.8	24.7	0.2	0	40
1	10230	A	1	18.3	16.7	1.4	0	50
1	10230	B	0	17.1	23.2	0.8	0	55
1	10230	C	0	15.3	22.4	0.7	0	55
1	10230	D	0	22.2	30.4	0.9	0	48
1	10230	E	2	33.6	27.6	2.1	0	47
1	10230	F	1	22.1	23.6	1.2	0	51
1	10230	G	1	18.9	19.0	1.3	0	42
1	10230	H	1	20.9	20.5	1.4	0	54
1	10230	J	2	34.4	27.1	2.2	0	43
1	10230	K	2	47.0	29.3	3.3	0	47

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	10230	M	2	47.9	29.6	3.4	0	49
1	10240	A	2	25.9	20.4	2.0	0	44
1	10240	B	2	41.7	35.9	2.1	0	41
1	10240	C	1	29.5	36.2	1.1	0	41
1	10240	D	2	37.6	24.0	3.0	0	46
1	10240	E	2	35.3	27.4	2.3	0	51
1	10240	F	0	17.7	28.0	0.7	0	43
1	10240	G	0	18.2	24.1	0.9	0	52
1	10240	H	0	14.5	23.6	0.6	0	47
1	10240	J	0	4.3	16.4	0.1	0	41
1	10240	K	0	6.7	17.3	0.2	0	45
1	10240	M	1	13.7	12.1	1.3	2	46
1	10250	A	1	20.0	22.2	1.1	0	42
1	10250	B	0	11.0	17.1	0.5	0	49
1	10250	C	0	5.3	15.3	0.1	0	41
1	10250	D	2	24.3	17.7	2.2	0	50
1	10250	E	2	35.9	22.5	3.0	0	50
1	10250	F	1	28.3	33.7	1.2	0	41
1	10250	G	1	25.6	28.8	1.2	0	44
1	10260	A	1	29.6	25.6	1.8	0	41
1	10260	B	1	26.5	22.2	1.8	0	40
1	10260	C	0	22.7	36.7	0.7	0	41
1	10260	D	0	7.9	15.7	0.3	0	60
1	10260	E	0	15.2	25.0	0.6	0	46
1	10260	F	1	21.7	27.0	1.0	0	46
1	10270	A	0	17.3	21.6	0.9	0	42
1	10270	B	0	17.1	25.9	0.7	0	45
1	10270	C	0	12.5	25.7	0.4	0	43
1	10270	D	0	19.6	27.9	0.8	0	48
1	10270	E	0	17.4	24.4	0.8	0	51
1	10270	F	0	9.3	15.1	0.5	0	48
1	10270	G	2	56.9	51.1	2.2	0	42
1	10270	H	2	31.7	25.7	2.0	0	45
1	10270	J	2	35.1	29.4	2.0	0	45
1	10280	A	1	48.5	46.5	1.9	0	30
1	10280	B	2	40.7	36.4	2.0	0	33
1	10280	C	2	25.0	15.5	2.7	0	46
1	10280	D	0	14.3	22.6	0.6	0	48
1	10280	E	0	14.2	22.1	0.6	0	48
1	10280	F	0	17.8	27.3	0.7	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.

J9226

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	10280	G	0	8.3	18.1	0.3	0	48
1	10280	H	0	9.9	22.0	0.3	0	39
1	10280	J	0	5.4	19.1	0.1	0	50
1	10280	K	0	6.9	23.3	0.1	0	38
1	10280	M	0	13.5	22.9	0.5	0	43
1	10280	N	1	18.4	20.7	1.1	0	50
1	10280	O	1	21.7	24.1	1.2	0	46
1	10290	A	1	27.7	38.0	1.0	0	43
1	10290	B	1	24.7	26.2	1.3	0	44
1	10290	C	1	22.2	23.5	1.3	0	45
1	10290	D	0	11.3	21.5	0.4	0	48
1	10290	E	0	6.3	18.6	0.1	0	40
1	10290	F	0	17.0	29.6	0.6	0	43
1	10290	G	0	21.2	36.1	0.6	0	46
1	10290	H	1	21.1	17.4	1.7	0	47
1	10290	J	2	27.1	17.5	2.6	3	40
1	10300	A	1	31.4	41.8	1.0	0	40
1	10300	B	0	17.9	25.5	0.8	0	46
1	10300	C	0	20.2	29.6	0.8	0	43
1	10300	D	0	22.2	32.5	0.8	0	54
1	10300	E	0	29.5	50.4	0.7	0	43
1	10300	F	0	23.1	37.0	0.7	0	42
1	10300	G	0	3.9	14.6	0.1	0	51
1	10300	H	0	7.2	16.7	0.2	0	38
1	10300	J	1	14.9	15.5	1.1	0	55
1	10300	K	1	23.7	23.0	1.4	0	46
1	10300	M	1	22.8	19.3	1.7	0	49
1	10310	A	1	14.8	13.1	1.4	0	59
1	10310	B	1	18.6	17.2	1.4	0	54
1	10310	C	1	28.7	30.5	1.4	0	43
1	10310	D	1	25.6	29.7	1.2	0	45
1	10310	E	0	8.8	15.3	0.4	0	51
1	10310	F	1	29.7	38.2	1.1	0	49
1	10310	G	1	19.4	23.3	1.0	0	49
1	10310	H	1	21.7	16.8	1.9	0	55
1	10310	J	1	25.5	22.6	1.7	0	51
1	10310	K	1	29.0	38.6	1.0	0	43
1	10310	M	0	16.3	20.7	0.9	0	44
1	10320	A	0	10.3	18.6	0.4	0	55
1	10320	B	1	23.4	20.8	1.6	0	50
1	10320	C	1	22.9	18.5	1.8	0	53

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.

J9226

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	10320	D	0	16.7	21.7	0.8	0	48
1	10320	E	0	11.0	15.8	0.6	0	51
1	10320	F	0	14.8	17.8	0.9	0	52
1	10320	G	0	10.3	12.0	0.8	0	56
1	10320	H	0	21.0	34.6	0.7	0	43
1	10320	J	1	15.9	17.3	1.1	0	44
1	10330	A	1	19.2	23.6	1.0	2	35
1	10330	B	0	15.4	20.4	0.8	0	45
1	10330	C	0	13.1	16.3	0.8	0	47
1	10330	D	1	20.7	26.3	1.0	0	44
1	10330	E	0	18.0	24.8	0.8	0	43
1	10330	F	0	17.5	27.8	0.6	0	39
1	10330	G	0	14.4	16.7	0.9	0	43
1	10330	H	2	23.7	18.3	2.0	0	51
1	10330	J	0	22.4	29.9	0.9	0	46
1	10330	K	0	8.7	21.0	0.2	0	46
1	10340	A	0	12.5	14.8	0.9	0	50
1	10340	B	0	20.0	25.7	0.9	0	52
1	10340	C	0	7.5	11.5	0.5	0	53
1	10340	D	0	8.1	15.5	0.3	0	48
1	10340	E	1	16.4	17.0	1.1	0	45
1	10340	F	1	17.2	16.7	1.3	0	47
1	10340	G	1	16.6	12.4	1.8	0	52
1	10340	H	1	26.9	25.8	1.5	0	48
1	10340	J	1	21.0	17.3	1.7	0	49
1	10340	K	0	8.2	8.8	0.8	0	67
1	10340	M	0	10.7	13.2	0.8	0	60
1	10340	N	0	4.6	11.6	0.1	0	48
1	10340	O	0	7.4	15.3	0.3	0	52
1	10340	P	0	5.0	12.1	0.2	0	56
1	10340	Q	0	11.9	15.0	0.8	0	51
1	10340	R	1	17.4	17.6	1.2	0	43
1	10340	S	1	15.5	15.6	1.2	1	43
1	10340	T	1	13.5	12.8	1.2	7	41
1	10350	A	0	17.6	22.2	0.9	0	42
1	10350	B	1	10.5	7.6	1.6	0	59
1	10350	C	1	16.6	14.6	1.5	0	49
1	10350	D	1	14.7	16.6	1.0	0	51
1	10350	E	1	15.4	15.6	1.2	0	49
1	10350	F	0	12.2	13.7	0.9	0	60
1	10350	G	1	13.2	9.2	1.8	0	64
1	10350	H	1	21.3	19.5	1.5	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.

