

GM 74309

Report on exploration activities in 2022 on the Garneau property - Accompanied by: Report on a helicopter-borne versatile time domain electromagnetic and horizontal magnetic gradiometer geophysical survey, project Garneau

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Assessment Report
REPORT ON EXPLORATION ACTIVITIES IN 2022 ON
THE GARNEAU PROPERTY Map 12M05
COTE-du-NORD, QUEBEC
Work Declaration Application No 2026887

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A handwritten signature in black ink that reads "Sam Russell".

21 February 2025

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1. Introduction

RTECI, following review of geophysical data near its Iron and Titanium operations at Sorel-Tracy, identified a large circular geological and structural target. The Rio Tinto Iron and Titanium Quebec mine operates the largest open pit mine in Quebec with processing facilities at Sorel-Tracy. Exploration near the mine for additional Iron and titanium ilmenite deposits plays a critical part in the operation's future. This report covers work completed by Rio Tinto Exploration Canada Inc. (RTECI) in 2022 on the Garneau Property located north of the Sorel-Tracy operations. In September of 2022 a detailed airborne geophysical survey collected 747 line-km of magnetic and electromagnetic data over the target area - a prominent geological structural anomaly. The survey was followed up by a helicopter-supported geological survey that collected geological data and samples for geochemistry from outcrops on the property. During the survey a large boulder containing abundant ilmenite was recovered. A total of 14 samples were sent for geochemical analysis at ALS Laboratories. This reconnaissance-level work completed in 2022 will feed into target identification and drill target testing plans in the future.

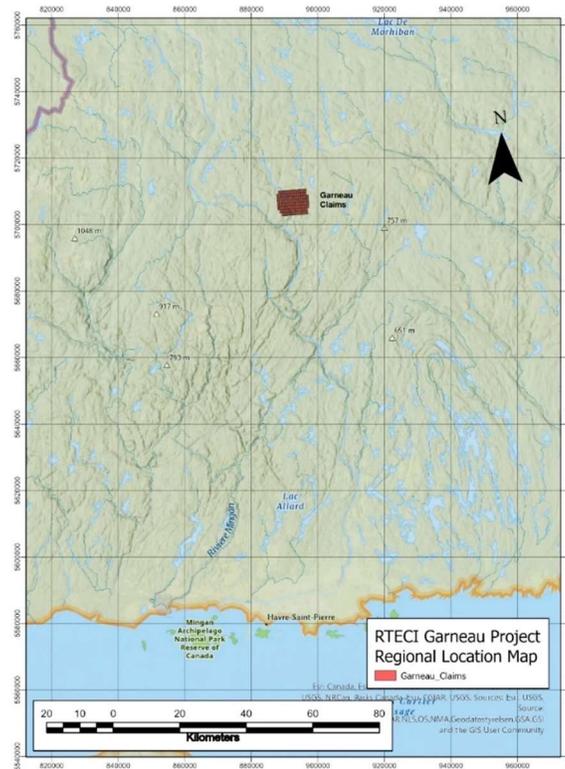


Figure 1: Regional Map showing the Garneau Claims

2. Tenure

2.1 Ownership and Joint Ventures

The Garneau property, located on map NTS 12M06, is comprised of 120 claim blocks and is 100% owned and operated by RTECI.

2.2 Mineral Claims

The RTECI-Garneau (Quebec-Titanium) properties consists of 120 contiguous claim blocks with a total of 104,417.54 Ha by area, referred to as the Garneau properties.

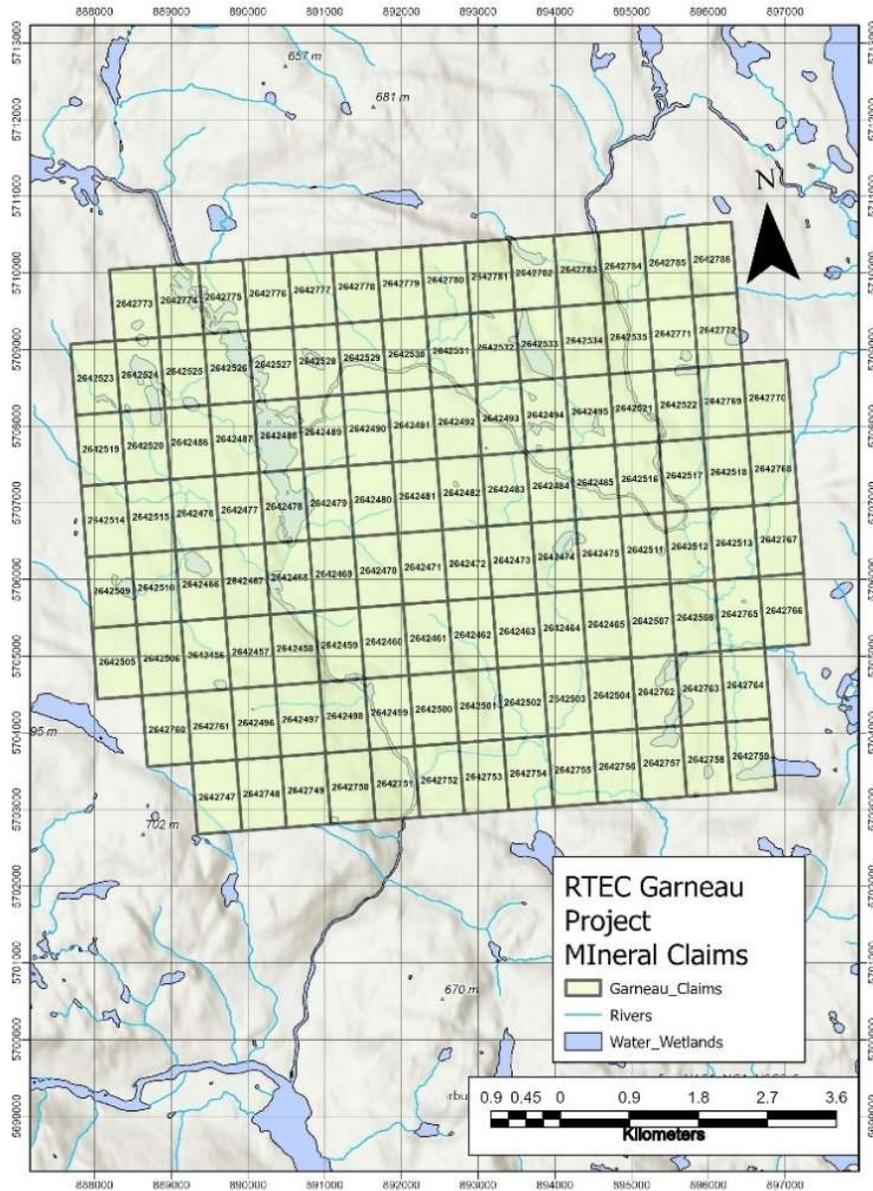


Figure 2: Garneau Claim Block.

Table 1: Table of Garneau Title details.

Title No.	NTS Map Sheet	Area (Ha)	Property	Registry Date	Expiry Date
2642747	12M06	53.79	Garneau	23-03-22	22-03-25
2642748	12M06	53.79	Garneau	23-03-22	22-03-25
2642749	12M06	53.79	Garneau	23-03-22	22-03-25
2642750	12M06	53.79	Garneau	23-03-22	22-03-25
2642751	12M06	53.79	Garneau	23-03-22	22-03-25
2642752	12M06	53.79	Garneau	23-03-22	22-03-25
2642753	12M06	53.79	Garneau	23-03-22	22-03-25
2642754	12M06	53.79	Garneau	23-03-22	22-03-25
2642755	12M06	53.79	Garneau	23-03-22	22-03-25
2642756	12M06	53.79	Garneau	23-03-22	22-03-25
2642757	12M06	53.79	Garneau	23-03-22	22-03-25
2642758	12M06	53.79	Garneau	23-03-22	22-03-25
2642759	12M06	53.79	Garneau	23-03-22	22-03-25
2642760	12M06	53.78	Garneau	23-03-22	22-03-25
2642761	12M06	53.78	Garneau	23-03-22	22-03-25
2642762	12M06	53.78	Garneau	23-03-22	22-03-25
2642763	12M06	53.78	Garneau	23-03-22	22-03-25
2642764	12M06	53.78	Garneau	23-03-22	22-03-25
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2642774	12M06	53.72	Garneau	23-03-22	22-03-25
2642775	12M06	53.72	Garneau	23-03-22	22-03-25
2642776	12M06	53.72	Garneau	23-03-22	22-03-25
2642777	12M06	53.72	Garneau	23-03-22	22-03-25
2642778	12M06	53.72	Garneau	23-03-22	22-03-25
2642779	12M06	53.72	Garneau	23-03-22	22-03-25
2642780	12M06	53.72	Garneau	23-03-22	22-03-25
2642781	12M06	53.72	Garneau	23-03-22	22-03-25
2642782	12M06	53.72	Garneau	23-03-22	22-03-25
2642783	12M06	53.72	Garneau	23-03-22	22-03-25
2642784	12M06	53.72	Garneau	23-03-22	22-03-25
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2642525	12M06	53.73	Garneau	22-03-22	21-03-25
2642526	12M06	53.73	Garneau	22-03-22	21-03-25
2642527	12M06	53.73	Garneau	22-03-22	21-03-25
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2642531	12M06	53.73	Garneau	22-03-22	21-03-25
2642532	12M06	53.73	Garneau	22-03-22	21-03-25
2642533	12M06	53.73	Garneau	22-03-22	21-03-25
2642534	12M06	53.73	Garneau	22-03-22	21-03-25
2642535	12M06	53.73	Garneau	22-03-22	21-03-25

3 Property Geography

3.1 Property Location and Access

The Garneau property is located 120 km north-northeast of Aéroport de Havre-Saint-Pierre and 5.5 km east of the hydroelectric Poste La Romaine-4, which is situated along the Rivière Romaine. The nearest road access is from the hydroelectric maintenance Route de la Romaine 3 and 4, which travels north parallel to the Rivière Romaine, terminating at Poste La Romaine-4. Route de la Romaine-3 connects to Route 138 Est outside of the town of Havre-Saint-Pierre. The property itself is roughly 8 km by 7.5 km. All work on the property was accessed using a Bell 406 helicopter stationed at Aéroport de Havre-Saint-Pierre. An agreement with the Hydro-Québec Campement Mista provided a midway fueling depot along the route of travel. Accommodations for the field crew were located within Havre-Saint-Pierre for the duration of the work. Access is illustrated in Figure 3.

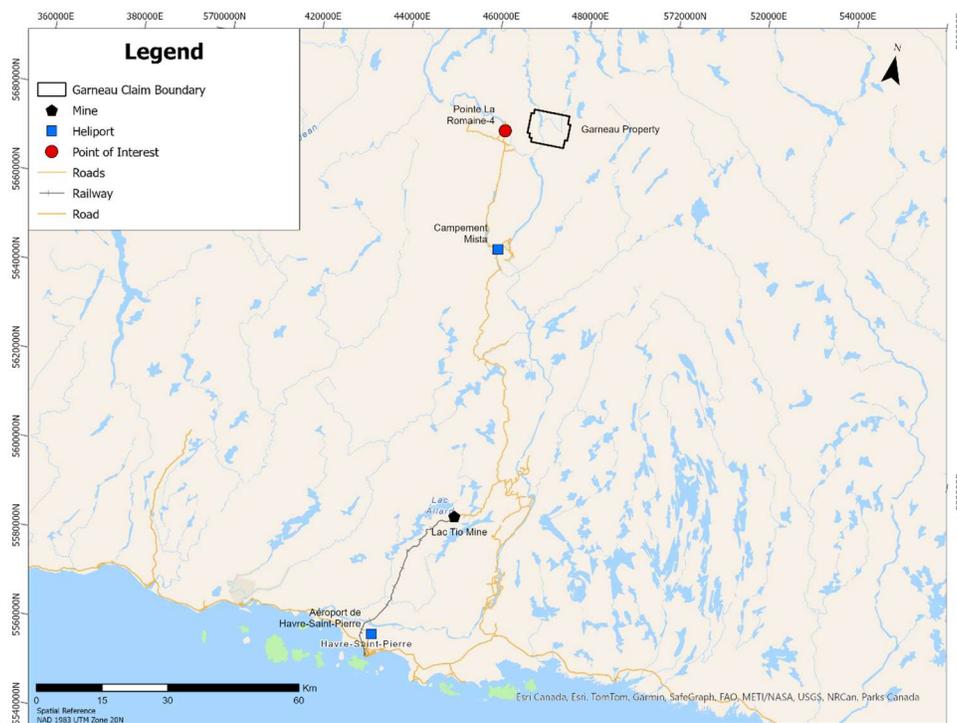


Figure 3: Property access by routes from Havre-Saint-Pierre, QC.

3.2 Climate, Geography, and Vegetation

The subarctic climate of the region near Garneau, located north of Havre-Saint-Pierre, Quebec, is characterized by long, cold winters and short, cool summers. Based on data from Environment and Climate Change Canada (1981-2010), this area experiences average temperature highs of around 13°C in July and average temperature lows of approximately -16°C in January (Environment and Climate Change Canada, 2011). Average annual precipitation is significant, with approximately 900 mm of rainfall and 300 cm of snow, reflecting the region's humid and snowy conditions (Environment and Climate Change Canada, 2011).

Geographically, the property is situated along the north shore of the Gulf of Saint Lawrence and is characterized by a rugged terrain shaped by glaciation. Rocky outcrops and poor-quality exposures are common due to the glacial till covering much of the bedrock (Natural Resources Canada, 2015). The topography includes numerous rivers, lakes, and basins, with significant water bodies like the Romaine River and its associated hydroelectric dams contributing to local drainage patterns (Hydro-Québec, 2020). Elevations vary significantly, rising up to 500 meters above sea level in some areas, with numerous hills and occasional low mountains forming the predominant landscape (Natural Resources Canada, 2015).

The regional biome is part of the Northern Boreal Forest, distinguished by dense coniferous forests (Government of Quebec, 2012). Vegetation predominantly includes black spruce (*Picea mariana*), balsam fir (*Abies balsamea*), and jack pine (*Pinus banksiana*) (Government of Quebec, 2012). Deciduous trees such as paper birch (*Betula papyrifera*) and trembling aspen (*Populus tremuloides*) are also found in the region, although they are less common (Government of Quebec, 2012). Ground-level vegetation consists of shrubs like alder (*Alnus* spp.) and willow (*Salix* spp.), as well as a variety of mosses and lichens (Government of Quebec, 2012). Soil quality varies, often characterized by podzol-type soils with low fertility - typical of boreal forest regions (Soil Classification Working Group, 1998).

4. Historic Exploration Activity

While industry-led exploration on the Garneau property has been limited, it has been the subject of numerous geological and geophysical studies mainly supported by government agencies dating back to the late 1940s. These efforts were part of broader regional initiatives aimed at supporting mineral exploration in the area.

1.1 4.1 Historic Ilmenite-Focused Exploration

The 1949 report (RG 038) documents the discovery of ilmenite mineralization west of the property. Ilmenite primarily appears as small, dispersed streaks and lenses within the anorthosite, with more significant concentrations located near the falls of the Glapion River, specifically within the Romaine River anorthosite massif, about 2 miles north of its junction with the Glapion River. The mineralized zone consists of a central ilmenite vein oriented N60°W, dipping 65–70° to the north. This vein transitions into ilmenite-enriched anorthosite, which gradually reverts to its normal composition further from the vein. In this area, the anorthosite is highly gneissic to schistose, suggesting that the deformed or gneissic nature of the anorthosite may influence the distribution of ilmenite. Smaller concentrations have also been observed between Lakes Garnier and Rougemont, where local deformation within the anorthosite is apparent. The report suggests that the ilmenite-bearing zone near the falls of the Glapion River may extend parallel to the anorthosite along the Romaine River, with the potential for additional similar zones near the boundaries of the anorthosite massif.

The RG 163 report provides comprehensive details on various ilmenite deposits within SNRC sheets 22P, 12M, 22I, and 22L, highlighting significant deposits such as Lac Tio, Lac Allard, Lac Ledieu, and the Magpie Mountains, along with other smaller occurrences. Among these larger deposits, the Lac Ledieu deposit is the closest to the Garneau property, located approximately 137 km northeast of Havre-Saint-Pierre, along the western shore of a lake north

of Lac Ledieu. This deposit, which are part of the eastern segment of the Romaine River anorthosite massif, is associated with magnetite and is hosted within light-colored augen anorthosites that contain large plagioclase phenocrysts. Ilmenite occurs in bands, lenses, layers, and irregular patches, generally aligned along a N280° strike and dipping steeply to the north. The largest mineralized body in the Lac Ledieu area is estimated to be around 365 meters long and 1.08 meters wide. A quantitative analysis reveals a composition of 45.50% total iron (Fe), 36.76% titanium dioxide (TiO₂), 0.32% vanadium pentoxide (V₂O₅), 0.48% sulfur (S), and 0.049% phosphorus pentoxide (P₂O₅).

1.2 4.2 Historic Broad-based Exploration

Various studies, while not focused on ilmenite, provide background geological information. These past works focussed on the potential for base metals, Olympic Dam-type deposits, Pb-Zn deposits, and uranium in the region and did well to detail its tectonic and lithostratigraphic characteristics (MB 9121, PRO 92-05, GM 39070, RG 163).

Additionally, multiple analyses of lake-bottom sediments in the region have been carried out, beginning with initial work in 1989. The 2009 report MB 2009-13 included new and reanalyzed geochemical data from lake sediments in southern Côte-Nord, analyzing 17 elements (Nb, Ag, Au, Ni, Mo, U, La, Ce, Y, Li, Mg, As, Co, Cr, Zn, Ba, Be). Significant gold anomalies were observed in the Wakeham volcano-sedimentary zone according to the compiled data, whereas SNRC sheet 12M06 showed subdued to minimal anomalies.

The most recent geological mapping for SNRC sheet 12M, produced by the Ministère des Ressources Naturelles et de la Faune (MRNF), was completed in 2010 and is presented in CG SIGEOM12M. The latest geophysical data, including results from a high-resolution airborne magnetic survey commissioned by Géologie Québec, was finalized in 2016. This survey covered the Romaine River area north of Havre-Saint-Pierre, spanning 26 SNRC sheets at a scale of 1:50,000, with data available in DP 2016-06.

5. Regional and Local Geology

Regional Geology

The Garneau property is situated within the Grenville Province, a region of significant geological importance that extends across the length of Southern Quebec. This geological province formed because of the Grenvillian Orogeny, a major mountain-building event that occurred during the assembly of the supercontinent Rodinia, from approximately 1.2-0.98 Ga (Rivers, 1997). The Grenville Orogen forms the leading or south-eastern edge of the Canadian Shield. It is characterized by extensive reworking of older crust, high metamorphic grade, and ductile deformation with north-west directed tectonic transport, and a retrogressive sequence of thrusting with a younging direction to the south-east (Rivers, 2008). This geological province is also notable for its rich mineral resources, including iron, titanium, and rare earth elements.

Local Geology

Locally, Garneau sits within the north-eastern lobe of the Havre-Saint-Pierre Anorthosite Suite. The suite is predominantly composed of anorthosite, a plutonic igneous rock consisting mostly of plagioclase feldspar, and contains significant amounts of ilmenite, an important titanium ore mineral. This anorthosite complex is in eastern part of the Grenville Province and formed during an extensional event that followed a dated 1190-1140 Ma compressional pulse, and includes

a late phase dated at 1062 Ma (Morisset et al., 2009). The Havre-Saint-Pierre Suite falls within the Central Zone, or "Interior Magmatic Belt". Other lithologies commonly found in the Central Zone include granulitic and granitic orthogneisses and paragneisses, a syenite-granite complex, and scattered granite intrusions with minor amounts of gabbro, norite, and troctolite (Gobeil et al., 2003)

The Havre-Saint-Pierre Suite is particularly significant due to its economic relevance for ilmenite deposits. The nearest ilmenite showing to Garneau is the 1949 Glapion Showing near the Glapion River falls. This showing consists of streaks and lenses of ilmenite within anorthosite and is a promising sign for mineralization within the Garneau vicinity. The showing is discussed in greater detail in Section 4. The primary ilmenite occurrence within the Havre-Saint-Pierre Suite is the Lac Tio mine located approximately 90 kilometers south-southwest of the claim area and is one of the largest ilmenite deposits worldwide. Operated by Rio Tinto, the Lac Tio deposit is a massive, coarse-grained, igneous sheet with an average thickness of 100m and a footprint of several hundred square meters. Compositionally, the ore averages 32 to 36% ilmenite. Minor constituents of the ore include magnetite, sulphides, apatite, hercynitic spinel, and zircon (Charlier et al., 2015). Rare earth elements such as scandium are also produced as a byproduct. Several other ilmenite deposits occur within the vicinity of the Lac Tio main deposit, including Cliff, Northwest, Grader West, Emery, and Big Island.

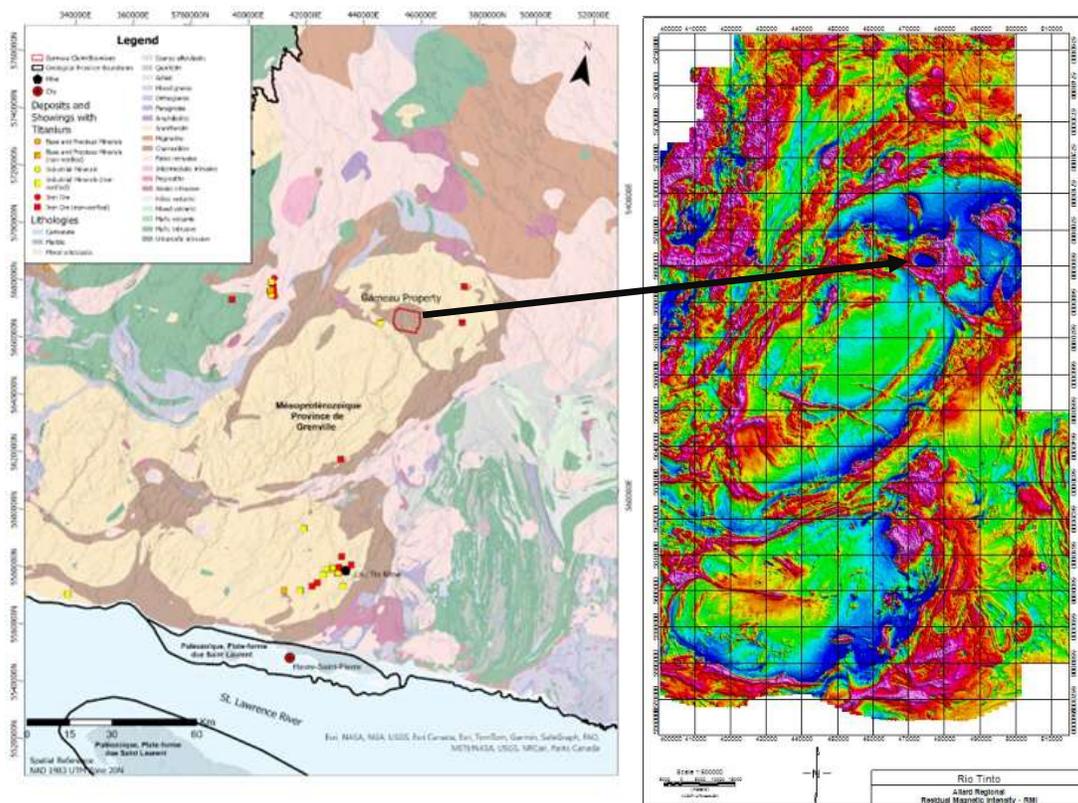


Figure 4: Regional geological map beside the regional magnetic map of the Garneau property with known titanium showings and deposits, lithologies, and geological provinces.

Regional geophysical data shows the property covers a very distinct regional circular structure that is prominent on regional scale magnetic maps (Figure 6). There is little structural data available due to the lack of historical work in the area.

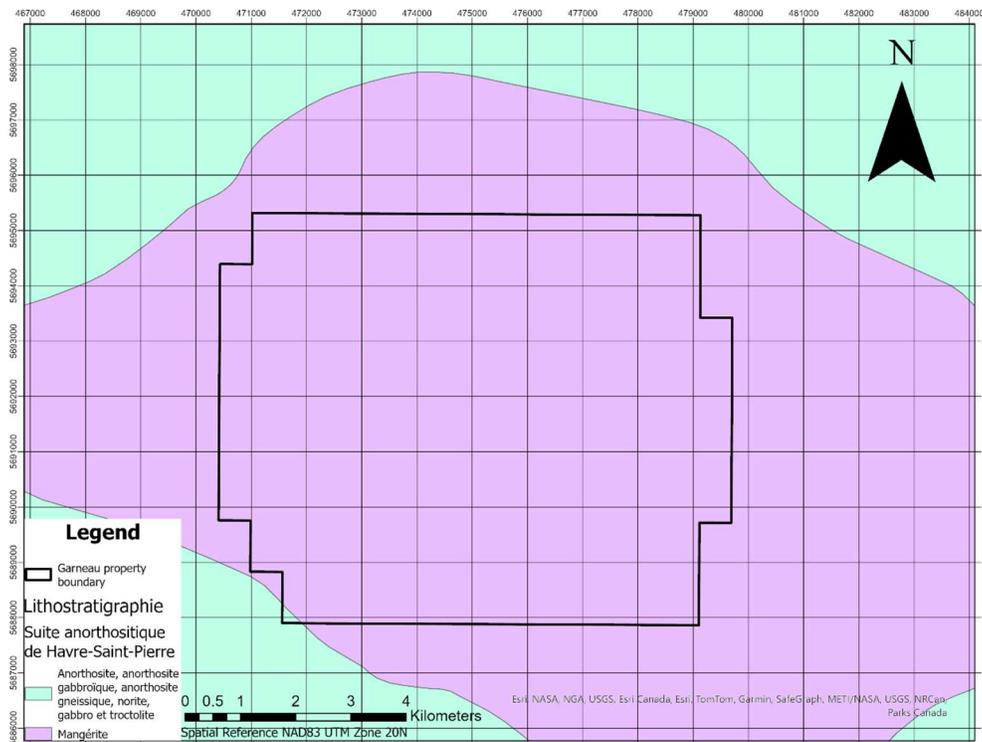


Figure 5: Local Geology of Garneau Property.

