LOG NO: March 14/91 RD.
ACTION:

FILE NO:

ASSESSMENT REPORT ON THE AIRBORNE GEOPHYSICAL SURVEY OVER THE ANOM I CLAIM GROUP CHUCHI LAKE, B.C.

Omineca Mining Division

NTS: 93N/2E

Latitude 55°13'N Longitude 124°40'W

BPVR 90-13

W. Paterson
March, 1991

TABLE OF CONTENTS

LIST OF FIGURES

FOLLOWING PAGE NO.

FIGURE NO:

LIST OF APPENDICES

APPENDIX NO:

1. SUMMARY

The ANOM 1 claim group, located on the north shore of Chuchi Lake, 90 km north of Fort St. James, B.C. is underlain by Hogem intrusive, a coeval intrusion into Upper Triassic-Lower Jurassic Takla Group volcanic rocks.

In December, 1990, Aerodat Limited of Mississauga, Ontario completed 207 line-km of airborne magnetic and VLF-EM surveys over the ANOM claims on behalf of BP Resources Canada Limited. The purpose of the survey was to delineate features within the batholith and surrounding rocks which may be associated with copper-gold porphyry-style mineralization.

The survey was successful in outlining a possible screen of Takla volcanics within the Hogem intrusive and various other features that merit ground follow-up.

A total of $20,400.00 has been applied as assessment on the claim group.

2. INTRODUCTION

A. Location and Access

The ANOM I claim group is located approximately 90 km north of Fort St. James (see Figure 1) on the north shore of Chuchi Lake in north-central B.C.

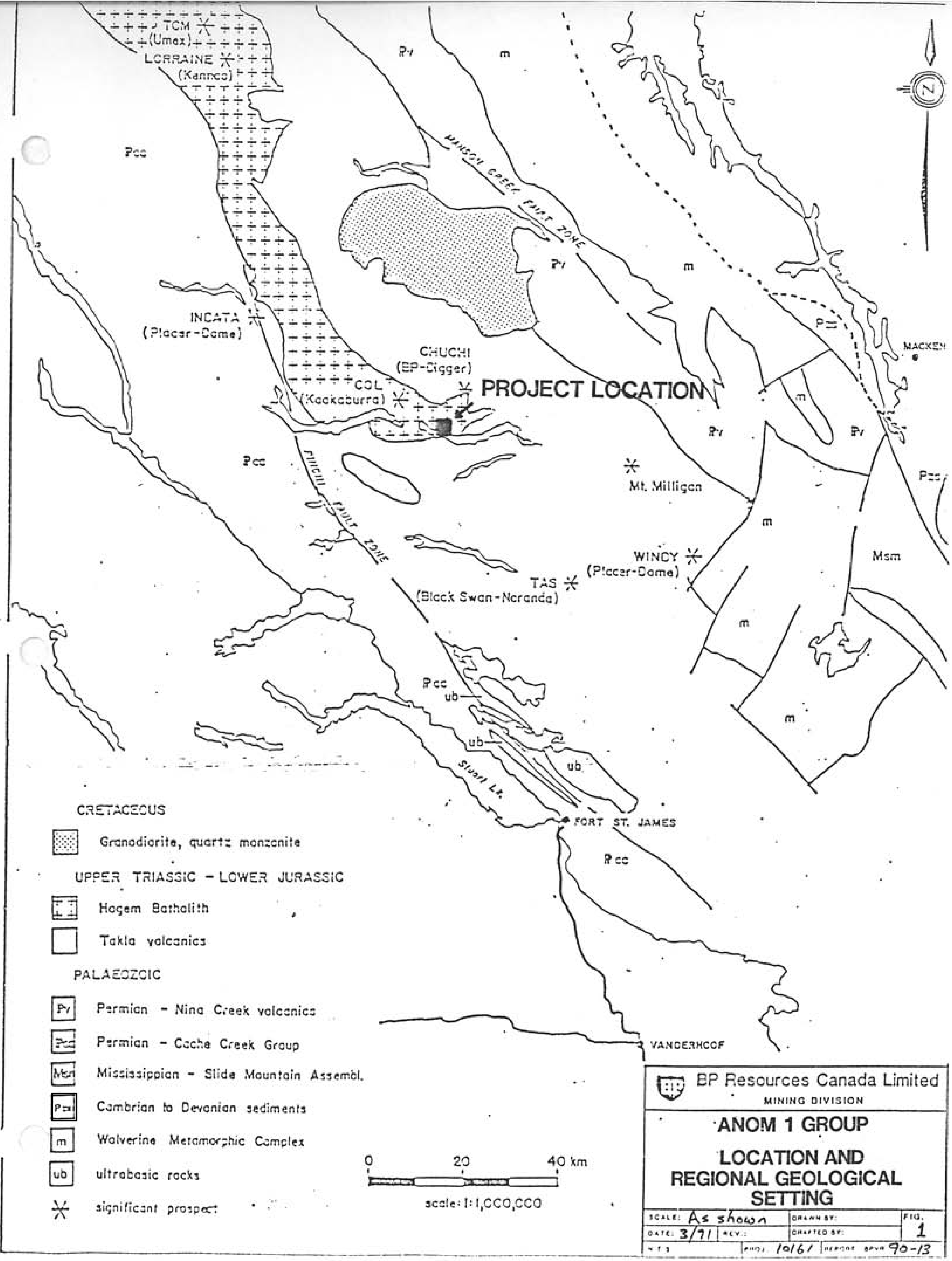
The claims are readily accessible via the Indata-Germansen Forest Service Road which leaves the Fort St. James - Manson Creek road at Mile 65.1 and via numerous secondary logging roads.

Topographically the area consists of rounded hills with a gradual rise from Chuchi Lake at 870 m to approximately 1000 m along the northern boundary. Vegetation consists of jackpine and spruce in timbered areas but poorly drained areas can have a dense growth of spruce, balsam and alder. A portion of the claims to the southeast have been logged.

B. Claim Data

The ANOM I claim group, comprising 82 units is shown in Figure 2 and is tabled below.

