ALBANY PROJECT
4F Extension - South Grid

2013 Airborne Geophysical Survey
Assessment Report
Porcupine Mining District, Ontario

Townships of
Feagan Lake, Pitopiko River
& Nagagami River
NTS: 42K/01,02

zenyatta
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Thunder Bay, ON
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December 2, 2014

Glenda Carey, B.Sc.

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1.0 Summary

During the summer of 2013, Zenyatta Ventures Limited contracted Geotech Limited to conduct a "Helicopter-Borne Versatile Time Domain Electromagnetic (VTEM max) and Aeromagnetic" geophysical survey on the Albany Project 4F Ext-South Grid claim block. The survey was initiated to explore for additional graphite and/or sulphide mineralization in the area adjacent to and north of Zenyatta's Albany project Block 4F Graphite deposit. Zenyatta's Albany Project claim blocks are located in northern Ontario in the James Bay Lowlands area (see Figure 1). The airborne survey is described in detail in the attached Geotech 2013 Report at the end of this report in Appendix A.

Ontario Geological Survey (OGS) geologist Greg Stott interpreted the region's Precambrian geology (Stott et. al., 2007) based on government airborne geophysical surveys and geological data from limited exploratory diamond drilling conducted in the area. Stott grouped the Precambrian basement rocks into separate terranes and basins. Claim block 4F Extension overlies Stott's "Marmion Terrane" rocks. Rock types grouped within this terrane include metasedimentary rocks, tonalite to granodiorite, alkalic intrusives and carbonatite. Government surveys include regional airborne geophysical surveys covering the James Bay Lowlands area.

Historical mineral exploration in this region has been limited over the years due to its remote location and lack of outcrop exposure. Documented exploration assessment reports available from the Ministry of Northern Development and Mines (MNDM) are airborne and ground geophysical surveys and diamond drilling projects carried out in the 1960's by Algoma Ore Properties. According to Sage (1988), the rocks underlying the Block 4F and 4F Extension claims are part of the Nagagami Alkalic Rock Complex and interpreted by Algoma Ore Properties (based on aeromagnetic data and limited drilling) as composed of two ring shaped sub-complexes with more mafic rims and leucocratic cores. The western to mid-section of the north sub-complex underlies the South Grid claims and appears to consist mainly of magnetite-bearing, amphibole-pyroxene syenite (Sage, 1988).

Results from Zenyatta's Geotech 2013 Airborne VTEMmax Survey flown over the South Grid were disappointing and did not outline any electromagnetic (EM) anomalies within this part of the complex (see Maps in Appendix A). Magnetic anomalies in the South Grid area most likely define the "magnetite mineralized outer rim" of the large ring-shaped, mostly syenitic intrusive. Based on the airborne VTEM results, Zenyatta does not recommend any further mineral exploration work or follow-up drilling on the 4F Extension - South Grid claims.

Date:6/11/2014	zenyatta
Geologist: Peter Wood	ALBANY PROJECT LOCATION MAP FIGURE 1
Author: Glenda Carey	
Office: Thunder Bay	
Drawing: csalo	
Scale: See scale bar	Projection: UTM Zone 16 (NAD 83)

2.0 Introduction

In the late summer of 2013, Zenyatta Ventures Limited contracted Geotech Limited of Aurora, Ontario to conduct an airborne electromagnetic (VTEM max) and aeromagnetic geophysical survey. The survey was flown over the 4F Extension claims located approximately 65 km northwest of the town of Hearst in northeastern Ontario and was initiated to search for additional graphite and base metal (Cu, Ni, PGEs) mineralization in the area north of Zenyatta's Block 4F graphite deposit (see Figure 2).

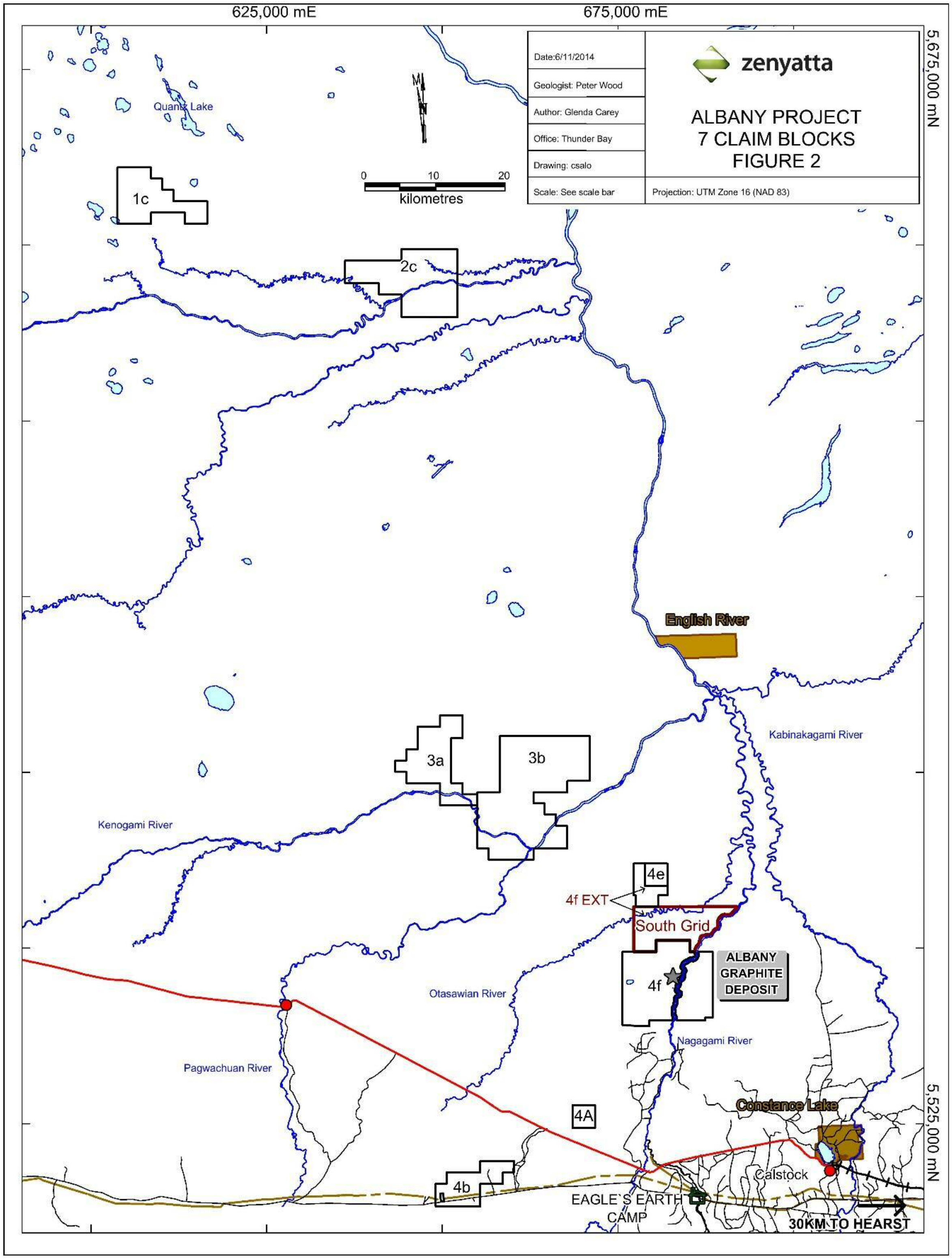
The entire survey was flown from August 18 to September 5, 2013 and included 3 distinct grids with line-spacings of 150, 200, and 400 metres. This report discusses the results for the ***South Grid*** claims only which had line-spacings of 150 m and were flown in a south to north (N 0° E azimuth) direction. Tie lines were flown with a spacing of 4000 m, perpendicular to the traverse lines. The total line kilometres for the Southern Grid was ***475 line km*** and the area covered was 65.7 km².

In the South Grid claim area, the Geotech survey outlined magnetic anomalies in the outer rim of the northern subcomplex intrusive. The Geotech survey did not outline any electromagnetic (VTEMmax) anomalies in the South Grid claim area. Results of the airborne survey in the South Grid are shown on the five Geotech airborne geophysical maps (Appendix A):

1) *VTEM B-Field Z Component Profiles Over Total Magnetic Intensity Grid*
2) *VTEM dB/dt Z Component Profiles*
3) *VTEM B-Field Z Component – Channel 30*
4) *dB/dt Calculated Time Constant (Tau) with contours of anomaly areas of the Calculated Vertical Derivative of TMI, and*
5) *Magnetic Intensity (TMI)*

For assessment purposes, a percentage of the total costs of the entire airborne survey has been calculated for the South Grid based on this grid's total line-kilometres that were surveyed (traverse lines plus tie lines). This amount (Appendix B) will be used to assign credits to South Grid claims and/or other contiguous claims.

Figure 2: Albany Project – 7 Claim Blocks

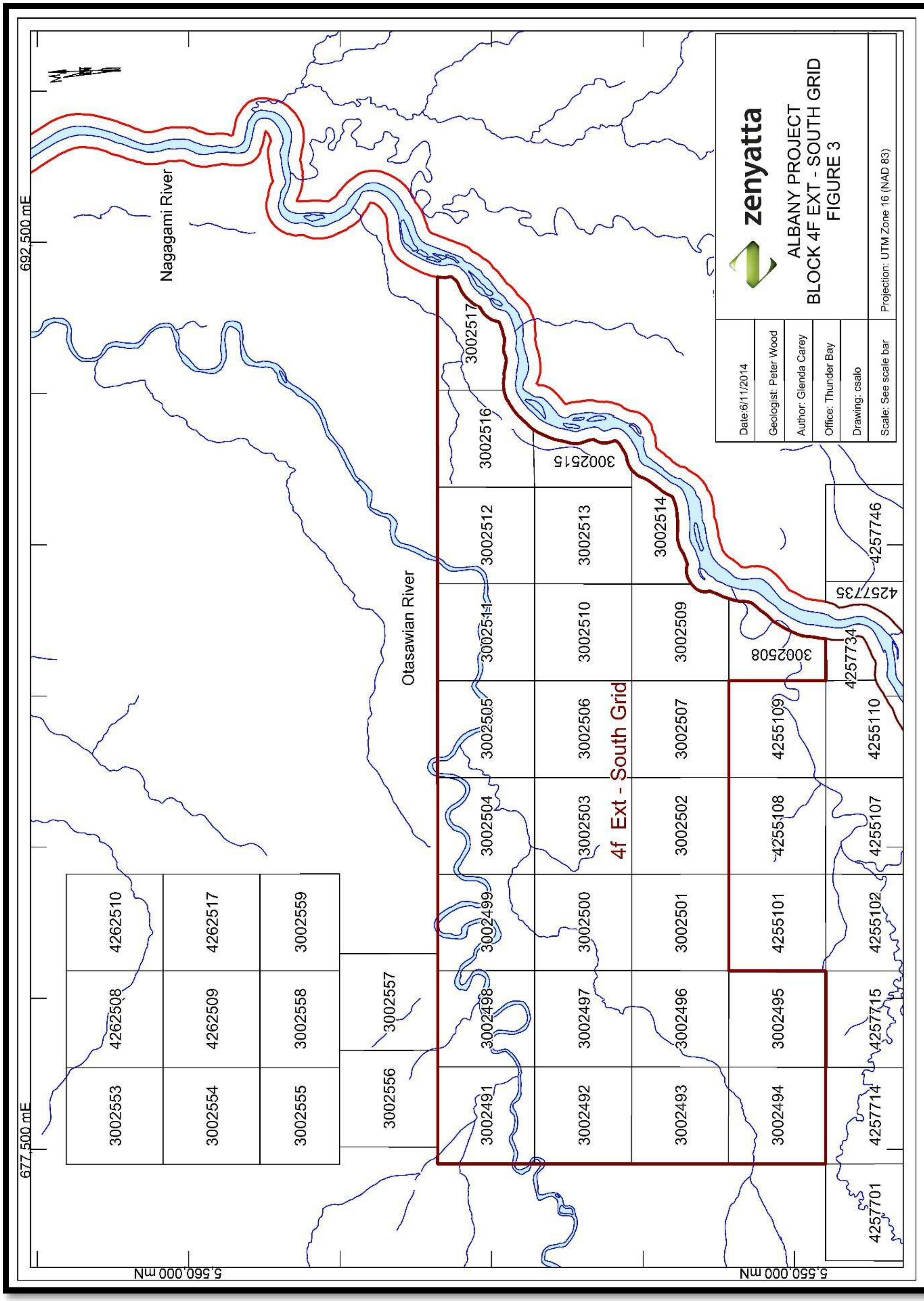


3.0 Property Description: 4F Extension - South Grid

The Albany Project 4F Extension - South Grid claims are located north of Lake Superior and west of James Bay in northern Ontario, Canada. The claims are situated within the townships of Pitopiko River, Feagan Lake and Nagagami River areas and are located within NTS blocks 42K/01 and 42K/02.

Zenyatta's 4F Extension - South Grid (*Figure 3*) has a total of ***27 claims, 404 claim units, 6464 hectares,*** and requires a total minimum work expenditure of ***$161,600*** a year to keep the claims in good standing. The 4F South Grid claims are listed below in Table 1. The entire group of claims were staked in March of 2013 and are contiguous with Zenyatta's Block 4F claims to the south and Zenyatta's Block 4E claims to the north.

The South Grid Claims are part of a larger group of claims (*see Figure 2*) that make up the Albany Project and include 7 groups of claims (Blocks 1C, 2C, 3A, 3B, 4A, 4B & 4F) totaling ***234 claims***, ***3549 claim units***, and ***56,784 hectares***. The majority of the Albany Project claims were staked during the late summer and fall of 2009, followed by additional staking in 2010. Presently most of the Albany claims are 75% owned by Cliffs Natural Resources Exploration Canada Incorporated (CNRECI) and 25% Zenyatta Ventures with the exception of Block 4F and 4F Extension claims (including South Grid) that are 100% owned by Zenyatta.


zenyatta
ALBANY PROJECT
BLOCK 4F EXT - SOUTH GRID
FIGURE 3
Date:6/11/2014
Geologist: Peter Wood
Author: Glenda Carey
Office: Thunder Bay
Drawing: csalo
Scale: See scale bar
Projection: UTM Zone 16 (NAD 83)
Nagagami River
Otasawian River
4f Ext - South Grid
677,500 mE
692,500 mE
5,560,000 mN
5,550,000 mN
3002553
3002554
3002555
4262508
4262509
3002558
4262510
4262517
3002559
3002556
3002557
3002491
3002492
3002493
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3002514
3002516
3002515
3002517
4257701
4257714
4257715
4255102
4255107
4255110
4257734
4257735
4257746

TABLE #1: ZENYATTA - ALBANY BLOCK 4F - SOUTH GRID CLAIMS - 2014						
Claim #	***# Units***	***Hectares***	***Recorded Date***	***Due Date***	***Work Required***	***Ownership***
3002491	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002492	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002493	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002494	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002495	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002496	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002497	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002498	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002499	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002500	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002501	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002502	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002503	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002504	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002505	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002506	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002507	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002508	10	160	Mar21/2013	Mar21/2015	$4,000	Zenyatta
3002509	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002510	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002511	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002512	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002513	16	256	Mar21/2013	Mar21/2015	$6,400	Zenyatta
3002514	8	128	Mar21/2013	Mar21/2015	$3,200	Zenyatta
3002515	8	128	Mar21/2013	Mar21/2015	$3,200	Zenyatta
3002516	15	240	Mar21/2013	Mar21/2015	$6,000	Zenyatta
3002517	11	176	Mar21/2013	Mar21/2015	$4,400	Zenyatta
27	***404***	***6464***			***$161,600***	

4.0 Location, Access and Topography

Zenyatta's Albany 4F Extension - South Grid claims are situated within the Porcupine Mining District of northern Ontario, Canada and within townships of Pitopiko River, Feagan Lake and Nagagami River. The South Grid claims are located approximately 65 km northwest of the town of Hearst and 36 km north of Highway 11. The nearest town, Hearst, has a population of 5090. The town of Hearst has many facilities to keep an exploration camp well supplied. These include hotels, restaurants, a hospital, hardware stores, gas stations, mining supply store, and an airport. Both helicopter and float plane services are also available in Hearst.

The claims are situated within the Hudson Bay-James Bay Lowlands area where the topography is essentially flat, low-lying and swampy. Based on limited historical drilling in the area, overburden thickness ranges from approximately 15 m to 40 m thick with no outcrop exposure. There are many creeks flowing between peat bogs throughout the area. Vegetation is dominated by wetlands with some areas of spruce and alder trees, and cedar swamps. Spruce and alder trees are also abundant along the banks of rivers and other smaller rivers. Access to the South Grid claims can be easily gained using helicopter, but boat or canoe can be used to access claims along the Nagagami River.

The claims are situated in northern Ontario where there are various climates and weather extremes. Most of the region has a continental climate with warm to hot summers (June, July and August; 25° to 35° C) and cold winters (December to March, 10° to -30° C). Spring and autumn tend to be short seasons and can have some of the weather of winter and summer. Generally, precipitation ranges from 600 mm to around 900 mm. Surface exploration work can be carried out during the months of May to November, possibly later if there is no snow accumulation. Airborne or ground geophysical surveys and diamond drill programs can be conducted year round.

5.0 Historical Work

Zenyatta's Albany South Grid claims were staked in the late summer of 2013. The ground was selected based on geophysical information from OGS airborne magnetic maps, the geological interpretation (Greg Stott, 2007-2008) of these maps and additional geological and geophysical data from historical exploration reports provided by MNDM. Historical exploration work has been limited in this area of the James Bay Lowlands and due to lack of bedrock on the surface the work mostly consists of ground and airborne geophysical surveys with a small number of reconnaissance diamond drill projects. Historical mineral exploration work and MNDM surveys carried out in the South Grid area include:

1959: A ground magnetic and electromagnetic survey was initiated on claims held by ***Nagagami River Prospecting Syndicate*** in the Feagan Lake and Pitopiko River Townships area. The geophysical survey was carried out by Koulomzine and Brossard Limited, but was not fully completed because of an early spring breakup. Results of the survey showed three magnetic anomalies defining basement geology contacts and several vertical-loop electromagnetic conductors. They recommended drilling four holes to investigate the EM anomalies, but there is no record that these holes were ever drilled.

1961: ***Algoma Ore Properties Limited*** flew an aeromagnetic survey in the Nagagami River and Pitopiko Townships area. The survey outlined a horseshoe-shaped anomaly which was confirmed on the ground in the same year. This led to further exploration in 1963.

1963: ***Algoma Ore Properties Limited*** flew an airborne magnetometer survey in the Nagagami River area, located forty miles northwest of Hearst, Ontario. The survey was flown by Hunting Survey Corporation. The survey results indicated two large low intensity circular shaped anomalies (Anomalies #1 and #2), underlying the Paleozoic limestones. Interpretation of the anomalies inferred that they were caused by a complex syenitic to gabbroic intrusion. Algoma recommended follow-up work to include a ground magnetometer survey over the anomalies and a diamond drill program (Venn, V.R., 1964).

1964 - 1967: ***Algoma Ore Properties Limited*** continued exploration in the Nagagami River area. Ground work involved grid cutting followed by a ground magnetometer survey and claim staking. Algoma drilled 9 holes (1-64 to 9-64) for a total of 4,868 feet. Samples of the core were collected and assayed and they also carried out petrographic studies. It was concluded that the ground magnetometer survey and the diamond drilling verified the airborne survey fairly well, and although the drilling did not intersect any ore minerals, the structure was still geologically interesting. Algoma reported that minerals of economic potential could possibly be associated with other parts of the structure and they recommended that the property be referred to other companies interested in intrusive structures (Venn, V.R., 1964).

1999: The ***Ontario Geological Survey*** (OGS) released aeromagnetic geophysical maps for the Hudson Bay and James Bay Lowlands areas, *Geophysical Data Set 1036*.

2008: The ***Ontario Geological Survey*** (OGS) Precambrian Geology Map P.3599 was published: *Hudson Bay and James Bay Lowlands Region Interpreted from Aeromagnetic Data,* G.M. Stott, 2007–2008.

6.0 Geological Setting

The following are excerpts from Stott's (2007-2008) "Marginal Notes", Map P3599, describing the interpreted Precambrian Geology of the Hudson Bay and James Bay Lowlands Region:

The relatively flat-lying Hudson Bay and James Bay Lowlands, consist mostly of carbonates of Paleozoic to Mesozoic age. These sediments cover a significant portion of the Precambrian rocks of Northern Ontario and therefore, have impeded the understanding of the Precambrian geology and the tectonic framework across this region of Ontario. The region's Precambrian geology is based mainly on available reprocessed aeromagnetic data and limited drill hole information. The results provide a general framework of interpreted supracrustal belts, plutonic subdivisions, major faults and Proterozoic mafic dikes (see Figure 4).

In the James Bay Lowland area, the most significant feature is the aeromagnetic expression of the Uchi domain greenstone belts, along the southern flank of the Sachigo superterrane trending northeast under the James Bay Lowland and wrapping around the eastern end of the Island Lake domain, a portion of the Sachigo superterrane. This greenstone trend merges with the Oxford–Stull domain near the western margin of the James Bay Lowland just east of the McFaulds Lake massive sulphide deposits. This combined array of Neoarchean greenstone belts continues east, narrowing under the James Bay Lowland, towards the Eastmain greenstone–granite domain in Quebec.

The Northern Superior superterrane forms a 1000 km long band of distinctively strong magnetic intensity. A marked magnetic discontinuity can be traced eastward roughly midway under the Hudson Bay Lowland between a region of high magnetic relief and complexity that characterizes the Northern Superior superterrane to the south and a region of relatively flat magnetic character that more closely resembles the magnetic signature of the Trans-Hudson Orogen. However, a significant portion of the interpreted Trans-Hudson Orogen resembles an extension of the Northern Superior superterrane and is interpreted as an area of Archean crust that was overprinted by the Trans-Hudson Orogen. The Sutton Inliers have been reinterpreted by comparing the aeromagnetic data and the outcrops mapped by Bostock. Current regional geology maps of Ontario portray the Sutton Inlier as a single large mass. This new interpretation recognizes a set of ridges forming several crescent-shaped inliers that dip shallowly northward. They appear to be discontinuously related to similar narrow, folded magnetic anomalies within the Trans-Hudson Orogen under the Paleozoic rocks closer to the Hudson Bay coast.

The Island Lake domain is largely plutonic with some Mesoarchean to Neoarchean volcanic belts with geophysical characteristics that show some relationship to the belts within the North Caribou Terrane. The boundaries of the Island Lake domain are probably the least understood and remain the most contentious. At the northern margin of the Sachigo superterrane, the narrower, ribbon-like Oxford–Stull domain (OSD) stretches from Manitoba to the James Bay Lowland (see Figure 4). The OSD displays some evidence of Mesoarchean mid-ocean ridge basalt (MORB)-like sequences concurrent with continental magmatic growth within Northern Superior superterrane and NCT margins to the north and south, respectively. At the edge of the James Bay Lowland in Ontario, the Oxford-Stull Domain includes a calc-alkaline metavolcanic sequence containing volcanic-hosted massive sulphide deposits at McFaulds Lake.

The Uchi domain forms the southern part of the North Caribou terrane within the Uchi Subprovince. The Uchi domain was constructed largely by autochthonous, episodic additions of volcanic assemblages and accompanying plutons during the Neoarchean era (Stott and Corfu, 1991). The eastern extent of the Uchi domain underlies the James Bay Lowland where, from *high-resolution aeromagnetic images, it appears to merge with the OSD. The resulting merged greenstone–granite domain continues eastward under the James Bay Lowland on strike with the Eastmain greenstone–granite domain of Quebec.*

6.1 Local Geology

According to Stott's (2007) regional tectonic subdivisions map (Figure 4), Zenyatta's 4F South Grid property is grouped within the Marmion Terrane of the Superior Province of the Canadian Shield. *This terrane consists predominately of metamorphosed felsic intrusive rocks. The 3.0 to 2.7 billion year old rocks are interpreted as an assemblage of continental fragments. These rocks were once also interpreted as part of the Western Wabigoon and Winnipeg River terranes (MNDM, Government of Ontario).*

Sage (1988) also reported (OGS Report #43) on the Nagagami River Alkalic Rock Complex, which intrudes the Marmion Terrane rocks underlying the South Grid claims:

> *The Nagagami River Alkalic Rock Complex is likely composed of two ring shaped subcomplexes with more mafic rims and more leucocratic cores. The lithologic phases examined by the author range from biotite granite to melanocratic syenite. Drill logs of Algoma Ore Properties Division of Algoma Steel Corporation described lithologies ranging from diorite to syenite. On the basis of aeromagnetic data, Algoma Ore Properties interpreted the presence of two circular structures. The north subcomplex appears to consist mainly of magnetite-bearing, amphibole-pyroxene syenite; the south subcomplex, in addition to amphibolepyroxene syenite, contains a nepheline syenite phase.*
>
> *The north subcomplex lies beneath 143 to 201 m of overburden and Paleozoic rocks. The south subcomplex is overlain by 15 to 84 m of overburden and Paleozoic rocks. The author believes that the north subcomplex is likely of Late Precambrian age on the basis of its lack of metamorphism and its apparent cross-cutting relationship with northwest-trending diabase dikes. The south subcomplex likely is a younger intrusion of the same age, emplaced into the larger body, since its isomagnetic contours appear to truncate those of the north subcomplex. The Nagagami River complex is likely somewhat analogous to the Port Coldwell Alkalic Rock Complex, which consists of three ring complexes superimposed on each other (Currie 1980). The Nagagami River complex appears to be, on the basis of a much more regular aeromagnetic pattern, less variable in lithology. The emplacement of the complex was likely structurally controlled, but there is insufficient data on which to base an interpretation as to the nature or attitude of this structure. The intrusion lies on trend with the extrapolated extension of the regional, northeast-striking Gravel River Fault.*
>
> *The Nagagami River circular magnetic anomaly is one of several within the region of the Albany River that has been interpreted as being due to alkalic rock carbonatite intrusions (Satterly 1970). The accessory magnetite in this lithology is the likely cause of the ring of higher magnetic intensity that outlines the shape of this alkalic rock complex.*

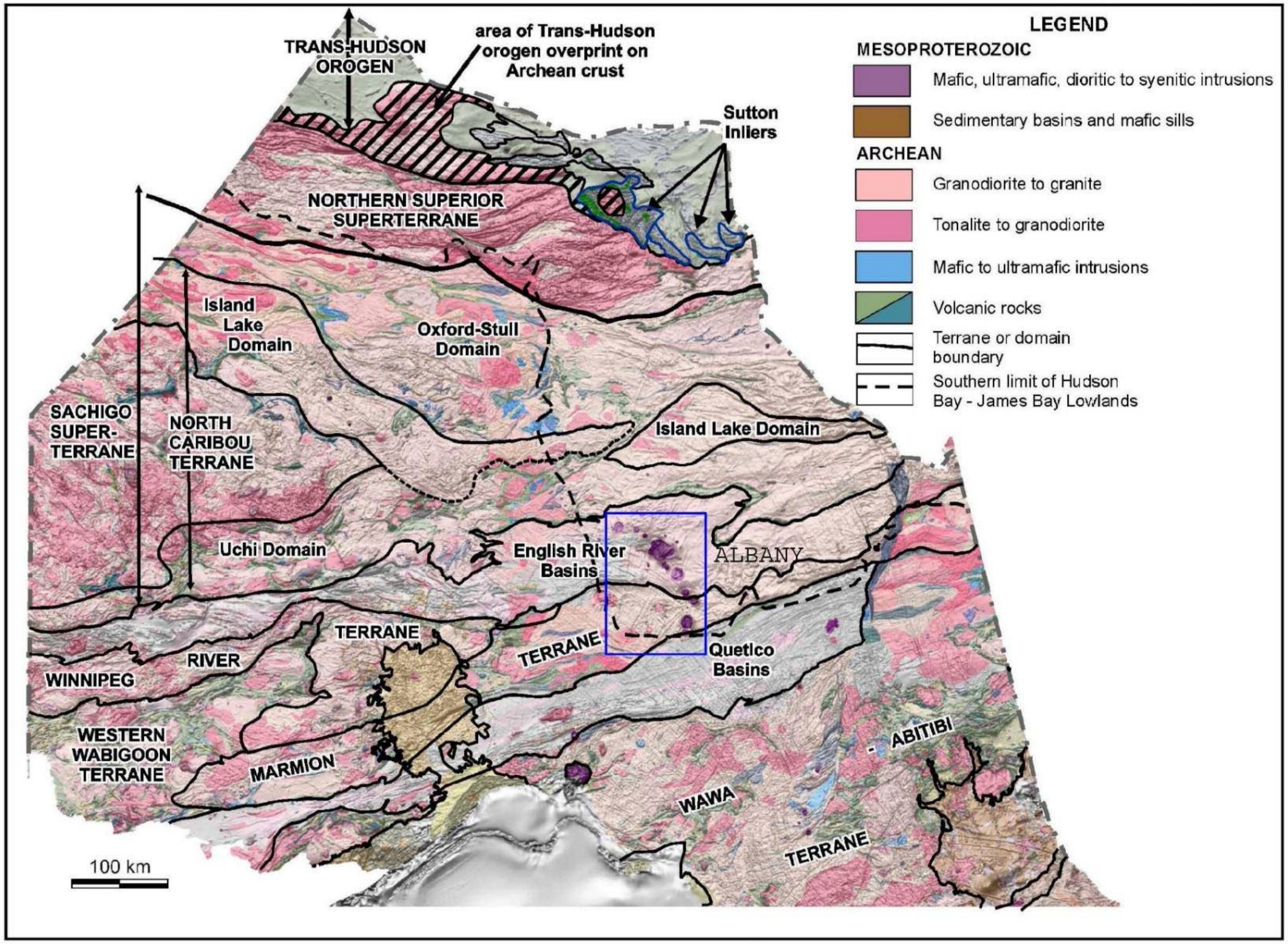

Figure 4. Regional tectonic subdivisions of northern Ontario (*after* Stott et al. 2007).

