2011 Assessment Work Report

A Helicopter-Borne Versatile Time Domain Electromagnetic (VTEM) and Aeromagnetic Geophysical Survey

Performed on Claims

4248129	4252241
4248130	4252242
4252233	4252243
4252234	4252244
4252235	4252245
4252236	4252246
4252237	4252247
4252238	4252248
4252239	4252249
4252240	4252250

Richardson Lake & Upper Scotch Lake Area

Thunder Bay Mining Division, Ontario

Prepared for

China Metallurgical Exploration Corp. (CME)

(145 Riviera Drive, Unit 7, Markham,
Ontario L3R 5J6, Canada)

Submitted by **Keystone Associates Inc**. for **CME**

July 15, 2011

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1. Introduction

The whole CME's Richardson Lake & Upper Scotch Lake Property and claims were acquired or staked/recorded by CME through 2009 and 2011 due to its potential of hosting Copper, Zinc, and Gold.

Since some of the current claims on this property were staked/recorded after the Helicopter-borne survey which was performed in September 2010, they are NOT part of this assessment work report. All the information, materials, and maps discussed in this report and its appendices only cover and refer to the claims recorded before the Helicopter-borne survey. Terms such as "the property", "this property", or "the Richardson Lake & Upper Scotch Lake Property" used below through the whole report for the purpose of convenient narration as well only refer to these claims recorded before the Helicopter-borne survey.

In May 2010, a CME geology team did a preliminary traverse visit to the property; and in September 2010, a Helicopter-borne survey was performed on this property to gather valuable magnetic and electromagnetic information as basis for further exploration work.

2. Claims, Location, and Access

2.1 Property Description and Ownership

The Property consists of 20 contiguous unpatented claims, with 12 claims in Richardson Lake Area and 8 claims in Upper Scotch Lake Area. The total claim units are 266 and the total area is approximately 43 km². Specific claim information is provided in **Table 1**. The claims location and layout, along with their coordinates are given in **Figure 1, and Table 2**.

Table 1: Property Claim Identity

Township/Area	Claim Number	Recording Date	Claim Due Date
RICHARDSON LAKE AREA	4248129	2009-Aug-04	2011-Aug-04
RICHARDSON LAKE AREA	4248130	2009-Aug-04	2011-Aug-04
RICHARDSON LAKE AREA	4252241	2009-Aug-04	2011-Aug-04
RICHARDSON LAKE AREA	4252242	2009-Aug-04	2011-Aug-04
RICHARDSON LAKE AREA	4252243	2009-Aug-04	2011-Aug-04
RICHARDSON LAKE AREA	4252244	2009-Aug-04	2011-Aug-04
RICHARDSON LAKE AREA	4252245	2009-Aug-04	2011-Aug-04
RICHARDSON LAKE AREA	4252246	2009-Aug-04	2011-Aug-04
RICHARDSON LAKE AREA	4252247	2009-Aug-04	2011-Aug-04
RICHARDSON LAKE AREA	4252248	2009-Aug-04	2011-Aug-04
RICHARDSON LAKE AREA	4252249	2009-Aug-04	2011-Aug-04

RICHARDSON LAKE AREA	4252250	2009-Aug-04	2011-Aug-04
UPPER SCOTCH LAKE AREA	4252233	2009-Aug-04	2011-Aug-04
UPPER SCOTCH LAKE AREA	4252234	2009-Aug-04	2011-Aug-04
UPPER SCOTCH LAKE AREA	4252235	2009-Aug-04	2011-Aug-04
UPPER SCOTCH LAKE AREA	4252236	2009-Aug-04	2011-Aug-04
UPPER SCOTCH LAKE AREA	4252237	2009-Aug-04	2011-Aug-04
UPPER SCOTCH LAKE AREA	4252238	2009-Aug-04	2011-Aug-04
UPPER SCOTCH LAKE AREA	4252239	2009-Aug-04	2011-Aug-04
UPPER SCOTCH LAKE AREA	4252240	2009-Aug-04	2011-Aug-04

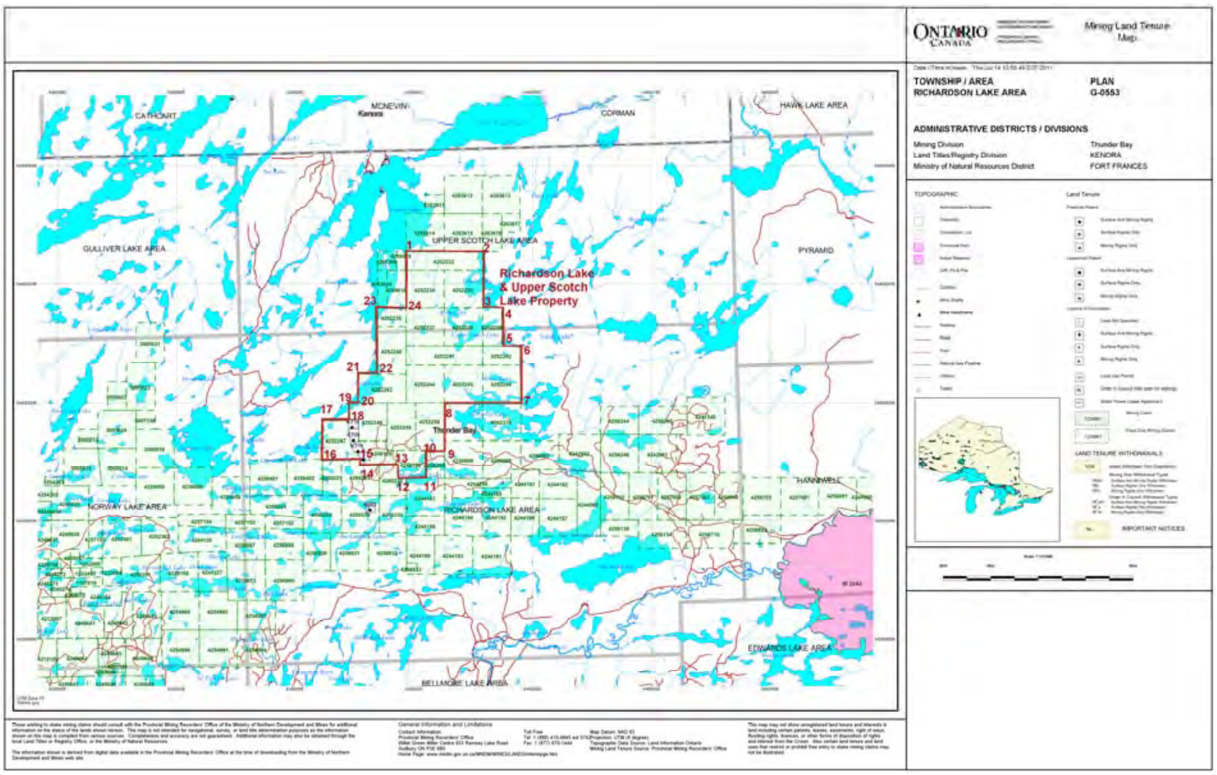


Figure 1: Claim Map

Table 2: Property Co-ordinates

Infl. Point	Longitude/Latitude		Infl. Point	Longitude/Latitude	
1	91° 9' 10.19" W	49° 9' 19.48" N	13	91° 9' 37.38" W	49° 4' 28.58" N
2	91° 6' 31.13" W	49° 9' 16.23" N	14	91° 10' 55.73" W	49° 4' 29.46" N
3	91° 6' 33.80" W	49° 7' 59.66" N	15	91° 10' 56.02" W	49° 4' 37.74" N
4	91° 5' 55.07" W	49° 7' 59.36" N	16	91° 12' 14.07" W	49° 4' 39.52" N
5	91° 5' 56.55" W	49° 7' 7.63" N	17	91° 12' 12.59" W	49° 5' 30.96" N
6	91° 5' 17.52" W	49° 7' 6.45" N	18	91° 11' 18.79" W	49° 5' 31.55" N

7	91° 5' 20.18" W	49° 5' 48.69" N	19	91° 11' 15.83" W	49° 5' 54.02" N
8	91° 7' 58.64" W	49° 5' 51.95" N	20	91° 10' 56.32" W	49° 5' 54.31" N
9	91° 8' 0.71" W	49° 4' 46.61" N	21	91° 10' 54.84" W	49° 6' 33.33" N
10	91° 8' 40.03" W	49° 4' 46.02" N	22	91° 10' 15.52" W	49° 6' 32.74" N
11	91° 8' 41.51" W	49° 4' 9.07" N	23	91° 10' 11.68" W	49° 8' 2.91" N
12	91° 9' 38.27" W	49° 4' 10.25" N	24	91° 9' 13.44" W	49° 8' 2.32" N

3. Property Location and Access

CME's Richardson Lake & Upper Scotch Lake Property is located in Richardson Lake & Upper Scotch Lake areas, Thunder Bay Mining Division, ON. The closest town is Upsala, approximately 45 km² to the East of the property. Thunder Bay is approximately 190 km² in the Southeast (**Figure 2**).

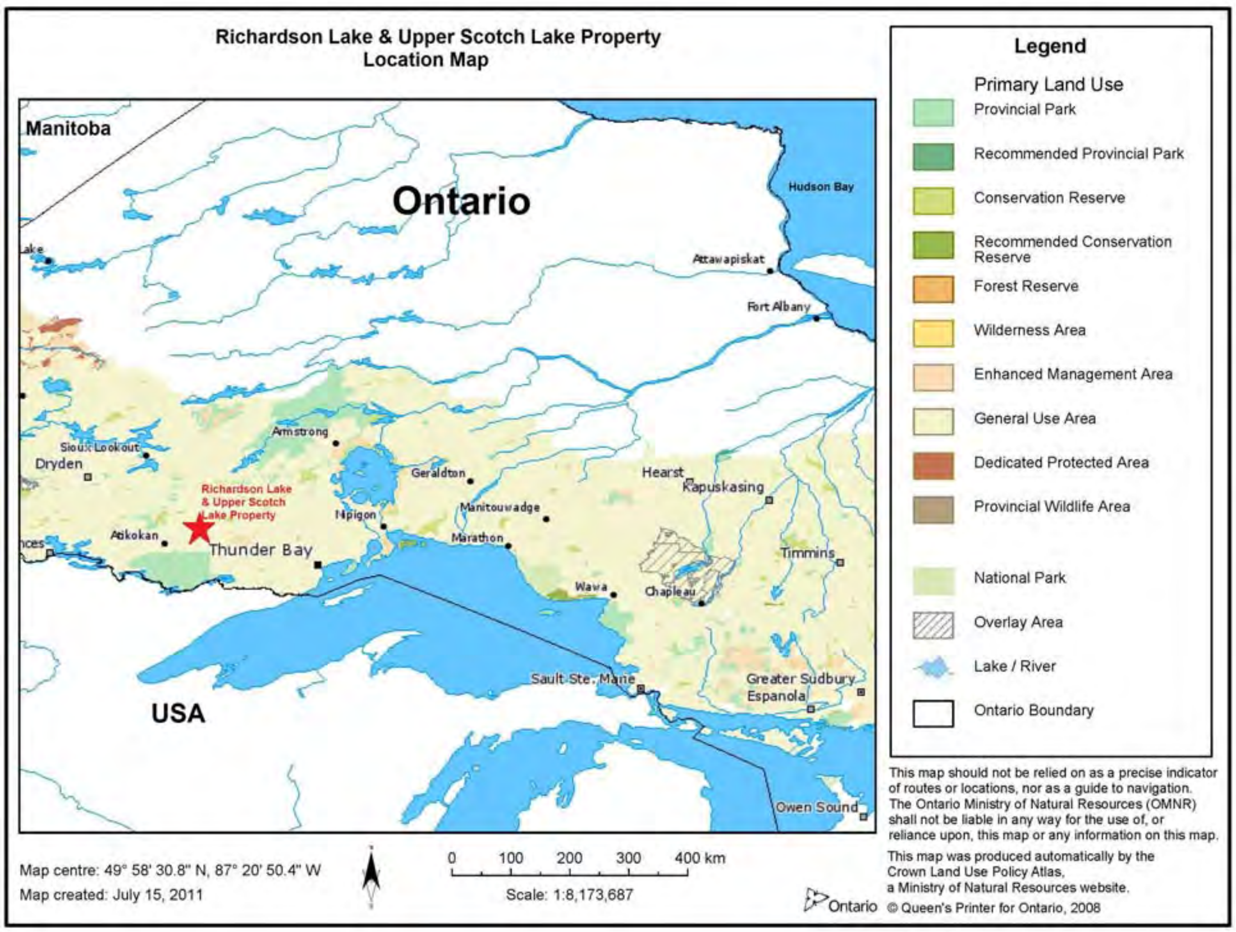


Figure 2: Property Location Map

The TransCanada Highway 17 runs E-W through Upsala and to the East and North of the property. A trail off Hwy 17 at Graham Road leads to the property. . (**Figure 3**)

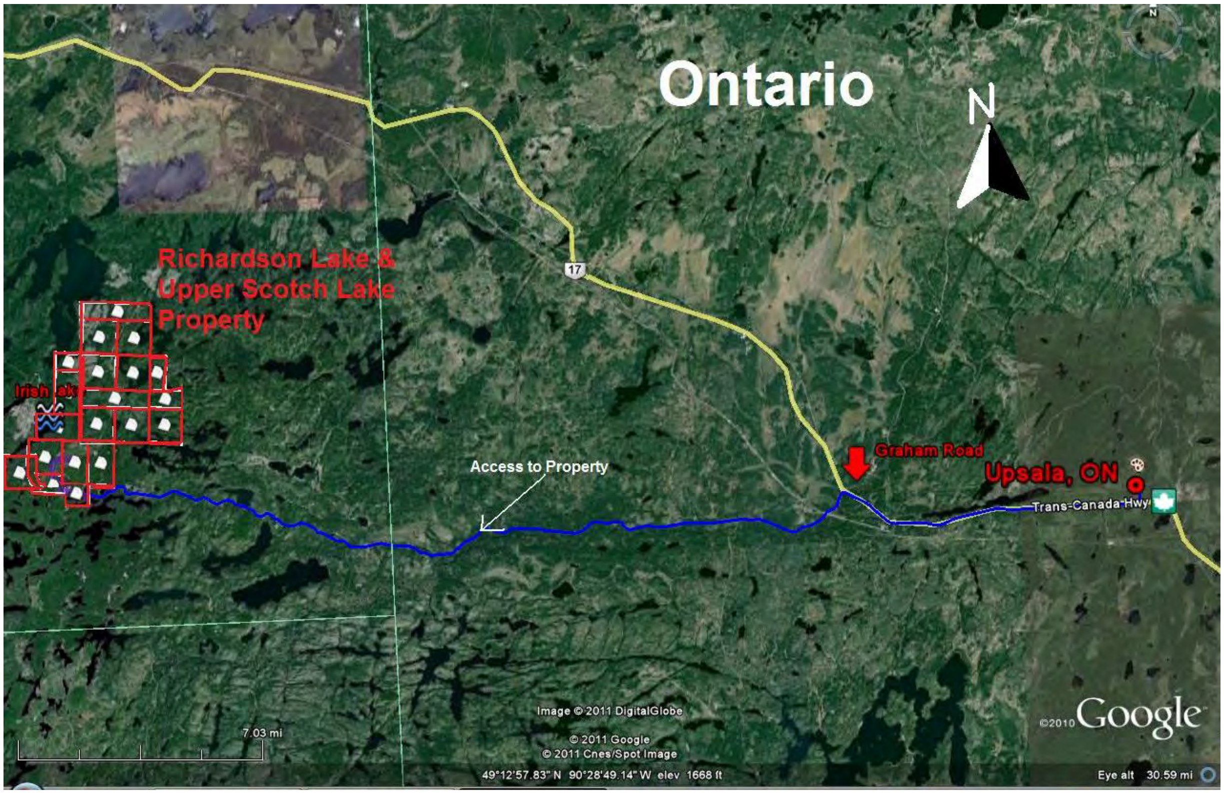


Figure 3: Property Access Map

4. Previous Work Performed by CME

A CME geology team did a preliminary a traverse visit to the property in May, 2010. Exploration products such as mapping or systematic sample assays were not intended or produced. The main objective of the visit was to acquire some valuable information regarding the geological setting, mineralization conditions of the property and provide reference in support of future geology work.

