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MINING RECORDER
WHITEHORSE, Y.T.
GOVERNMENT OF YUKON

2006 Geophysical Assessment Report

on the

Caribou Creek Property

Hope 1 (Y21249), Hope 2 (Y76048)
Best 1 – 6 (Y25895-900)
Greenstone 7-9 (YA92778)
Greenstone 10 (YA92780)
Cara 1-7 (YB0836-042)
Boo 1-66 (YB07740-805)
Boo 67-76 (YB08026-035)
Boo 77-86 (YB07806-815)
Boo 101-104 (YB07816-819

Freegold Mountain Area
NTS 115 I-3 & I-6
Lat. 62°15'N, Long. 137°10'W
Whitehorse Mining District

Prepared for:
Bill Harris
Box 31293
Whitehorse, YT
Y1A 5P7

Work Performed by:
Geotech Ltd.

Report Prepared by:
Susan P. Craig, P.Geo.

February 26, 2007

Period of Work: July 2006

Costs associated with this report have been approved in the amount of $ 15,100.00 for assessment credit under Certificate of Work No. QW27950-951

Mining Recorder
Whitehorse Mining District

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Summary

The Caribou Creek Property is located in the Dawson Range of the Yukon. In July 2006, Geotech Ltd. carried out a helicopter-borne geophysical survey over the property.

Principal geophysical sensors included a versatile time domain electromagnetic system (VTEM) and a cesium magnetometer. Ancillary equipment included a GPS navigation system and a radar altimeter. A total of 144.8 line-km were flown.

In-field data processing involved quality control and compilation of data collected during the acquisition stage, using the in-field processing centre established at survey base. Preliminary and final data processing, including generation of final digital data products were done at the office of Geotech Ltd. in Aurora, Ontario. Processed survey results are presented as total magnetic field grid and electromagnetic stacked profiles. Digital data includes all electromagnetic and magnetic products plus positional, altitude and raw data.

Chapter 1 – Introduction

A. Introduction

A helicopter-borne versatile time domain electromagnetic geophysical survey was completed between July 9 to 17, 2006 on the property by Geotech Limited.

B. Location and Access

The property is located in the Dawson Range south of Freegold Mountain and Seymour Creek, approximately 65 kilometers northwest of Carmacks on NTS Map Sheet 115 I-6 at latitude 62°15'N and longitude 137°10'W. Figure 1 shows the property location. The claims are accessible via the Freegold Road, a government maintained gravel road. A four-wheel drive road along the Caribou Creek valley connects the Freegold Road to the Caribou Creek workings. Several cat trails on the claims provide access to trenches and drill sites. The total road distance from Carmacks to the area is 69.2 kilometres

C. Physiography

The Freegold Mountain area features large, well rounded hills and ridges of the Dawson Range of the Coast Mountains. Valley floors are flat and swampy, and valley walls rise sharply to the upland areas. Elevations range from 750 metres in the Seymour Creek valley to the highest point at 1,375 metres. Glaciation has had a limited effect; most of the area remained ice-free during the last Ice Age. The Seymour Creek valley formed a spillway for meltwater originating in the southeast.

The claims lie over the Caribou Creek valley and upland ridges to the east and west. The upper slopes and ridges are broad and gently sloping with buck brush and alpine vegetation. Lower slopes are steeper and feature spruce forest and thickets of dwarf willow, alder, birch and poplar forest. Caribou Creek is a small creek in a fairly narrow steep sided valley. Swampy conditions prevail at higher elevations and outcrop is sparse, restricted to ridge crests and the steepest slopes. Northerly facing slopes and valley floors are often underlain by permafrost, which hinders geochemistry, trenching and road building.

The Freegold area has a northern interior climate with long cold winters and moderate precipitation. The exploration season lasts from May until October.

Caribou Creek Property
Yukon Location Map
Figure 1

150 km

D. Property/Claim Summary

The "Caribou Creek Property" includes the following claims: Hope 1 & 2, Best 1-6, Cara 1-7, Greenstone 7-10 and Boo 1-86, Boo 101-104. The Boo claims are owned 100% by Bill Harris, and the rest of the claims are held 49% by Bill Harris and 51% by Mainsteele Developments Ltd. hold

During the 2006 field season, work was carried out on the claims in the table below.

Table 1: Claims Worked On

Claim Name	Grant No.
Best 001	Y25895
Best 002	Y25896
Best 003	Y25897
Best 004	Y25898
Best 005	Y25899
Best 006	Y25900
Boo 051	YB07790
Boo 052	YB07791
Boo 053	YB07792
Boo 054	YB07793
Boo 055	YB07794
Boo 056	YB07795
Boo 057	YB07796
Boo 058	YB07797
Boo 059	YB07798
Boo 060	YB07799
Boo 061	YB07800
Boo 062	YB07801
Boo 063	YB07802
Boo 064	YB07803
Boo 065	YB07804
Boo 067	YB08026
Boo 068	YB08027
Boo 069	YB08028
Boo 070	YB08029
Boo 071	YB08030
Boo 072	YB08031
Boo 073	YB08032
Boo 074	YB08033
Boo 075	YB08034
Boo 076	YB08035
Boo 101	YB07816
Boo 102	YB07817
Boo 103	YB07818

Boo 104	YB07819
Greenstone 007	YA92778
Greenstone 008	YA92779
Greenstone 009	YA92780
Greenstone 010	YA92869
Boo 001	YB07740
Boo 002	YB07741
Boo 003	YB07742
Boo 004	YB07743
Boo 005	YB07744
Boo 006	YB07745
Boo 007	YB07746
Boo 008	YB07747
Boo 009	YB07748
Boo 010	YB07749
Boo 011	YB07750
Boo 012	YB07751
Boo 013	YB07752
Boo 014	YB07753
Boo 015	YB07754
Boo 016	YB07755
Boo 017	YB07756
Boo 018	YB07757
Boo 019	YB07758
Boo 020	YB07759
Boo 021	YB07760
Boo 022	YB07761
Boo 023	YB07762
Boo 024	YB07763
Boo 025	YB07764
Boo 026	YB07765
Boo 027	YB07766
Boo 028	YB07767
Boo 033	YB07772
Boo 034	YB07773
Boo 035	YB07774
Boo 036	YB07775
Boo 037	YB07776
Boo 038	YB07777
Boo 043	YB07782
Boo 044	YB07783
Boo 045	YB07784
Boo 046	YB07785
Boo 047	YB07786
Boo 048	YB07787
Boo 077	YB07806
Boo 078	YB07807

Boo 079	YB07808
Boo 080	YB07809
Boo 081	YB07810
Boo 082	YB07811
Boo 083	YB07812
Boo 084	YB07813
Boo 085	YB07814
Boo 086	YB07815
Boo 029	YB07768
Boo 030	YB07769
Boo 031	YB07770
Boo 032	YB07771
Boo 039	YB07778
Boo 040	YB07779
Boo 041	YB07780
Boo 042	YB07781
Boo 049	YB07788
Boo 050	YB07789
Boo 066	YB07805
Cara 001	YB08036
Cara 002	YB08037
Cara 003	YB08038
Cara 004	YB08039
Cara 005	YB08040
Cara 006	YB08041
Cara 007	YB08042
Hope	Y21249
Hope 002	Y76048

Figure 2 shows the locations of these claims.

FIGURE 2: CLAIM MAP

(from Pautler, 2006)

The work done on the above claims was applied to the claims listed in Table 2 below showing the new expiry date pending acceptance of this report.

Table 2: Claims Work Applied To

Grant No.	Claim Name	Expiry prior to filing	$ work filed	renewal period requested	new expiry date
YB07740	Boo 001	31-Aug-08	300	3	31-Aug-11
YB07741	Boo 002	31-Aug-08	300	3	31-Aug-11
YB07742	Boo 003	31-Aug-08	300	3	31-Aug-11
YB07743	Boo 004	31-Aug-08	300	3	31-Aug-11
YB07744	Boo 005	31-Aug-08	300	3	31-Aug-11
YB07745	Boo 006	31-Aug-08	300	3	31-Aug-11
YB07746	Boo 007	31-Aug-08	300	3	31-Aug-11
YB07747	Boo 008	31-Aug-08	300	3	31-Aug-11
YB07748	Boo 009	31-Aug-08	300	3	31-Aug-11
YB07749	Boo 010	31-Aug-08	300	3	31-Aug-11
YB07750	Boo 011	31-Aug-08	300	3	31-Aug-11
YB07751	Boo 012	31-Aug-08	300	3	31-Aug-11
YB07752	Boo 013	31-Aug-08	300	3	31-Aug-11
YB07753	Boo 014	31-Aug-08	300	3	31-Aug-11
YB07754	Boo 015	31-Aug-08	300	3	31-Aug-11
YB07755	Boo 016	31-Aug-08	300	3	31-Aug-11
YB07756	Boo 017	31-Aug-08	300	3	31-Aug-11
YB07757	Boo 018	31-Aug-08	300	3	31-Aug-11
YB07758	Boo 019	31-Aug-08	300	3	31-Aug-11
YB07759	Boo 020	31-Aug-08	300	3	31-Aug-11
YB07760	Boo 021	31-Aug-08	300	3	31-Aug-11
YB07761	Boo 022	31-Aug-08	300	3	31-Aug-11
YB07762	Boo 023	31-Aug-08	300	3	31-Aug-11
YB07763	Boo 024	31-Aug-08	300	3	31-Aug-11
YB07764	Boo 025	31-Aug-08	300	3	31-Aug-11
YB07765	Boo 026	31-Aug-08	300	3	31-Aug-11
YB07766	Boo 027	31-Aug-08	300	3	31-Aug-11
YB07767	Boo 028	31-Aug-08	300	3	31-Aug-11