6. Work Completed

Work completed at Garneau in 2022 included, a property wide airborne magnetic and electromagnetic survey in September, follow-up geological mapping and sampling in October and finally a geochemical survey of rock samples recovered by the follow-up work.

5.1 Airborne Geophysics

Airborne Magnetic and Electromagnetic Survey

RTCEI contracted Geotech Airborne Geophysical Surveys Ltd. to carry out a helicopter-borne magnetic and electromagnetic survey over the Garneau Project. The survey was completed between the 2nd and 13th of September 2022. The Geotech team were based in Havre-Saint Pierre, Quebec, transiting each day to the project area. A fuel cash was established near the midpoint along the transit to the project area to support the helicopter work. A total of 747 line-kms of geophysical data was acquired during the survey.

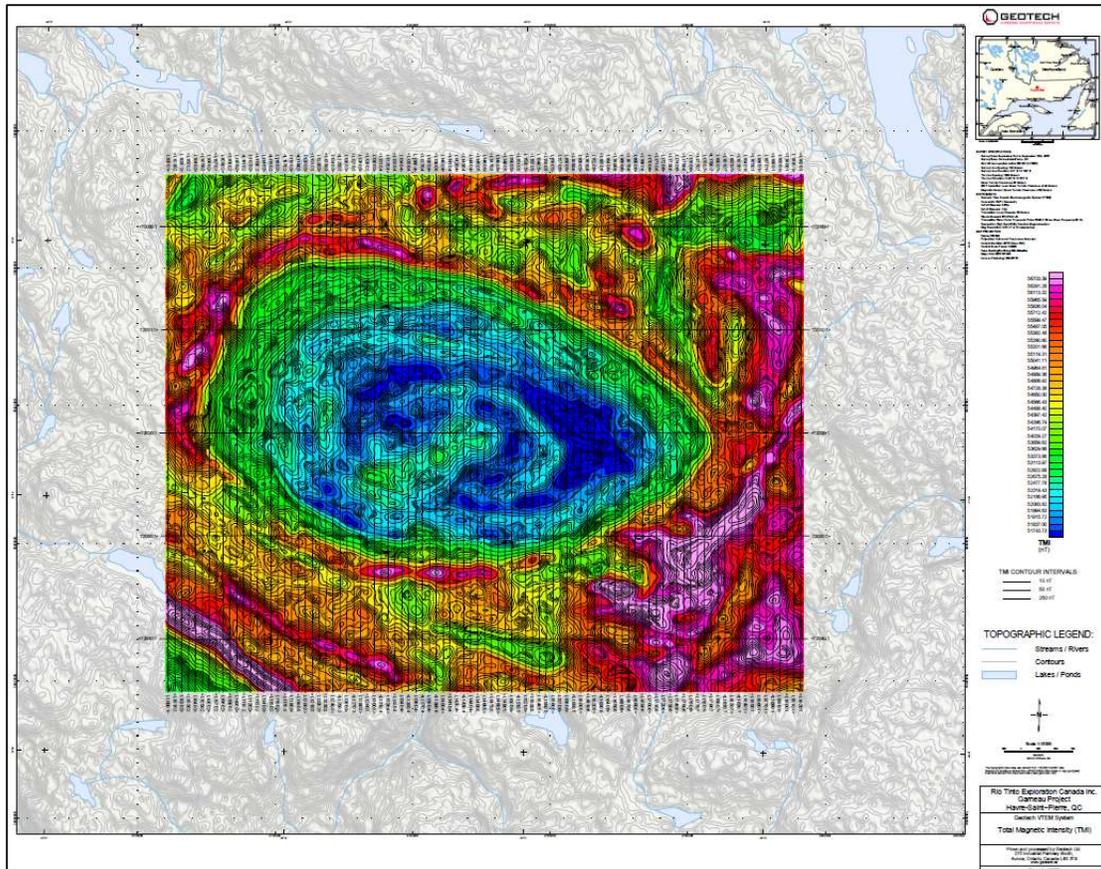


Figure 6: Example of one of the products (Airborne TMI Data) covering the entire property Garneau project, flown in September of 2022.

6.2 Exploration

Prospecting and Geological data collection

Following the review of the Airborne Geophysical survey data, plans for follow-up work were made with the objective of ground checking any (geophysical) anomalous target areas, collect geological data from outcrops located in any of the target areas and to collect samples for geochemical analysis. The follow-up work was completed with the use of a Bell 407 Helicopter contracted from HTSC Helicopters of Carp, Ontario, to provide transportation of the field crews from Havre-Saint-Pierre to and from the project area each day.

Eleven areas were targeted for the collection of geological data and samples (Figure 7). A total of ~50 outcrops were visited. Overall, the Garneau claims are 85% covered in sediments and vegetation and outcrops are generally sparse. Due to this impediment, the mapping was not comprehensive with much of the field time spent verifying geophysical anomalies, identifying outcrops, collecting data and sampling outcrops that could be located (Figure 9).

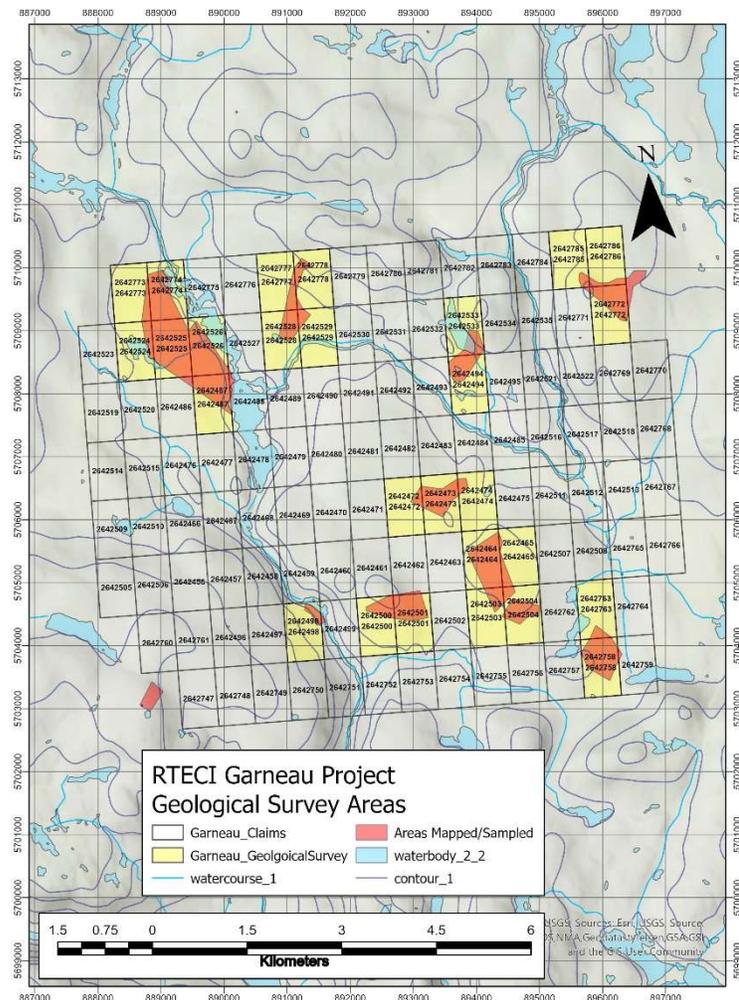


Figure 7: Garneau claims that were part of the geological survey work. Orange areas are the actual survey extents.

6.2.1 Geochemical Survey - Laboratory Processing Procedures

Outcrop grab samples were sent to ALS Thunder Bay for preparation. All pulps were sent to ALS Vancouver for analysis.

The grab samples were prepared using a preparation package where the entire sample is crushed to 70% less than 2mm. The material is then passed through a rotary split for pulverizing (1kg) and a riffle split using for archiving. In this process, the 1 kg of material is pulverized to better than 85% passing 75 microns. This method does not include between sample washes on both the crushers and pulverizes.

The samples were analyzed with a custom complete characterization suite with super trace detection limits (CCP-PKG01) consisting of lithium borate fusions (ME-ICP06 and ME-MS81), four acid digestion (ME-MS61L), aqua regia digest (ME-MS42L), S and C by induction furnace (ME-IR08) and Au-Pt-Pd by a 30g fire assay (PGM-MS23L).

Quality control was achieved by including one certified reference material for each 20 samples sent through the laboratory. The certified reference materials are OREAS, AMIS and BCS commercial standards; OREAS-101b-L, AMIS0304-L, AMIS0085-L, BCS-512-L (specific material depended on the sample type collected). Assay results & laboratory certificates are provided in Appendix 2.

7 Results

7.1 Airborne Magnetic and Electromagnetic Survey

The Total Magnetic Intensity (TMI) product from the magnetic field data is illustrated in **Error! Reference source not found.** The data defines a large circular shaped body. Magnetic middle range intensity responses adjacent to the linear intense areas appeared to be associated with instances of mangerite (orogenic granite that contains pyroxene). Magnetically high areas that surround the circular shape appear to be associated with magnetite bearing granitoids. An intense magnetic high at the southwest edge of the property is associated with Anorthosite. VTEM data, while generally highlighting the outline of the circular feature, as seen in the Magnetic data, added no extra detail for geological interpretation for most channels. Channel 31 highlighted an intense feature over the Anorthosite on the southwest edge of the property. As a general rule, the lack of outcropping rocks in the project area has made it difficult to draw conclusions regarding the geology of the property. Drilling is needed to better understand the underlying geology for each of the magnetic intensities observed (Figure 8).

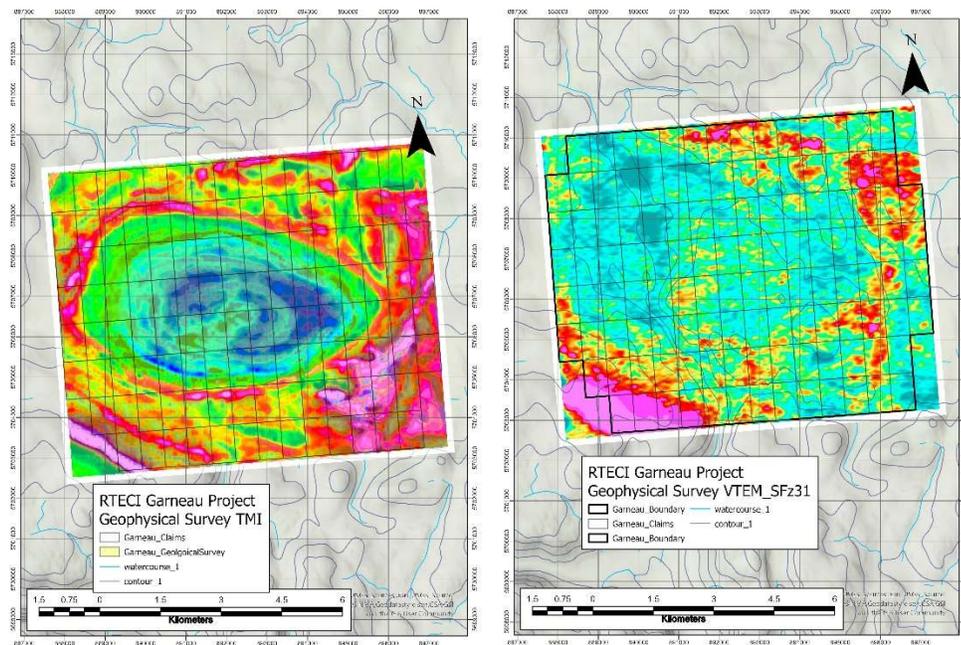


Figure 8: Garneau Airborne Magnetic (TMI) and Electromagnetic (VTEM z31) survey results.

7.3 Geochemical Survey Results

The Garneau samples were analysed for major elements to determine Fe, Ti, and P contents of all samples. Figures 9 & 10, show sample and outcrop locations with the rock types mapped during groundwork. High Ti and Fe contents were observed in sample 40483102, an ilmenite boulder, being comprised wholly of massive oxides. High Fe content was observed in the felsic intrusive rocks collected on the property. Assay results confirm that all the felsic intrusive rocks observed are mangerite (granites typically formed in orogenic settings that contain pyroxene). CIPW normative mineralogy calculations on the felsic intrusives show that the samples contain between 5 and 10% hypersthene (pyroxene) and they also contain apatite, which is common for mangerites. From figure 11 it is obvious why such normative mineralogy is calculated – felsic intrusive lithologies on the property commonly contain elevated concentrations of Fe & P (Figure 11).

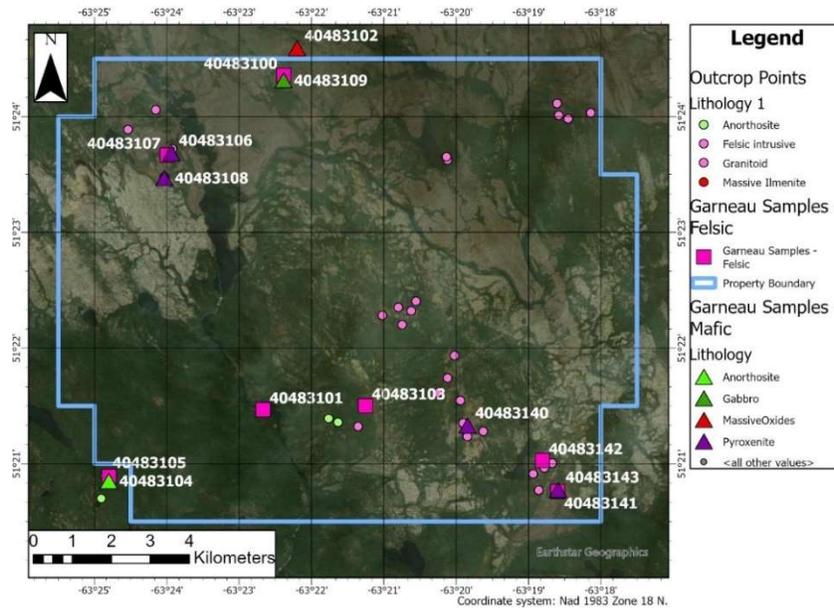


Figure 10: Garneau geological and geochemical survey sample locations and mapped outcrop rock types observed

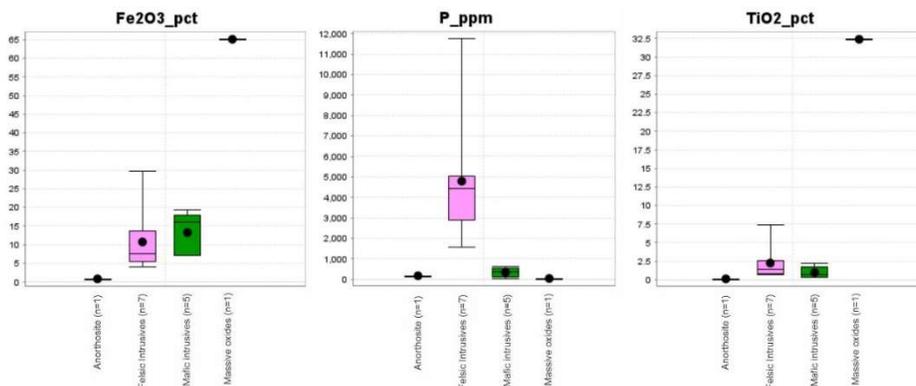


Figure 11: Garneau geochemical survey results from grab samples processed at ALS.

8. Discussion and Recommendations

The Garneau property occurs within an anorthosite complex, to the north and adjacent to the Allard Anorthosite complex which includes the Tio Mine and many historical ilmenite occurrences (Figure 12). The magnetic feature at Garneau is also aligned along the central axis of the northern anorthosite complex in a spatial position that is thought to be prospective for ilmenite deposits (Figure 13).

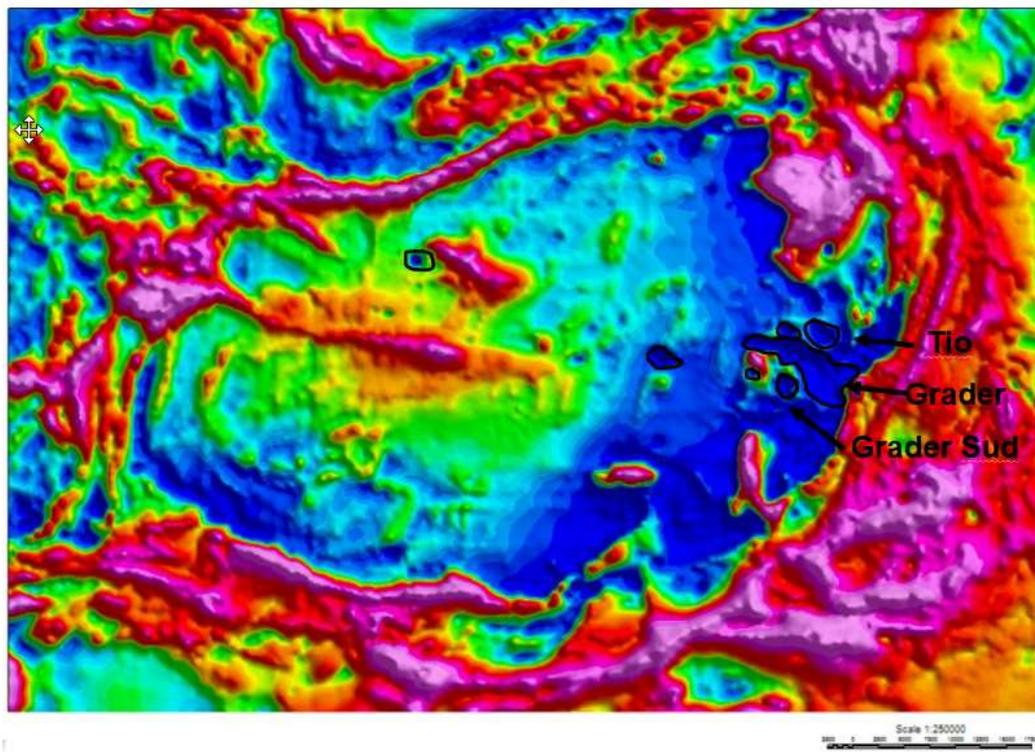


Figure 12: Allard Anorthosite complex and the location of the Tio, Grader and Grader Sud ilmenite occurrences.

Airborne magnetic and electromagnetic data, collected in 2022, highlighted a large 4.5km by 7.5km magnetic low feature and ultimately resulted in geological and geochemical surveys at Garneau in late 2022 (Figure 13). The geological survey encountered difficulties in locating a spatially representative picture of the geology due to the lack of outcrop in the area. Much of the area was found to be covered by thick vegetation and glacial sediments.

Bedrock, that could be located, were a mix of granitoids, anorthosite and mangerite. The number of outcrop points were too sparse to make any interpretation regarding the geology of the project area. The occurrence of a large ilmenite bolder at the north end of the property demonstrated that further work on the property is needed. It is recommended that the next stage of work should include drill testing in several areas of the magnetic feature to gather further geological and structural information as well as attempt to locate the source of the ilmenite boulder.

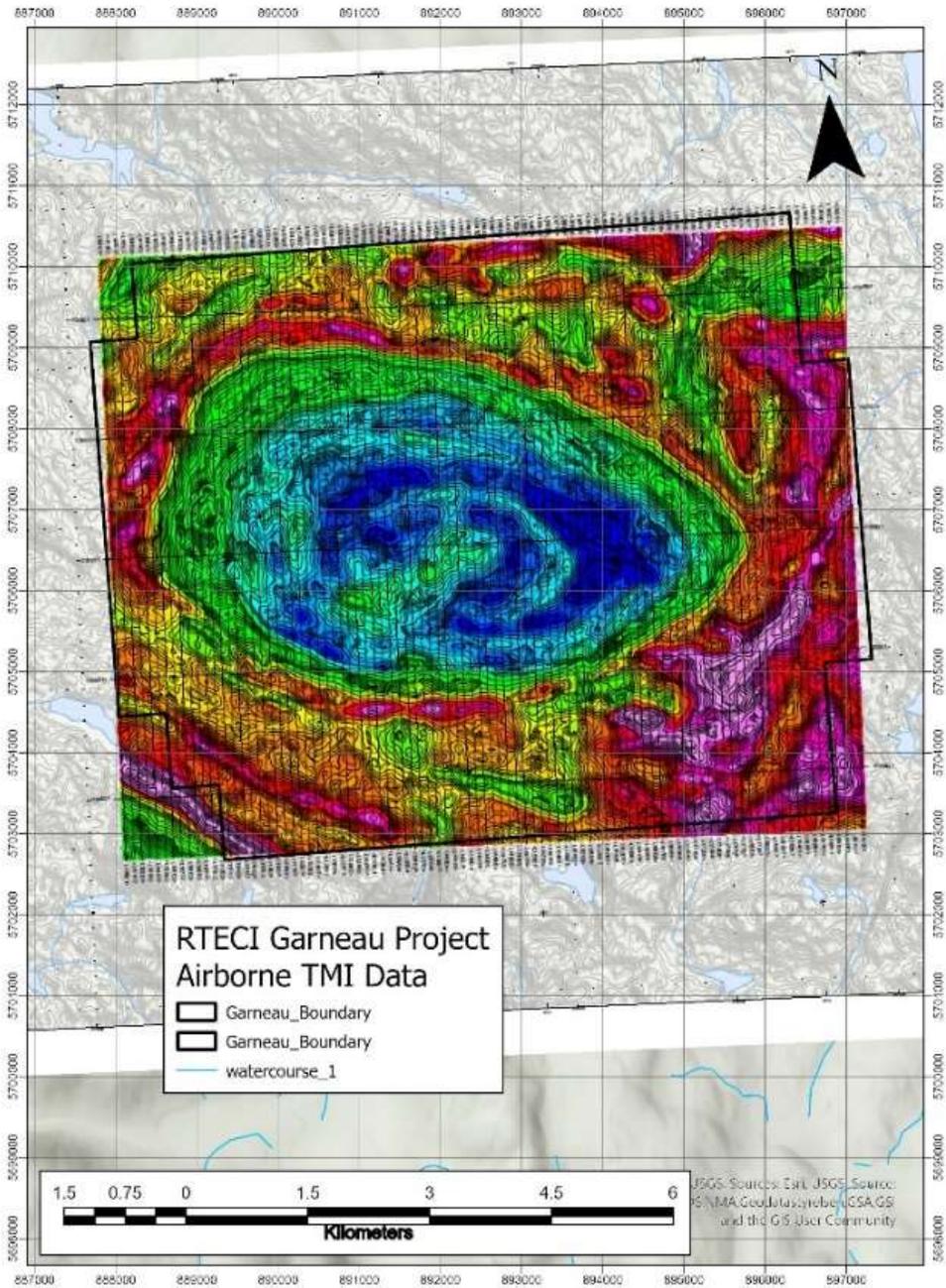


Figure 13: The large magnetic low, 4.5km X 7.5km feature located on the Garneau property

9. Distribution of Assessment Credit

Assessment credit for the 2022 exploration work on Garneau is distributed across three work streams – Aerial Geophysical Survey (Mag-EM), Geological Surveying and Geochemical Surveying. The airborne geophysical and geological survey costs are distributed evenly across the claims whilst the geochemical survey costs are distributed across the individual claim blocks from which sampling was completed.

Title No	Expiry Date	Owner	Surface	1 - Aerial Geophys Survey	2 - Geol Survey	3 - Geochem Survey	Total
CDC2642456	45738.00	RTECI	53,77	1292,11	0.00	0.00	1292,11
CDC2642457	45738.00	RTECI	53,77	1292,11	0.00	0.00	1292,11
CDC2642458	45738.00	RTECI	53,77	1292,11	0.00	0.00	1292,11
CDC2642459	45738.00	RTECI	53,77	1292,11	0.00	0.00	1292,11
CDC2642460	45738.00	RTECI	53,77	1292,11	0.00	0.00	1292,11
CDC2642461	45738.00	RTECI	53,77	1292,11	0.00	0.00	1292,11
CDC2642462	45738.00	RTECI	53,77	1292,11	0.00	225,2	1517,31
CDC2642463	45738.00	RTECI	53,77	1292,11	0.00	0.00	1292,11
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Table 2 Distribution of credits for each Gameau cell title and by survey type.

Incurring Cost (Gestim Codes)	Description	Aerial Geophysical Survey	Geological Survey	Geochemical Survey
Contractor		\$ 144,029.54	\$ 82,729.59	\$ 2,702.43
Movement of Equipment and People		\$ 1,850.00	\$ 10,873.13	
Food and Lodging of staff		\$ 2,000.00	\$ 11,658.14	
Labour and Field Supervision		\$ 7,128.00	\$ 11,834.10	
Supplies			\$ 1,674.22	
	Sum	\$ 155,007.54	\$ 118,769.18	\$ 2,702.43

Table 3 Distribution of credits by (Gestim) cost category and survey type.