The team observed and examined the outcrops and mineralization at the geological observation points. A NITON XL3t-500 handheld X-ray fluorescence ore analyzer was used to analyze the mineralized rocks (ore) to preliminarily determine the content of Cu and Zn in the field. A few samples were collected to analyze the grade of Cu and Au.

A total of 24 geological points with a total length of approximately 16.6km were surveyed.

5. Regional Geological Setting

The topography of the property shows low-to-moderate hills and the elevation is approximately 460-560 meters. Numerous rivers connect various lakes and the surrounding wetlands. Outcrops can be observed and the most areas are covered by sand, soil, and vegetation.

In 1985, M.C. Jackson performed a research of the geological features in the Lumby Lake area. Much of the property is located in the area defined in Jackson's study. According to Jackson's research, Lumby Lake is in the Canadian Shield area, represented by Archean greenstone belt.

5.1. Rock type

According to the past research and the CME traverse survey, the rock types in the property include the Archaeozoic mafic metavolcanics, felsic metavolcanics, metamorphic sedimentary rocks, felsic intrusive rocks and mafic intrusive rocks.

Mafic metavolcanics: widespread, the outcrops observed by the CME geo team are mostly mafic metavolcanics. Rock types are mainly massive and pillow lavas.

Felsic intrusive rock: distributed at the western and northeastern edge of the property. Rock type is granite. According to CME team's observation, Granite is light reddish, containing feldspar and quartz.

5.2. Stratum.

Stratums distributed in this area include Archaeozoic and Cenozoic strata.

Archaean: mafic metavolcanic rocks, felsic - neutral metavolcanic rocks, metamorphic clastic sedimentary rocks and metamorphic sedimentary rocks. Mafic metavolcanics is the main lithology in this area, making up to 80 percent of the greenstone. The main rock types include massive or pillow lava, variolite, tuff, lapilli tuff, tuff breccia, plagioclase-porphyritic flows, etc.

Cenozoic: in recent and pleistocene lake, stream and wetland deposits, glacial, glaciofluvial and glaciolacustrine deposits: sand, gravel, clay, till.

5.3. Mineralization

Mineral exploration in this area began in 1913. Minerals include iron, gold, and some base metals. Gold mineralization is mainly observed in the sedimentary rocks containing iron construction. Base metals (copper, lead, zinc) are mainly found in copper-nickel sulfide deposits.

The CME geo team observed limonitization in the mafic metavolcanics and the metamorphic sedimentary rocks in the property. Some outcrops (floats) exhibits minor Cu and Zn mineralization.

6. Helicopter-Borne Survey 2010

6.1.General information of geophysical survey

In order to better understand the property's geology and collect its magnetic and electromagnetic information, in September, 2010, a helicopter-borne geophysical survey was carried out by Geotech Ltd. on behalf of CME over its Richardson Lake & Upper Scotch Lake property.

The total survey coverage for the area was 495.5 line-km **(Figure 4).** The survey was flown at 100 metres line spacing with a West to East (N90º E/N 270°E) flight line direction.

The survey was performed on Claims: 4248129, 4248130, 4252233, 4252234, 4252235, 4252236, 4252237, 4252238, 4252239, 4252240, 4252241, 4252242, 4252243, 4252244, 4252245, 4252246, 4252247, 4252248, 4252249, and 4252250 (**Table 1)**.

Dates flown: September 10-14, 2010

For all detailed information about the Helicopter-borne survey including maps please refer to **Appendix 1**.

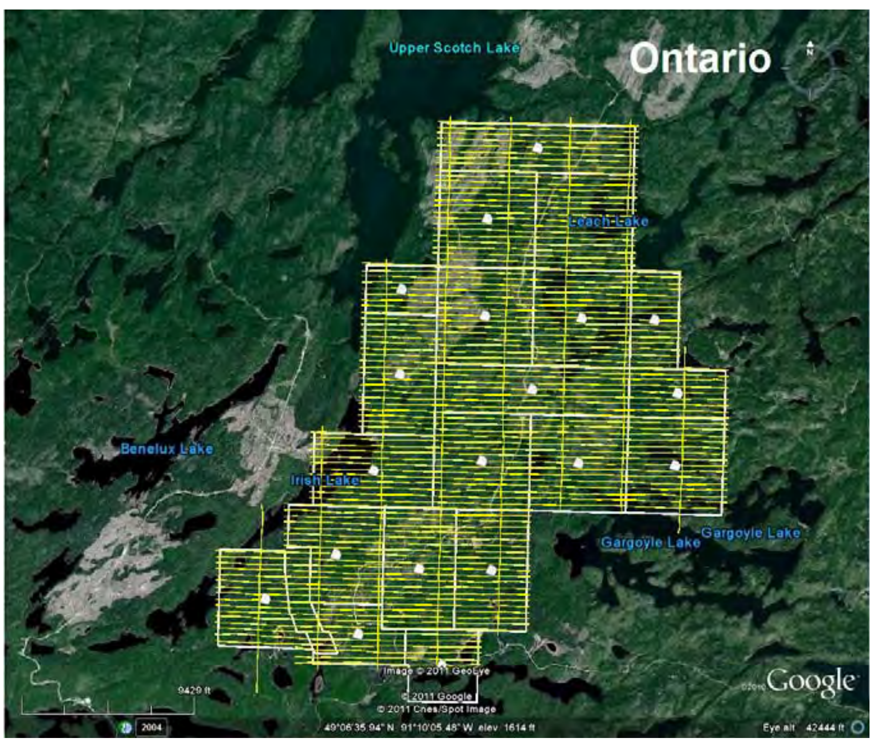


Figure 4: Helicopter-borne Survey Flight Path

6.2. Products and Conclusion

The helicopter-borne survey produced 5 maps, including:

- VTEM B-Field Z Component Profiles, Time Gates 0.220 to 7.036 ms
- VTEM dB/dt Z Component Profiles, Time Gates 0.220 to 7.036 ms
- VTEM B-Field Z Component Channel 39, Time Gate 3.063 ms
- Total Magnetic Intensity (TMI)
- Fraser Filtered X dB/dt, Time Gates 0.220 to 7.036 ms

The above maps are also available in Appendix 1, page D1-D5.

No official interpretation has been sought either internally or externally, and, therefore, none is provided in the assessment work report either.

Conclusion: based on the geophysical results, many interesting EM anomalies exist across the property. The magnetic information might support further exploration work such as drilling.

7. References

Geotech Ltd.

September, 2010: Report on a Helicopter-borne Versatile Time Electromagnetic (VTEM) and Aeromagnetic Geophysical Survey

Xianjun Li & Shawn Yang

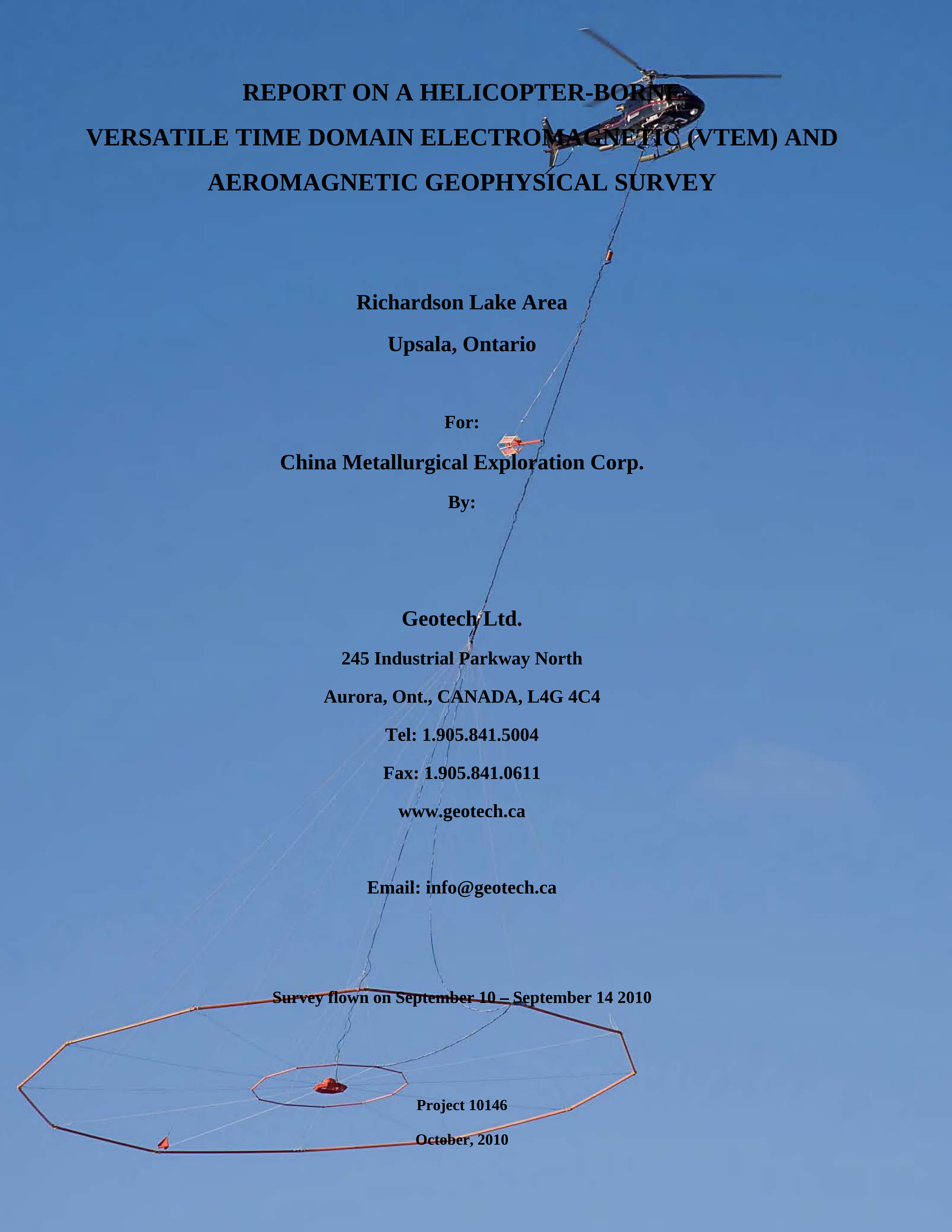
June, 2010: Summary of Geological Traverse Survey, Palmer Township and Ryan Township, Sault Ste. Marie District, Ontario

Jackson, M.C.

1985: Geology of the Lumby Lake Area, Eastern Part, Districts of Kenora and Rainy River; Ontario Geological Survey, Open File Report 5535,142p., 7 tables, 12 figures, 7 photographs, and l map in back pocket.

Appendix 1

Richardson Lake Helicopter-borne Survey Report



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

Richardson Lake Area

Upsala, Ontario

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By:

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Survey flown on September 10 – September 14 2010

Project 10146

October, 2010

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

Richardson Lake Area
Upsala, Ontario

Executive Summary

On September 10th to September 14th 2010, Geotech Ltd. carried out a helicopter-borne geophysical survey over the Richardson Lake Area situated 43 km West of Upsala, 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 484.6 line-kilometres were planned to be flown.

The survey operations were based out of the Savanne River Resort & Black Spruce Motel located in the Upsala, Ontario. 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 electromagnetic stacked profiles of the B-field Z Component and dB/dt Z, and as colour grids of a B-Field Z Component Channel, and Total Magnetic Intensity (TMI).

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.

1. INTRODUCTION

1.1 General Considerations

Geotech Ltd. performed a helicopter-borne geophysical survey over the Richardson Lake Area located in Upsala, Ontario (Figure 1 & 2).

Jie Zhang represented China Metallurgical Exploration Corp. 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 495.5 line-km of geophysical data were acquired during the survey. The survey area is shown in Figure 2 and Figure 3.

The crew was based out of the Savanne River Resort & Black Spruce Motel in Upsala, Ontario for the acquisition phase of the survey. Survey flying started September 10th and ended September 14th 2010.

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 October, 2010.

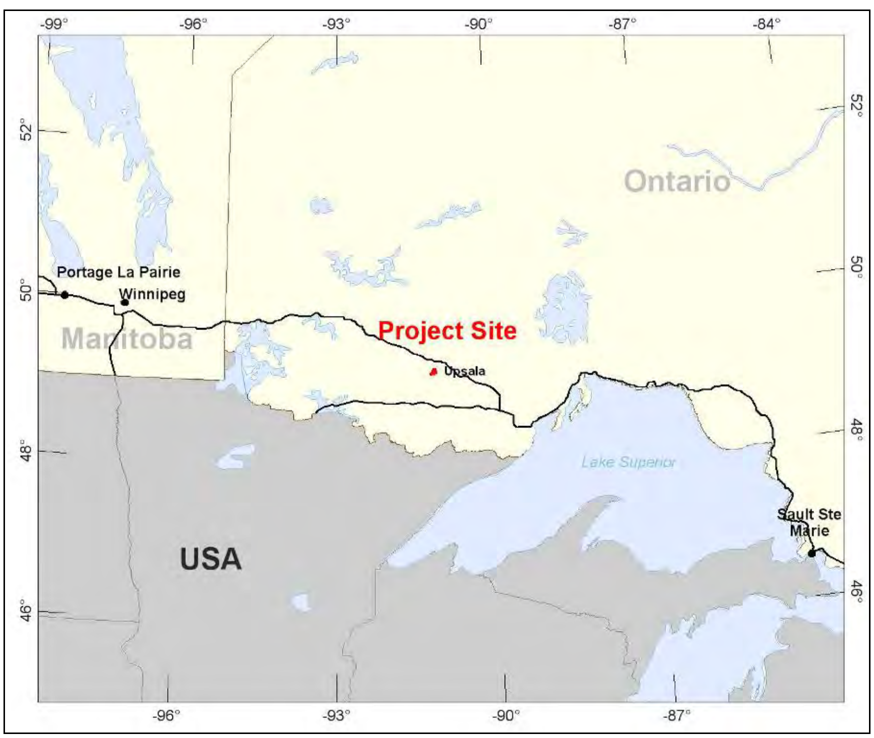

Figure 1 - Property Location

1.2 Survey and System Specifications

The survey block is located approximately 43 kilometres West of the Upsala, Ontario which was where the Magnetic Base Station was located (Figure 2 & 3).

