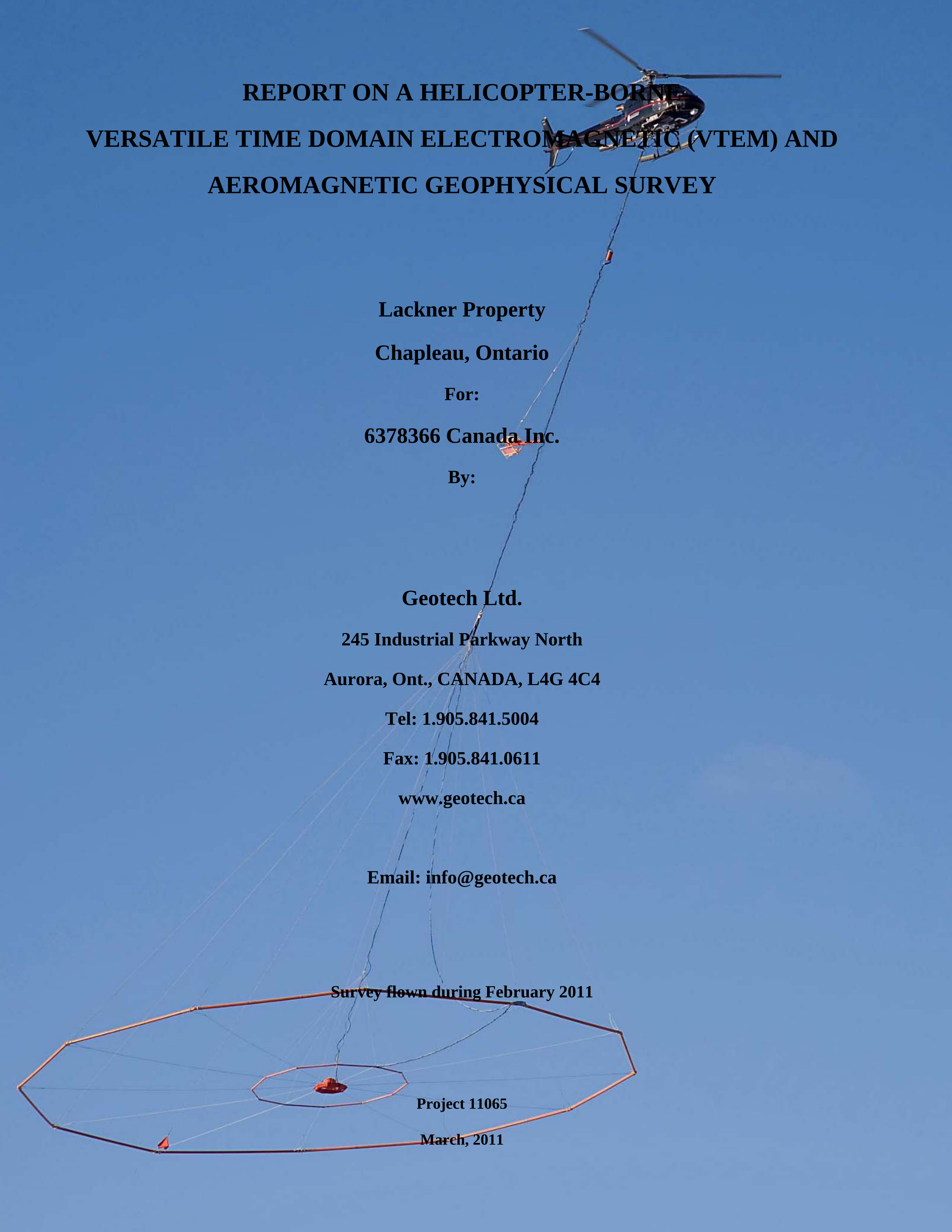

REPORT ON A HELICOPTER-BORNE VERSATILE TIME DOMAIN ELECTROMAGNETIC (VTEM) AND AEROMAGNETIC GEOPHYSICAL SURVEY

Lackner Property

Chapleau, Ontario

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Survey flown during February 2011

Project 11065

March, 2011

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REPORT ON A HELICOPTER-BORNE
VERSATILE TIME DOMAIN ELECTROMAGNETIC (VTEM) and
AEROMAGNETIC SURVEY

Lackner Property
Chapleau, Ontario

Executive Summary

Durning February 20th to 21st, 2011 Geotech Ltd. carried out a helicopter-borne geophysical survey over the Lackner Property situated about 22 km southeast of Chapleau, Ontario, Canada.

Principal geophysical sensors included a versatile time domain electromagnetic (VTEM) system, and a cesium magnetometer. Ancillary equipment included a GPS navigation system and a radar altimeter. A total of 186 line-kilometres of geophysical data were acquired during the survey.

In-field data quality assurance and preliminary processing were carried out on a daily basis during the acquisition phase. Preliminary and final data processing, including generation of final digital data and map products were undertaken from the office of Geotech Ltd. in Aurora, Ontario.

The processed survey results are presented as the following maps:

- Total Magnetic Intensity
- Electromagnetic stacked profiles of the B-field Z component
- Electromagnetic stacked profiles of the dB/dt Z component

Digital data includes all electromagnetic and magnetic products, plus ancillary data including the waveform.

The survey report describes the procedures for data acquisition, processing, final image presentation and the specifications for the digital data set. No formal Interpretation has been included.

1. INTRODUCTION

1.1 General Considerations

Geotech Ltd. performed a helicopter-borne geophysical survey over the Lackner Property located about 22 km southeast of Chapleau in Ontario, Canada (Figure 1 & 2).

Matthew Johnston represented 6378366 Canada Inc during the data acquisition and data processing phases of this project.

The geophysical surveys consisted of helicopter borne EM using the versatile time-domain electromagnetic (VTEM) system with Z and X component measurements and aeromagnetics using a cesium magnetometer. A total of 186 line-km of geophysical data were acquired during the survey.

The crew was based out of Chapleau (Figure 2) in Ontario for the acquisition phase of the survey. Survey flying started on February 20th and was completed on February 21st, 2011.

Data quality control and quality assurance, and preliminary data processing were carried out on a daily basis during the acquisition phase of the project. Final data processing followed immediately after the end of the survey. Final reporting, data presentation and archiving were completed from the Aurora office of Geotech Ltd. in March, 2011.

Figure 1 - Property Location

1.2 Survey and System Specifications

The block is located approximately 22 kilometres southeast of Chapleau (Figure 2).

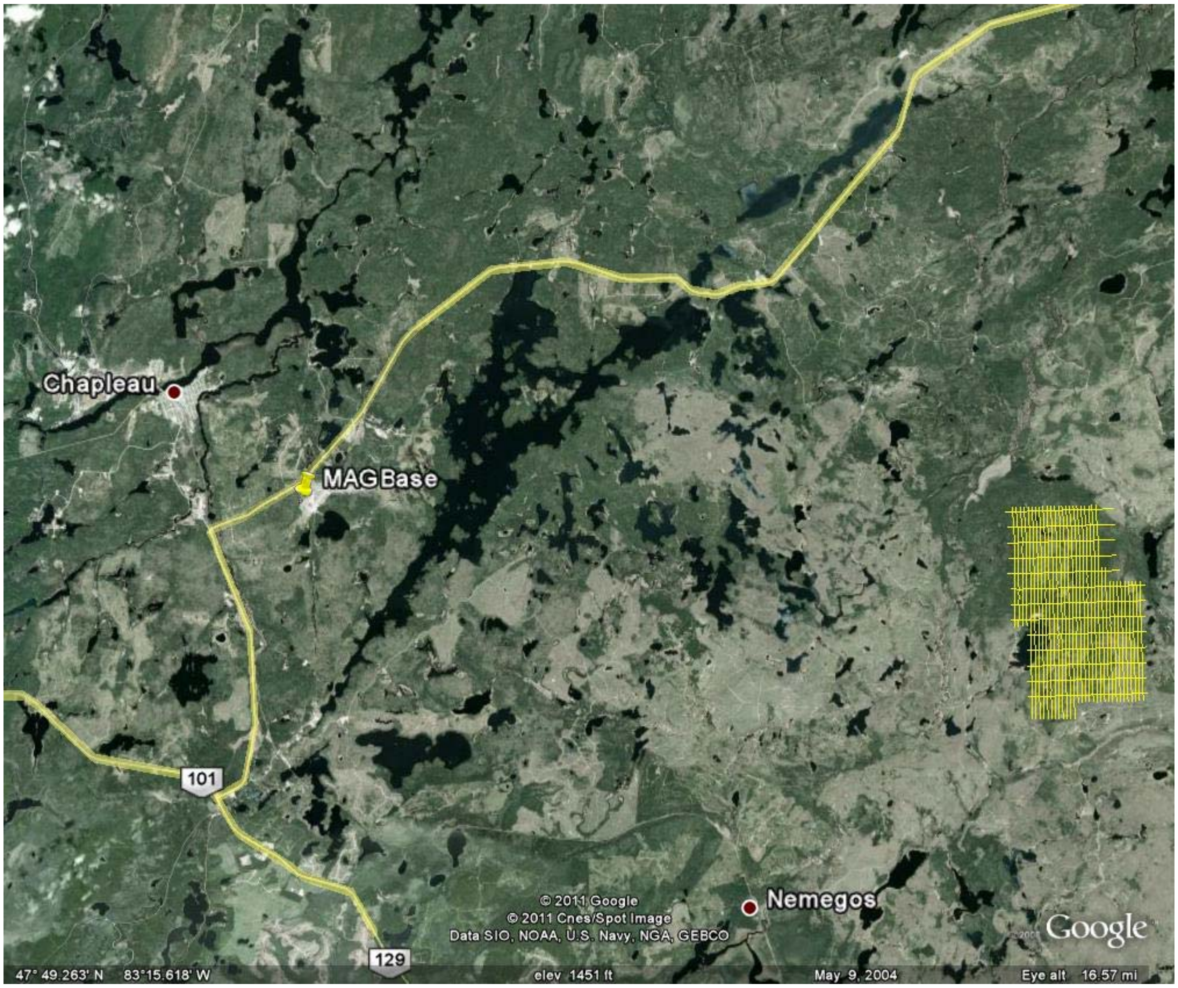


Figure 2 – Survey area location on Google Earth

The block was flown in a north to south (N 0° E azimuth) direction with traverse line spacing of 100 metres as depicted in Figure 3. Tie lines were flown perpendicular to the traverse lines at a spacing of 400 metres (N 90° E azimuth).For more detailed information on the flight spacing and direction see Table 1.