7.0 Conclusions and Recommendations

Zenyatta's Albany Block 4F Extension - South Grid property has seen very little previous exploration due to its remote location and the fact that the underlying basement rocks are covered by overburden and Paleozoic sedimentary cover rocks. In the South Grid area, depth to basement estimate is approximately 115 m, based on limited historical drilling by Algoma and MNDM data. Government geology maps (MRD126) indicate that the property is underlain by Archean metasedimentary rocks. Additionally, all of the rocks on the property are intruded by at least three ages of diabase dikes; however, the NW-SE trending dikes of the Matachewan swarm are the most predominant.

The 2013 Geotech Airborne VTEM max survey did not indicate any electromagnetic anomalies within the basement rocks (below the Paleozoic rocks) underlying South Grid area claims. The magnetometer results indicated two concentric rings of high mag underlying the Paleozoic limestones which most likely are caused by magnetite mineralization within the younger intrusive rocks.

At this time, Zenyatta Ventures is not recommending any follow-up exploration drilling in the 4F Extension - South Grid area claims.

8.0 References

Algoma Steel Corporation (1963-1966): MNDM Assessment Report File T-4267, Nagagami River File – Alkaline Ring Complexes, Hearst Area.

Jagodits, F. & Paterson, N. (1964): Hunting Survey Corporation Limited for Algoma Ore Properties Limited, Airborne Magnetic Survey, MNDM Assessment Report File T-343, Nagagami River Area.

Ontario Geological Survey (1999): Aeromagnetic Geophysics, Geophysical Data Set 1036.

Sage, R.P. (1988): Nagagami River Alkalic Rock Complex, Ontario Geological Survey (OGS) Study #43.

Stott, G.M. (2007-2008): Ontario Geological Survey Map P3599, Hudson Bay and James Bay Lowlands Region Interpreted From Aeromagnetic Data, South Sheet.

Venn, V.R. (1964-65): Algoma Ore Properties Division, MNDM Assessment Report File T-338; Report on the Nagagami River Alkaline Ring Complexes, Hearst Area.

9.0 Certificate of Qualifications

I, **Glenda Carey**, of 218 London Drive, Thunder Bay, Ontario, do hereby certify that:

1. I hold a **Bachelor of Science Degree in Earth Science (1989)** from Memorial University of Newfoundland, St. Johns, Newfoundland and Labrador;

2. I have practiced my profession in Newfoundland and Labrador, Northwest Territories, Alberta, Nunavut and Ontario since 1989 and have been employed directly by mining and exploration companies and the Government of Nunavut, and Government of Newfoundland and Labrador;

3. I am presently employed by Zenyatta Ventures Limited based in Thunder Bay, Ontario as a Geologist for the company;

4. Permission is granted to Zenyatta Ventures Limited to use this report in a prospectus or other financial offering.

Date: November 14, 2014 at Thunder Bay, Ontario

Glenda Carey, Geologist
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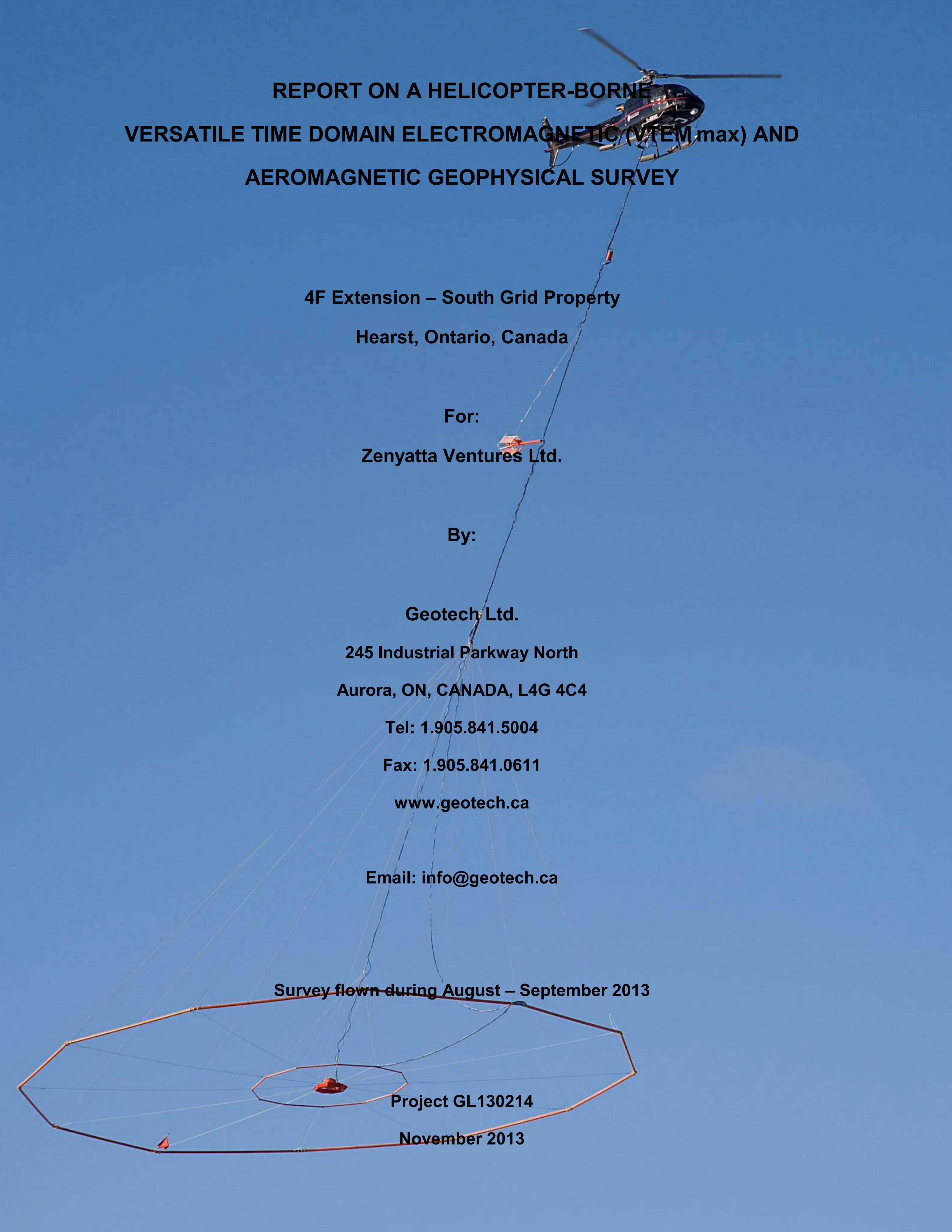
APPENDIX A

Geotech Helicopter Borne VTEM max
&
Aeromagnetic Geophysical Survey



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

4F Extension – South Grid Property

Hearst, Ontario, Canada

For:

Zenyatta Ventures Ltd.

By:

Geotech Ltd.

245 Industrial Parkway North

Aurora, ON, CANADA, L4G 4C4

Tel: 1.905.841.5004

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Survey flown during August – September 2013

Project GL130214

November 2013

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

4F Extension – South Grid Property
Hearst, Ontario, Canada

EXECUTIVE SUMMARY

During August 18th to September 5th, 2013 Geotech Ltd. carried out a helicopter-borne geophysical survey over the 4F Extension Property situated approximately 65 kilometres northwest of Hearst, Ontario, Canada. This survey included the South Grid (27 claims), located at the southernmost section of the total survey area. This report was edited to only discuss the results for the South Grid.

Principal geophysical sensors included a versatile time domain electromagnetic (VTEM max) system, and a caesium magnetometer. Ancillary equipment included a GPS navigation system and a radar altimeter. A total of 917 line-kilometres (4F Ext.) of geophysical data were acquired during the survey, which includes 475 line-kilometres of data acquired for the South Grid.

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:

- Electromagnetic stacked B-Field Z Component profiles
- Electromagnetic stacked dB/dt Z Component profiles
- B-Field Z Component Channel colour grid
- Total Magnetic Intensity (TMI)
- dB/dt Calculated Time Constant (Tau) with contours of anomaly areas of the Calculated Vertical Derivative of 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 4F Extension Property situated approximately 65 kilometres northwest of Hearst, Ontario, Canada (Figure 1 & Figure 2).

Peter Wood represented Zenyatta Ventures Ltd. 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 max) with full receiver-waveform streamed data recorded system with Z and X component measurements and aeromagnetics using a caesium magnetometer. A total of 917 line-km of geophysical data were acquired during the survey and 475 line-km of geophysical data for the South Grid section. The crew was based out of Hearst (Figure 2) in Ontario for the acquisition phase of the survey. Survey flying started on August 18th and was completed on September 5th, 2013.

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 November 2013.

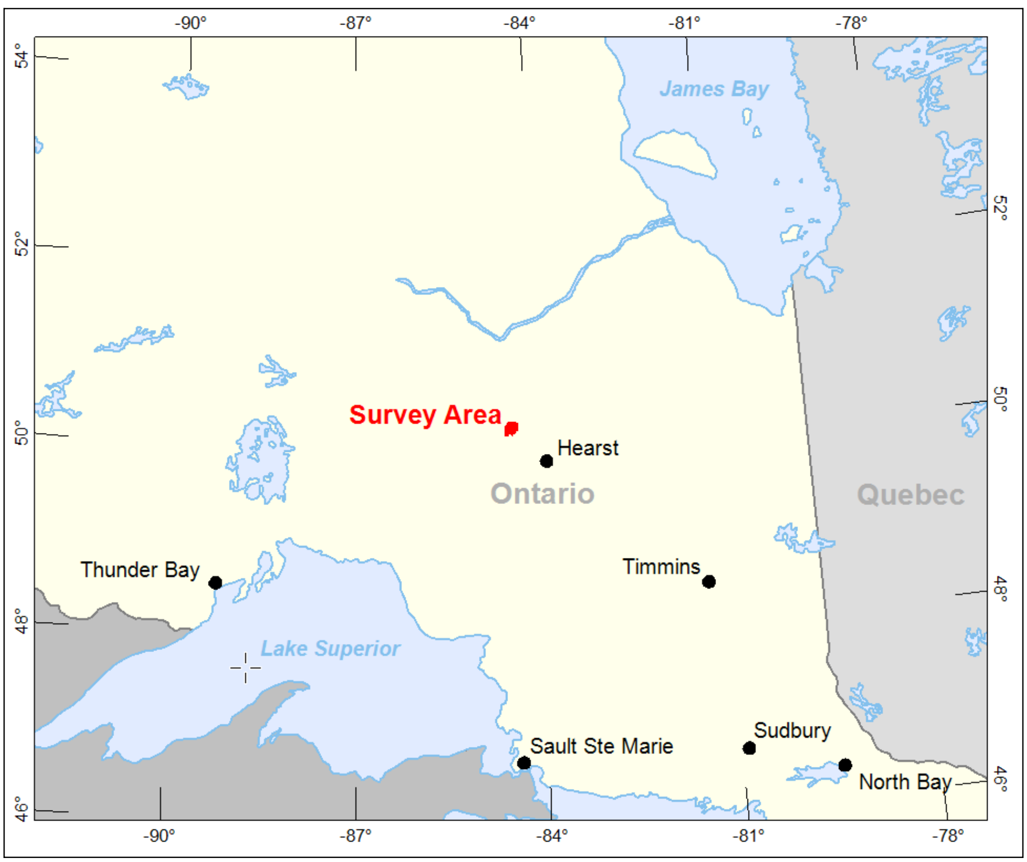


Figure 1: Property Location.

1.2 Survey and System Specifications

The 4F Extension Property, South Grid area is located approximately 65 kilometres northwest of Hearst, Ontario, Canada (Figure 2).

Figure 2: 4F Ext. South Grid Property location on Google Earth.

The survey was flown in a south to north (N 0° E azimuth) direction, with traverse line spacing of 150 metres metres as depicted in Figure 3. Tie lines were flown perpendicular to the traverse lines with a spacing of 4000 metres. 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 101 to 142 metres above mean sea level over an area of 195 square kilometres (Figure 3).

The survey block has various rivers and streams running through the area, which connect various lakes and wetlands. There are no visible signs of culture near the survey area.

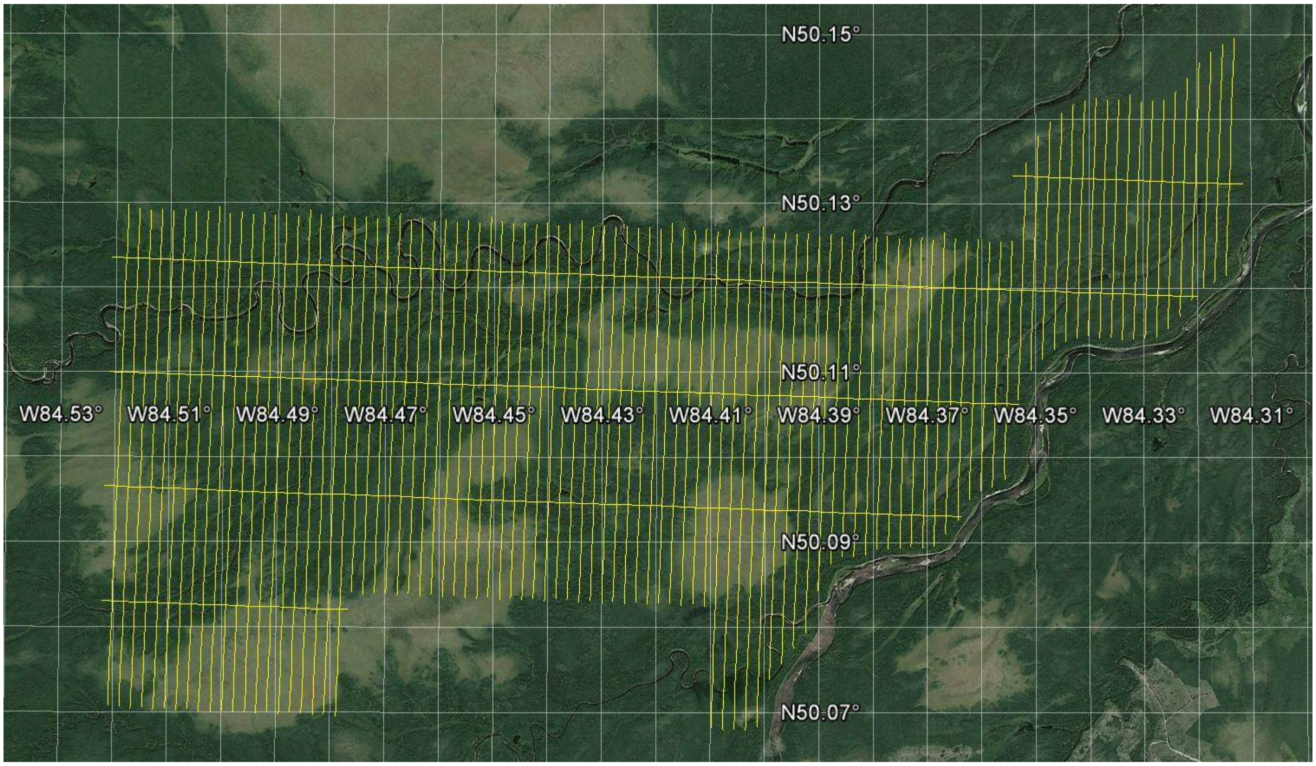


Figure 3: Flight path over a Google Earth Image.

The survey area is covered by NTS (National Topographic Survey) of Canada sheets 042K01 and 042K02. There are also several mining claims within the survey area which are presented on all maps.

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
4F Ext- South Grid	Traverse: 150	65.7	475	520	N 0° E / N 180° E	L1000 – L1970
	Tie: 4000				N 90° E / N 270° E	T2010 – T2040
TOTAL		**65.7**	**475**	**520**		

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

2.2 Survey Operations

Survey operations were based out of Hearst, Ontario from August 18th to September 5th, 2013. The following table shows the timing of the flying.

Table 2: Survey schedule

Date	Flight #	Flow km	Block	Crew location	Comments
18-Aug-2013				Hearst, Ontario	Crew arrived
19-Aug-2013				Hearst, Ontario	System assembly
20-Aug-2013				Hearst, Ontario	System assembly & Heli install
21-Aug-2013				Hearst, Ontario	testing
22-Aug-2013				Hearst, Ontario	Testing completed – waiting arrival of pilot
23-Aug-2013				Hearst, Ontario	waiting arrival of pilot
24-Aug-2013	1,2	116		Hearst, Ontario	116km flown limited due to technical issues
25-Aug-2013				Hearst, Ontario	No production due to technical issues
26-Aug-2013	3,4,5	272		Hearst, Ontario	272km flown
27-Aug-2013	6	108		Hearst, Ontario	108km flown
28-Aug-2013				Hearst, Ontario	No production due to weather
29-Aug-2013	7,8,9,10	275		Hearst, Ontario	275km flown
30-Aug-2013				Hearst, Ontario	No production due to weather
31-Aug-2013				Hearst, Ontario	No production due to weather
1-Sept-2013				Hearst, Ontario	No production due to weather
2-Sept-2013				Hearst, Ontario	No production due to weather
3-Sept-2013	11			Hearst, Ontario	Flight aborted due to technical issues
4-Sept-2013				Hearst, Ontario	No production due to technical issues
5-Sept-2013	12,13	146		Hearst, Ontario	Remaining kms were flown – flying complete

[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 78 metres above the ground with an average survey speed of 80 km/hour. This allowed for an actual average EM bird terrain clearance of 32 metres and a magnetic sensor clearance of 68 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 an Agusta AW119 Koala helicopter, registration C-GVMX. 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 max) full receiver-waveform streamed data recorded system. The “full waveform VTEM system” uses the streamed half-cycle recording of transmitter and receiver waveforms to obtain a complete system response calibration throughout the entire survey flight. VTEM, with the serial number 36 had been used for the survey. The configuration is as indicated in Figure 5.

The VTEM max receiver and transmitter coils were in concentric-coplanar and Z-direction oriented configuration. 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 48 metres below the aircraft as shown in Figure 5 and Figure 6. The VTEM transmitter current waveform is shown diagrammatically in Figure 4.

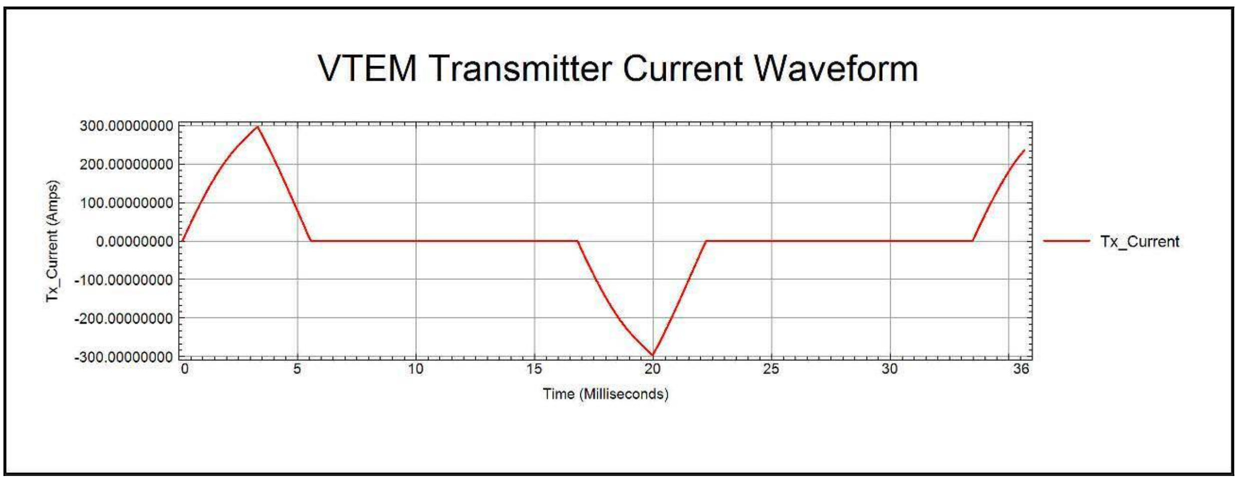


Figure 4: VTEM Transmitter Current Waveform

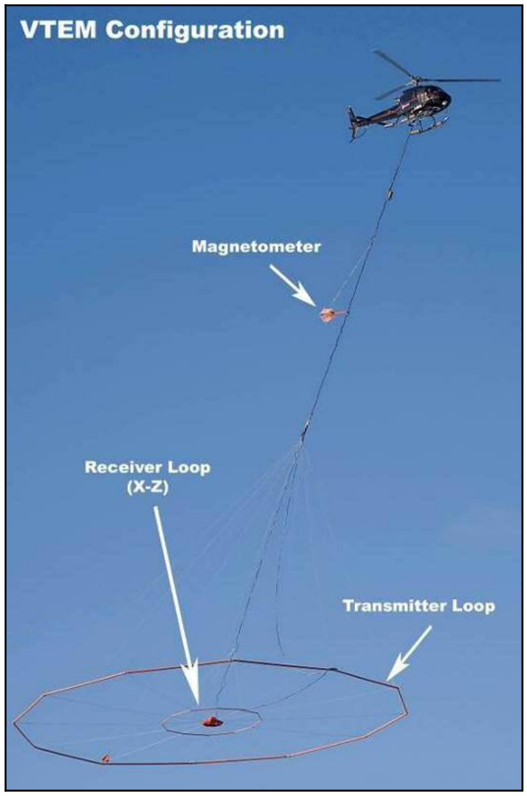


Figure 5: VTEM Configuration, with magnetometer.

The VTEM decay sampling scheme is shown in Table 3 below. Forty four time measurement gates were used for the final data processing in the range from 0.021 to 9.286 msec. Zero time for off-time sampling scheme is equal to current pulse width and defined as the time near the end of the turn-off ramp where the dI/dt waveform falls to 1/2 of its peak value".

Table 3: Off-Time Decay Sampling Scheme

VTEM Decay Sampling Scheme				
index	**Start**	**End**	**Middle**	**Window**
Milliseconds				
4	0.018	0.023	0.021	0.005
5	0.023	0.029	0.026	0.005
6	0.029	0.034	0.031	0.005
7	0.034	0.039	0.036	0.005
8	0.039	0.045	0.042	0.006
9	0.045	0.051	0.048	0.007
10	0.051	0.059	0.055	0.008
11	0.059	0.068	0.063	0.009
12	0.068	0.078	0.073	0.010
13	0.078	0.090	0.083	0.012
14	0.090	0.103	0.096	0.013
15	0.103	0.118	0.110	0.015
16	0.118	0.136	0.126	0.018
17	0.136	0.156	0.145	0.020
18	0.156	0.179	0.167	0.023
19	0.179	0.206	0.192	0.027
20	0.206	0.236	0.220	0.030
21	0.236	0.271	0.253	0.035
22	0.271	0.312	0.290	0.040
23	0.312	0.358	0.333	0.046
24	0.358	0.411	0.383	0.053
25	0.411	0.472	0.440	0.061
26	0.472	0.543	0.505	0.070
27	0.543	0.623	0.580	0.081
28	0.623	0.716	0.667	0.093
29	0.716	0.823	0.766	0.107
30	0.823	0.945	0.880	0.122
31	0.945	1.086	1.010	0.141
32	1.086	1.247	1.161	0.161
33	1.247	1.432	1.333	0.185
34	1.432	1.646	1.531	0.214
35	1.646	1.891	1.760	0.245
36	1.891	2.172	2.021	0.281
37	2.172	2.495	2.323	0.323
38	2.495	2.865	2.667	0.370

VTEM Decay Sampling Scheme				
index	Start	End	Middle	Window
Milliseconds				
39	2.865	3.292	3.063	0.427
40	3.292	3.781	3.521	0.490
41	3.781	4.341	4.042	0.560
42	4.341	4.987	4.641	0.646
43	4.987	5.729	5.333	0.742
44	5.729	6.581	6.125	0.852
45	6.581	7.560	7.036	0.979
46	7.560	8.685	8.083	1.125
47	8.685	9.977	9.286	1.292

Z Component: 4-47 time gates
X Component: 20-47 time gates.