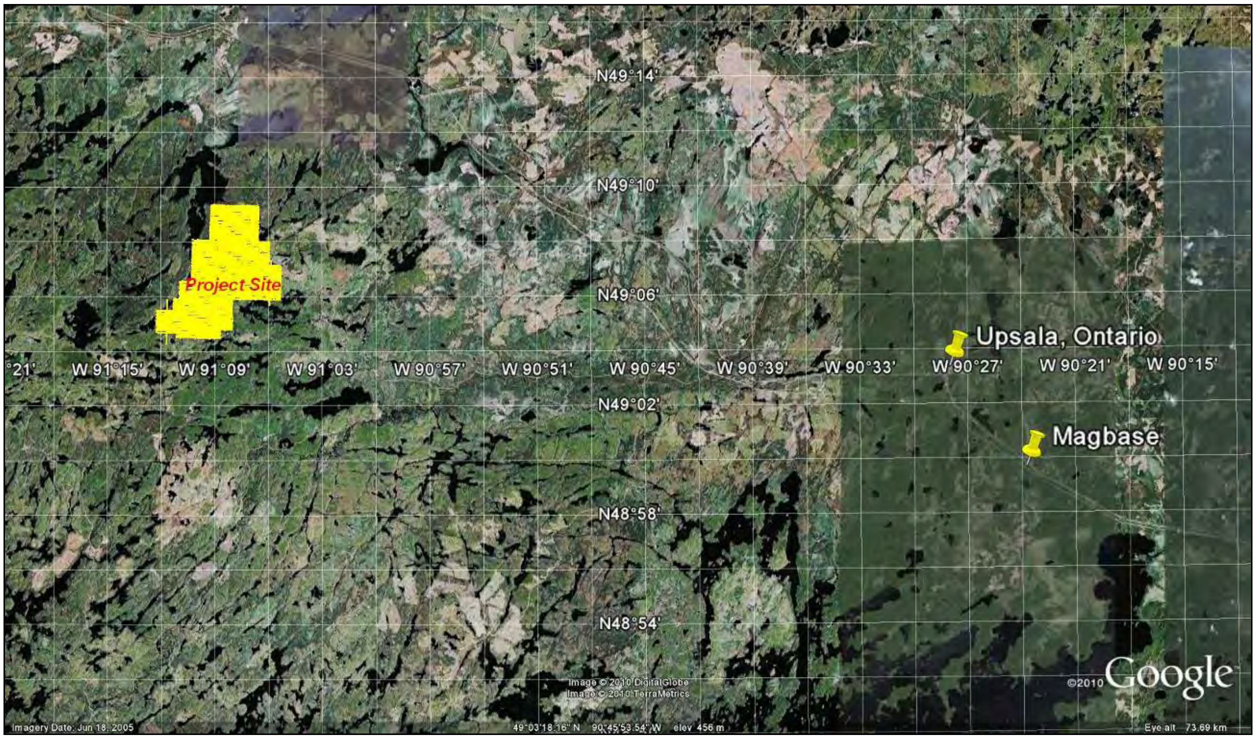

Figure 2 – The block, showing the magnetic base station location on Google Earth

The Richardson Lake Area was flown in a West to East (N 90° E / N 270° E) 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 1000 (N 0° E / N 180° E). 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 moderate relief with an elevation ranging from 467 to 556 metres above sea level over a total area of 44 square kilometres (Figure 3). There are numerous rivers connecting to various lakes and wetlands surrounding the survey area. There are a few visible sign of culture such as various trails and roads; however the closest populated area is Upsala, Ontario located 43 kilometers East of the Block.

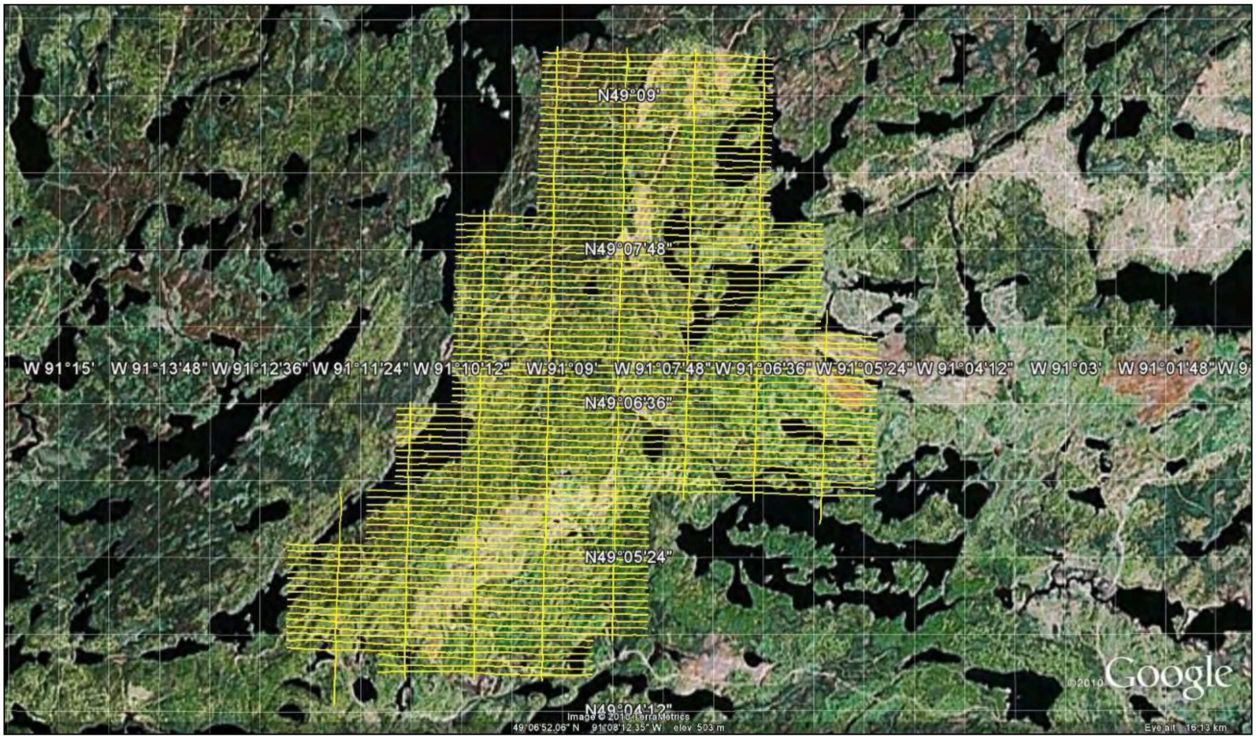

Figure 3 – Flight path over a Google Earth Image.

The blocks are 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 sheet 052G03.

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 Line-km	Line-km flown	Flight direction	Line numbers
Richardson Lake	Traverse: 100	44	438	447.6	N 90/270° E	L1000 – L1900
	Tie: 1000		46.6	47.9	N 0/180° E	T2000 – T2070
TOTAL	**0**	**44**	**484.6**	495.5		

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

2.2 Survey Operations

Survey operations were based out of the Savanne River Resort & Black Spruce Motel for September 10th to September 14th. The following table shows the timing of the flying.

Table 2 - Survey schedule

Date	Flight #	Block	Crew location	Comments
10-Sep-10		Richardson Lake	Upsala ON	System assembly completed –test flights completed
11-Sep-10			Upsala ON	No production due to weather
12-Sep-10	1	Richardson Lake	Upsala ON	18km flown limited production due to weather
13-Sep-10	2	Richardson Lake	Upsala ON	128km flown
14-Sep-10		Richardson Lake	Upsala ON	Remaining kms were flown –flying complete

2.3 Flight Specifications

During the survey of the block the helicopter was maintained at a mean altitude of 78 metres above the ground with a nominal survey speed of 80 km/hour. This allowed for a nominal EM bird terrain clearance of 43 metres and a magnetic sensor clearance of 65 metres.

An operator on board was 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 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. 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-GEOZ. The helicopter is owned by Geotech Ltd. and operated by Geotech Aviation Ltd. out of North Bay, Ontario. Installation of the geophysical and ancillary equipment was carried out by 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 below.

The VTEM Receiver and transmitter coils are concentric-coplanar and Z-direction oriented. The receiver system for the project also included a coincident-coaxial X-direction sensor to measure the in-line dB/dt and calculate B-Field responses. All loops were 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 diagrammatically in Figure 5.

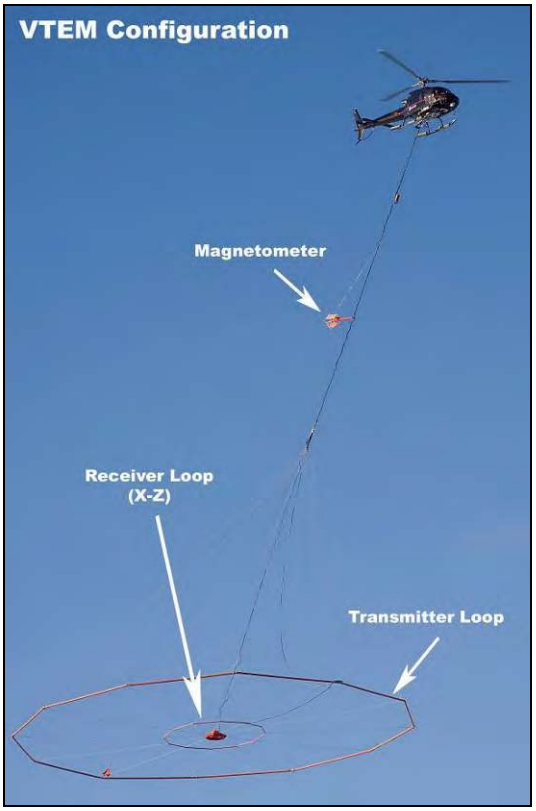

Figure 4 - VTEM Configuration, with magnetometer.

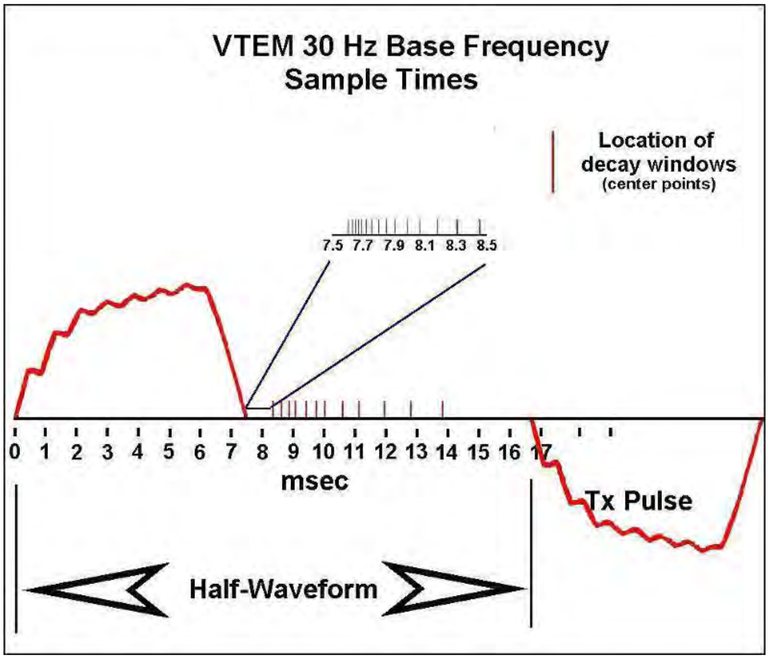

Figure 5 - VTEM Waveform & Sample Times

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

Survey Helicopter	
Model	AS 350 – B3
Registration	C-GEOZ
Operating Company	Geotech Aviation
Nominal survey speed (km/h)	80
Average terrain clearance (m)	78
VTEM Transmitter	
Coil diameter (m)	26
Number of turns	4
Pulse repetition rate (Hz)	30
Peak current (Amp)	176
Duty cycle (%)	43
Peak dipole moment (nIA)	373,774.1
Pulse width (ms)	7.146
Average terrain clearance (m)	43
Z-coil Receiver	
Coil diameter (m)	1.2
Number of turns	100
Effective area (m^2)	113.10
Sampling interval (s)	0.1
Average terrain clearance (m)	47
X-coil Receiver	
Coil diameter (m)	0.32
Number of turns	245
Effective area (m^2)	19.70
Sampling interval (s)	0.1
Average terrain clearance (m)	47
Magnetometer	
Type	Geometrics
Model	Optically pumped cesium vapour
Sensitivity (nT)	0.02
Sampling interval (s)	0.1
Cable length (m)	13
Average terrain clearance (m)	65

Radar Altimeter	
Type	Terra TRA 3000/TRI 40
Position	Beneath cockpit
Sampling interval (s)	0.2
GPS navigation system	
Type	NovAtel
Model	CDGPS enabled OEM4-G2-3151W
Antenna position	Helicopter tail
Sampling interval (s)	0.2
Base Station Magnetometer/GPS	
Type	Geometrics
Model	Cesium vapour
Sensitivity (nT)	0.001
Sampling interval (s)	1

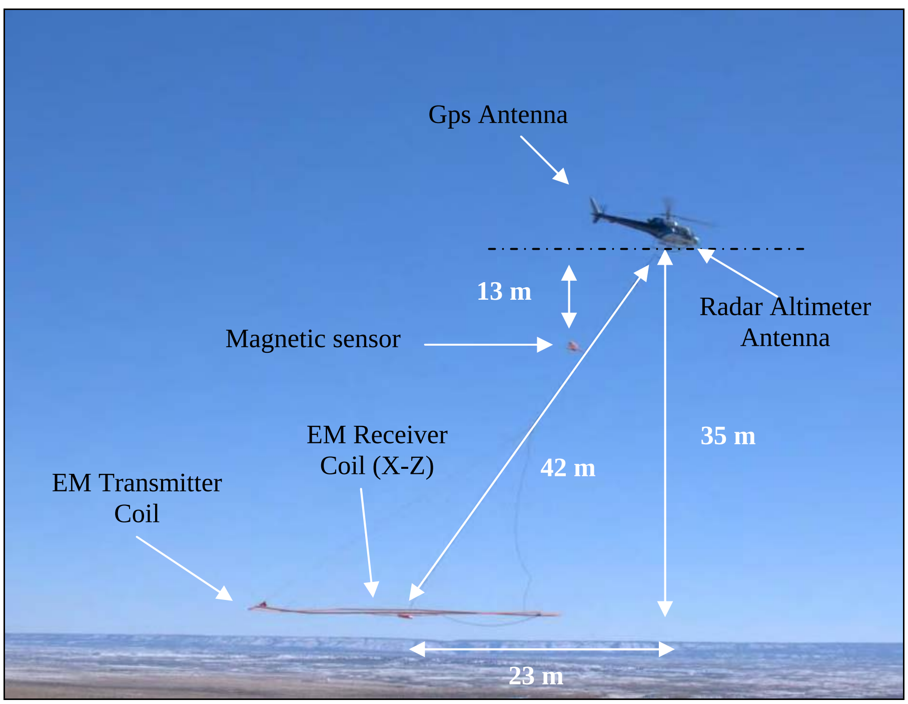

Figure 6 - VTEM System Configuration

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 black spruce motel in an open area (48º 59.6742 N, 90 º23.7512 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:	Colin Lennox
System Operators:	Ioan Serbu

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

Pilot:	Greg Heuring
Mechanical Engineer:	Jeff Rowat

Office:

Preliminary Data Processing:	Neil Fiset
Final Data Processing:	Neil Fiset
Final Data QA/QC:	Marta Orta
Reporting/Mapping:	Corrie Laver

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 Paolo Berardelli.

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 15 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. B-field Z component time channel recorded at 3.063 milliseconds after the termination of the impulse is also presented as contour color image.

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. The responses are free from a system geometric effect and can be easily compared to model type curves in most cases. Generalized modeling results of VTEM data, are shown in Appendix E.