YB07772	Boo 033	31-Aug-08	300	3	31-Aug-11
YB07773	Boo 034	31-Aug-08	300	3	31-Aug-11
YB07774	Boo 035	31-Aug-08	300	3	31-Aug-11
YB07775	Boo 036	31-Aug-08	300	3	31-Aug-11
YB07776	Boo 037	31-Aug-08	300	3	31-Aug-11
YB07777	Boo 038	31-Aug-08	300	3	31-Aug-11
YB07782	Boo 043	31-Aug-08	300	3	31-Aug-11
YB07783	Boo 044	31-Aug-08	300	3	31-Aug-11
YB07784	Boo 045	31-Aug-08	300	3	31-Aug-11
YB07785	Boo 046	31-Aug-08	300	3	31-Aug-11
YB07786	Boo 047	31-Aug-08	300	3	31-Aug-11
YB07787	Boo 048	31-Aug-08	300	3	31-Aug-11
YB07806	Boo 077	31-Aug-08	300	3	31-Aug-11
YB07807	Boo 078	31-Aug-08	300	3	31-Aug-11
YB07808	Boo 079	31-Aug-08	300	3	31-Aug-11
YB07809	Boo 080	31-Aug-08	300	3	31-Aug-11
YB07810	Boo 081	31-Aug-08	300	3	31-Aug-11
YB07811	Boo 082	31-Aug-08	300	3	31-Aug-11
YB07812	Boo 083	31-Aug-08	300	3	31-Aug-11
YB07813	Boo 084	31-Aug-08	300	3	31-Aug-11
YB07814	Boo 085	31-Aug-08	300	3	31-Aug-11
YB07815	Boo 086	31-Aug-08	300	3	31-Aug-11

Chapter 2 – Regional Geology

The text and figures below have been taken directly from Geological and Geochemical Assessment Report on the Caribou Creek Property by Jean Pautler, P. Geo., dated Feb. 22, 2006:

> The Caribou Creek property occurs within the Dawson Range portion of the Tintina Gold Belt, which constitutes an arcuate belt extending from Donlin Creek in Alaska, through the Fairbanks District, Pogo and across the Yukon border where it incorporates such deposits as Brewery Cree and Dublin Gulch with occurrences such as Scheelite Dome and Longline (Figure 3).
>
> The 250 km long Dawson Range copper-gold-(molybdenum) and gold porphyry belt extends from Freegold Mountain into Alaska (Figure 3). Within this belt, significant porphyry style mineralization and related epithermal style mineralization is associated with the northwest to north-northwest trending Big Creek Fault, extending from Freegold Mountain in the southeast to the Casino Deposit in the northwest (964 mt grading 0.22% Cu, 0.24 g/t Au and 0.02% Mo), a distance of 100 km. Mineralization is associated with mid to late Cretaceous intrusions (primarily small plugs and breccia bodies) that have intruded within an extensional rift environment, bounded by the northwest trending faults (referred to a splay of the Big Creek Fault) and is hosted by the intrusions and/or the older metamorphosed basement complex of the Yukon-Tanana Terrane (Figure 4).
>
> The regional geology of the Freegold district has been geologically mapped by Bostock (1036), Johnstone (1037), Tempelman-Kluit (1984), Carlson (1987) and McInnes (1988) at regional scales (1:250,000) and more localized district scales (1:50,000, 1:12,000, 1:5,000) and is summarized in Figure 4 (after Gordey and Makepeace, 2000).
>
> The Big Creek Fault appears to have provided the locus for early Jurassic to mid Cretaceous intrusion (Big Creek and Dawson Range Batholiths) at the boundary between dominantly mid Paleozoic basement schists and gneisses of continental margin origin superposed with Devono-Mississippian arc volcanic to plutonic rocks (Nasina Subterrane of the Yukon-Tanana Terrane), intruded by the early Jurassic Granite Batholith (metaplutonic rocks) north of the fault from older Proterozoic to lower Paleozoic basement schists and gneisses of passive continental margin derivation (Nisling Subterrane of the Yukon-Tanana Terrane, southwest of Figure 4).
>
> The Dawson Range Batholith (Whitehorse Suite) primarily consists of granodiorite within the main body. A granitic phase is exposed along the Big Creek Fault with a quartz feldspar porphyry body of the late Cretaceous Prospector Mountain Suite occurring at its southeastern end. The Big Creek Batholith consists of an orthoclase-hornblende syenite (Figure 4).

Felsic volcanic rocks and related porphyry dykes and domes, and related granitic plutons of the mid Cretaceous Mt. Nansen Group occur within the region and are exposed in the Freegold district as dykes and plugs that do not show up on the regional scale. All of the above lithologies are overlain by the late Cretaceous Carmacks Group, which is dominated by mafic flows and pyroclastic rocks, primarily occurring outside the regional area shown in Figure 4, but also as felsic to intermediate dykes and small plugs and minor sedimentary rocks within the regional area that do not show up on the regional scale.

The Caribou Creek property lies at the southeastern end of the Freegold district which hosts several types of lode gold deposit types, high grade, low tonnage gold-quartz vein deposits (La Forma and Rambler veins), low grade, high tonnage gold bearing diatremes (the Antoniuk deposit) and epithermal style gold bearing breccia veins (Emmons Hill and Whale showings). A close spatial relationship is apparent between rhyolite dykes (Mt. Nansen Group and/or Carmacks Group) and the gold bearing veins and breccias in this area (McInnes, 1988). The deposits and showings occur adjacent to the northwesterly trending Big Creek Fault and related splays."