1.3 Topographic Relief and Cultural Features

Topographically, the block exhibits a shallow relief with an elevation ranging from 413 to 587 metres above mean sea level over an area of 16 square kilometres (Figure 3). There are various rivers and streams running through the survey area which connect various lakes and wetlands. The most notable lake is Lackner Lake located a long the west side of the block. There are limted signs of visable culture such as roads, trails located throughout the survey area.

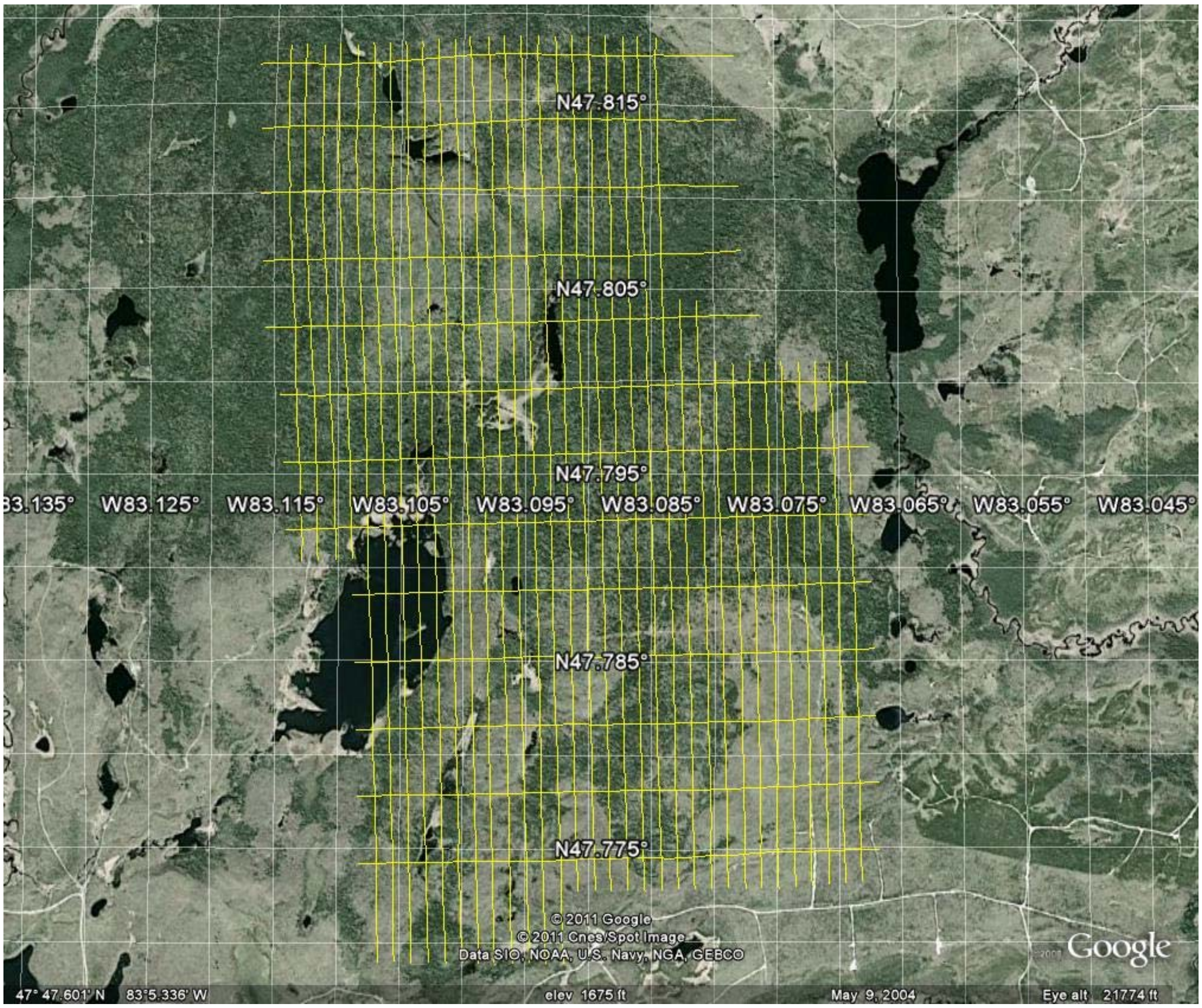


Figure 3 – Flight path over a Google Earth Image.

The block is covered by numerous mining claims, which are shown in Appendix A, and are plotted on all maps. The survey area is covered by NTS (National Topographic Survey) of Canada sheets 041O14.

2. DATA ACQUISITION

2.1 Survey Area

The survey block (see Figure 3 and Appendix A) and general flight specifications are as follows:

Table 1 - Survey Specifications

Survey block	Traverse Line spacing (m)	Area (Km^2)	Planned[1] Line-km	Actual Line-km	Flight direction	Line numbers
Lackner	Traverse: 100	16	146	149	N 0° E / N 180° E	L1000-L1330
	Tie: 400		40	40	N90° E / N 270° E	T1800-T1920
TOTAL		16	186	189		

Survey block boundaries co-ordinates are provided in Appendix B.

2.2 Survey Operations

Survey operations were based out of Chapleau in Ontario from February 20th to February 21st, 2010. The following table shows the timing of the flying.

Table 2 - Survey schedule

Date	Flight #	Block	Crew location	Comments
20-Feb-11	1	Lackner	Chapleau,ON	164km flown
21-Feb-11	2	Lackner	Chapleau,ON	Remaining kms flown

[1] Note: Actual Line kilometres represent the total line kilometres in the final database. These line-km normally exceed the Planned line-km, as indicated in the survey NAV files.

2.3 Flight Specifications

During the survey the helicopter was maintained at a mean altitude of 77 metres above the ground with a nominal survey speed of 80 km/hour. This allowed for a nominal EM bird terrain clearance of 42 metres and a magnetic sensor clearance of 64 metres.

The on board operator was responsible for monitoring 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 features.

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. The data were then uploaded via ftp to the Geotech office in Aurora for daily quality assurance and quality control by qualified personnel.

2.4 Aircraft and Equipment

2.4.1 Survey Aircraft

The survey was flown using a Eurocopter Aerospatiale (Astar) 350 B3 helicopter, registration C-GEOJ. The helicopter is owned and operated by Geotech Aviation. Installation of the geophysical and ancillary equipment was carried out by a Geotech Ltd crew.

2.4.2 Electromagnetic System

The electromagnetic system was a Geotech Time Domain EM (VTEM) system. The configuration is as indicated in Figure 4.

The VTEM Receiver and transmitter coils were in concentric-coplanar and Z-direction oriented configeration. The receiver system for the project also included a coincident-coaxial X-direction coil to measure the in-line dB/dt and calculate B-Field responses. The EM bird was towed at a mean distance of 35 metres below the aircraft as shown in Figure 4 and Figure 6. The receiver decay recording scheme is shown in Figure 5.

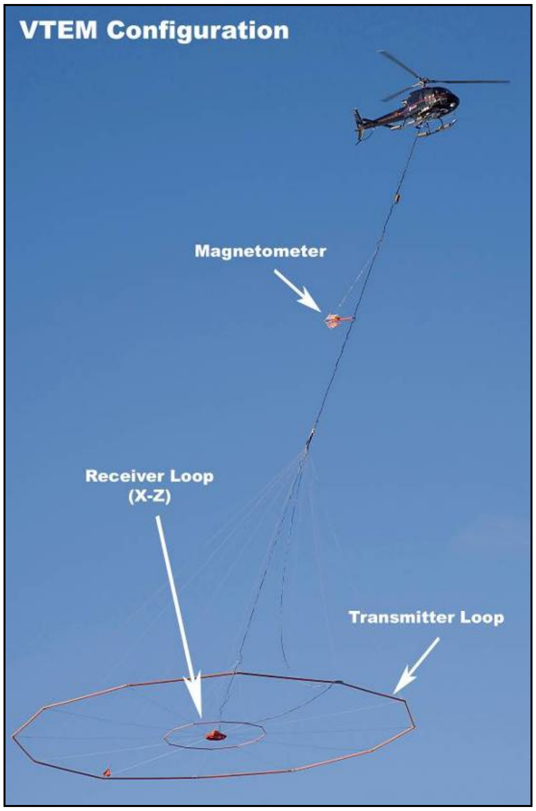


Figure 4 - VTEM Configuration, with magnetometer.

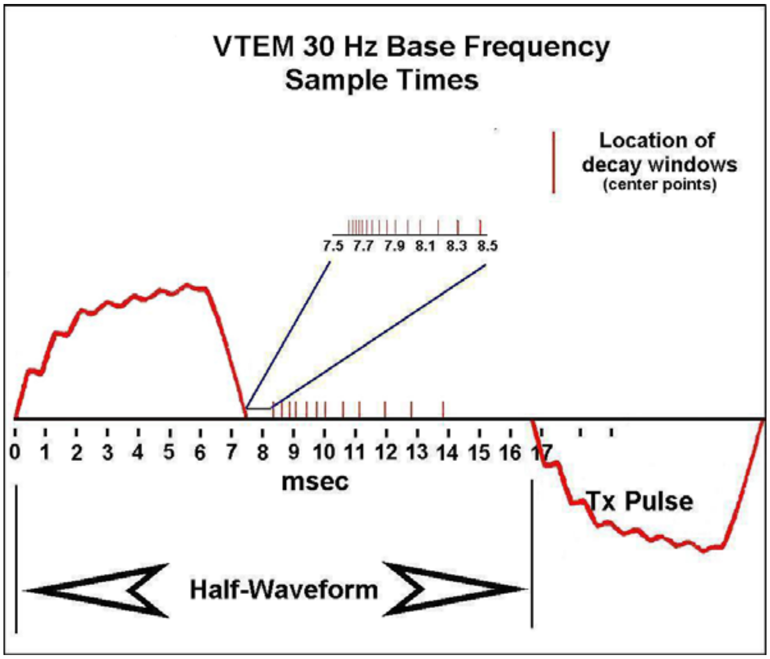


Figure 5 - VTEM Waveform & Sample Times

The VTEM decay sampling scheme is shown in Table 3 below. Thirty-two time measurement gates were used for the final data processing in the range from 96 to 7036 µ sec.