Claim	Units	Record #	Expiry Date
ANOM 1	20	12093	June 20/91
ANOM 2	20	12094	June 18/91
ANOM 3	12	12095	June 19/91
ANOM 4	12	12096	June 19/91
ANOM 5	18	12310	July 14/91

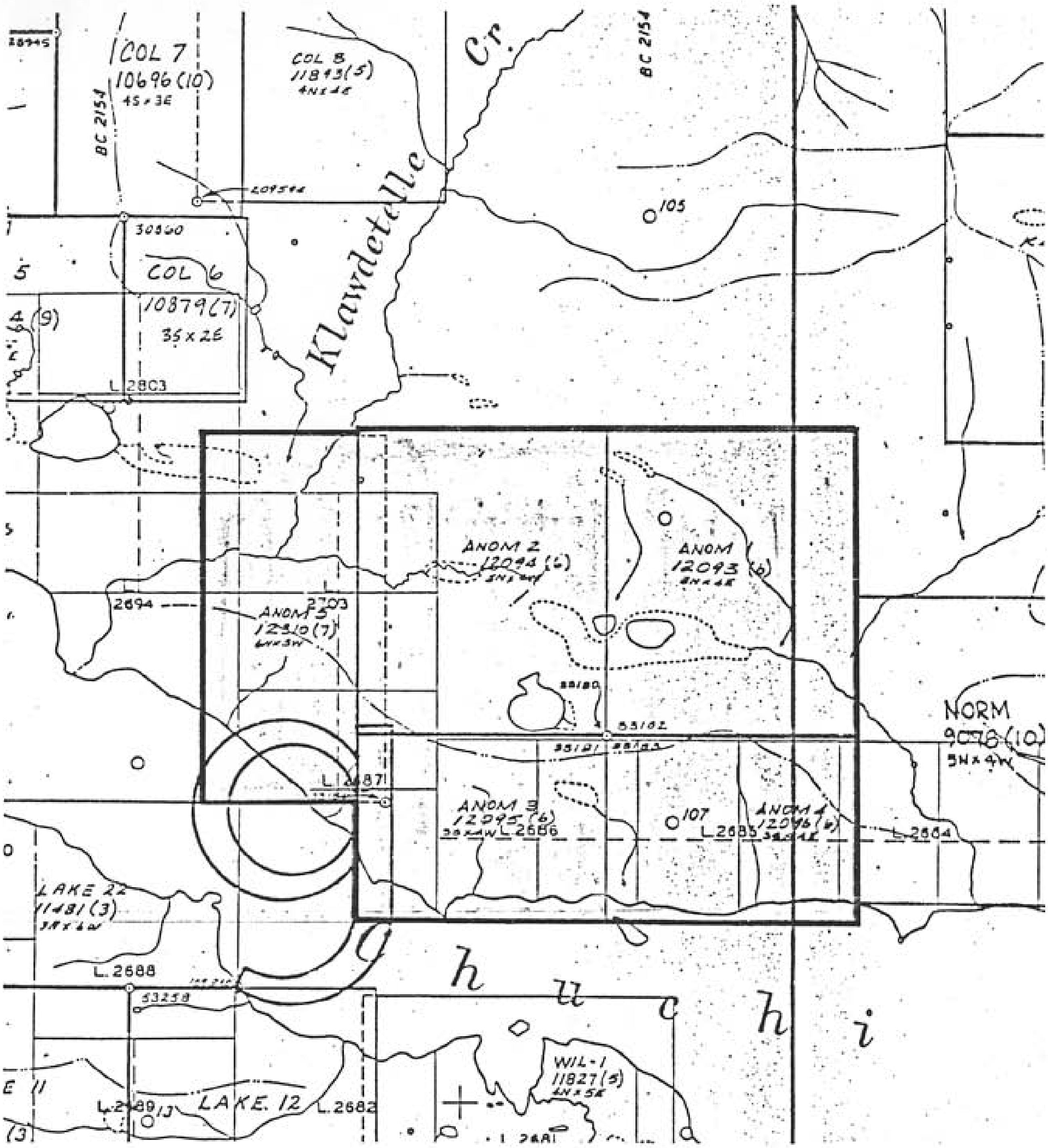


BP Resources Canada Limited
MINING DIVISION

ANOM 1 GROUP

LOCATION AND REGIONAL GEOLOGICAL SETTING

SCALE: As shown	DRAWN BY:	FIG. 1
DATE: 3/91	REV.: DRAFTED BY:	
N.T.S.	PROJ. 10161	REPORT BPVR 90-13



Scale 1 : 50 000

0 1 2 3 4 5

KILOMETRES

BP Resources Canada Limited

MINING DIVISION

ANOM 1 GROUP

CLAIM MAP

SCALE: As shown		DRAWN BY:	FIG. 2
DATE: 3/91	REV.:	DRAFTED BY:	
N.T.S. 93N/2E	PROJ: 10161	REPORT: BPVR 90-13	

These claims were grouped as the 82 unit ANOM I claim group on December 21, 1990.

C. History

This area has seen extensive exploration activity peaking in the early 1970's. In 1971, Plateau Metals Ltd. held a large number of claims in the area (TOP and POT claims) that covered most of the present ANOM 1 group. Soil geochemistry and magnetometer surveys were conducted as well as geological mapping.

In 1982, Westmin Resources Limited performed soil and stream silt geochemistry on their NATION 1 claim group, an 18 unit block immediately north of Little Witch Lake.

3. REGIONAL GEOLOGICAL SETTING

The ANOM 1 claim group sits on the southern portion of the Hogem Batholith, a multiphase, coeval intrusive into the northwest trending Upper Triassic-Lower Jurassic Takla Group Volcanics. Takla volcanic rocks are predominantly undersaturated, alkalic, marine pyroxene rich volcaniclastics and flows with interbedded greywacke, argillite and limestone.

Most of the alkalic intrusives are marked by magnetic anomalies caused by significant disseminated magnetite within the intrusives.

4. AIRBORNE GEOPHYSICAL SURVEYS

From December 2 to December 6, 1990, 207 line-km of airborne magnetic and VLF-EM surveys were carried out over the ANOM 1 claim group by Aerodat Ltd. of Mississauga, Ontario for BP Resources Canada Limited. Details of this survey, including all pertinent maps, are included in Appendix III.

The ANOM 1 claim block has a moderately high dynamic range of magnetic amplitude. Covering the southern portion of the ANOM 1 block is a major magnetic high region possibly correlating to Hogem intrusive or a highly magnetic Takla volcanic. Just north of this body is a distinctive NNW striking, narrow, well-defined negative magnetic feature about 500 m wide. This is possibly a fault structure or a screen of weakly magnetic Takla rock between two sections of Hogem intrusive.

The VLF-EM data does not outline any particular anomalous areas though there is a distinctive change in intensity that occurs with the linear magnetic feature as the boundary.

A noticeable WNW grain shows quite well from the calculated vertical magnetic gradient which could possibly indicate bedding within the Takla inlier.

REFERENCES

ELC Geophysical Report No. M-GC-127-71. Covering the TOP and POT Claims Groups, Chuchi Lake, North of Fort St. James, B.C. 1971 A.R. #3410.