In general X-component data produce cross-over type anomalies: from "+ to –" in 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 footprint (diameter of a TEM system and bird height). For example, for VTEM-26 with nominal terrain clearance the change – over between “thin” and “thick” equal to 25-30 m thickness (Appendix E, Fig.E-16).

Because of X component polarity is under line-of-flight, convolution Fraser filter (FF, Fig.7) is applied to X component data to represent axes of conductors in the form of grid map. In this case positive FF anomalies always correspond to “plus-to-minus” X data crossovers independently of direction of flight.

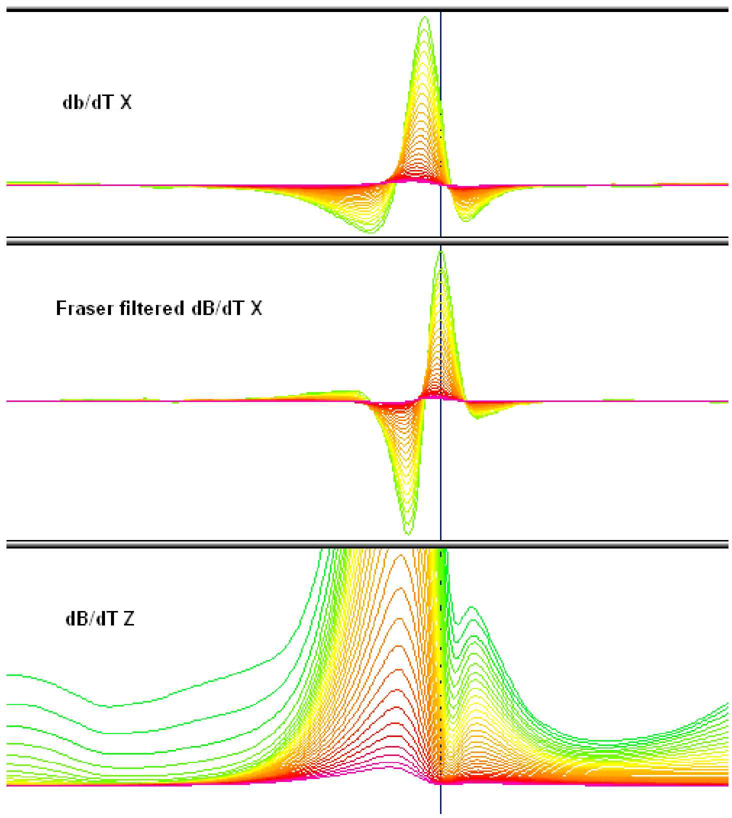

Figure 7 - Z,X and Fraser filtered X (FFx) components for “thin” target.

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 15 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 late time Z Component Channel 39, Time Gate 3.063 ms color image.
- VTEM B-Field profiles Z Component, Time Gates 0.220 – 7.036 ms in linear – logarithmic scale.
- Total magnetic intensity (TMI) color image and contours.
- Fraser Filtered X dB/dt, Time Gates 0.220 – 7.036 ms

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 15 North
Y:	metres	UTM Northing NAD83 Zone 15 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
SFx_FF	pV/(A*m^4)	Fraser filtered X dB/dt for time channels 20 to 45
BFx_FF	(pV*ms)/(A*m^4)	Fraser filtered X B-Field 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 “10146_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:

  BFz39: B-Field Z Component Channel 39 (Time Gate 3.063 ms)
  MAG3: Total magnetic intensity (nT)
  Mag1VD: First Vertical Derivitve
  SFxFF_505: Fraser Filtered X dB/dt

  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:

10146_10k_dBdtz:	dB/dt profiles Z Component, Time Gates 0.220 – 7.036 ms in linear – logarithmic scale.
10146_10k_bfield:	B-field profiles Z Component, Time Gates 0.220 – 7.036 ms in linear – logarithmic scale.
10146_10k_BFz39:	B-field late time Z Component Channel 39, Time Gate 3.063 ms color image.
10146_10k_SFx_FF:	Fraser Filtered X dB/dt, Time Gates 0.220 – 7.036 ms
10146_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 *10146_China.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 Richardson Lake.

The total area coverage is 44 km^2. Total survey line coverage is 495.5 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],

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Geotech Ltd.

Alexander Prikhodko, P. Geo, Ph.D.
Geotech Ltd.

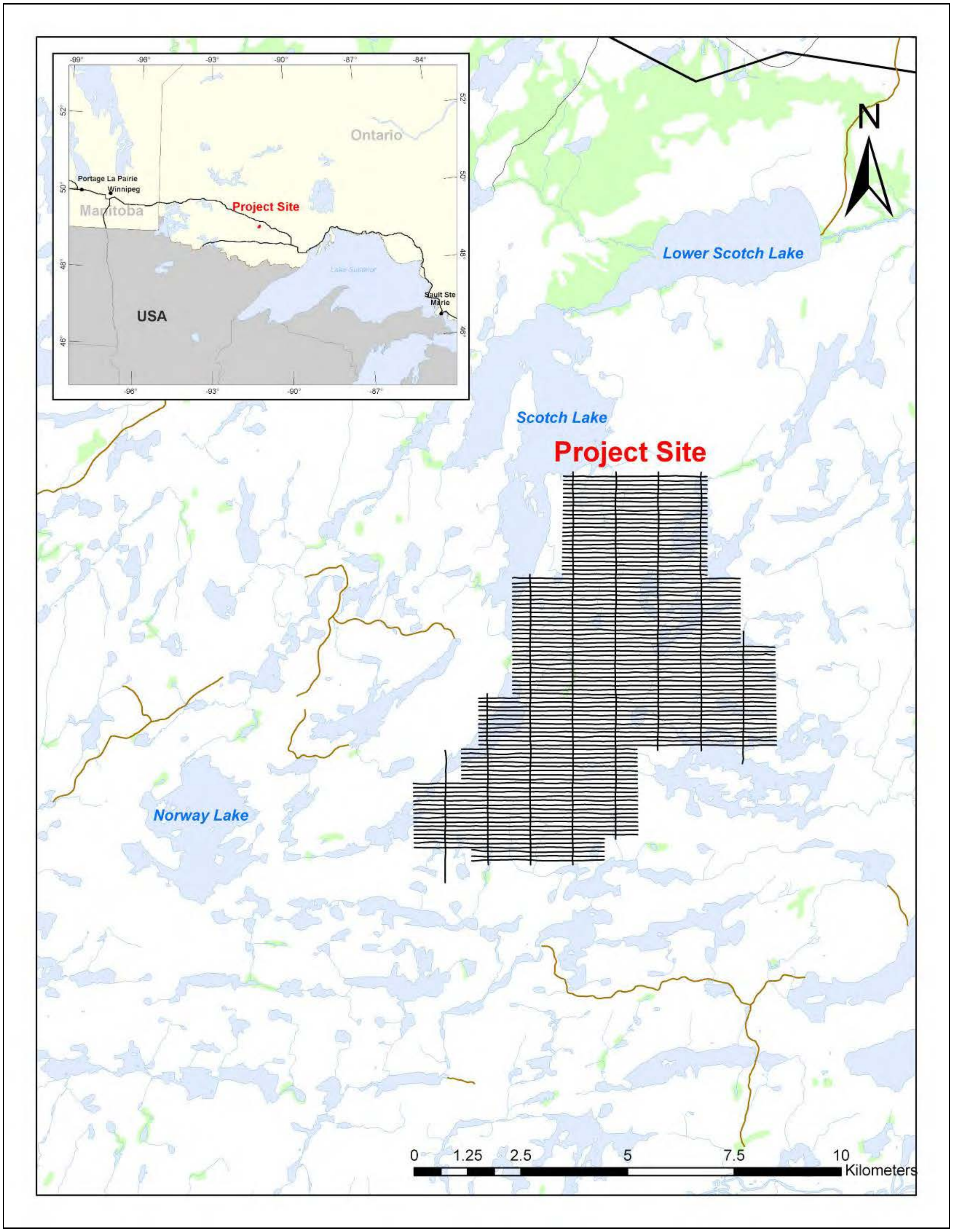
Harish Kumar P.Geo
Geotech Ltd.

October 2010

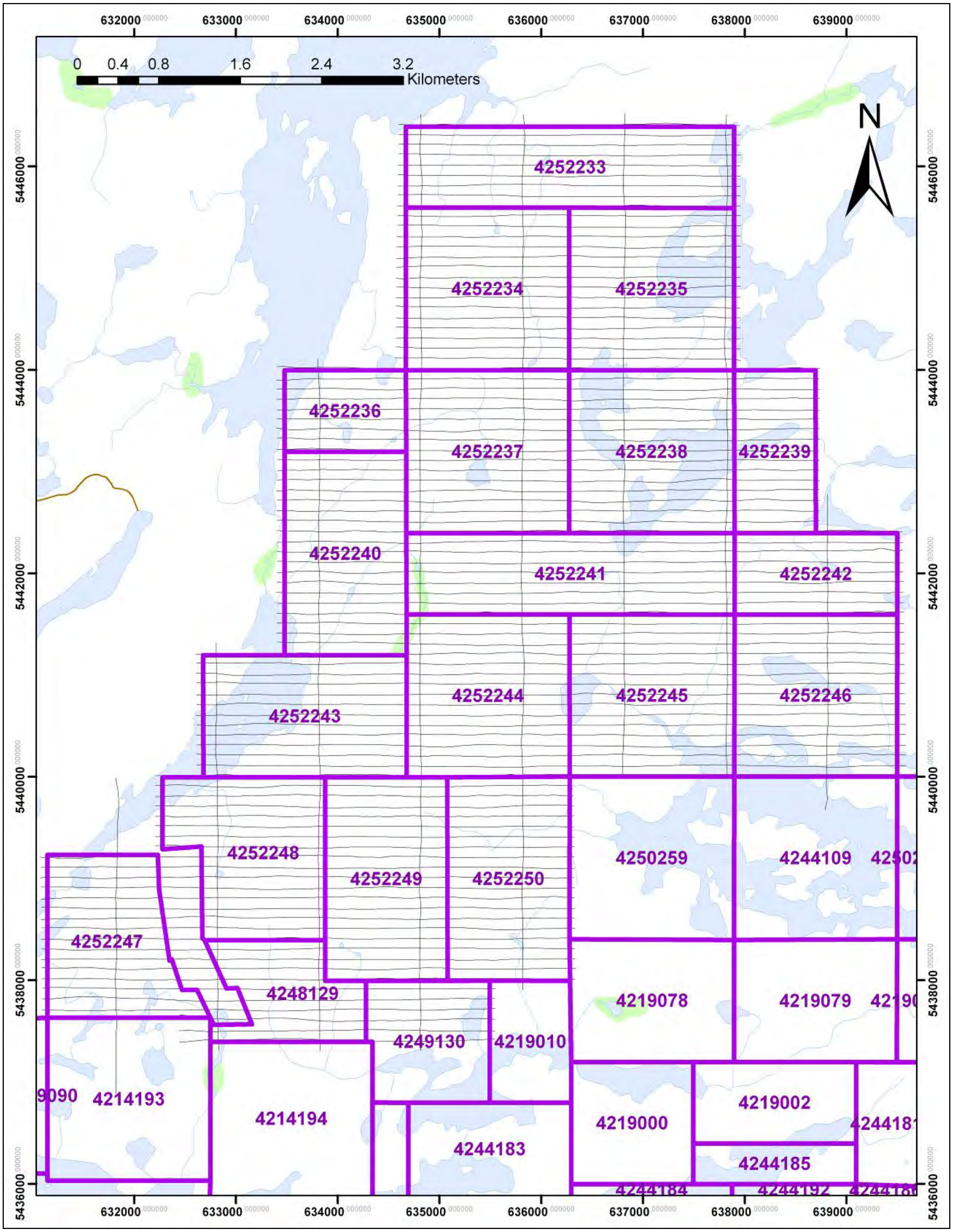
[6]Final data processing of the EM and magnetic data were carried out by Neil Fiset, from the office of Geotech Ltd. in Aurora, Ontario, under the supervision of Harish Kumar, Assitant Manager of Data Processing and Jean Legault, P. Geo, P. Eng, Chief Geophysicist (Interpretation)

APPENDIX A

SURVEY BLOCK LOCATION MAP



Survey Overview of the Block



Mining Claims for the Block

APPENDIX B

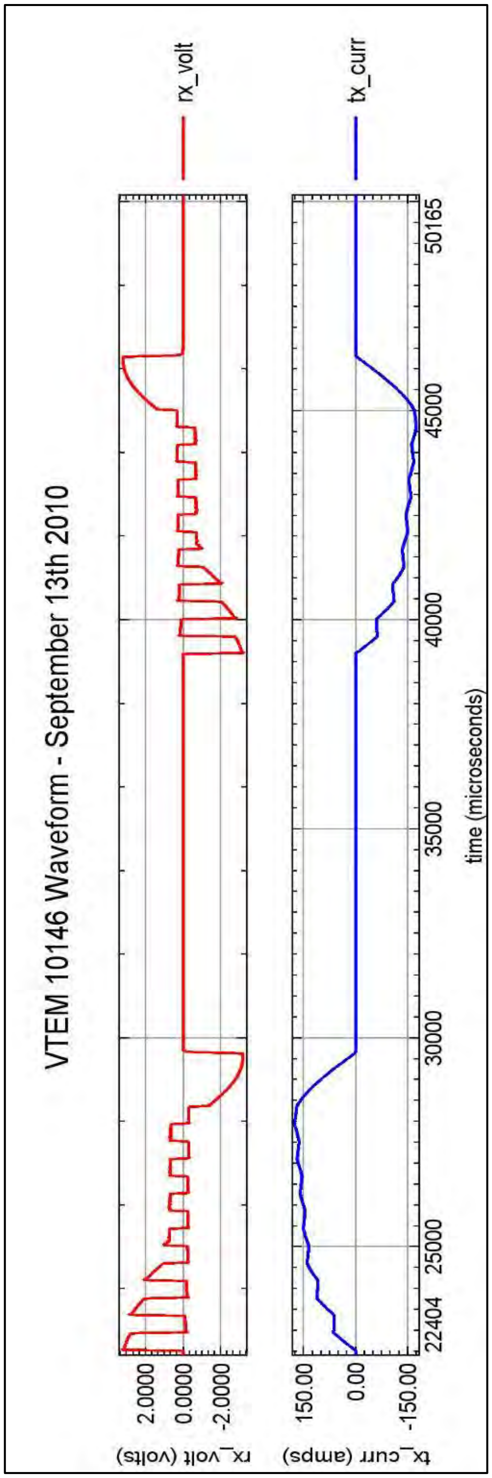
SURVEY BLOCK COORDINATES

(WGS 84, UTM Zone 15 North)

X	Y
631148	5437633
631128.9	5439244
632255.9	5439244
632255.4	5440038
632661.8	5440038
632661.2	5441220
633455.6	5441220
633453.9	5444046
634617.8	5444046
634653.4	5446410
637905.1	5446409
637906.5	5444026
638682.4	5444025
638683.4	5442418
639496.3	5442418
639534.7	5440035
636264.6	5440037
636283.3	5437996
635494.2	5437997
635494.2	5436797
632494.2	5436786
632494.2	5437632