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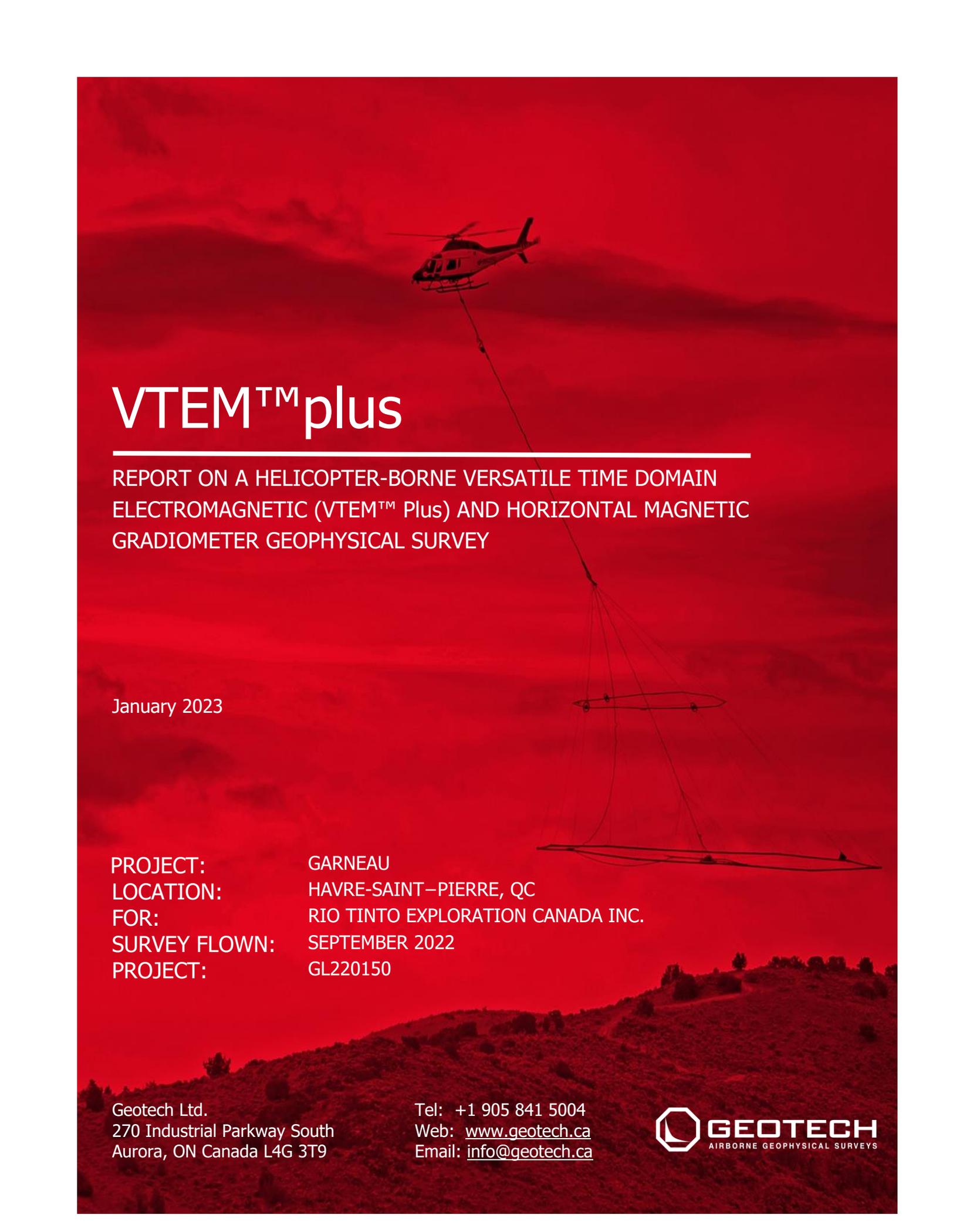
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Appendix 1: Airborne Geophysical data and reports.

Geotech Airborne Geophysical Surveys – September 2022 Garneau Survey Data and Report

Appendix 2: Geological and Geochemical Survey Data

Geological survey field data, geochemical sample data and laboratory reports – October 2022



VTEM™ plus

REPORT ON A HELICOPTER-BORNE VERSATILE TIME DOMAIN
ELECTROMAGNETIC (VTEM™ Plus) AND HORIZONTAL MAGNETIC
GRADIOMETER GEOPHYSICAL SURVEY

January 2023

PROJECT: GARNEAU
LOCATION: HAVRE-SAINT-PIERRE, QC
FOR: RIO TINTO EXPLORATION CANADA INC.
SURVEY FLOWN: SEPTEMBER 2022
PROJECT: GL220150

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A.	Survey Location Map
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G.	Resistivity Depth Images (RDI)

EXECUTIVE SUMMARY

GARNEAU PROJECT HAVRE-SAINT-PIERRE, QC

During September 2nd to September 13th, 2022, Geotech Ltd. carried out a helicopter-borne geophysical survey over the Garneau Project situated near Havre-Saint-Pierre, QC.

Principal geophysical sensors included a versatile time domain electromagnetic (VTEM™plus) system and a horizontal magnetic gradiometer with two caesium sensors. Ancillary equipment included a GPS navigation system and a radar altimeter. A total of 747 line-kilometres geophysical data were acquired during the survey, which was postponed due to weather and system related delays.

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 profiles of the B-field Z Component,
- Electromagnetic stacked profiles of dB/dt Z Components,
- B-Field Z Component Channel grid
- dB/dt Z Component Channel grid
- dB/dt X Component Fraser Filtered Channel grid
- Total Magnetic Intensity (TMI),
- Calculated Vertical Gradient (CVG) of Total Magnetic Intensity (TMI),
- Calculated Time Constant (Tau) with Calculated Vertical Derivative contours,
- Magnetic Total Horizontal Gradient (TotHG),
- Magnetic Tilt-Angle Derivative (TiltDrv),
- Resistivity Depth Images (RDI) sections are presented.

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 Garneau Project situated near Havre-Saint-Pierre, QC (Figure 1 & Figure 2).

Chris Hyde represented Rio Tinto Exploration Canada Inc during the data acquisition and data processing phases of this project.

The geophysical surveys consisted of helicopter borne EM using the versatile time-domain electromagnetic (VTEM™) plus system with Full-Waveform processing. Measurements consisted of Vertical (Z) and In-line Horizontal (X & Y) components of the EM fields using an induction coil, and a horizontal magnetic gradiometer using two caesium magnetometers. A total of 747 line-kilometres geophysical data were acquired during the survey, which was postponed due to weather and system related delays.

The crew was based out of Postville (Figure 2) in Newfoundland for the acquisition phase of the survey. Survey flying started on September 2nd and was completed on September 11th, 2022.

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 January 2023.

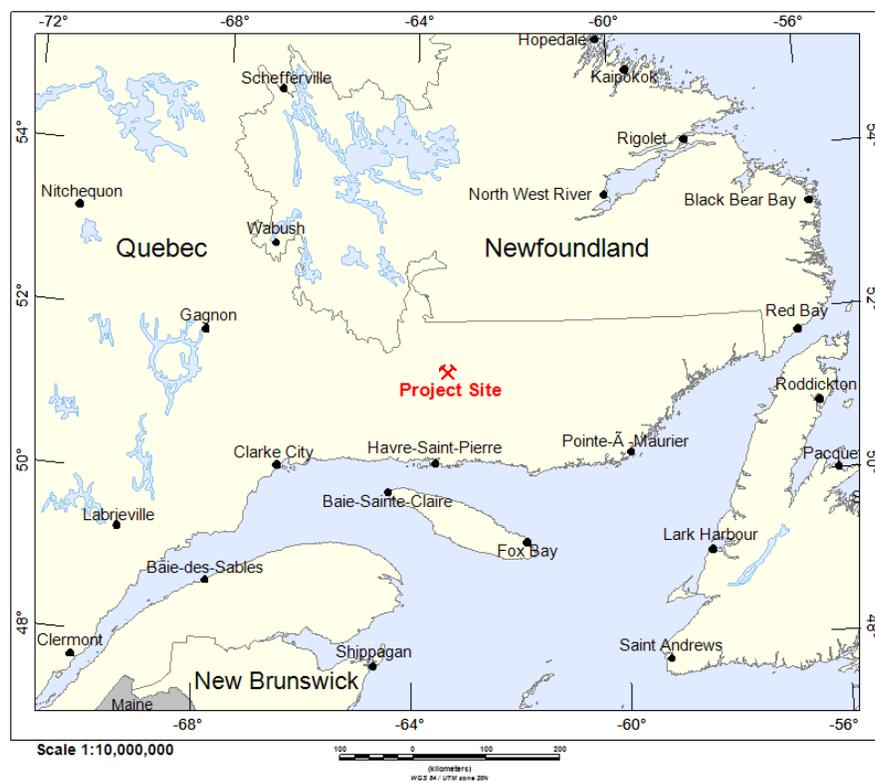


Figure 1: Survey location

1.2 SURVEY AND SYSTEM SPECIFICATIONS

The survey area is located approximately 123 kilometres southwest of Havre-Saint-Pierre, QC (Figure 2).

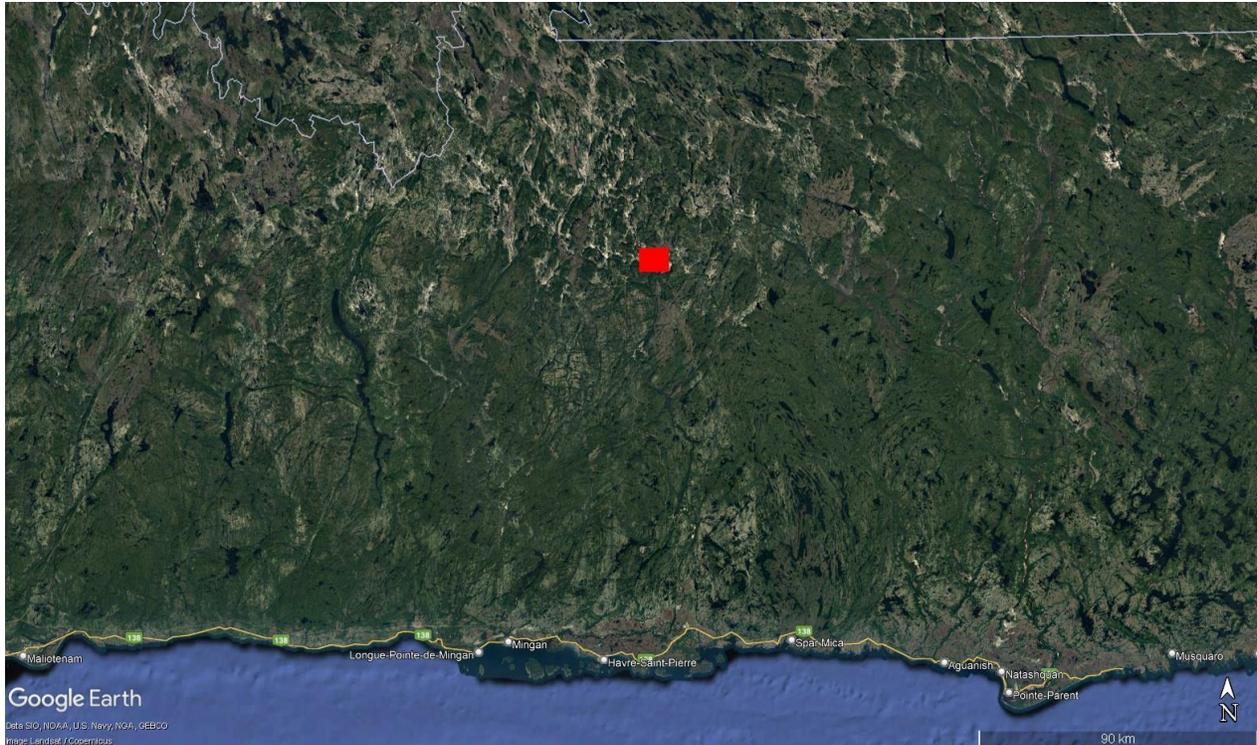


Figure 2: Survey area location on Google Earth.

The block was flown in North to South ($N 0^{\circ} E$ azimuth) directions with traverse line spacings of 100 metres, as depicted in Figure 3. Tie lines were flown perpendicular to the traverse lines at 1500 metre line spacings. For more detailed information on the flight spacing and direction see Table 1.

1.3 TOPOGRAPHIC RELIEF AND CULTURAL FEATURES

Topographically, the survey areas exhibit relief with elevations ranging from 383 to 699 metres above mean sea level over an area of 70 square kilometres.

There are lakes and rivers located within and around the survey area (Figure 3).

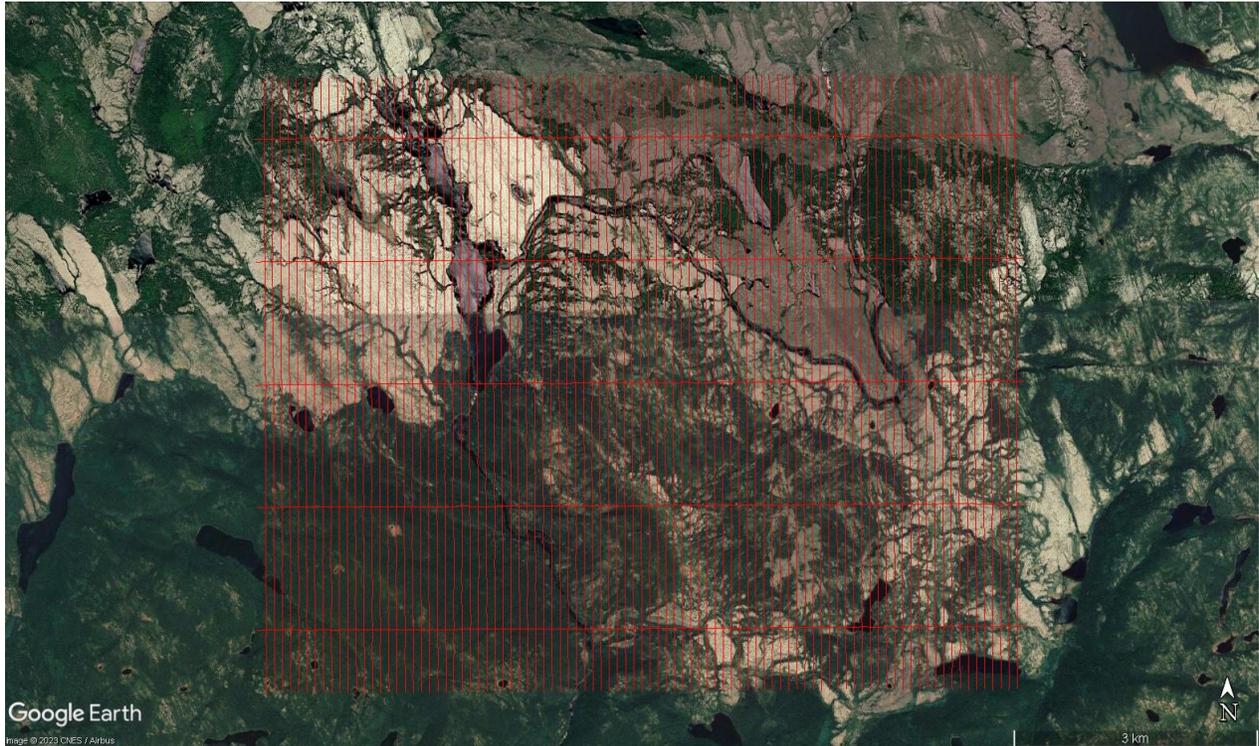


Figure 3: Flight path over a Google Earth Image.

2. DATA ACQUISITION

2.1 SURVEY AREA

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

Table 1: Survey Specifications

Survey block	Line spacing (m)	Area (Km ²)	Planned ¹ Line-km	Actual Line-km	Flight direction	Line numbers
Garneau Project	Traverse: 100	70	735	747	N 0° E / N 180° E	L1000 – L1920
	Tie: 1500				N 90° E / N 270° E	L2000 – L2040

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

2.2 SURVEY OPERATIONS

Survey operations were based out of Havre-Saint-Pierre, QC from September 2nd to September 13th, 2022. The following table shows the timing of the flying.

Table 2: Survey schedule

Date	Comments
Sept-02	Mobilization to Havre-Saint-Pierre, QC
Sept-03	Helicopter installation, local logistics and survey set-up activities completed. Recon flight completed
Sept-04	Minor system adjustments. Weather day
Sept-05	Weather Day
Sept-06	Weather Day
Sept-07	No production flight in the morning due to weather. Production Flight – 122.0 km
Sept-08	Production Flight – 226.0 km
Sept-09	Weather Day
Sept-10	Production Flight – 201.7 km
Sept-11	Production Flight – 185.0 km. Survey Completed
Sept-12	Awaiting client's permission to demobilise
Sept-13	Awaiting client's permission to demobilise
Sept-13	Demobilization

2.3 FLIGHT SPECIFICATIONS

During the survey the helicopter was maintained at a mean altitude of 85 metres above the ground with an average survey speed of 97 km/hour. This allowed for an average Transmitter-receiver loop terrain clearance of 49 metres and a magnetic sensor clearance of 59 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.

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.

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 Eurocopter Aerospatiale (A Star) 350 B3 helicopters, registration C-FBZN. The helicopters are owned and operated by Geotech Aviation Ltd. 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™plus) 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 systems with the serial number 15 had been used for the survey. The VTEM™ transmitter current waveform is shown diagrammatically in Figure 4.

The VTEM™ Receiver and transmitter coils were in concentric-coplanar and Z-direction oriented configuration. The receiver system for the project also included coincident-coaxial X & Y-direction coils to measure the in-line and cross-line dB/dt and calculate B-Field responses. The Transmitter-receiver loop was towed at a mean distance of 36 metres below the aircraft as shown in Figure 5.

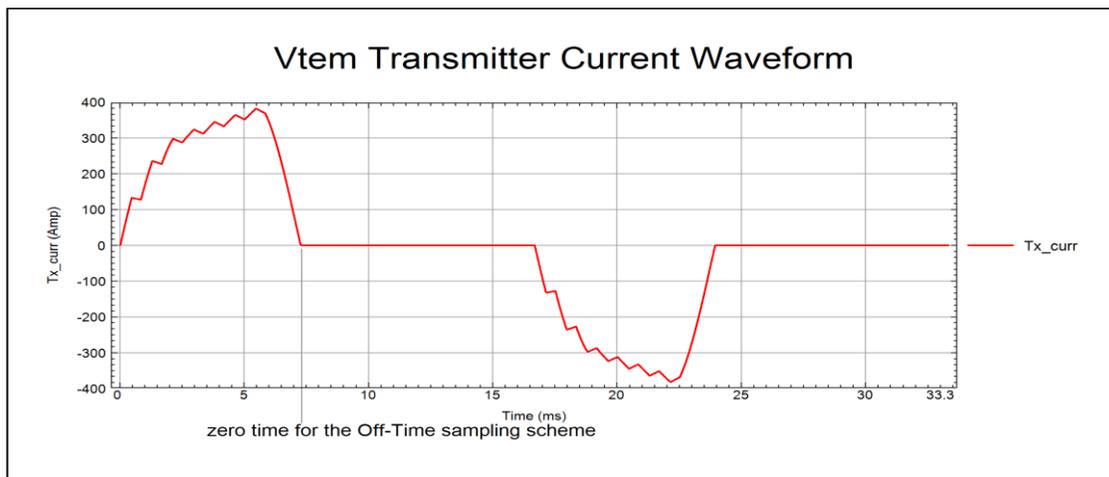


Figure 4: VTEM™ Transmitter Current Waveform

The VTEM™ decay sampling scheme is shown in Table 3 below. Forty-three time measurement gates were used for the final data processing in the range from 0.021 to 8.083 msec. Zero time for the off-time sampling scheme is equal to the current pulse width and is 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	Width
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
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

VTEM™ Decay Sampling Scheme				
Index	Start	End	Middle	Width
Milliseconds				
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

Z Component: 4 - 46 time gates

X & Y Components: 20 - 46 time gates

Table 4: VTEM™ System Specifications

Transmitter	Receiver
<ul style="list-style-type: none"> • Transmitter loop diameter: 26 m • Number of turns: 4 • Effective Transmitter loop area: 2123.71 m² • Transmitter base frequency: 30 Hz • Peak current: 179.7 A • Pulse width: 7.29 ms • Waveform shape: Bi-polar trapezoid • Peak dipole moment: 381,610.60 nIA • Average transmitter-receiver loop terrain clearance: 49 metres 	<ul style="list-style-type: none"> • X -Coil diameter: 0.32 m • Number of turns: 245 • Effective coil area: 19.69 m² • Y -Coil diameter: 0.32 m • Number of turns: 245 • Effective coil area: 19.69 m² • Z-Coil diameter: 1.2 m • Number of turns: 100 • Effective coil area: 113.04 m²

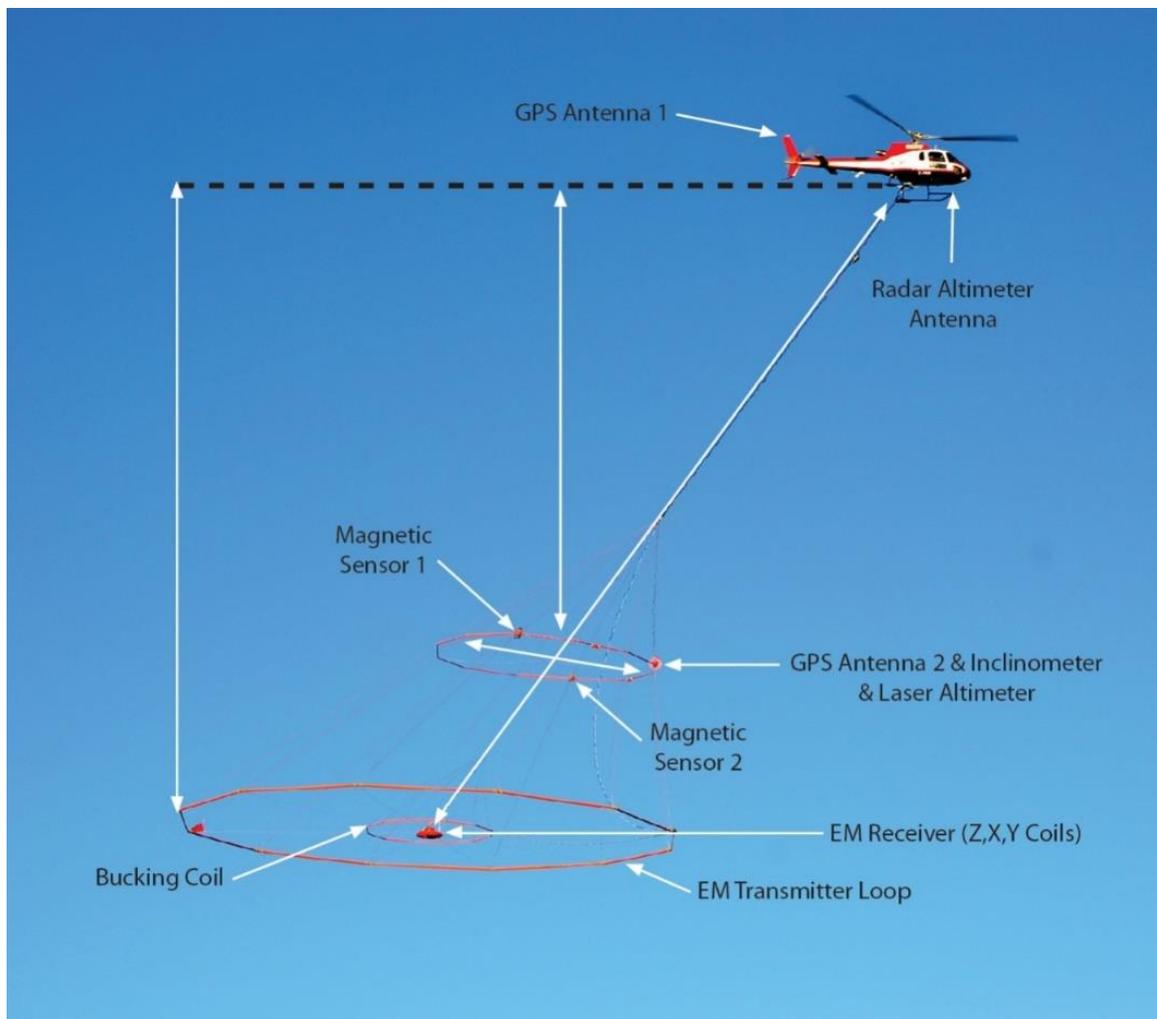


Figure 5: VTEM™plus System Configuration.

2.4.3 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. This calibration takes place on the ground at the start of the project prior to surveying.

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.

This calibration allows the transfer function between the EM receiver and data acquisition system and also the transfer function of the current monitor and data acquisition system to be determined. These calibration results are then used in VTEM full waveform processing.

2.4.4 HORIZONTAL MAGNETIC GRADIOMETER

The horizontal magnetic gradiometer consists of two Geometrics split-beam field magnetic sensors with a sampling interval of 0.1 seconds. These sensors are mounted 12.5 metres apart on a separate loop, 10 metres above the Transmitter-receiver loop. A GPS antenna and Gyro Inclinometer is installed on the separate loop to accurately record the tilt and position of the magnetic gradiometer sensors.