J9226

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	10350	J	1	19.5	22.4	1.1	0	48
1	10350	K	0	5.9	7.0	0.6	0	58
1	10350	M	0	5.1	15.7	0.1	0	42
1	10350	N	0	7.9	16.1	0.3	0	45
1	10350	O	0	13.7	20.1	0.7	0	55
1	10350	P	0	15.5	24.6	0.6	0	47
1	10350	Q	0	13.5	22.0	0.6	0	41
1	10360	A	1	13.3	9.2	1.9	2	51
1	10360	B	1	14.7	12.2	1.5	0	50
1	10360	C	0	10.0	16.8	0.5	0	44
1	10360	D	0	6.2	14.7	0.2	0	53
1	10360	E	0	6.0	15.4	0.2	0	51
1	10360	F	0	6.7	8.9	0.5	0	54
1	10360	G	1	22.8	25.9	1.2	0	44
1	10360	H	1	15.2	13.5	1.4	0	51
1	10360	J	0	15.4	18.6	0.9	0	53
1	10360	K	0	8.4	13.7	0.4	0	43
1	10360	M	0	12.0	15.3	0.8	0	47
1	10360	N	0	-0.7	7.3	0.0	0	63
1	10360	O	0	0.0	8.7	0.0	0	61
1	10360	P	0	5.2	12.2	0.2	0	45
1	10360	Q	1	16.3	15.7	1.3	0	46
1	10370	A	0	14.8	21.8	0.7	0	46
1	10370	B	1	17.8	20.5	1.0	1	38
1	10370	C	1	16.2	18.1	1.0	0	45
1	10370	D	0	-3.7	9.5	0.0	0	44
1	10370	E	0	-2.2	12.6	0.0	0	39
1	10370	F	0	-4.7	10.4	0.0	0	41
1	10370	G	0	-3.0	4.4	0.0	0	62
1	10370	H	0	1.6	14.7	0.0	0	45
1	10370	J	0	8.3	10.3	0.7	3	46
1	10370	K	1	13.4	13.1	1.2	0	47
1	10370	M	1	11.1	10.6	1.1	3	47
1	10370	N	0	-0.2	4.6	0.0	0	69
1	10380	A	0	8.2	13.8	0.4	0	56
1	10380	B	0	12.0	22.5	0.4	0	47
1	10380	C	0	12.5	34.2	0.2	0	41
1	10380	D	0	21.4	48.3	0.4	0	43
1	10380	E	0	4.2	10.4	0.1	0	49
1	10380	F	0	-3.6	15.4	0.0	0	42
1	10380	G	0	-9.1	16.8	0.0	0	44
1	10380	H	0	-5.6	17.0	0.0	0	50

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.

J9226

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	10380	J	0	-7.7	18.1	0.0	0	41
1	10380	K	0	-3.4	16.5	0.0	0	41
1	10380	M	0	2.4	19.6	0.0	0	43
1	10380	N	0	-0.5	24.5	0.0	0	40
1	10380	O	0	-1.6	28.1	0.0	0	36
1	10380	P	0	-2.6	15.7	0.0	0	44
1	10380	Q	0	0.6	12.2	0.0	0	40
1	10380	R	1	18.2	20.4	1.1	0	43
1	10380	S	1	19.1	21.8	1.1	0	44
1	10390	A	1	28.4	28.0	1.5	0	38
1	10390	B	2	32.9	23.6	2.4	0	39
1	10390	C	2	46.2	26.3	3.7	0	39
1	10390	D	2	37.3	20.2	3.7	0	50
1	10390	E	2	32.5	19.3	3.1	0	48
1	10390	F	1	43.2	41.9	1.8	0	43
1	10390	G	1	28.0	30.2	1.3	0	42
1	10390	H	1	17.7	18.8	1.1	0	51
1	10390	J	0	11.7	34.9	0.2	0	38
1	10390	K	0	23.7	47.2	0.5	0	34
1	10390	M	1	12.4	12.0	1.1	0	55
1	10390	N	0	10.4	12.9	0.7	0	51
1	10390	O	0	8.0	27.7	0.1	0	41
1	10390	P	0	21.2	28.4	0.9	0	48
1	10390	Q	1	23.3	25.5	1.2	0	49
1	10400	A	1	24.9	20.2	1.9	0	54
1	10400	B	1	24.2	20.5	1.8	0	54
1	10400	C	0	9.0	30.8	0.1	0	38
1	10400	D	0	10.2	14.8	0.6	0	51
1	10400	E	2	16.7	9.6	2.6	0	61
1	10400	F	1	18.7	16.7	1.5	6	37
1	10400	G	1	25.0	22.6	1.6	0	40
1	10400	H	2	24.2	17.6	2.2	0	47
1	10400	J	2	24.6	16.4	2.4	0	43
1	10400	K	2	27.7	19.5	2.4	0	42
1	10400	M	2	39.7	26.3	2.9	0	44
1	10400	N	1	35.9	33.7	1.8	0	40
1	10400	O	2	41.6	33.7	2.3	0	36
1	10400	P	2	43.5	31.4	2.7	0	37
1	10400	Q	2	67.2	43.0	3.6	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.

APPENDIX III

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: The Association of Professional Engineers of the Province of Ontario (Mining Branch); Society of Exploration Geophysicists; South African Geophysical Association.

4. I have not received, nor do I expect to receive, any interest, directly or indirectly, in the properties or securities of Noranda Exploration Company Limited 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.