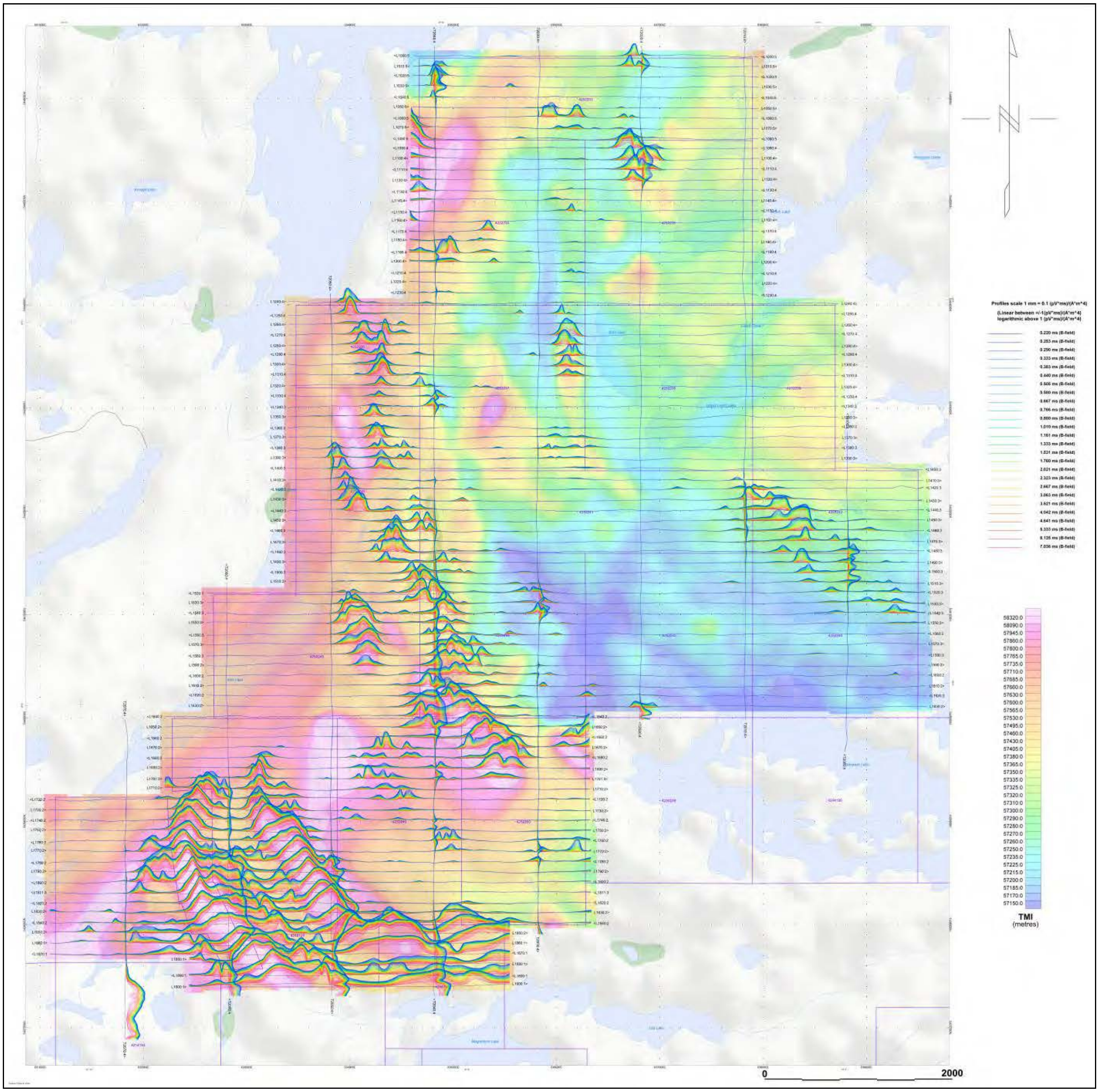
APPENDIX C

VTEM WAVEFORM



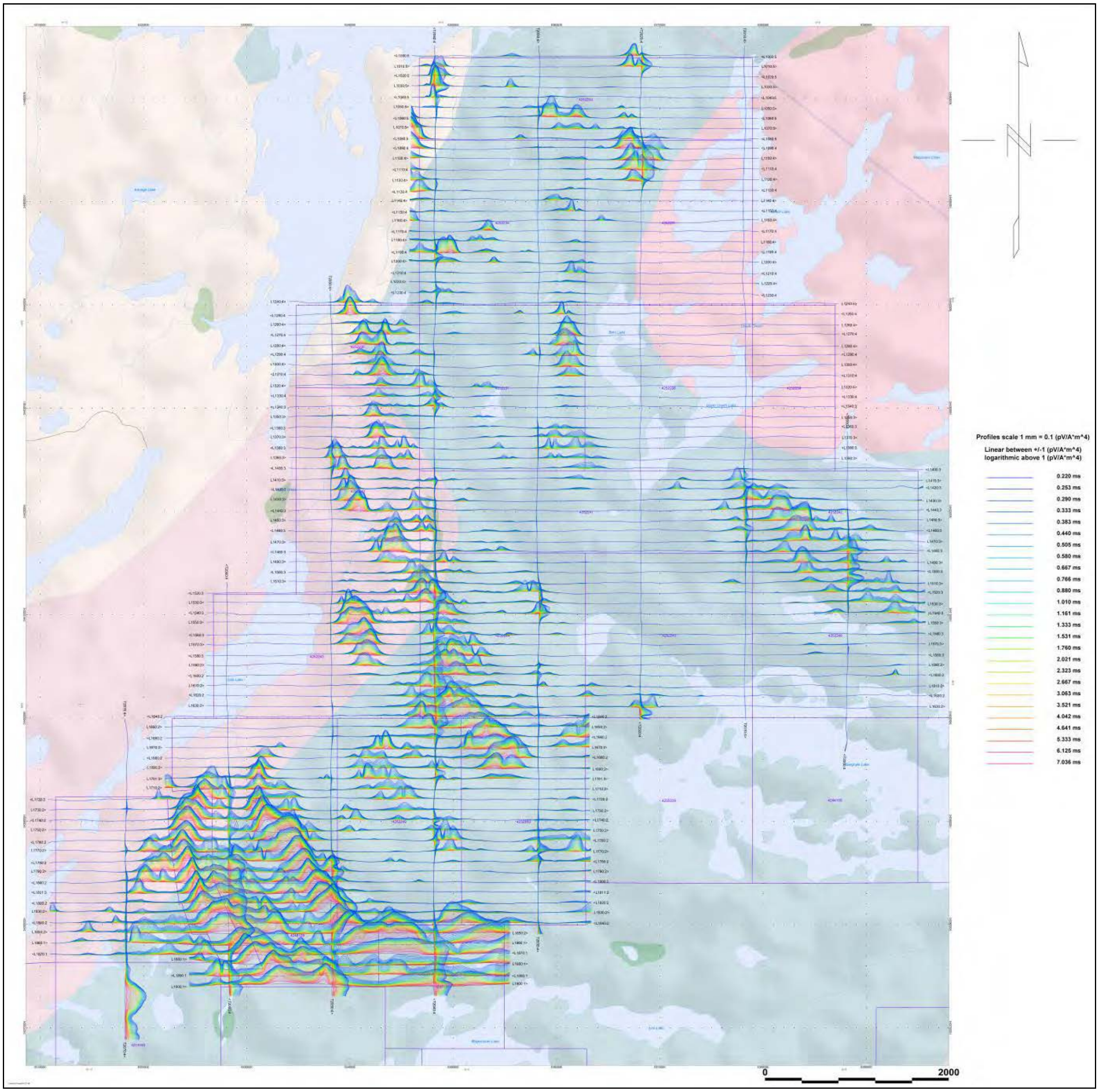
APPENDIX D

GEOPHYSICAL MAPS[1]

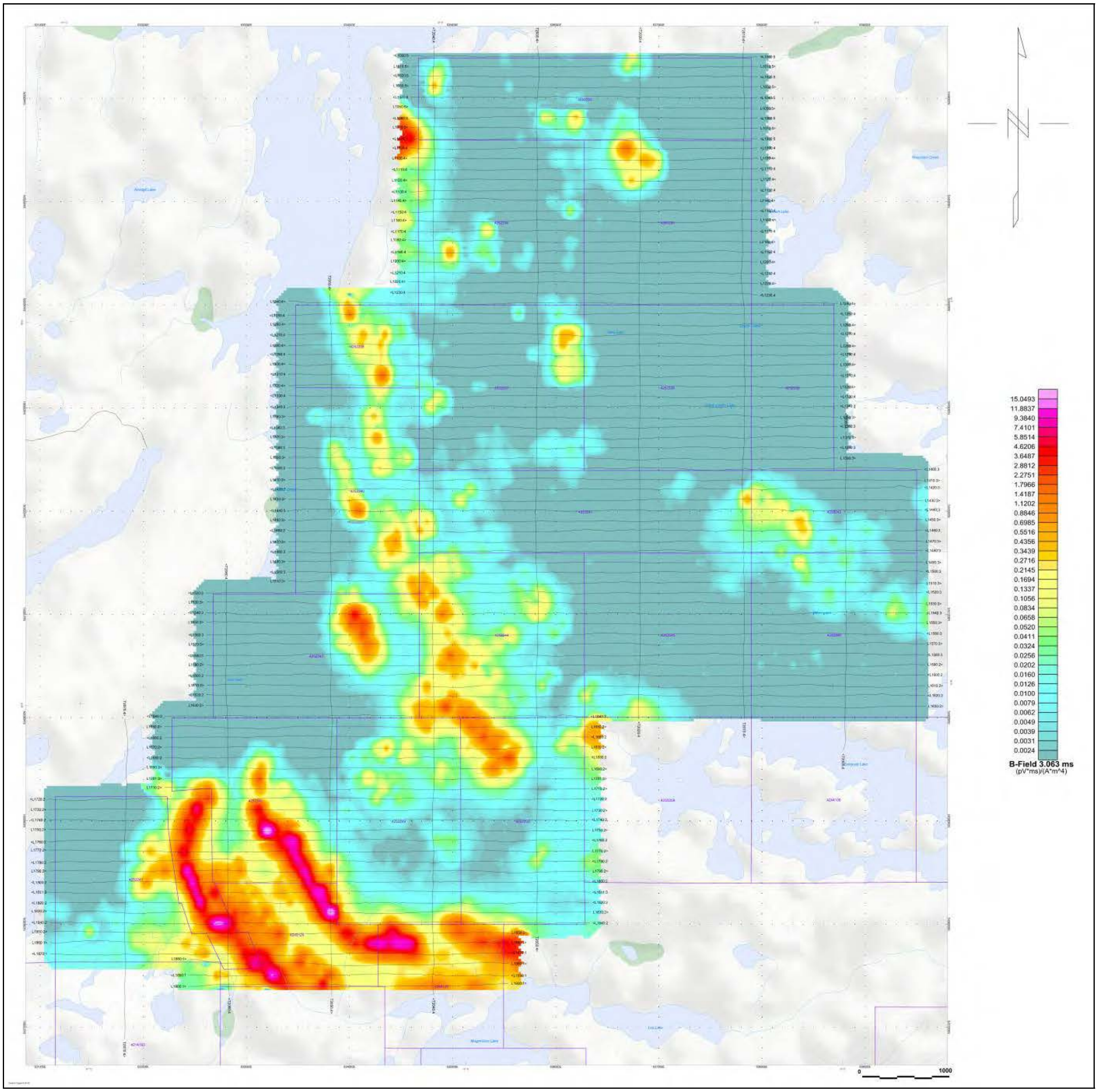


VTEM B-Field Z Component Profiles, Time Gates 0.220 to 7.036 ms

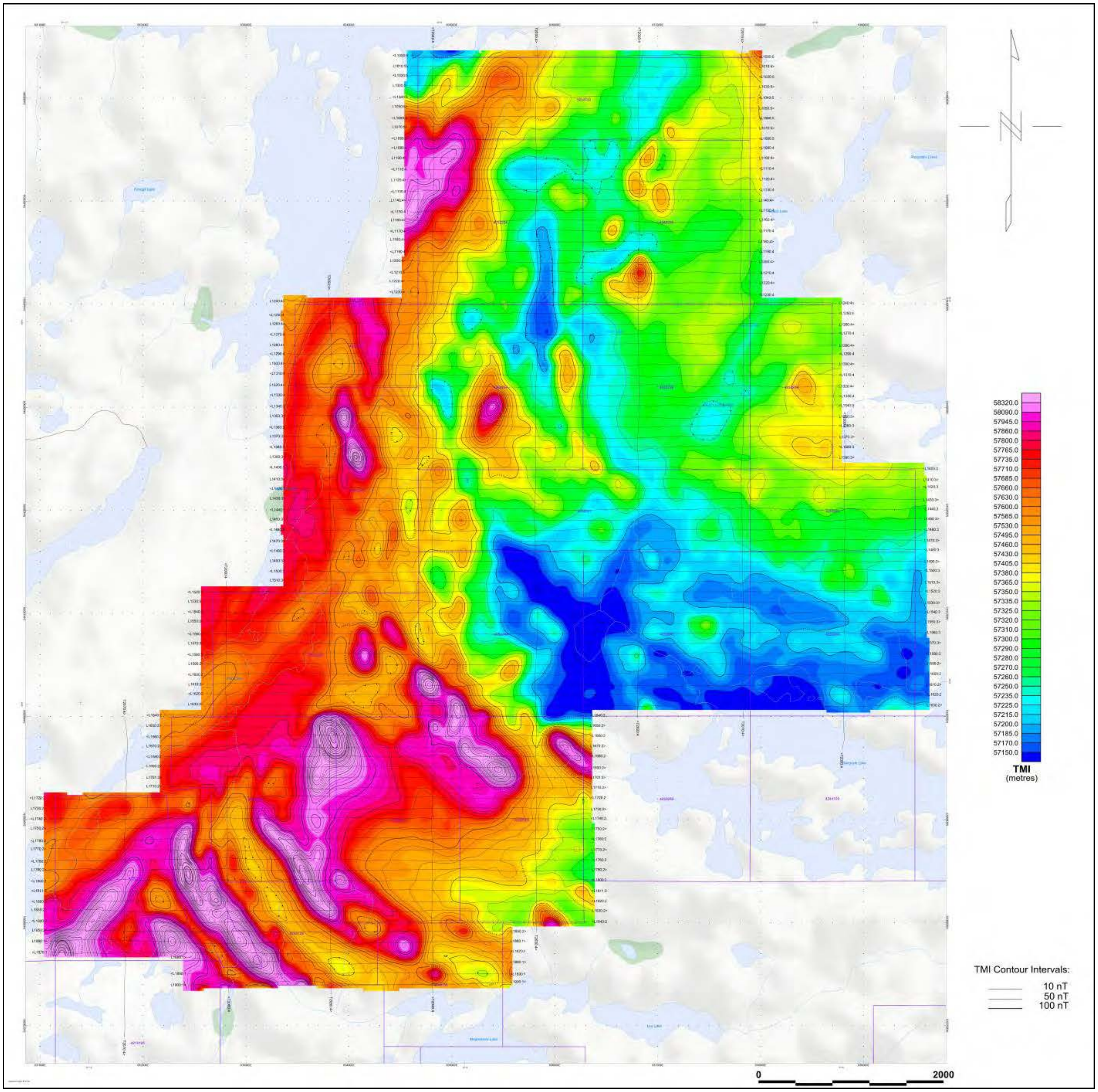
[1] Full size geophysical maps are also available in PDF format on the final DVD