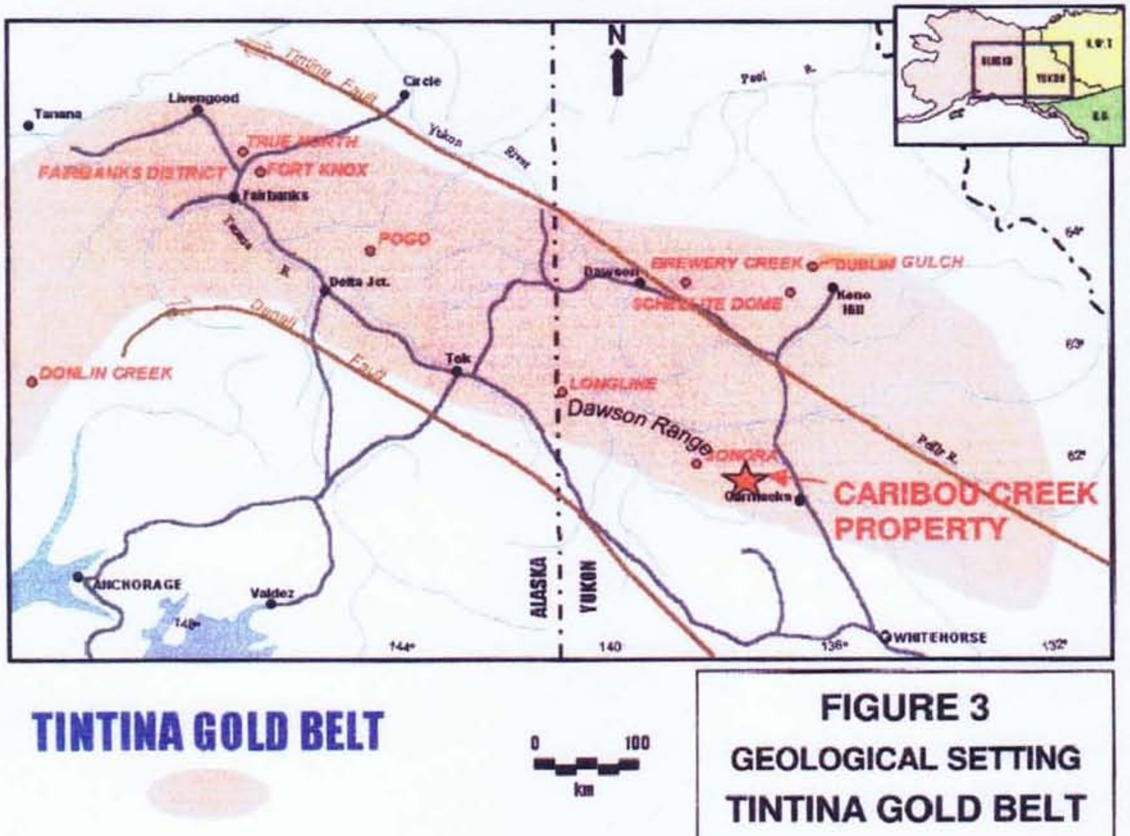


FIGURE 3
GEOLOGICAL SETTING
TINTINA GOLD BELT

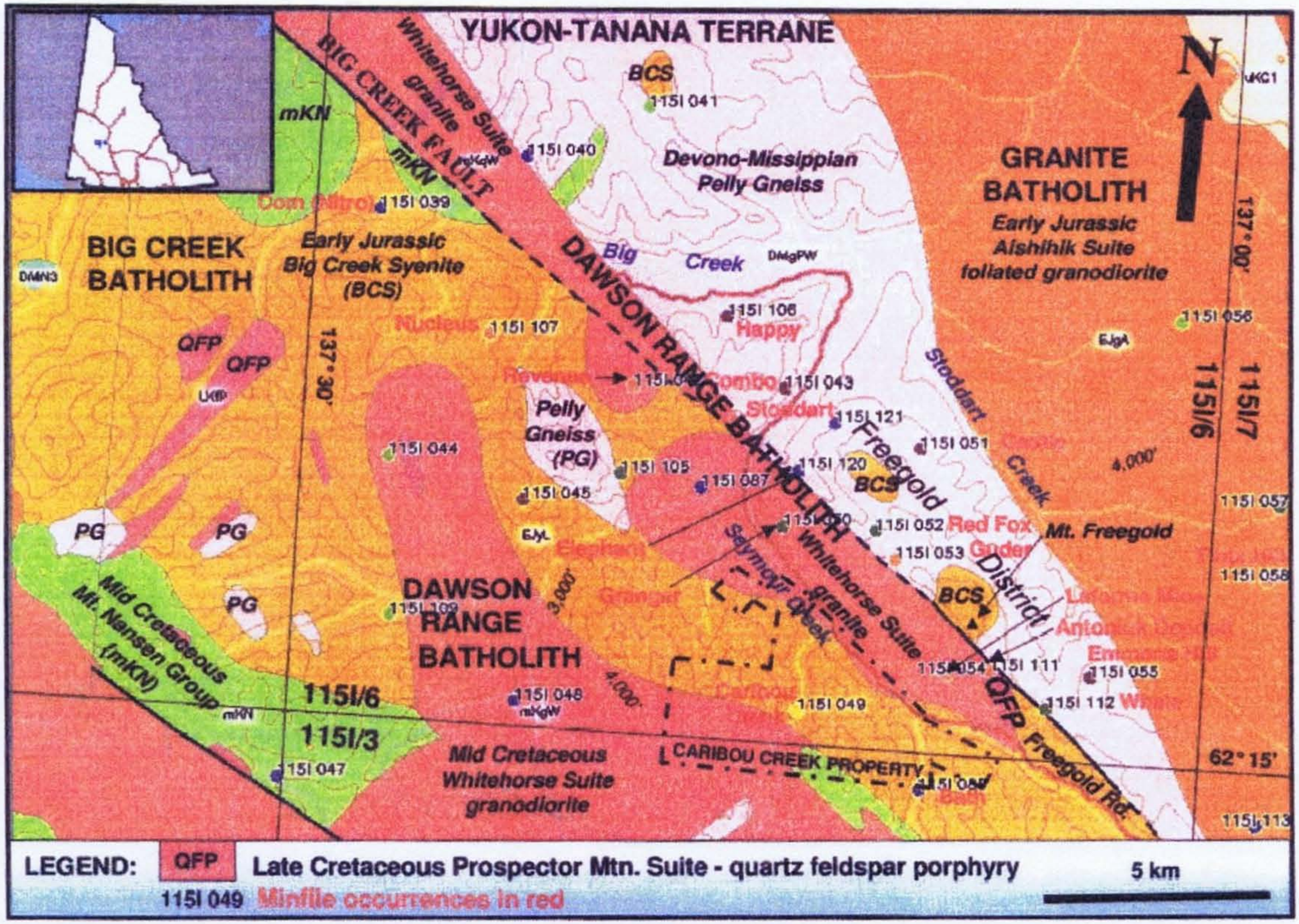


FIGURE 4: REGIONAL GEOLOGY

Chapter 3 - 2006 Geophysical Work Program

In July 2006, Bill Harris contracted Geotech Ltd. of Aurora Ontario to conduct a helicopter-borne time domain electromagnetic geophysical survey over the Caribou Creek Property. This survey was carried out between July 9 and 17th, 2006, from a base at the Revenue Creek Camp, on the Freegold Mountain Project.

A total of 144.8 line-km were flown at nominal traverse line spacing of 125 metres. Tie lines were flown perpendicular to traverse lines at a line spacing of 1180 metres. Where possible, the helicopter maintained a mean terrain clearance of 80 metres, which translated into an average height of 45 metres above ground for the bird-mounted VTEM system and 45 metres for the magnetic sensor. The survey was flown using an Astar B2 helicopter, operated by TransNorth Helicopters Limited.

Full details of the geophysical survey, including contract specifications, survey and system specifications, instrumentation, calibrations and corrections, terrain clearance, personnel are included in the Geotech Ltd. report (attached as Appendix 1 of the present report).

The magnetic survey is dominated by a northwesterly trending zone of high magnetic relief in the center of the survey area. This could be representative of granodioritic rocks with less magnetic syenitic rocks to the north.

There would appear to be a northwesterly trending fault along Seymour Creek as suggested by the long linear magnetic low.

A zone of higher conductivity is observed within the granodioritic rocks with a strike length of some 1000 metres. This is a complex zone of mulitple conductors as can be discerned from the many peaks on the EM response.

Modelling should be preformed on the EM responses to get a better understanding of the possible sources, and field investigation should be carried out to check their relevance as regards to gold mineralization.

Selected References

Carlson, G.G. (1987): Geology of Mount Nansen (115 I/3) and Stoddart Creek (115 I/6) map areas, Dawson Range, Central Yukon, Indian and Northern Affairs Open File 1987-2.

Gordey, S.P. and Makepeace, A.J. (compilers), 2004. Yukon MINFILE 2004 – A database of mineral occurrences. Yukon Geological Survey, CD-ROM.

Johnstone, J.R. (1937): Geology and mineral deposits of Freegold Mountain, Carmacks District, Yukon. GSC Memoir 214.

Pautler, J. (2006): Geological and Geochemical Assessment Report on the Caribou Creek Property for Bill Harris.

Certificate

I, SUSAN PATRICIA CRAIG, of the City of Whitehorse, in the Yukon Territory, HEREBY CERTIFY:

1. That I am a geologist and that I have not been to the property since 2004, but have worked in the general project area in the intervening years.

2. That I am a graduate of Lakehead University (M.Sc. Geology, 1991) and the University of Calgary (B.Sc., Geology, 1986).

3. That I am a registered Professional Geoscientist with the Association of Professional Engineers and Geoscientists of British Columbia.

4. That I have been engaged in mineral exploration and development on a full time basis for 15 years in the Yukon and British Columbia.

5. That I have no direct interest in the Caribou Creek Property.

SIGNED at Vancouver, BC this 26th day of February, 2007.

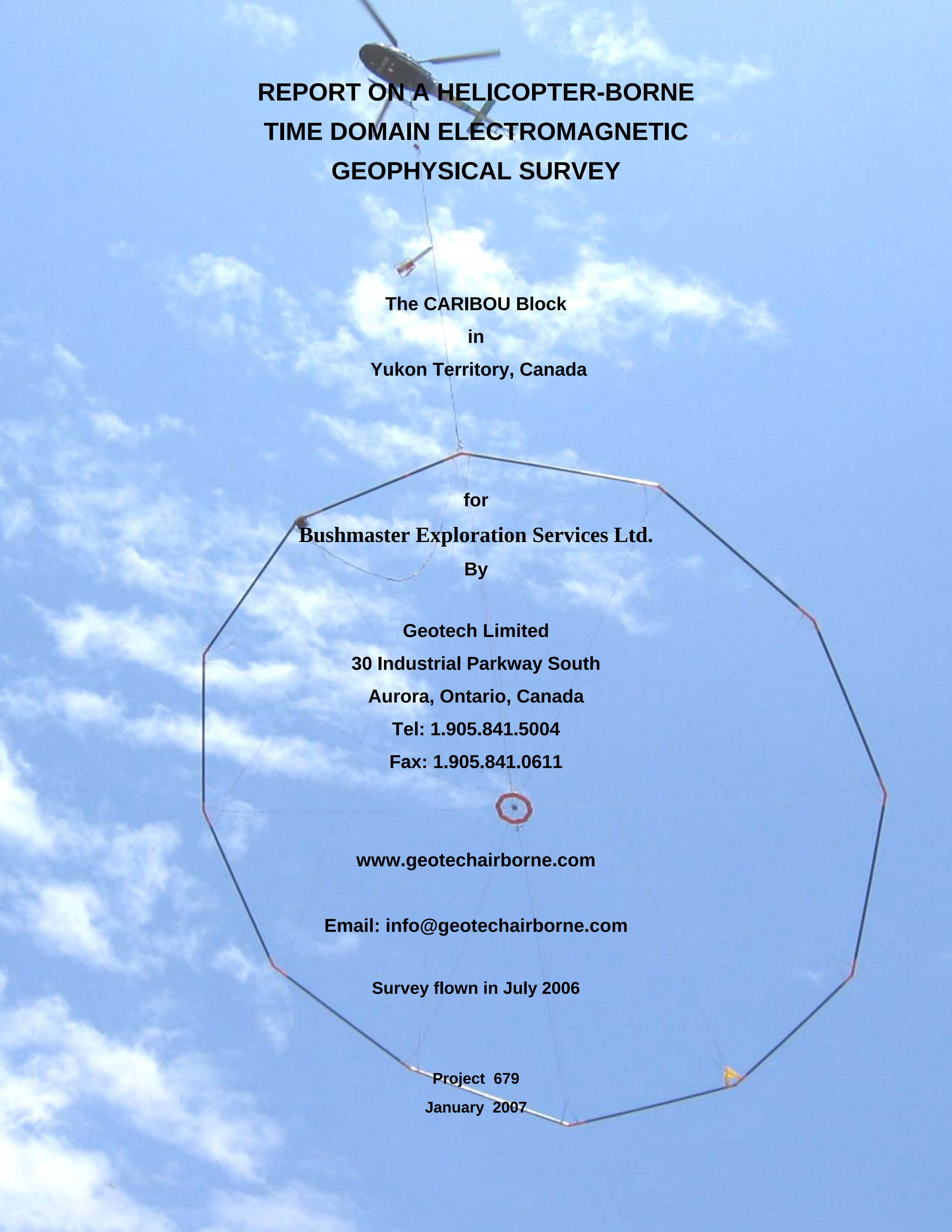
Susan Patricia Craig

Susan Patricia Craig, P. Geo.