R. W. Woolham, P. Eng.

REGISTERED PROFESSIONAL ENGINEER R. W. WOOLHAM PROVINCE OF ONTARIO

Pickering, Ontario

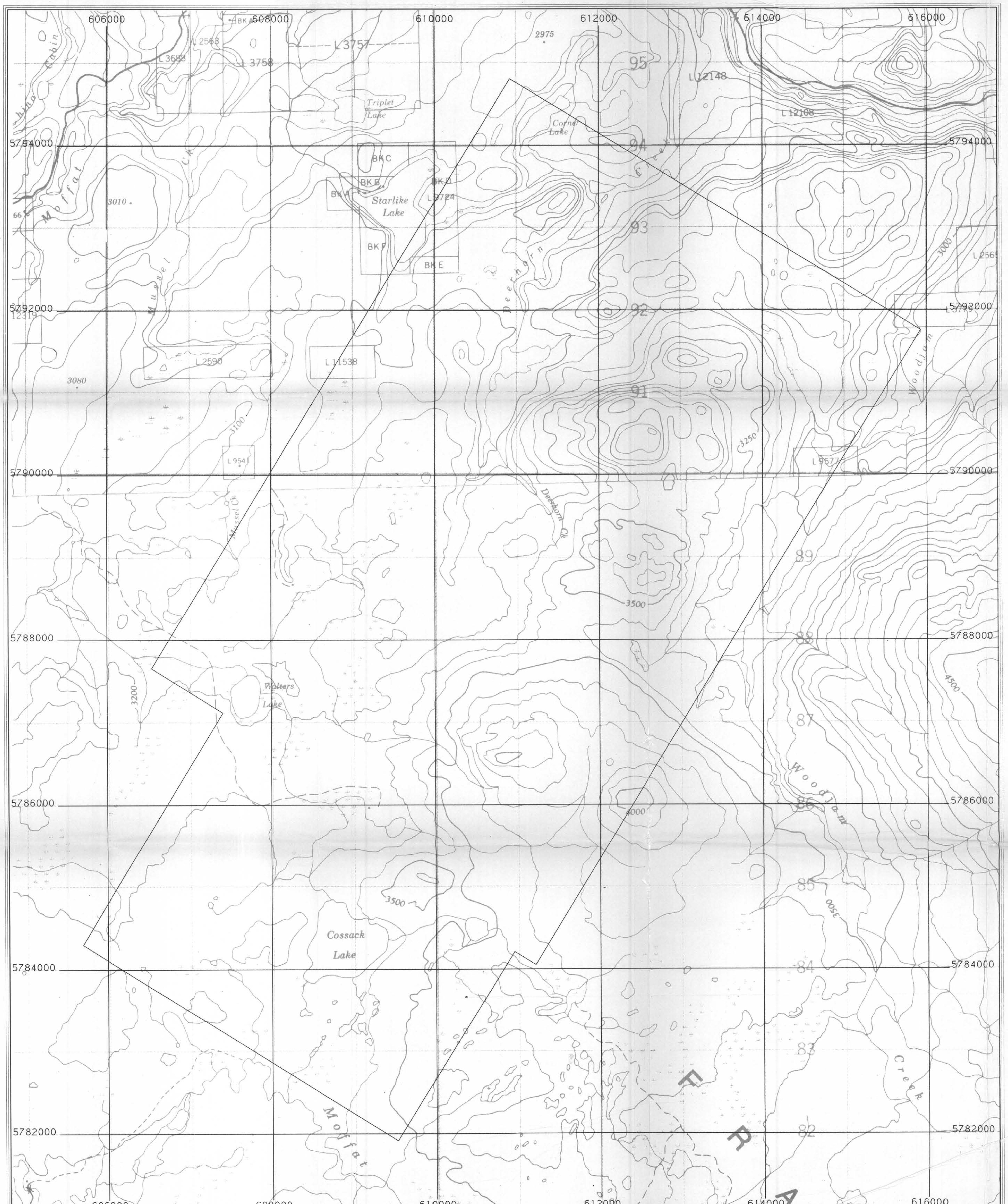
July 15, 1992

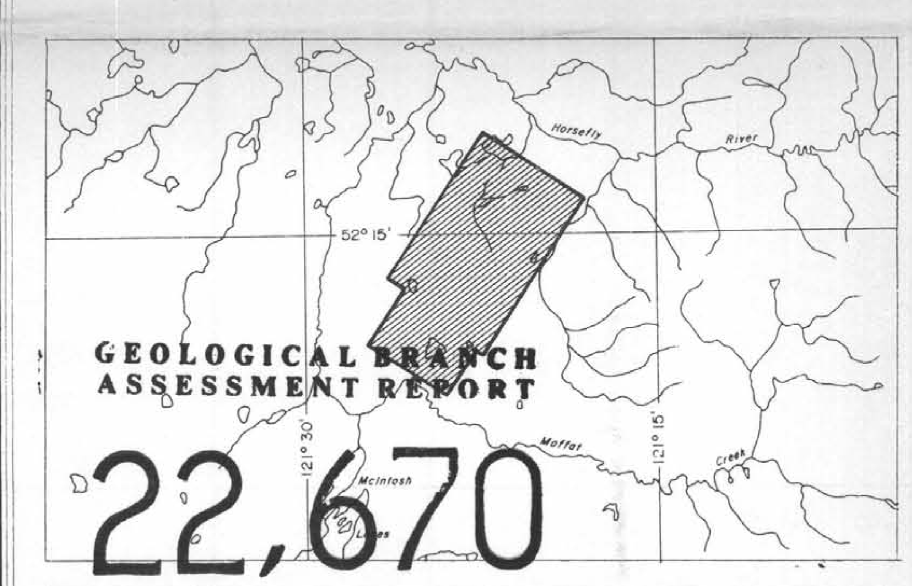
APPENDIX IV

PERSONNEL

FIELD	
Flown	May 28, 1992
Pilot(s)	L. Stanley
Operator(s)	S. Arstad
OFFICE	
Processing	Doug Oneschuck George McDonald
Report	R. W. Woolham

APPENDIX IV





GEOLOGICAL BRANCH ASSESSMENT REPORT

22,670

NORANDA EXPLORATION COMPANY LIMITED

BASE MAP

MEGABUCK AREA

Williams Lake, B.C.