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 5).

2.4.6 GPS NAVIGATION SYSTEM

The navigation system used was a UTS PC104 based navigation system utilizing a NovAtel WAAS (Wide Area Augmentation System) enabled GPS receiver, UTS 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 5.

Table 5: Acquisition Sampling Rates

Data Type	Sampling
TDEM	0.1 sec
Magnetometer	0.1 sec
GPS Position	0.2 sec
Radar Altimeter	0.2 sec
Inclinometer	0.1 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 near the landing zone at 50°17'0.16"N, 63°36'10.94"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:	Adrian Sarmasag (Office)
Data QC:	William Xu (Office)
Crew chief:	Dan Zantingh
Operator:	Daniel Canas

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

Pilot:	Alexander Cyr
Mechanical Engineer:	N/A

OFFICE:

Preliminary Data Processing:	William Xu Marta Orta
Final Data Processing:	Zihao Han
Data QA/QC:	Jean Legault
Reporting/Mapping:	Moyosore Lanisa Jean Legault
Final Review	Jean Legault

Processing phases were carried out under the supervision of Jean M. Legault, Chief Geophysicist. The customer relations were looked after by David Hitz.

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 WGS84 Datum, UTM Zone 20 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.

A three stage digital filtering process was used to reject major spheric events and to reduce noise levels. Local spheric 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 spheric 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 1.531 milliseconds after the termination of the impulse is also presented as a colour image. Calculated Time Constant (TAU) with Calculated Vertical Derivative contours is presented in Appendix C and E. Resistivity Depth Image (RDI) is also presented in Appendix F and G.

VTEM™ has three 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. The Y-axis coil is oriented parallel to the ground and across the line-of-flight. This combined three-coil configuration provides information on the position, depth, dip, and thickness of a conductor. Generalized modeling results of VTEM 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 (Appendix D, Figure D-16).

Because of X component polarity is under line-of-flight, convolution Fraser Filter (Figure 6) 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 independent of the flight direction.

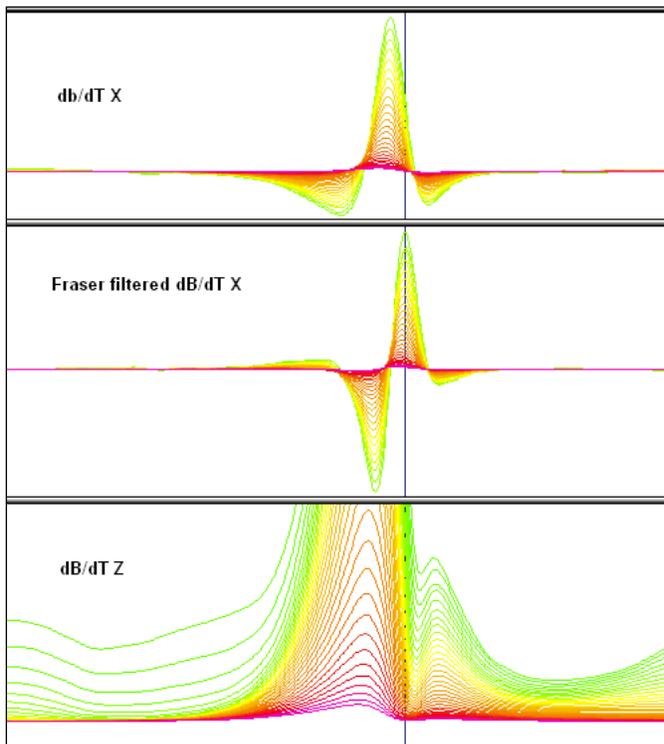


Figure 6: Z, X and Fraser filtered X (FFx) components for “thin” target.

4.3 HORIZONTAL MAGNETIC GRADIOMETER DATA

The horizontal gradients data from the VTEM™ Plus are measured by two magnetometers 12.5 m apart on an independent bird mounted 10m above the VTEM™ loop. A GPS and a Gyro Inclinometer help to determine the positions and orientations of the magnetometers. The data from the two magnetometers are corrected for position and orientation variations, as well as for the diurnal variations using the base station data.

The position of the centre of the horizontal magnetic gradiometer bird is calculated from the GPS utilizing in-house processing tool in Geosoft. Following that total magnetic intensity is calculated at the center of the bird by calculating the mean values from both sensors. In addition to the total intensity advanced processing is done to calculate the in-line and crossline (or lateral) horizontal gradient which enhance the understanding of magnetic targets. The in-line (longitudinal) horizontal gradient is calculated from the difference of two consecutive total magnetic field readings divided by the distance along the flight line direction, while the crossline (lateral) horizontal magnetic gradient is calculated from the difference in the magnetic readings from both magnetic sensors divided by their horizontal separation.

Two advanced magnetic derivative products, the total horizontal derivative (THDR), and tilt angle derivative and are also created. The total horizontal derivative or gradient is defined as:

THDR = $\sqrt{H_x^2 + H_y^2}$, where H_x and H_y are crossline and in-line horizontal gradients.

The tilt angle derivative (TDR) is defined as:

TDR = $\arctan(V_z / THDR)$, where THDR is the total horizontal derivative, and V_z is the vertical derivative.

Measured crossline gradients can help to enhance crossline linear features during gridding.

4.4 TAU PARAMETER AND CVG

The processed VTEM survey results are presented as a calculated dB/dt time constant (Tau), which is an indicator of geological unit's electrical conductance.

An explanation of the EM time constant calculation is provided in Appendix E. The TAU dB/dt map is presented in Appendix C. The map is accompanied by an overlay of the calculated vertical gradient of TMI anomaly contours for tracing possible EM-MAG anomaly correlations.

The CVG contour layer, on the top of TAU color grid, is generally more representative of the smaller scale and shallower magnetic sources in comparison with the TMI. The calculated vertical derivative (CVG) is designed to emphasize structures and lithological units that may not otherwise be seen on the TMI due to the nearby presence of stronger magnetic responses, showing a high resolution in terms of individual structures.

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 1:15,000 for best representation of the survey size and line spacing. The coordinate/projection system used was WGS84 Datum, UTM Zone 20 North. All maps show the 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 colour magnetic TMI contour map.

- Maps at 1:5,000 in Geosoft MAP format, as follows:

GL220150_**_dBdt:	dB/dt profiles Z Component, Time Gates 0.220 – 7.036 ms in linear – logarithmic scale.
GL220150_**_Bfield:	B-field profiles Z Component, Time Gates 0.220 – 7.036 ms in linear – logarithmic scale.
GL220150_**_BFz31:	B-field late time Z Component Channel 31, Time Gate 1.010 ms colour image.
GL220150_**_SFxFF23:	dB/dt mid time X Component Fraser Filtered Channel 23, Time Gate 0.333 ms colour image.
GL220150_**_SFz31:	VTEM dB/dt Z Component Channel 31, Time Gate 1.010 ms.
GL220150_**_CVG:	Calculated Vertical Gradient (CVG) of TMI colour image.
GL220150_**_TMI:	Total magnetic intensity (TMI) colour image and contours.
GL220150_**_TauSF:	dB/dt Calculated Time Constant (Tau) with Calculated Vertical Derivative contours.
GL220150_**_TotHG:	Magnetic Total Horizontal Gradient colour image.
GL220150_**_TiltDrv:	Magnetic Tilt Angle Derivative colour image.

Where ** represents client name and map scale. Eg. *GL220150_RioTinto_15k_BField*

- Maps are also presented in PDF format.
- The topographic data base was derived from 1:50,000 CANVEC data. Background shading is from ASTER GDEM (<https://gdex.cr.usgs.gov/gdex>). Inset data derived from the Geocommunities (www.geocomm.com)
- A Google Earth file *GL220150_RioTinto.kmz* showing the flight path of the block is included. Free versions of Google Earth software from: <http://earth.google.com/download-earth.html>

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 6.

Table 6: Geosoft GDB Data Format

Channel name	Units	Description
X	metres	UTM Easting WGS84 Zone 20 North
Y	metres	UTM Northing WGS84 Zone 20 North
Longitude	Decimal Degrees	WGS 84 Longitude data
Latitude	Decimal Degrees	WGS 84 Latitude data
Z	metres	GPS antenna elevation (above Geoid)
Zb	metres	EM bird elevation (above Geoid)
Radar	metres	helicopter terrain clearance from radar altimeter
Radarb	metres	Calculated EM transmitter-receiver loop terrain clearance from radar altimeter
DEM	metres	Digital Elevation Model
Gtime	Seconds of the day	GPS time
Mag1L	nT	Measured Total Magnetic field data (left sensor)
Mag1R	nT	Measured Total Magnetic field data (right sensor)
Basemag	nT	Magnetic diurnal variation data
Mag2LZ	nT	Z corrected (w.r.t. loop center) and diurnal corrected magnetic field left mag
Mag2RZ	nT	Z corrected (w.r.t. loop center) and diurnal corrected magnetic field right mag
TMI3	nT	Calculated from diurnal corrected total magnetic field intensity of the centre of the loop
TMI3	nT	Microleveled total magnetic field intensity of the centre of the loop
Hginline		Calculated in-line gradient
Hgcxline		Measured cross-line gradient
CVG	nT/m	Calculated Vertical Derivative Total Magnetic Intensity
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

Channel name	Units	Description
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
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
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

Channel name	Units	Description
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
SFx[41]	pV/(A*m ⁴)	X dB/dt 4.042 millisecond time channel
SFx[42]	pV/(A*m ⁴)	X dB/dt 4.641 millisecond time channel
SFx[43]	pV/(A*m ⁴)	X dB/dt 5.333 millisecond time channel
SFx[44]	pV/(A*m ⁴)	X dB/dt 6.125 millisecond time channel
SFx[45]	pV/(A*m ⁴)	X dB/dt 7.036 millisecond time channel
SFx[46]	pV/(A*m ⁴)	X dB/dt 8.083 millisecond time channel
SFy	pV/(A*m ⁴)	Y dB/dt data for time channels 4 to 46
BFz	(pV*ms)/(A*m ⁴)	Z B-Field data for time channels 4 to 46
BFx	(pV*ms)/(A*m ⁴)	X B-Field data for time channels 20 to 46
BFy	(pV*ms)/(A*m ⁴)	Y B-Field data for time channels 20 to 46
SFxFF	pV/(A*m ⁴)	Fraser Filtered X dB/dt for time channels 20 to 46
NchanBF		Latest time channels of TAU calculation
TauBF	ms	Time constant B-Field
NchanSF		Latest time channels of TAU calculation
TauSF	ms	Time constant dB/dt
PLM		60 Hz power line monitor

Electromagnetic B-field and dB/dt Z component data is found in array channel format between indexes 4 – 46, and X & Y component data from 20 – 46, as described above.

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

Table 7: Geosoft Resistivity Depth Image GDB Data Format

Channel name	Units	Description
Xg	metres	UTM Easting WGS84 Zone 20 North
Yg	metres	UTM Northing WGS84 Zone 20 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 transmitter-receiver loop terrain clearance from radar altimeter
SF:	pV/(A*m ⁴)	array channel, dB/dT
MAG:	nT	TMI data
CVG:	nT/m	CVG data
DOI:	metres	Depth of Investigation: a measure of VTEM depth effectiveness
PLM:		60Hz Power Line Monitor

- Databases of the VTEM Waveforms “GL220150_Waveform.gdb” in Geosoft GDB format, containing the following channels:

Table 8: Geosoft database for the VTEM waveform

Channel name	Units	Description
Time:	milliseconds	Sampling rate interval, 5.2083 microseconds
Tx_Current:	amps	Output current of the transmitter

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

GL220150_BFz31:	B-Field Z Component Channel 31 (Time Gate 1.010 ms)
GL220150_CVG:	Calculated Vertical Derivative TMI (nT/m)
GL220150_Hgcxline:	Measured Cross-Line Gradient (nT/m)
GL220150_Hginline:	Measured In-Line Gradient (nT/m)
GL220150_DEM:	Digital Elevation Model (metres)
GL220150_PLM:	60Hz Power Line Monitor
GL220150_TMI3:	Total Magnetic Intensity (nT)
GL220150_TMI3_IGRF:	IGRF corrected Total Magnetic Intensity (nT)
GL220150_SFxFF23:	Fraser Filtered dB/dt X Component Channel 23 (Time Gate 0.333 ms)
GL220150_SFz10:	dB/dt Z Component Channel 10 (Time Gate 0.055 ms)
GL220150_SFz31:	dB/dt Z Component Channel 31 (Time Gate 1.010 ms)
GL220150_SFz41:	dB/dt Z Component Channel 41 (Time Gate 4.042 ms)
GL220150_TauBF:	B-Field Z Component, Calculated Time Constant (ms)
GL220150_TauSF:	dB/dt Z Component, Calculated Time Constant (ms)
GL220150_THorGrad:	Magnetic Total Horizontal Gradient (nT/m)
GL220150_TiltDrv:	Magnetic Tilt derivative (radians)

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.

6. CONCLUSIONS AND RECOMMENDATIONS

A helicopter-borne versatile time domain electromagnetic (VTEM™ Plus) and horizontal magnetic gradiometer geophysical survey has been completed over the Garneau project located in Quebec.

The total area coverage is 70 km² and the total survey line coverage 735 line-kilometres over a single (1) survey block. The principal sensors included a time domain VTEM™ Plus system and a horizontal magnetic gradiometer system with two caesium magnetometers. Results have been presented as stacked profiles, and contour colour images at a scale of 1:10,000. A formal interpretation has not been included in this report; however, resistivity-depth imaging (RDI) has been performed in support of the VTEM data.

Based on the geophysical results obtained, a number of geophysical anomalies of interest have been identified across the survey area, in both the magnetic and electromagnetic data, including a prominent, large (>4x8 km) oval-shaped/annular, intrusion-like magnetic anomaly and closely associated EM responses. The relationship between the EM and magnetic signatures are highlighted in our TAU dBz/dt EM decay constant map with magnetic CVG contours (Appendix C) and the resistivity-depth image (RDI) sections and profiles (Appendix G). Negative EM decays, related to AIIP (airborne inductive induced polarization), are very common in the VTEM data.

The exact nature of the targets being explored for at Garneau is uncertain but is assumed to relate to metallic mineralization. As a result, both EM and magnetic targets are likely to be of exploration interest. Due to the possible presence of man-made sources, individual anomalies should be carefully vetted prior to ground follow-up. We recommend that EM anomaly picking be performed along with Maxwell 3D EM plate modeling of anomalies of interest, prior to ground follow up and drill testing. AIIP mapping or other AIP processing might prove insightful for mapping alteration and possible mineralization. Advanced 1D layered earth modeling of the EM data will also prove useful in highlighting weakly anomalous resistive and conductive features of interest, both in plan and in cross-section, as compared to the RDI imaging results. Magnetic CET structural analysis and 3D MVI magnetic inversions will be useful for mapping structure, alteration, and lithology in 2D-3D space across the property. We recommend that more advanced, integrated interpretation, such as SOM (self-organizing maps) be performed on these geophysical data sets and these results further evaluated against the known geology for future targeting.

Respectfully submitted,



Jean Legault, M.Sc.A, P. Geo (OGQ 1147)
Geotech Ltd.

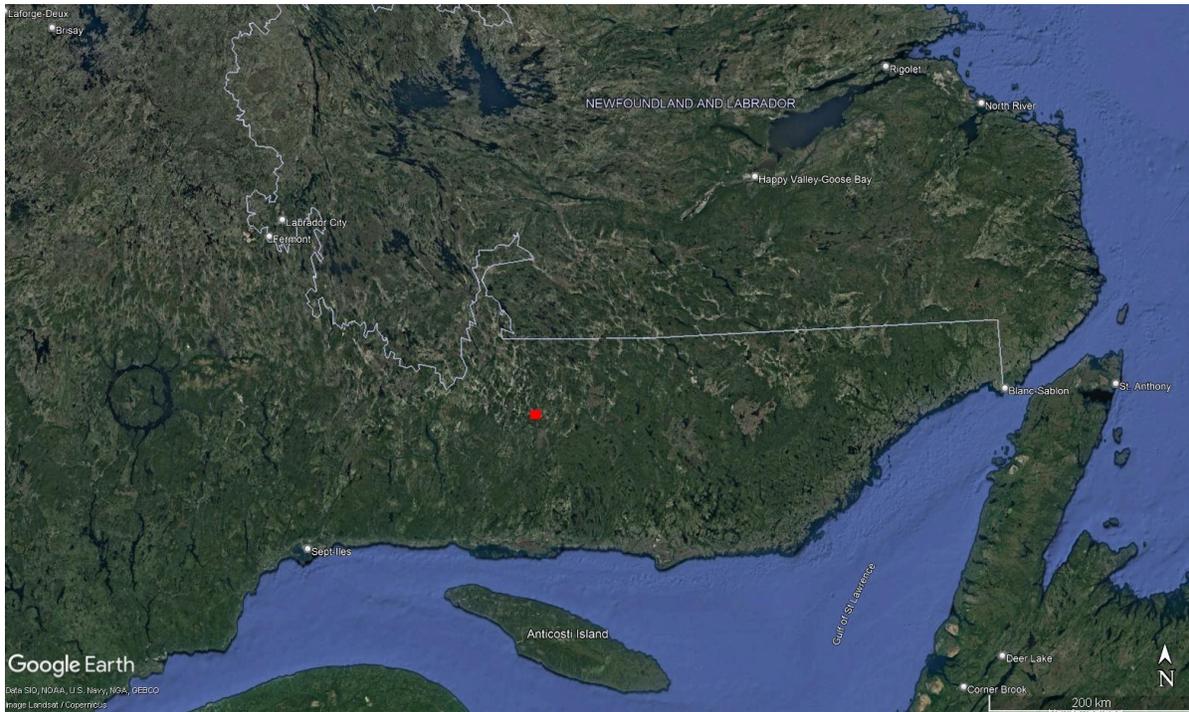
A handwritten signature in purple ink, appearing to read "Zihao Han".

Zihao Han, PhD P.Geo (OGQ 2320)
Geotech Ltd.

January-February 2023

APPENDIX A

SURVEY AREA LOCATION MAP

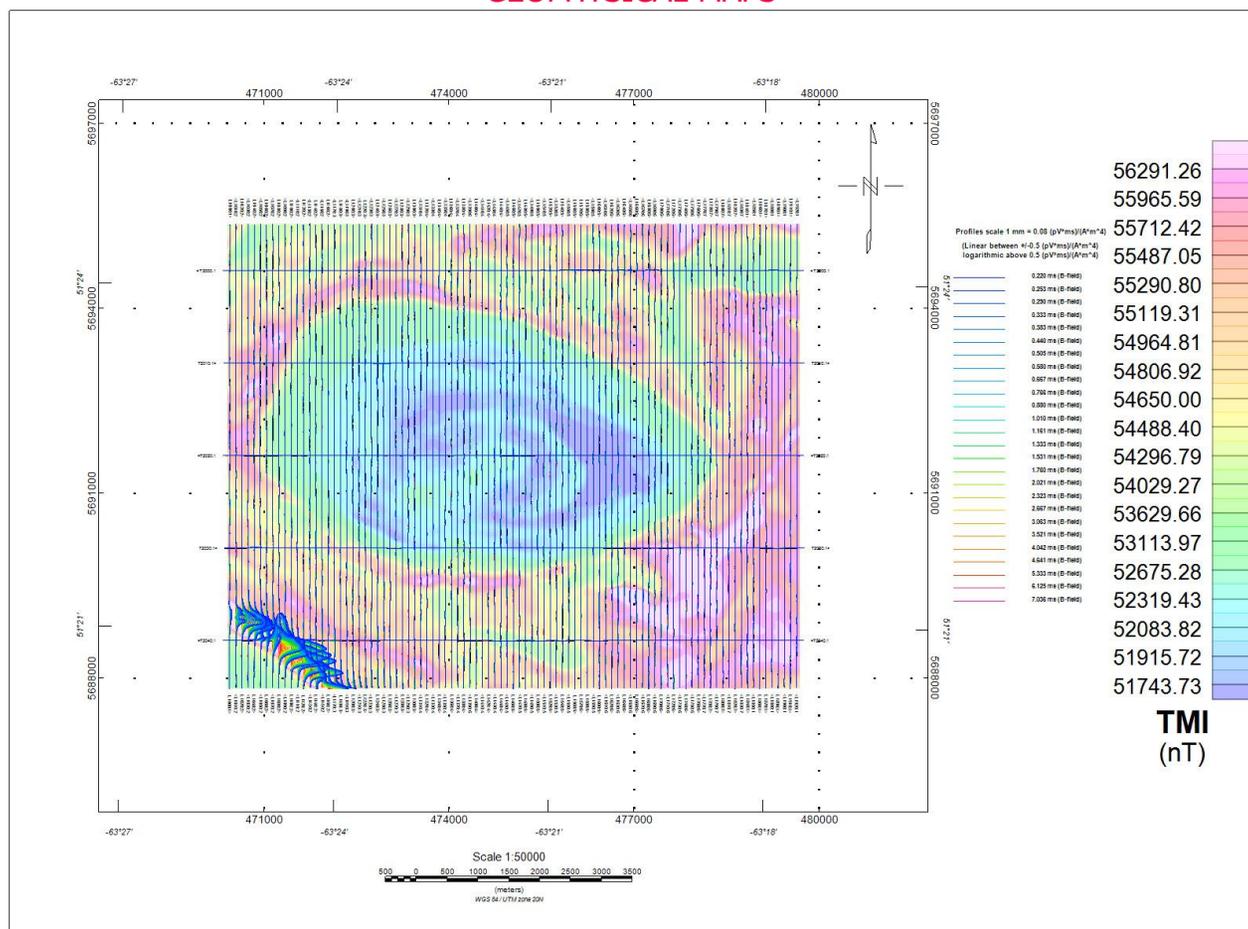


Overview of the Survey Area

APPENDIX B
SURVEY AREA COORDINATES
(WGS 84, UTM Zone 20 North)

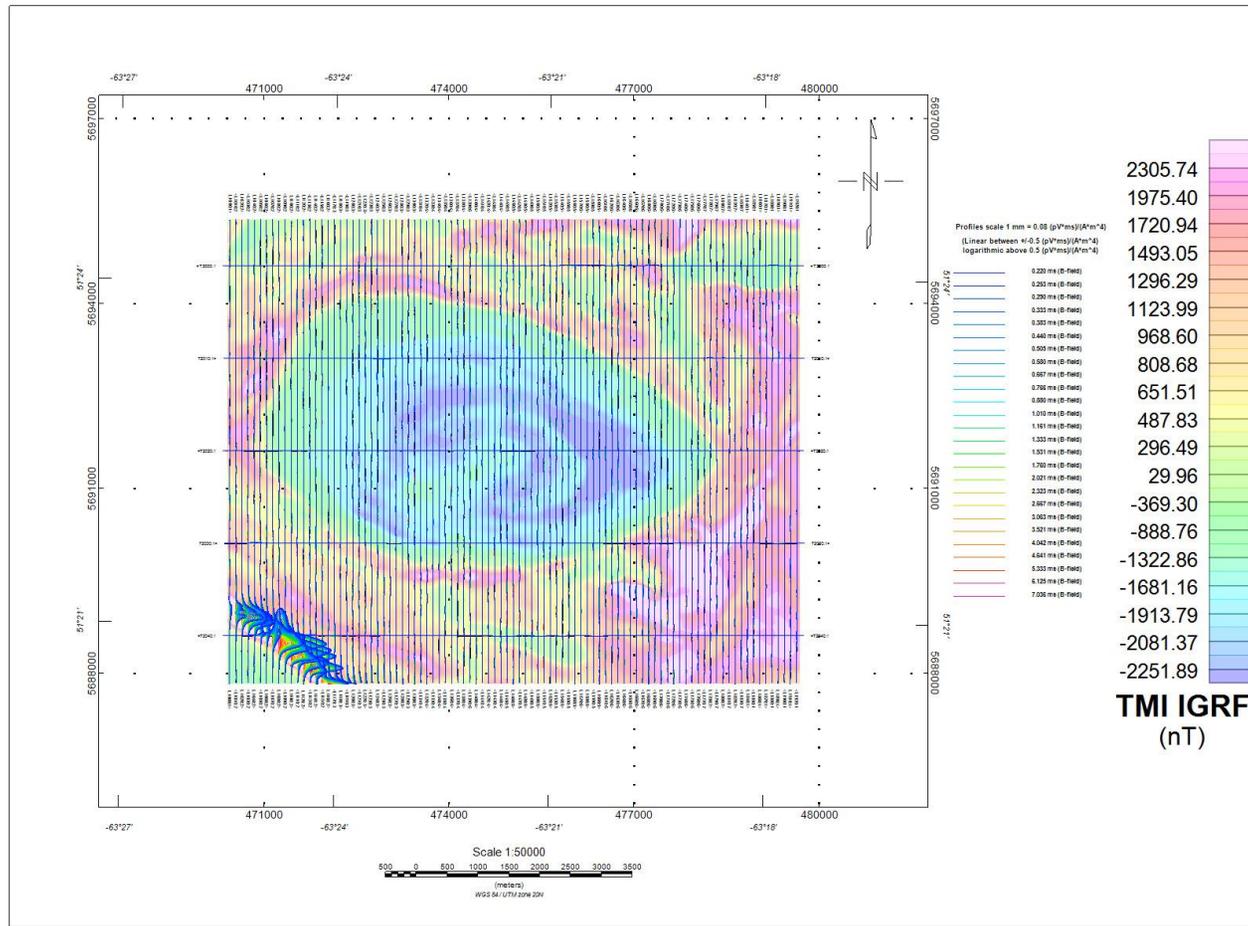
Garneau Project	
X	Y
470376	5687855
470382	5695387
479705	5695397
479715	5687817
470392	5687808