Statement of Costs

Airborne Geophysical Survey by Geotech	***$13,770***
Interpretation of geophysical survey & report	***$1,230***
	$15,000

Flew over 109 claims – works out to $137.61/claim



REPORT ON A HELICOPTER-BORNE TIME DOMAIN ELECTROMAGNETIC GEOPHYSICAL SURVEY

The CARIBOU Block

in

Yukon Territory, Canada

for

Bushmaster Exploration Services Ltd.

By

Geotech Limited

30 Industrial Parkway South

Aurora, Ontario, Canada

Tel: 1.905.841.5004

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Survey flown in July 2006

Project 679

January 2007

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APPENDICES

REPORT ON A HELICOPTER-BORNE
TIME DOMAIN ELECTROMAGNETIC SURVEY

Of the CARIBOU block, Yukon Territory, Canada

Executive Summary

During the period of July 9th to July 17th, 2006, Geotech Limited carried out a helicopter-borne geophysical survey for Bushmaster Exploration Services Ltd. over one block located in Yukon Territory, Canada, approximately 200 km north-north-west of Whitehorse, YT.
The Caribou block was flown as part of a larger survey and the flight lines were extended from an adjacent block.

Principal geophysical sensors included a versatile time domain electromagnetic system (VTEM) and a cesium magnetometer. Ancillary equipment included a GPS navigation system and a radar altimeter. A total of 144.8 line-km were flown.

In-field data processing involved quality control and compilation of data collected during the acquisition stage, using the in-field processing centre established at survey base. Preliminary and final data processing, including generation of final digital data products were done at the office of Geotech Ltd. in Aurora, Ontario.

The processed survey results are presented as total magnetic field grid and electromagnetic stacked profiles.

Digital data includes all electromagnetic and magnetic products plus positional, altitude and raw data.

1. INTRODUCTION

1.1 General Considerations

These services are the result of the Agreement made between Geotech Ltd. and Bushmaster Exploration Services Ltd., to perform a helicopter-borne geophysical survey over the CARIBOU block, located in Yukon Territory, Canada.

144.8 line-km of geophysical data were acquired during the survey.
The Caribou block was flown as part of a larger survey and the flight lines were extended from an adjacent block.

The survey block is as shown in Appendix A.

The crew was based in an exploration camp in Yukon Territory for the acquisition phase of the survey, as shown in Section 2 of this report.

The helicopter was obtained from the TransNorth Helicopters for the duration of the survey. Multiple fuel caches were arranged.
Survey flying was completed on June 18th, 2006. Preliminary data processing was carried out daily during the acquisition phase of the project. Final data presentation and data archiving was completed in the Aurora office of Geotech Ltd. in January 2007.

1.2. Survey and System Specifications

The survey block was flown at nominal traverse line spacing of 125 metres.
Tie lines were flown perpendicular to traverse lines at line spacing of 1180 metres, as shown in the Section 2 of this report.

Where possible, the helicopter maintained a mean terrain clearance of 80 metres, which translated into an average height of 45 meters above ground for the bird-mounted VTEM system and 45 meters for the magnetic sensor.

The survey was flown using an Astar B2 helicopter, registration C-GTNU, operated by TransNorth Helicopters Limited. Details of the survey specifications may be found in Section 2 of this report.

1.3. Data Processing and Final Products

Data compilation and processing were carried out by the application of Geosoft OASIS Montaj and programs proprietary to Geotech Ltd.

Database, grid and maps of final products were presented to Bushmaster Exploration Services Ltd.

The survey report describes the procedures for data acquisition, processing, final image presentation and the specifications for the digital data set.

1.4. Topographic Relief

The survey block is located approximately half way between Whitehorse and Dawson City and is shown on the location maps (Appendix A).

Topographically, the block exhibited mountainous relief, with range of elevations from approximately 700 to 1280 metres ASL. A mountain ridge with higher elevations is present in the SE part of the block, while in the NW there is a creek / river valley draining the area and joining the main flow in NE direction.

2. DATA ACQUISITION

2.1. Survey Area

The survey block (see location maps, Appendix A) and general flight specifications are as follows:

Survey areas	Line /Tie spacing (m)	Area	Line / Tie direction	Line number	Line KM
CARIBOU	125	16.6 km.^{2}	N42E	1520 - 1990	132.61
	1180		N57W	3870 - 3890	12.18

Table 1 - Survey block

Survey block boundary coordinates are shown in Appendix B.

2.2. Survey Operations

Date	Flights	Production	Block	Crew location	REMARK
09-Jul		0	CARIBOU	FREEGOLD camp	2 ferry flights - arrival from Whitehorse
13-Jul	11	8.2	CARIBOU	FREEGOLD camp	
14-Jul	12,13,14	52.78	CARIBOU	FREEGOLD camp	
15-Jul	15	36.54	CARIBOU	FREEGOLD camp	
16-Jul	21	32.38	CARIBOU	FREEGOLD camp	
17-Jul	26	14.94	CARIBOU	FREEGOLD camp	Survey finished

Table 2 - Survey schedule

2.3. Flight Specifications

The nominal EM sensor terrain clearance was 45 m (EM bird height above ground, i.e. helicopter is maintained 80 m above ground). Nominal survey speed was 80 km/hour. The data recording rates of the data acquisition was 0.1 second for electromagnetics and magnetometer, 0.2 second for altimeter and GPS. This translates to a geophysical reading about every 2 metres along flight track. Navigation was assisted by a GPS receiver and data acquisition system, which reports GPS co-ordinates as latitude/longitude and directs the pilot over a pre-programmed survey grid.

The operator was responsible for monitoring of the system integrity. He also maintained a detailed flight log during the survey, tracking the times of the flight as well as any unusual geophysical or topographic feature.

On return of the aircrew to the base camp the survey data was transferred from a compact flash card (PCMCIA) to the data processing computer.

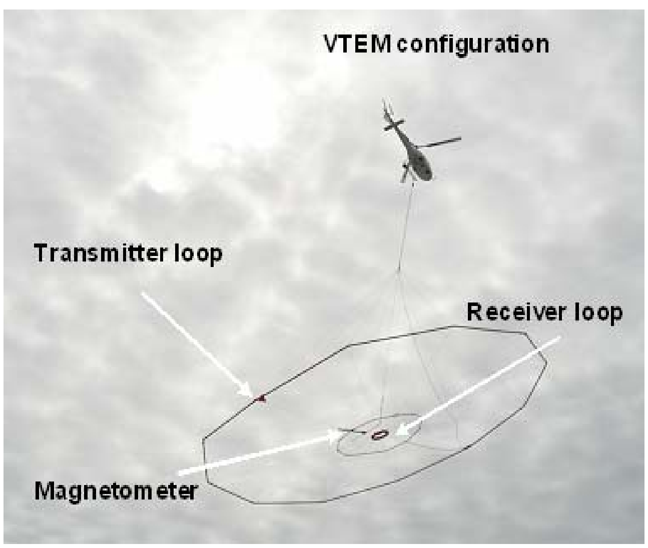
2.4. *Aircraft and Equipment*

2.4.1. Survey Aircraft

An Astar B2 helicopter, registration C-GTNU - owned and operated by Trans North Helicopters Ltd. was used for the survey. Installation of the geophysical and ancillary equipment was carried out by Geotech Ltd.

2.4.2. Electromagnetic System

The electromagnetic system was a Geotech Versatile Time Domain EM (VTEM) system. The layout of the two configuration used for this survey is as indicated in Figure 1 below.



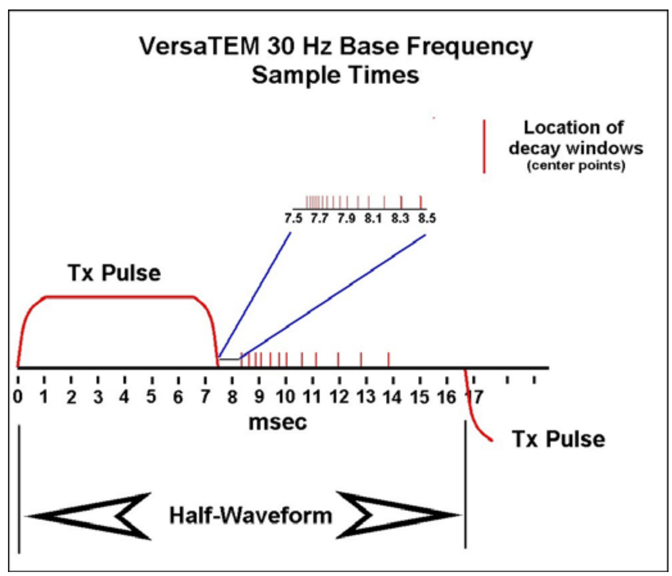


Figure 1 - VTEM Configuration

Figure 2 - VTEM sample times

Receiver and transmitter coils are concentric and Z-direction oriented.

The receiver decay recording scheme is shown diagrammatically in Figure 2.

Twenty-six measurement gates were used in the range from 130 µs to 7540 µs, as shown in the following table.

VTEM Decay Sampling scheme (Microseconds)			
Time gate	Start	End	Width
130	120	140	20
150	140	160	20
170	160	180	20
190	180	205	25
220	205	240	35
260	240	280	40
300	280	325	45
350	325	380	55
410	380	445	65
480	445	525	80
570	525	625	100
680	625	745	120
810	745	885	140
960	885	1045	160
1130	1045	1235	190
1340	1235	1470	235
1600	1470	1750	280
1900	1750	2070	320
2240	2070	2450	380
2660	2450	2920	470
3180	2920	3480	560
3780	3480	4120	640
4460	4120	4880	760
5300	4880	5820	940
6340	5820	6860	1040
7540	6860	8220	1360

Table 3 - VTEM decay sampling scheme

.