ELC Geophysical Report No. GC-127A-71R. Geochemical Reconnaissance Survey with Geological and Aerographic Correlation over the Chuchi Lake Property, North of Fort St. James, B.C. 1971 A.R. #3409.

LeBlanc, E.R. 1982: Chuchi Lake Project. 1982 Geochemical Report on the CHU I, CHU II and NATION I Claims. Westmin Resources Limited

APPENDIX I

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, William Paterson of #1103 - 1905 Robson Street, Vancouver, in the Province of British Columbia, do hereby state:

1) That I am a graduate of Queen's University, Kingston Ontario, where I obtained an Honours B.Sc., in Geology in 1989.

2) That I have been active in mineral exploration since 1986.

WILLIAM PATERSON
Geologist

March, 1991
Vancouver, B.C.

APPENDIX II

STATEMENT OF COSTS

STATEMENT OF COSTS

1. Airborne Magnetic and VLF-Em

(Aerodat Limited)

207 line-km @ $98.55	$20,400.00
TOTAL EXPENDITURES:	**$20,400.00**

APPENDIX III

AERODAT LIMITED REPORT ON A COMBINED HELICOPTER-BORNE MAGNETIC, AND VLF SURVEY, ANOM 1 CLAIM GROUP, BRITISH COLUMBIA

REPORT ON A
COMBINED HELICOPTER-BORNE
MAGNETIC, AND VLF SURVEY
ANOM BLOCK
BRITISH COLUMBIA

FOR
BP RESOURCES CANADA LIMITED
BY
AERODAT LIMITED
January 2, 1991

J9085

Richard Yee
Geophysicist

TABLE OF CONTENTS

List of Maps
(Scale 1:10,000)

Basic Maps: (As described under Appendix B of the Contract)

1. **FLIGHT LINES;**
   Photocombination of flight lines, anomalies and fiducials with base map.

2. **TOTAL FIELD MAGNETIC CONTOURS;**
   Showing magnetic values contoured at 5 nanoTesla intervals; on a Cronaflex base map.

3. **CALCULATED VERTICAL MAGNETIC GRADIENT CONTOURS;**
   Showing magnetic gradient values at 0.2 nanoTesla per metre intervals showing flight lines and fiducials; on a Cronaflex base map.

4. **VLF-EM TOTAL FIELD CONTOURS;**
   of the VLF total Field response contoured at 2 percent intervals, on a Cronaflex base map.

1. INTRODUCTION

A helicopter borne geophysical survey was carried out for BP Resources Canada Limited by Aerodat Ltd. during the period of December 2 to 6, 1990. Survey equipment included a cesium vapour high sensitivity magnetometer, a two frequency VLF-EM system and a video tracking camera. The magnetic and altimeter data were recorded in both digital and analog forms. The positioning data were encoded on VHS video as well as being marked on the flight path map by the operator. This report and the accompanying maps describe the data collected in this survey.

The survey consisted of two separate areas in British Columbia: the Anom Block and and the Skook Block but this report deals only with the Anom 1 claim block. The two areas were covered in 4 flights with an average line spacing of 100 metres. A north-south flight line direction was used in both blocks. The data quality and coverage are considered to be within the contract specifications.

Aerodat Ltd. was contracted to acquire data over and around ground of interest to BP Resources Canada Limited, and outline any electromagnetic/magnetic anomalies in the survey blocks. A total of 207 kilometres of VLF/magnetic data in the Anom block were acquired, compiled, and presented with this report in accordance with specifications laid out by BP Resources Canada Limited.

2. SURVEY AREA LOCATION

The survey block lies along the northern shore of the elongated Chuchi Lake of British Columbia centred at about 124 degrees 40 minutes east and 55 degrees 13 minutes north.

The Anom block is situated in moderately rough terrain, starting in the south along the lower flatter lakeshore at just under 870 m, rising north towards the northern property boundary to nearly 1050 m. The area can be reached by a loose surface, dry weather road which comes from the east along the northern shore of Chuchi Lake.

3. AIRCRAFT AND EQUIPMENT

3.1 Aircraft

Due to the rugged terrain, an Aerospatiale SA 315B Lama helicopter, (GOLV) and an Aerostar helicopter (XYM), both operated by Peace Helicopters, were used for the survey. Installation of the geophysical and ancillary equipment was carried out by Aerodat. The survey helicopter was flown at a mean terrain clearance of 60 metres.

3.2 Equipment

3.2.1 VLF-EM System

The VLF-EM System was Herz Totem 2 A. This instrument measures the total field and quadrature component of the selected frequency. The sensor was towed in a bird 12 metres below the helicopter. The transmitting station used for the Anom block was NPM, Lualualei, Hawaii, broadcasting at 23.4 kHz Station NAA, Cutler Maine, (24.0 kHz) was received in the orthogonal mode.

3.2.2 Magnetometer

The magnetometer employed a Scintrex Model V1W 2321 H8 cesium. optically pumped sensor. The sensitivity of this instrument was 0.1

nanoTeslas at a 0.1 second sampling rate. The sensor was towed in a bird 12 metres below the helicopter.

3.2.3 Magnetic Base Station

An IFG (GEM 8) proton precession magnetometer was operated at the base of operations to record diurnal variations of the earth's magnetic field. The clock of the base station was synchronized with that of the airborne system to facilitate later correlation.

3.2.4 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 for maximum accuracy.

3.2.5 Tracking Camera

A Panasonic video flight path recording system was used to record the flight path on standard VHS format video tapes. The system was operated in continuous mode and the flight number, real time and manual fiducials were registered on the picture frame for cross-reference to the analog and digital data.

3.2.6 Analog Recorder

An RMS dot-Matrix recorder was used to display the data during the survey. In addition to manual and time fiducials, the following data was recorded:

Channel Input		Scale
VLT	VLF-EM total Field Line	25 %/cm
VLQ	VLF-EM Quadrature, Line	25 %/cm
VOT	VLF-EM Total Field, Ortho	25 %/cm
VOQ	VLF-EM Quadrature, Ortho	25 %/cm
RALT	Rada Altimeter, (150 m. at top of chart)	100ft/cm
MAGF	Magnetometer, fine	25nT/cm
MAGC	Magnetometer, coarse	25nT/cm

3.2.8. Digital Recorder

A DGR 33:16 data system recorded the survey data on magnetic tape. Information recorded was as follows:

Equipment	Recording Interval
VLF-EM	0.2 seconds
Magnetometer	0.1 seconds

Altimeter	0.2 seconds
Power Line Monitor	0.2 seconds

4. DATA PRESENTATION

4.1 Flight Path Map

The flight path was recovered from the VHS video and operator's fiducials that were put on the base map during flight.