APPENDIX C GEOPHYSICAL MAPS¹

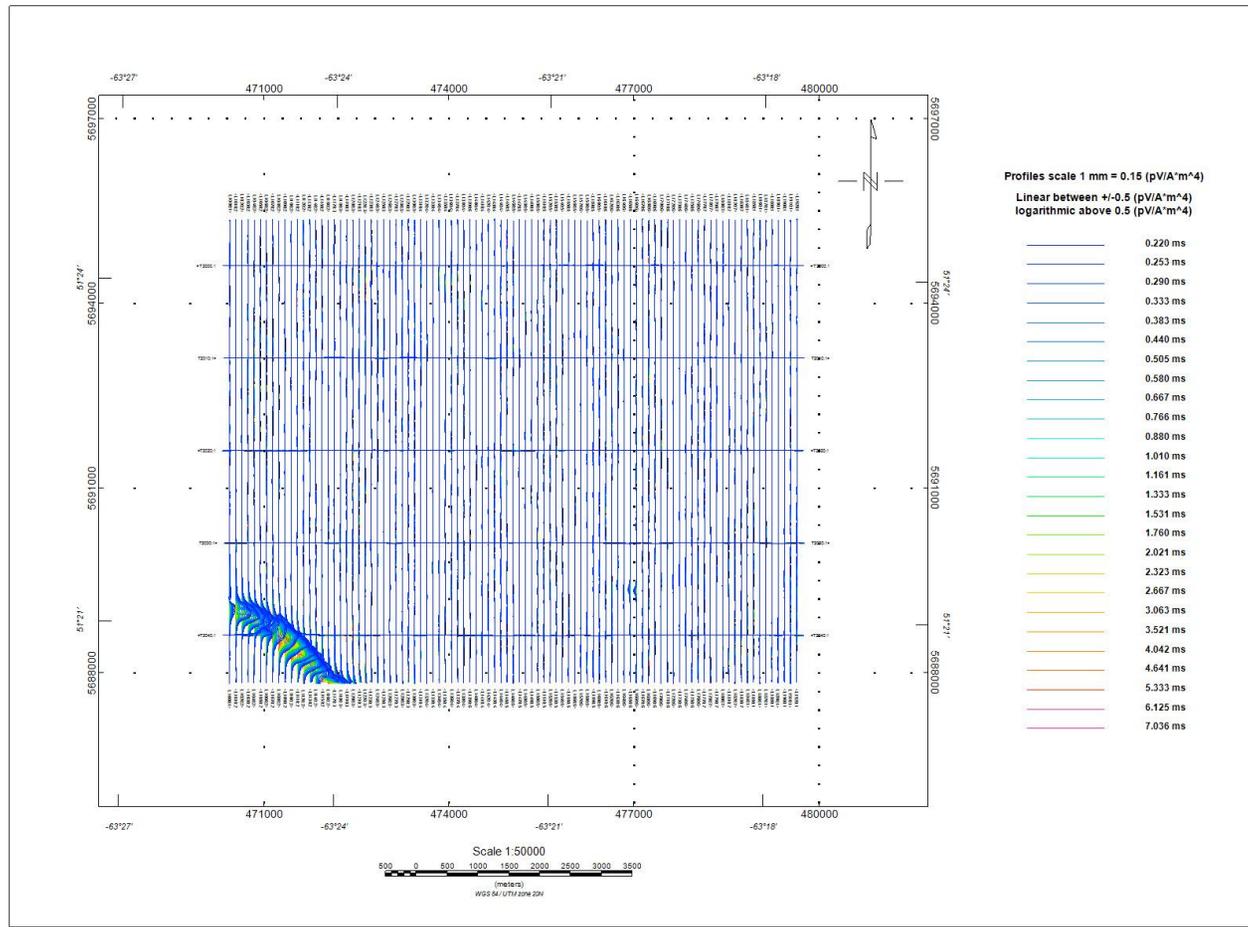


VTEM B-Field Z Component Profiles, Time Gates 0.220 to 7.036 ms

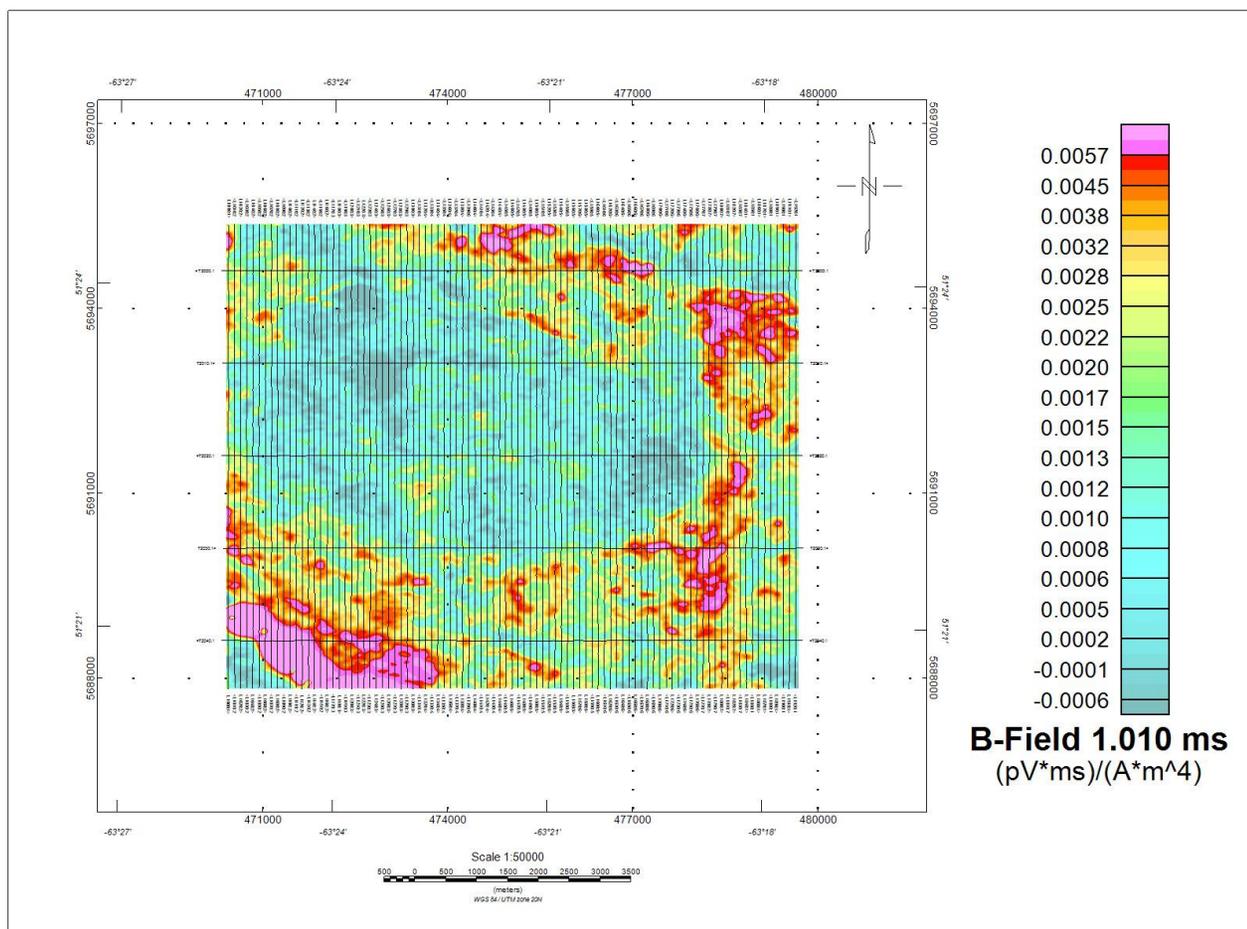
¹ Full size geophysical maps are also available in PDF format on the final DVD



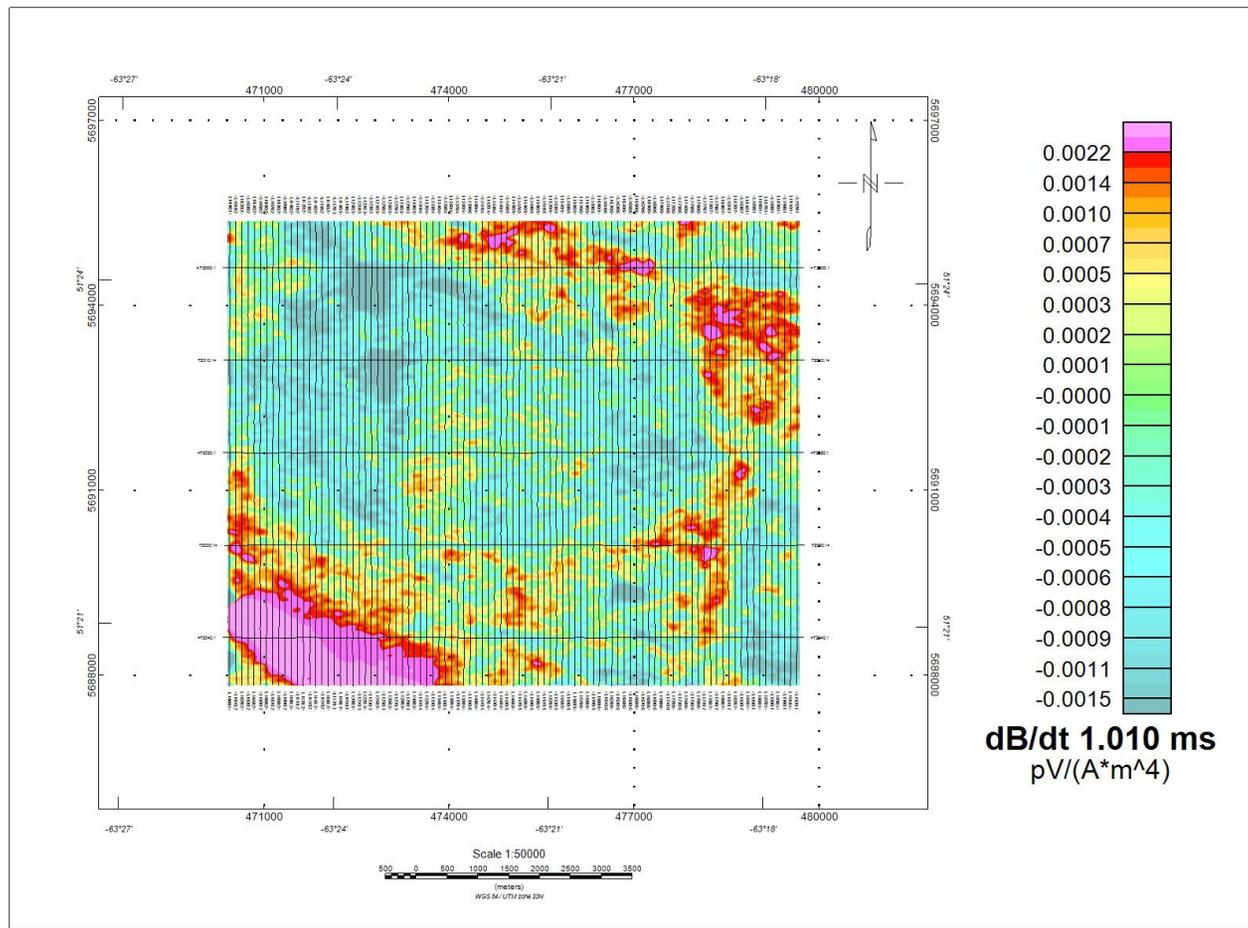
VTEM B-Field Z Component Profiles, Time Gates 0.220 to 7.036 ms (IGRF)



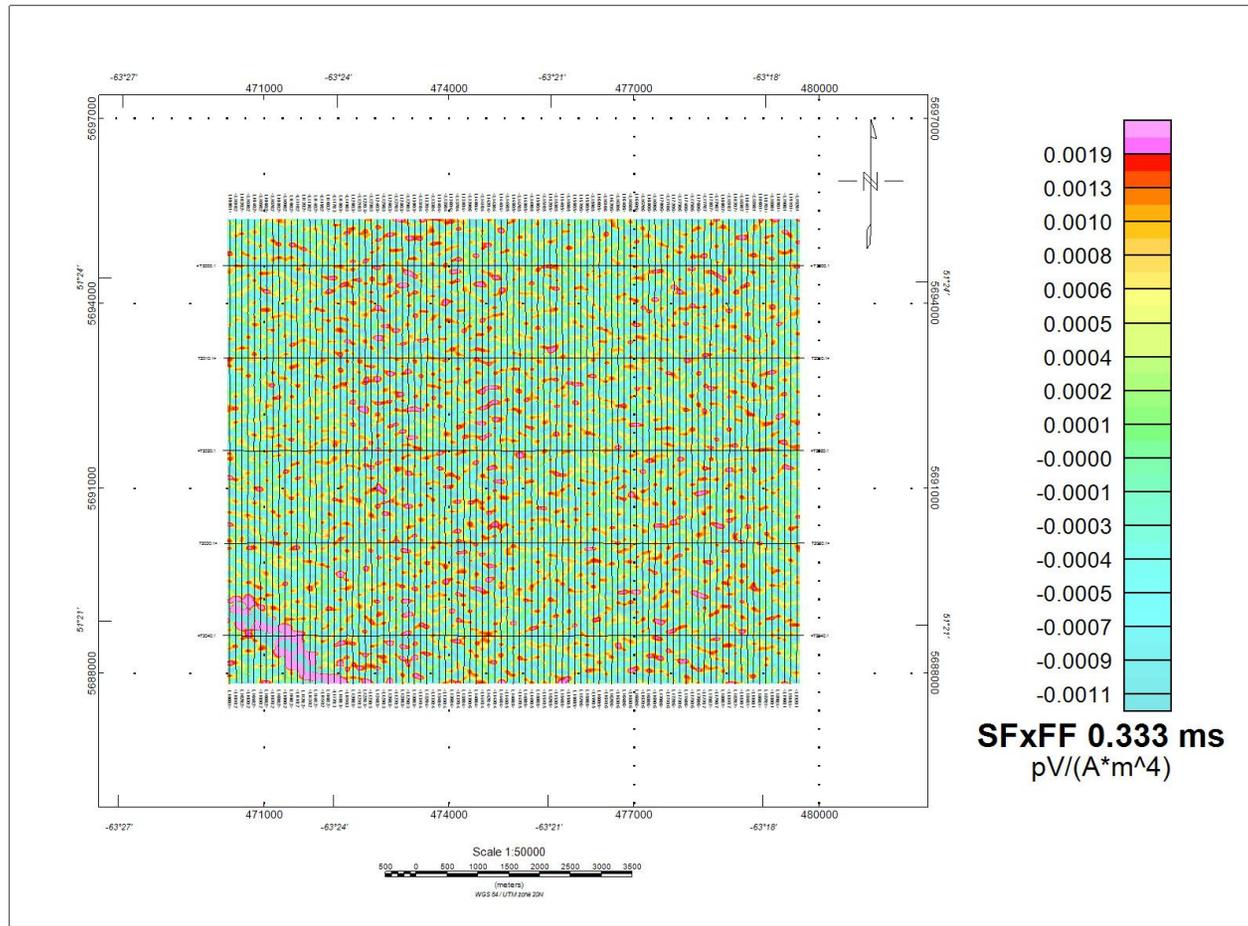
VTEM dB/dt Z Component Profiles, Time Gates 0.220 to 7.036 ms



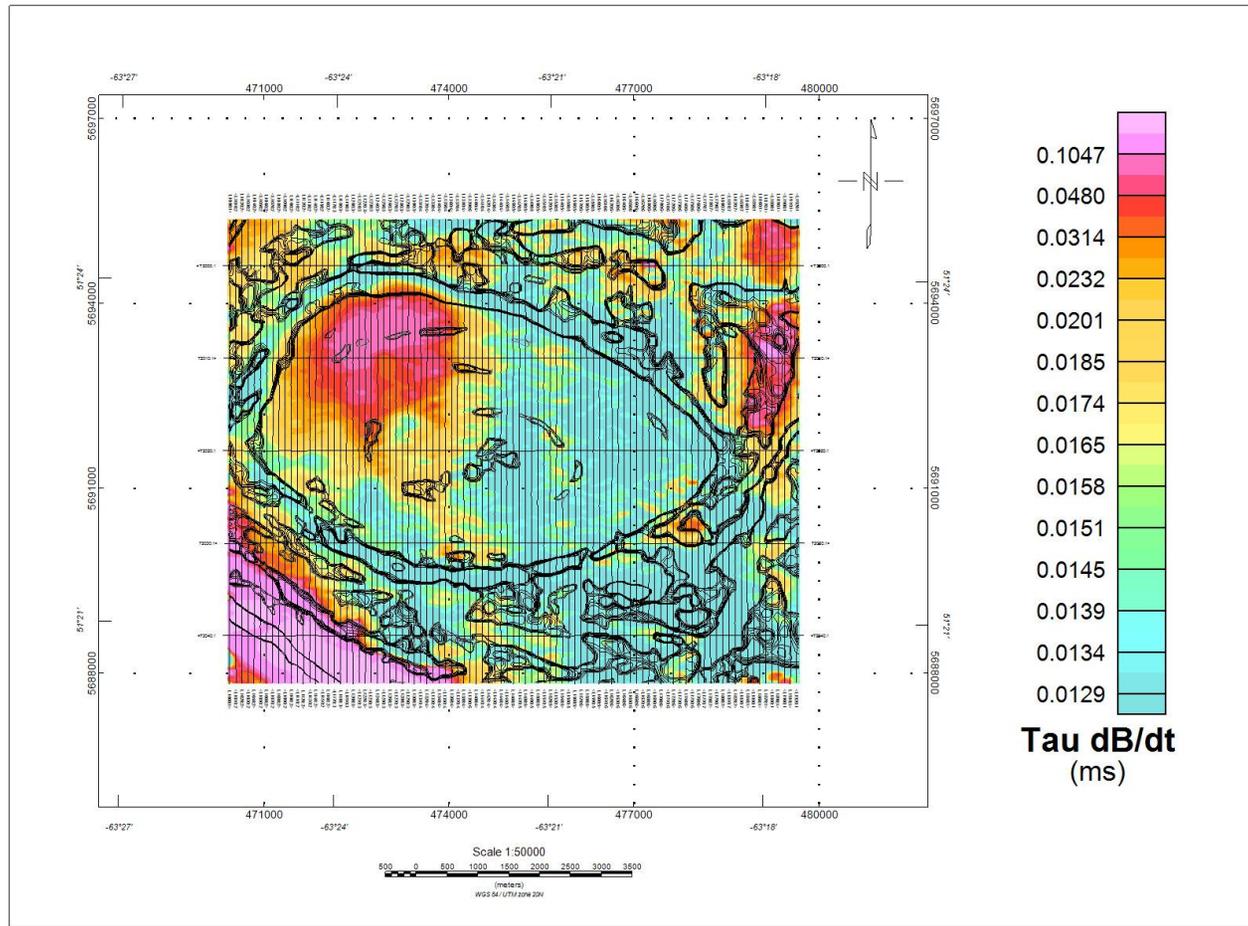
VTEM B-Field Z Component Channel 31, Time Gate 1.010 ms



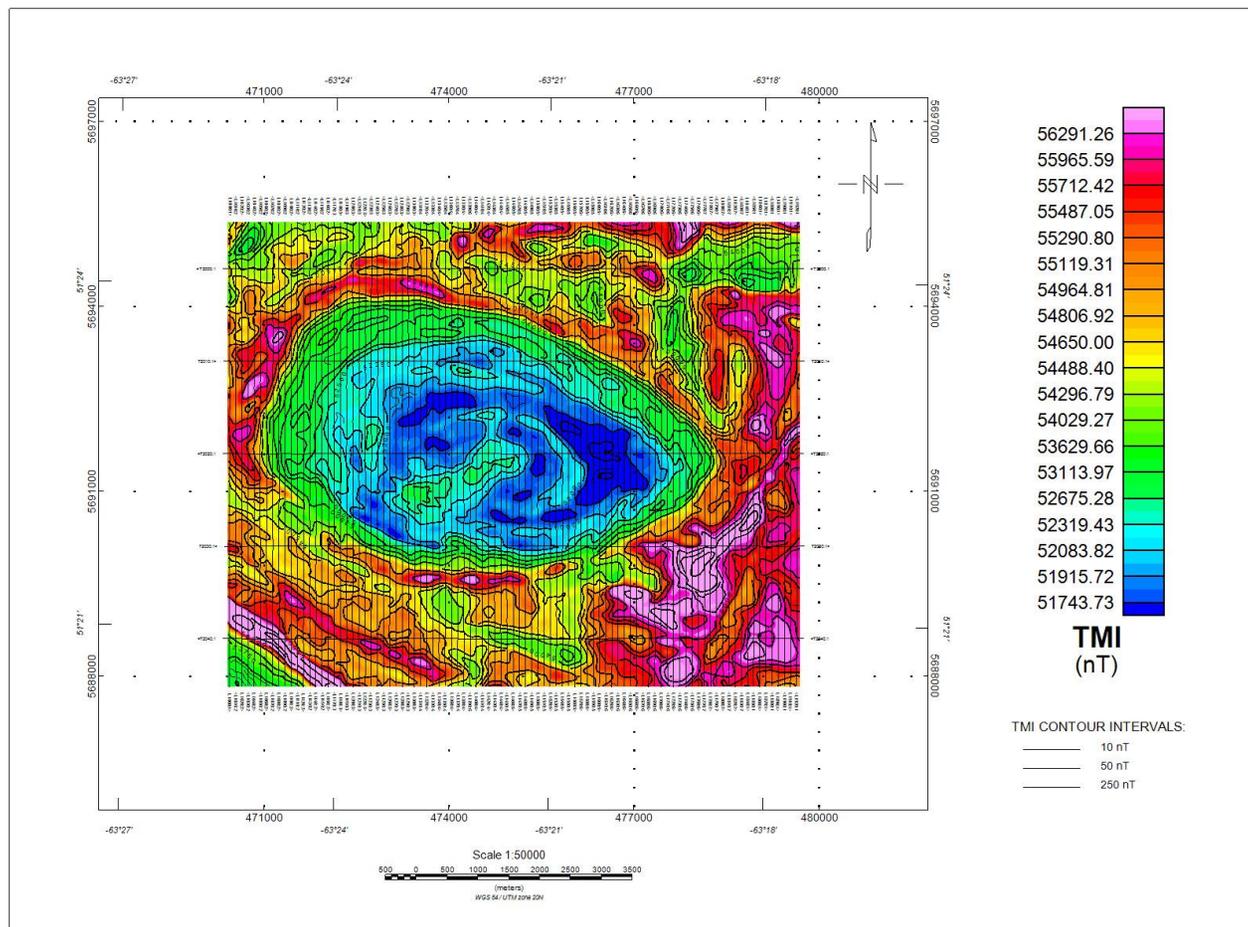
VTEM dB/dt Z Component Channel 31, Time Gate 1.010 ms



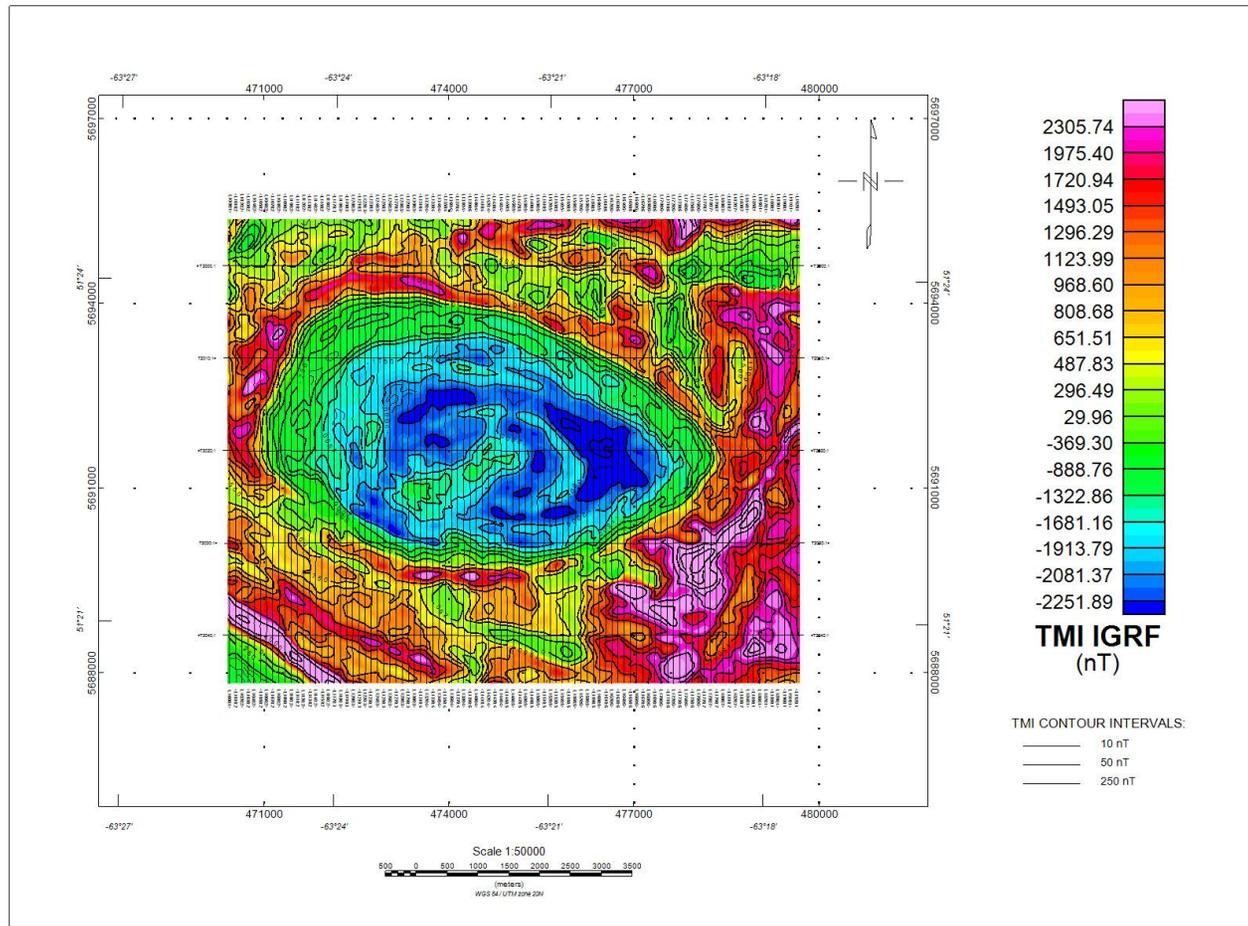
VTEM dB/dt X Component Fraser Filtered Channel 23, Time Gate 0.333 ms