VTEM max system specification:

<u>Transmitter</u>

- Transmitter loop diameter: 35 m
- Effective Transmitter loop area: 3848 m^2
- Number of turns: 4
- Transmitter base frequency: 30 Hz
- Peak current: 341 A
- Pulse width: 5.59 ms
- Wave form shape: trapezoid
- Peak dipole moment: 1,307,810 nIA
- Actual average EM Bird terrain clearance: 32 metres above the ground

<u>Receiver</u>

- X Coil diameter: 0.32 m
- Number of turns: 245
- Effective coil area: 19.69 m^2
- Z-Coil diameter: 1.2 m
- Number of turns: 100
- Effective coil area: 113.04 m^2

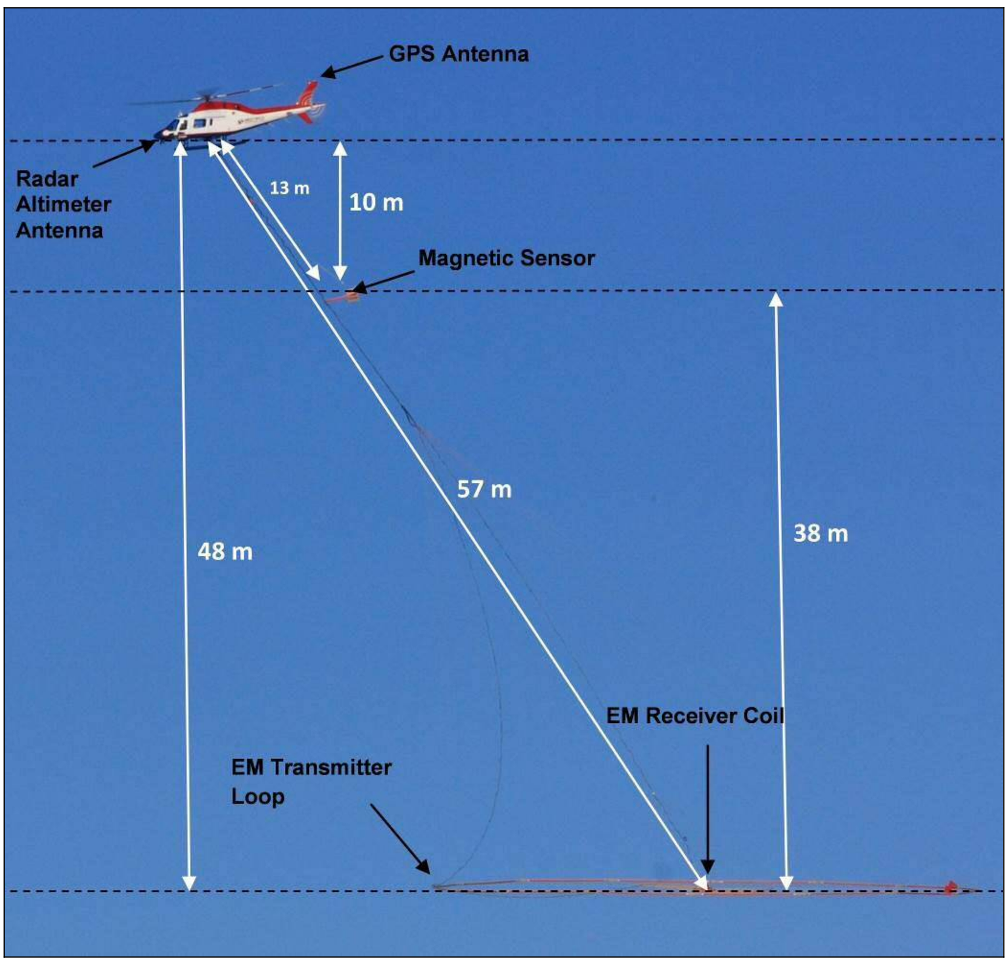


Figure 6: VTEM max System Configuration.

2.4.3 Airborne magnetometer

The magnetic sensor utilized for the survey was Geometrics optically pumped caesium vapour magnetic field sensor mounted 10 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 FULL WAVEFORM VTEM Sensor Calibration

The calibration is performed on the complete VTEM system installed in and connected to the helicopter, using special calibration equipment.

The procedure takes half-cycle files acquired and calculates a calibration file consisting of a single stacked half-cycle waveform. The purpose of the stacking is to attenuate natural and man-made magnetic signals, leaving only the response to the calibration signal.

2.4.5 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).

2.4.6 GPS Navigation System

The navigation system used was a Geotech PC104 based navigation system utilizing a NovAtel's WAAS (Wide Area Augmentation System) enabled GPS receiver, Geotech navigate software, a full screen display with controls in front of the pilot to direct the flight and a NovAtel GPS antenna mounted on the helicopter tail (Figure 6). As many as 11 GPS and two WAAS satellites may be monitored at any one time. The positional accuracy or circular error probability (CEP) is 1.8 m, with WAAS 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.

2.4.7 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 Caesium 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 (49° 45.2435' N, 84° 24.3011' 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:	Scott Trew (Office)
Data QC:	Neil Fiset (Office)
Crew chief:	Rick Gotuzzo Colin Lennox
Operator:	Jan Dabrowski Juan Carlos Osorio

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

Pilot:	Jocelyn Vallieres Greg Stifani
Mechanical Engineer:	N/A

Office:

Preliminary Data Processing:	Neil Fiset Nick Venter
Final Data Processing:	Gaurav Nailwal
Final Data QA/QC:	Alexander Prikhodko
Reporting/Mapping:	Karl Monje

Data acquisition phase was carried out under the supervision of Andrei Bagrianski, P. Geo, Chief Operating Officer. The processing phase was under the supervision of Alexander Prikhodko, P. Geo, Ph.D, Data Interpretation Manager. 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, UTM Zone 16 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

The Full Waveform EM specific data processing operations included:

Half cycle stacking (performed at time of acquisition);
System response correction;
Parasitic and drift removal by deconvolution.

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 0.880 milliseconds after the termination of the impulse is also presented as contour colour images. Fraser Filter X component is also presented as a colour image. Calculated Time Constant (TAU) with anomaly contours of Calculated Vertical Derivative is presented in Appendix C and E. Resistivity Depth Image (RDI) is also presented in Appendix C and F.

VTEM max 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 ground 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 max data are shown in Appendix D.

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

The limits and change-over of "thin-thick" depends on dimensions of a TEM system.

Because of X component polarity is under line-of-flight, convolution Fraser filter (FF, Figure 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.

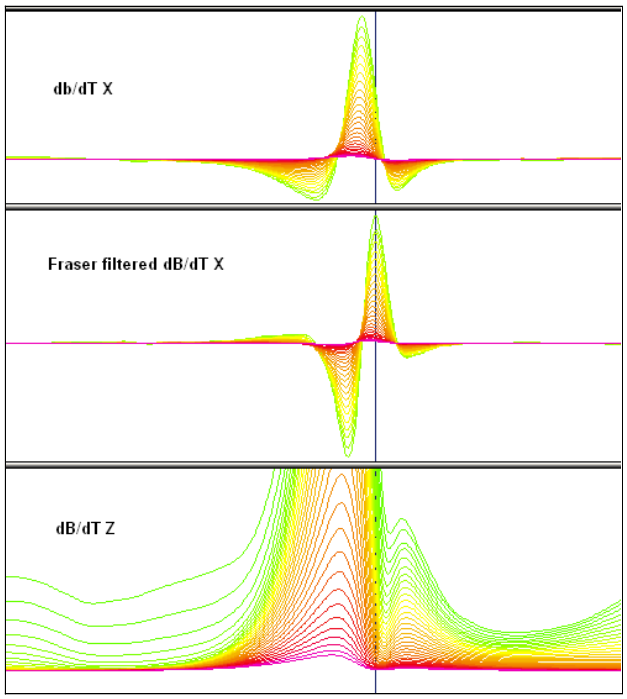


Figure 7: Z, X and Fraser filtered X (FFx) components for "thin" target.

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.

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 37.5 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 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 16 North
Y:	metres	UTM Northing NAD83 Zone 16 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
CVG	nT/m	Calculated Vertical Derivative
SFz[4]:	$pV/(A*m^4)$	Z dB/dt 0.021 millisecond time channel
SFz[5]:	$pV/(A*m^4)$	Z dB/dt 0.026 millisecond time channel
SFz[6]:	$pV/(A*m^4)$	Z dB/dt 0.031 millisecond time channel
SFz[7]:	$pV/(A*m^4)$	Z dB/dt 0.036 millisecond time channel
SFz[8]:	$pV/(A*m^4)$	Z dB/dt 0.042 millisecond time channel
SFz[9]:	$pV/(A*m^4)$	Z dB/dt 0.048 millisecond time channel
SFz[10]:	$pV/(A*m^4)$	Z dB/dt 0.055 millisecond time channel
SFz[11]:	$pV/(A*m^4)$	Z dB/dt 0.063 millisecond time channel
SFz[12]:	$pV/(A*m^4)$	Z dB/dt 0.073 millisecond time channel
SFz[13]:	$pV/(A*m^4)$	Z dB/dt 0.083 millisecond time channel
SFz[14]:	$pV/(A*m^4)$	Z dB/dt 0.096 millisecond time channel
SFz[15]:	$pV/(A*m^4)$	Z dB/dt 0.110 millisecond time channel
SFz[16]:	$pV/(A*m^4)$	Z dB/dt 0.126 millisecond time channel

Channel name	Units	Description
SFz[17]:	pV/(A*m^4)	Z dB/dt 0.145 millisecond time channel
SFz[18]:	pV/(A*m^4)	Z dB/dt 0.167 millisecond time channel
SFz[19]:	pV/(A*m^4)	Z dB/dt 0.192 millisecond time channel
SFz[20]:	pV/(A*m^4)	Z dB/dt 0.220 millisecond time channel
SFz[21]:	pV/(A*m^4)	Z dB/dt 0.253 millisecond time channel
SFz[22]:	pV/(A*m^4)	Z dB/dt 0.290 millisecond time channel
SFz[23]:	pV/(A*m^4)	Z dB/dt 0.333 millisecond time channel
SFz[24]:	pV/(A*m^4)	Z dB/dt 0.383 millisecond time channel
SFz[25]:	pV/(A*m^4)	Z dB/dt 0.440 millisecond time channel
SFz[26]:	pV/(A*m^4)	Z dB/dt 0.505 millisecond time channel
SFz[27]:	pV/(A*m^4)	Z dB/dt 0.580 millisecond time channel
SFz[28]:	pV/(A*m^4)	Z dB/dt 0.667 millisecond time channel
SFz[29]:	pV/(A*m^4)	Z dB/dt 0.766 millisecond time channel
SFz[30]:	pV/(A*m^4)	Z dB/dt 0.880 millisecond time channel
SFz[31]:	pV/(A*m^4)	Z dB/dt 1.010 millisecond time channel
SFz[32]:	pV/(A*m^4)	Z dB/dt 1.161 millisecond time channel
SFz[33]:	pV/(A*m^4)	Z dB/dt 1.333 millisecond time channel
SFz[34]:	pV/(A*m^4)	Z dB/dt 1.531 millisecond time channel
SFz[35]:	pV/(A*m^4)	Z dB/dt 1.760 millisecond time channel
SFz[36]:	pV/(A*m^4)	Z dB/dt 2.021 millisecond time channel
SFz[37]:	pV/(A*m^4)	Z dB/dt 2.323 millisecond time channel
SFz[38]:	pV/(A*m^4)	Z dB/dt 2.667 millisecond time channel
SFz[39]:	pV/(A*m^4)	Z dB/dt 3.063 millisecond time channel
SFz[40]:	pV/(A*m^4)	Z dB/dt 3.521 millisecond time channel
SFz[41]:	pV/(A*m^4)	Z dB/dt 4.042 millisecond time channel
SFz[42]:	pV/(A*m^4)	Z dB/dt 4.641 millisecond time channel
SFz[43]:	pV/(A*m^4)	Z dB/dt 5.333 millisecond time channel
SFz[44]:	pV/(A*m^4)	Z dB/dt 6.125 millisecond time channel
SFz[45]:	pV/(A*m^4)	Z dB/dt 7.036 millisecond time channel
SFz[46]:	pV/(A*m^4)	Z dB/dt 8.083 millisecond time channel
SFz[47]:	pV/(A*m^4)	Z dB/dt 9.286 millisecond time channel
SFx[20]:	pV/(A*m^4)	X dB/dt 0.220 millisecond time channel
SFx[21]:	pV/(A*m^4)	X dB/dt 0.253 millisecond time channel
SFx[22]:	pV/(A*m^4)	X dB/dt 0.290 millisecond time channel
SFx[23]:	pV/(A*m^4)	X dB/dt 0.333 millisecond time channel
SFx[24]:	pV/(A*m^4)	X dB/dt 0.383 millisecond time channel
SFx[25]:	pV/(A*m^4)	X dB/dt 0.440 millisecond time channel
SFx[26]:	pV/(A*m^4)	X dB/dt 0.505 millisecond time channel
SFx[27]:	pV/(A*m^4)	X dB/dt 0.580 millisecond time channel
SFx[28]:	pV/(A*m^4)	X dB/dt 0.667 millisecond time channel
SFx[29]:	pV/(A*m^4)	X dB/dt 0.766 millisecond time channel
SFx[30]:	pV/(A*m^4)	X dB/dt 0.880 millisecond time channel
SFx[31]:	pV/(A*m^4)	X dB/dt 1.010 millisecond time channel
SFx[32]:	pV/(A*m^4)	X dB/dt 1.161 millisecond time channel
SFx[33]:	pV/(A*m^4)	X dB/dt 1.333 millisecond time channel
SFx[34]:	pV/(A*m^4)	X dB/dt 1.531 millisecond time channel
SFx[35]:	pV/(A*m^4)	X dB/dt 1.760 millisecond time channel
SFx[36]:	pV/(A*m^4)	X dB/dt 2.021 millisecond time channel
SFx[37]:	pV/(A*m^4)	X dB/dt 2.323 millisecond time channel
SFx[38]:	pV/(A*m^4)	X dB/dt 2.667 millisecond time channel
SFx[39]:	pV/(A*m^4)	X dB/dt 3.063 millisecond time channel
SFx[40]:	pV/(A*m^4)	X dB/dt 3.521 millisecond time channel

Channel name	Units	Description
SFx[41]:	pV/(A*m4)	X dB/dt 4.042 millisecond time channel
SFx[42]:	pV/(A*m4)	X dB/dt 4.641 millisecond time channel
SFx[43]:	pV/(A*m4)	X dB/dt 5.333 millisecond time channel
SFx[44]:	pV/(A*m4)	X dB/dt 6.125 millisecond time channel
SFx[45]:	pV/(A*m4)	X dB/dt 7.036 millisecond time channel
SFx[46]:	pV/(A*m4)	X dB/dt 8.083 millisecond time channel
SFx[47]:	pV/(A*m4)	X dB/dt 9.286 millisecond time channel
BFz	(pV*ms)/(A*m4)	Z B-Field data for time channels 4 to 47
BFx	(pV*ms)/(A*m4)	X B-Field data for time channels 20 to 47
SFxFF	pV/(A*m4)	Fraser filtered X dB/dt
PLM:		60 Hz power line monitor
NchanBF		Last channel where the algorithm stops calculation, B-Field
TauBF	milliseconds	Time Constant (Tau) calculated from B-field data
NchanSF		Last channel where the algorithm stops calculation, dB/dt
TauSF	milliseconds	Time Constant (Tau) calculated from dB/dt data

Electromagnetic B-field and dB/dt Z component data is found in array channel format between indexes 4 – 47, and X component data from 20 – 47, as described above.

- Database of the Resistivity Depth Images in Geosoft GDB format, containing the following channels:

Table 6: Geosoft Resistivity Depth Image GDB Data Format

Channel name	Units	Description
Xg	metres	UTM Easting NAD83 Zone 16 North
Yg	metres	UTM Northing NAD83 Zone 16 North
Dist:	meters	Distance from the beginning of the line
Depth:	meters	array channel, depth from the surface
Z:	meters	array channel, depth from sea level
AppRes:	Ohm-m	array channel, Apparent Resistivity
TR:	meters	EM system height from sea level
Topo:	meters	digital elevation model
Radarb:	metres	Calculated EM bird terrain clearance from radar altimeter
SF:	pV/(A*m^4)	array channel, dB/dT
CVG:	nT/m	CVG data
Mag:	nT	Total Magnetic Intensity
DOI:	metres	Depth of Investigation; a measure of depth effectiveness

- Database of the VTEM Waveform “GL130214_Waveform_Final.gdb” in Geosoft GDB format, containing the following channels:

  Time: Sampling rate interval, 5.2083 microseconds
  Tx_Current: Output current of the transmitter (Amp)

- Grids in Geosoft GRD and GeoTIFF format, as follows:

  BFz30: B-Field Z Component Channel 30 (Time Gate 0.880 ms)
  SFz10: dB/dt Z Component Channel 10 (Time Gate 0.055 ms)
  SFz25: dB/dt Z Component Channel 25 (Time Gate 0.440 ms)
  SFz38: dB/dt Z Component Channel 38 (Time Gate 2.667 ms)
  TMI: Total Magnetic Intensity (nT)

CVG:	Calculated Vertical Derivative (nT/m)
TauBF:	B-Field Calculated Time Constant (ms)
TauSF:	dB/dt Calculated Time Constant (ms)
SFxFF20:	Fraser Filter X Component dB/dt Channel 20 (Time Gate 0.220 ms)
DEM:	Digital Elevation Model (metres)
PLM:	Power Line Monitor (60Hz)

A Geosoft .GRD file has a .GI metadata file associated with it, containing grid projection information. A grid cell size of 37.5 metres was used.

- Final maps in Geosoft MAP format were produced at a scale of 1:20,000 for best representation of the survey size and line spacing. The coordinate/projection system used was NAD83 Datum, UTM Zone 16 North. All maps show mining claims, flight path trace and topographic data; latitude and longitude are also noted on maps:

GL130214_20k_dBdt:	dB/dt profiles Z Component, Time Gates 0.220 – 7.036 ms in linear – logarithmic scale.
GL130214_20k_BField:	B-field profiles Z Component, Time Gates 0.220 – 7.036 ms in linear – logarithmic scale over Total Magnetic Intensity
GL130214_20k _BFz30:	B-field late time Z Component Channel 30, Time Gate 0.880 ms
GL130214_20k_TMI:	Total Magnetic Intensity
GL130214_20k_TauSF:	dB/dt Calculated Time Constant (TAU) with contours of anomaly areas of the Calculated Vertical Derivative of TMI

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 *GL130214_FP.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

A helicopter-borne versatile time domain electromagnetic (VTEM) geophysical survey has been completed over the 4F Extension – South Grid Property near Hearst, Ontario, Canada.

The total area coverage for all properties is 65.7 km^2. Total survey line coverage is 475 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 1:20,000 No formal Interpretation has been included.

Based on the geophysical results obtained, no TEM anomalous zones were identified across the South Grid block.

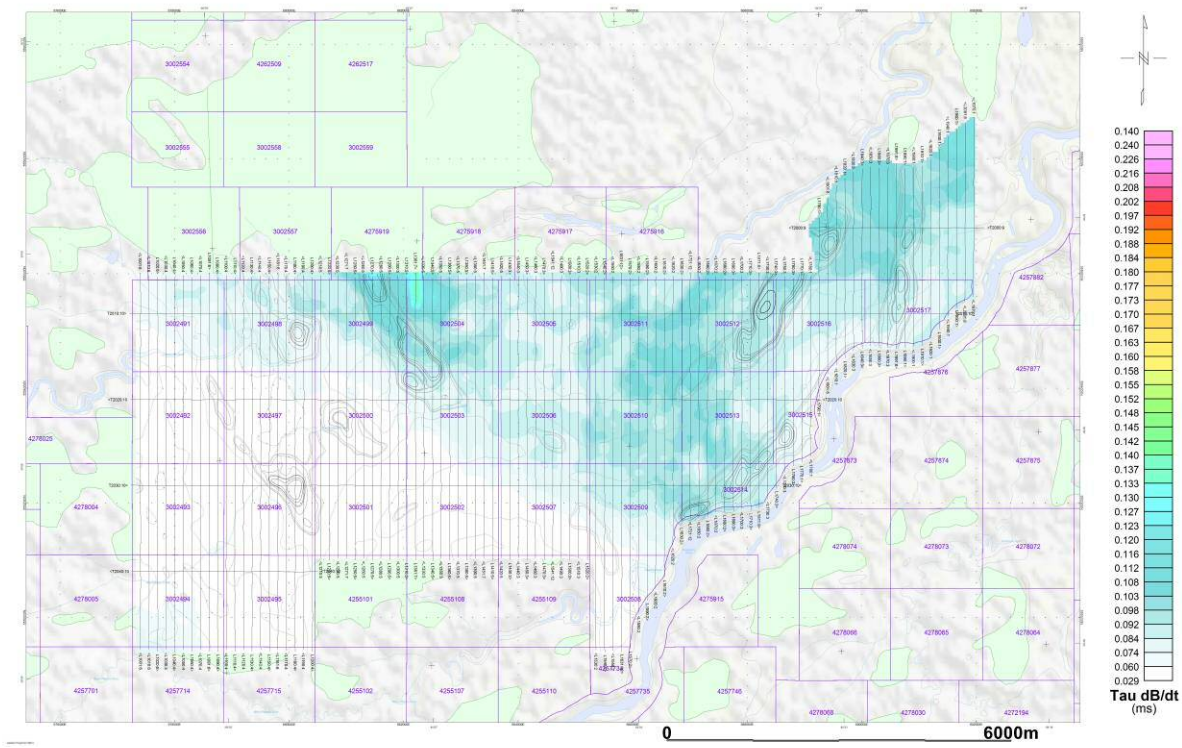


Figure 8 – dB/dt Calculated Time Constant (TAU) with contours of anomaly areas of CVG TMI

Respectfully submitted[2],

Neil Fiset
Geotech Ltd.

Nick Venter
Geotech Ltd.

Gaurav Nailwal
Geotech Ltd.

Alexander Prikhodko, P. Geo, Ph.D
Data Interpretation Manager
Geotech Ltd.