Transmitter coil diameter was 26 metres, the number of turns was 4.
Transmitter pulse repetition rate was 30 Hz.
Peak current was 167 A.
Duty cycle was 37%.
Peak dipole moment was 355,000 NIA.

Receiver coil diameter was 1.2 metre, the number of turns was 100.
Receiver effective area was 113 m^2
Wave form – trapezoid.
Recording sampling rate was 10 samples per second.

The EM bird was towed 35 m below the helicopter.

2.4.3. Airborne magnetometer

The magnetic sensor utilized for the survey was a Geometrics optically pumped cesium vapour magnetic field sensor, mounted in a separate bird towed at the same altitude as the EM sensor. The sensitivity of the magnetic sensor is 0.02 nanoTesla (nT) at a sampling interval of 0.1 seconds. The magnetometer sends the measured magnetic field strength as nanoTeslas to the data acquisition system via the RS-232 port.

2.4.4. Ancillary Systems

2.4.4.1. Radar Altimeter

A Terra TRA 3000/TRI 40 radar altimeter was used to record terrain clearance. The antenna was mounted beneath the bubble of the helicopter cockpit.

2.4.4.2. GPS Navigation System

The navigation system used was a Geotech PC based navigation system utilizing a NovAtel's WAAS enable OEM4-G2-3151W GPS receiver, Geotech navigate software, a full screen display with controls in front of the pilot to direct the flight and an NovAtel GPS antenna mounted on the helicopter tail.
The co-ordinates of the block were set-up prior to the survey and the information was fed into the airborne navigation system.

2.4.4.3. Digital Acquisition System

A Geotech data acquisition system recorded the digital survey data on an internal compact flash card. Data is displayed on an LCD screen as traces to allow the operator to monitor the integrity of the system. Contents and update rates were as follows:

DATA TYPE	SAMPLING
TDEM	0.1 sec
Magnetometer	0.1 sec
GPS Position	0.2 sec
Radar Altimeter	0.2 sec

Table 4 - Sampling Rates

2.4.5. Base Station

A combine magnetometer/GPS base station was utilized on this project. A Geometrics Cesium vapour magnetometer was used as a magnetic sensor with a sensitivity of 0.001 nT. The base station was recording the magnetic field together with the GPS time at 1 Hz on a base station computer. The base station magnetometer sensor was installed away from electric transmission lines and moving ferrous objects such as motor vehicles. The magnetometer base station's data was backed-up to the data processing computer at the end of each survey day.

3. PERSONNEL

The following Geotech Ltd. personnel were involved in the project.

Field

Crew chiefs / Operators:	Duncan Wilson Calin Cosma Vagner Alexio

The survey pilot and the mechanic engineer were employed directly by the helicopter operator – Gateway Helicopters.

Pilots:	Alan Stannard Steve Shaw Stephen Soubliere
Mechanical Engineer:	Margo Hager

Office

Data Processing:	Harish Kumar
Data Processing / Reporting:	George Lev
Data Technician	Maria Jagodkin

Data acquisition and processing phases were carried out under the supervision of Andrei Bagrianski, Surveys Manager. Overall management of the project was undertaken by Edward Morrison, President, Geotech Ltd.

4. DATA PROCESSING AND PRESENTATION

4.1. *Flight Path*

The flight path, recorded by the acquisition program as WGS 84 latitude/longitude, was converted into the UTM coordinate system in Oasis Montaj.

The flight path was drawn using linear interpolation between x, y positions from the navigation system. Positions are updated every second and expressed as UTM eastings (x) and UTM northings (y).

4.2. *Electromagnetic Data*

A three stage digital filtering process was used 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 filter used was a 16 point non-linear filter.

The signal to noise ratio was further improved by the application of a low pass linear 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 1 second or 20 metres. This filter is a symmetrical 1 sec linear filter.

The results are presented as stacked profiles of EM voltages for the gate times, in logarithmic scale.

Generalized modeling results of the VTEM system, written by Geophysicist Roger Barlow, are shown in Appendix C.

The VTEM output voltage of the receiver coil is shown in Appendix D.

4.3. Magnetic Data

The processing of the magnetic data involved the correction for diurnal variations by using the digitally recorded ground base station magnetic values. The base station magnetometer data was edited and merged into the Geosoft GDB database on a daily basis. The aeromagnetic data was corrected for diurnal variations by subtracting the observed magnetic base station deviations.

Tie line levelling was carried out by adjusting intersection points along the traverse lines. A micro-levelling procedure was then applied. This technique is designed to remove persistent low-amplitude components of flight-line noise remaining after tie line levelling.

The corrected magnetic data was interpolated between survey lines using a random point gridding method to yield x-y grid values for a standard grid cell size of approximately 0.2 cm at the mapping scale. The Minimum Curvature algorithm was used to interpolate values onto a rectangular regular spaced grid.

5. DELIVERABLES

5.1. *Survey Report*

The survey report describes the data acquisition, processing, and final presentation of the survey results.

The survey report is provided in two paper copies and digitally in PDF format.

5.2. *Maps*

Final maps were produced at a scale of 1: 25,000. The coordinate/projection system used was the WGS84, UTM zone 8 north. All maps show the flight path trace. Latitude and longitude are also noted on maps.

The following maps are presented to Bushmaster Exploration Services Ltd. on paper as results of the helicopter-borne geophysical survey carried out over the CARIBOU block.

- Total Magnetic Field contours and colour images
- Logarithmic scale VTEM profiles, Time Gates 0.22 - 6.34 ms

5.4. *Digital Data*

There are three (3) main directories,

Data contains a database, grid and maps, as described below.

Report contains a copy of the report and appendixes in PDF format.

VTEM_fp_GoogleEarth
contains a kmz file containing flightpath of the Caribou Property. Free version of Google Earth software can be downloaded from, http://earth.google.com/download-earth.html

- Database in Geosoft GDB format,

675caribou.gdb containing the following channels:

X:	X positional data (meters – WGS84, utm zone 8 north)
Y:	Y positional data (meters – WGS84, utm zone 8 north)
Z:	GPS antenna elevation (meters - ASL) (on the tail of the helicopter)
Gtime1:	GPS time (seconds of the day)
Radar:	Helicopter terrain clearance from radar altimeter (meters - AGL)
DEM:	Digital elevation model (meters)
Mag1:	Raw Total Magnetic field data (nT)
Basemag:	Base station magnetic data (nT)
Mag2:	Total Magnetic field base station corrected data (nT)
Mag3:	Leveled Total Magnetic field data (nT)
C130f:	Raw 130 microsecond time channel ($pV/A/m^4$)
C150f:	Raw 150 microsecond time channel ($pV/A/m^4$)
C170f:	Raw 170 microsecond time channel ($pV/A/m^4$)
C190f:	Raw 190 microsecond time channel ($pV/A/m^4$)
C220f:	Raw 220 microsecond time channel ($pV/A/m^4$)
C260f:	Raw 260 microsecond time channel ($pV/A/m^4$)
C300f:	Raw 300 microsecond time channel ($pV/A/m^4$)
C350f:	Raw 350 microsecond time channel ($pV/A/m^4$)
C410f:	Raw 410 microsecond time channel ($pV/A/m^4$)
C480f:	Raw 480 microsecond time channel ($pV/A/m^4$)
C570f:	Raw 570 microsecond time channel ($pV/A/m^4$)
C680f:	Raw 680 microsecond time channel ($pV/A/m^4$)
C810f:	Raw 810 microsecond time channel ($pV/A/m^4$)
C960f:	Raw 960 microsecond time channel ($pV/A/m^4$)
C1130f:	Raw 1130 microsecond time channel ($pV/A/m^4$)
C1340f:	Raw 1340 microsecond time channel ($pV/A/m^4$)
C1600f:	Raw 1600 microsecond time channel ($pV/A/m^4$)
C1900f:	Raw 1900 microsecond time channel ($pV/A/m^4$)
C2240f:	Raw 2240 microsecond time channel ($pV/A/m^4$)
C2660f:	Raw 2660 microsecond time channel ($pV/A/m^4$)
C3180f:	Raw 3180 microsecond time channel ($pV/A/m^4$)
C3780f:	Raw 3780 microsecond time channel ($pV/A/m^4$)
C4460f:	Raw 4460 microsecond time channel ($pV/A/m^4$)
C5300f:	Raw 5300 microsecond time channel ($pV/A/m^4$)
C6340f:	Raw 6340 microsecond time channel ($pV/A/m^4$)
C7540f:	Raw 7540 microsecond time channel ($pV/A/m^4$)
PLinef:	Power line monitor (linear trend removed)

- Grids in Geosoft GRD format, as follow,

  675caribou_magfin: Total Magnetic field (nT)

  A Geosoft .GRD file has a .GI metadata file associated with it, containing grid projection information.
  Map scale 1:25,000, 10 m grid cell size

- Maps in Geosoft MAP format, as follow,

  675caribou _Magfin: Total Magnetic Field image and contours
  675caribou _EM-LP: Logarithmic scale profiles, Time Gates 0.22 – 6.34 ms

- Maps in ArcView SHP format, as follow,

  675caribou_Magfin: Total Magnetic Field image and contours
  675caribou_EM-LP: Logarithmic scale profiles, Time Gates 0.22 – 6.34 ms

- ASCII file VTEM_WaveForm.xyz in Geosoft format containing the following channel:

  Volt: output voltage of the receiver coil
  (volts, sampling rate 20 microseconds)

- A *readme.txt* file describing the content of digital data, as described above.