Table 3 - Decay Sampling Scheme

VTEM Decay Sampling Scheme				
Index	**Middle**	**Start**	**End**	**Window**
	Microseconds			
14	96	90	103	13
15	110	103	118	15
16	126	118	136	18
17	145	136	156	20
18	167	156	179	23
19	192	179	206	27
20	220	206	236	30
21	253	236	271	35
22	290	271	312	40
23	333	312	358	46
24	383	358	411	53
25	440	411	472	61
26	505	472	543	70
27	580	543	623	81
28	667	623	716	93
29	766	716	823	107
30	880	823	945	122
31	1,010	945	1,086	141
32	1,161	1,086	1,247	161
33	1,333	1,247	1,432	185
34	1,531	1,432	1,646	214
35	1,760	1,646	1,891	245
36	2,021	1,891	2,172	281
37	2,323	2,172	2,495	323
38	2,667	2,495	2,865	370
39	3,063	2,865	3,292	427
40	3,521	3,292	3,781	490
41	4,042	3,781	4,341	560
42	4,641	4,341	4,987	646
43	5,333	4,987	5,729	742
44	6,125	5,729	6,581	852
45	7,036	6,581	7,560	979

VTEM system parameters:

Transmitter Section

- Transmitter coil diameter: 26 m
- Number of turns: 4
- Transmitter base frequency: 30 Hz
- Peak current: 188 A
- Pulse width: 7.15 ms
- Duty cycle: 43%
- Wave form shape: trapezoid
- Peak dipole moment: 399,258 nIA
- Nominal EM Bird terrain clearance: 42 metres above the ground
- Effective coil area: 2123 m^2

Receiver Section

X-Coil

- X Coil diameter: 0.32 m
- Number of turns: 245
- Effective coil area: 19.69 m^2

Z-Coil

- Z-Coil coil diameter: 1.2 m
- Number of turns: 100
- Effective coil area: 113.04 m^2

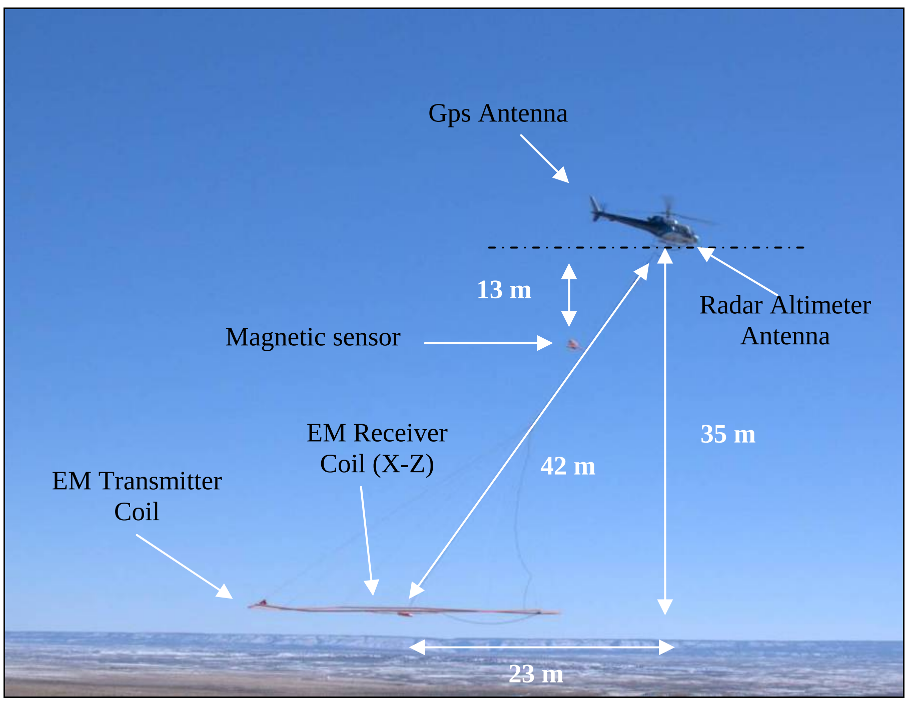


Figure 6 - VTEM System Configuration

2.4.3 Airborne magnetometer

The magnetic sensor utilized for the survey was Geometrics optically pumped cesium vapour magnetic field sensor mounted 13 metres below the helicopter, as shown in Figure 6. The sensitivity of the magnetic sensor is 0.02 nanoTesla (nT) at a sampling interval of 0.1 seconds.

2.4.4 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 (Figure 6).

2.4.5 GPS Navigation System

The navigation system used was a Geotech PC104 based navigation system utilizing a NovAtel's CDGPS (Canada-Wide Differential Global Positioning System Correction Service) 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 (Figure 6). As many as 11 GPS and two CDGPS satellites may be monitored at any one time. The positional accuracy or circular error probability (CEP) is 1.8 m, with CDGPS active, it is 1.0 m. The co-ordinates of the block were set-up prior to the survey and the information was fed into the airborne navigation system.

2.4.6 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. The data type and sampling interval as provided in Table 4.

Table 4 - Acquisition Sampling Rates

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

2.5 Base Station

A combined 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 behind the maintenance garage at the airport (47º49.1290 N, 83º 21.6425 W); away from electric transmission lines and moving ferrous objects such as motor vehicles. The base station data were 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:

Project Manager:	Darren Tuck (office)
Data QA/QC:	Neil Fiset (office)
Crew chief:	Gavin Boege
System Operators:	Jan Dabrowski

The survey pilot and the mechanical engineer were employed directly by the helicopter operator – Geotech Aviation.

Pilot:	Claude Noel
Mechanical Engineer:	Nathan Shirey

Office:

Preliminary Data Processing:	Neil Fiset
Final Data Processing:	Neil Fiset
Final Data QA/QC:	Neil Fiset
Reporting/Mapping:	Wendy Acorn

Data acquisition phase was carried out under the supervision of Andrei Bagrianski, P. Geo, Chief Operating Officer. Processing phase was carried out under the supervision of Harish Kumar, P.Geo, Assistant Manager of Data Processing. The interpretation phase was under the supervision of Alex Prikhodko, P. Geo.The customer relations were looked after by Blair Walker.

4. DATA PROCESSING AND PRESENTATION

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

4.1 Flight Path

The flight path, recorded by the acquisition program as WGS 84 latitude/longitude, was converted into the NAD83 Datum, UTM Zone 17 North 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 easting's (x) and UTM northing's (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 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 15 metres. This filter is a symmetrical 1 sec linear filter.

The results are presented as stacked profiles of EM voltages for the time gates, in linear - logarithmic scale for the B-field Z component and dB/dt responses in the Z and X components.

VTEM has two receiver coil orientations. Z-axis coil is oriented parallel to the transmitter coil axis and both are horizontal to the ground. The X-axis coil is oriented parallel to the graund and along the line-of-flight. This combined two coil configuration provides information on the position, depth, dip and thickness of a conductor. Generalized modeling results of VTEM data, are shown in Appendix E.

In general X-component data produce cross-over type anomalies: from "+ to – "in flight direction of flight for "thin" subvertical targets and from "- to +" in direction of flight for "thick" targets. Z component data produce double peak type anomalies for "thin" subvertical targets and single peak for "thick" targets.

The limits and change-over of "thin-tick" depends on dimensions of a TEM system. For example, for VTEM-26 the border corresponds to diameter of the system (Appendix E, Fig.E-16).

Graphical representations of the VTEM transmitter input current and the output voltage of the receiver coil are shown in Appendix C.

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 traverse lines. A micro-levelling procedure was applied to remove persistent low-amplitude components of flight-line noise remaining in the data.

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 25 metres 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 scale of 1:10,000 for best representation of the survey size and line spacing. The coordinate/projection system used was NAD83 Datum, UTM Zone 17 North. All maps show the mining claims, flight path trace and topographic data; latitude and longitude are also noted on maps.

The preliminary and final results of the survey are presented as EM profiles, a late-time gate gridded EM channel, and a color magnetic TMI contour map. The following maps are presented on paper;

- VTEM dB/dt profiles Z Component, Time Gates 0.220 – 7.036 ms in linear – logarithmic scale.
- VTEM B-Field profiles Z Component, Time Gates 0.220 – 7.036 ms in linear – logarithmic scale.
- Total magnetic intensity (TMI) colour image and contours.

5.3 Digital Data

- Two copies of the data and maps on DVD were prepared to accompany the report. Each DVD contains a digital file of the line data in GDB Geosoft Montaj format as well as the maps in Geosoft Montaj Map and PDF format.

- DVD structure.

Data	contains databases, grids and maps, as described below.
Report	contains a copy of the report and appendices in PDF format.

Databases in Geosoft GDB format, containing the channels listed in Table 5.

Table 5 - Geosoft GDB Data Format

Channel name	Units	Description
X:	metres	UTM Easting NAD83 Zone 17 North
Y:	metres	UTM Northing NAD83 Zone 17 North
Longitude:	Decimal Degrees	WGS 84 Longitude data
Latitude:	Decimal Degrees	WGS 84 Latitude data
Z:	metres	GPS antenna elevation (above Geoid)
Radar:	metres	helicopter terrain clearance from radar altimeter
Radarb:	metres	Calculated EM bird terrain clearance from radar altimeter
DEM:	metres	Digital Elevation Model
Gtime:	Seconds of the day	GPS time
Mag1:	nT	Raw Total Magnetic field data
Basemag:	nT	Magnetic diurnal variation data
Mag2:	nT	Diurnal corrected Total Magnetic field data
Mag3:	nT	Levelled Total Magnetic field data
SFz[14]:	$pV/(A*m^4)$	Z dB/dt 96 microsecond time channel
SFz[15]:	$pV/(A*m^4)$	Z dB/dt 110 microsecond time channel
SFz[16]:	$pV/(A*m^4)$	Z dB/dt 126 microsecond time channel
SFz[17]:	$pV/(A*m^4)$	Z dB/dt 145 microsecond time channel
SFz[18]:	$pV/(A*m^4)$	Z dB/dt 167 microsecond time channel
SFz[19]:	$pV/(A*m^4)$	Z dB/dt 192 microsecond time channel
SFz[20]:	$pV/(A*m^4)$	Z dB/dt 220 microsecond time channel
SFz[21]:	$pV/(A*m^4)$	Z dB/dt 253 microsecond time channel
SFz[22]:	$pV/(A*m^4)$	Z dB/dt 290 microsecond time channel
SFz[23]:	$pV/(A*m^4)$	Z dB/dt 333 microsecond time channel
SFz[24]:	$pV/(A*m^4)$	Z dB/dt 383 microsecond time channel
SFz[25]:	$pV/(A*m^4)$	Z dB/dt 440 microsecond time channel
SFz[26]:	$pV/(A*m^4)$	Z dB/dt 505 microsecond time channel
SFz[27]:	$pV/(A*m^4)$	Z dB/dt 580 microsecond time channel
SFz[28]:	$pV/(A*m^4)$	Z dB/dt 667 microsecond time channel
SFz[29]:	$pV/(A*m^4)$	Z dB/dt 766 microsecond time channel
SFz[30]:	$pV/(A*m^4)$	Z dB/dt 880 microsecond time channel
SFz[31]:	$pV/(A*m^4)$	Z dB/dt 1010 microsecond time channel
SFz[32]:	$pV/(A*m^4)$	Z dB/dt 1161 microsecond time channel
SFz[33]:	$pV/(A*m^4)$	Z dB/dt 1333 microsecond time channel
SFz[34]:	$pV/(A*m^4)$	Z dB/dt 1531 microsecond time channel
SFz[35]:	$pV/(A*m^4)$	Z dB/dt 1760 microsecond time channel
SFz[36]:	$pV/(A*m^4)$	Z dB/dt 2021 microsecond time channel
SFz[37]:	$pV/(A*m^4)$	Z dB/dt 2323 microsecond time channel
SFz[38]:	$pV/(A*m^4)$	Z dB/dt 2667 microsecond time channel
SFz[39]:	$pV/(A*m^4)$	Z dB/dt 3063 microsecond time channel
SFz[40]:	$pV/(A*m^4)$	Z dB/dt 3521 microsecond time channel
SFz[41]:	$pV/(A*m^4)$	Z dB/dt 4042 microsecond time channel
SFz[42]:	$pV/(A*m^4)$	Z dB/dt 4641 microsecond time channel
SFz[43]:	$pV/(A*m^4)$	Z dB/dt 5333 microsecond time channel
SFz[44]:	$pV/(A*m^4)$	Z dB/dt 6125 microsecond time channel
SFz[45]:	$pV/(A*m^4)$	Z dB/dt 7036 microsecond time channel
SFx[20]:	$pV/(A*m^4)$	X dB/dt 220 microsecond time channel
SFx[21]:	$pV/(A*m^4)$	X dB/dt 253 microsecond time channel
SFx[22]:	$pV/(A*m^4)$	X dB/dt 290 microsecond time channel
SFx[23]:	$pV/(A*m^4)$	X dB/dt 333 microsecond time channel
SFx[24]:	$pV/(A*m^4)$	X dB/dt 383 microsecond time channel