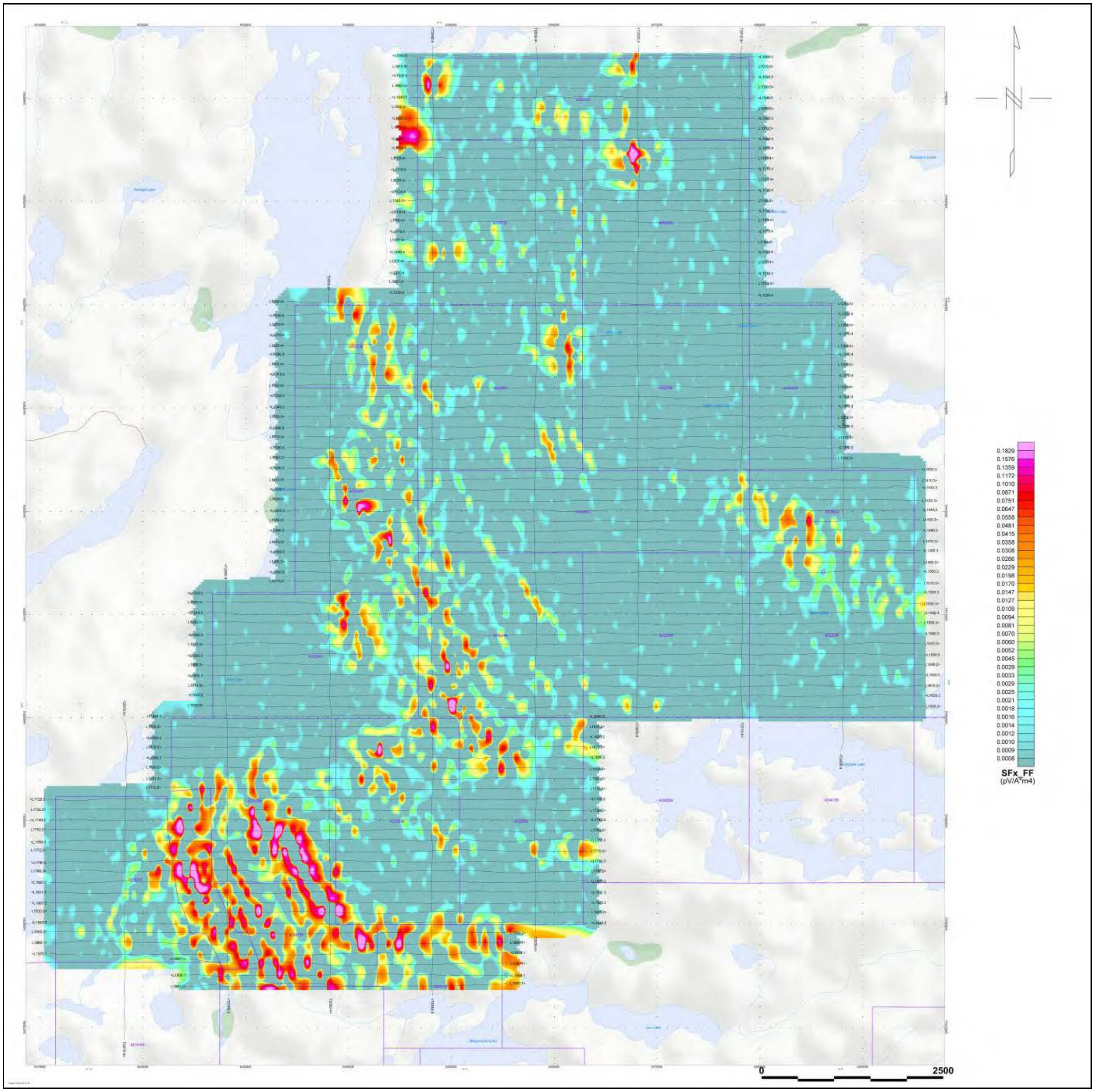
VTEM dB/dt Z Component Profiles, Time Gates 0.220 to 7.036 ms



VTEM B-Field Z Component Channel 39, Time Gate 3.063 ms



Total Magnetic Intensity (TMI)



Fraser Filtered X dB/dt, Time Gates 0.220 to 7.036 ms

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.

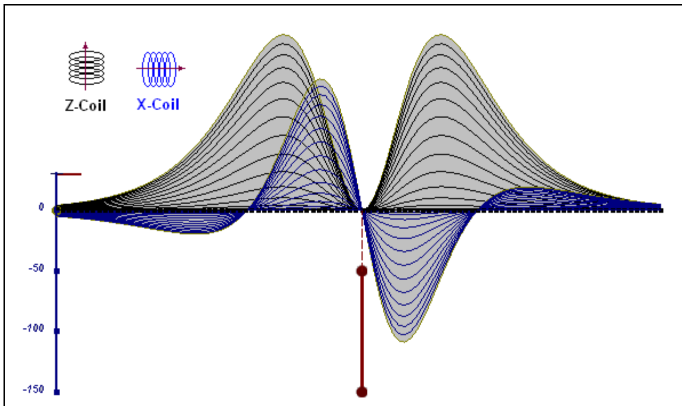


Fig E-1: vertical thin plate

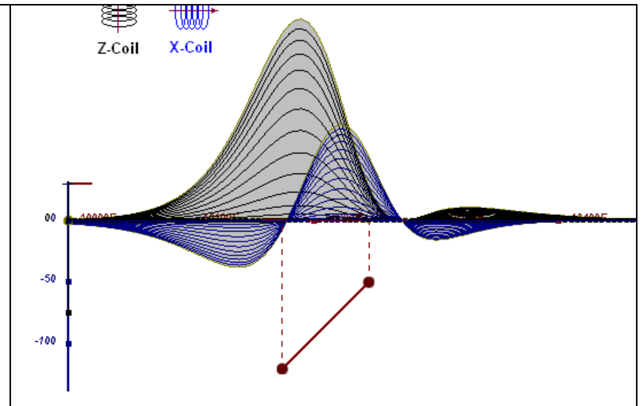


Fig E-2: inclined thin plate

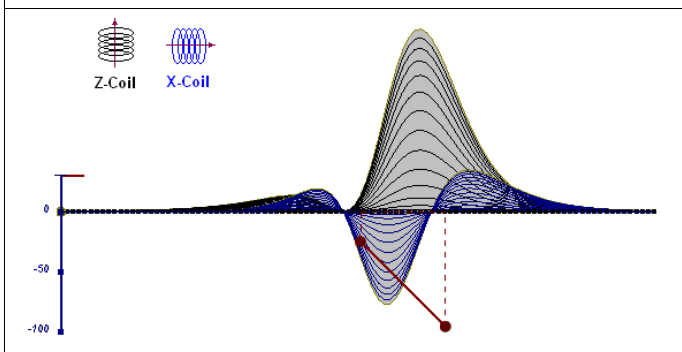


Fig E-3: inclined thin plate

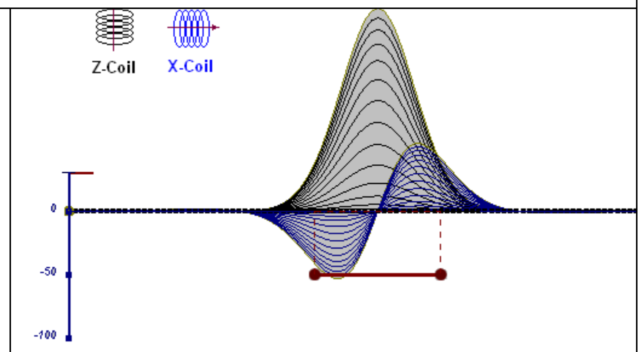


Fig E-4: horizontal thin plate

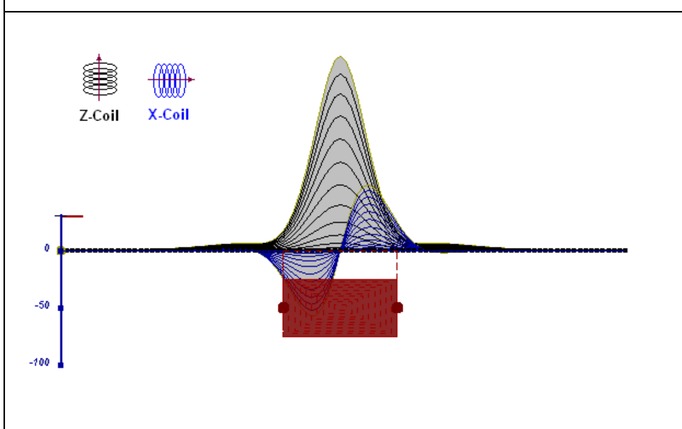


Figure E-5: horizontal thick plate (linear scale of the response)

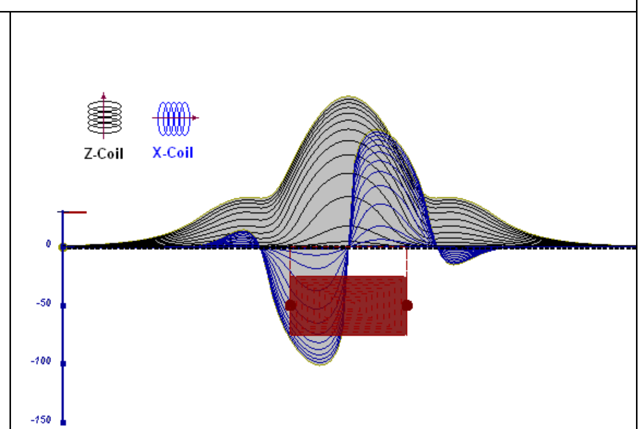


Figure E-6: horizontal thick plate (log scale of the response)

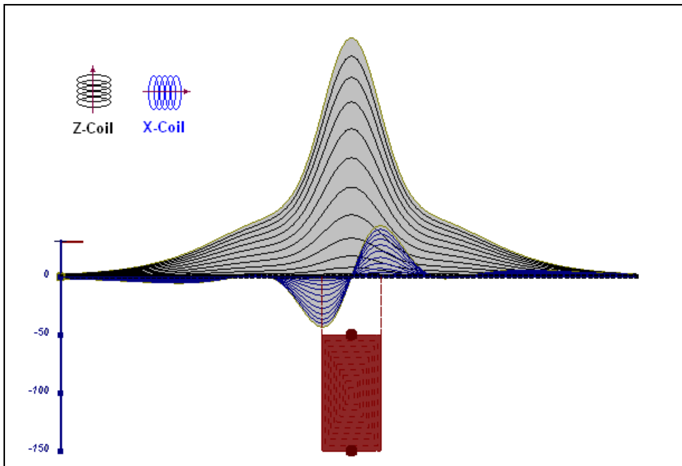


Figure E-7: vertical thick plate (linear scale of the response). 50 m depth

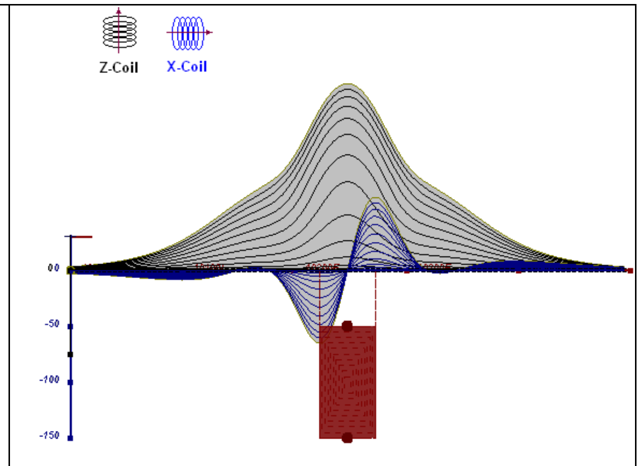


Figure E-8: vertical thick plate (log scale of the response). 50 m depth

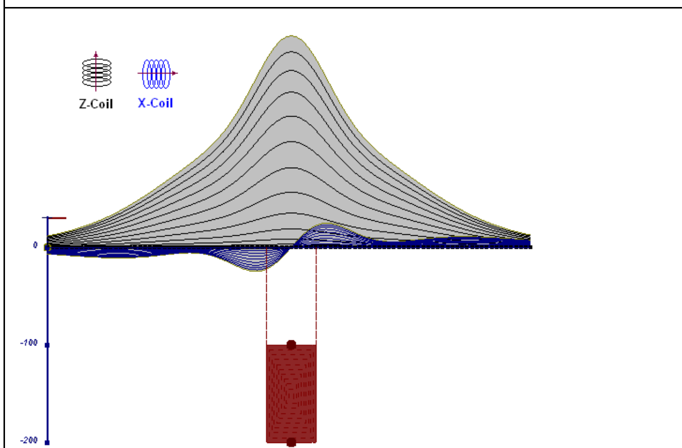


Fig E-9: vertical thick plate (linear scale of the response). 100 m depth

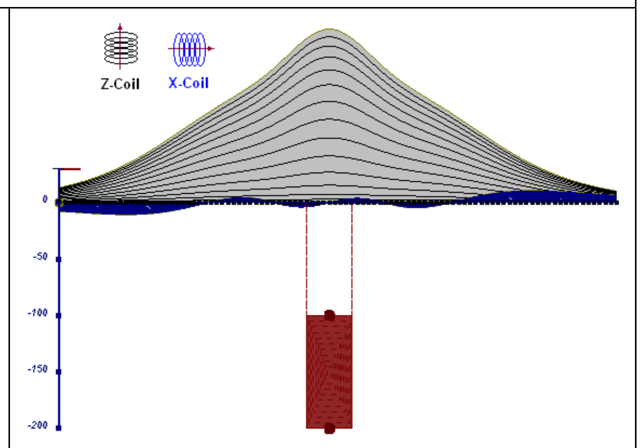


Fig E-10: vertical thick plate (linear scale of the response). Depth/hor.thickness=2.5

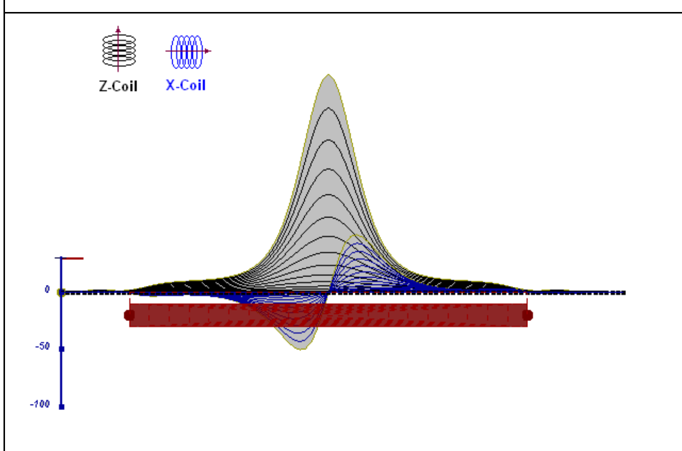


Fig E-10: horizontal thick plate (linear scale of the response)

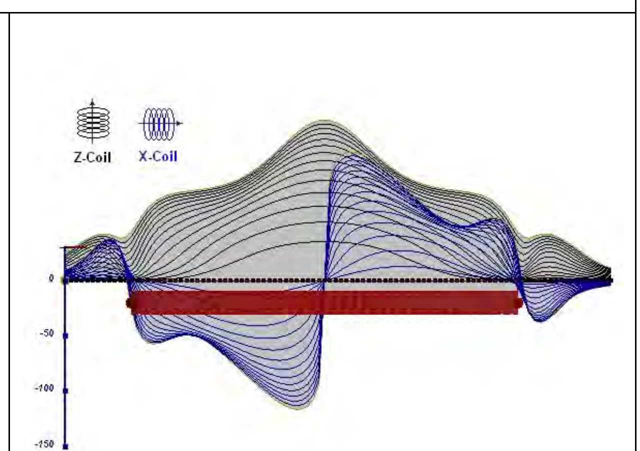


Fig E-11: horizontal thick plate (log scale of the response)