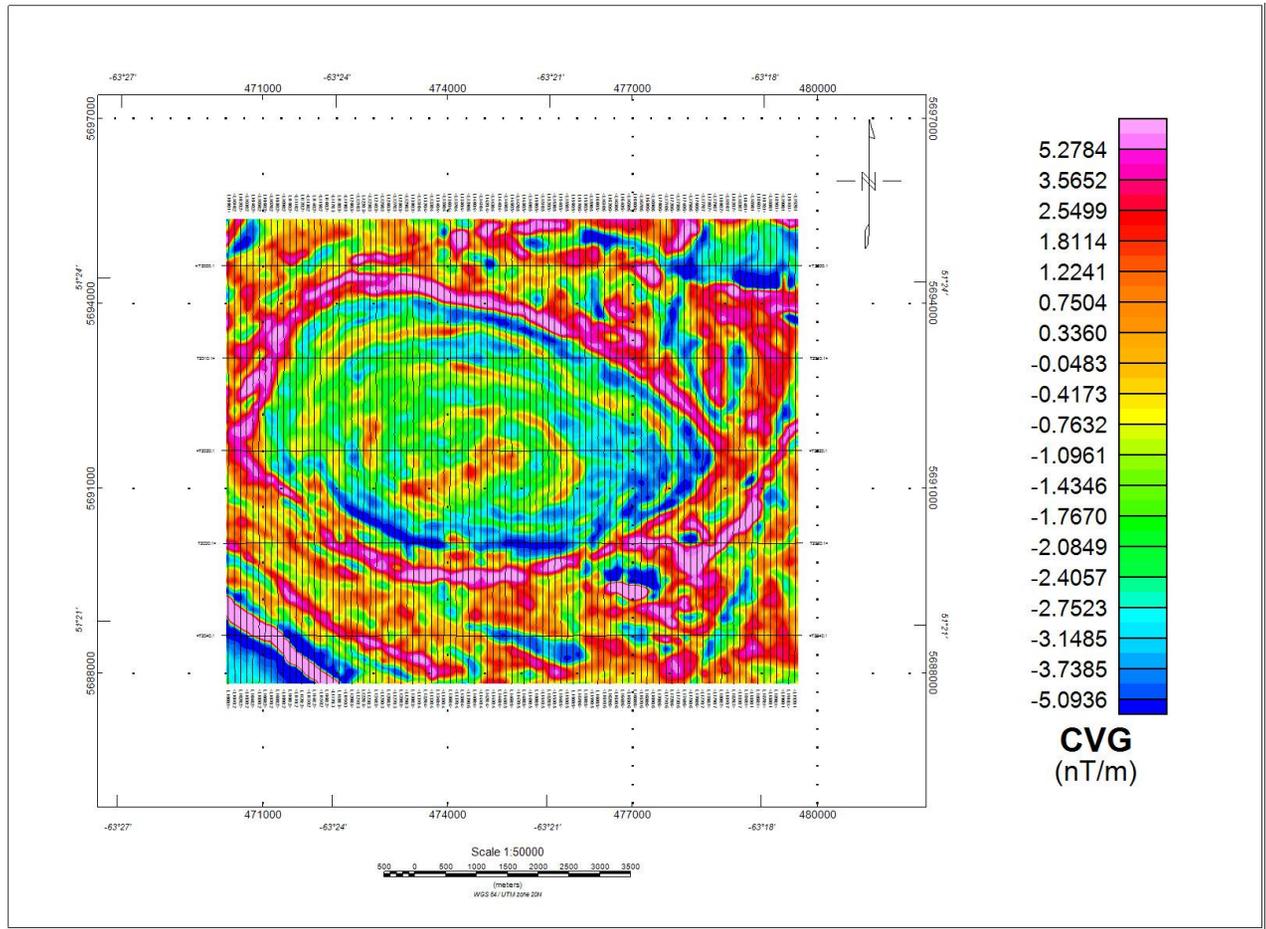
dB/dt Calculated Time Constant (Tau) with Magnetic Calculated Vertical Derivative (CVG) contours



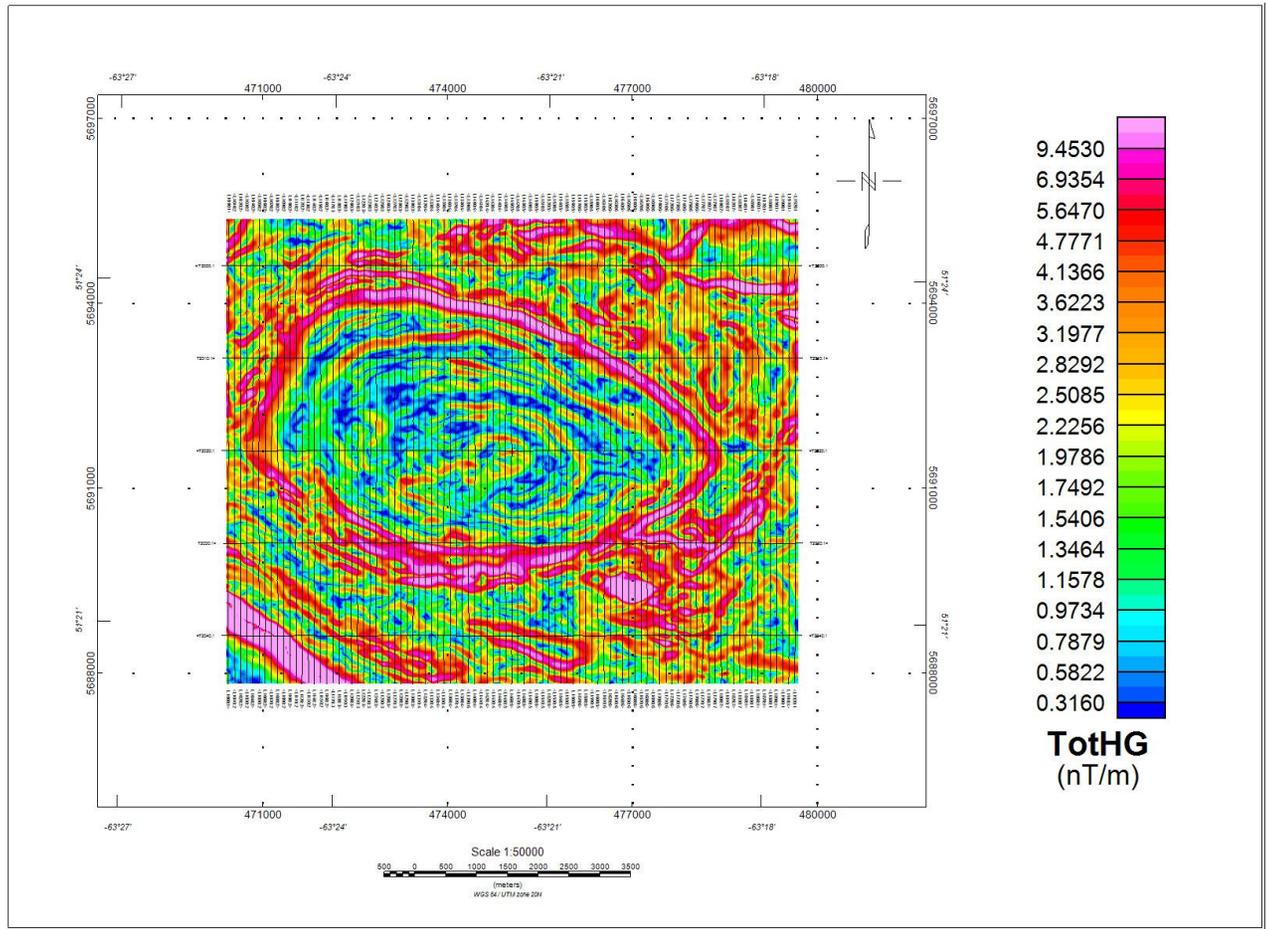
Total Magnetic Intensity (TMI)



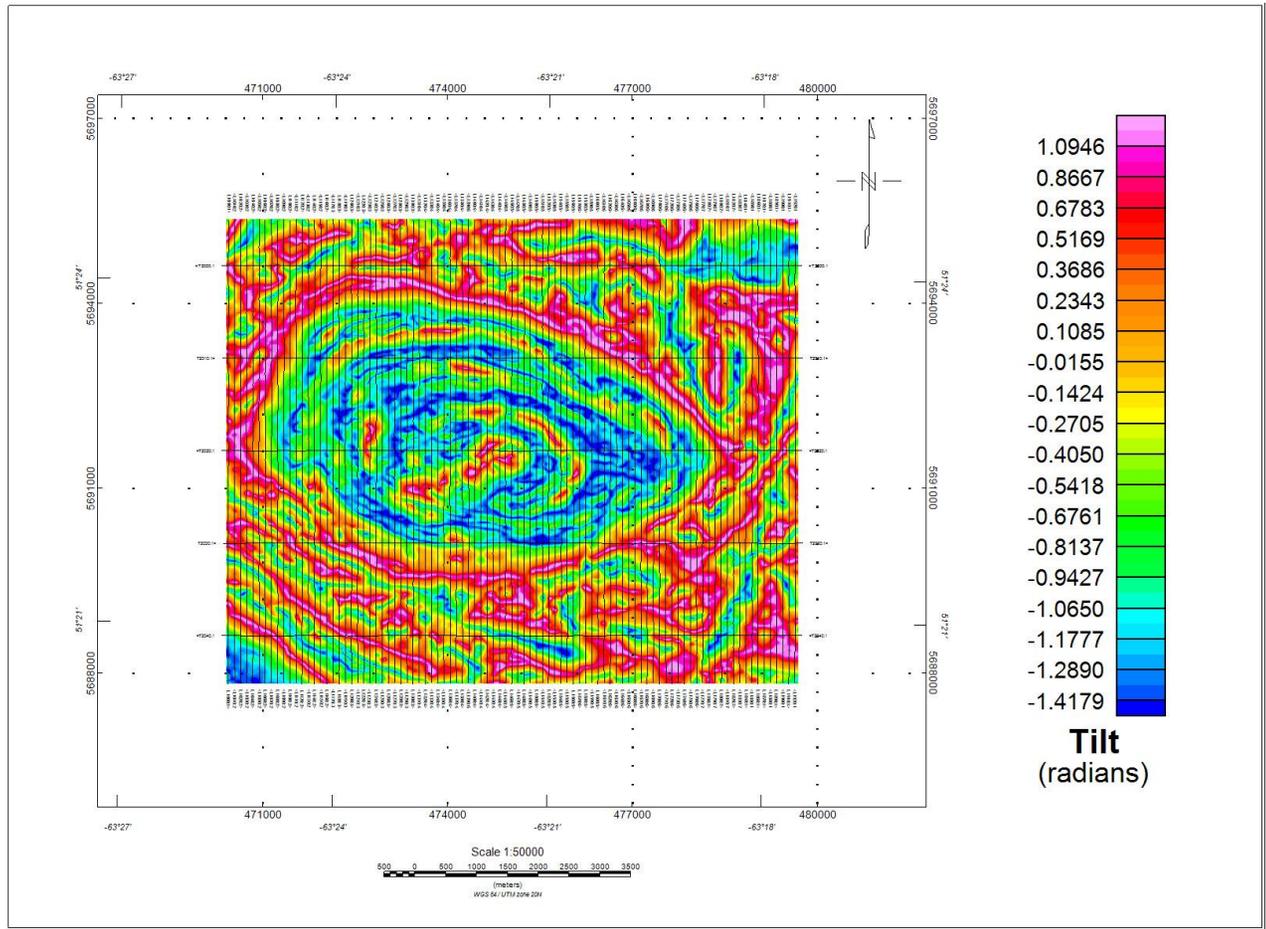
IGRF Corrected Total Magnetic Intensity (TMI)



Calculated Vertical Gradient (CVG) of TMI



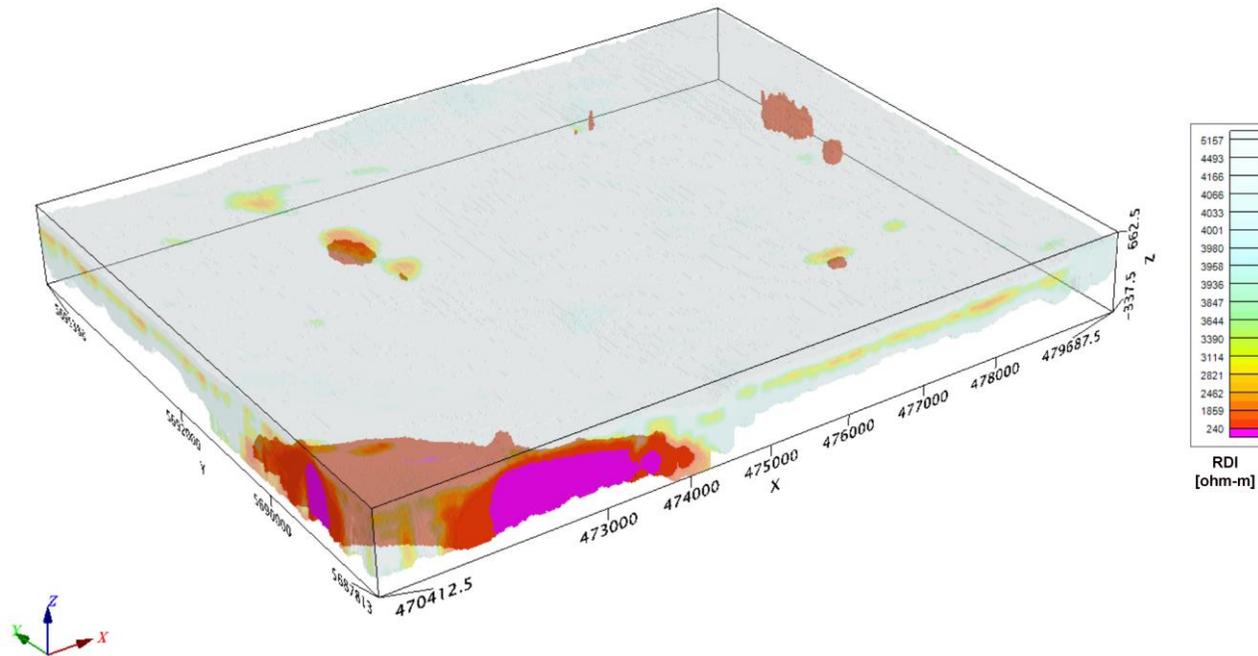
Total Magnetic Horizontal Gradient



Magnetic Tilt-Angle Derivative

RESISTIVITY DEPTH IMAGE (RDI) MAPS

Apparent Resistivity - Garneau Project



3D Resistivity-Depth Image (RDI)

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 bipolar, modified square wave with a turn-on and turn-off at each end.

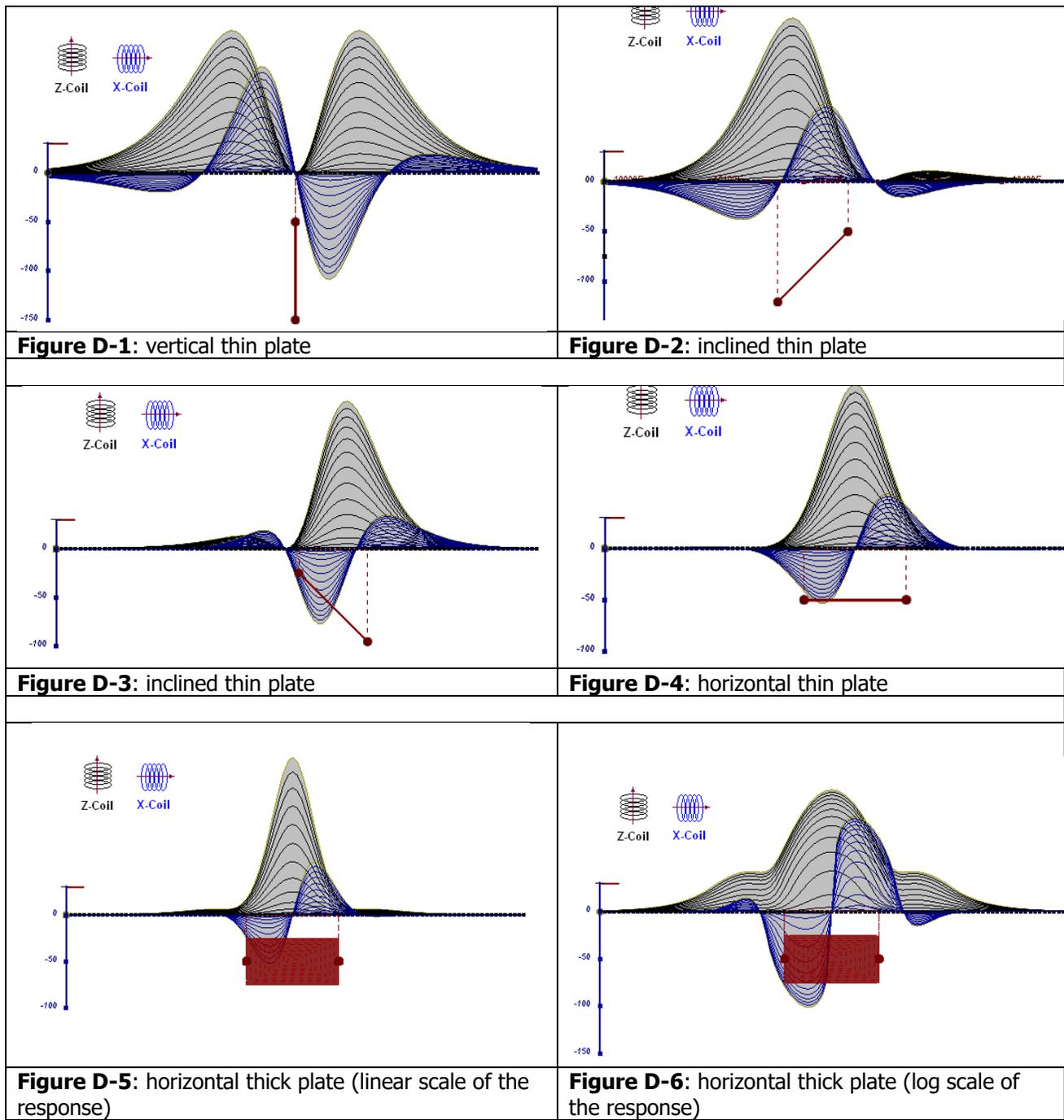
During turn-on and turn-off, a time varying field is produced (dB/dt) and an electro-motive force (emf) is created as a finite impulse response. A current ring around the transmitter loop moves outward and downward as time progresses. When conductive rocks and mineralization are encountered, a secondary 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 90° to about 30°. The method is not sensitive enough where dips are less than about 30°.



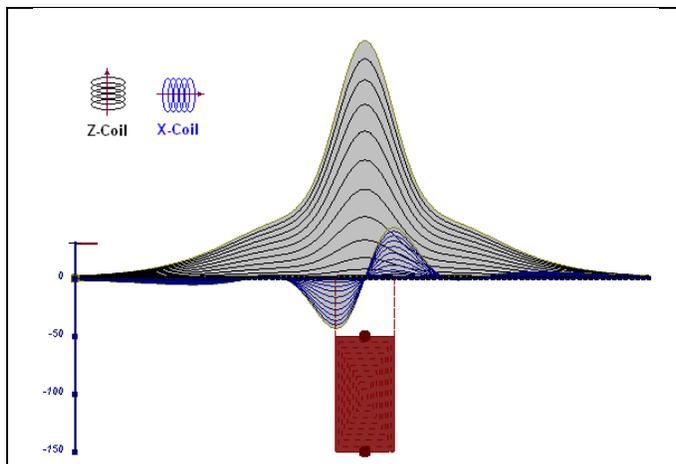


Figure D-7: vertical thick plate (linear scale of the response). 50 m depth

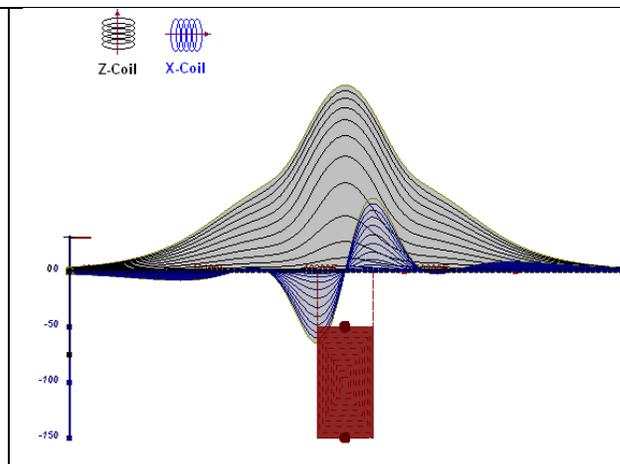


Figure D-8: vertical thick plate (log scale of the response). 50 m depth

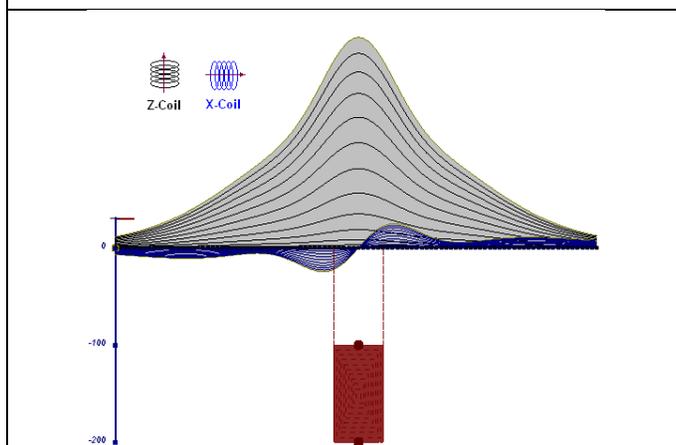


Figure D-9: vertical thick plate (linear scale of the response). 100 m depth

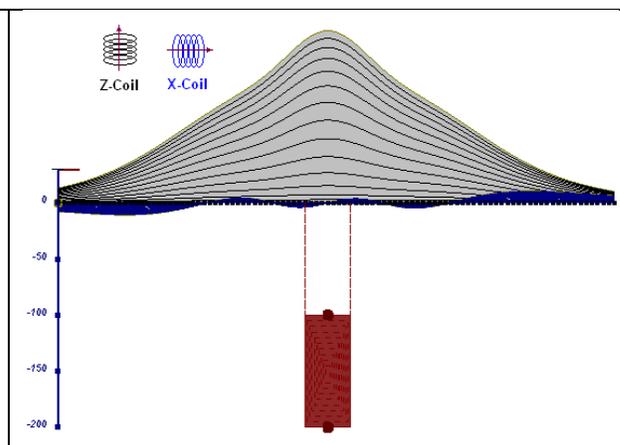


Figure D-10: vertical thick plate (linear scale of the response). Depth / horizontal thickness=2.5

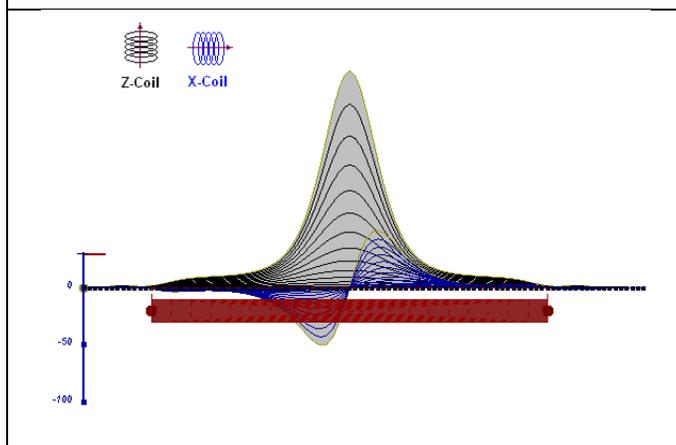


Figure D-11: horizontal thick plate (linear scale of the response)