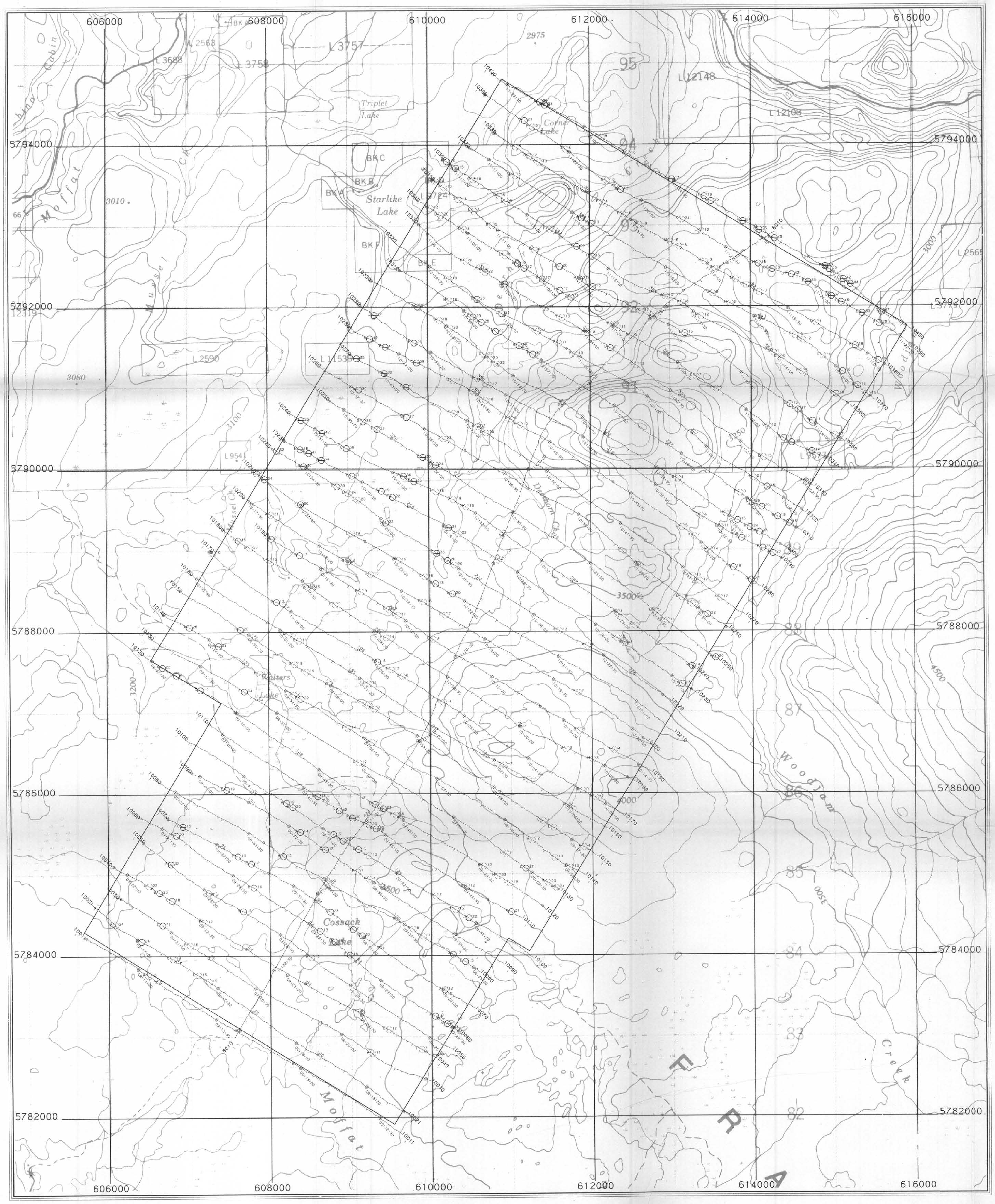
SCALE 1:20,000

0 660 1320 2640 5280 Feet

0 200 400 1000 2000 Metres

AERODAT LIMITED

DATE:	MAY 1992
NTS No:	93A/3,6
MAP No:	1 J9226



FLIGHT PATH

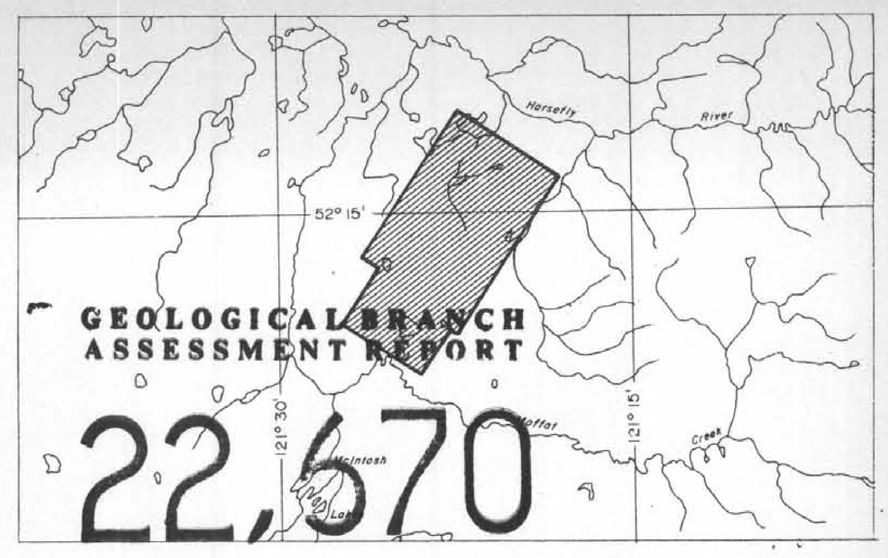
Navigation and recovery using Pronav GPS satellite navigation positioning system.
Average terrain clearance 170m
Line spacing = 500m

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).



GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,670

NORANDA EXPLORATION COMPANY LIMITED

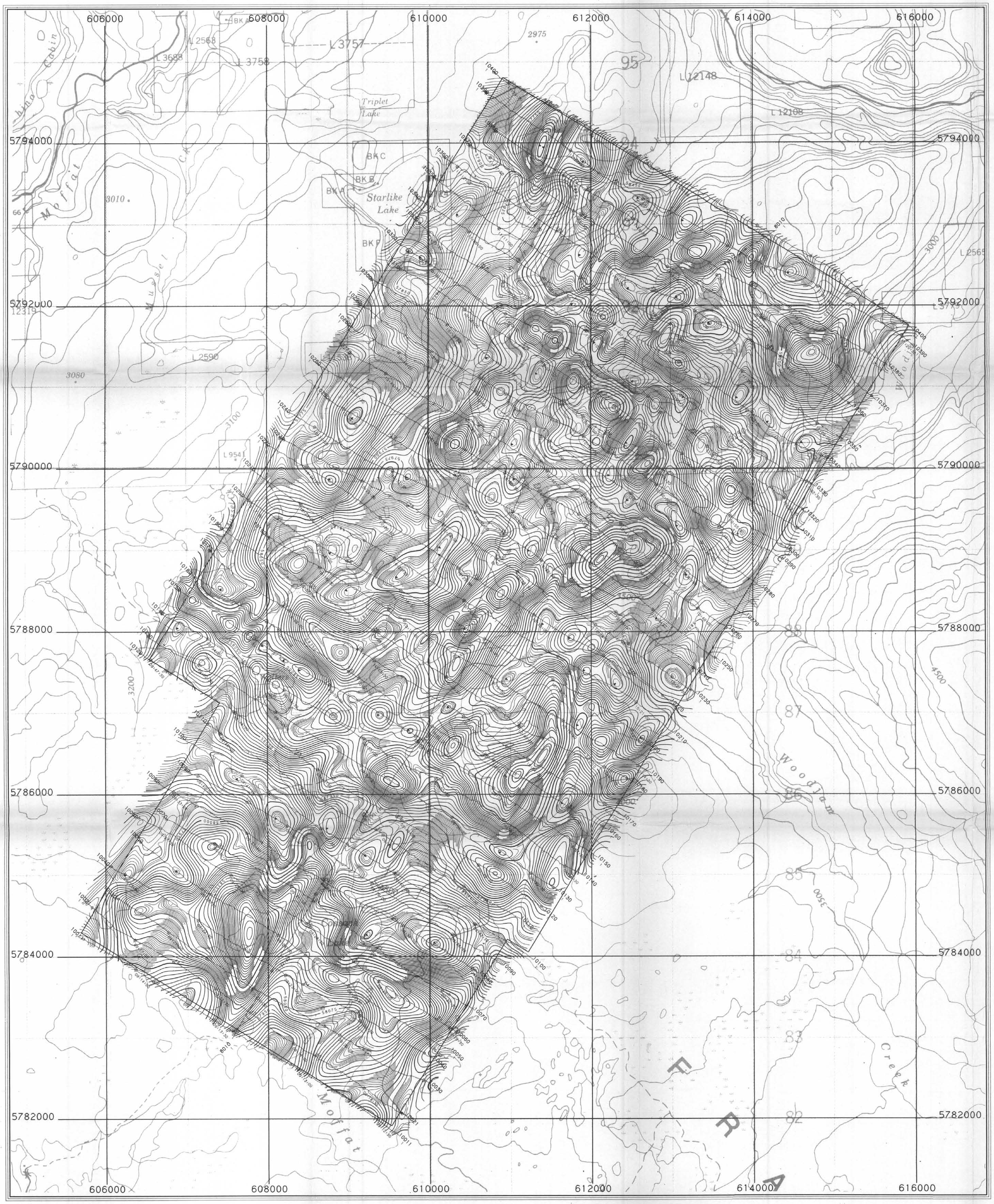
FLIGHT PATH

MEGABUCK AREA
Williams Lake, B.C.

SCALE 1:20,000
0 660 1320 2640 5280 Feet
0 200 400 1000 2000 Metres

AERODAT LIMITED	DATE:	MAY 1992
	NTS No:	93A/3,6
	MAP No:	2 J9226

606000
608000
610000
612000
614000
616000
5794000
5792000
5790000
5788000
5786000
5784000
5782000
A
B
C
D
Triplet Lake
Starlike Lake
Cossack Lake
Moffat Ck
Woodlam Creek
FRA
FLIGHT PATH
Navigation and recovery using Pronav GPS satellite navigation positioning system.
Average terrain clearance 170m
Line spacing = 500m
INTERPRETATION LEGEND
Zone of high amplitude magnetic response
Possible mafic intrusive centre
Conductive area
Possible conductive sediments and/or
Conductive surficial material
Potassium anomaly
Alteration signature?
Possible fold/fault structure
B
Designated area for primary investigation
AERODAT HEM SYSTEM RESPONSE
VERTICAL HALF - PLANE
QUADRATURE (ppm)
IN - PHASE (ppm)
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).
GEOLOGICAL BRANCH
ASSESSMENT REPORT
22,670
NORANDA EXPLORATION COMPANY LIMITED
INTERPRETATION
MEGABUCK AREA
Williams Lake, B.C.
SCALE 1:20,000
0 660 1320 2640 5280 Feet
0 200 400 1000 2000 Metres
AERODAT LIMITED
DATE: MAY 1992
NTS No: 93A/3,6
MAP No: 3 J9226



FLIGHT PATH

Navigation and recovery using Pronav GPS satellite navigation positioning system.
Average terrain clearance 170m
Line spacing = 500m

MAGNETICS

Total Field Magnetic Intensity Contours in nT.
High sensitivity cesium magnetometer.
Sensor elevation 150m.
Map contours are multiples of those listed below.