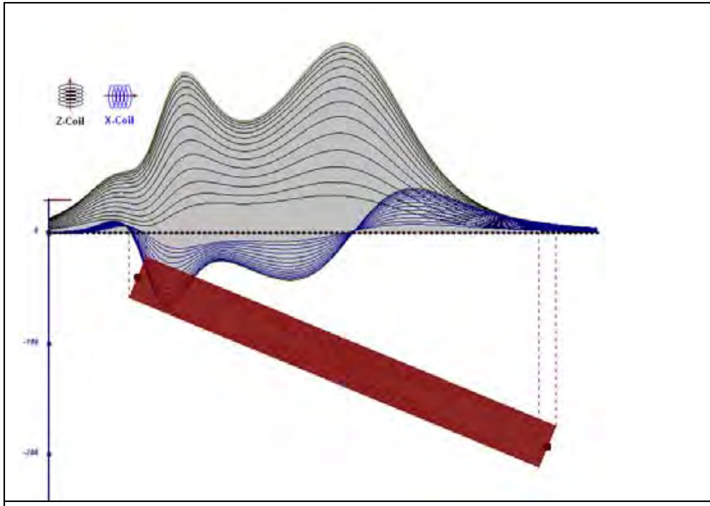
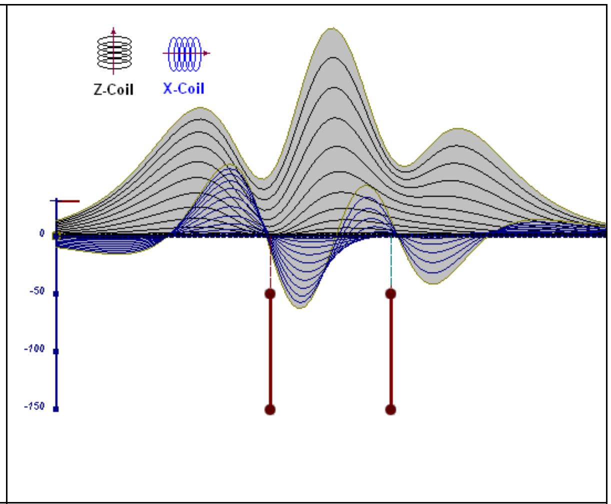
	

Fig E-12: inclined long thick plate	Fig E-13: two vertical thin plates

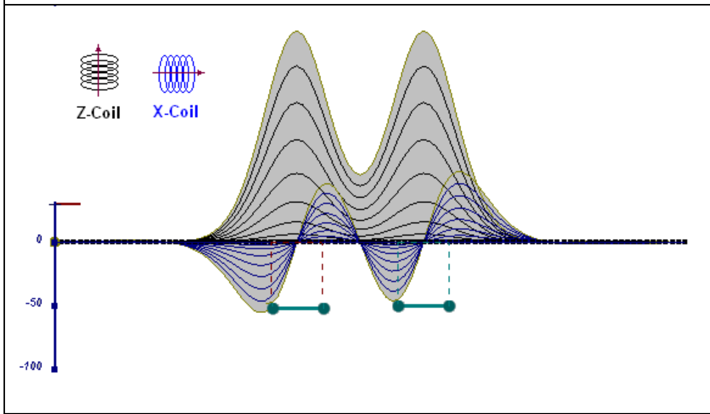
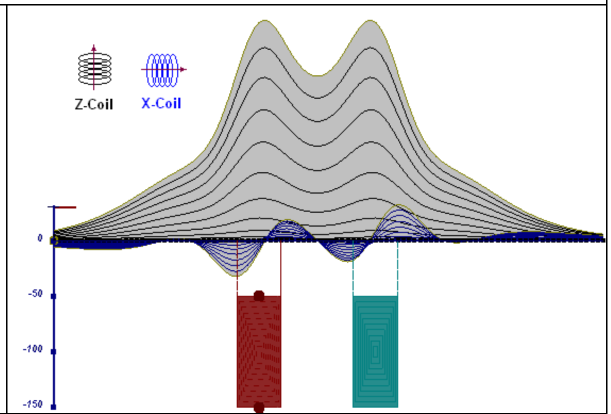

	

Fig E-14: two horizontal thin plates	Fig E-15: two vertical thick plates

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

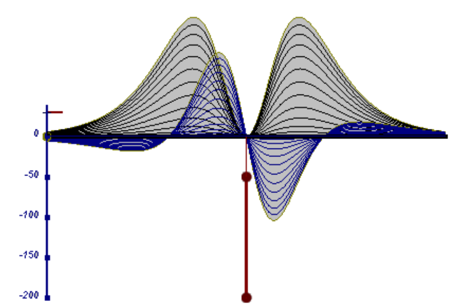
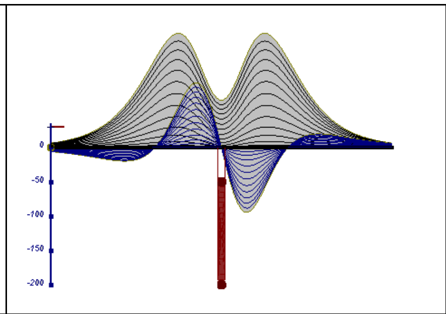
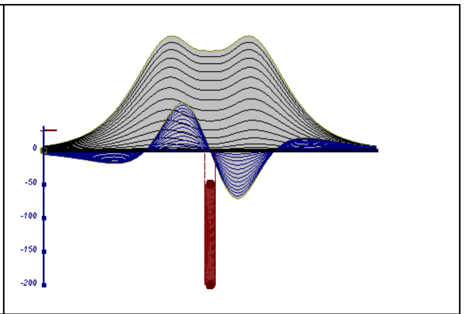
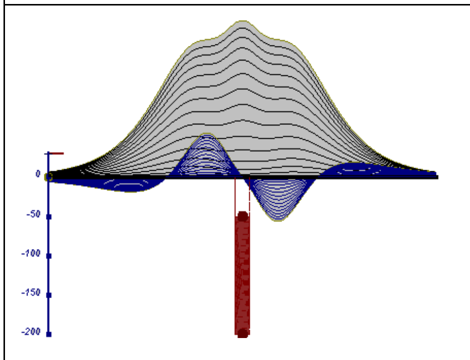
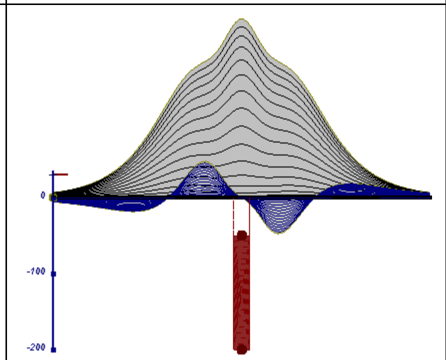
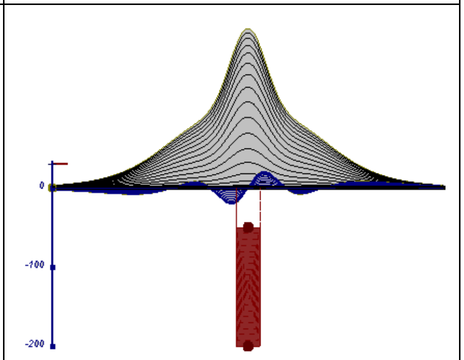
		
“thin”	10 m thickness	15 m thickness
		
18 m thickness	20 m thickness	30 m thickness

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

Appendix 2

Summary Report of Geological Traverse Survey

SUMMARY REPORT OF
GEOLOGICAL TRAVERSE SURVEY

RICHARDSON LAKE AREA PROPERTY

THUNDER BAY DISTRICT

ONTARIO

CHINA METALLURGICAL EXPLORATION CORP.

Beijing, China Li Xianjun

June 29, 2010 Yangxiao

CONTENTS

1 Foreword

Richardson Lake Area property is located in the Richardson Lake and Upper Scotch Lake Areas, approximately 200 km west of Thunder Bay. The interested minerals were copper and gold. Geologists from China Metallurgical Exploration Corp. (CME) carried out primary geological traverse survey and reconnaissance in May 29 to 30, 2010. The main task is to understand the geological characteristics, mineralization conditions of the property, and to provide reference and basis for next step geological work.

2 Location, traffic and geography

Richardson Lake Area Property is located in the Richardson Lake and Upper Scotch Lake Areas, approximately 200 km west of Thunder Bay (FIGURE 1). Local traffic is more convenient, access to the property is provided by Highway 17, then go west about 32 km along Graham Road.

FIGURE 1: LOCATION MAP OF RICHARDSON LAKE AREA PROPERTY

The topography of the property is low and to moderate hills, the elevation is about 500-504 meters, outcrops can be observed, most areas were covered by sand, soil and vegetation.

2 Claim situation

China Mining of Canada Corp. registered the property in Aug 4, 2009, and transferred 100% rights to CME in Feb 5, 2010.

The following are the current list of claims and their status (TABLE 1, FIGURE 2).

TABLE 1: CLAIM STATUS

Township/Area	Claim Number	Recording Date	Claim Due Date	Status	Percent Option	Work Required
RICHARDSON LAKE	4248130	2009-Aug-04	2011-Aug-04	A	100 %	$ 3,600
	4252241	2009-Aug-04	2011-Aug-04	A	100 %	$ 6,400
	4252242	2009-Aug-04	2011-Aug-04	A	100 %	$ 3,200
	4252243	2009-Aug-04	2011-Aug-04	A	100 %	$ 6,000
	4252244	2009-Aug-04	2011-Aug-04	A	100 %	$ 6,400
	4252245	2009-Aug-04	2011-Aug-04	A	100 %	$ 6,400
	4252246	2009-Aug-04	2011-Aug-04	A	100 %	$ 6,400
	4252247	2009-Aug-04	2011-Aug-04	A	100 %	$ 4,800
	4252248	2009-Aug-04	2011-Aug-04	A	100 %	$ 5,600
	4252249	2009-Aug-04	2011-Aug-04	A	100 %	$ 6,000
	4252250	2009-Aug-04	2011-Aug-04	A	100 %	$ 6,000
UPPER SCOTCH LAKE - TB	4252233	2009-Aug-04	2011-Aug-04	A	100 %	$ 6,400
	4252234	2009-Aug-04	2011-Aug-04	A	100 %	$ 6,400
	4252235	2009-Aug-04	2011-Aug-04	A	100 %	$ 6,400
	4252236	2009-Aug-04	2011-Aug-04	A	100 %	$ 1,600
	4252237	2009-Aug-04	2011-Aug-04	A	100 %	$ 6,400
	4252238	2009-Aug-04	2011-Aug-04	A	100 %	$ 6,400
	4252239	2009-Aug-04	2011-Aug-04	A	100 %	$ 3,200
	4252240	2009-Aug-04	2011-Aug-04	A	100 %	$ 6,000

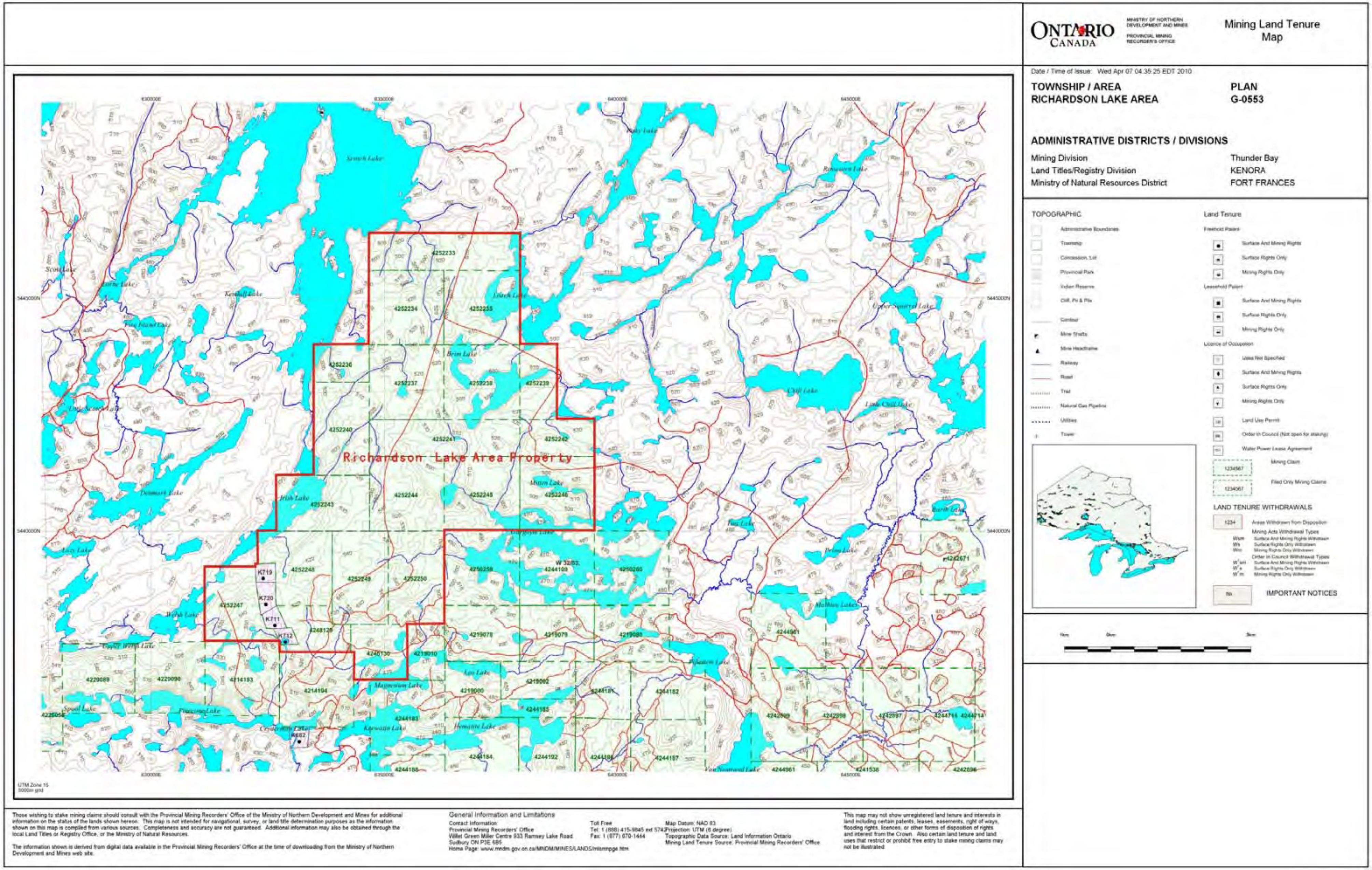


FIGURE 2: CLAIM MAP OF RICHARDSON LAKE AREA PROPERTY

4 Regional geological features

Richardson Lake Area property is located in Thunder Bay, northern part of Ontario. M.C. Jackson has finished the research of geologic features in the Lumby Lake area, and published the report. Our property is in this area.

Lumby Lake is in the Canadian Shield area, which is represented by Archaean greenstone belt. This greenstone belt consists of two terrains parts. Under-part is calc-alkalic series basic to acidic metavolcanic rocks; upper-part is metasedimentary rocks and chemical sediments such as banded ironstone and chert.