November 2013

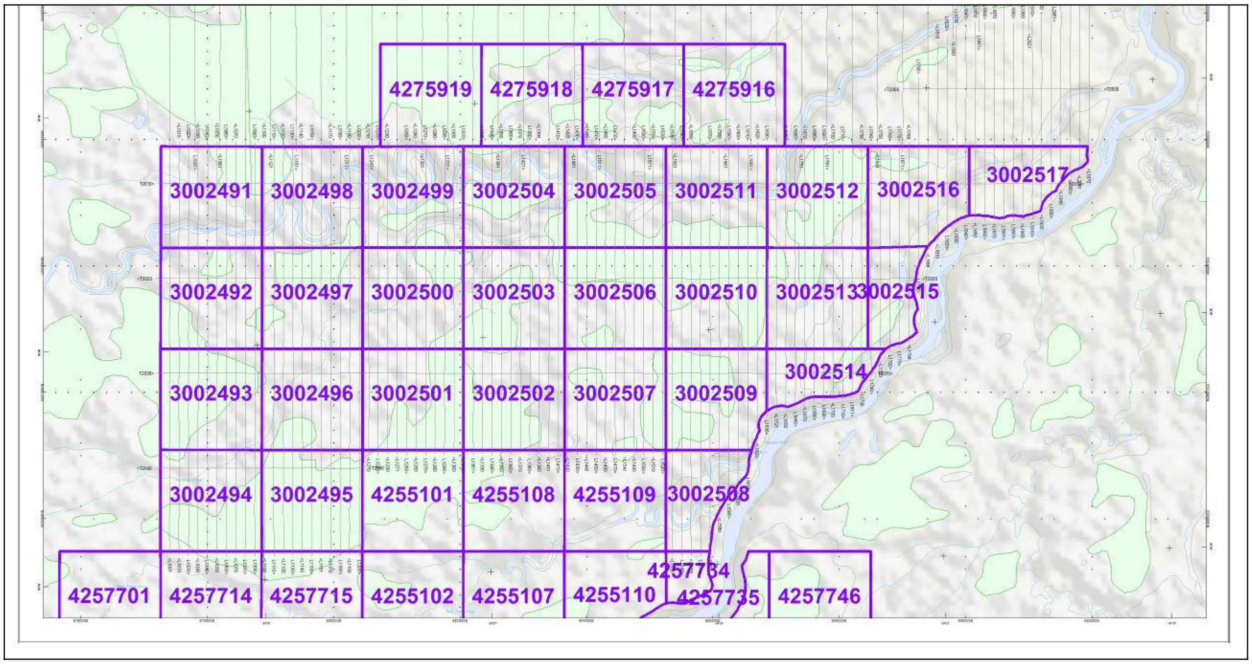
[2] Final data processing of the EM and magnetic data were carried out by Gaurav Nailwal, under the supervision of Alexander Prikhodko, P.Geo., PhD, Senior Geophysicist, Data Interpretation Manager, from the office of Geotech Ltd. in Aurora, Ontario

APPENDIX A

SURVEY BLOCK LOCATION MAP

Overview of the Survey Area

SURVEY AREA MINING CLAIMS
(Claim #s **3002491 to 3002517)**



APPENDIX B

SURVEY BLOCK COORDINATES

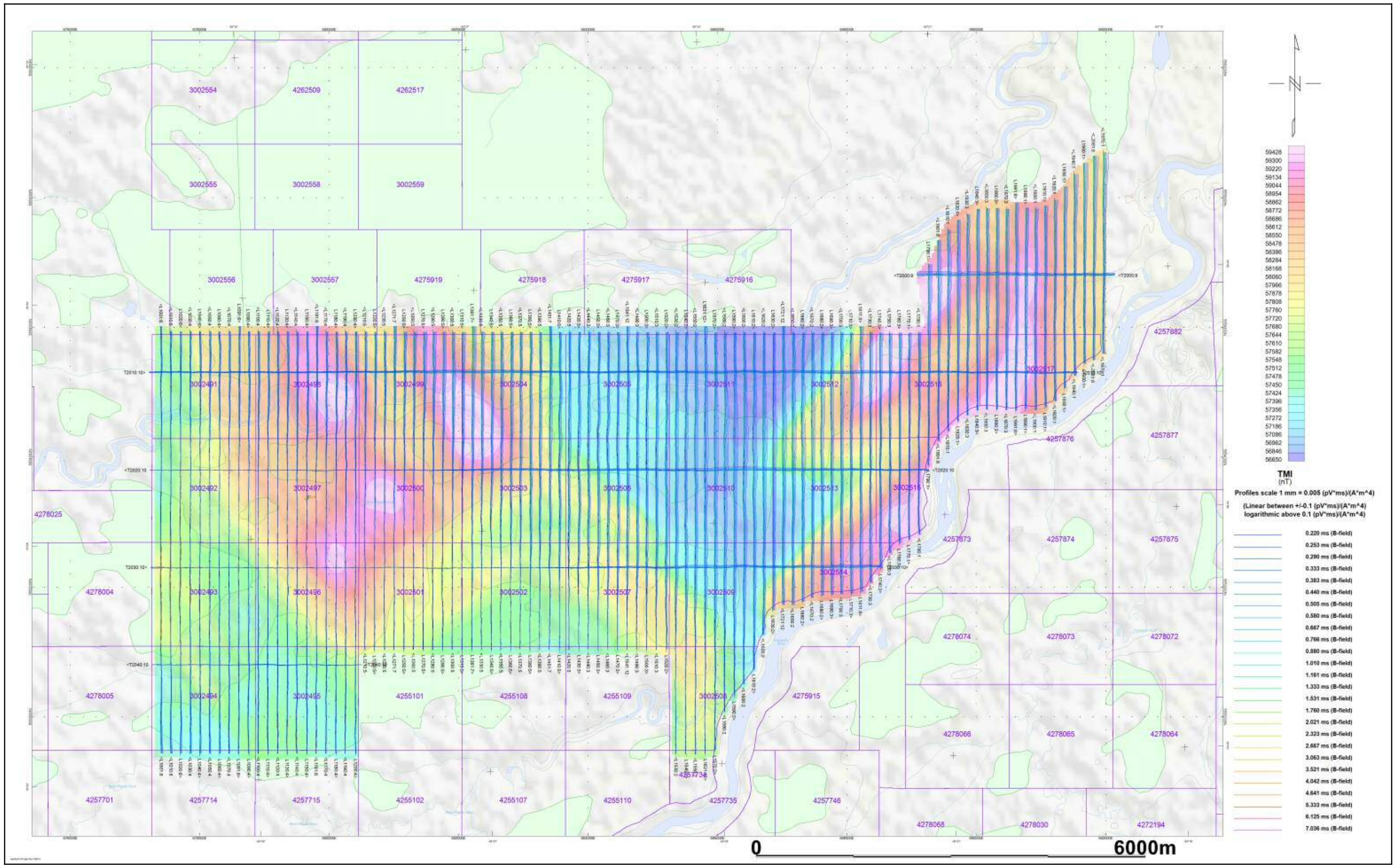
(WGS 84, UTM Zone 16 North)

4F Ext. – South Grid Property

X	Y
691980.4	5558778.6
691492.9	5558416.5
691311.8	5558151.8
691061.0	5557956.8
690657.1	5557915.0
690378.5	5557984.6
690085.9	5557970.7
689835.2	5557859.3
689654.1	5557733.9
689500.9	5557580.7
689291.9	5557079.2
689069.1	5556814.5
689166.6	5556271.3
689208.4	5556020.5
677200.8	5556020.5
677270.5	5549292.4
680669.4	5549264.5
680627.6	5550574.0
685001.5	5550560.0
685126.9	5548972.0
686213.4	5548944.2
686645.3	5550309.3
687160.7	5551047.6
688957.6	5551953.0
689849.1	5553081.3
689960.6	5553736.0
690517.8	5554014.6
691047.1	5554209.6
691478.9	5554362.9
692189.3	5554627.5
692314.7	5555115.1
692245.1	5558374.7
692105.8	5558834.3
691952.5	5558764.7

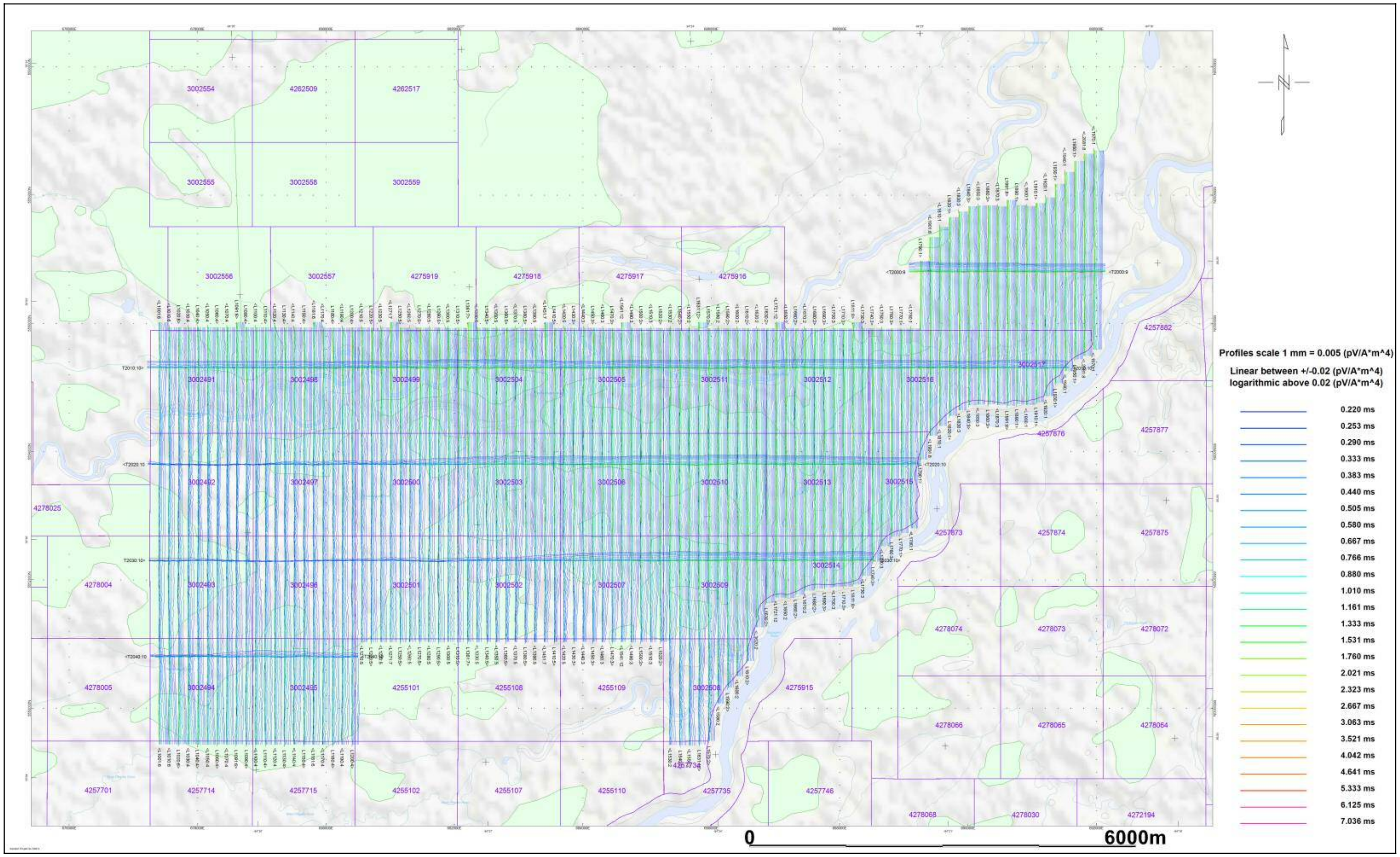
APPENDIX C

GEOPHYSICAL MAPS[1]

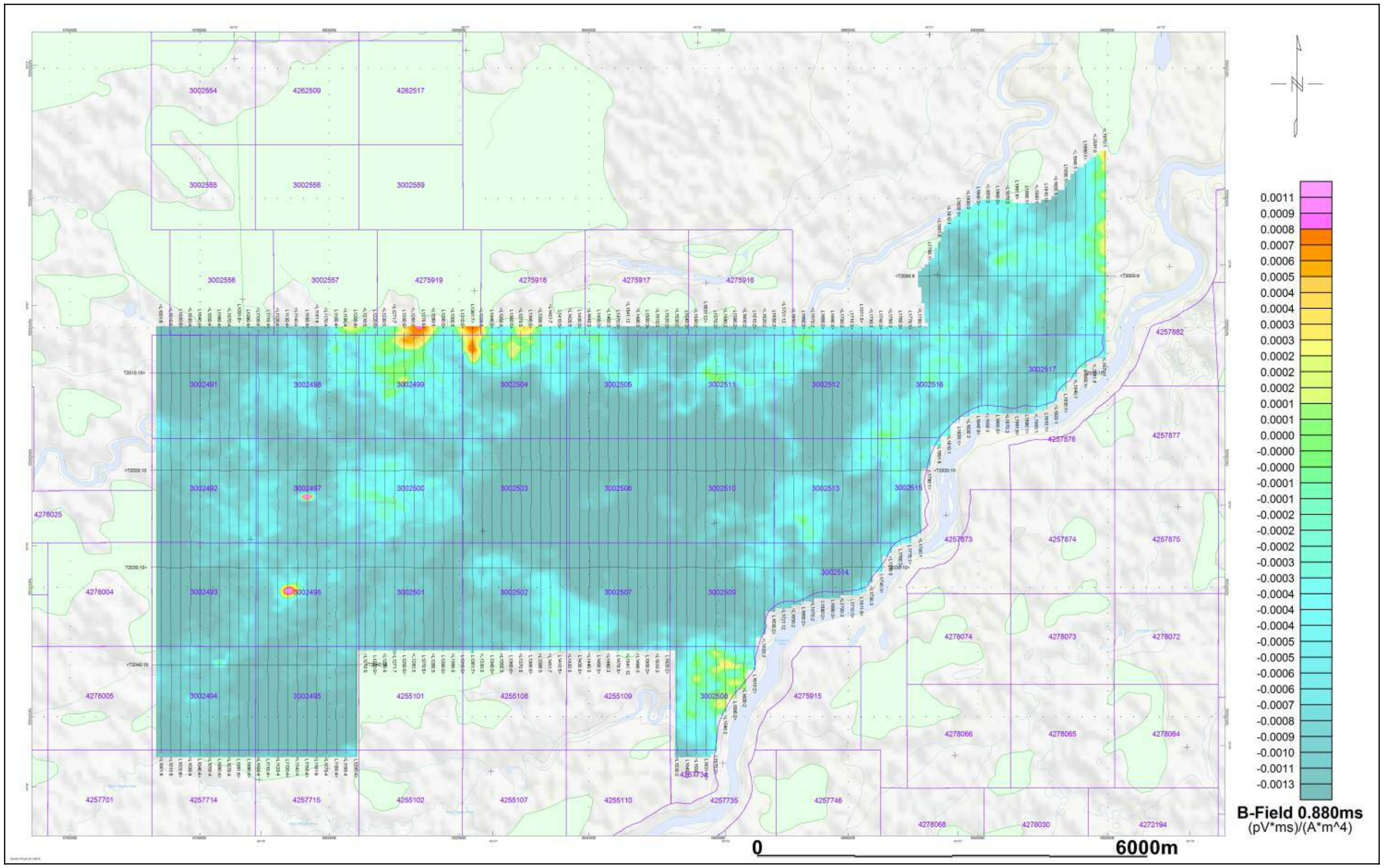


VTEM B-Field Z Component Profiles – Time Gate 0.220 – 7.036 ms – Over Total Magnetic Intensity Grid

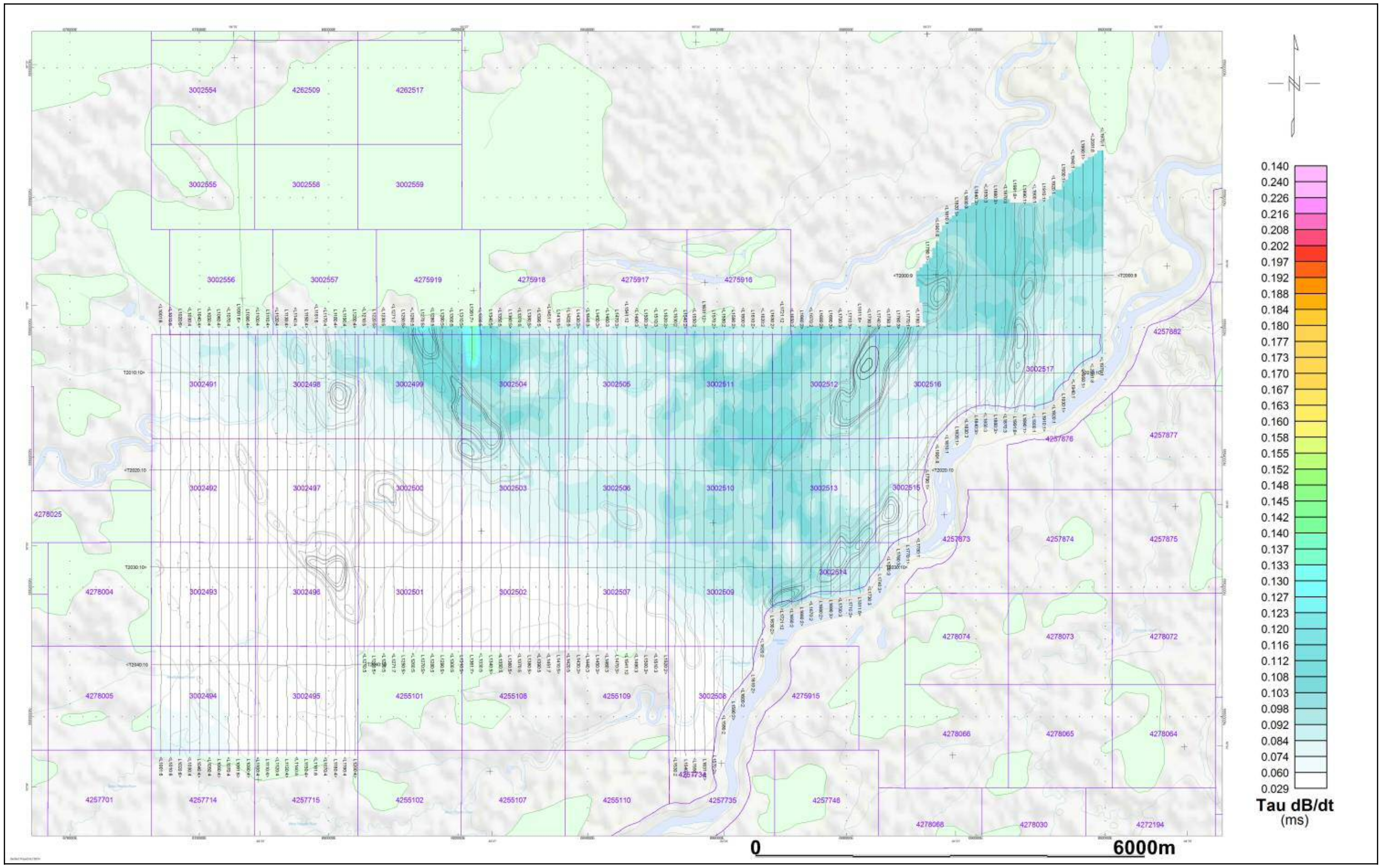
[1] Full size geophysical maps are also available in PDF format on the final DVD



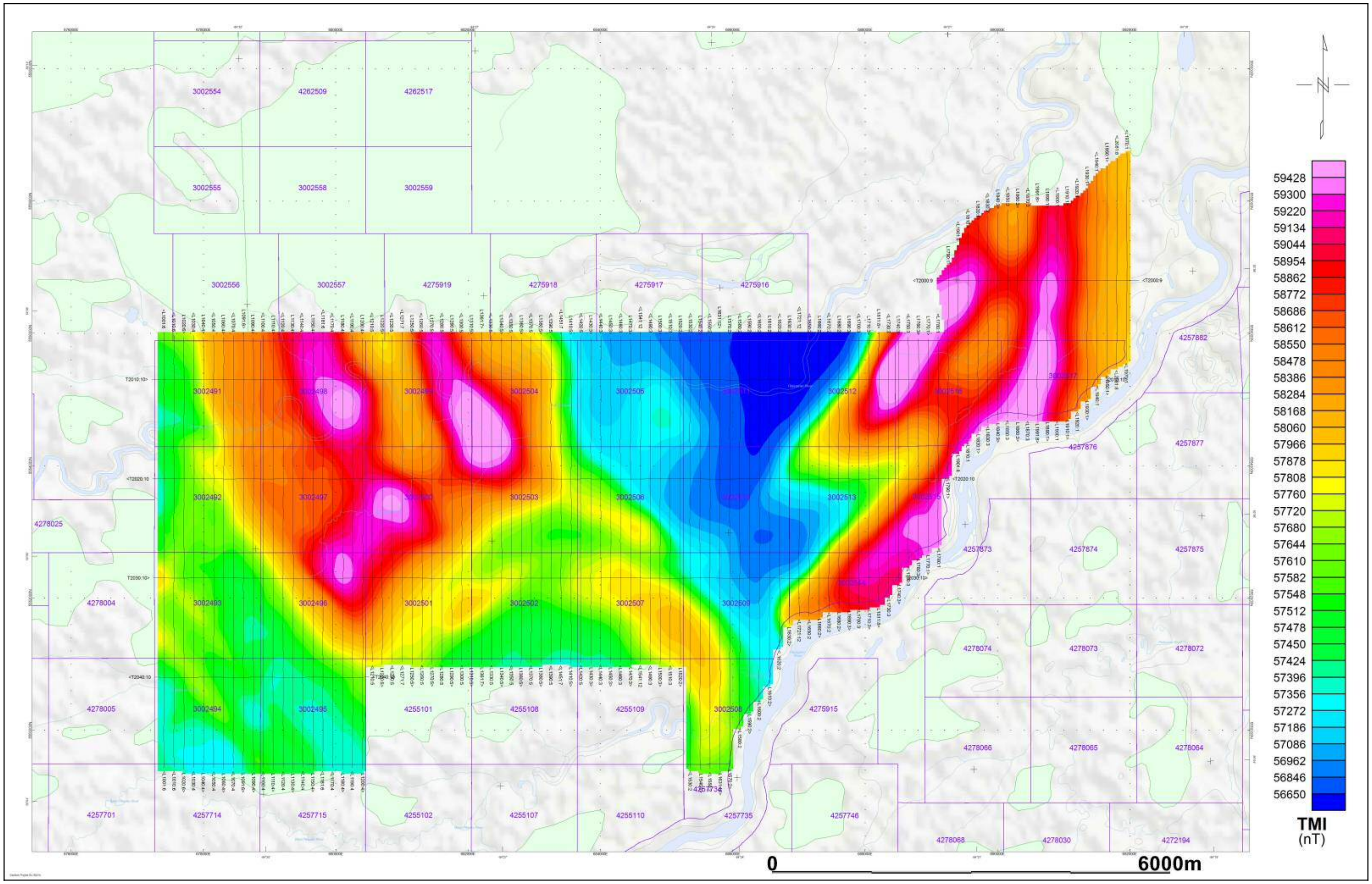
VTEM dB/dt Z Component Profiles – Time Gates 0.220 – 7.036 ms



VTEM B-Field Z Component – Channel 30 – Time Gate – 0.880 ms



dB/dt Calculated Time Constant (Tau) with contours of anomaly areas of the Calculated Vertical Derivative of TMI



Total Magnetic Intensity (TMI)

APPENDIX D

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 D1 to D15). 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.

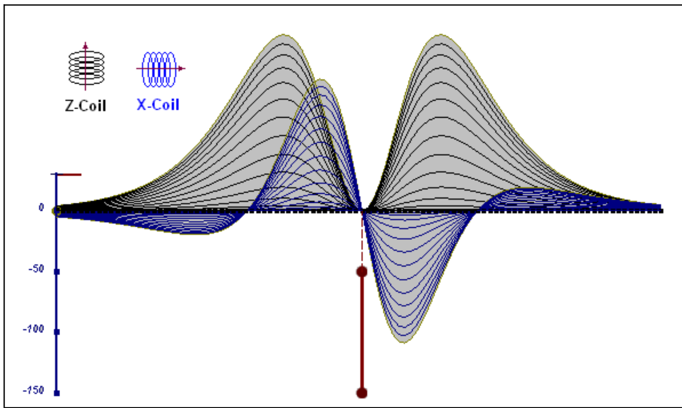


Figure D-1: vertical thin plate

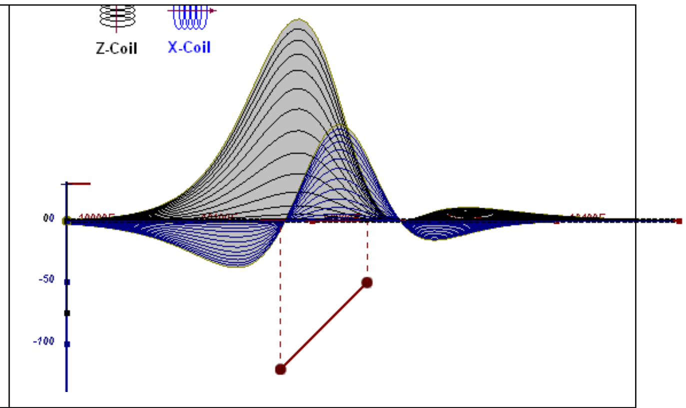


Figure D-2: inclined thin plate

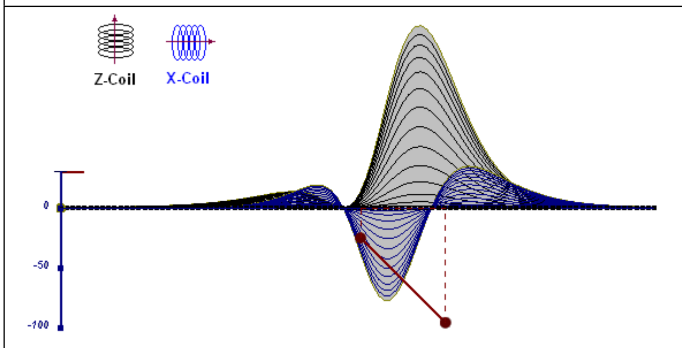


Figure D-3: inclined thin plate

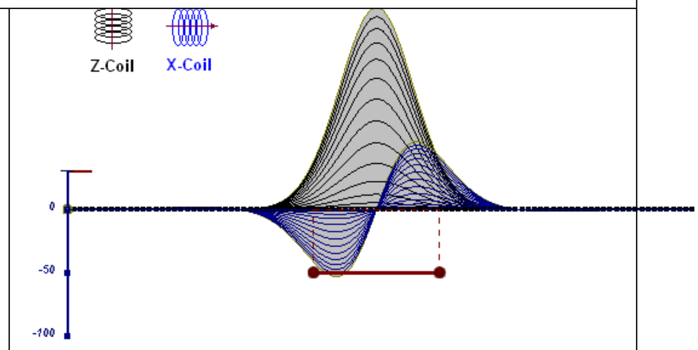


Figure D-4: horizontal thin plate

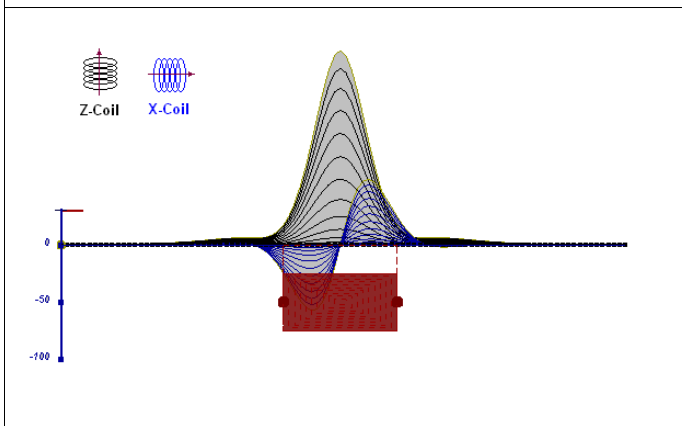


Figure D-5: horizontal thick plate (linear scale of the response)

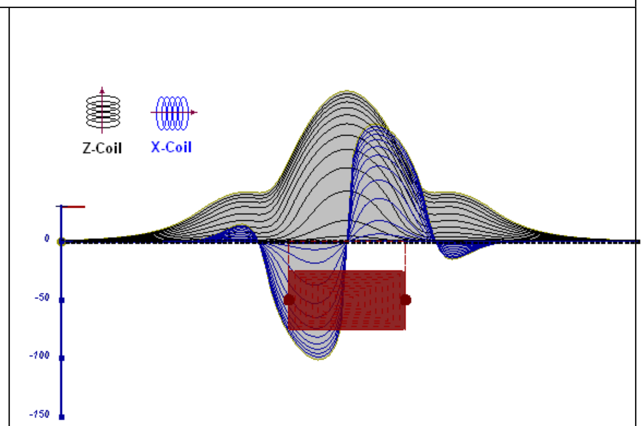


Figure D-6: horizontal thick plate (log scale of the response)