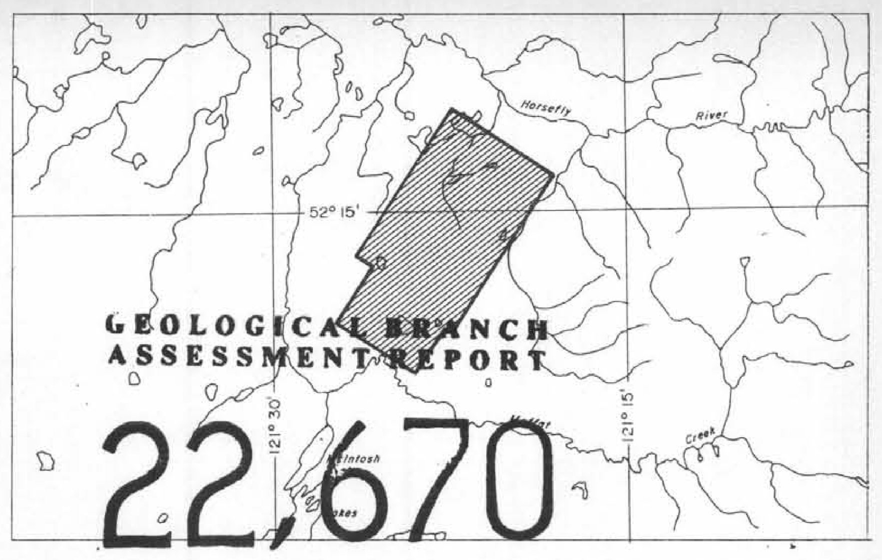
5 nt
25 nt
100 nt
500 nt
2000 nt

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).



GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,670

NORANDA EXPLORATION COMPANY LIMITED

TOTAL FIELD MAGNETICS

MEGABUCK AREA

Williams Lake, B.C.

SCALE 1:20,000

0 660 1320 2640 5280 Feet

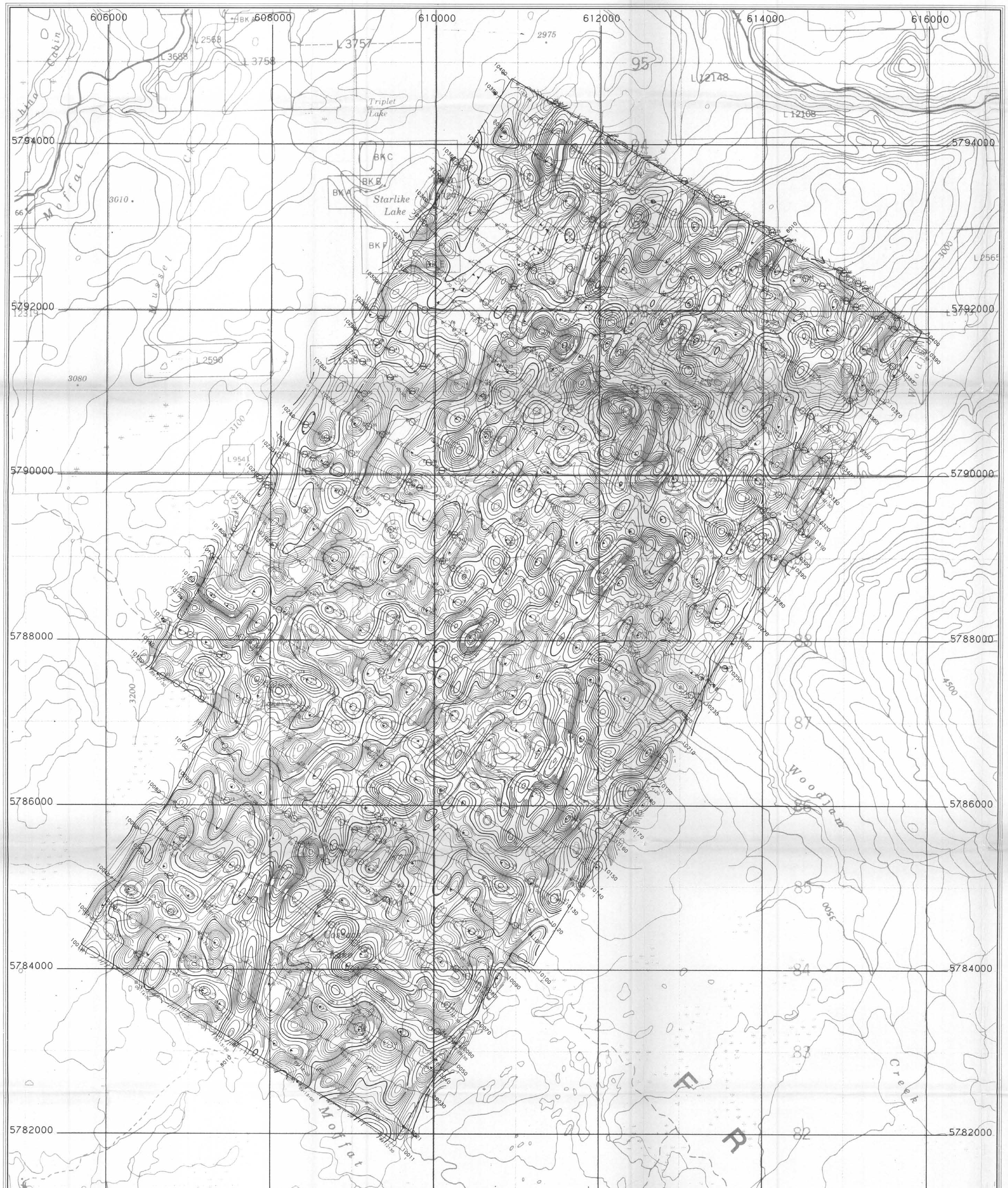
0 200 400 1000 2000 Metres

AERODAT LIMITED

DATE: MAY 1992

NTS No: 93A/3,6

MAP No: 4 J9226



FLIGHT PATH

Navigation and recovery using Pronav GPS satellite navigation positioning system.
Average terrain clearance 170m
Line spacing = 500m

VERTICAL GRADIENT

Vertical Magnetic Gradient calculated from the total field magnetic intensity in nT/m.
Cesium high sensitivity magnetometer.
Sensor elevation 150m
Map contours are multiples of those listed below

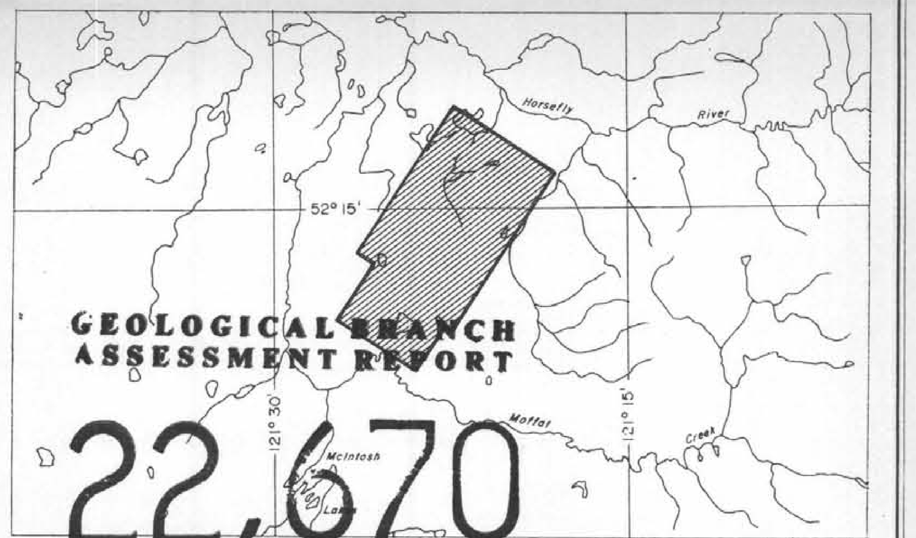
0.2 nt/m
1.0 nt/m
5.0 nt/m
25.0 nt/m
100.0 nt/m

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).



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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NORANDA EXPLORATION COMPANY LIMITED

CALCULATED VERTICAL MAGNETIC GRADIENT

MEGABUCK AREA

Williams Lake, B.C.