The flight lines have time and camera fiducials, flight numbers and line numbers for cross reference with the analog and digital data. Anomaly peaks picked from the 4600 Hz coaxial coils are shown with conductivity thickness ranges and inphase amplitudes.

4.2 Total Field Magnetic Contours

The aeromagnetic data have been corrected for diurnal variation by adjustment with the digitally recorded base station data. There has been no correction for regional variation applied. The corrected profile data have been interpolated onto a grid at a 25 m true scale interval using an Akima spline technique. These data were then contoured at a 5 nanoTesla interval and presented on a Cronaflex copy of the base map.

4.3 Calculated Vertical Magnetic Gradient Contours

The vertical magnetic gradient was calculated from the gridded total field magnetic data. These data were then contoured at 0.2 nanoTesla per metre interval and presented on a Cronaflex copy of the base map.

4.4 VLF-EM Total Field Contours

The VLF-EM signals from NPM (Lualualei, Hawaii) broadcasting at 23.4 kHz for the Anom Block were recorded and presented in contour form on the Cronaflex base map. The orthogonal signals were recorded digitally and may be processed and presented at a later date.

5. INTERPRETATION

Although no geological information was supplied to Aerodat by BP Resources Canada Limited, the fine amplitude and spatial resolutions (0.1 nT accuracy and 0.1 second sampling interval, respectively) of the aeromagnetic data from the high sensitivity cesium vapour magnetometer can produce a contour map that, with support from the derivative vertical magnetic gradient map, can be used as a pseudo-geological map. As well, when combined with any existing geological information, the geological mapping of the survey area could then be substantially more refined and detailed.

The Anom 1 claim block has a moderately high dynamic range of magnetic amplitude of around 2000 nT (57737 to 59586 nT). There is a major magnetic high region which covers the southern portion of the Anom Block. Just north of this body is situated the most distinctive magnetic feature, a WNW striking narrow well-defined negative magnetic feature of about 500 metres wide. The lowest magnetic value of the survey occurs on this feature at Line 20530.

While the amplitude distribution of the total field magnetic map could be useful in separating different rock types, the calculated vertical magnetic gradient contours when used in conjunction, can provide valuable added structural and positional information. The gradient effectively removes the regional background levels, sharpening residual anomalies and resolving closely spaced bodies. Its zero contour level also coincides closely to the actual geological contacts. This is especially true for vertical bedding with the steeper structures having their contacts closer to their magnetic peaks. As well, breaks and offsets are more readily obvious on the gradient map. These pattern discontinuities are naturally often the result of faults, shears and lineaments.

Since tectonic activities of varying degrees can be important in the search for gold mineralization, any obvious contour shifts of significant extent should be considered as possible faults and subsequently checked on the ground.

Under the optimum condition of relatively low surficial conductivity, plus for VLF, flat terrain, significant physical extent of conductors and properly selected coupling of VLF station signal direction with conductor and flight line strikes, the VLF-EM contour map can be an effective tool and supplement to the magnetics for structural mapping. The generally high magnetics of the southern portion is separated from the lower magnetic and corresponding negative VLF amplitudes of the north by the aforementioned distinctive low magnetic linear feature.

6. CONCLUSION

In conclusion, the airborne geophysical survey over the Anom 1 Block of British Columbia has provided VLF and in particular, total field magnetic and calculated vertical magnetic gradient maps which should prove useful when combined with known geology to yield more detailed structural mapping information for the exploration program.

More concise follow-up prioritization is best left to those who can combine available geological information and objectives with the data provided by this survey and report.

Follow-up procedures would probably not require ground magnetic coverage unless the airborne positioning is in question, as the airborne magnetic data is of high resolution and probably as accurate as can be expected from a ground survey over these rugged terrains. Similarly, ground VLF and normal ground EM methods are not recommended due to topography. Gradient Resistivity (such as Schlumberger arrays) or Induced Polarization profiling would be the preferred methods.

APPENDIX I

GENERAL INTERPRETIVE CONSIDERATIONS

Magnetics

A digital base station magnetometer was used to detect fluctuations in the magnetic field during flight times. The airborne magnetic data was levelled by removing these diurnal changes. The Total Field Magnetic map shows the levelled magnetic contours, uncorrected for regional variation.

The Calculated Vertical Gradient map shows contours of the magnetic gradient as calculated from the total field magnetic data. The zero contour shows changes in the magnetic lithologies and will coincide closely with geologic contacts assuming a steeply dipping interface. Thus this data may be used as a pseudo-geologic map.

VLF Electromagnetics

The VLF-EM method employs the radiation from powerful military radio transmitters as the primary signals. The magnetic field associated with the primary field is elliptically polarized in the vicinity of electrical conductors. The Herz Totem uses three coils in the X, Y, Z configuration to measure the total field and vertical quadrature component of the polarization ellipse.

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

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

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

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

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

The amplitude of the quadrature response, as opposed to shape is function of target conductance and depth as well as the conductivity of the overburden and host rock. As the primary field travels down to the conductor through conductive material it is both attenuated and phase shifted in a negative sense. The secondary field produced by thisaltered field at the target also has an associated phase shift. This phase shift is positive and is larger for relatively poor conductors. This secondary field is attenuated and phase

shifted in a negative sense during return travel to the surface. The net effect of these 3 phase shifts determine the phase of the secondary field sensed at the receiver.

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

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

APPENDIX III

CERTIFICATE OF QUALIFICATIONS

I, RICHARD YEE, certify that: -

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

2. I reside at 665 Windermere Avenue in the city of Toronto, Ontario.

3. I hold a Bachelor of Applied Science in Engineering Science from the University of Toronto, having graduated in 1978.

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

5. I have been an active member of the Society of Exploration Geophysicists since 1978 and hold memberships on other professional societies involved in the mineral exploration industry.