Channel name	Units	Description
SFx[25]:	pV/(A*m^4)	X dB/dt 440 microsecond time channel
SFx[26]:	pV/(A*m^4)	X dB/dt 505 microsecond time channel
SFx[27]:	pV/(A*m^4)	X dB/dt 580 microsecond time channel
SFx[28]:	pV/(A*m^4)	X dB/dt 667 microsecond time channel
SFx[29]:	pV/(A*m^4)	X dB/dt 766 microsecond time channel
SFx[30]:	pV/(A*m^4)	X dB/dt 880 microsecond time channel
SFx[31]:	pV/(A*m^4)	X dB/dt 1010 microsecond time channel
SFx[32]:	pV/(A*m^4)	X dB/dt 1161 microsecond time channel
SFx[33]:	pV/(A*m^4)	X dB/dt 1333 microsecond time channel
SFx[34]:	pV/(A*m^4)	X dB/dt 1531 microsecond time channel
SFx[35]:	pV/(A*m^4)	X dB/dt 1760 microsecond time channel
SFx[36]:	pV/(A*m^4)	X dB/dt 2021 microsecond time channel
SFx[37]:	pV/(A*m^4)	X dB/dt 2323 microsecond time channel
SFx[38]:	pV/(A*m^4)	X dB/dt 2667 microsecond time channel
SFx[39]:	pV/(A*m^4)	X dB/dt 3063 microsecond time channel
SFx[40]:	pV/(A*m^4)	X dB/dt 3521 microsecond time channel
SFx[41]:	pV/(A*m^4)	X dB/dt 4042 microsecond time channel
SFx[42]:	pV/(A*m^4)	X dB/dt 4641 microsecond time channel
SFx[43]:	pV/(A*m^4)	X dB/dt 5333 microsecond time channel
SFx[44]:	pV/(A*m^4)	X dB/dt 6125 microsecond time channel
SFx[45]:	pV/(A*m^4)	X dB/dt 7036 microsecond time channel
BFz	(pV*ms)/(A*m^4)	Z B-Field data for time channels 14 to 45
BFx	(pV*ms)/(A*m^4)	X B-Field data for time channels 20 to 45
PLM:		60 Hz power line monitor

Electromagnetic B-field and dB/dt Z component data is found in array channel format between indexes 14 – 45, and X component data from 20 – 45, as described above.

- Database of the VTEM Waveform “11065_waveform_final.gdb” in Geosoft GDB format, containing the following channels:

  Time: Sampling rate interval, 5.2083 microseconds
  Rx_Volt: Output voltage of the receiver coil (Volt)
  Tx_Current: Output current of the transmitter (Amp)

- Grids in Geosoft GRD format, as follows:

  MAG: Total magnetic intensity (nT)

  A Geosoft .GRD file has a .GI metadata file associated with it, containing grid projection information. A grid cell size of 25 metres was used.

- Maps at 1:10,000 in Geosoft MAP format, as follows:

11065_10k_dBdtz:	dB/dt profiles Z Component, Time Gates 0.220 – 7.036 ms in linear – logarithmic scale.
11065_10k_bfield:	B-field profiles Z Component, Time Gates 0.220 – 7.036 ms in linear – logarithmic scale.
11065_10k_TMI:	Total magnetic intensity (TMI) color image and contours.

  Maps are also presented in PDF format.

  1:50,000 topographic vectors were taken from the NRCAN Geogratis database at; http://geogratis.gc.ca/geogratis/en/index.html.

- A Google Earth file *11065_Canada.kml* showing the flight path of the block is included. Free versions of Google Earth software from: http://earth.google.com/download-earth.html

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

A helicopter-borne versatile time domain electromagnetic (VTEM) geophysical survey has been completed over the Lackner Property near Chapleau, Ontario.

The total area coverage is 16 km^2. Total survey line coverage is 186 line kilometres. The principal sensors included a Time Domain EM system and a magnetometer. Results have been presented as stacked profiles, and contour color images at a scale of 1:10,000. No formal Interpretation has been included.

6.2 Recommendations

Based on the geophysical results obtained, a number of interesting EM anomalies that were identified across the property. The magnetic results may also contain worthwhile information in support of exploration targets of interest. We therefore recommend a detailed interpretation of the available geophysical data, in conjunction with the geology. It should include 2D - 3D inversion modeling analyses and magnetic derivative analysis prior to ground follow up and drill testing.

Respectfully submitted[6],

Neil Fiset
Geotech Ltd.

Harish Kumar, P.Geo.
Geotech Ltd.

Alexander Prikhodko, P.Geo.
Geotech Ltd.

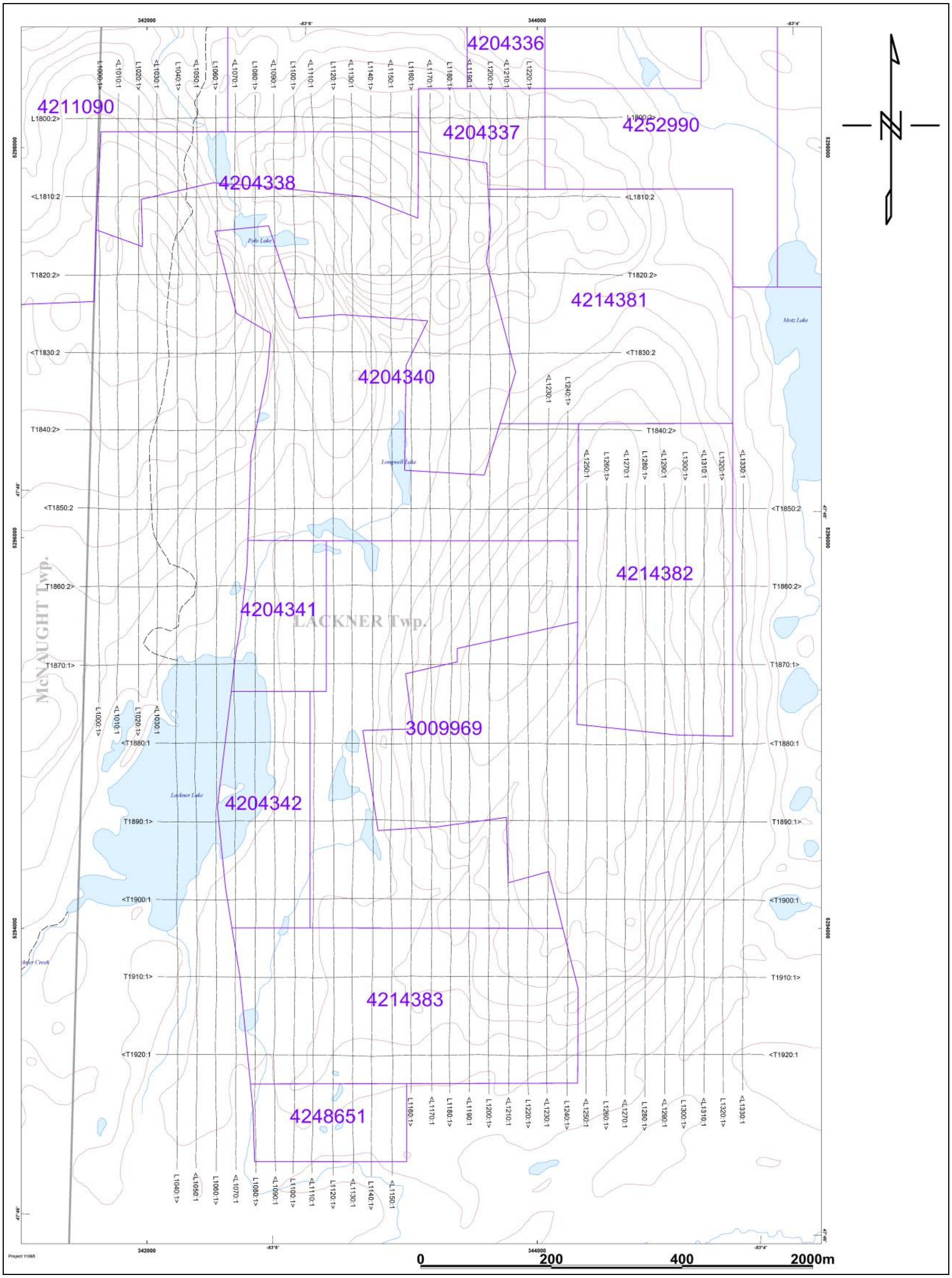
March 2011

[6]Final data processing of the EM and magnetic data were carried out by Neil fiset, from the office of Geotech Ltd. in Aurora, Ontario, under the supervision of Harish Kumar, Assitant Manager of Data Processing and Alexander Prikhodko, P.Geo., PhD, Senior Geophysicist, VTEM Interpretation Supervisor.