SCALE 1:20,000

0 660 1320 2640 5280 Feet

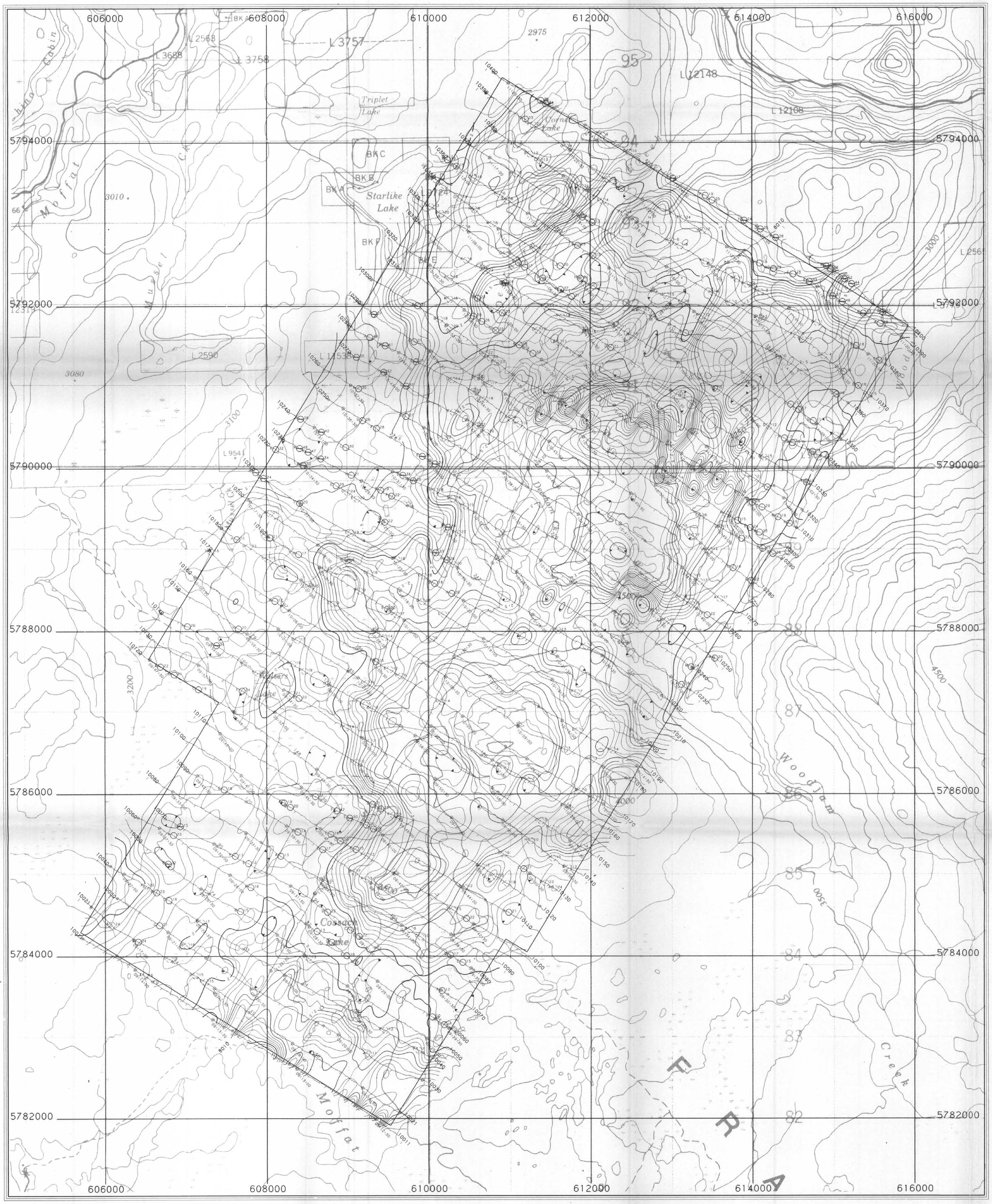
0 200 400 1000 2000 Metres

AERODAT LIMITED

DATE: MAY 1992

NTS No: 93A/3,6

MAP No: 5 J9226



FLIGHT PATH

Navigation and recovery using Pronav GPS satellite navigation positioning system.
Average terrain clearance 170m
Line spacing = 500m

RESISTIVITY

Calculated from 935 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

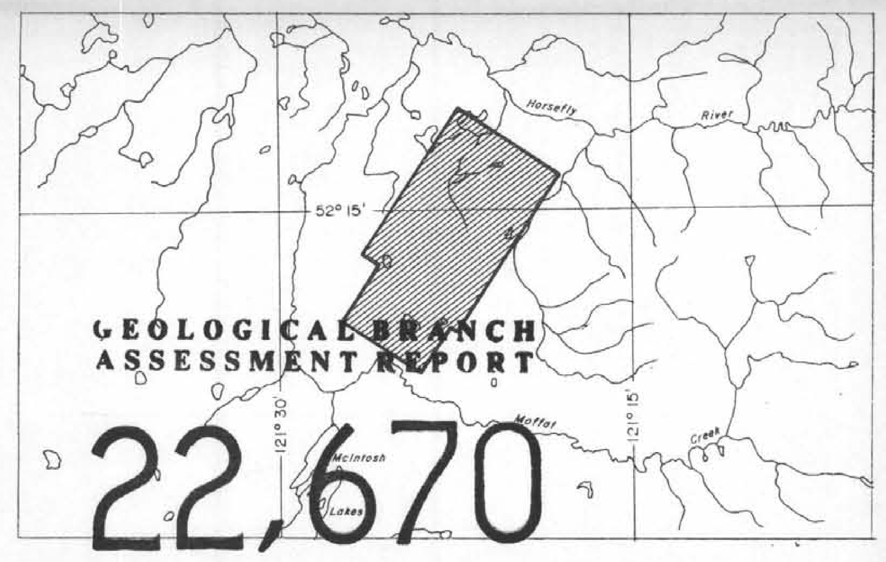
0.1
0.5
2.0
4.0
10

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).



GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,670

NORANDA EXPLORATION COMPANY LIMITED

APPARENT RESISTIVITY (935 Hz)

MEGABUCK AREA

Williams Lake, B.C.

SCALE 1:20,000

0 660 1320 2640 5280 Feet

0 200 400 1000 2000 Metres

AERODAT LIMITED

DATE:	MAY 1992
NTS No:	93A/3,6
MAP No:	6A J9226

FLIGHT PATH

Navigation and recovery using Pronav GPS satellite navigation positioning system.
Average terrain clearance 170m
Line spacing = 500m

RESISTIVITY

Calculated from 4175 Hz coplanar 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

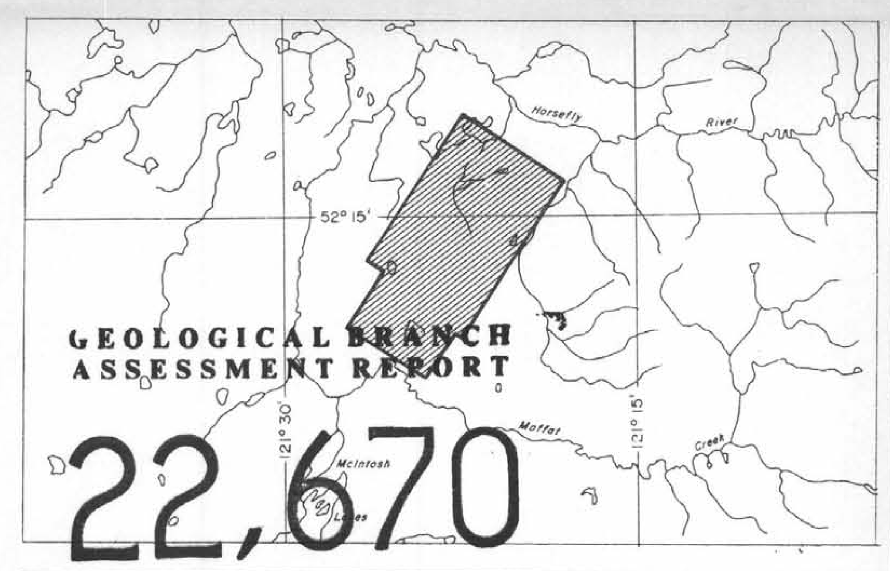
0.1
0.5
2.0
4.0
10

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).



GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,670

NORANDA EXPLORATION COMPANY LIMITED

APPARENT RESISTIVITY (4175 Hz)

MEGABUCK AREA

Williams Lake, B.C.