Lumby Lake greenstone belt is folded about a syncline centered on Van Nostrand Lake. The syncline is asymmetric with varying stratigraphy on north and south limits. Three intrusive rock types intrude the belt

1) Pre-tectonic felsic porphyritic sills and dikes
2) Syn to post-tectonic granitoid rocks of at least two ages the oldest being the Marmion Lake gneiss (tonalite to quartzdiorite), the Norway Lake pluton (granite) and the Chill Lake granodiorite
3) Syn to post-tectonic porphyritic stocks (the Van Nostrand Lake Stock and the Spoon Lake stock along the central synclinal axis.

4.1 Stratum

The stratums, which distribute in Lumby Lake Area, are Archaeozoic and Cenozoic strata.

Archaean: mafic metavolcanic rocks, felsic - neutral metavolcanic rocks, metamorphic clastic sedimentary rocks and metamorphic chemistry sedimentary rocks.

Mafic metavolcanics is the dominant lithology in this area, which forms 80 percent of the greenstone. The main rock types are massive or pillow lava, variolite, tuff, lapilli tuff, tuff breccia, plagioclase-porphyritic flows and so on. Felsic - neutral metavolcanic rocks are rhyolite, felsic tuff, and crystal tuff. Metamorphic clastic sedimentary rocks are slate, basaltic sandstone, arkose, psammite, conglomerate, etc. Metamorphic chemistry sedimentary rocks consist of chert, ferruginous chert, oxide facies ironstone, sulfide facies ironstone, silicate facies ironstone, clastic ironstone, carbon shale and griotte, etc.

Cenozoic: consist of recent and pleistocene lake, stream and wetland deposits, glacial, glaciofluvial and glaciolacustrine deposits: sand, gravel, clay, till.

4.2 Structure

The dominant structural features of the area are a central syncline with a steep east-west axis and a rectilinear conjugate fault set trending east-west and northeast.

Syncline with a steep east-west trending axial surface located more or less centrally in the "greenstone belt". In the eastern half of the Lumby Lake area the synclinal axis is apparently cut by the intrusive Van Nostrand Lake stock. This structure is notably asymmetrical in both its geologic and geophysical expression. On the aeromagnetic EM maps (maps 80531and 80532, OGS 1980) a northern terrane of high magnetic relief and abundant EM conductive anomalies contrasts with a southern terrane of low magnetic response and few EM conductors.

There are two large-scale regional faults, which affect the structure of the Lumby Lake area. They are the east-west striking Quetico Fault zone and the Steep Rock-Redpaint Lake Fault zone. Quetico Fault zone is dominantly right-lateral strike-slip, intersects and cut Steep Rock Lake-Redpaint Lake Fault. In addition, there are some small faults and shear zones paralleling both the major regional structures.

4.3 Magmatite

The main magmatite in this area are Archaeozoic volcanics, intrusive rocks and Proterozoic diabase.

1) Archaeozoic volcanics: ultramafic-mafic metavolcanic rocks,

felsic-neutral metavolcanic rocks.

2) Archaeozoic intrusive rocks: ultramafic - mafic intrusive rocks, felsic-neutral intrusive rocks.

Ultramafic-mafic intrusive rocks form 80 percent of the greenstone in the Lumby Lake Syncline. The main rock types are gabbro, diorite, peridotite, serpentine, etc. Most ultramafic rocks occurred serpentinization, showed as a narrow sheet or layered rock. Metamorphic gabbro has limited exposure, and was mainly interpretated from the geophysical data.

Felsic-neutral intrusive rocks:

1. Pre-tectonic felsic porphyry; Feldspar - quartz porphyry and tonalite etc.
2. Syn to post-tectonic granitoid rocks of at least two ages the oldest being the Marmion Lake gneiss (tonalite to quartz diorite), the Norway Lake pluton (granite) and the Chill Lake granodiorite.
3. Syn to post-tectonic porphyritic stocks (the Van Nostrand Lake Stock and the Spoon Lake stock along the central synclinal axis.

Proterozoic diabase:

1. A diabase dyke, striking WNW with a width of about 100 meters, extending from the southwest corner of Chill Lake to the south of Brushport Lake.

4.4 Minerals

Archean is an important metallogenic epoch, possessed rich mineral resources, especially in greenstone belts. Gold, silver, copper and zinc hosted in the mafic volcanic rocks and between mafic and felsic volcanic rocks, banded iron developed in sedimentary rocks, which were in upper part.

Mineral exploration in this area began in 1913; minerals are mainly iron, gold and base metals. Gold mineralization is mainly developed in the sedimentary rocks containing iron construction, base metals (copper, lead, zinc) was mainly concentrated in copper-nickel sulfide deposits which in the ultramafic peridotite and VMS deposits in the greenstone belt.

5 This geological work

5.1 Method

We adopted geological traverse survey method, observed and described the outcrops and mineralization on the geological observation points. In addition, we used a NITON XL3t-500 handheld X-ray fluorescence ore analyzer to analyzed the mineralized rock (ore) for qualitative and preliminarily determined of the content of Cu and Zn in the field. Besides, we collected samples and analyzed the grade of Cu and Au by quantitative in the laboratory.

5.2 Workload performed

The field working times are May 29 to 30, 2010. We observed and described 24 geological points with the total length about 16.6km. We used the analyzer 44 times (FIGURE 3) and analyzed 2 samples in the laboratory.

5.3 Geological summary

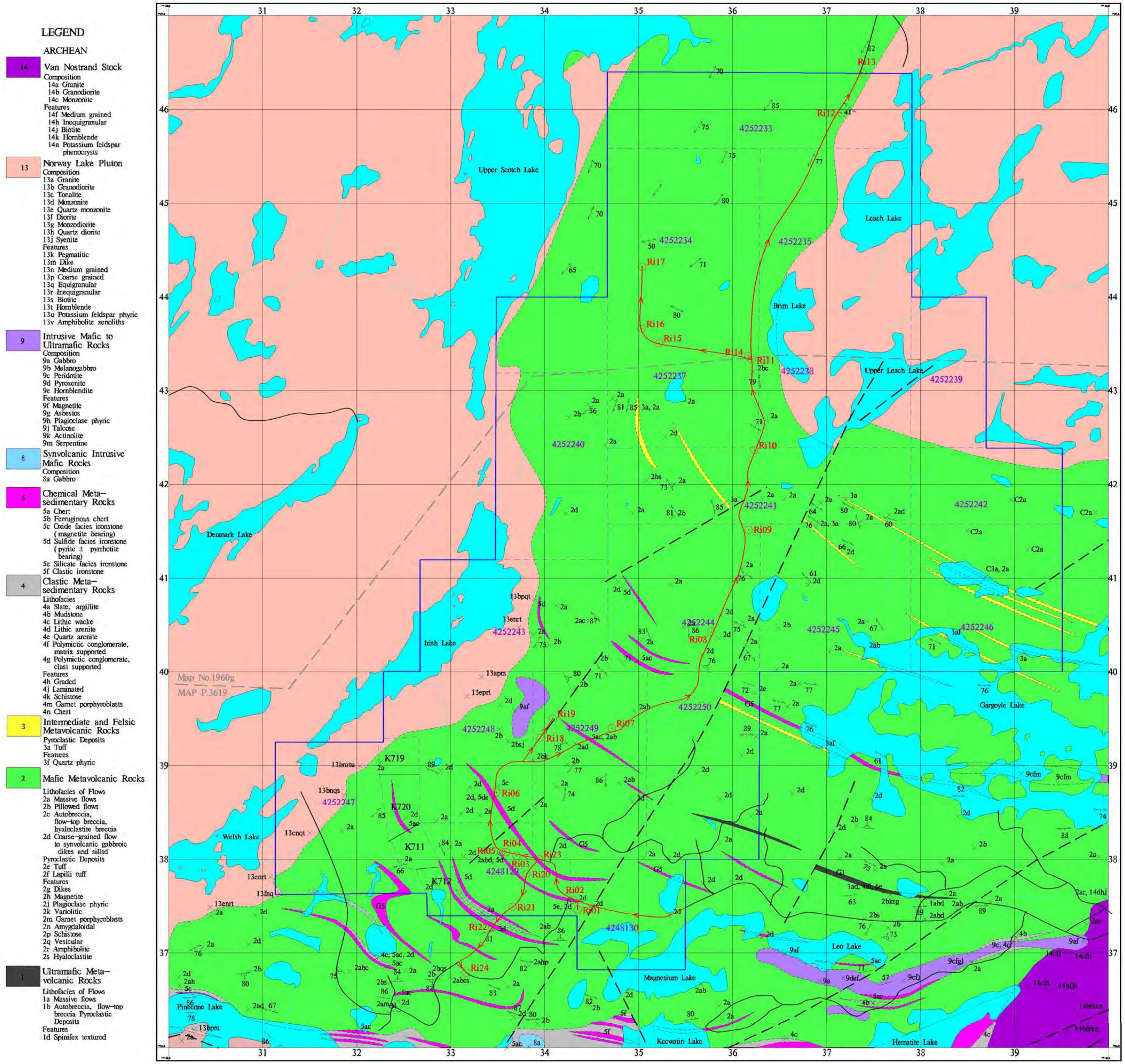
The bedrock in the property isn't exposed very well. The outcrops appeared intermittent along the sides of the road. Most outcrops are covered by sand, gravel and vegetation. We only observed part rock and limonitization outcrops on the routes, but didn't make a detailed investigation about geological structure features of the property.

(1) Rock types

Depending on the geophysical interpretation by predecessors and outcrop observation, the rock types in the property are the Archaeozoic mafic metavolcanics, felsic metavolcanics, metamorphic chemistry sedimentary rocks, felsic intrusive rocks and mafic intrusive rocks.

Mafic metavolcanics: widespread, the outcrops observed are mostly mafic metavolcanics (Ri01 - Ri03 and Ri04 - Ri06, etc.). Rock types are mainly massive and pillow lavas, which are dark gray, grain-fine, partly develop vesicular and amygdaloidal structure, the composition of mineral is mainly pyroxene, feldspar, quartz, and hornblende. Most rocks develop slight-medium limonitization; part rocks develop chloritization, epidotization, carbonation and schistosity.

Felsic intrusive rocks: distributed in the boundary of the west and northeast of the property. Rock type is granite. We observed the contact zone of granite and metavolcanic rocks at point Ri12. Granite is light reddish, main minerals are feldspar and quartz, medium-coarse grain, massive structure.



ANALYSIS TABLE

SPOT NO.	OUTCROP	ANALYSIS RESULT Cu(%)	Zn(%)	REMARK
Ri01	2d	< LOD	0.007	
Ri02	2d	< LOD	< LOD	ferritization
		0.032	< LOD	
		0.030	< LOD	
Ri03	2a	< LOD	< LOD	
Ri04	2ab	0.134	0.023	ferritization
		0.122	0.015	
		0.032	0.015	
		< LOD	0.025	
Ri05	2ab	< LOD	< LOD	ferritization
		0.026	< LOD	
Ri06	2d	0.013	< LOD	ferritization
		< LOD	0.012	
		0.020	< LOD	
Ri07	2b			
Ri08	2d			
Ri09	2d			
Ri10	2ad			
Ri11	2ab	< LOD	0.010	ferritization
Ri12	2a, 13a	< LOD	0.010	
Ri13	2a			
Ri14	2a	0.060	< LOD	ferritization
		0.502	< LOD	
		0.153	< LOD	
		0.034	< LOD	
		0.391	< LOD	
		0.379	< LOD	
Ri15	2a	< LOD	< LOD	ferritization
		0.972	< LOD	
		0.227	< LOD	
		0.369	< LOD	
		0.018	0.038	
		0.064	< LOD	
Ri16	2a	0.028	< LOD	ferritization
		0.057	< LOD	
		< LOD	< LOD	
Ri17	2d			
Ri18	2bd	< LOD	0.008	
		< LOD	0.012	
Ri19	2a	0.074	< LOD	ferritization
Ri20	2a	0.058	< LOD	ferritization
		0.022	< LOD	
		0.080	0.011	
Ri21	2a (boulder)	3.229	< LOD	ferritization pyritization chalcopyri-tization
		2.134	< LOD	
		0.022	< LOD	
		2.235	< LOD	
		2.590	< LOD	
		< LOD	0.009	
		< LOD	< LOD	
Ri22	5d			
Ri23	no			
Ri24	2bs			

* The data is analyzed by NITON XL3t-500.

FIGURE 3: TRAVERSE GEOLOGICAL MAP OF RICHARDSON LAKE AREA PROPERTY

The granite interluded in cyan-gray metavolcanic rocks, the strike of the contact is about N15°E.

We didn’t observe outcrops of felsic-neutral metavolcanic rocks and the mafic intrusive rocks in this work.

(2) Mineralization character

The mafic metavolcanics and the metamorphic chemistry sedimentary rocks in the property develop limonitization, some outcrop (float) exists with trace of Cu and Zn mineralization.

Limonitization developed in different degrees in points Ri2, Ri4-6, Ri11, Ri14-16 and Ri19-21. The limonitization zone’s width is about 5 - 10 meters. Weathered surface is maroon. It also developed some altered minerals such as limonitization, chlorite and so on. The rocks were broken and little fractures developed in part outcrops. Quartz, calcspar and some other minerals filled in fractures. We analyzed Cu and Zn of limonitization outcrop (float) in field using analyzer, the result is: Cu 0.013 - 3.229% and Zn 0.007 - 0.038%.

Limonitization metavolcanic rocks developed in Ri14, the limonitization zone’s width is about 5 meters and strike is about N15°E. Pyrite and chalcopyrite developed in little part and the analysis result is Cu 0.034 - 0.502% in field using analyzer. Limonitization strong developed in Ri15, the width is about 6 - 8 meters and the analysis result is Cu 0.018 - 0.972% in field. We found limonitization metavolcanic float in point Ri21 in this survey. Limonitization is strongly developed in the rocks, the fractures developed in some parts and the quartz veins filled in the fractures. Pyrite scattered distributed in the quartz veins and metavolcanic rocks, the analysis result is Cu 0.022 - 3.229% in field. The chemical analysis of samples in laboratory is referred to in TABLE 2. The detection limit of Cu and Zn is 0.5 ppm; the detection limit of Au is 0.01ppm. The results show that there is a good prospect for finding mineral resources.

TABLE 2: ANALYSIS RESULT

ID	Description	Weight (kg)	Analysis		
			Cu (ppm)	Zn (ppm)	Au (ppm)
RiB03	metavolcanic, quartz vein with pyritization	1.92	357	13.7	0.44
RiB04	quartz vein with pyritization	1.54	174	63.4	1.62

*Analyzed by AGAT Laboratories.

6 Working suggestion

In view that the overlay material (overburden) is thick, widespread, and the bedrock on the property isn't exposed very well, but limonitization and trace copper mineralization was observed, we plan to use an aerial geophysical survey to understand the feature of geological structure, rock and mineralization, and provide the basis for the drilling layout.

References

Buse, S., Lewis, D. and Magnus, S. 2010. Precambrian geology of the Lumby Lake greenstone belt; Ontario Geological Survey, Preliminary Map P.3619, scale 1:20 000.

Woolverton, R.S., 1960: Lumby Lake area, districts of Kenora and Rainy River, Ontario; Ontario Ministry of Northern Development and Mines, Ontario Geological Survey, M1960G, scale 1:31680 or1 inch to 1/2 mile.

Jackson, M.C., 1985: Geology of the Lumby Lake Area, Eastern Part, Districts of Kenora and Rainy River; Ontario Geological Survey, Open File Report 5535,142p., 7 tables, 12 figures, 7 photographs, and l map in back pocket.