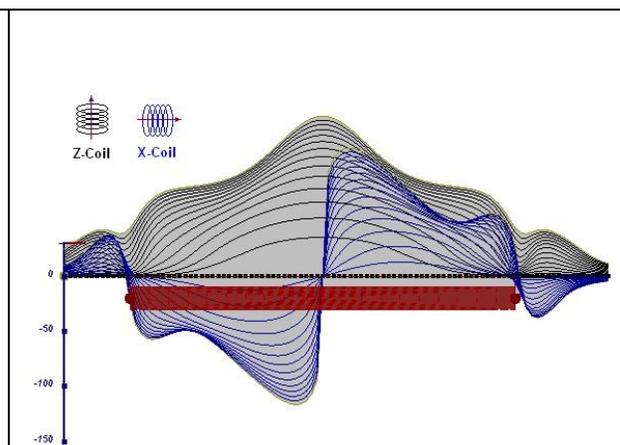


Figure D-12: horizontal thick plate (log scale of the response)

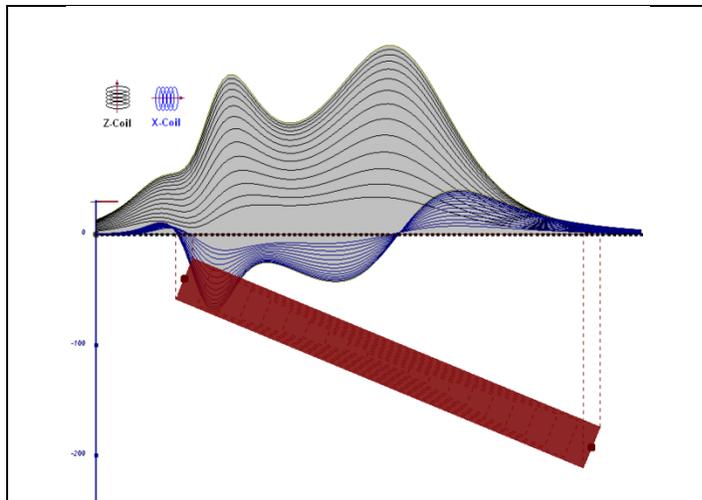


Figure D-13: inclined long thick plate

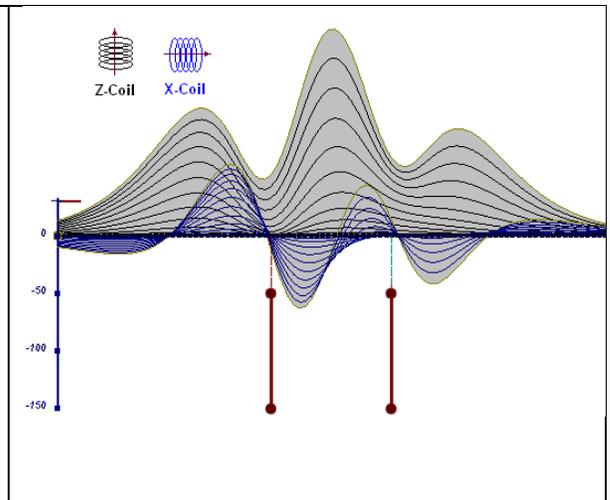


Figure D-14: two vertical thin plates

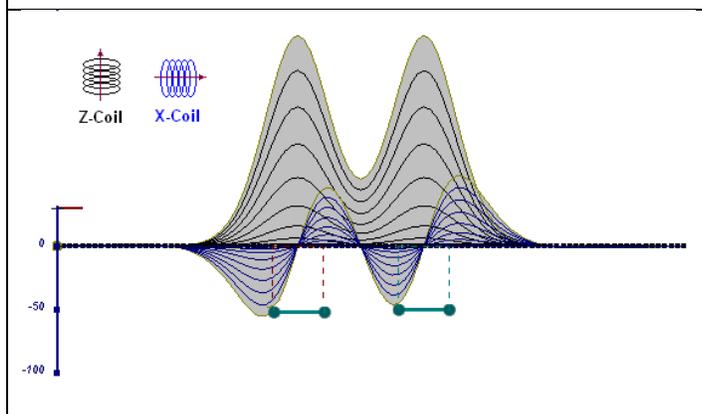


Figure D-15: two horizontal thin plates

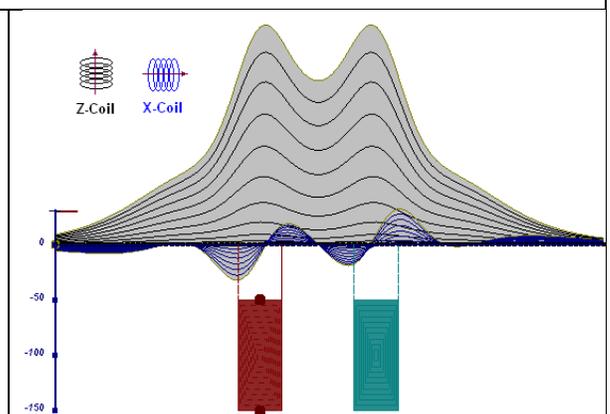


Figure D-16: two vertical thick plates

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

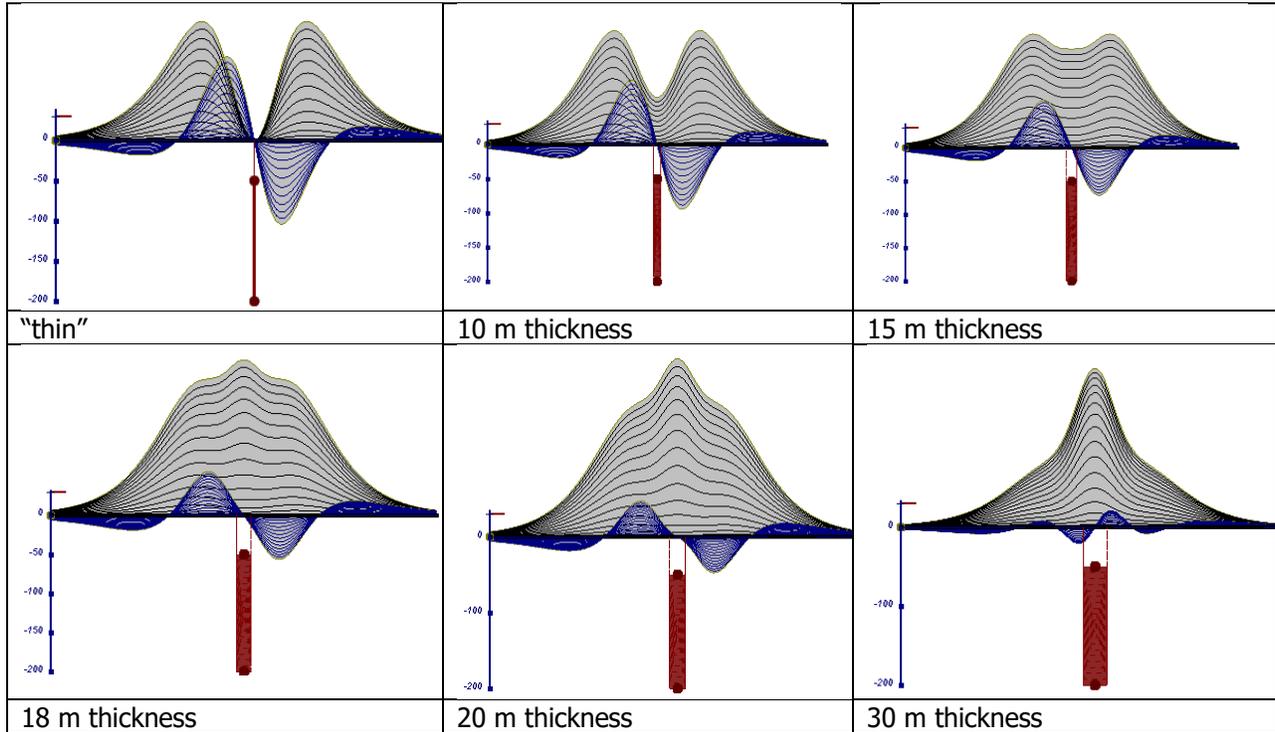


Figure D-17: Conductive vertical plate, depth 50 m, strike length 200 m, depth extends 150 m.

Geotech Ltd.

September 2010

APPENDIX E

EM TIME CONSTANT (TAU) ANALYSIS

Estimation of time constant parameter¹ in transient electromagnetic method is one of the steps toward the extraction of the information about conductance 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,

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

Where,

$\tau = L/R$ 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 time¹ (Fig. E1).

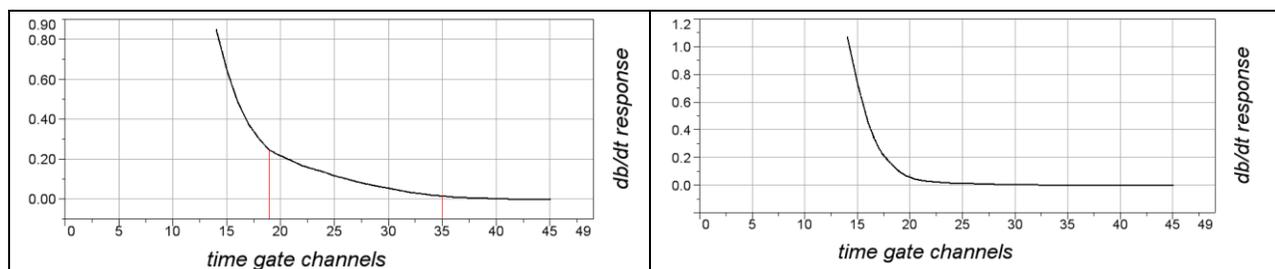


Figure E-1: Left – presence of good conductor, right – poor conductor.

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.

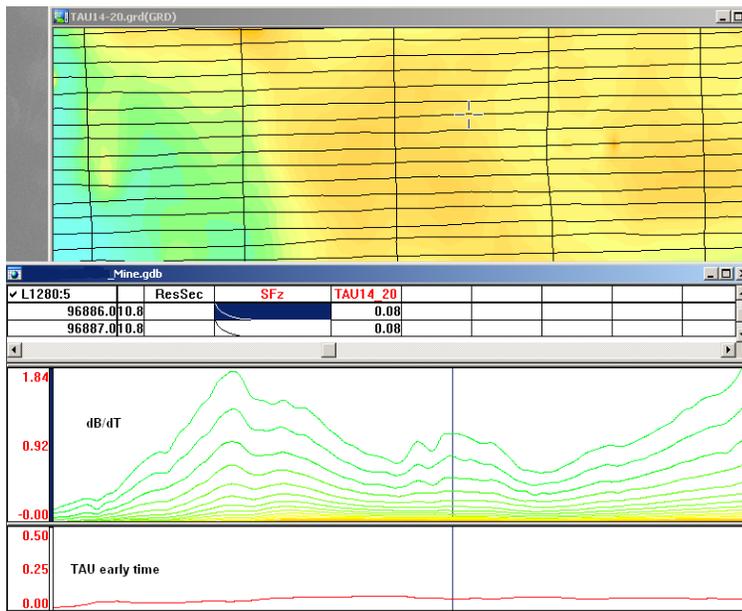


Figure E-2: Map of early time TAU. Area with overburden conductive layer and local sources.

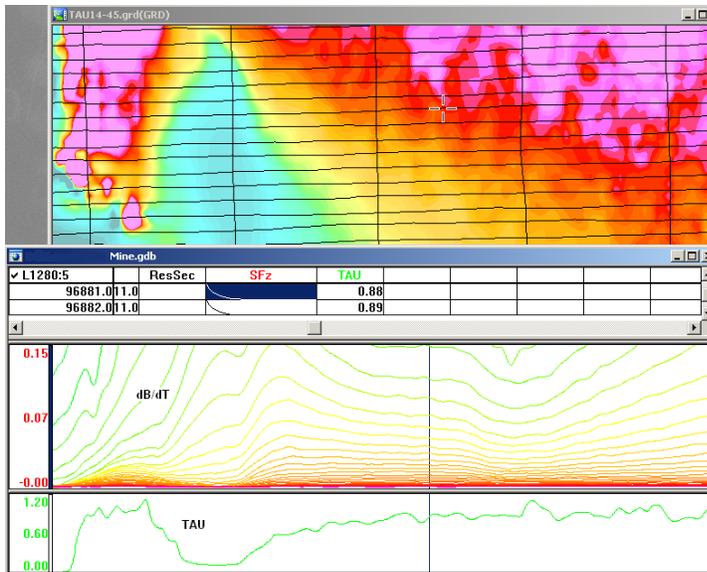


Figure E-3: Map of full time range TAU with EM anomaly due to deep highly conductive target.

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.

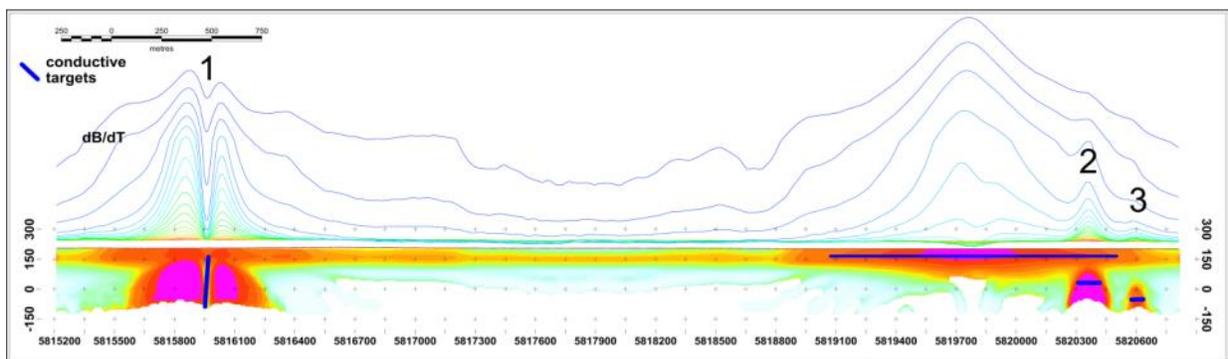


Figure E-4: dB/dt profile and RDI with different depths of targets.

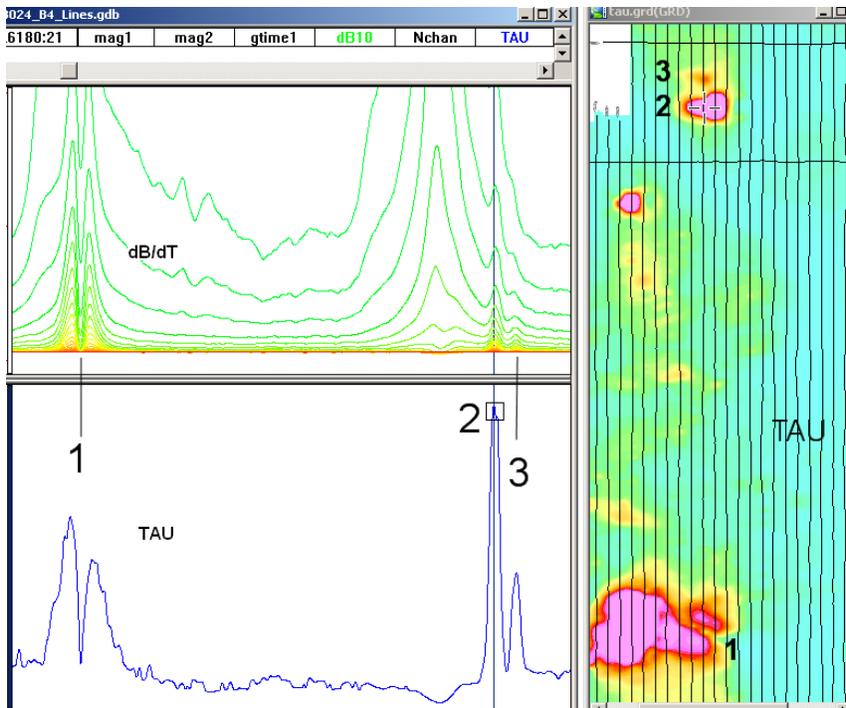


Figure E-5: Map of total TAU and dB/dt profile.

The EM Time Constants for dB/dt and B-field were calculated using the “sliding Tau” in-house program developed at Geotech. 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.

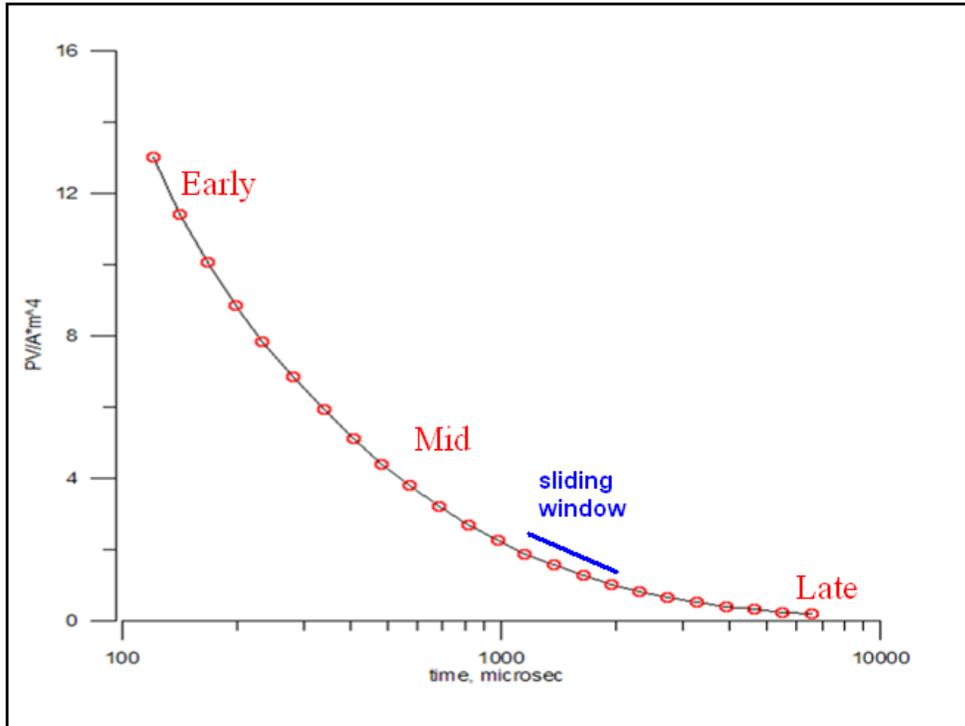


Figure E-6: Schematic VTEM dBz/dt decay showing Geotech Sliding Tau method of calculation.

Geotech Ltd.

September 2010

APPENDIX F

TEM RESISTIVITY DEPTH IMAGING (RDI)

Resistivity depth imaging (RDI) is a technique used to rapidly convert EM profile decay data into an equivalent resistivity versus depth cross-section, by deconvolving the measured TEM data. The RDI algorithm for Resistivity-Depth Imaging is based on the apparent resistivity transform by Meju (1998)¹ for the TEM response in a conductive half-space. The program was developed by Geotech Ltd. and depth calibrated based on forward plate modeling for the VTEM system configuration (Fig. 1-10).

RDI provides 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 the basis of the RDI.

Maxwell 3D EM plate forward modeling with RDI sections from the synthetic responses (VTEM system) are presented below.

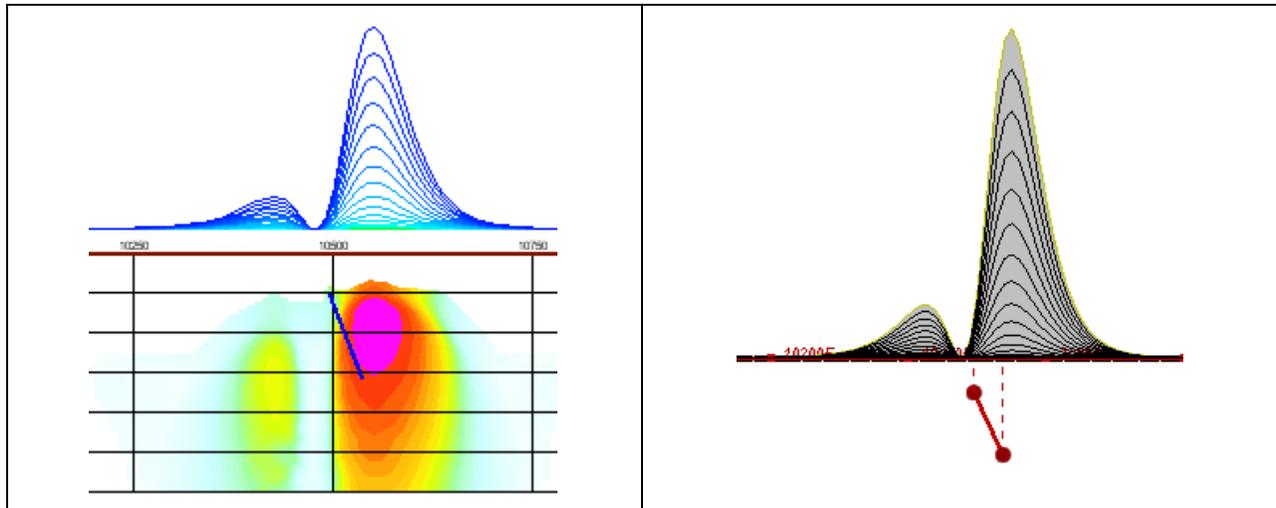


Figure F-1: Maxwell plate model and RDI from the calculated response for a conductive “thin” plate (depth 50 m, dip 65 degree, depth extent 100 m).

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

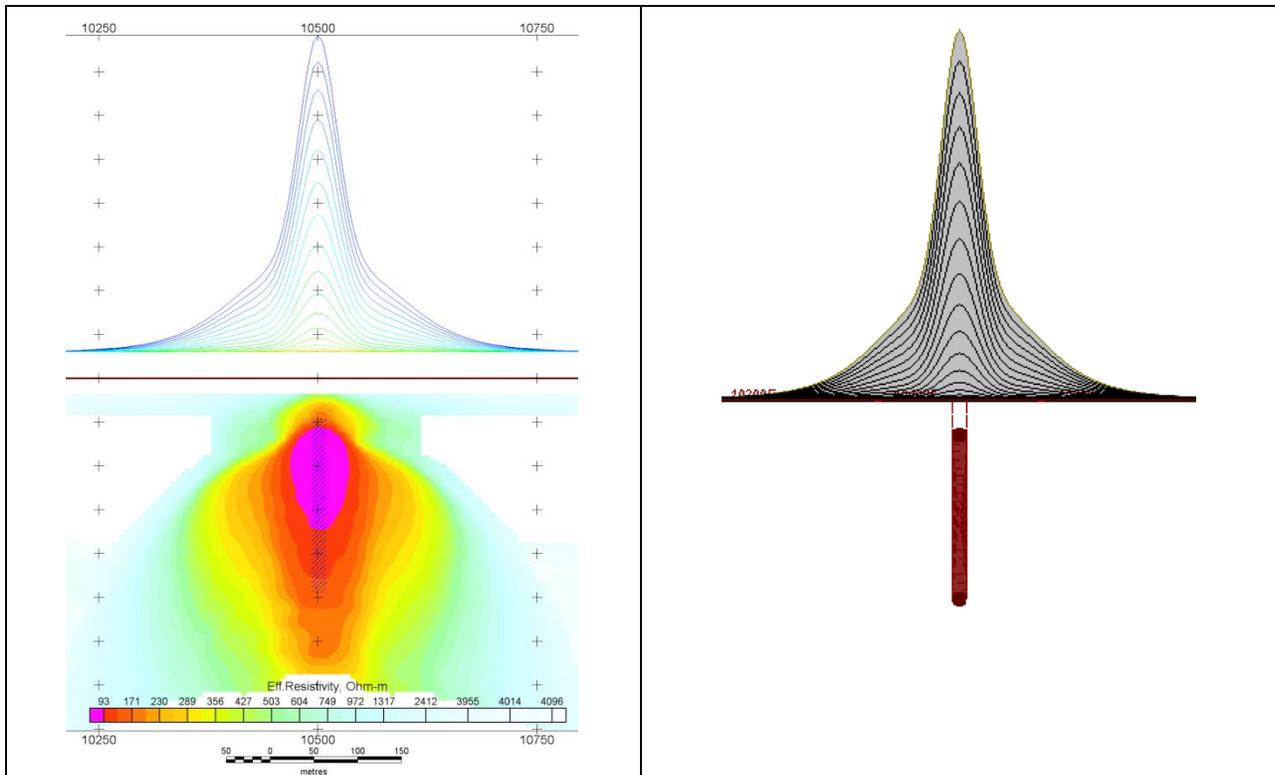


Figure F-2: Maxwell plate model and RDI from the calculated response for "thick" plate 18 m thickness, depth 50 m, depth extent 200 m).