6. CONCLUSIONS

A versatile time domain electromagnetic helicopter-borne geophysical survey has been completed over one block located approximately 200 km north-north-west of Whitehorse, in Yukon Territory, Canada.

Total survey line coverage is 144.8 line kilometres. The principal sensors included a Time Domain EM system and a magnetometer. Results have been presented as colour contour maps and stacked profiles.

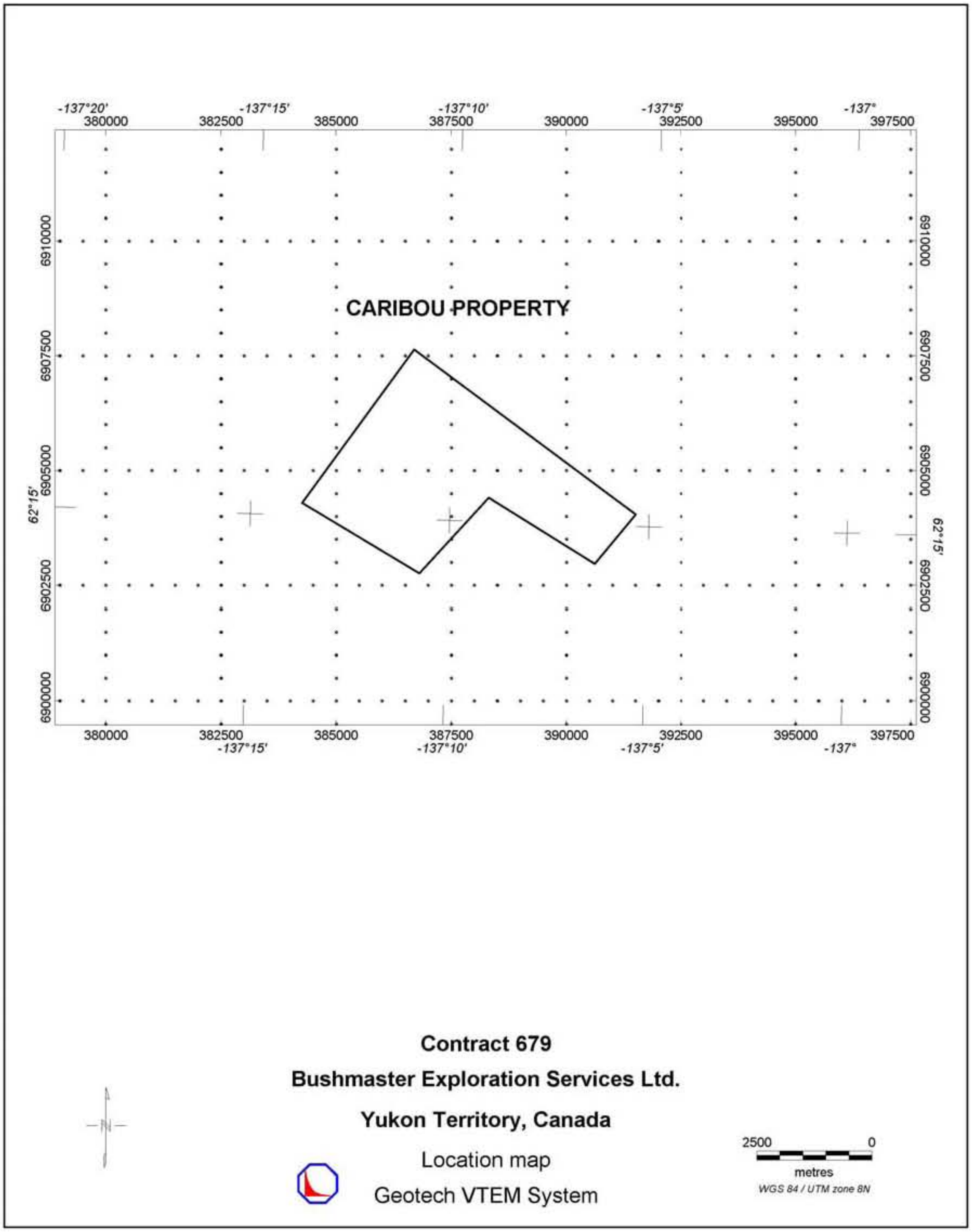
Final data processing at the office of Geotech Ltd. in Aurora, Ontario was carried out under the supervision of Andrei Bagrianski, Data Processing Manager.

Respectfully submitted,

George Lev
Geotech Limited
January 05, 2007

APPENDIX A

SURVEY BLOCK LOCATION MAP


CARIBOU PROPERTY
-137°20'
-137°15'
-137°10'
-137°5'
-137°
380000
382500
385000
387500
390000
392500
395000
397500
6910000
6907500
6905000
6902500
6900000
62°15'
Contract 679
Bushmaster Exploration Services Ltd.
Yukon Territory, Canada
Location map
Geotech VTEM System
2500
0
metres
WGS 84 / UTM zone 8N

APPENDIX B

SURVEY BLOCK COORDINATES

(WGS 84, UTM zone 8N)

CARIBOU	
391500	6904100
390600	6903000
388300	6904450
386800	6902800
384300	6904300
386750	6907650

APPENDIX C

General Modeling Results of the VTEM System

GENERALIZED MODELING RESULTS OF THE VTEM SYSTEM

Introduction

The VTEM system is based on a concentric or central loop design, whereby, the receiver is positioned at the centre of a 26.1 meters diameter transmitter loop that produces a dipole moment up to 625,000 NIA at peak current. The wave form is a bi-polar, modified square wave with a turn-on and turn-off at each end. With a base frequency of 30 Hz, the duration of each pulse is approximately 7.5 milliseconds followed by an off time where no primary field is present.

During turn-on and turn-off, a time varying field is produced (dB/dt) and an electro-motive force (emf) is created as a finite impulse response. A current ring around the transmitter loop moves outward and downward as time progresses. When conductive rocks and mineralization are encountered, a secondary field is created by mutual induction and measured by the receiver at the centre of the transmitter loop.

Measurements are made during the off-time, when only the secondary field (representing the conductive targets encountered in the ground) is present.

Efficient modeling of the results can be carried out on regularly shaped geometries, thus yielding close approximations to the parameters of the measured targets. The following is a description of a series of common models made for the purpose of promoting a general understanding of the measured results.

Variation of Plate Depth

Geometries represented by plates of different strike length, depth extent, dip, plunge and depth below surface can be varied with characteristic parameters like conductance of the target, conductance of the host and conductivity/thickness and thickness of the overburden layer.

Diagrammatic models for a vertical plate are shown in figures A and G at two different depths, all other parameters remaining constant. With this transmitter-receiver geometry, the classic **M** shaped response is generated. Figure A shows a plate where the top is near surface. Here, amplitudes of the duel peaks are higher and symmetrical with the zero centre positioned directly above the plate. Most important is the separation distance of the peaks. This distance is small when the plate is near surface and widens with a linear relationship as the plate (depth to top) increases. Figure G shows a much deeper plate where the separation distance of the peaks is much wider and the amplitudes of the channels have decreased.

Variation of Plate Dip

As the plate dips and departs from the vertical position, the peaks become asymmetrical. Figure B shows a near surface plate dipping 80º. Note that the direction of dip is toward the high shoulder of the response and the top of the plate remains under the centre minimum.

As the dip increases, the aspect ratio (Min/Max) decreases and this aspect ratio can be used as an empirical guide to dip angles from near 90º to about 30º. The method is not sensitive enough where dips are less than about 30º. Figure E shows a plate dipping 45º and, at this angle, the minimum shoulder starts to vanish. In Figure D, a flat lying plate is shown, relatively near surface. Note that the twin peak anomaly has been replaced by a symmetrical shape with large, bell shaped, channel amplitudes which decay relative to the conductance of the plate.

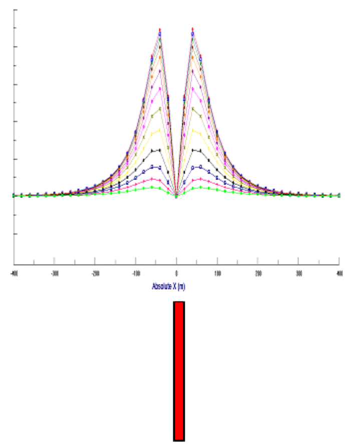
Figure H shows a special case where two plates are positioned to represent a synclinal structure. Note that the main characteristic to remember is the centre amplitudes are higher (approximately double) compared to the high shoulder of a single plate. This model is very representative of tightly folded formations where the conductors where once flat lying.

Variation of Prism Depth

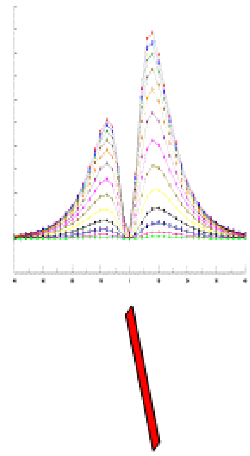
Finally, with prism models, another algorithm is required to represent current on the plate. A plate model is considered to be infinitely thin with respect to thickness and incapable of representing the current in the thickness dimension. A prism model is constructed to deal with this problem, thereby, representing the thickness of the body more accurately.

Figures C, F and I show the same prism at increasing depths. Aside from an expected decrease in amplitude, the side lobes of the anomaly show a widening with deeper prism depths of the bell shaped early time channels.