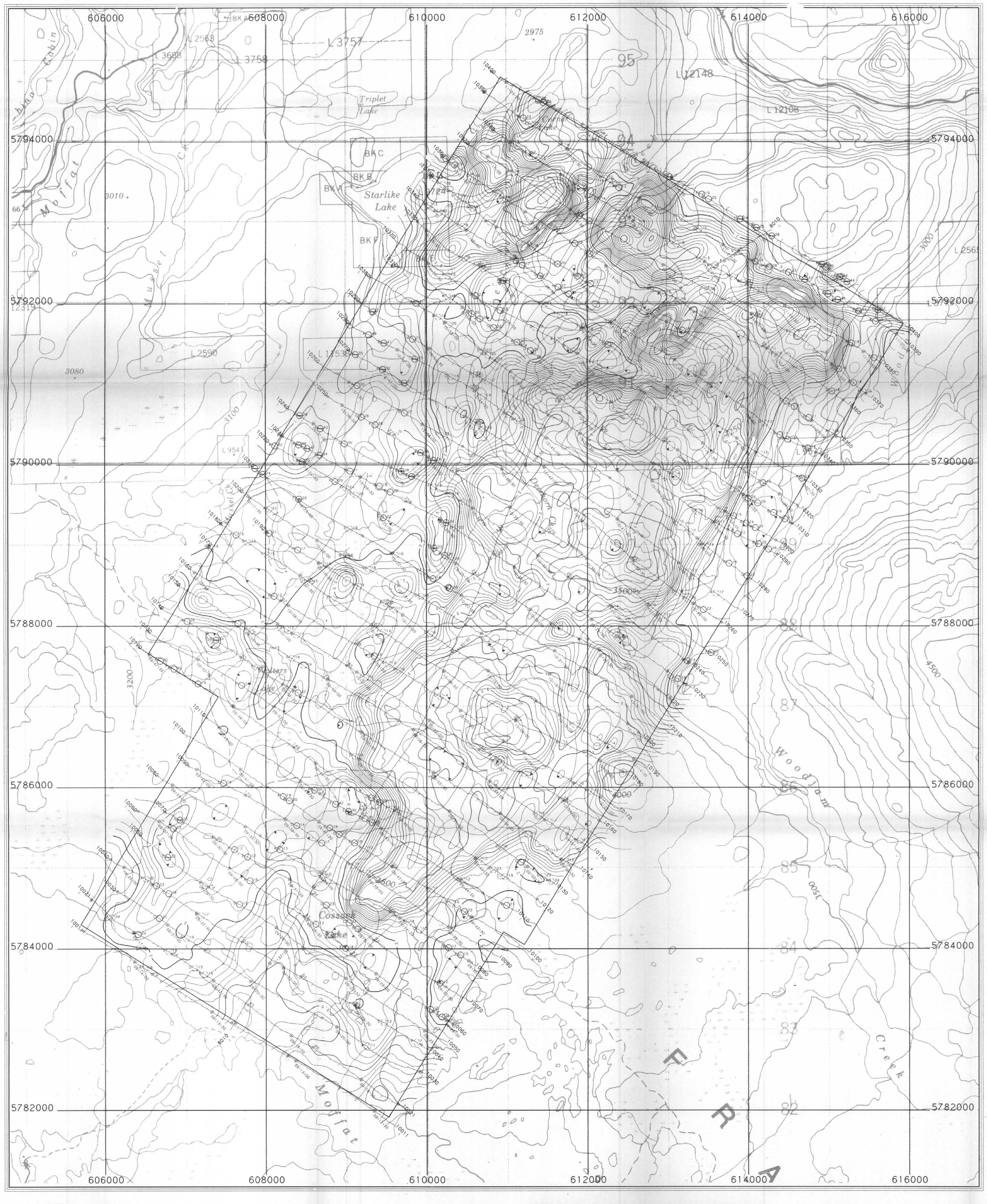
SCALE 1:20,000

0 660 1320 2640 5280 Feet

0 200 400 1000 2000 Metres

AERODAT LIMITED

DATE:	MAY 1992
NTS No:	93A/3,6
MAP No:	6B J9226



FLIGHT PATH

Navigation and recovery using Pronav GPS satellite navigation positioning system.
Average terrain clearance 170m
Line spacing = 500m

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

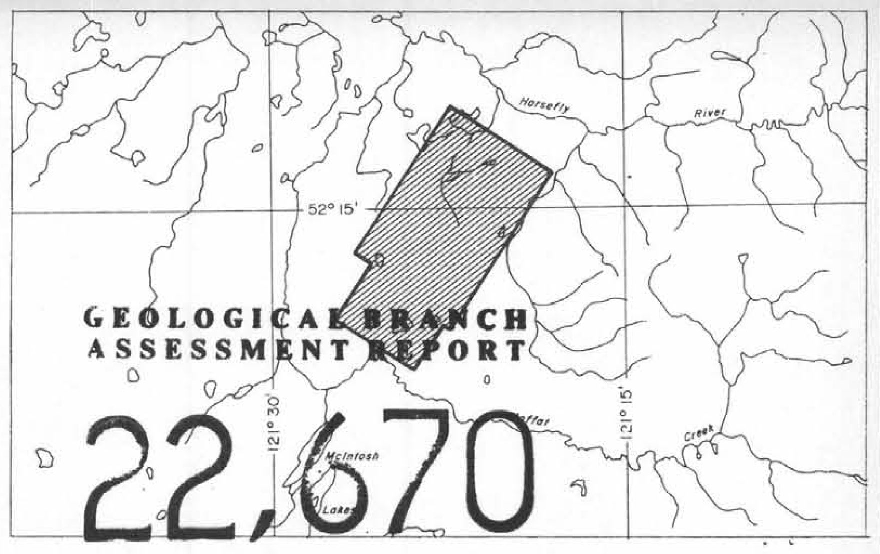
0.1
0.5
2.0
4.0
10

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).



GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,670

NORANDA EXPLORATION COMPANY LIMITED

APPARENT RESISTIVITY (4600 Hz)