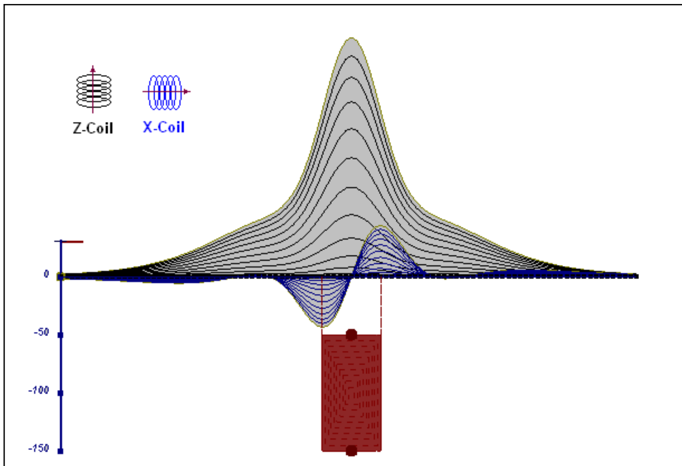


Figure D-7: vertical thick plate (linear scale of the response). 50 m depth

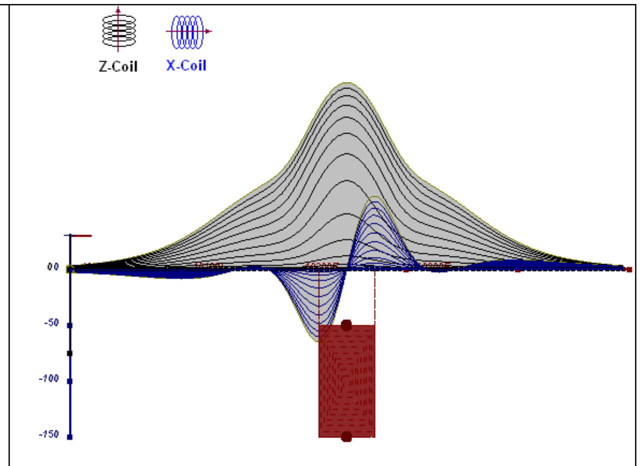


Figure D-8: vertical thick plate (log scale of the response). 50 m depth

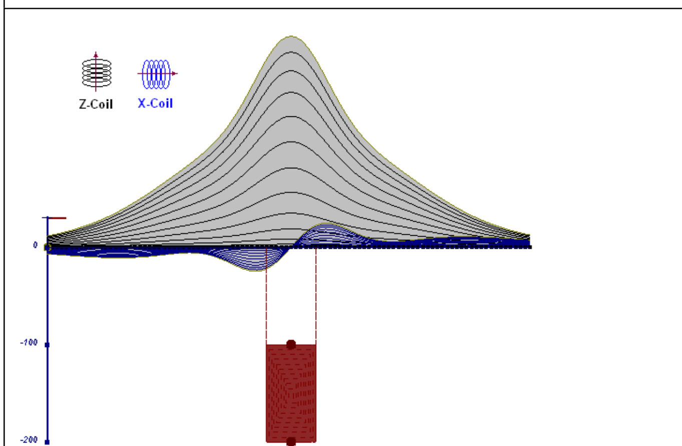


Figure D-9: vertical thick plate (linear scale of the response). 100 m depth

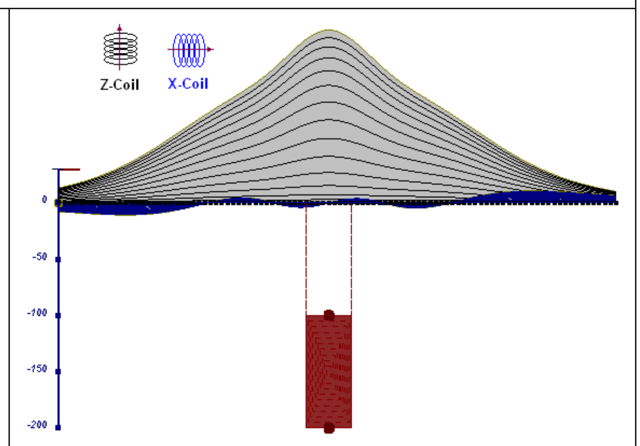


Figure D-10: vertical thick plate (linear scale of the response). Depth/hor.thickness=2.5

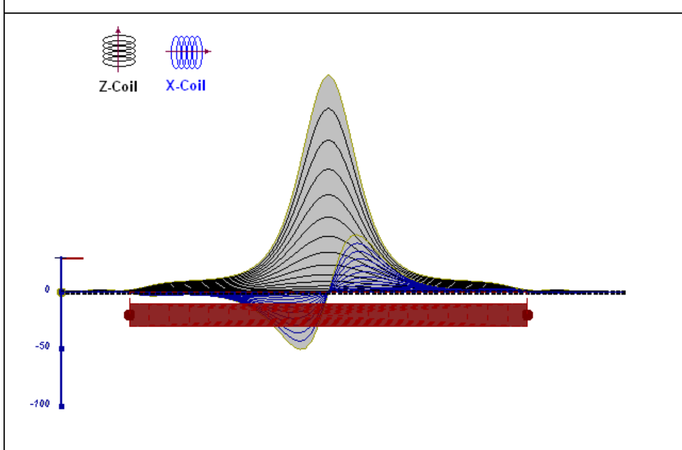


Figure D-10: horizontal thick plate (linear scale of the response)

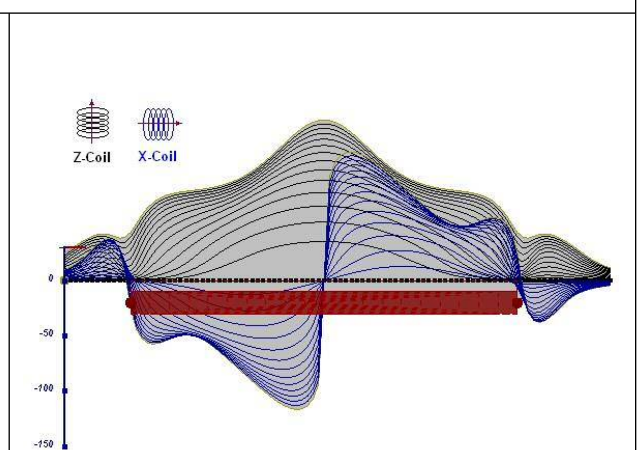


Figure D-11: horizontal thick plate (log scale of the response)

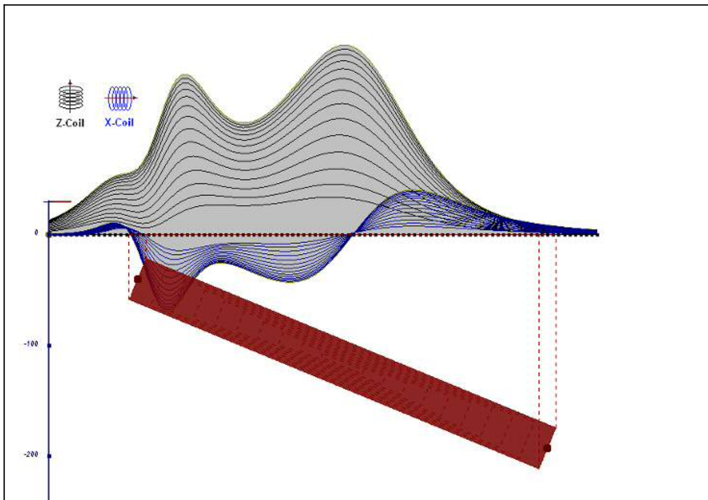


Figure D-12: inclined long thick plate

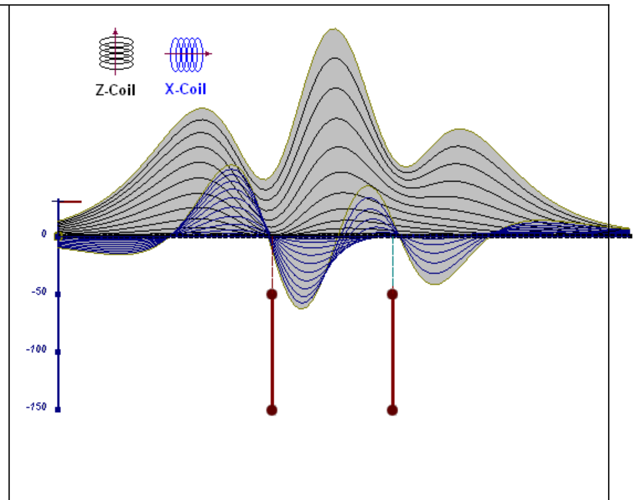


Figure D-13: two vertical thin plates

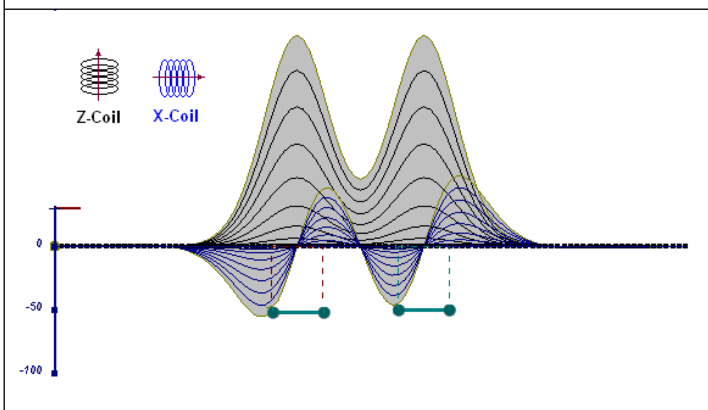


Figure D-14: two horizontal thin plates

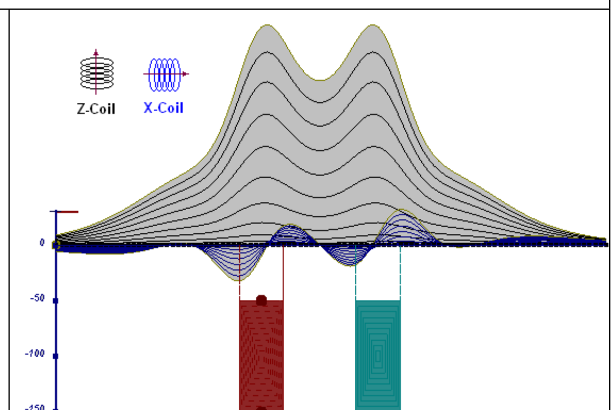


Figure D-15: two vertical thick plates

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

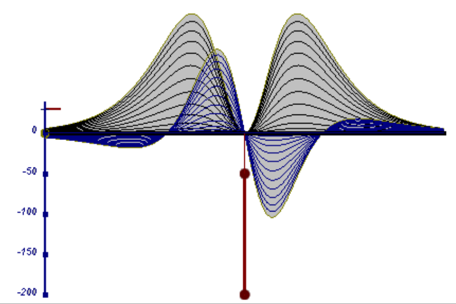
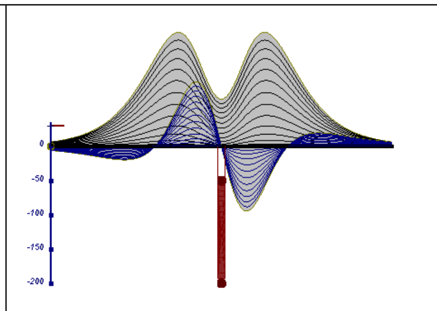
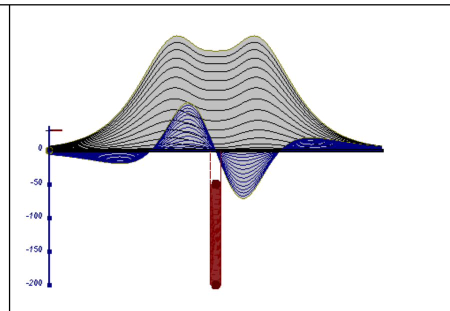
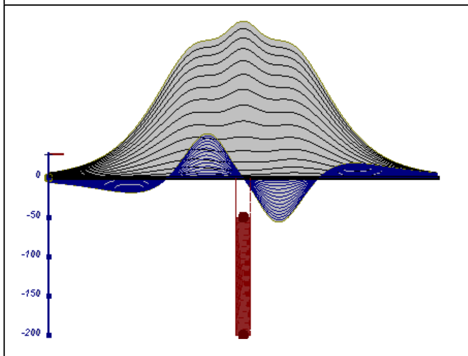
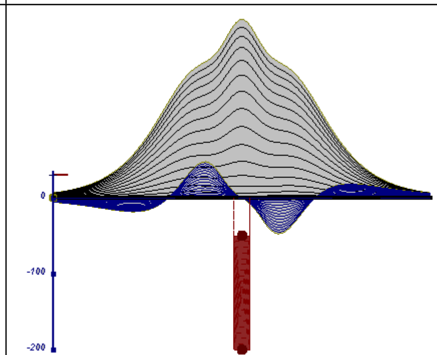
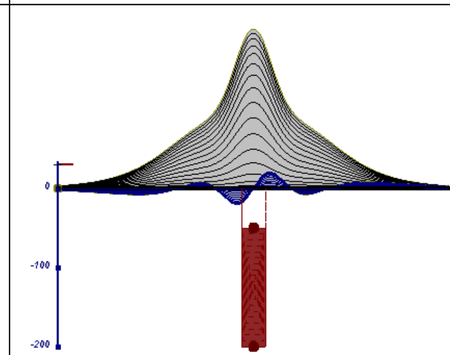
		
“thin”	10 m thickness	15 m thickness
		
18 m thickness	20 m thickness	30 m thickness

Figure D-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 E

EM TIME CONSTANT (TAU) ANALYSIS

Estimation of time constant parameter[1] in transient electromagnetic method is one of the steps toward the extraction of the information about conductances beneath the surface from TEM measurements.

The most reliable method to discriminate or rank conductors from overburden, background or one and other is by calculating the EM field decay time constant (TAU parameter), which directly depends on conductance despite their depth and accordingly amplitude of the response.

Theory

As established in electromagnetic theory, the magnitude of the electro-motive force (emf) induced is proportional to the time rate of change of primary magnetic field at the conductor. This emf causes eddy currents to flow in the conductor with a characteristic transient decay, whose Time Constant (Tau) is a function of the conductance of the survey target or conductivity and geometry (including dimensions) of the target. The decaying currents generate a proportional secondary magnetic field, the time rate of change of which is measured by the receiver coil as induced voltage during the Off time.

The receiver coil output voltage (**e_0**) is proportional to the time rate of change of the secondary magnetic field and has the form,

$$e_0 \ \alpha \ (1 / \tau) \ e^{-(t / \tau)}$$

Where,
τ = L/R is the characteristic time constant of the target (TAU)
R = resistance
L = inductance

From the expression, conductive targets that have small value of resistance and hence large value of τ yield signals with small initial amplitude that decays relatively slowly with progress of time. Conversely, signals from poorly conducting targets that have large resistance value and small τ, have high initial amplitude but decay rapidly with time[1] (Figure E-1).

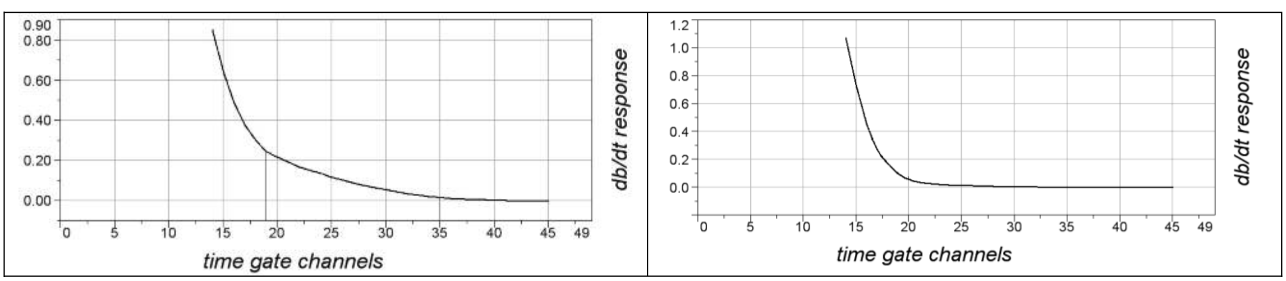


Figure E-1: Left – presence of good conductor, right – poor conductor.

[1] McNeill, JD, 1980, "Applications of Transient Electromagnetic Techniques", Technical Note TN-7 page 5, Geonics Limited, Mississauga, Ontario.

EM Time Constant (Tau) Calculation

The EM Time-Constant (TAU) is a general measure of the speed of decay of the electromagnetic response and indicates the presence of eddy currents in conductive sources as well as reflecting the “conductance quality” of a source. Although TAU can be calculated using either the measured dB/dt decay or the calculated B-field decay, dB/dt is commonly preferred due to better stability (S/N) relating to signal noise. Generally, TAU calculated on base of early time response reflects both near surface overburden and poor conductors whereas, in the late ranges of time, deep and more conductive sources, respectively. For example early time TAU distribution in an area that indicates conductive overburden is shown in Figure 2.

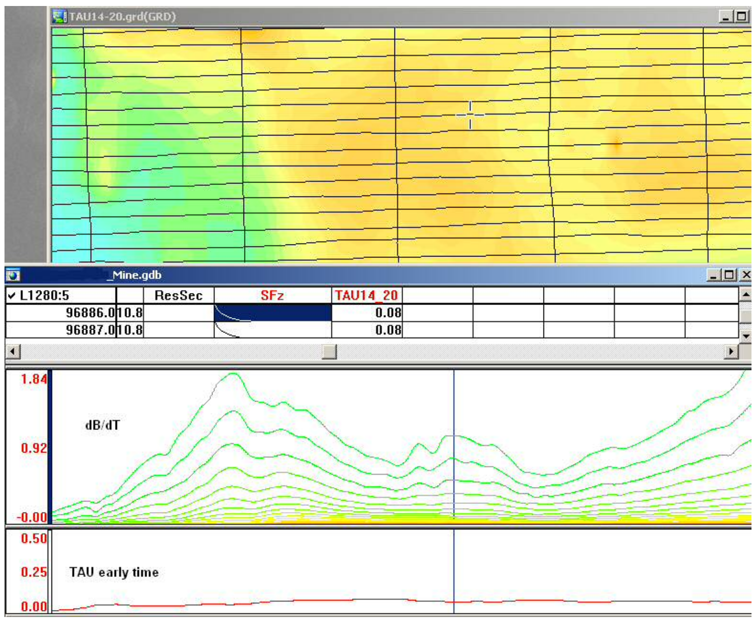


Figure E-2: Map of early time TAU. Area with overburden conductive layer and local sources.

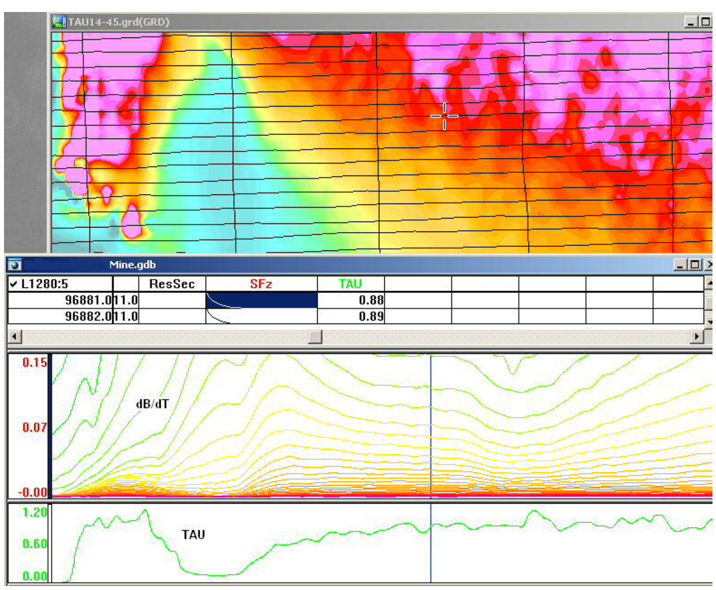


Figure E-3: Map of full time range TAU with EM anomaly due to deep highly conductive target.

There are many advantages of TAU maps:

- TAU depends only on one parameter (conductance) in contrast to response magnitude;
- TAU is integral parameter, which covers time range and all conductive zones and targets are displayed independently of their depth and conductivity on a single map.
- Very good differential resolution in complex conductive places with many sources with different conductivity.
- Signs of the presence of good conductive targets are amplified and emphasized independently of their depth and level of response accordingly.

In the example shown in Figure 4 and 5, three local targets are defined, each of them with a different depth of burial, as indicated on the resistivity depth image (RDI). All are very good conductors but the deeper target (number 2) has a relatively weak dB/dt signal yet also features the strongest total TAU (Figure 4). This example highlights the benefit of TAU analysis in terms of an additional target discrimination tool.

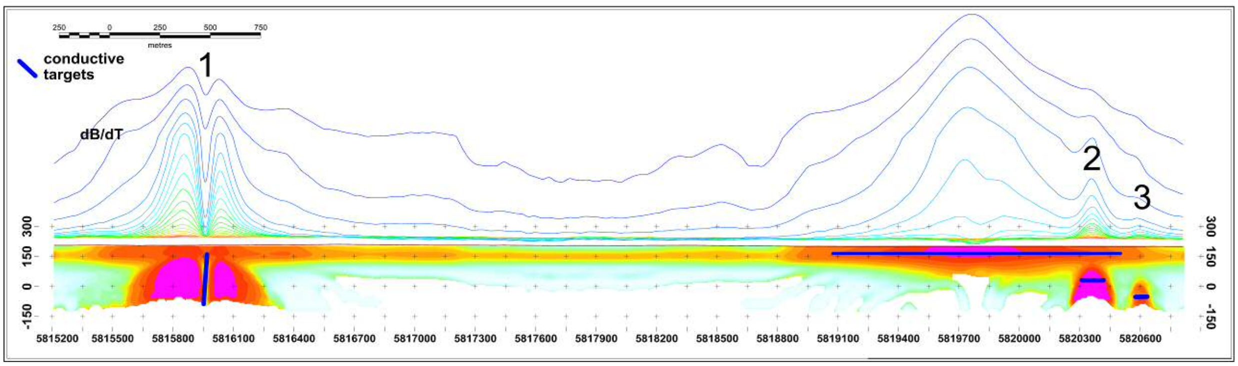


Figure E-4: dB/dt profile and RDI with different depths of targets.

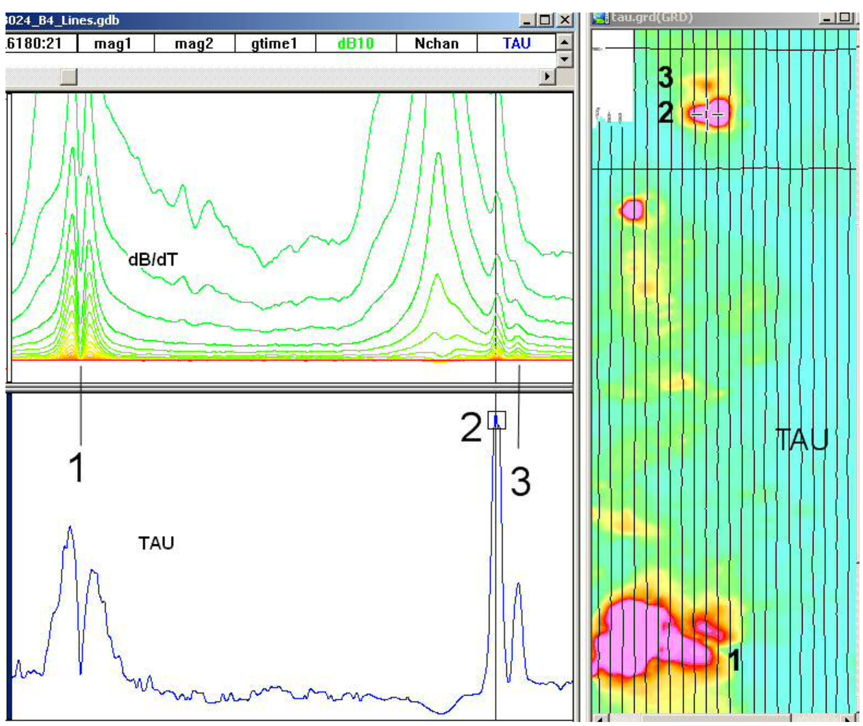


Figure E-5: Map of total TAU and dB/dt profile.

The EM Time Constants for dB/dt and B-field were calculated using the "sliding Tau" in-house program developed at Geotech[2]. The principle of the calculation is based on using of time window (4 time channels) which is sliding along the curve decay and looking for latest time channels which have a response above the level of noise and decay. The EM decays are obtained from all available decay channels, starting at the latest channel. Time constants are taken from a least square fit of a straight-line (log/linear space) over the last 4 gates above a pre-set signal threshold level (Figure F6). Threshold settings are pointed in the "label" property of TAU database channels. The sliding Tau method determines that, as the amplitudes increase, the time-constant is taken at progressively later times in the EM decay. Conversely, as the amplitudes decrease, Tau is taken at progressively earlier times in the decay. If the maximum signal amplitude falls below the threshold, or becomes negative for any of the 4 time gates, then Tau is not calculated and is assigned a value of "dummy" by default.

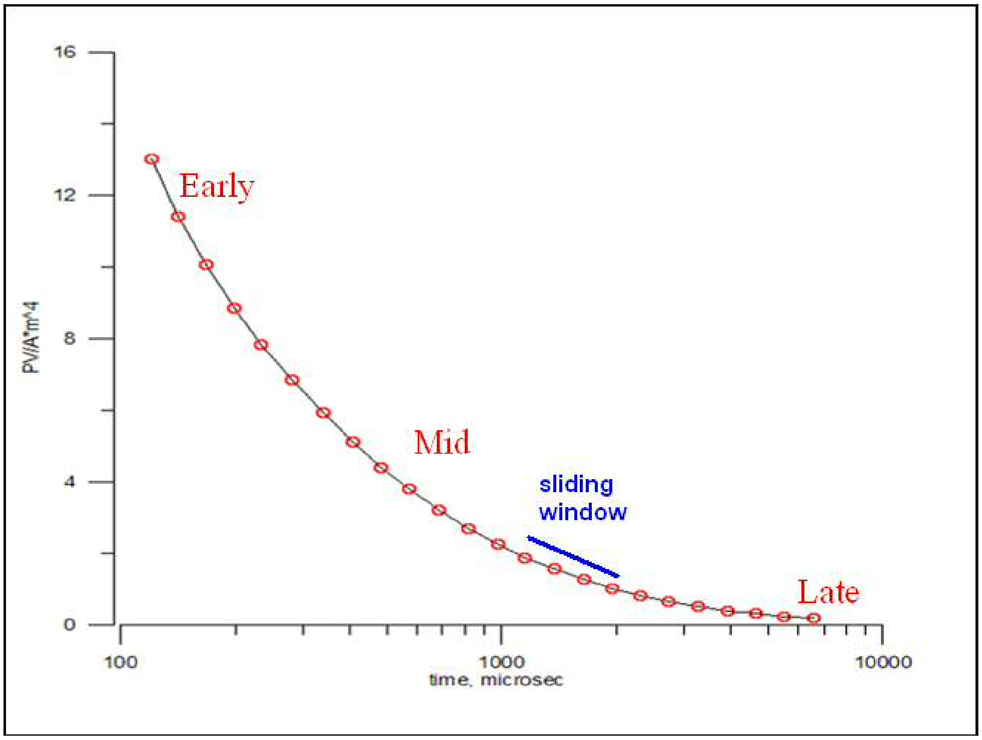


Figure E-6: Typical dB/dt decays of VTEM data

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September 2010

[2] by A.Prikhodko

APPENDIX F

TEM RESISTIVITY DEPTH IMAGING (RDI)

Resistivity depth imaging (RDI) is technique used to rapidly convert EM profile decay data into an equivalent resistivity versus depth cross-section, by deconvolving the measured TEM data.
The used RDI algorithm of Resistivity-Depth transformation is based on scheme of the apparent resistivity transform of Maxwell A.Meju (1998)[1] and TEM response from conductive half-space. The program is developed by Alexander Prikhodko and depth calibrated based on forward plate modeling for VTEM system configuration (Fig. 1-10).