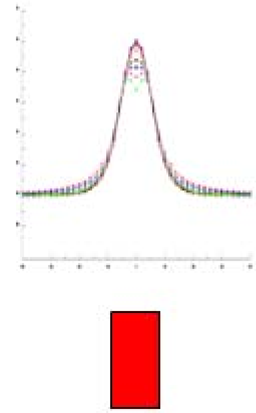
A



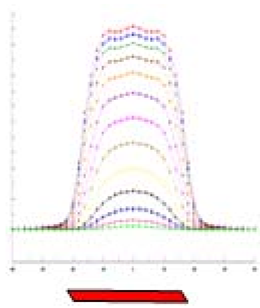
B



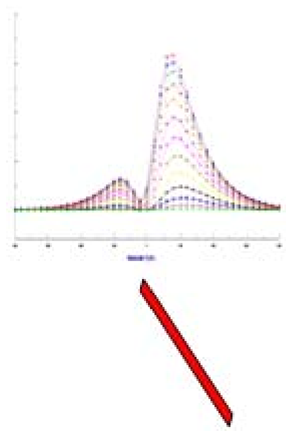
C



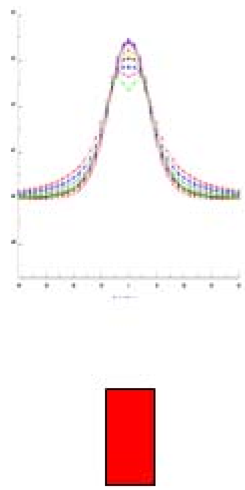
D



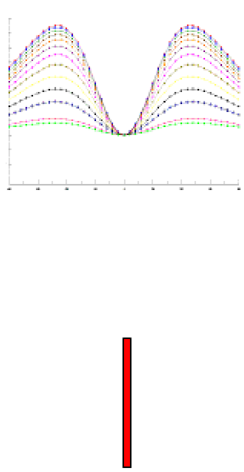
E



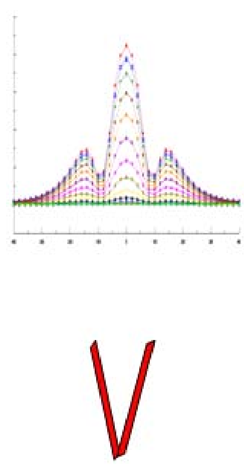
F



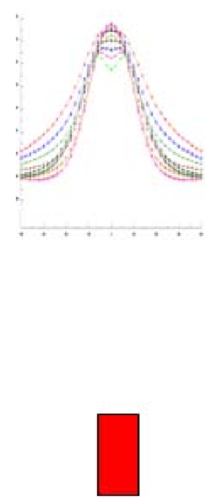
G



H



I



General Modeling Concepts

A set of models has been produced for the Geotech VTEM® system with explanation notes (see models A to I above). The reader is encouraged to review these models, so as to get a general understanding of the responses as they apply to survey results. While these models do not begin to cover all possibilities, they give a general perspective on the simple and most commonly encountered anomalies.

When producing these models, a few key points were observed and are worth noting as follows:

- For near vertical and vertical plate models, the top of the conductor is always located directly under the centre low point between the two shoulders in the classic **M** shaped response.
- As the plate is positioned at an increasing depth to the top, the shoulders of the **M** shaped response, have a greater separation distance.
- When faced with choosing between a flat lying plate and a prism model to represent the target (broad response) some ambiguity is present and caution should be exercised.
- With the concentric loop system and Z-component receiver coil, virtually all types of conductors and most geometries are most always well coupled and a response is generated (see model H). Only concentric loop systems can map this type of target.

The modelling program used to generate the responses was prepared by PetRos Eikon Inc. and is one of a very few that can model a wide range of targets in a conductive half space.

General Interpretation Principals

Magnetics

The total magnetic intensity responses reflect major changes in the magnetite and/or other magnetic minerals content in the underlying rocks and unconsolidated overburden. Precambrian rocks have often been subjected to intense heat and pressure during structural and metamorphic events in their history. Original signatures imprinted on these rocks at the time of formation have, it most cases, been modified, resulting in low magnetic susceptibility values.

The amplitude of magnetic anomalies, relative to the regional background, helps to assist in identifying specific magnetic and non-magnetic rock units (and conductors) related to, for example, mafic flows, 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 simple amplitude variations, the shape of the response expressed in the wave length and the symmetry or asymmetry, is used to estimate the depth, geometric parameters and magnetization of the anomaly. For example, long narrow magnetic linears usually reflect mafic flows or intrusive dyke features. Large areas with complex magnetic patterns may be produced by intrusive bodies with significant magnetization, flat lying magnetic sills or sedimentary iron formation. Local isolated circular magnetic patterns often represent plug-like igneous intrusives such as kimberlites, pegmatites or volcanic vent areas.

Because the total magnetic intensity (TMI) responses may represent two or more closely spaced bodies within a response, the second derivative of the TMI response may be helpful for distinguishing these complexities. The second derivative is most useful in mapping near surface linears and other subtle magnetic structures that are partially masked by nearby higher amplitude magnetic features. The broad zones of higher magnetic amplitude, however, are severely attenuated in the vertical derivative results. These higher amplitude zones reflect rock units having strong magnetic susceptibility signatures. For this reason, both the TMI and the second derivative maps should be evaluated together.

Theoretically, the second derivative, zero contour or colour delineates the contacts or limits of large sources with near vertical dip and shallow depth to the top. The vertical gradient map also aids in determining contact zones between rocks with a susceptibility contrast, however, different, more complicated rules of thumb apply.

Concentric Loop EM Systems

Concentric systems with horizontal transmitter and receiver antennae produce much larger responses for flat lying conductors as contrasted with vertical plate-like conductors. The amount of current developing on the flat upper surface of targets having a substantial area in this dimension, are the direct result of the effective coupling angle, between the primary magnetic field and the flat surface area. One therefore, must not compare the amplitude/conductance of responses generated from flat lying bodies with those derived from near vertical plates; their ratios will be quite different for similar conductances.

Determining dip angle is very accurate for plates with dip angles greater than 30º. For angles less than 30º to 0º, the sensitivity is low and dips can not be distinguished accurately in the presence of normal survey noise levels.

A plate like body that has near vertical position will display a two shoulder, classic **M** shaped response with a distinctive separation distance between peaks for a given depth to top.

It is sometimes difficult to distinguish between responses associated with the edge effects of flat lying conductors and poorly conductive bedrock conductors. Poorly conductive bedrock conductors having low dip angles will also exhibit responses that may be interpreted as surfacial overburden conductors. In some situations, the conductive response has line to line continuity and some magnetic correlation providing possible evidence that the response is related to an actual bedrock source.

The EM interpretation process used, places considerable emphasis on determining an understanding of the general conductive patterns in the area of interest. Each area has different characteristics and these can effectively guide the detailed process used.

The first stage is to determine which time gates are most descriptive of the overall conductance patterns. Maps of the time gates that represent the range of responses can be very informative.

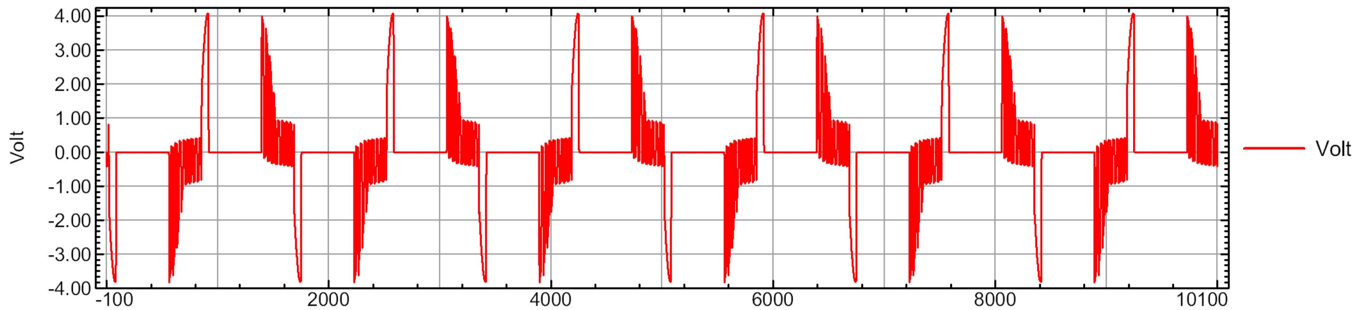
Next, stacking the relevant channels as profiles on the flight path together with the second vertical derivative of the TMI is very helpful in revealing correlations between the EM and Magnetics.