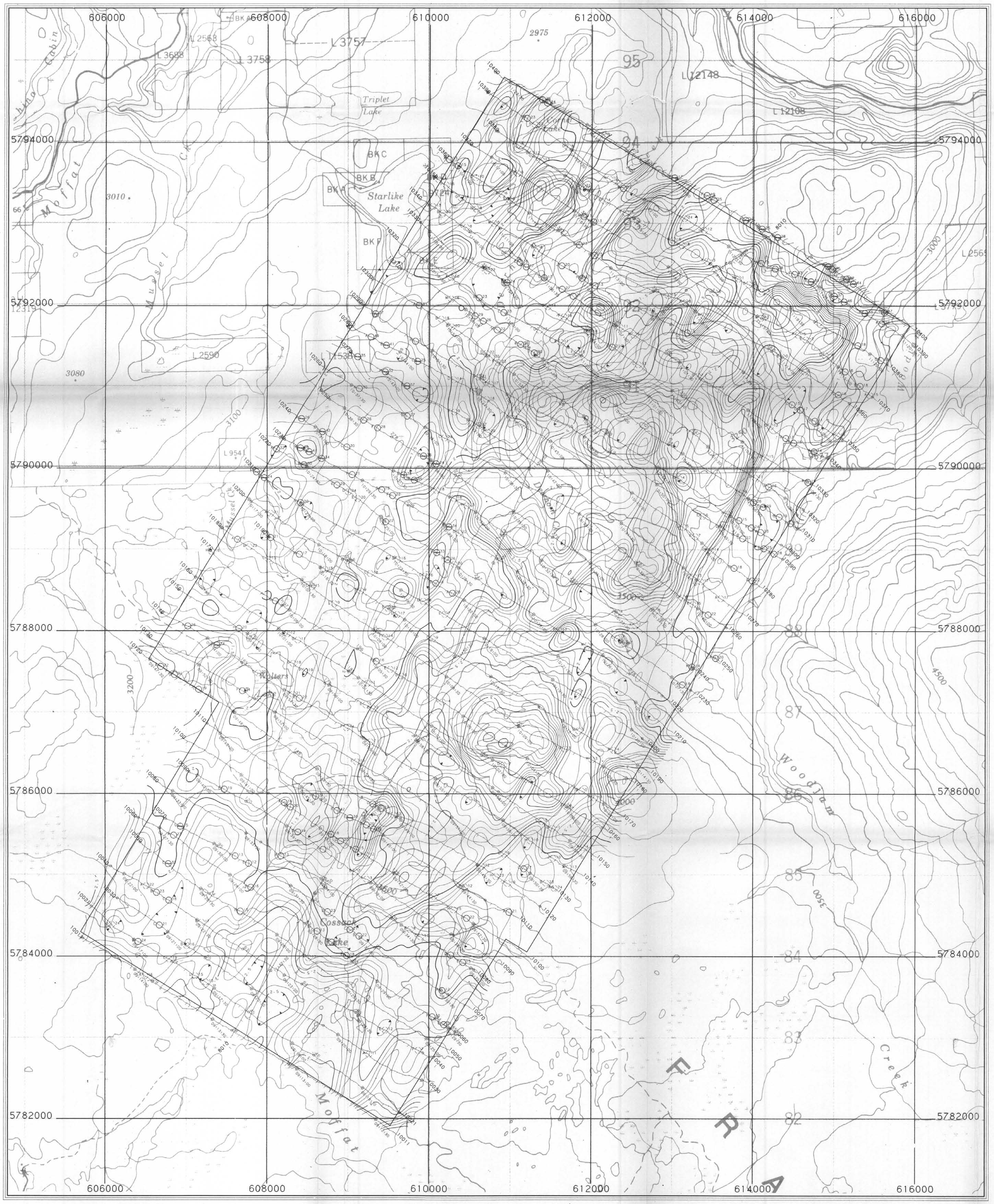
MEGABUCK AREA

Williams Lake, B.C.

SCALE 1:20,000
0 660 1320 2640 5280 Feet
0 200 400 1000 2000 Metres

AERODAT LIMITED

DATE:	MAY 1992
NTS No:	93A/3,6
MAP No:	6C J9226



FLIGHT PATH

Navigation and recovery using Pronav GPS satellite navigation positioning system.
Average terrain clearance 170m
Line spacing = 500m

RESISTIVITY

Calculated from 33 kHz coplanar 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

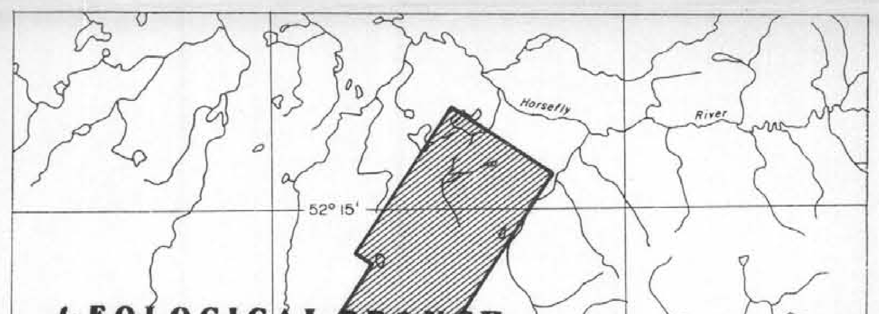
0.1
0.5
2.0
4.0
10

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).



GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,670

NORANDA EXPLORATION COMPANY LIMITED

APPARENT RESISTIVITY (33000 Hz)

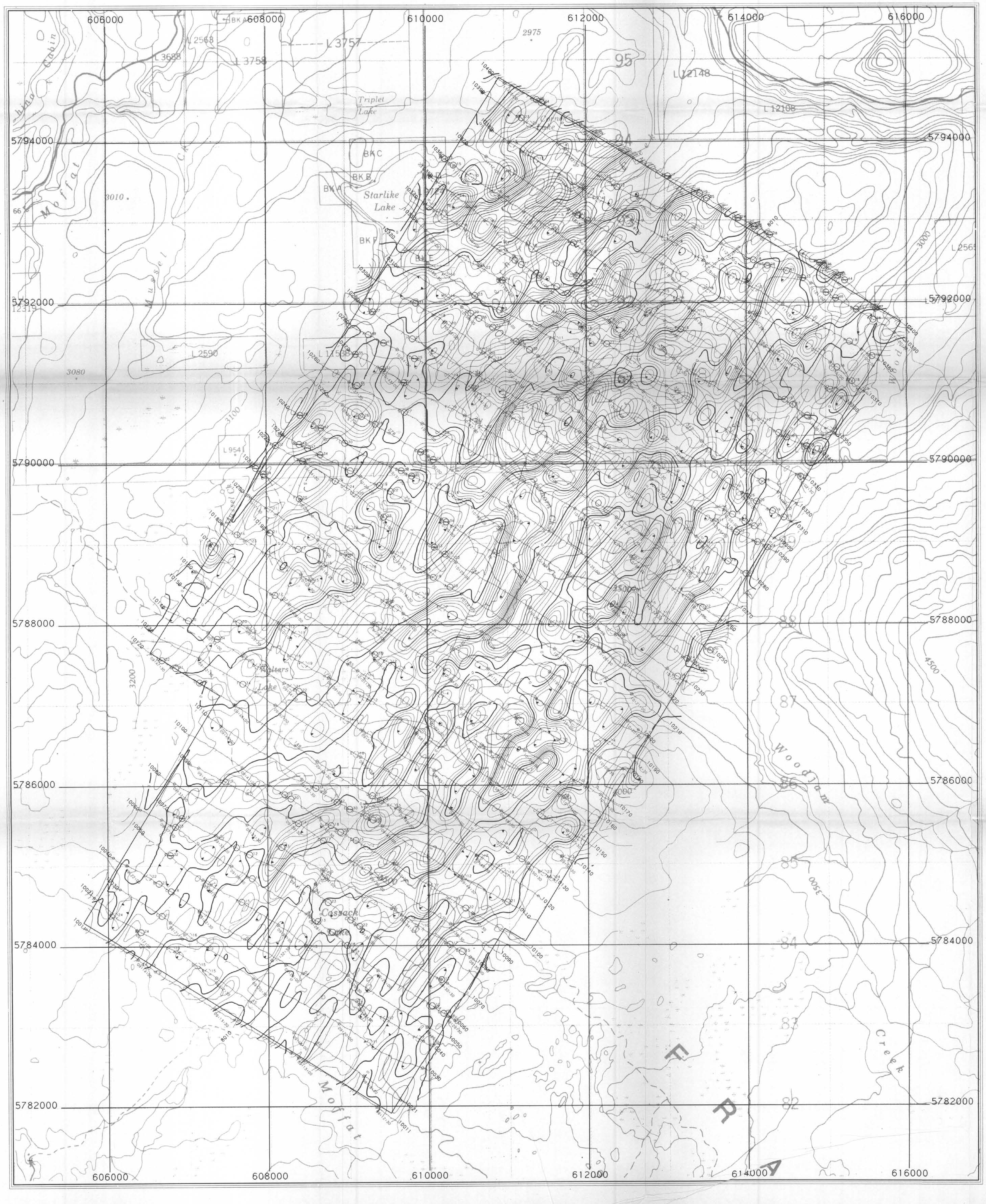
MEGABUCK AREA
Williams Lake, B.C.

SCALE 1:20,000

0 660 1320 2640 5280 Feet
0 200 400 1000 2000 Metres

AERODAT LIMITED

DATE: MAY 1992
NTS No: 93A/3,6
MAP No: 6D J9226



FLIGHT PATH

Navigation and recovery using Pronav GPS satellite navigation positioning system.
Average terrain clearance 170m
Line spacing = 500m

VLF-EM

VLF-EM Total Field Intensity in percent.
Station: NAA (Cutler, Main : 24.0 kHz)
Sensor elevation 45m
Map contours are multiples of those listed below

1 %
5 %
25 %
100 %
500 %

EM ANOMALIES

Conductivity Thickness (mhos)

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

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

NORANDA EXPLORATION COMPANY LIMITED

VLF-EM Line Total Field

MEGABUCK AREA

Williams Lake, B.C.

SCALE 1:20,000

0 660 1320 2640 5280 Feet

0 200 400 1000 2000 Metres

AERODAT LIMITED

DATE:	MAY 1992
NTS No:	93A/3,6
MAP No: 7	J9226