RDIs provide reasonable indications of conductor relative depth and vertical extent, as well as accurate 1D layered-earth apparent conductivity/resistivity structure across VTEM flight lines. Approximate depth of investigation of a TEM system, image of secondary field distribution in half space, effective resistivity, initial geometry and position of conductive targets is the information obtained on base of the RDIs.

Maxwell forward modeling with RDI sections from the synthetic responses (VTEM system)

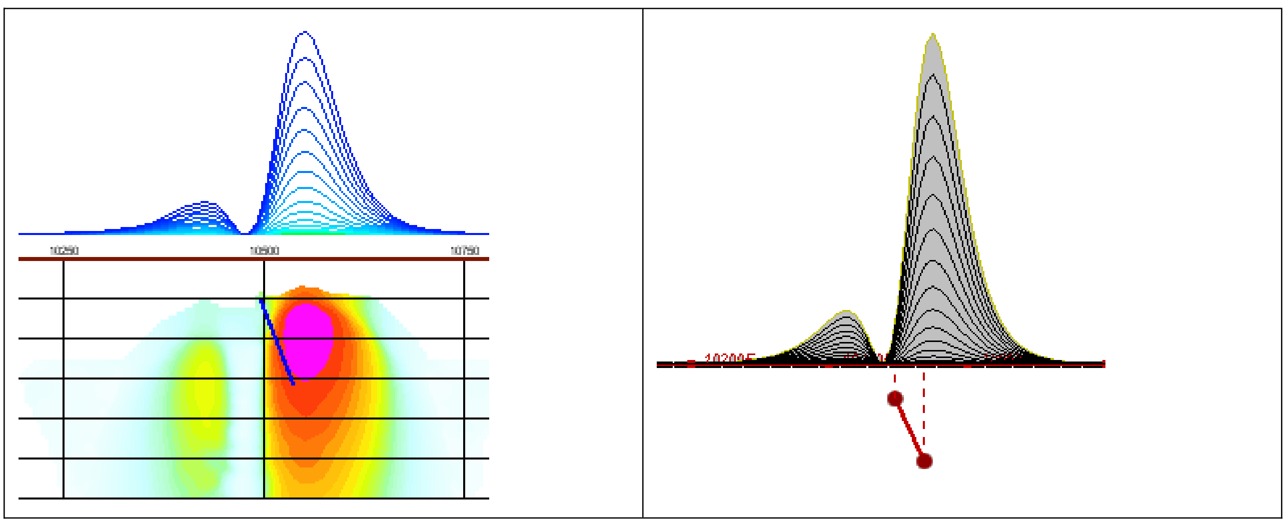


Figure F-1: Maxwell plate model and RDI from the calculated response for conductive "thin" plate (depth 50 m, dip 65 degree, depth extend 100 m).

[1] Maxwell A.Meju, 1998, Short Note: A simple method of transient electromagnetic data analysis, Geophysics, **63**, 405–410.

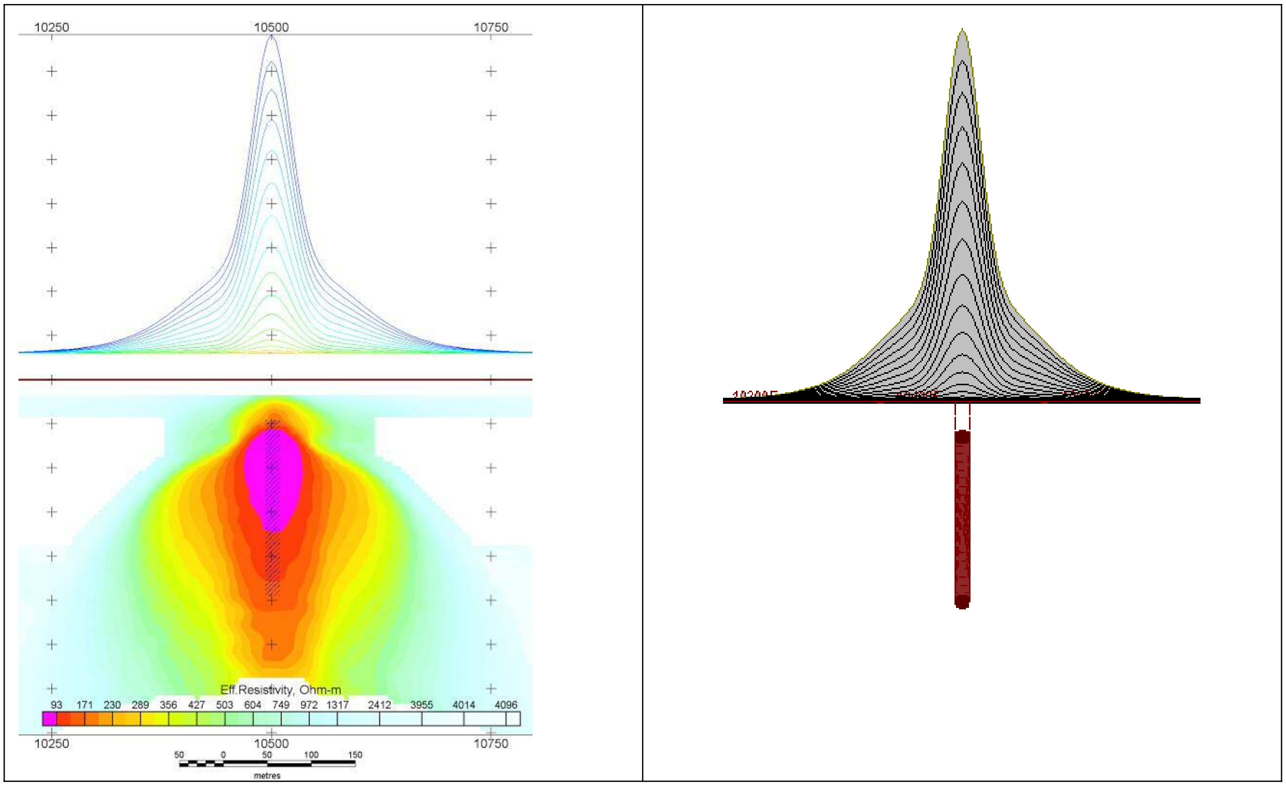


Figure F-2: Maxwell plate model and RDI from the calculated response for “thick” plate 18 m thickness, depth 50 m, depth extend 200 m).

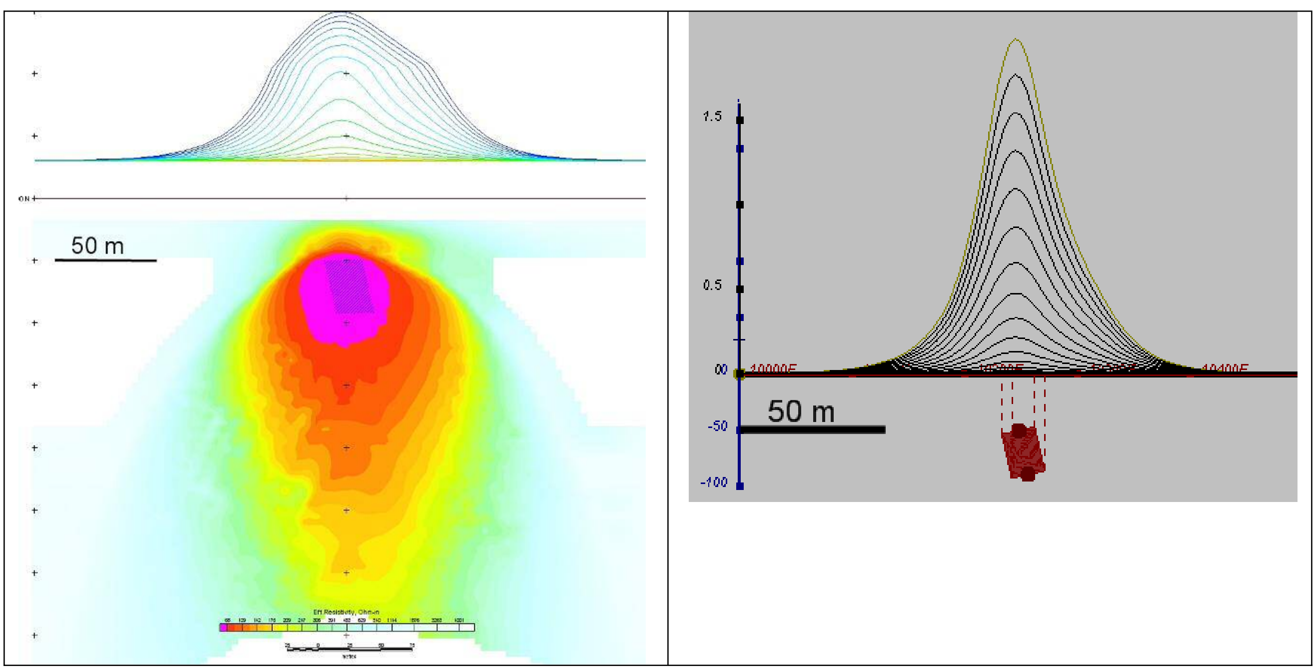


Figure F-3: Maxwell plate model and RDI from the calculated response for bulk (“thick”) 100 m length, 40 m depth extend, 30 m thickness

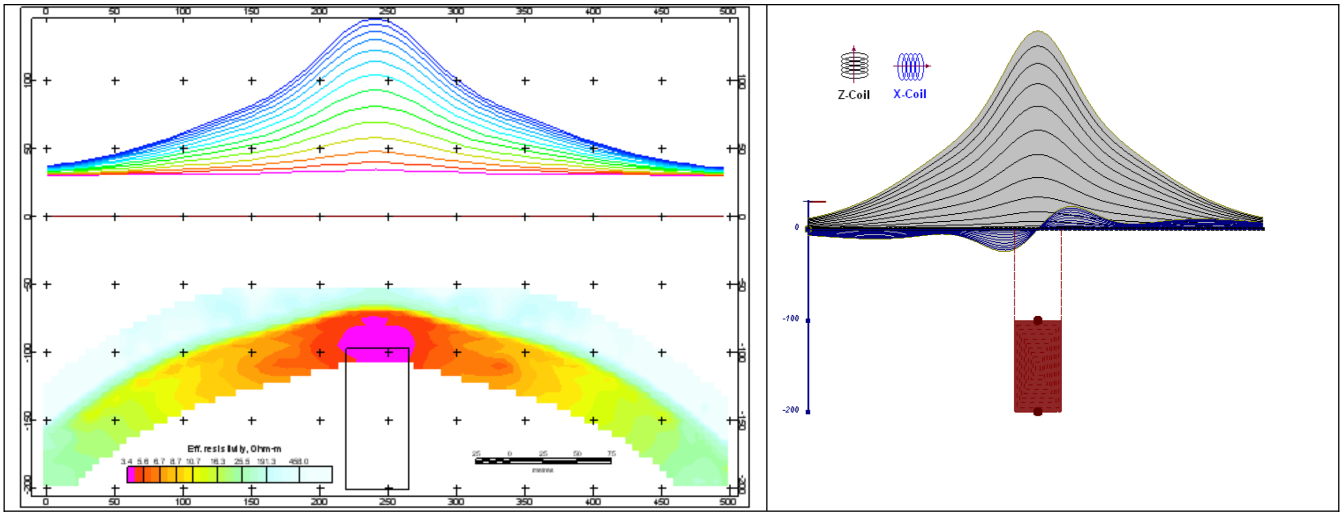


Figure F-4: Maxwell plate model and RDI from the calculated response for “thick” vertical target (depth 100 m, depth extend 100 m). 19-44 chan.

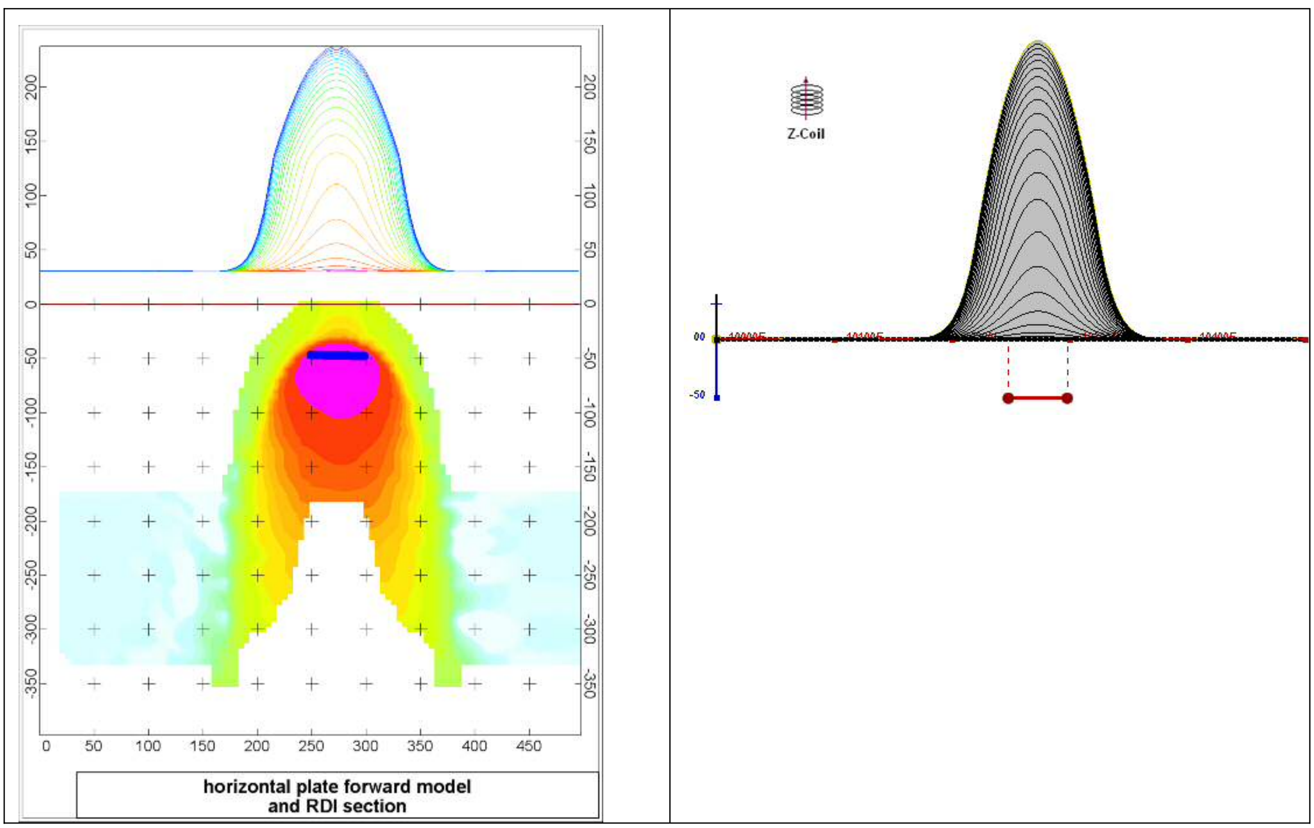


Figure F-5: Maxwell plate model and RDI from the calculated response for horizontal thin plate (depth 50 m, dim 50x100 m). 15-44 chan.

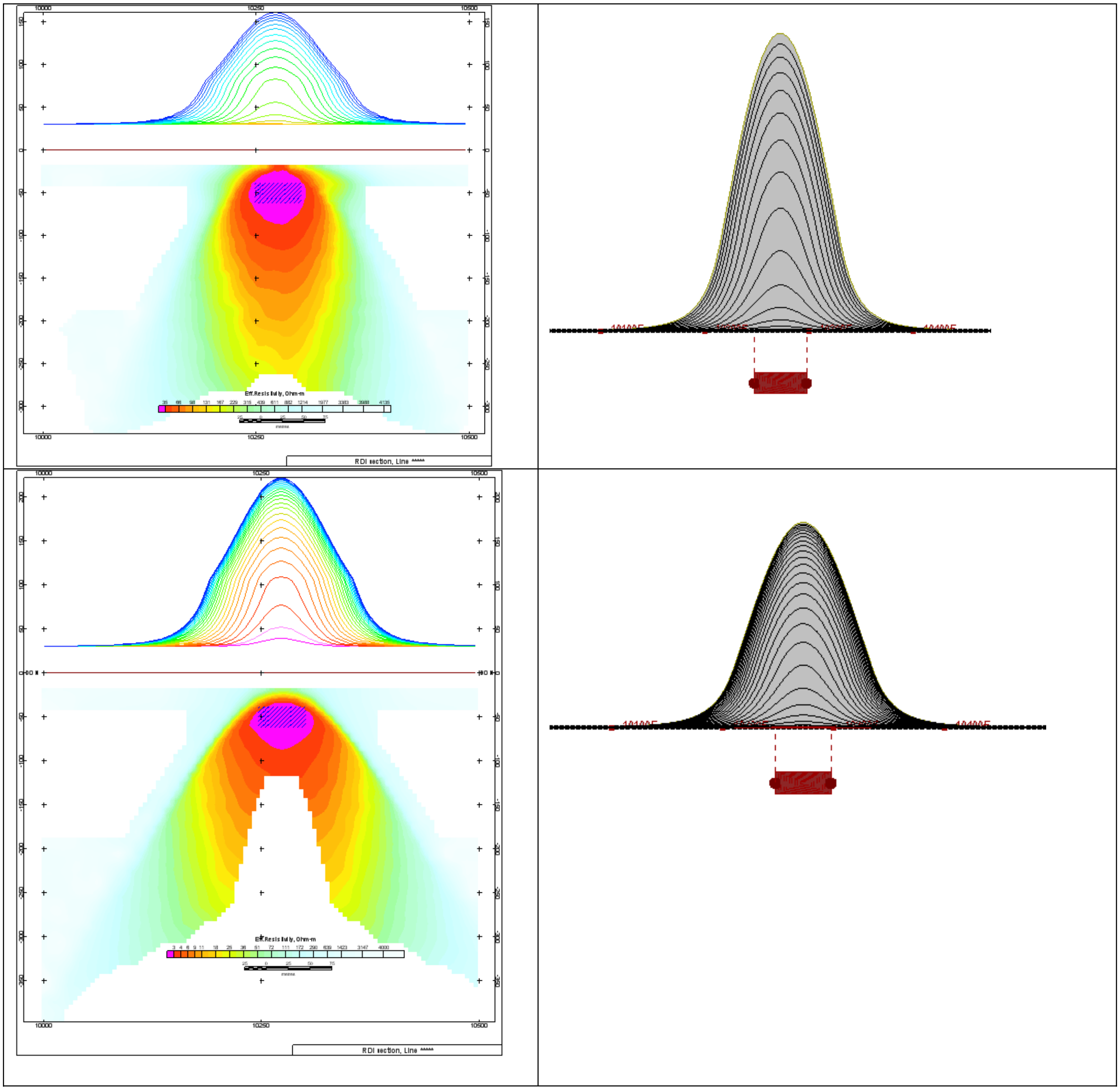


Figure F-6: Maxwell plate model and RDI from the calculated response for horizontal thick (20m) plate – less conductive (on the top), more conductive (below)

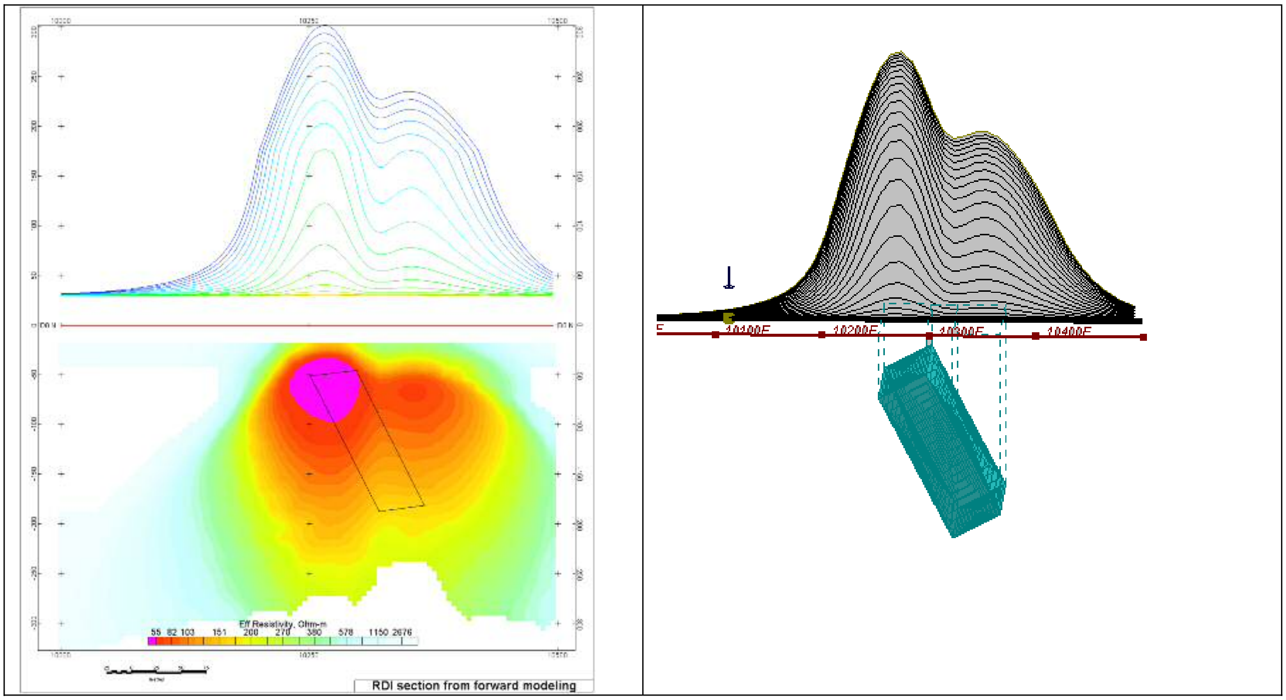


Figure F-7: Maxwell plate model and RDI from the calculated response for inclined thick (50m) plate. Depth extends 150 m, depth to the target 50 m.

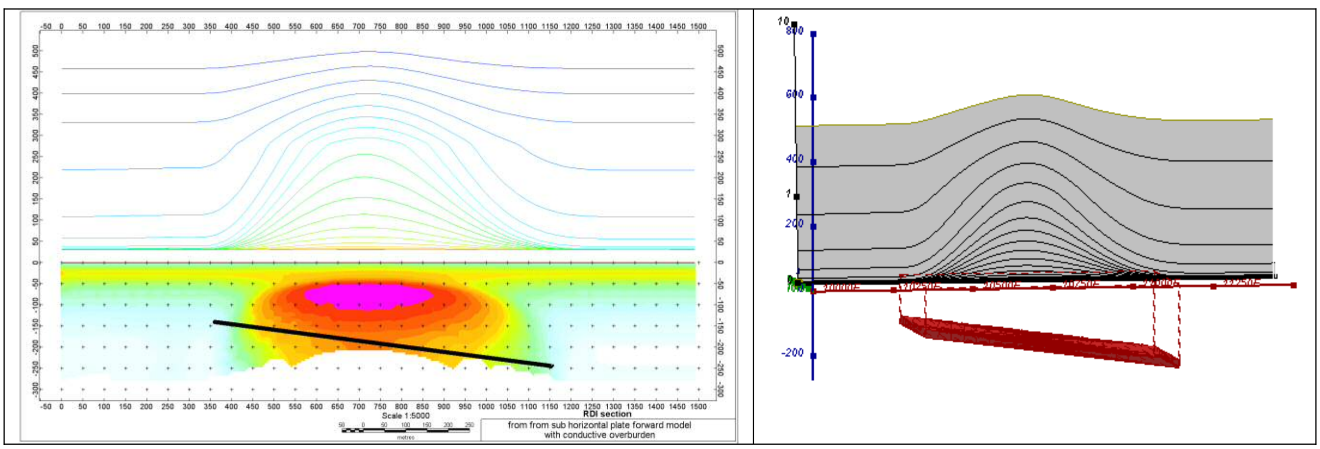


Figure F-8: Maxwell plate model and RDI from the calculated response for the long, wide and deep subhorizontal plate (depth 140 m, dim 25x500x800 m) with conductive overburden.

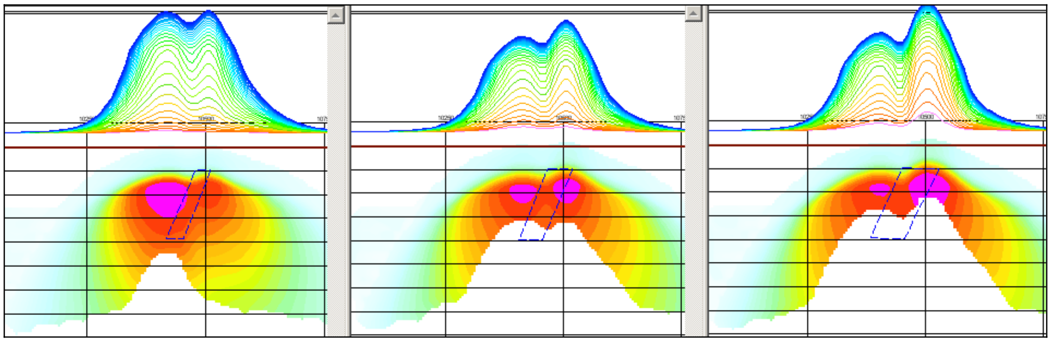


Figure F-9: Maxwell plate models and RDIs from the calculated response for “thick” dipping plates (35, 50, 75 m thickness), depth 50 m, conductivity 2.5 S/m.

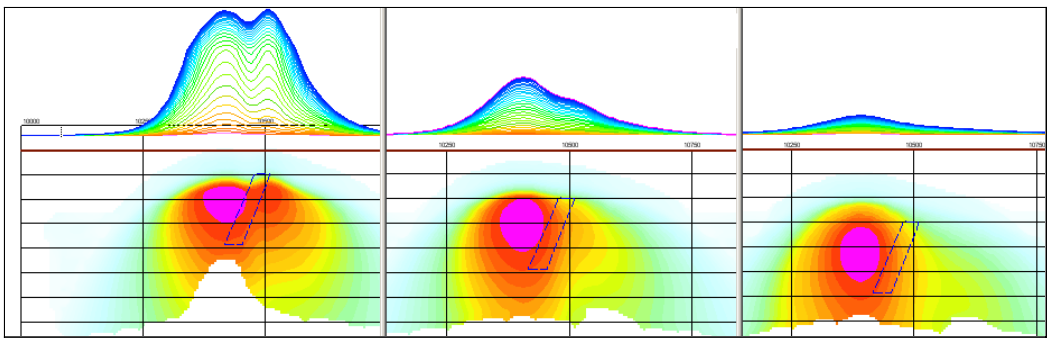


Figure F-10: Maxwell plate models and RDIs from the calculated response for “thick” (35 m thickness) dipping plate on different depth (50, 100, 150 m), conductivity 2.5 S/m.