APPENDIX A

SURVEY BLOCK LOCATION MAP

Survey Overview of the Block



Mining Claims for the block

APPENDIX B

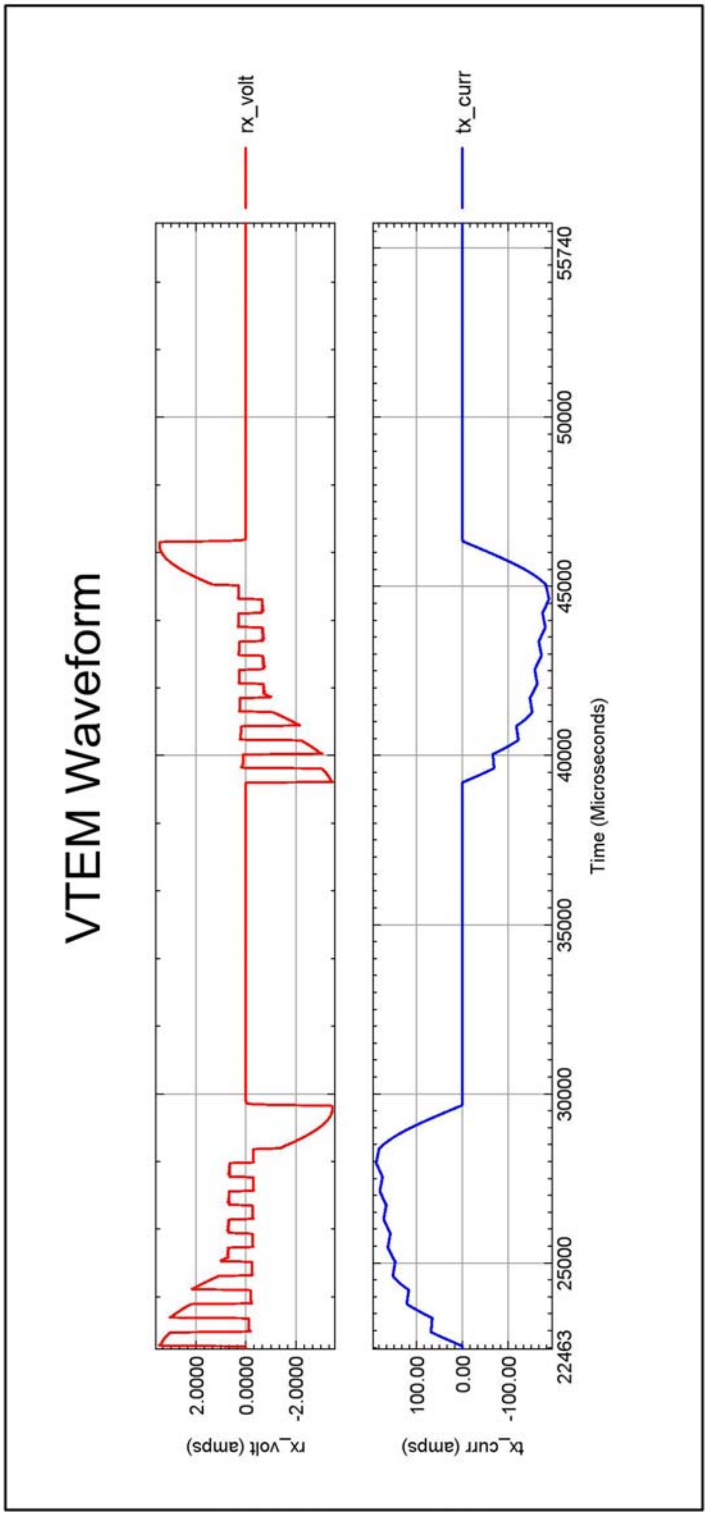
SURVEY BLOCK COORDINATES

(WGS 84, UTM Zone 17 North)

X	Y
341726.8	5298217
341726.8	5295217
342135.4	5295217
342135.4	5292825
343330.7	5292782
343322	5293218
344552.3	5293197
345058.2	5293218
345128	5296218
344238.1	5296218
344220.6	5296603
344037.4	5296603
344020	5298217

APPENDIX C

VTEM WAVEFORM



APPENDIX E

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 transmitter loop that produces a primary field. The wave form is a bi-polar, modified square wave with a turn-on and turn-off at each end.

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.

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.

A set of models has been produced for the Geotech VTEM® system dB/dT Z and X components (see models E1 to E15). The Maxwell ™ modeling program (EMIT Technology Pty. Ltd. Midland, WA, AU) used to generate the following responses assumes a resistive half-space. 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.

As the plate dips and departs from the vertical position, the peaks become asymmetrical.

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.

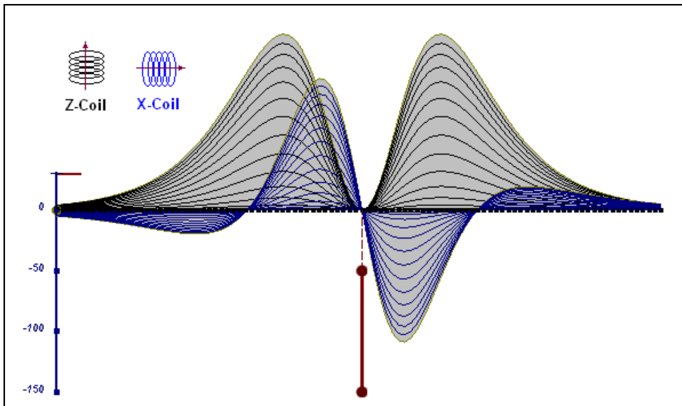


Fig E-1: vertical thin plate

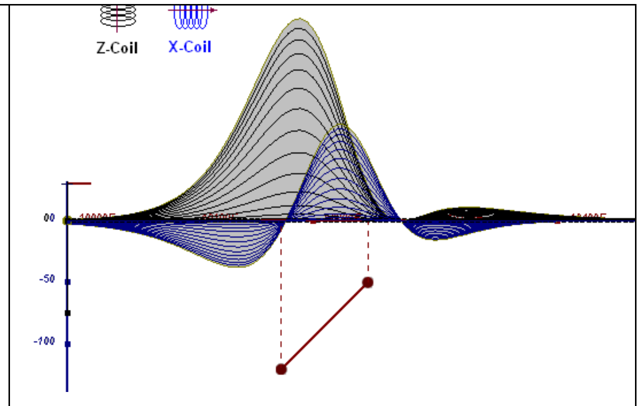


Fig E-2: inclined thin plate

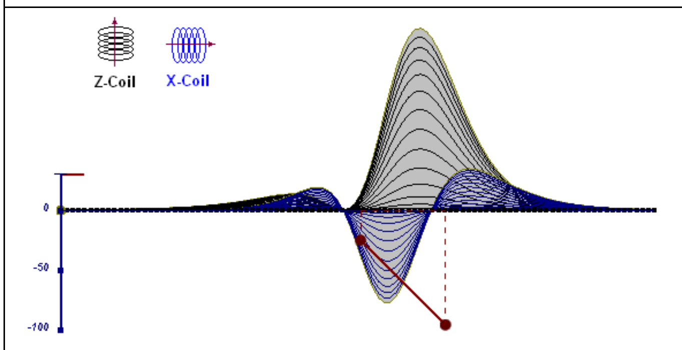


Fig E-3: inclined thin plate

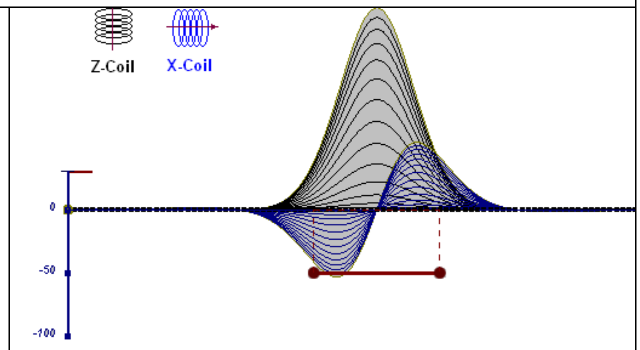


Fig E-4: horizontal thin plate

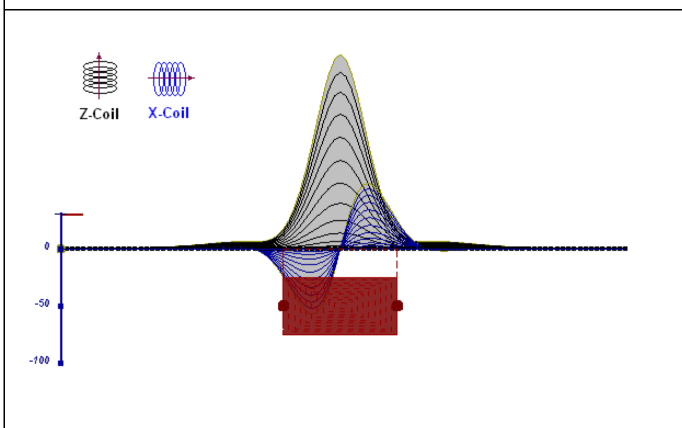


Figure E-5: horizontal thick plate (linear scale of the response)

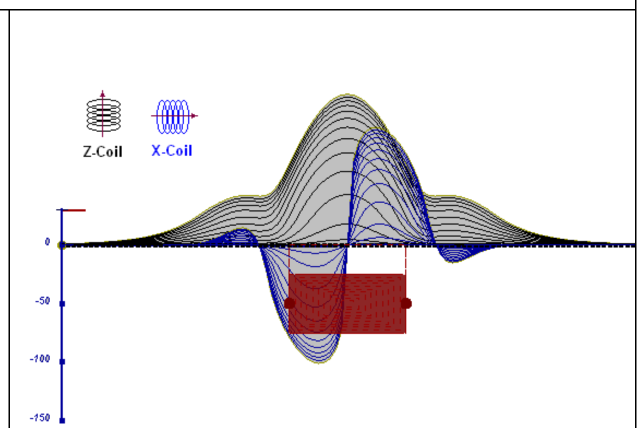


Figure E-6: horizontal thick plate (log scale of the response)