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

7. I have no interest, direct or indirect, in the property described nor in BP Resources Canada Limited.

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

Signed,

REGISTERED PROFESSIONAL ENGINEER
D - C YEE
PROVINCE OF ONTARIO

Richard D.C. Yee,
P. Eng. Consulting Geophysicist

J9085
Toronto, Ontario
January 3, 1991

APPENDIX IV

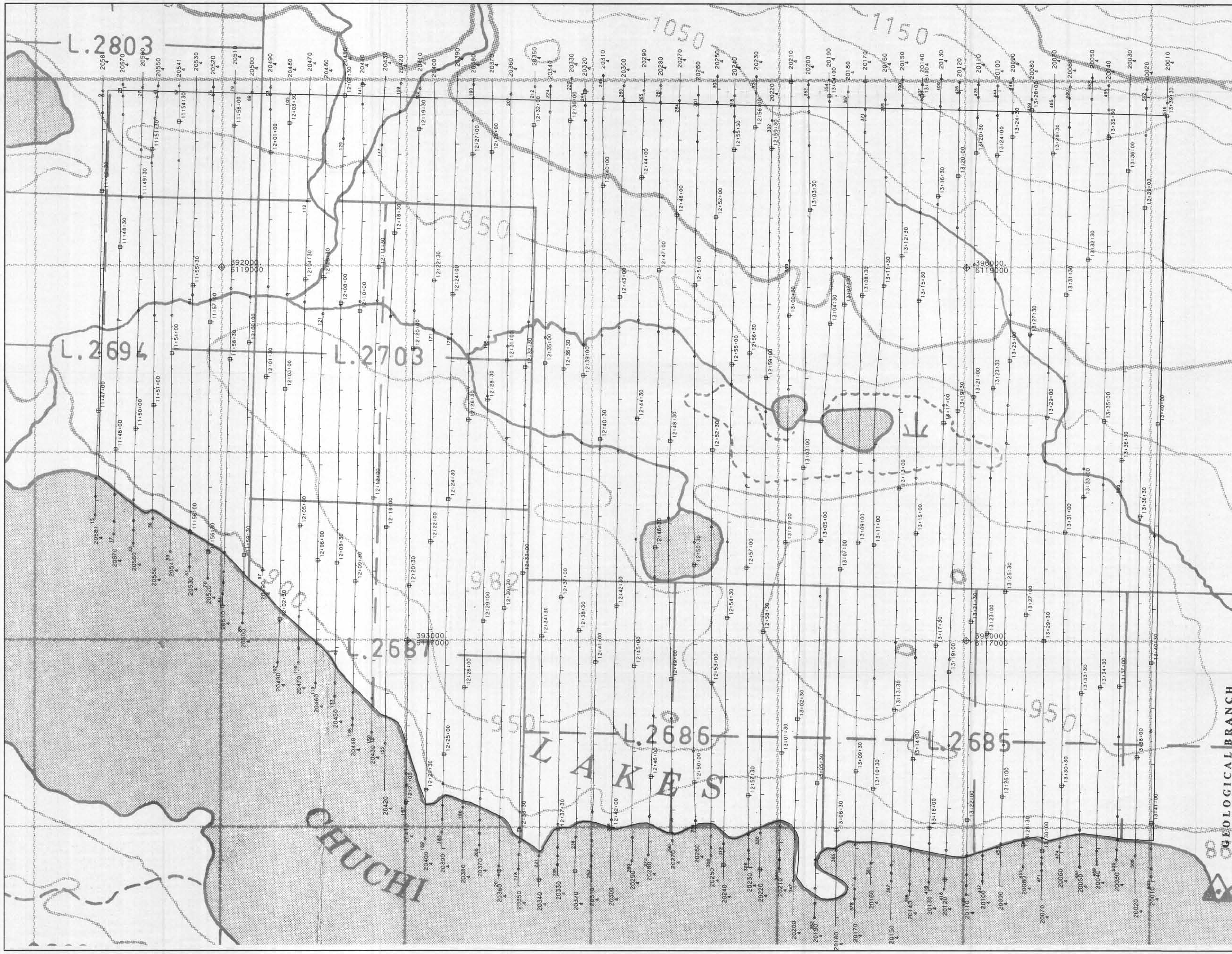
PERSONNEL

FIELD

Flown	December 2 to 6, 1990
Pilot	Bruce MacDonald
Operator	Steve Arstad

OFFICE

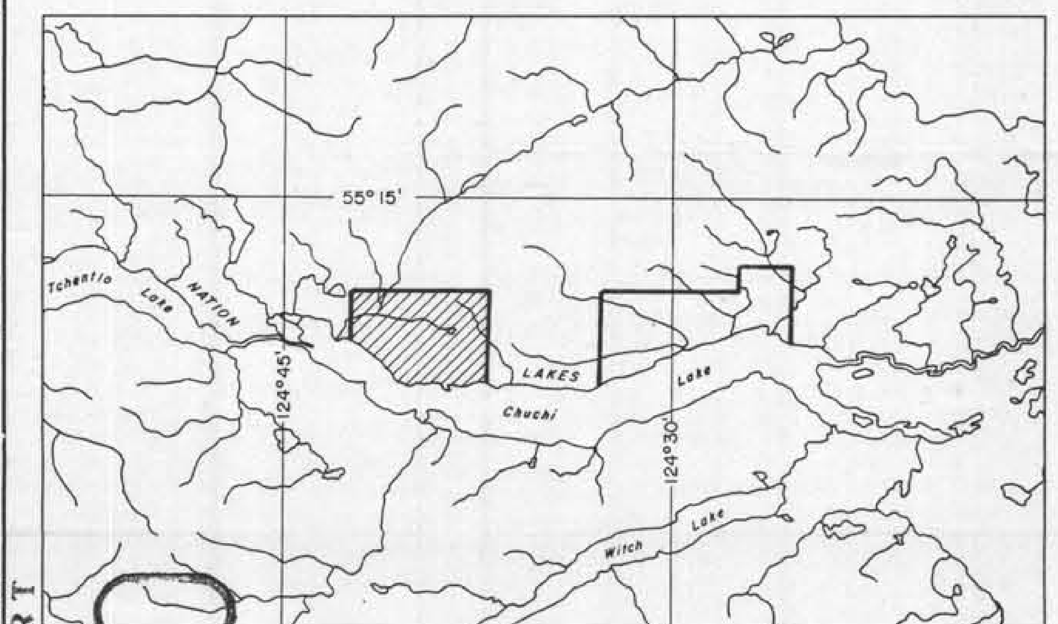
Processing	Adriana Carbone Richard Yee George McDonald
Report	Richard Yee



Flight Path

Flight path recovery from VHS video tape.