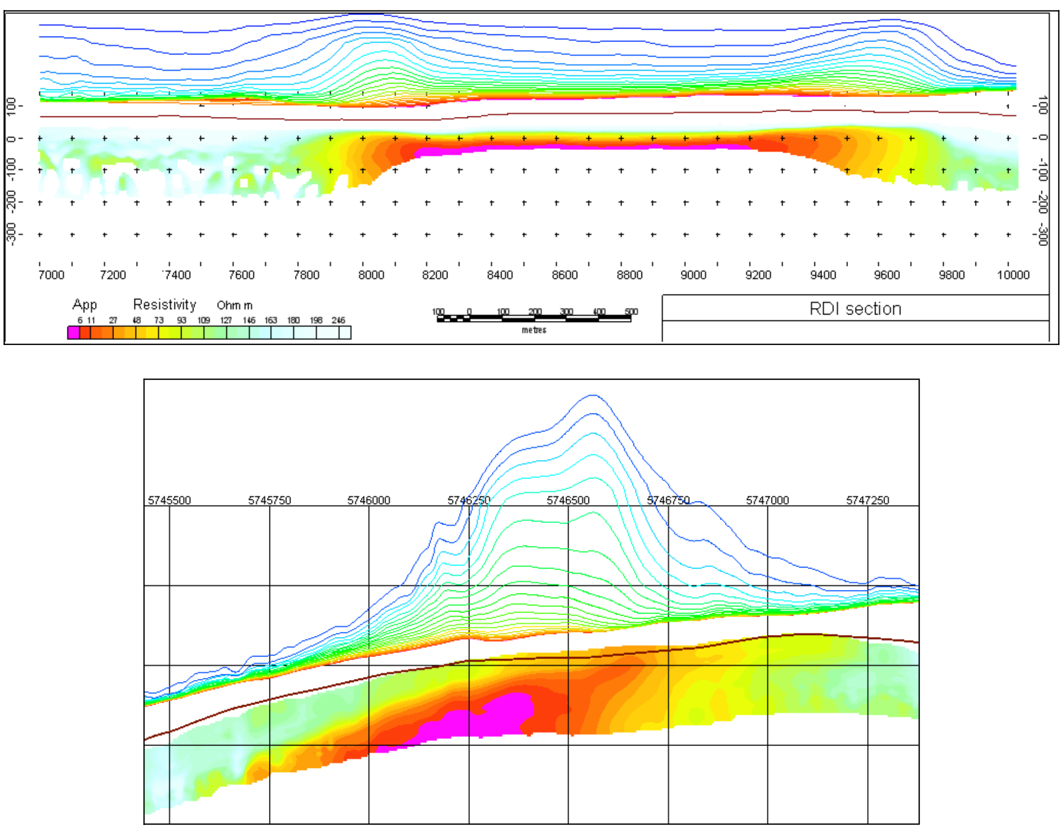
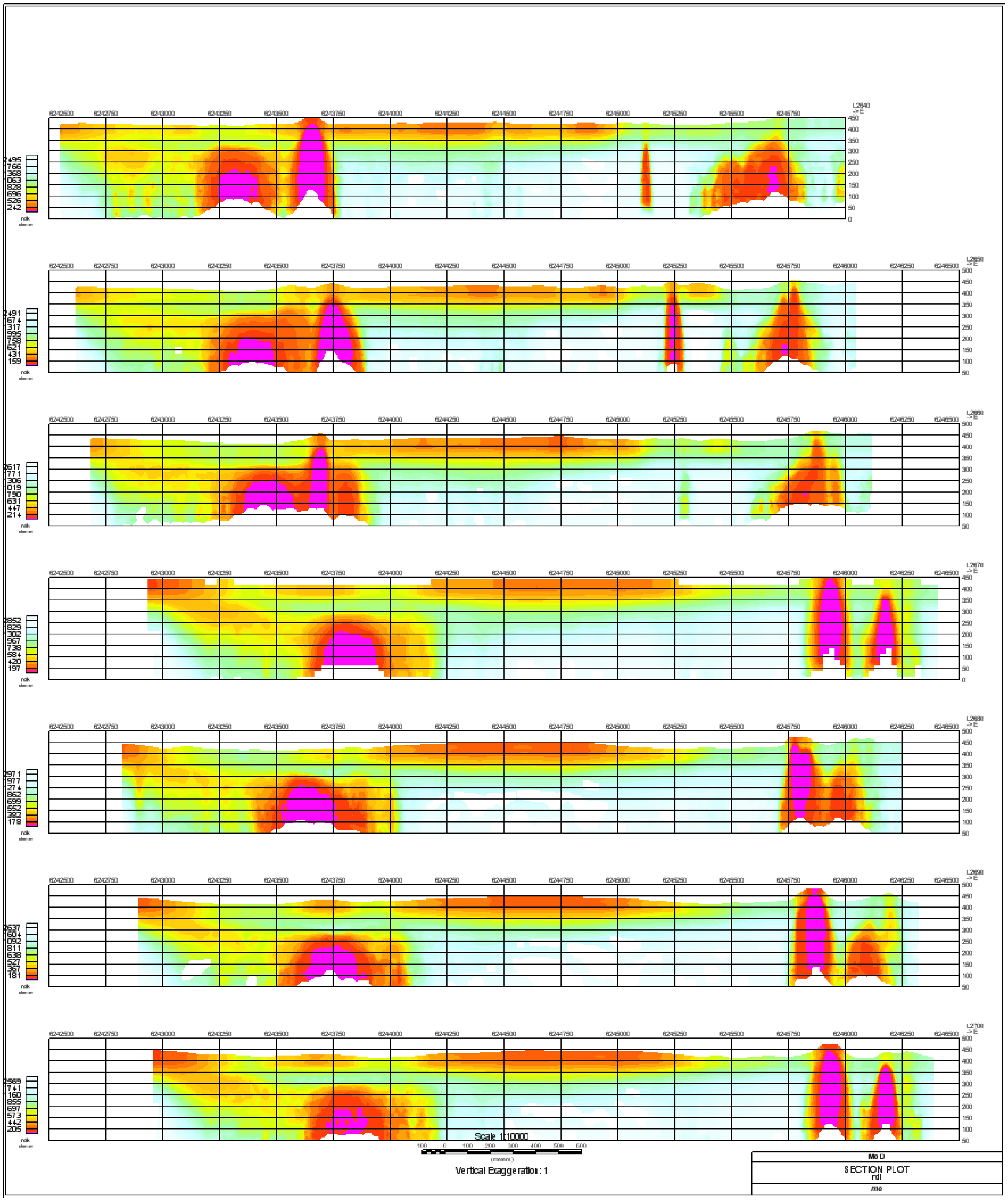


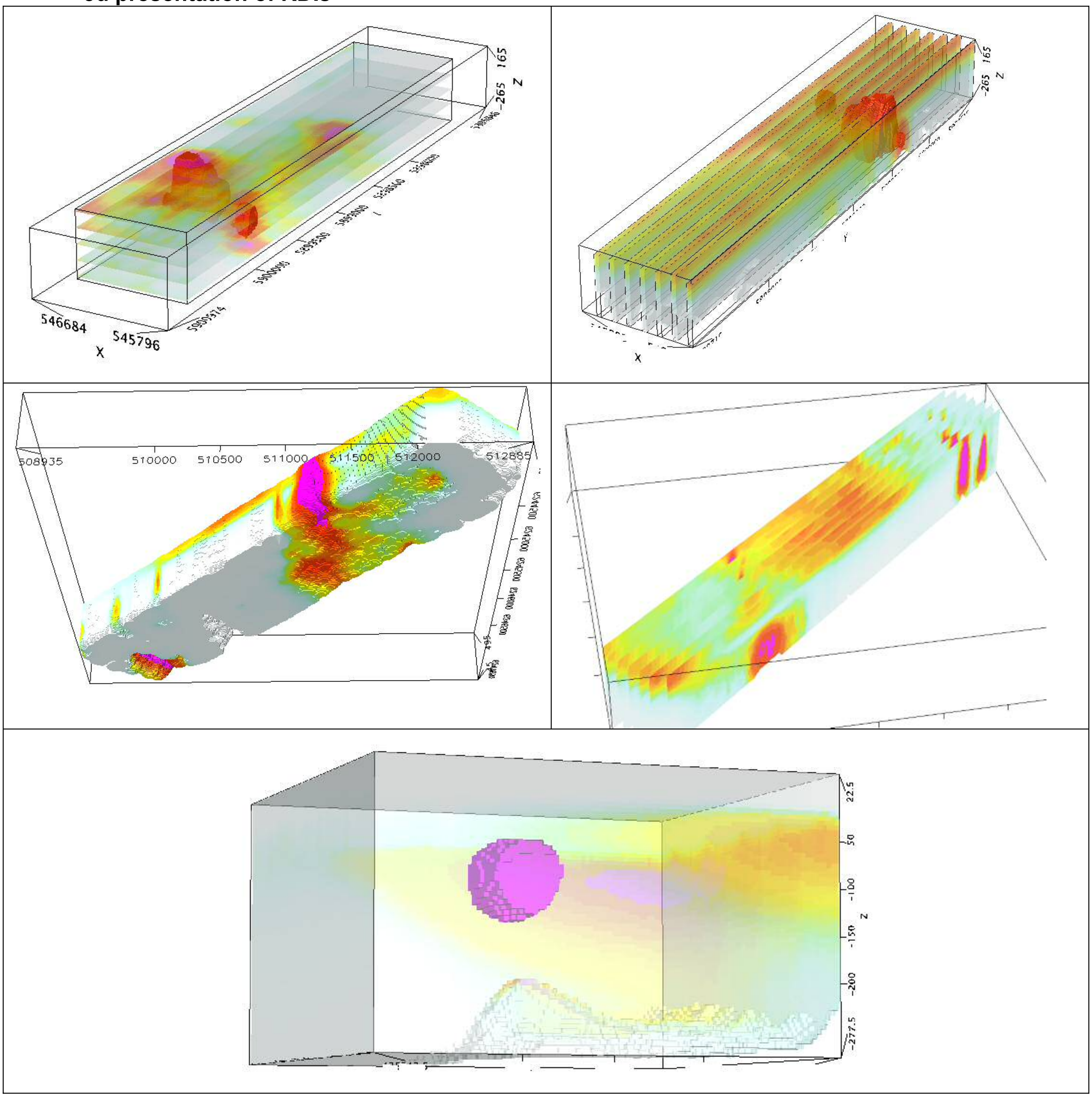
Figure F-11: RDI section for the real horizontal and slightly dipping conductive layers

FORMS OF RDI PRESENTATION

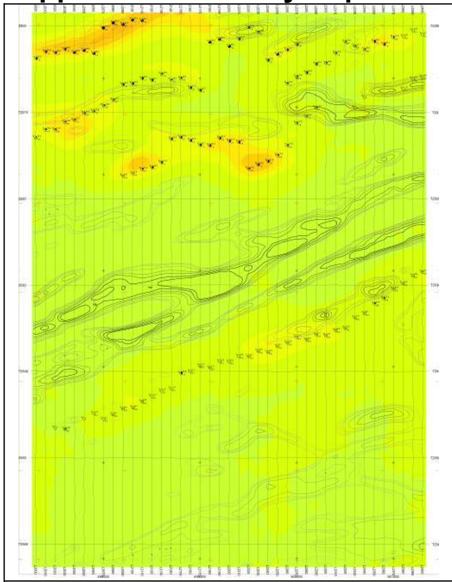
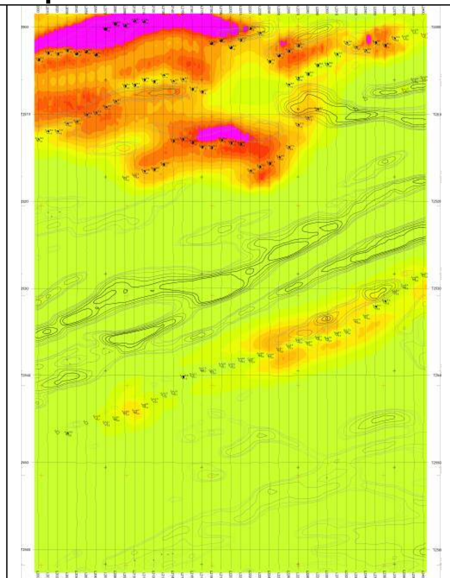
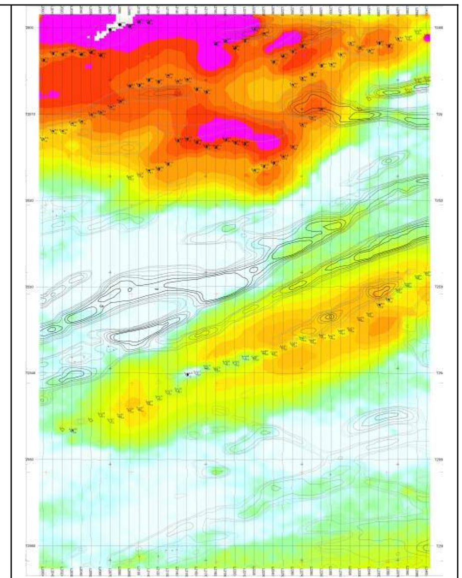
Presentation of series of lines



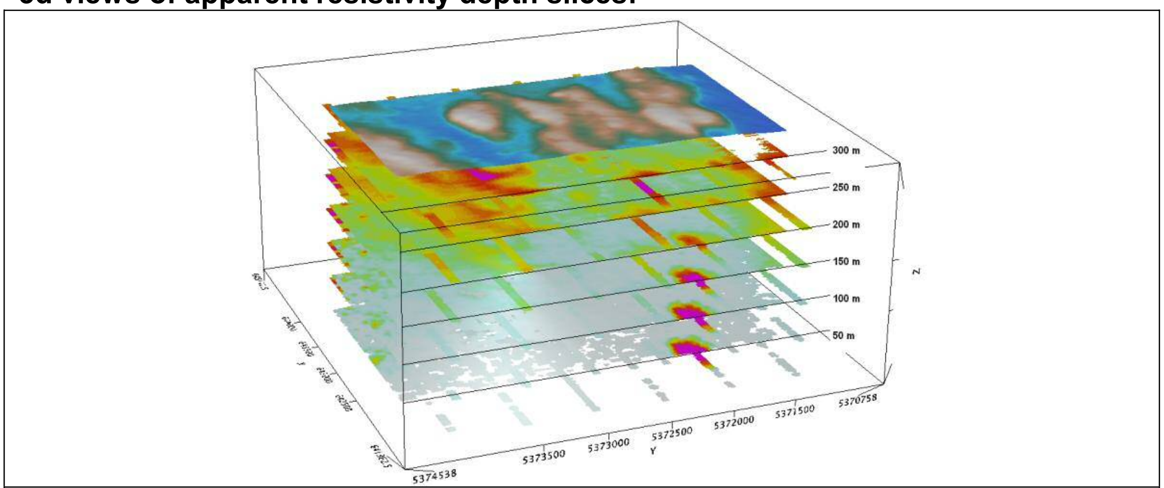
3d presentation of RDIs

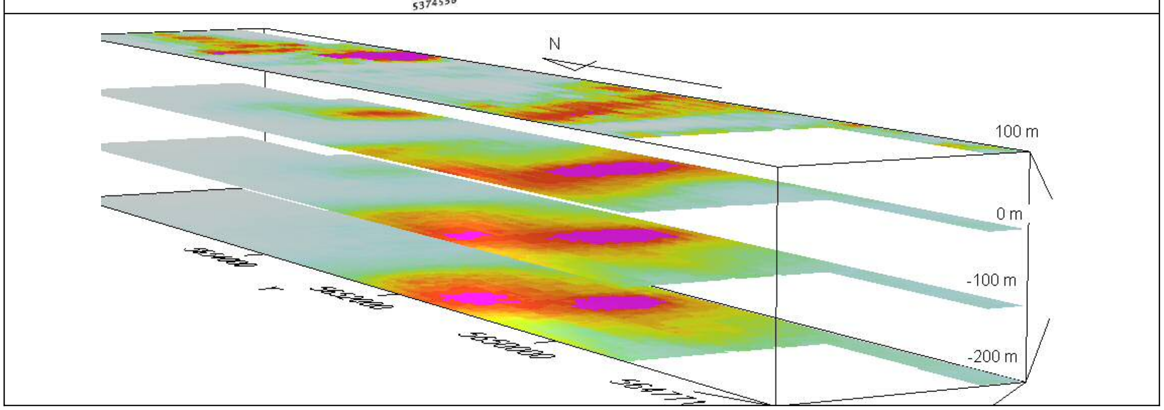


Apparent Resistivity Depth Slices plans:

		
0 m (surface)	-100 m	-200 m

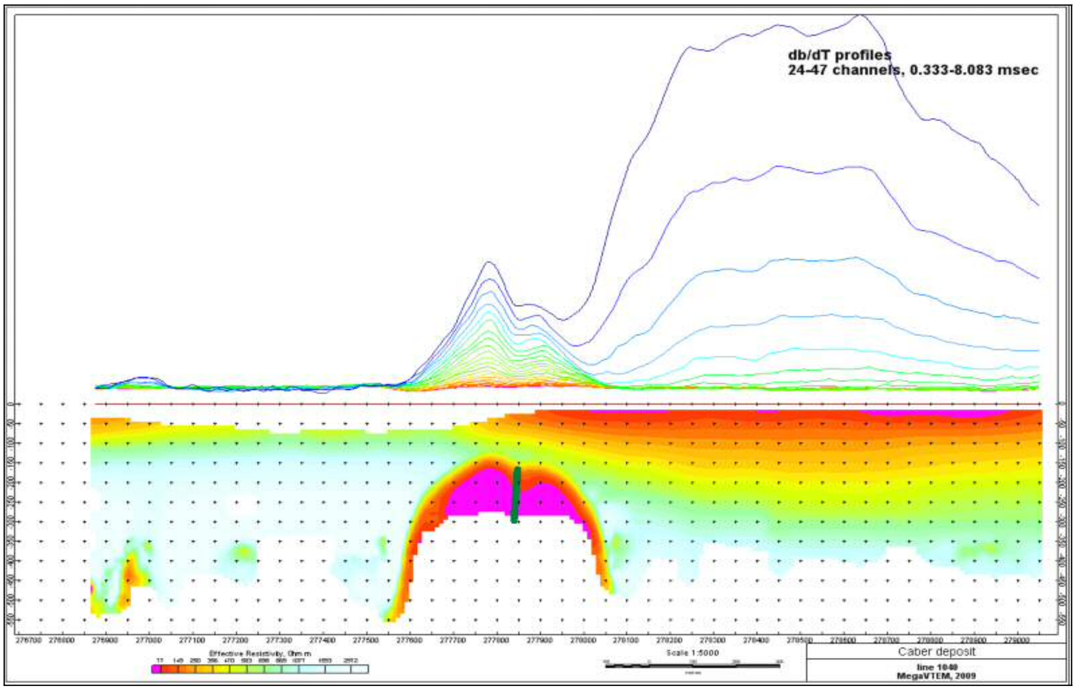
3d views of apparent resistivity depth slices:



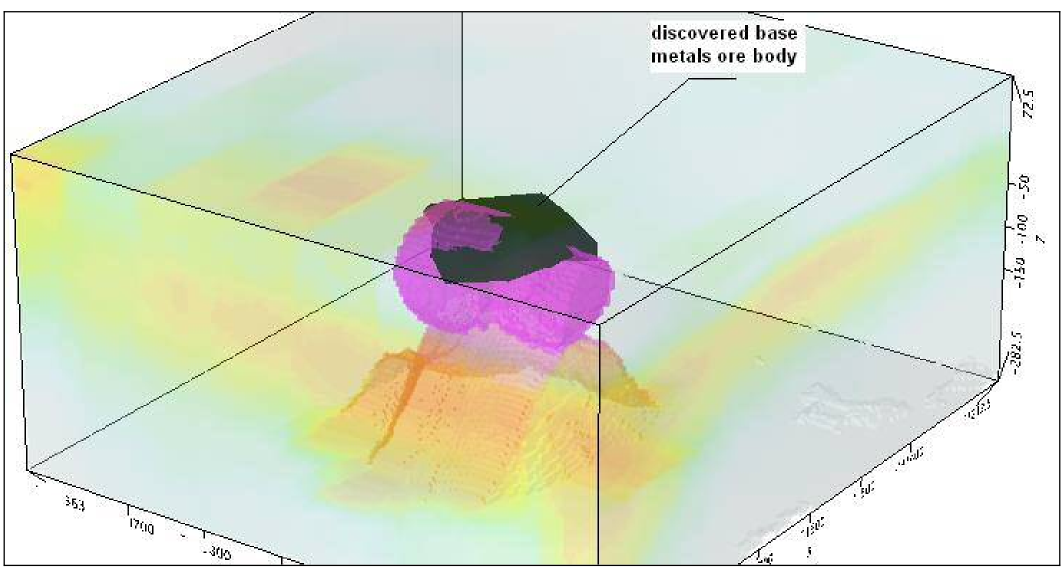


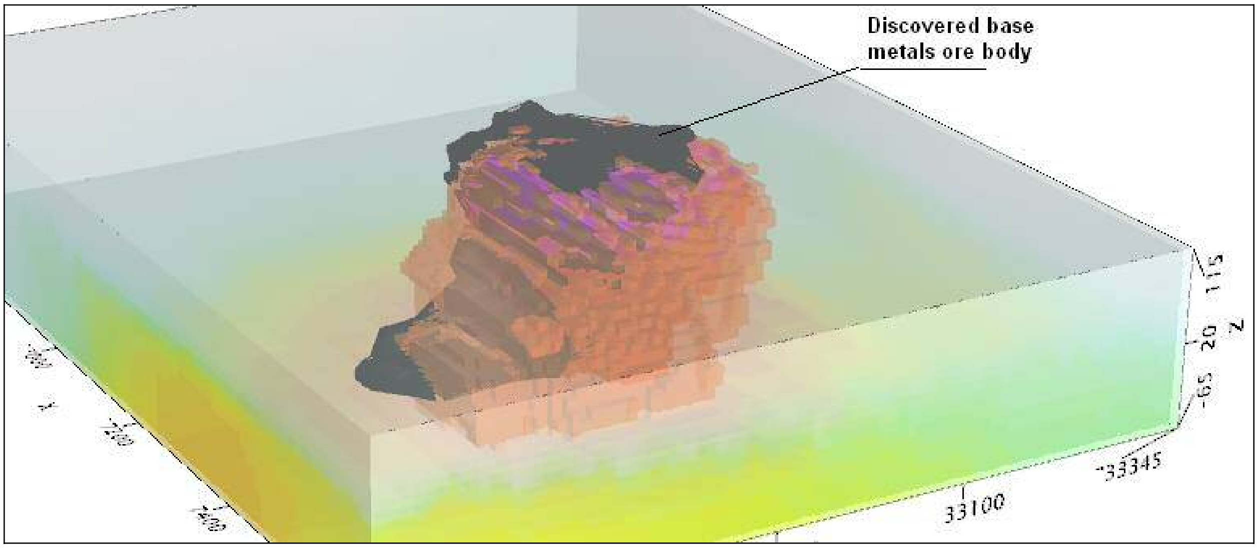
Real base metal targets in comparison with RDIs:

RDI section of the line over Caber deposit ("thin" subvertical plate target and conductive overburden).