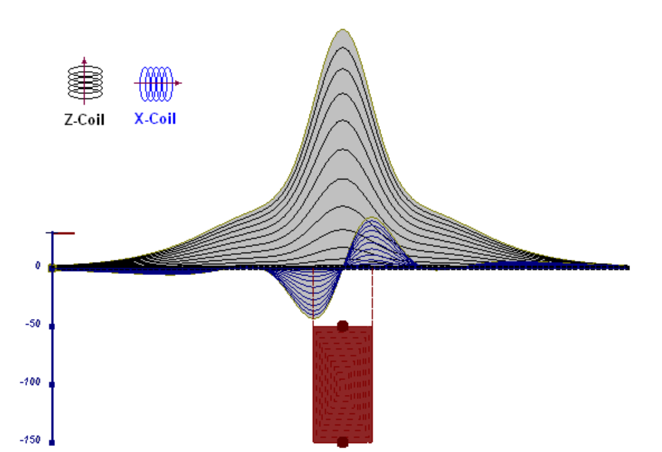


Figure E-7: vertical thick plate (linear scale of the response). 50 m depth

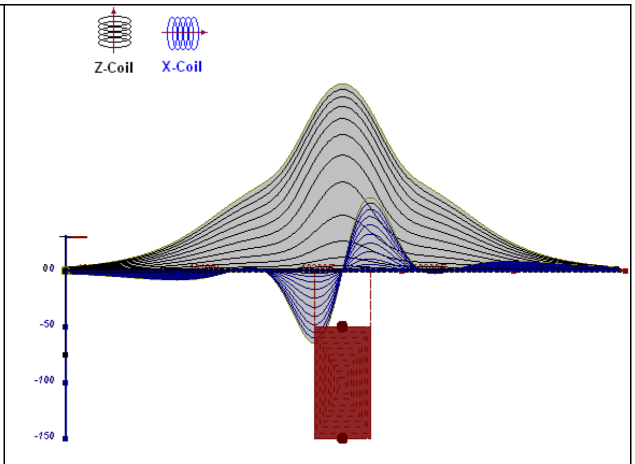


Figure E-8: vertical thick plate (log scale of the response). 50 m depth

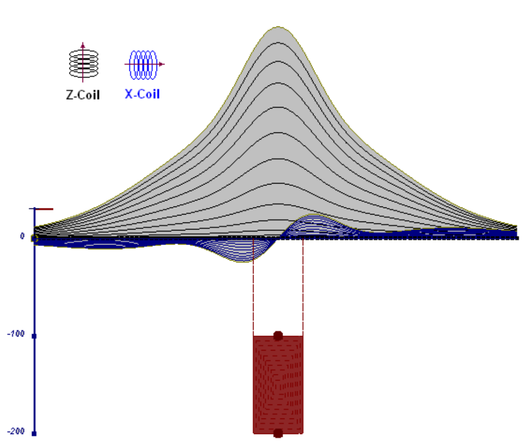


Fig E-9: vertical thick plate (linear scale of the response). 100 m depth

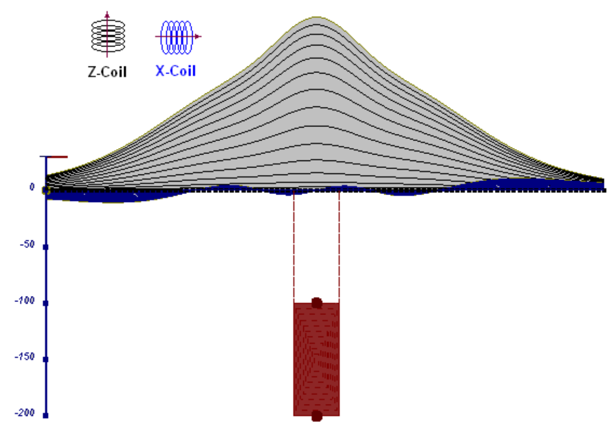


Fig E-10: vertical thick plate (linear scale of the response). Depth/hor.thickness=2.5

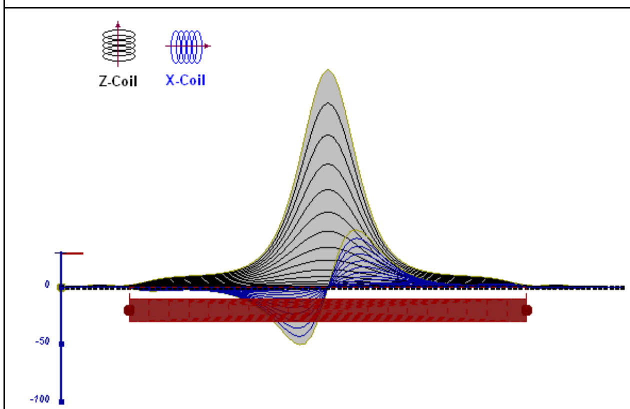


Fig E-10: horizontal thick plate (linear scale of the response)

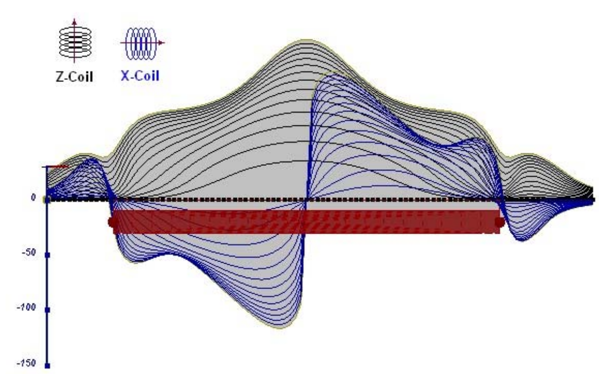


Fig E-11: horizontal thick plate (log scale of the response)

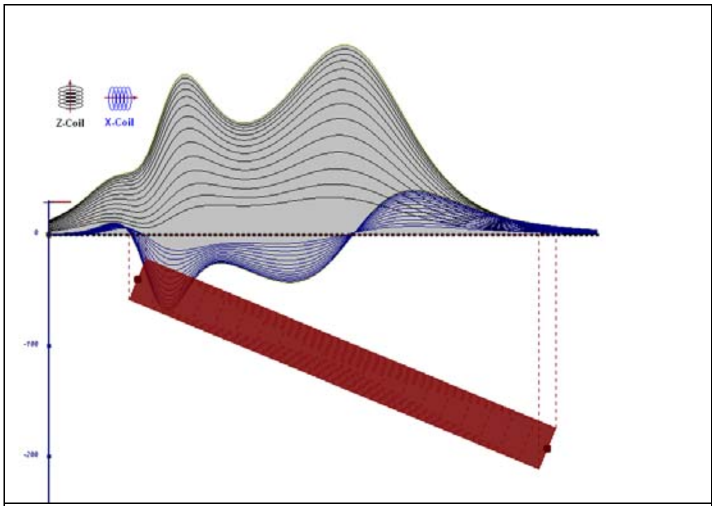


Fig E-12: inclined long thick plate

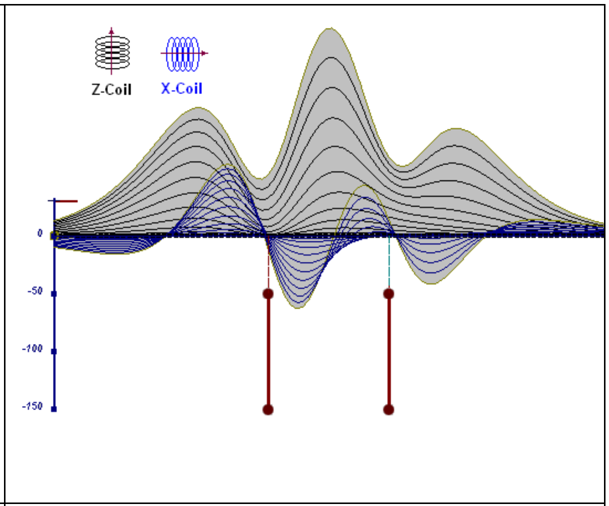


Fig E-13: two vertical thin plates

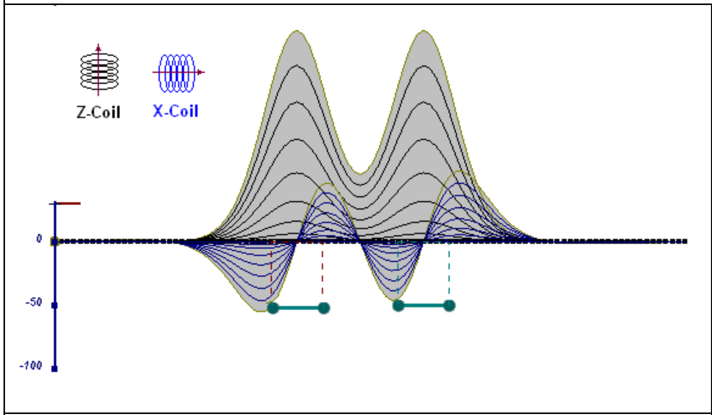


Fig E-14: two horizontal thin plates

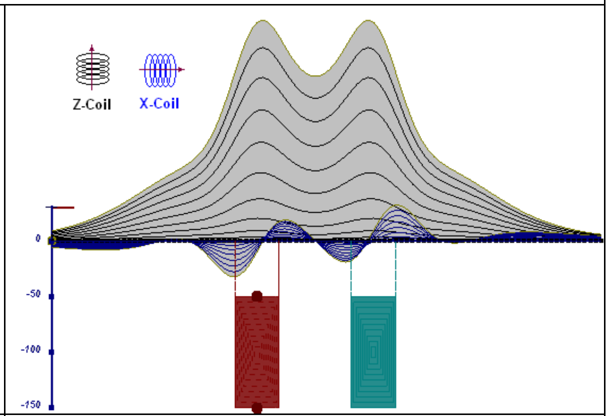


Fig E-15: two vertical thick plates

The same type of target but with different thickness, for example, creates different form of the response:

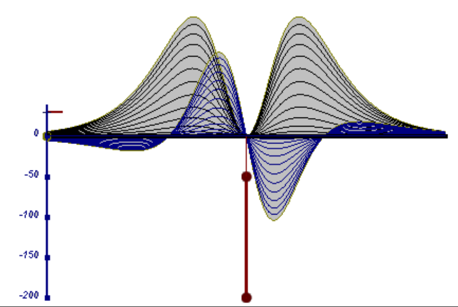
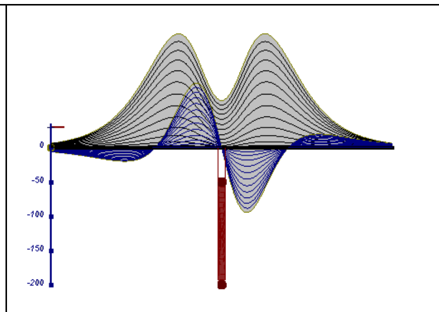
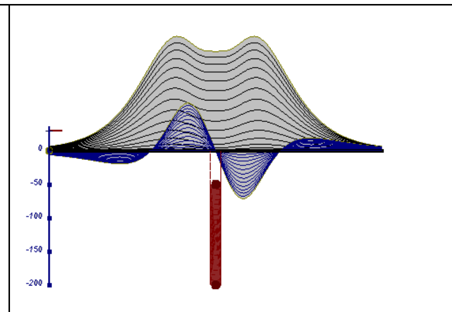
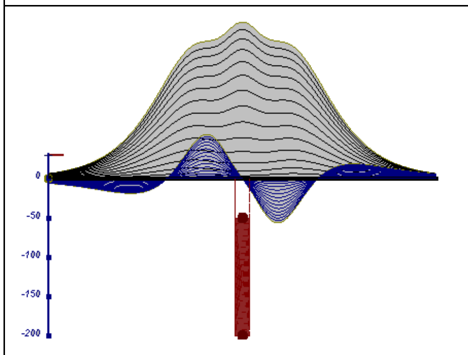
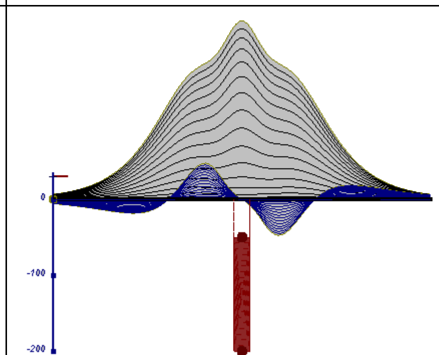
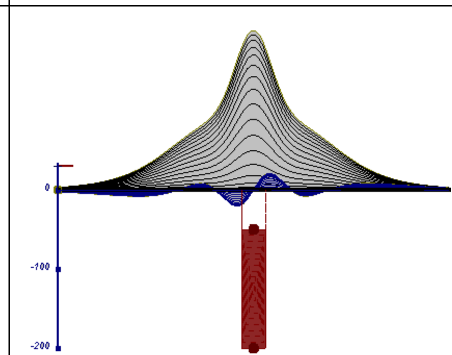
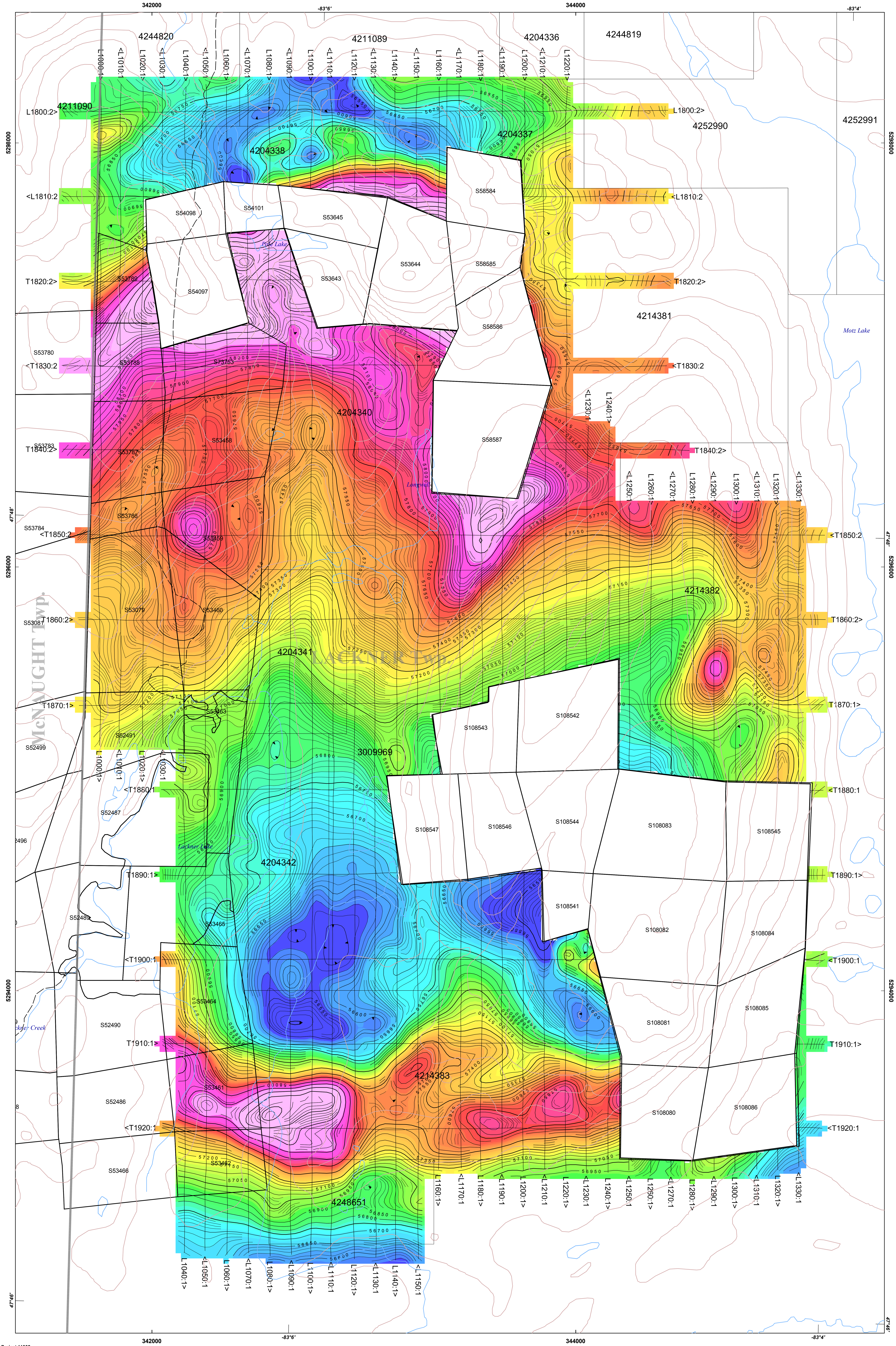
		
“thin”	10 m thickness	15 m thickness
		
18 m thickness	20 m thickness	30 m thickness

Fig.E-16 Conductive vertical plate, depth 50 m, strike length 200 m, depth extend 150 m.

Alexander Prikhodko, PhD, P.Geo
Geotech Ltd.

September 2010



Grid North
NAD83 UTM Zone 17N

Survey Specifications:

Survey date: Feb/11
Survey base: Chapleau, Ont.
Aircraft: AStar AS350B3 (Reg. C-GEOJ)
Nominal Survey line spacing: 100.0 metres
Nominal Survey line direction: N0°E
Nominal Tie line spacing: 400.0 metres
Nominal Tie line direction: N90°E
Nominal terrain clearance: 75 metres
EM Loop is 42 metres beneath helicopter
Magnetic sensor: 15m below hook

Instruments:

Geotech Time Domain Electromagnetic System (VTEM7)
with concentric Rx/Tx geometry
Transmitter Loop Diameter 26.0 m, Base Frequency 30 Hz
Dipole Moment 371600 NIA
Transmitter Wave Form: Trapezoid, Pulse Width 6.8 ms
Geometrics High Sensitivity Cesium Magnetometer
Mag Resolution 0.02 nT at 10 samples/sec

Map Projection:

Datum: NAD83
Projection: UTM zone 17N
Central Meridian: -81°
Central Scale Factor: 0.9996
False Easting, Northing: 500000, 0 m
Major Axis, Eccentricity: 6378137, 0.08181919104

Contour Intervals (nT):

10
50
250
1000

58989
58642
58407
58200
58035
57911
57818
57737
57678
57622
57574
57532
57482
57423
57373
57323
57270
57221
57174
57120
57069
57025
56990
56961
56934
56903
56871
56841
56814
56788
56759
56732
56708
56683
56656
56626
56597
56561

TMI
nT

scale 1:10000

200 0 200 400 600
metres
NAD83 / UTM zone 17N

6378366 Canada Inc.

Main Block

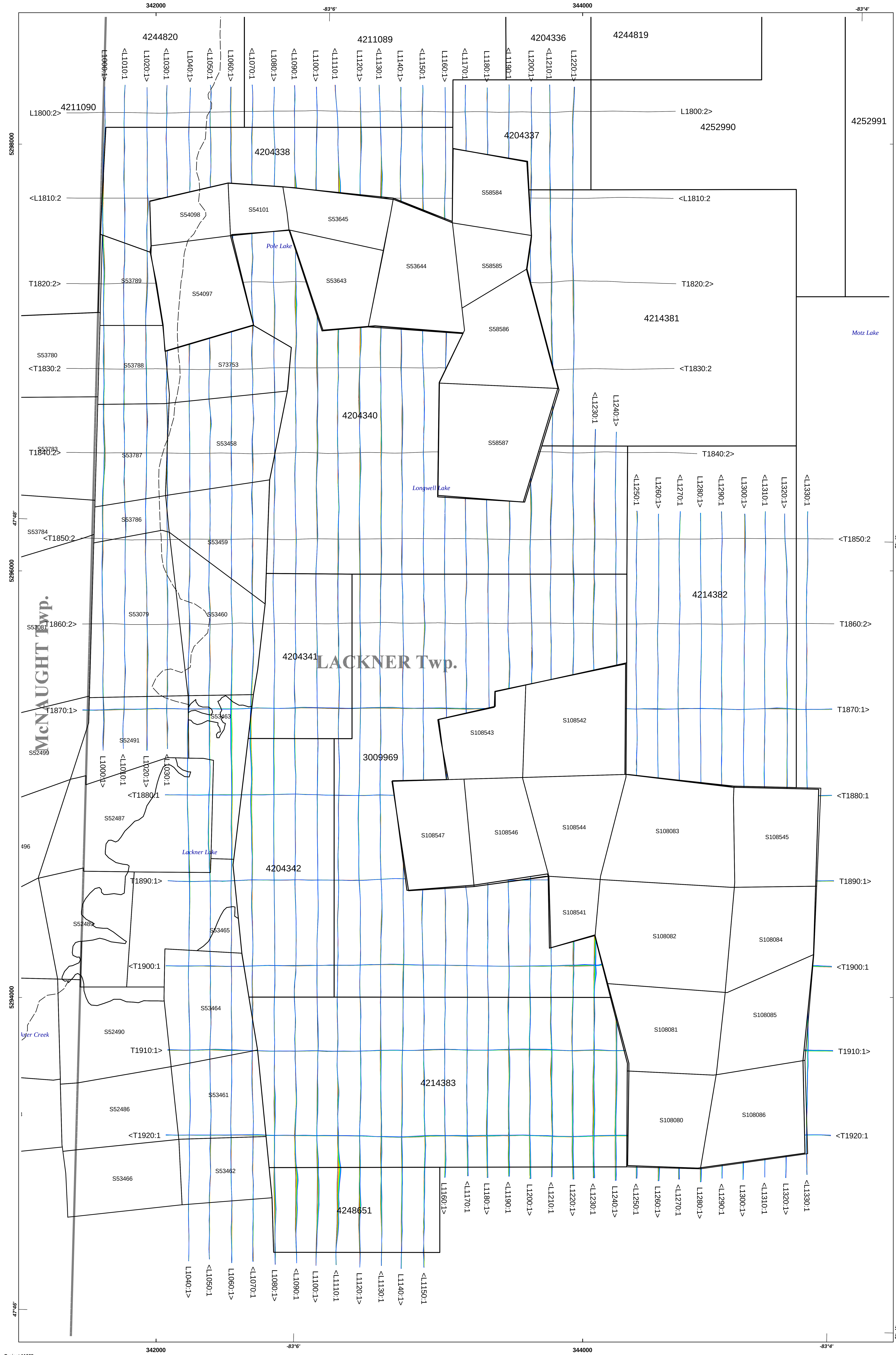
Chapleau Area, Ontario

Geotech VTEM System

Total Magnetic Intensity

Flown and processed by Geotech Ltd.
245 Industrial Parkway North,
Aurora, Ontario, Canada L4G 4C4
www.geotech.ca