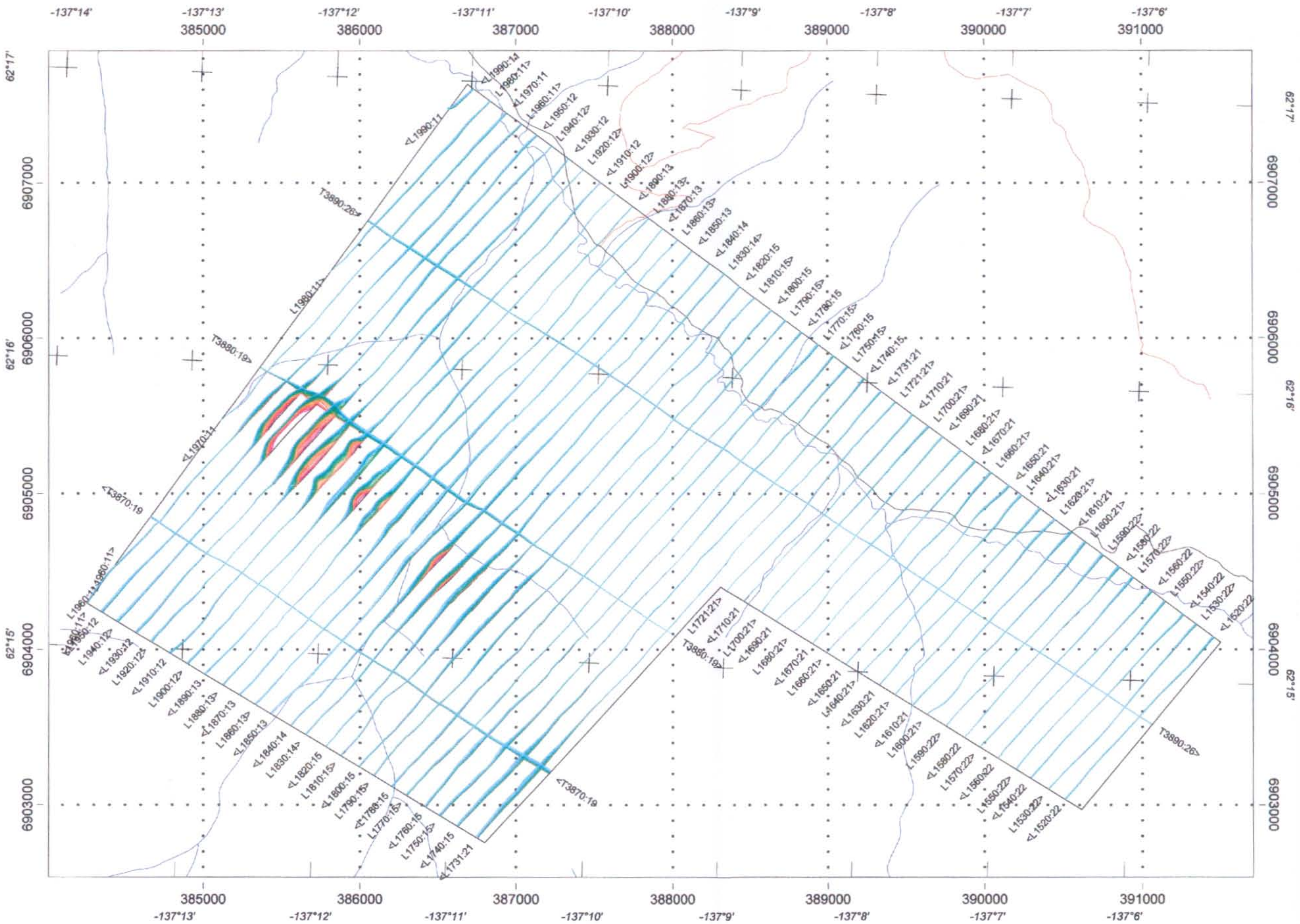
Next, key lines can be profiled as single lines to emphasize specific characteristics of a conductor or the relationship of one conductor to another on the same line. Resistivity Depth sections can be constructed to show the relationship of conductive overburden or conductive bedrock with the conductive anomaly.

APPENDIX D

VTEM WAVEFORM

VTEM Waveform - July 2006





Profiles scale 1 mm = 0.2 pV/A/m^4
(Linear between +/- 0.2 pV/A/m^4
logarithmic above 0.2 pV/A/m^4)

0.22 ms
0.26 ms
0.30 ms
0.35 ms
0.41 ms
0.48 ms
0.57 ms
0.68 ms
0.81 ms
0.96 ms
1.13 ms
1.34 ms
1.60 ms
1.90 ms
2.24 ms
2.66 ms
3.18 ms
3.78 ms
4.46 ms
5.30 ms
6.34 ms

Legend:
Main Roads
Roads
Lakes, Rivers

Scale 1:25000

250 0 250 500 750 1000 1250

metres

WGS 84 / UTM zone 8N

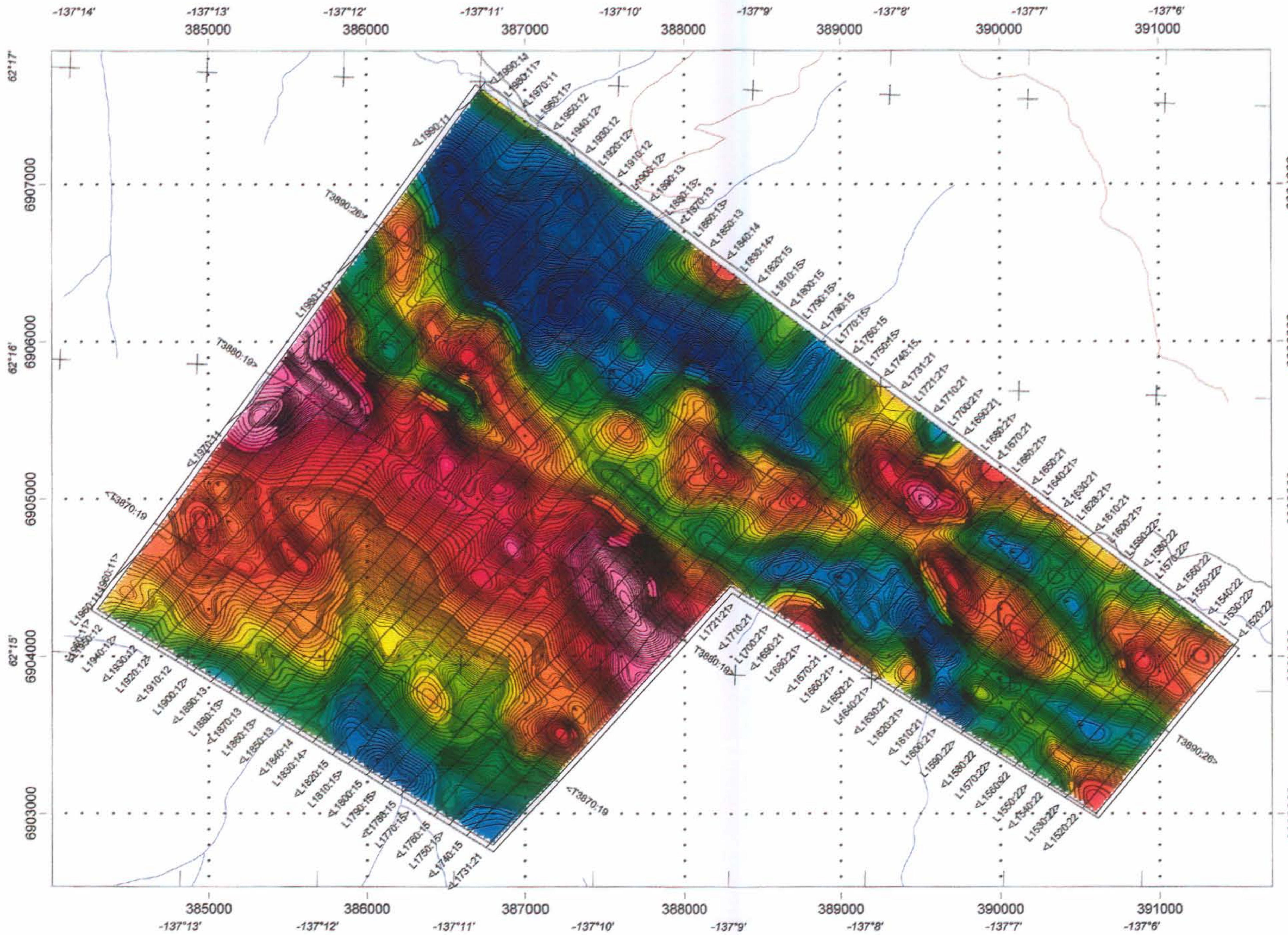
Bushmaster Exploration Services Ltd.
Block CARIBOU
Yukon Territory

Geotech VTEM System
Logarithmic scale VTEM Profiles
Time Gates 0.22 - 6.34 ms

Flown and processed by Geotech Ltd.
30 Industrial Parkway South,
Aurora, Ontario, Canada L4G 3W2
www.geotechairborne.com

January 2007

Project 679



Survey Specifications:
Dates Flown: July 09- July 17 2006
Survey Base: FREEGOLD Exploration Camp
Aircraft: Astar 350-B2 helicopter, Registration C-GTNU
Nominal Flight Line Spacing: 125 metres
Nominal Flight Line Directions: N42°E
Nominal Tie Line Spacing: 1180 metres
Nominal Tie Line Directions: N57°W
Nominal helicopter terrain clearance 80 metres
EM Loop is 35 metres under helicopter
Magnetic sensor is 35 metres under helicopter

Instruments:
Geotech Time Domain Electromagnetic System (VTEM)
with concentric Rx/Tx geometry
Transmitter Loop Diameter 26 m, Base Frequency 30 Hz
Dipole Moment 355,000 NIA
Transmitter Wave Form: Trapezoid, Pulse Width 7.5 ms
Geometrics Optically-pumped,
High Sensitivity Cesium Magnetometer
Magnetometer Resolution 0.02 nT at 10 samples/sec

Magnetic field
(nT)

Contour intervals:
2 nT
10 nT
50 nT

Legend:
Main Roads
Roads
Lakes, Rivers

Scale 1:25000
250 0 250 500 750 1000 1250
metres
WGS 84 / UTM zone 8N

Bushmaster Exploration Services Ltd.
Block CARIBOU
Yukon Territory

Geotech VTEM System
Total Magnetic Field Map

Flown and processed by Geotech Ltd.
30 Industrial Parkway South
Aurora, Ontario, Canada
www.geotechairborne.com

January 2007

Project 879