3d RDI voxels with base metals ore bodies (Middle East):





Alexander Prikhodko, PhD, P.Geo
Geotech Ltd.
April 2011

APPENDIX B

Calculated Survey Costs using Flown Line-Kms

Albany Block #	*Line Kms*	*Cost per Line Km*	*Airborne Costs*	*Assoc. Costs*	*Total Costs*	*Claims Flown*	*$ per claim*
4F Ext	**475**	**$244**	**$115,900**	**$7150**	**$123,050**	**27**	**$4557.41**

APPENDIX C

Airborne Geophysical Maps

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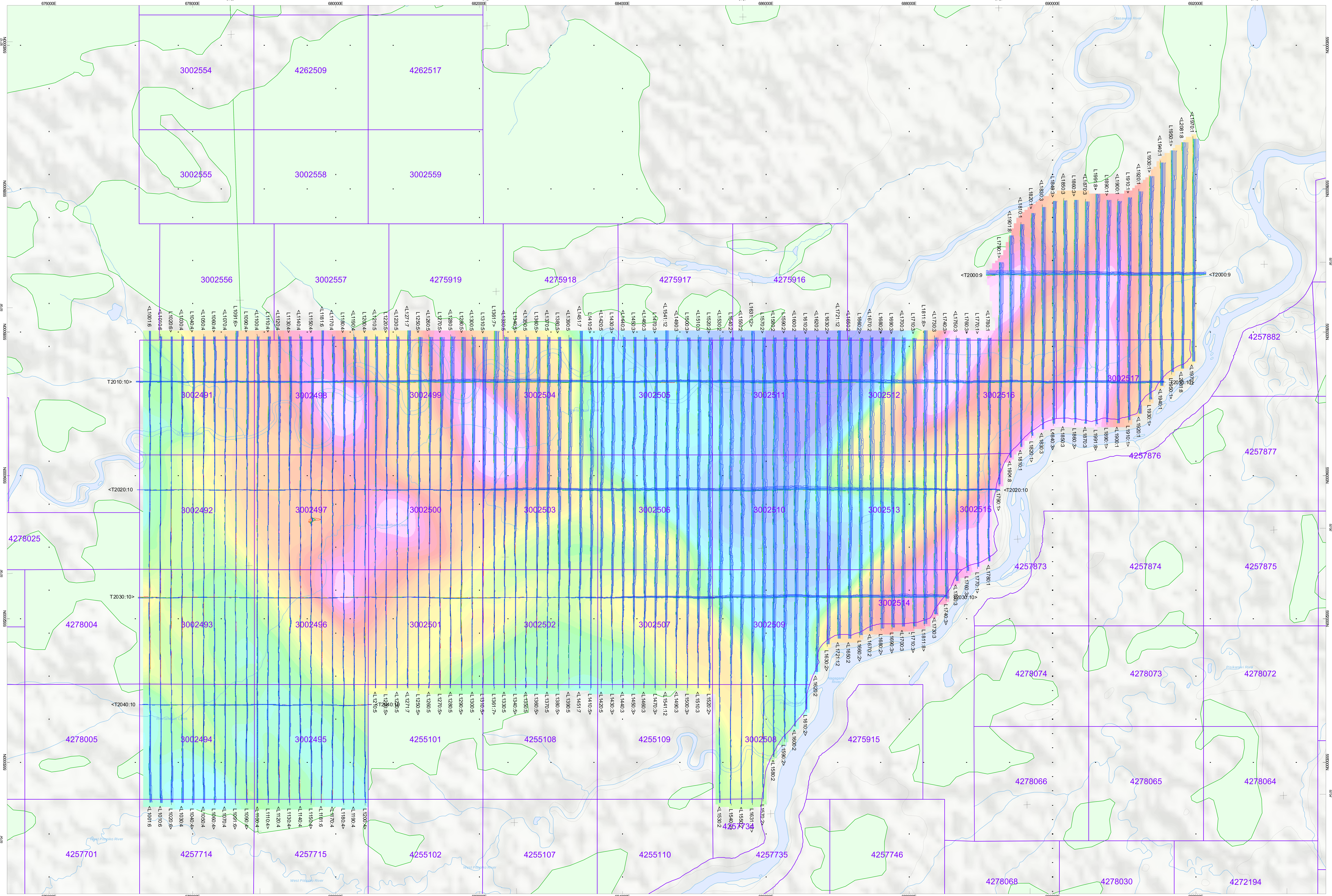

SURVEY SPECIFICATIONS:
- Survey Date: August 18 2013 - September 5 2013
- Survey Base: Hearst, Ontario, Canada
- Aircraft: AW119 Koala (Registration C-GVMX)
- Survey Line Spacing: 150, 200, and 400 metres
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- Tie Line Spacing: 4000 metres
- Tie Line Direction: N 90° E / N 270° E
- Actual Average Terrain Clearance: 78 metres
- EM Transmitter Loop: Towed at an average terrain clearance of 48 metres below the helicopter
- Magnetic Sensor: Towed at an average terrain clearance of 10 metres below the helicopter

INSTRUMENTS
- Geotech Time Domain Electromagnetic System (VTEMmax)
- Concentric Rx/Tx Geometry
- Receiver X-Coil Diameter: 0.32 metres
- Receiver Z-Coil Diameter: 1.2 metres
- Transmitter Loop Diameter: 35 metres
- Dipole Moment: XXX,XXX nIA
- Transmitter Wave Form: Trapezoid, Pulse Width X.XX ms, Base Frequency 30 Hz
- Geometrics High Sensitivity Cesium Magnetometer
- Mag Resolution: 0.02 nT at 10 samples/sec

MAP PROJECTION
- Datum: NAD83
- Projection: Universal Transverse Mercator
- Central Meridian: 87°W (Zone 17)
- Central Scale Factor: 0.9996
- False Easting/Northing: 500,000m/0m
- Major Axis: 6378137
- Inverse Flattening: 298.25722
- NTS: 042K01 and 042K02

Profiles scale 1 mm = 0.005 (pV*ms)/(A*m^4)

(Linear between +/-0.1 (pV*ms)/(A*m^4) logarithmic above 0.1 (pV*ms)/(A*m^4)

0.220 ms (B-field)
0.253 ms (B-field)
0.290 ms (B-field)
0.333 ms (B-field)
0.383 ms (B-field)
0.440 ms (B-field)
0.505 ms (B-field)
0.580 ms (B-field)
0.667 ms (B-field)
0.766 ms (B-field)
0.880 ms (B-field)
1.010 ms (B-field)
1.161 ms (B-field)
1.333 ms (B-field)
1.531 ms (B-field)
1.760 ms (B-field)
2.021 ms (B-field)
2.323 ms (B-field)
2.667 ms (B-field)
3.063 ms (B-field)
3.521 ms (B-field)
4.042 ms (B-field)
4.641 ms (B-field)
5.333 ms (B-field)
6.125 ms (B-field)
7.036 ms (B-field)

TMI (nT): 59428, 59300, 59220, 59134, 59044, 58954, 58862, 58772, 58686, 58612, 58550, 58478, 58386, 58284, 58168, 58060, 57966, 57878, 57808, 57760, 57720, 57680, 57644, 57610, 57582, 57548, 57512, 57478, 57450, 57424, 57396, 57356, 57272, 57186, 57086, 56962, 56846, 56650

TOPOGRAPHIC LEGEND:
- Streams / Rivers
- Contours
- Lakes / Ponds
- Wetlands
- Mining Claims

Scale 1:20000

250 0 250 500 750 1000 (meters)

NAD83 / UTM zone 16N

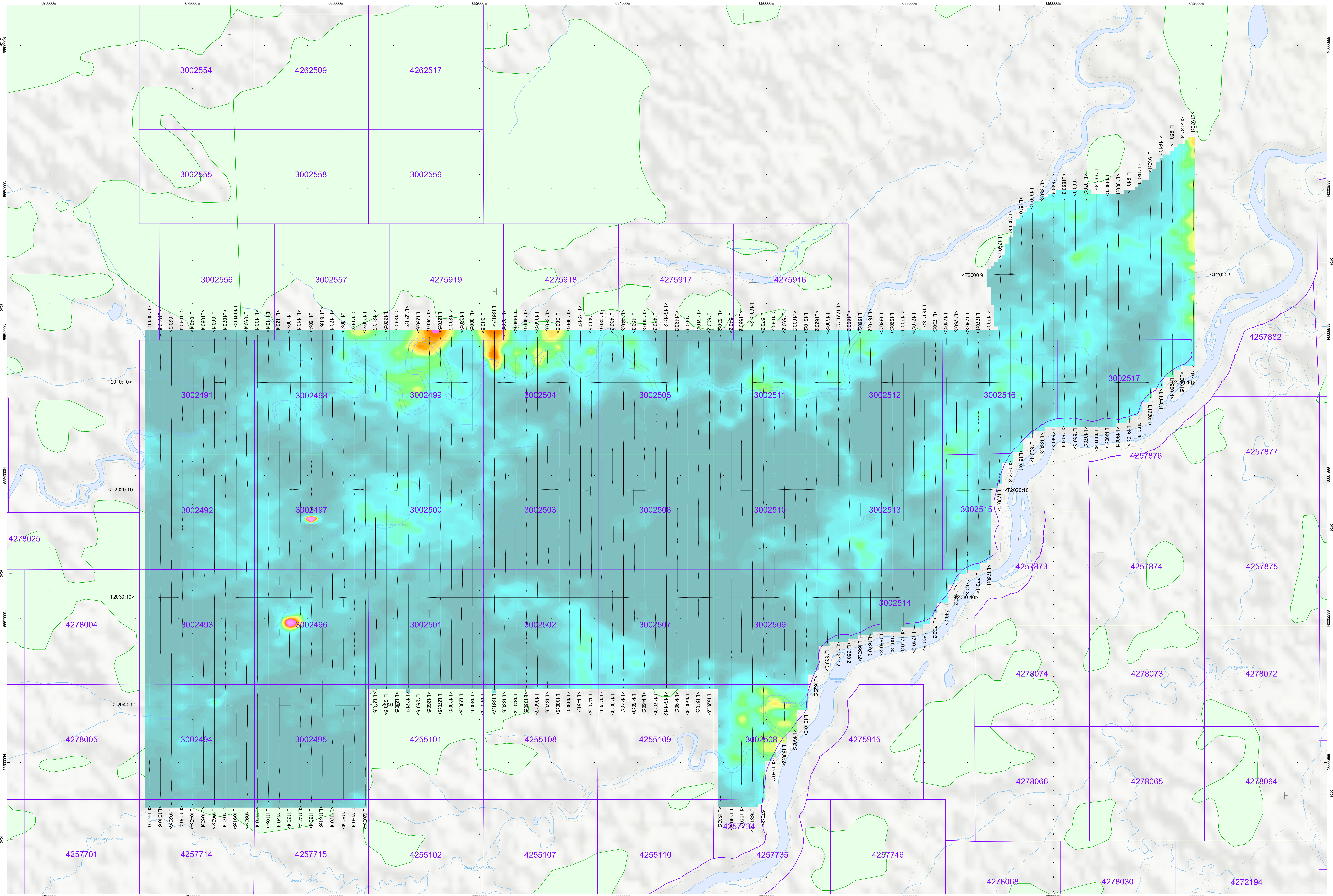
The topographic data base was derived from 1:50000 NRC (Natural Resources Canada) NTDB data
Background shading is derived from NASA SRTM (Shuttle Radar Topography Mission) data
Inset data derived from DIVA-GIS Geographic National Dataset for Canada at 1:10,000,000
Mining Claims are derived from the Ontario Ministry of Northern Development and Mines
(www.geogratis.ca)(www.diva-gis.org)(www.mndm.gov.on.ca)

Zenyatta Ventures Ltd.
4F Extension - South Grid
Hearst, Ontario, Canada

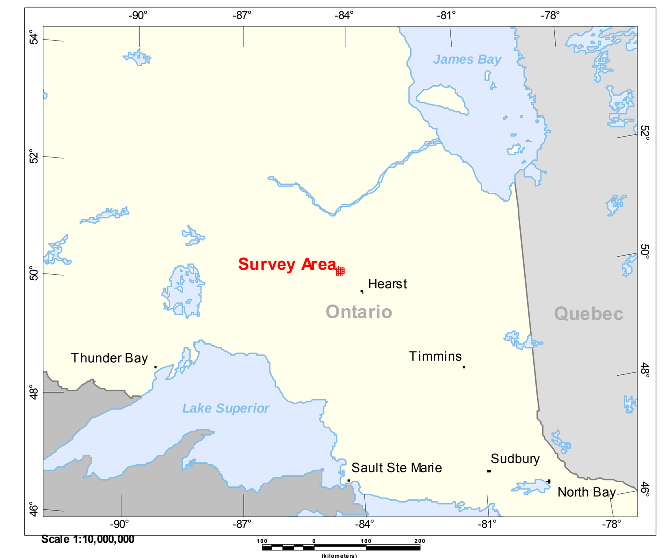
Geotech VTEM System
VTEM B-Field Z Component Profiles
Time Gates 0.220 - 7.036 ms
Over Total Magnetic Intensity Grid

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

November 2014



GEOTECH LTD.



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Receiver Z-Coil Diameter: 1.2 metres
Transmitter Loop Diameter: 35 metres
Dipole Moment: XXX,XXX nIA
Transmitter Wave Form: Trapezoid, Pulse Width X.XX ms, Base Frequency 30 Hz
Geometrics High Sensitivity Cesium Magnetometer
Mag Resolution: 0.02 nT at 10 samples/sec

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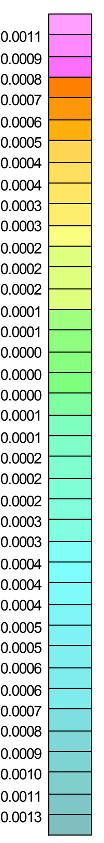
Projection: Universal Transverse Mercator
Central Meridian: 87°W (Zone 17)
Central Scale Factor: 0.9996
False Easting/Northing: 500,000m/0m
Major Axis: 6378137
Inverse Flattening: 298.25722
NTS: 042K01 and 042K02



B-Field 0.880ms
(pV*ms)/(A*m^4)

TOPOGRAPHIC LEGEND:

Streams / Rivers
Contours
Lakes / Ponds
Wetlands
Mining Claims

Scale 1:20000

(meters)
NAD83 / UTM zone 16N

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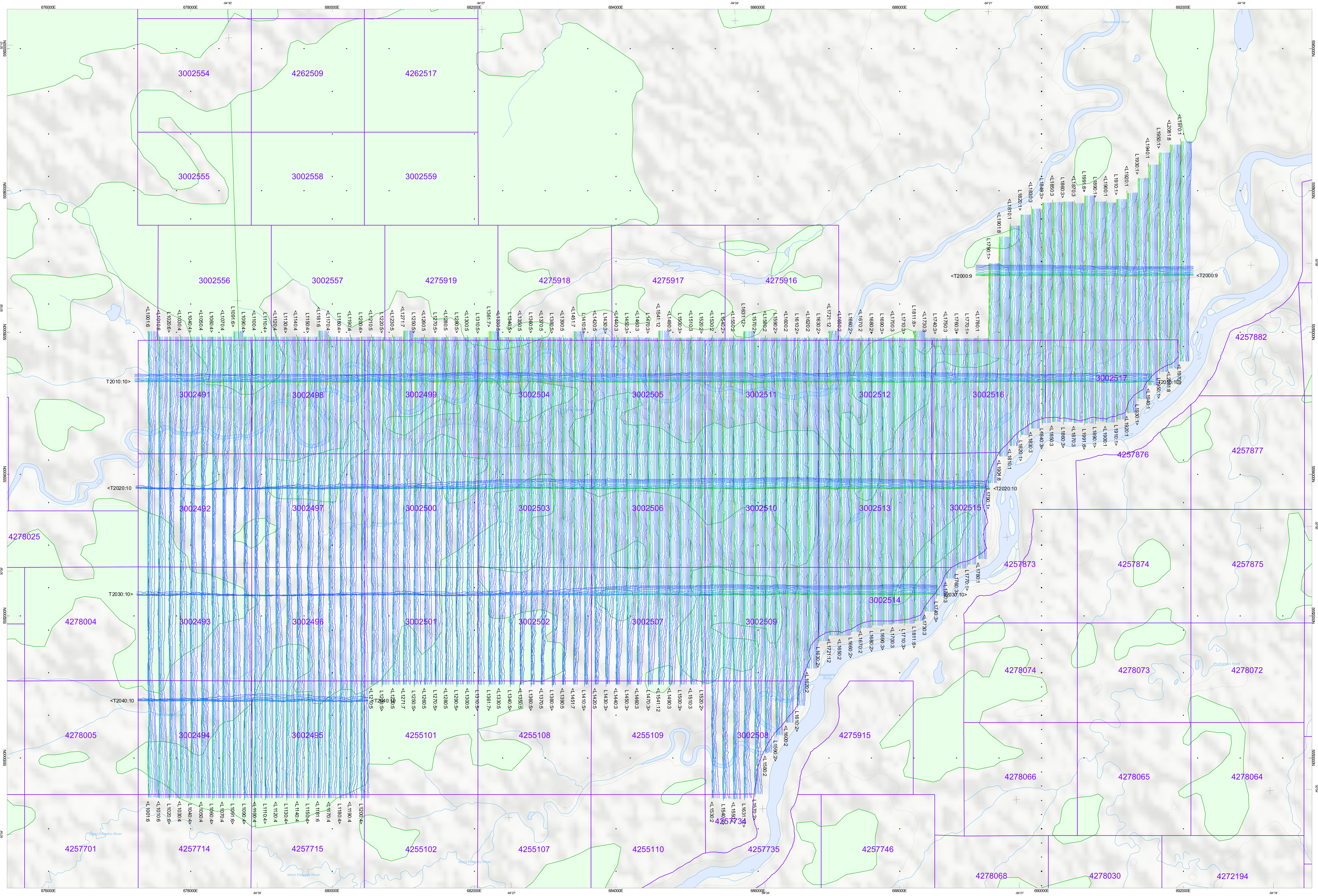
Zenyatta Ventures Ltd.
4F Extension - South Grid
Hearst, Ontario, Canada

Geotech VTEM System
VTEM B-Field Z Component
Channel 30, Time Gate 0.880ms

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

November 2014



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Linear between +/-0.02 (pV/A*m^4)
logarithmic above 0.02 (pV/A*m^4)

0.220 ms
0.253 ms
0.290 ms
0.333 ms
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

TOPOGRAPHIC LEGEND:
Streams / Rivers
Contours
Lakes / Ponds
Wetlands
Mining Claims

Scale 1:20000
250 0 250 500 750 1000
(meters)
NAD83 / UTM zone 16N

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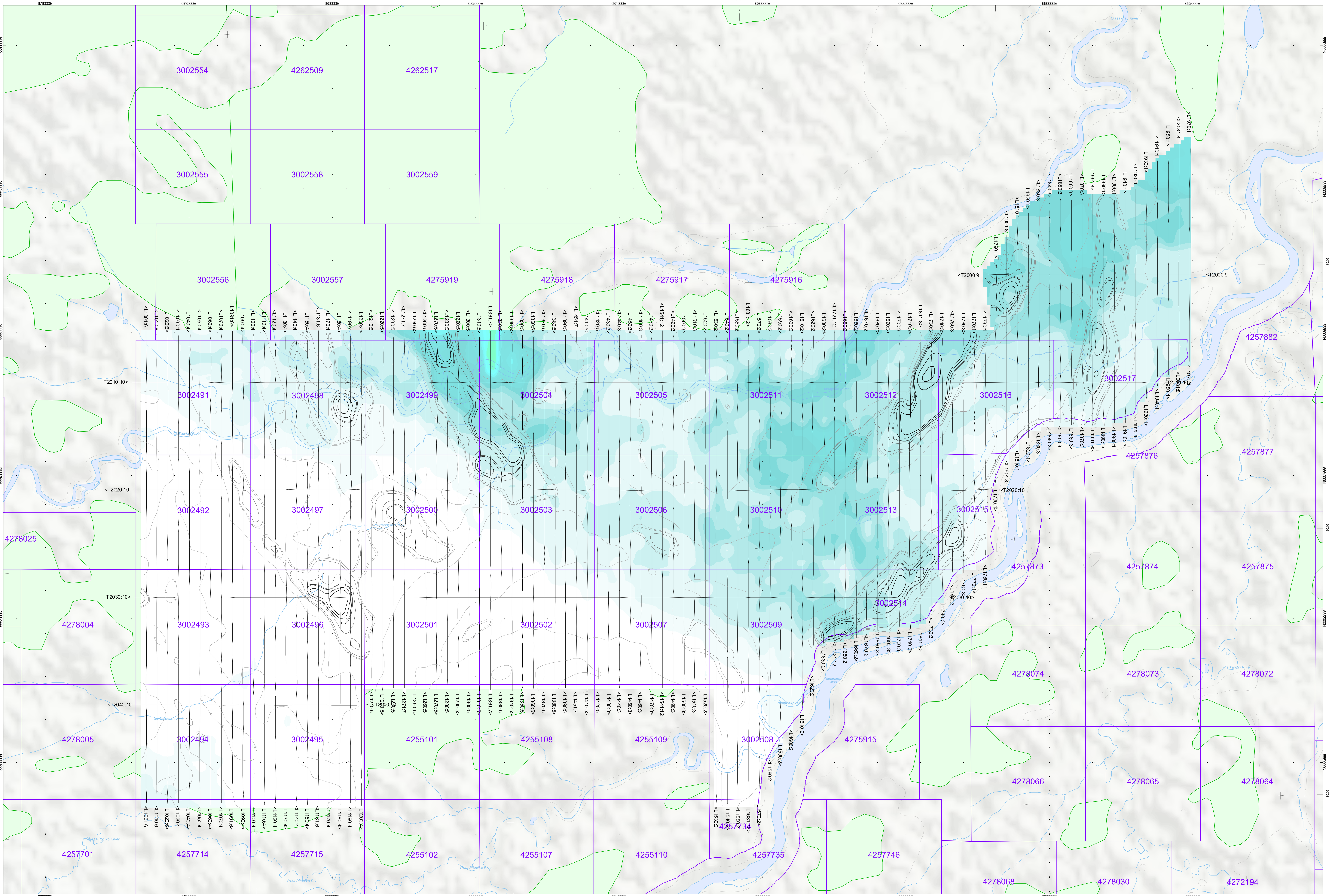
Zenyatta Ventures Ltd.
4F Extension - South Grid
Hearst, Ontario, Canada

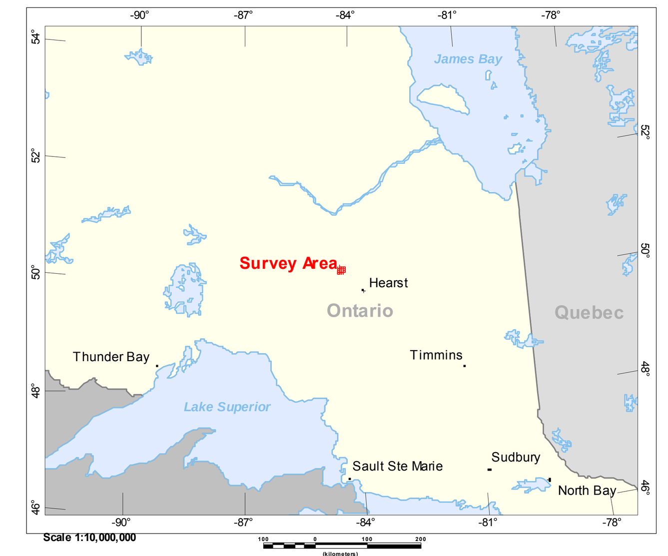
Geotech VTEM System
VTEM dB/dt Z Component Profiles
Time Gates 0.220 - 7.036 ms

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

November 2014



GEOTECH LTD.



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Tau dB/dt (ms)

TOPOGRAPHIC LEGEND:
- Streams / Rivers
- Contours
- Lakes / Ponds
- Wetlands
- Mining Claims

Scale 1:20000

250 0 250 500 750 1000

(meters)

NAD83 / UTM zone 16N

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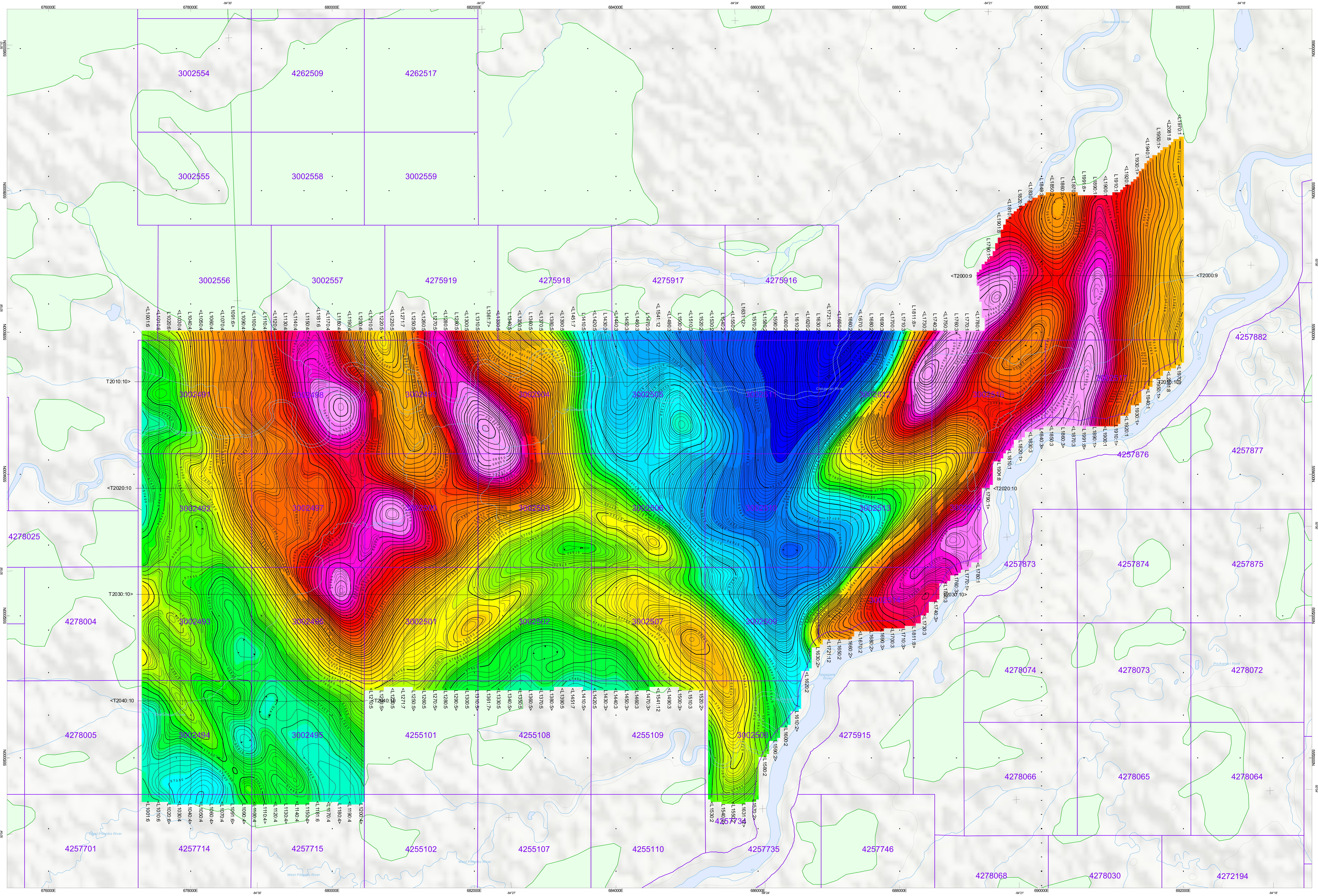
Zenyatta Ventures Ltd.
4F Extension - South Grid
Hearst, Ontario, Canada

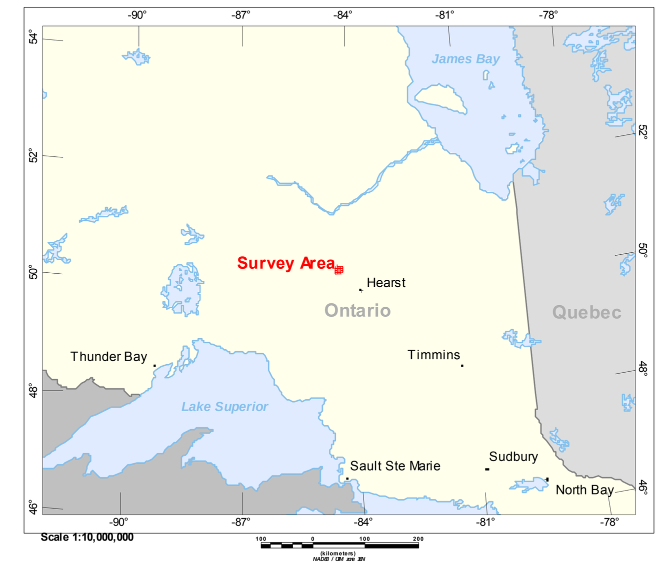
Geotech VTEM System
dB/dt Calculated Time Constant (Tau) with Calculated Vertical Derivative contours

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

November 2014



GEOTECH LTD.



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- Inverse Flattening: 298.25722
- NTS: 042K01 and 042K02

TMI Contour Intervals:
- 10 nT
- 50 nT
- 250 nT

TOPOGRAPHIC LEGEND:
- Streams / Rivers
- Contours
- Lakes / Ponds
- Wetlands
- Mining Claims

TMI (nT)

Scale 1:20000

250 0 250 500 750 1000 (meters)

NAD83 / UTM zone 16N

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Zenyatta Ventures Ltd.
4F Extension - South Grid
Hearst, Ontario, Canada

Geotech VTEM System
Total Magnetic Intensity (TMI)

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

November 2014