Average terrain clearance 60m
Average line spacing 100m



GEOLOGICAL BRANCH
ASSESSMENT REPORT

21,070

BP RESOURCES CANADA

FLIGHT PATH

ANOM BLOCK

BRITISH COLUMBIA

SCALE 1:10,000

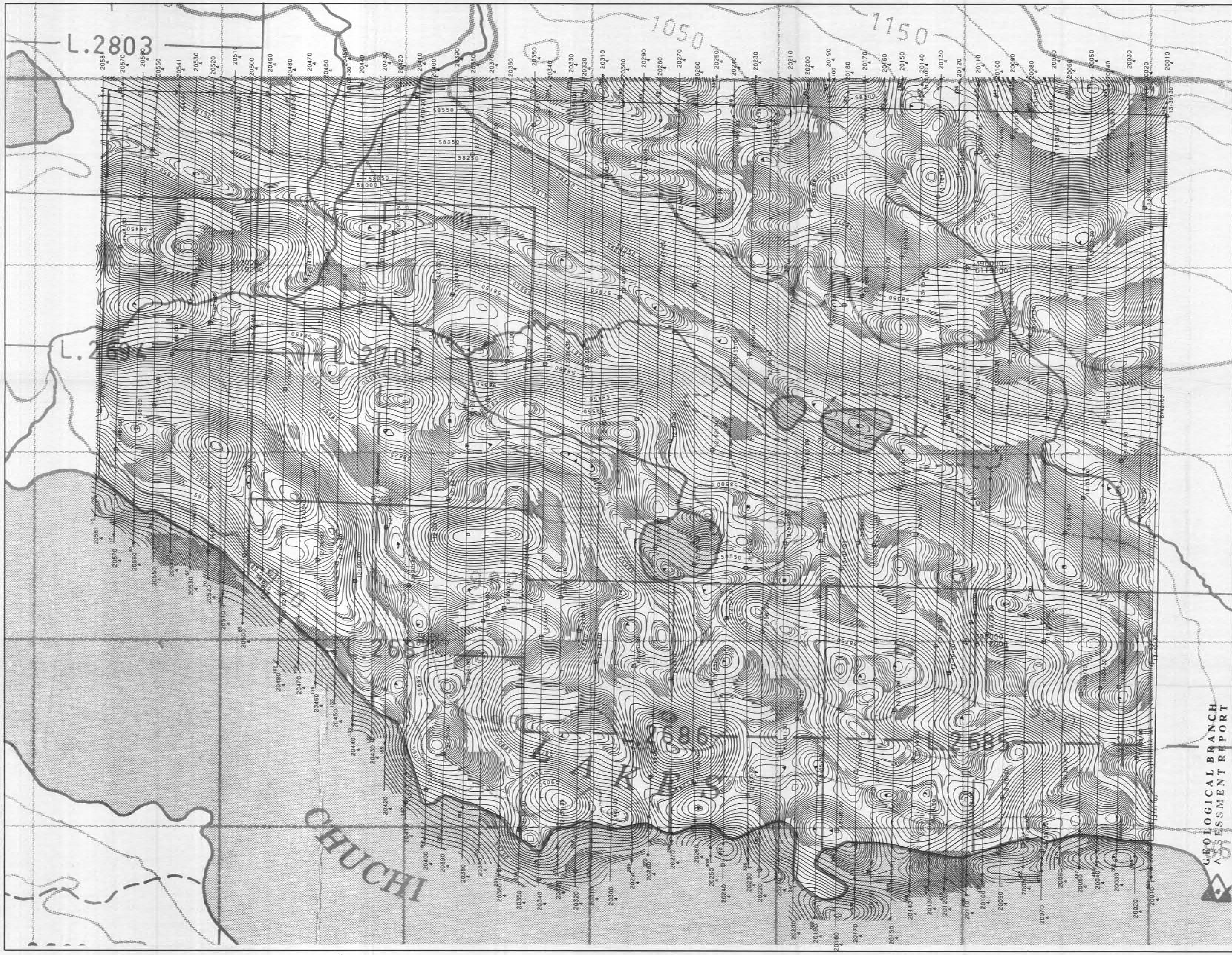
0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

AERODAT LIMITED

DATE:	DECEMBER 1990
NTS No:	93 N
MAP No:	2

J9085 - 1



Flight Path

Flight path recovery from VHS video tape.

Average terrain clearance 60m
Average line spacing 100m

Magnetics

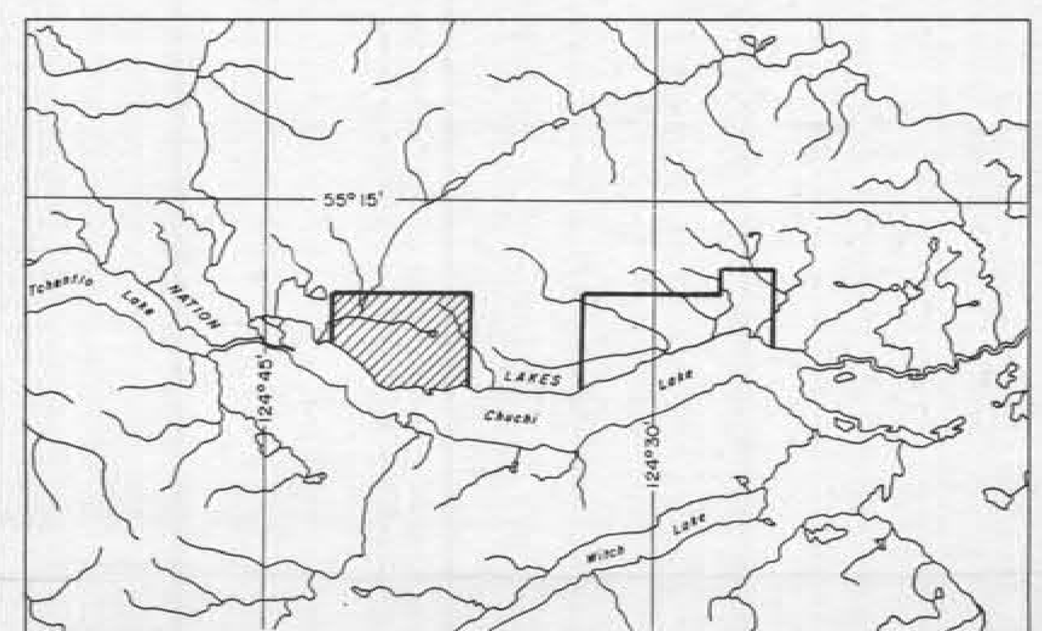
Total Field Magnetic Intensity Contours in nT.

Cesium high sensitivity magnetometer..