Feb/11



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Z-Coil B-Field Profile Scale: 1mm = 0.01 (pV*ms)/(A*m^4)

(Linear between +/-1.0 (pV*ms)/(A*m^4), Logarithmic above 1.0 (pV*ms)/(A*m^4))

0.383 ms
0.440 ms
0.505 ms
0.580 ms
0.667 ms
0.766 ms
0.880 ms
1.010 ms
1.161 ms
1.333 ms
1.531 ms
1.760 ms
2.021 ms
2.323 ms
2.667 ms
3.063 ms
3.521 ms
4.042 ms
4.641 ms
5.333 ms
6.125 ms
7.036 ms

scale 1:10000

200 0 200 400 600
metres
NAD83 / UTM zone 17N

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Geotech VTEM System

EM B-Field Profiles

Time Channels 0.383 - 7.036 ms

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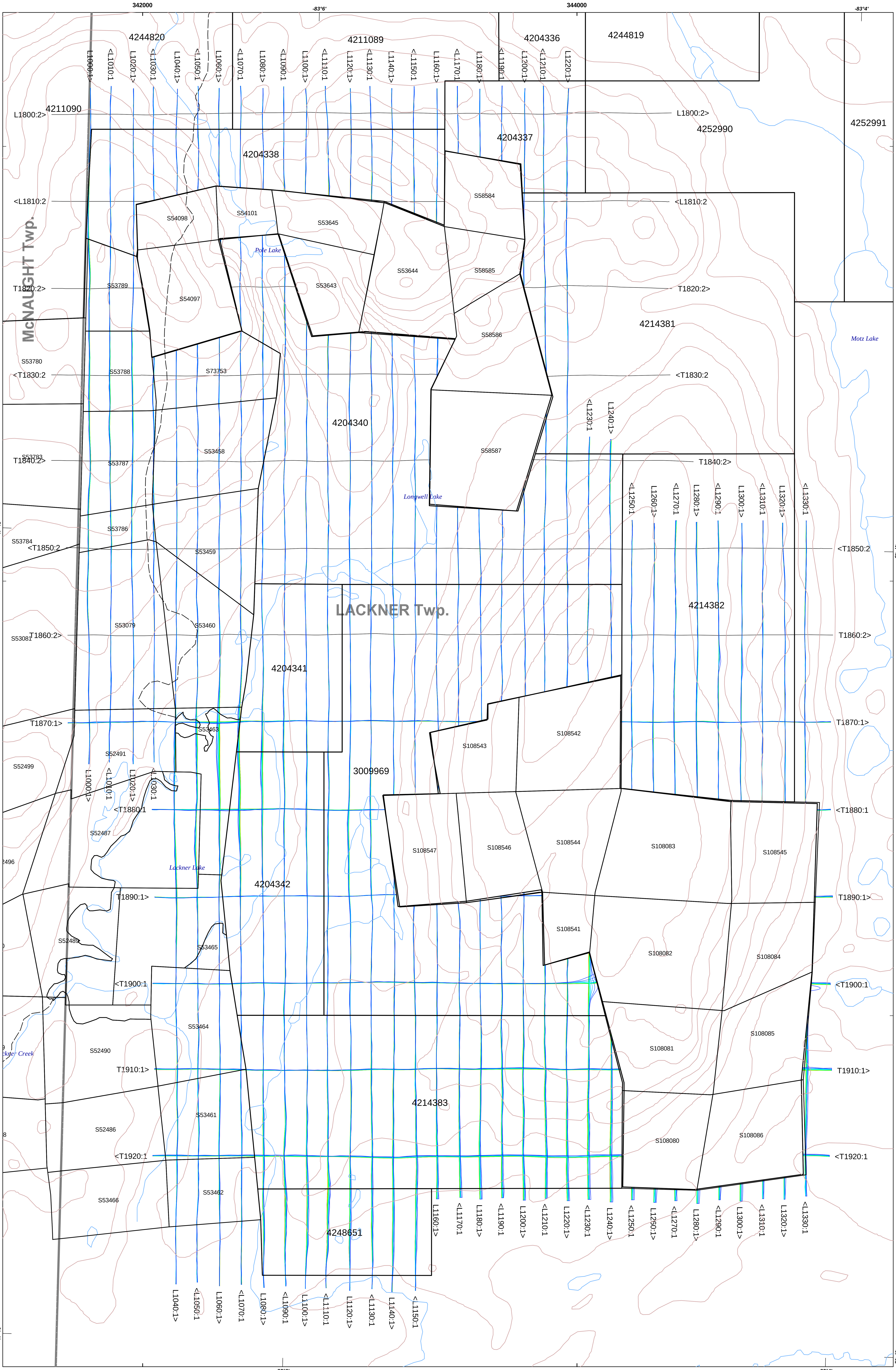

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5.333 ms
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7.036 ms

scale 1:10000
200 0 200 400 600
metres
NAD83 / UTM zone 17N

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Main Block
Chapleau Area, Ontario

Geotech VTEM System
EM dB/dt Profiles
Time Channels 0.383 - 7.036 ms

Flown and processed by Geotech Ltd.
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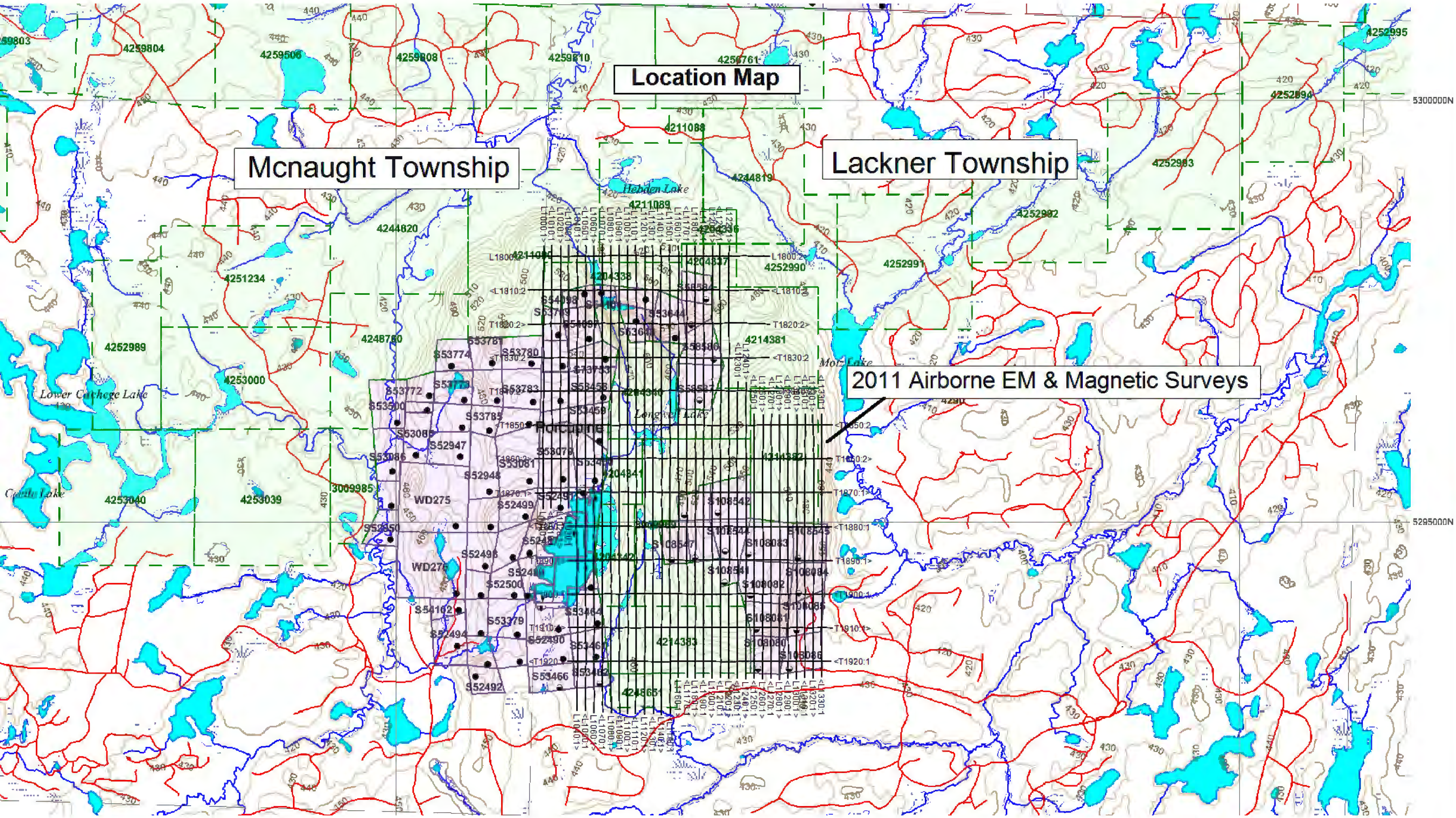
Feb/11

Project 11065


Location Map
Mcnaught Township
Lackner Township
2011 Airborne EM & Magnetic Surveys
5300000N
5295000N