Sensor elevation 45m

Map contours are multiples of those listed below

- 5 nT
- 25 nT
- 100 nT
- 500 nT
- 2000 nT



GEOLOGICAL BRANCH
ASSESSMENT REPORT

21,070

BP RESOURCES CANADA

TOTAL FIELD MAGNETIC CONTOURS

ANOM BLOCK

BRITISH COLUMBIA

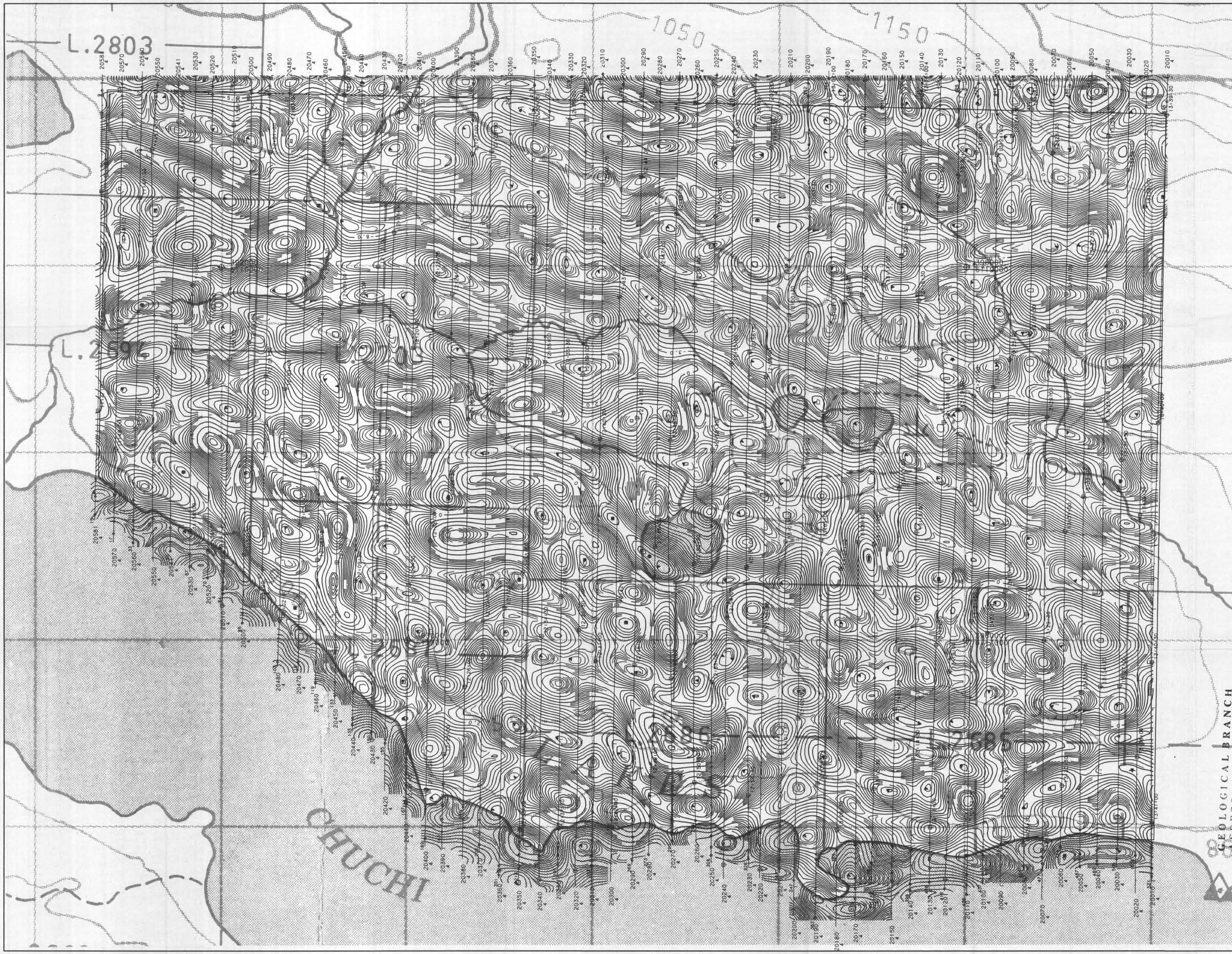
SCALE 1:10,000

0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

AERODAT LIMITED

DATE:	DECEMBER 1990
NTS No:	93 N
MAP No:	3 J9085 - 1



N

Flight Path

Flight path recovery from VHS video tape.

Average terrain clearance 60m
Average line spacing 100m

Vertical Gradient

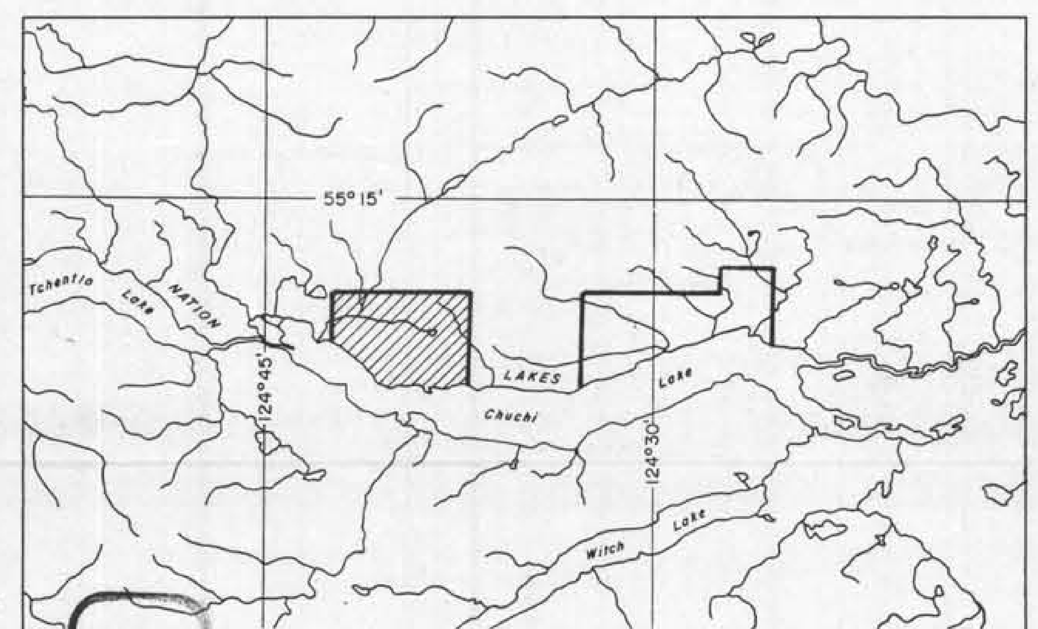
Vertical Magnetic Gradient calculated from the total field magnetic intensity in nT/m.

Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

0.05 nT
0.25 nT
1.00 nT
5.00 nT
25.00 nT



BP RESOURCES CANADA

CALCULATED VERTICAL MAGNETIC GRADIENT

ANOM BLOCK

BRITISH COLUMBIA

SCALE 1:10,000

0 330 660 1320 2640 Feet

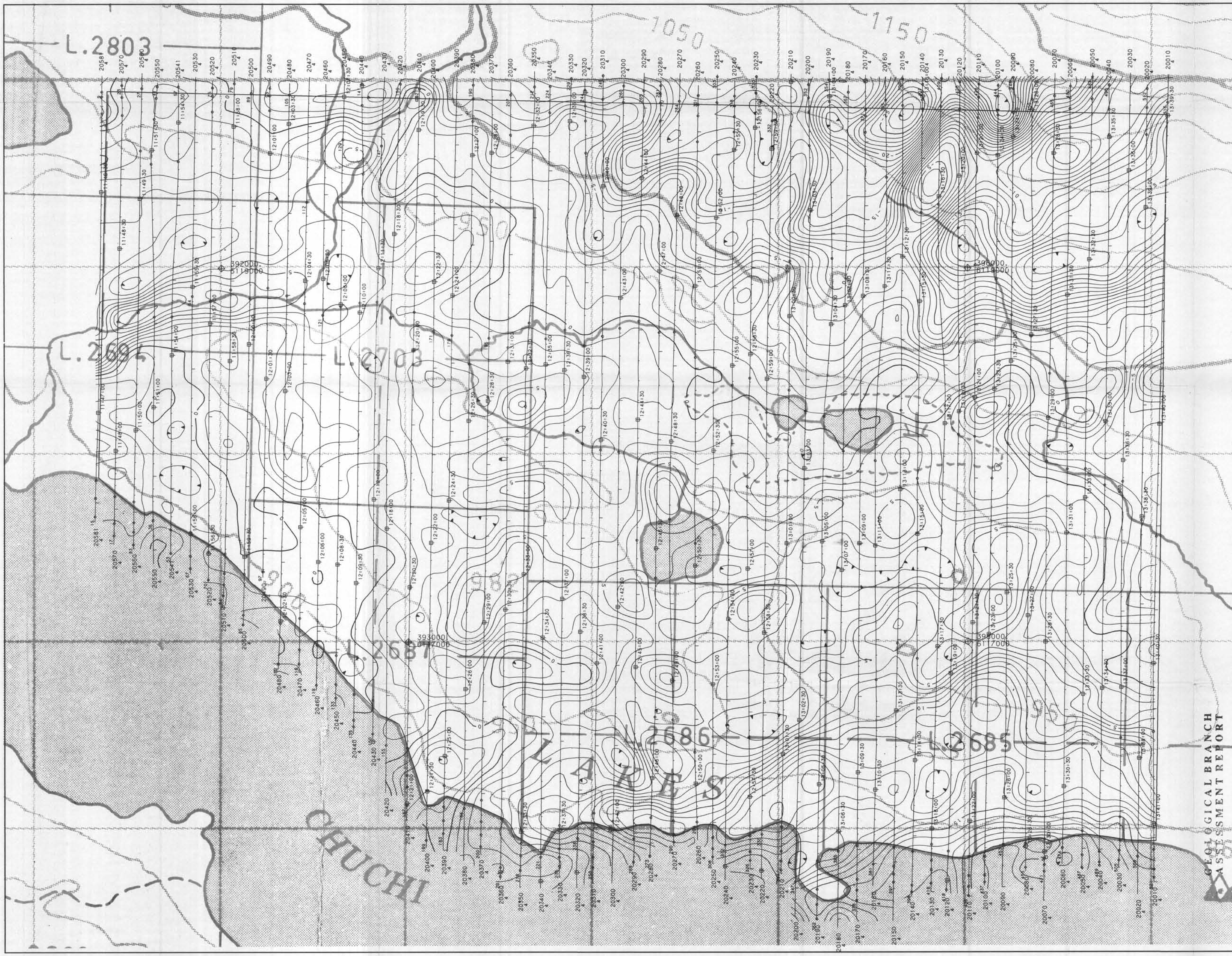
0 100 200 500 1000 Metres

AERODAT LIMITED

DATE: DECEMBER 1990

NTS No: 93 N

MAP No: 4 J9085 - 1



N

Flight Path

Flight path recovery from VHS video tape.

Average terrain clearance 60m
Average line spacing 100m

VLF-EM

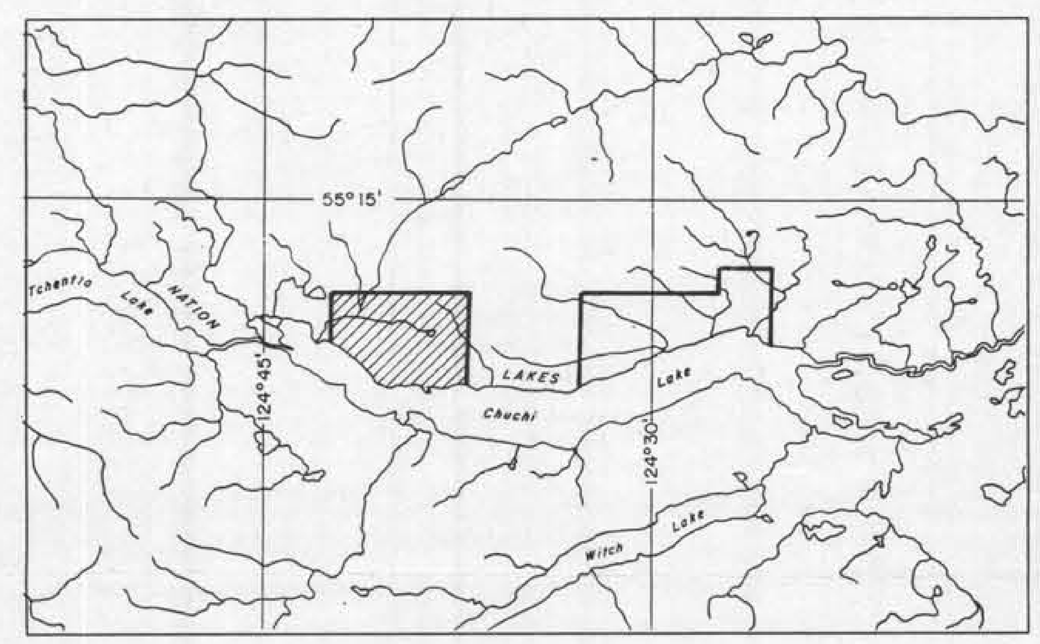
VLF-EM Total Field Intensity in percent.

Station: NPM
Lualualei, Hawaii
23.4 kHz

Sensor elevation 45m

Map contours are multiples of those listed below

- 1 %
- 5 %
- 25 %
- 100 %



BP RESOURCES CANADA

VLF-EM TOTAL FIELD CONTOURS (LINE CHANNEL)

ANOM BLOCK

BRITISH COLUMBIA

SCALE 1:10,000

0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

AERODAT LIMITED

DATE:	DECEMBER 1990
NTS No:	93 N
MAP No:	5 J9085 - 1