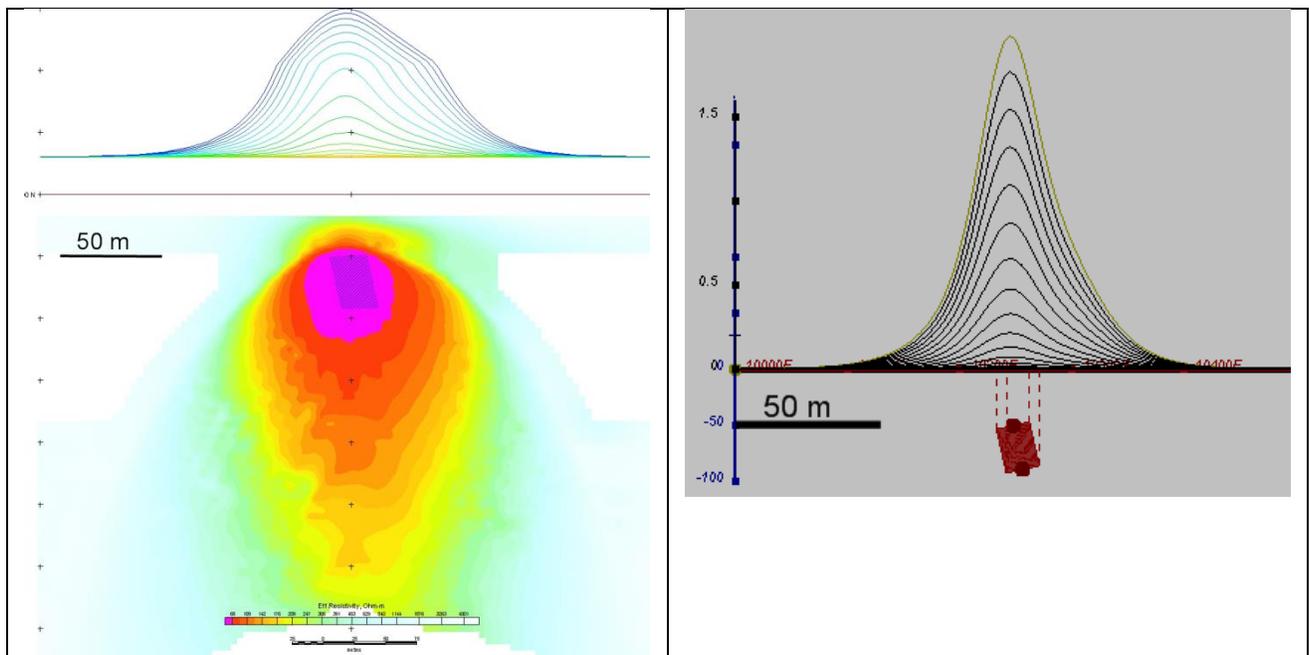


Figure F-3: Maxwell plate model and RDI from the calculated response for bulk ("thick") 100 m length, 40 m depth extent, 30 m thickness.

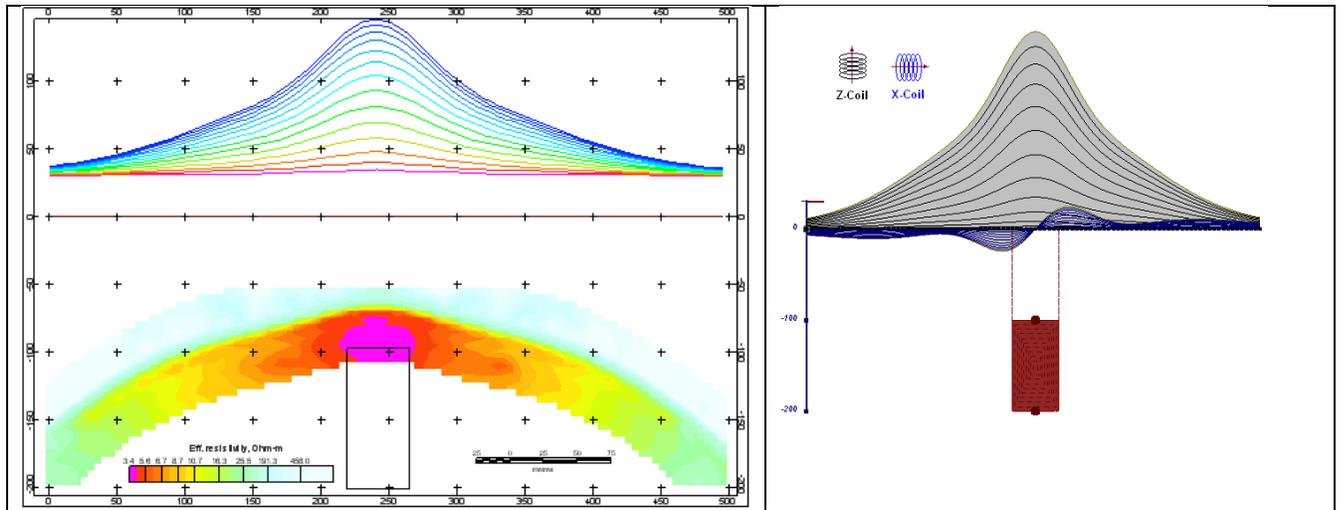


Figure F-4: Maxwell plate model and RDI from the calculated response for "thick" vertical target (depth 100 m, depth extent 100 m). 19-44 chan.

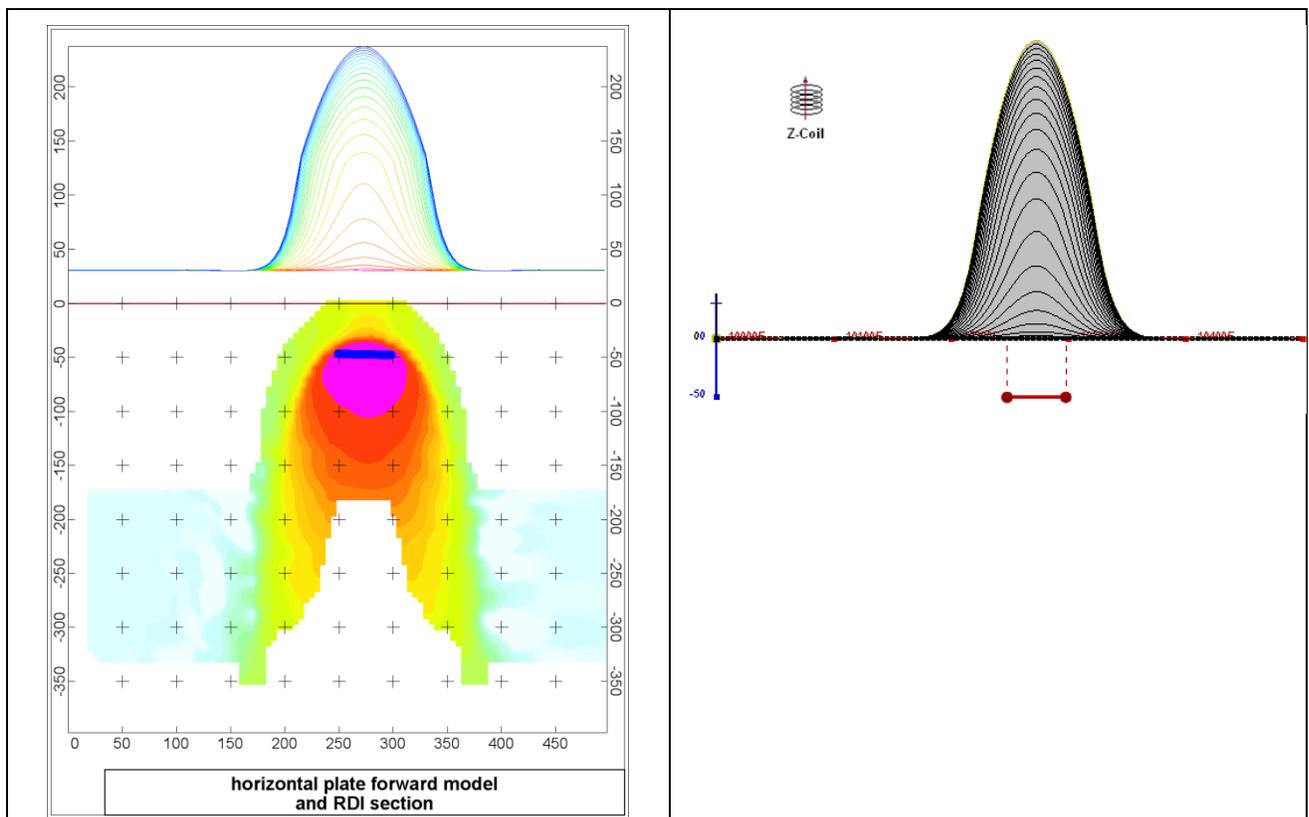


Figure F-5: Maxwell plate model and RDI from the calculated response for horizontal thin plate (depth 50 m, dim 50x100 m). 15-44 chan.

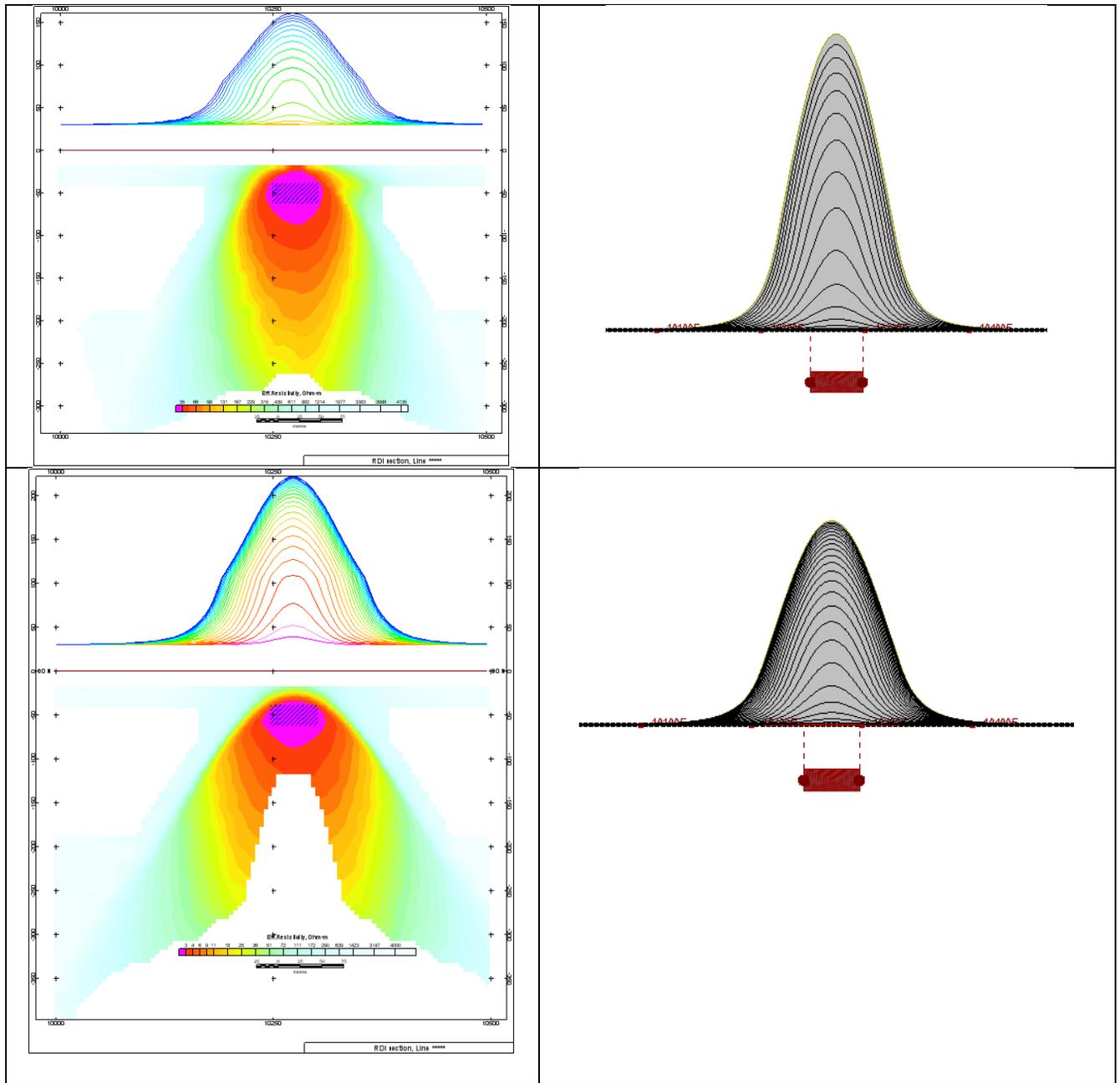


Figure F-6: Maxwell plate model and RDI from the calculated response for horizontal thick (20m) plate – less conductive (on the top), more conductive (below).

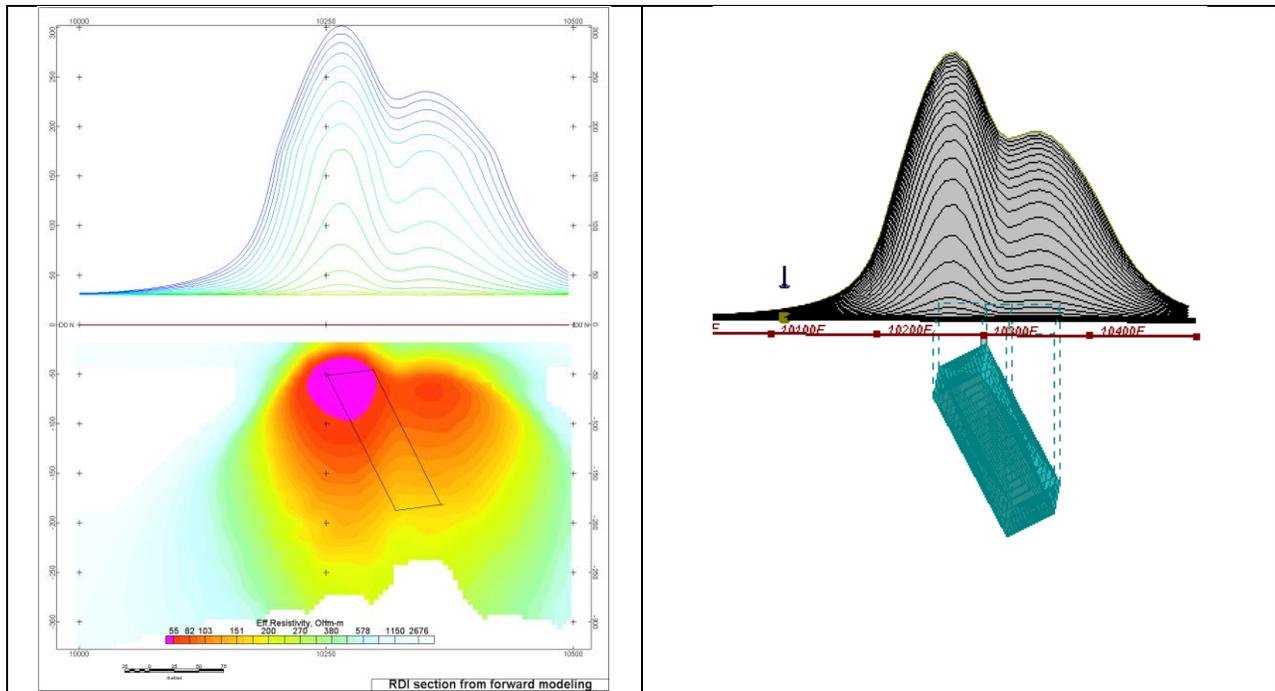


Figure F-7: Maxwell plate model and RDI from the calculated response for inclined thick (50m) plate. Depth extends 150 m, depth to the target 50 m.

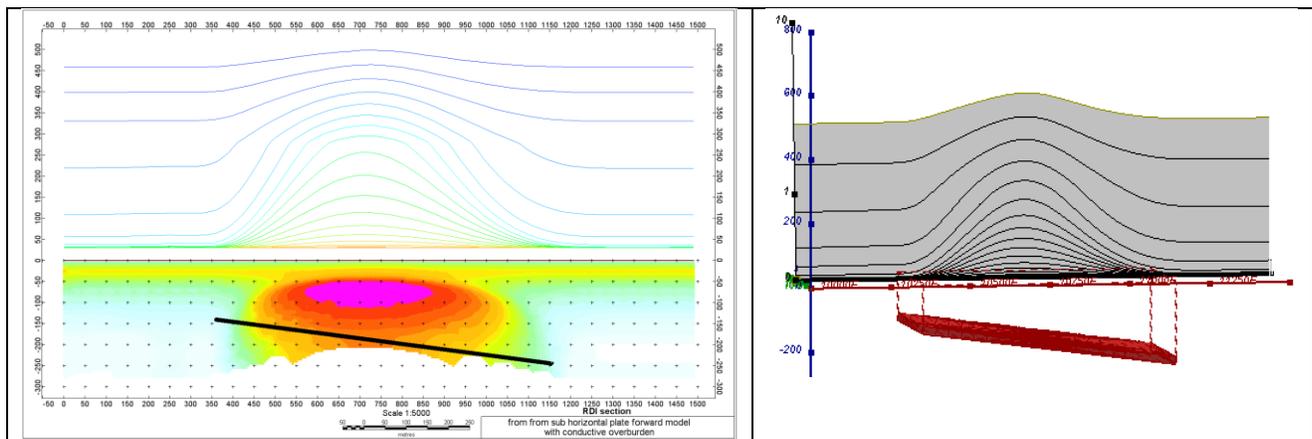


Figure F-8: Maxwell plate model and RDI from the calculated response for the long, wide and deep subhorizontal plate (depth 140 m, dim 25x500x800 m) with conductive overburden.

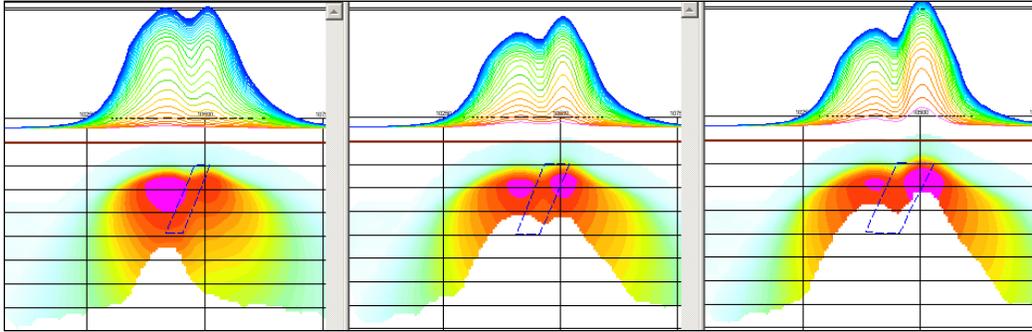


Figure F-9: Maxwell plate models and RDIs from the calculated response for "thick" dipping plates (35, 50, 75 m thickness), depth 50 m, conductivity 2.5 S/m.

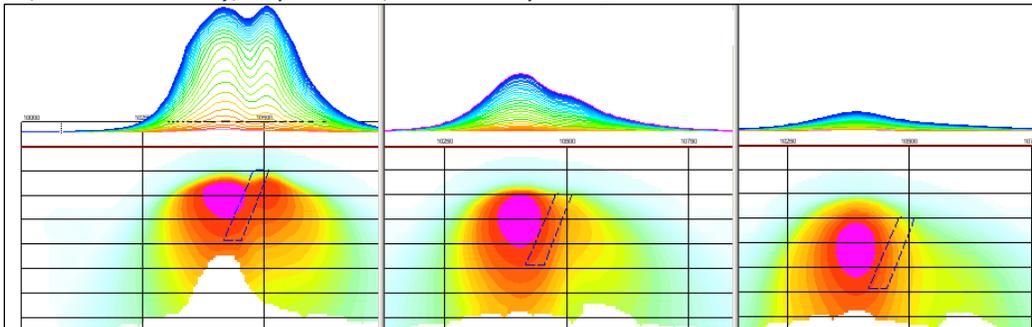


Figure F-10: Maxwell plate models and RDIs from the calculated response for "thick" (35 m thickness) dipping plate on different depth (50, 100, 150 m), conductivity 2.5 S/m.

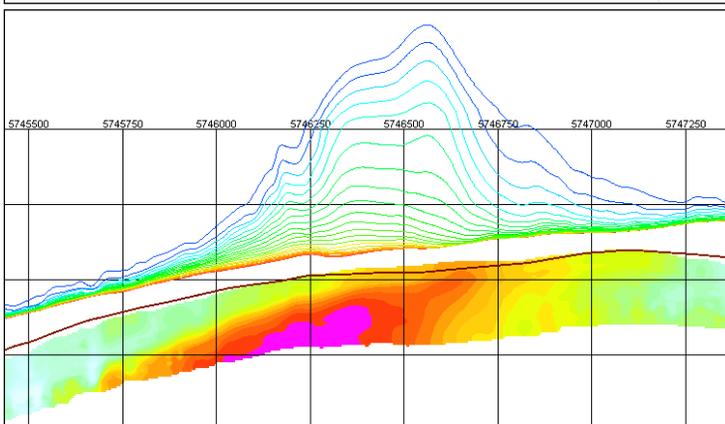
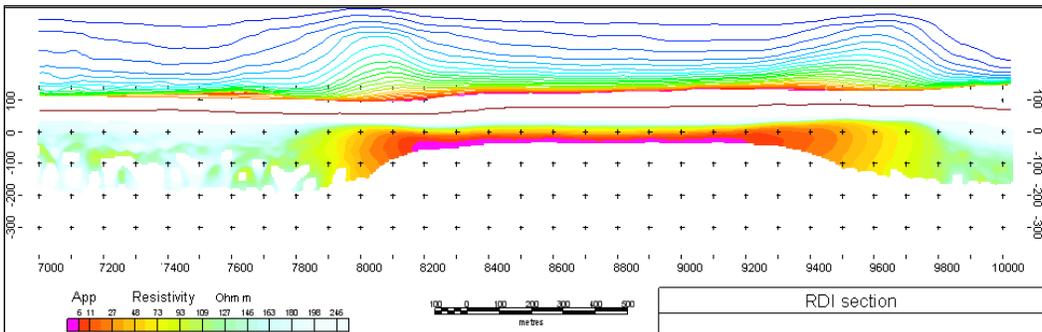
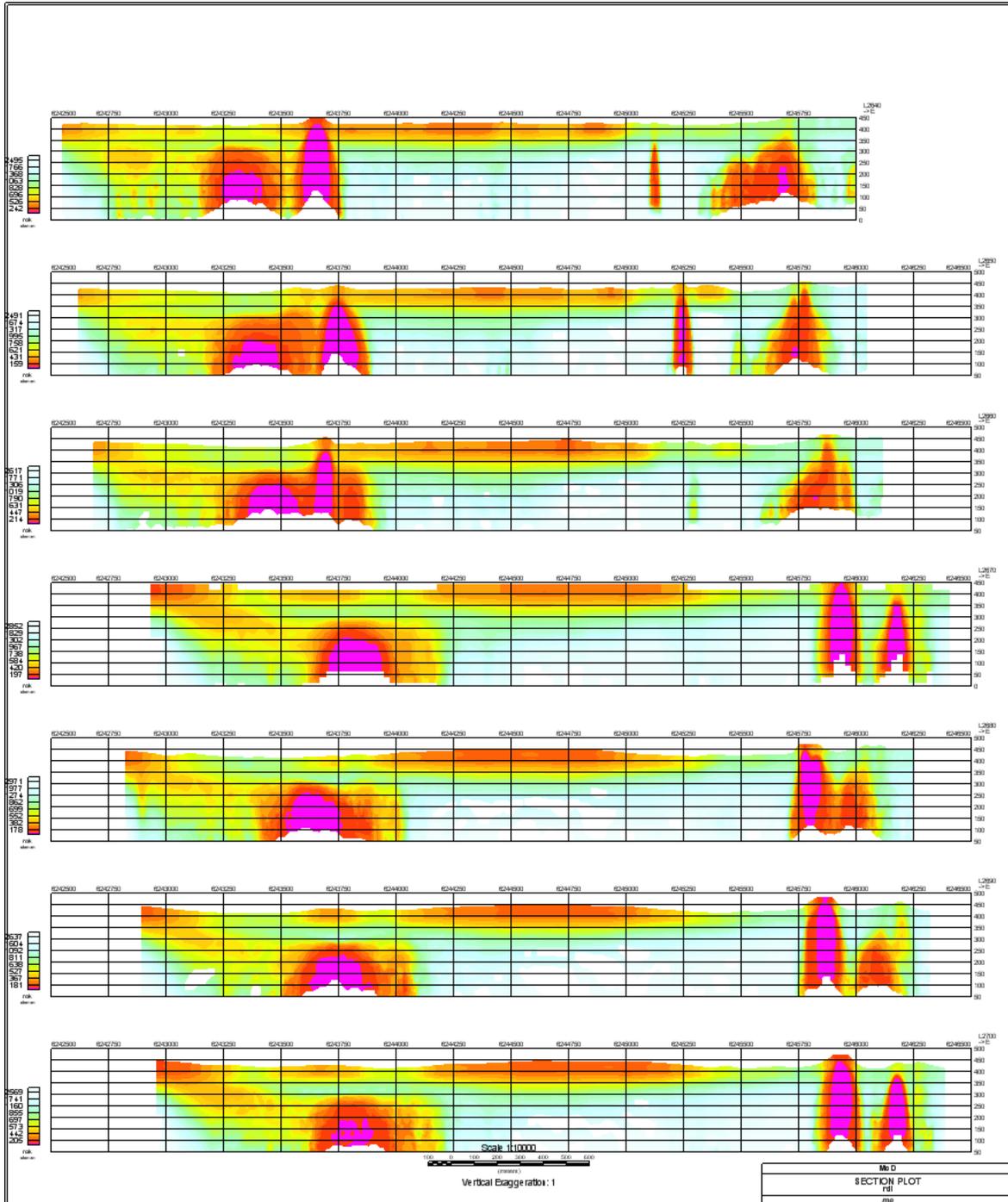


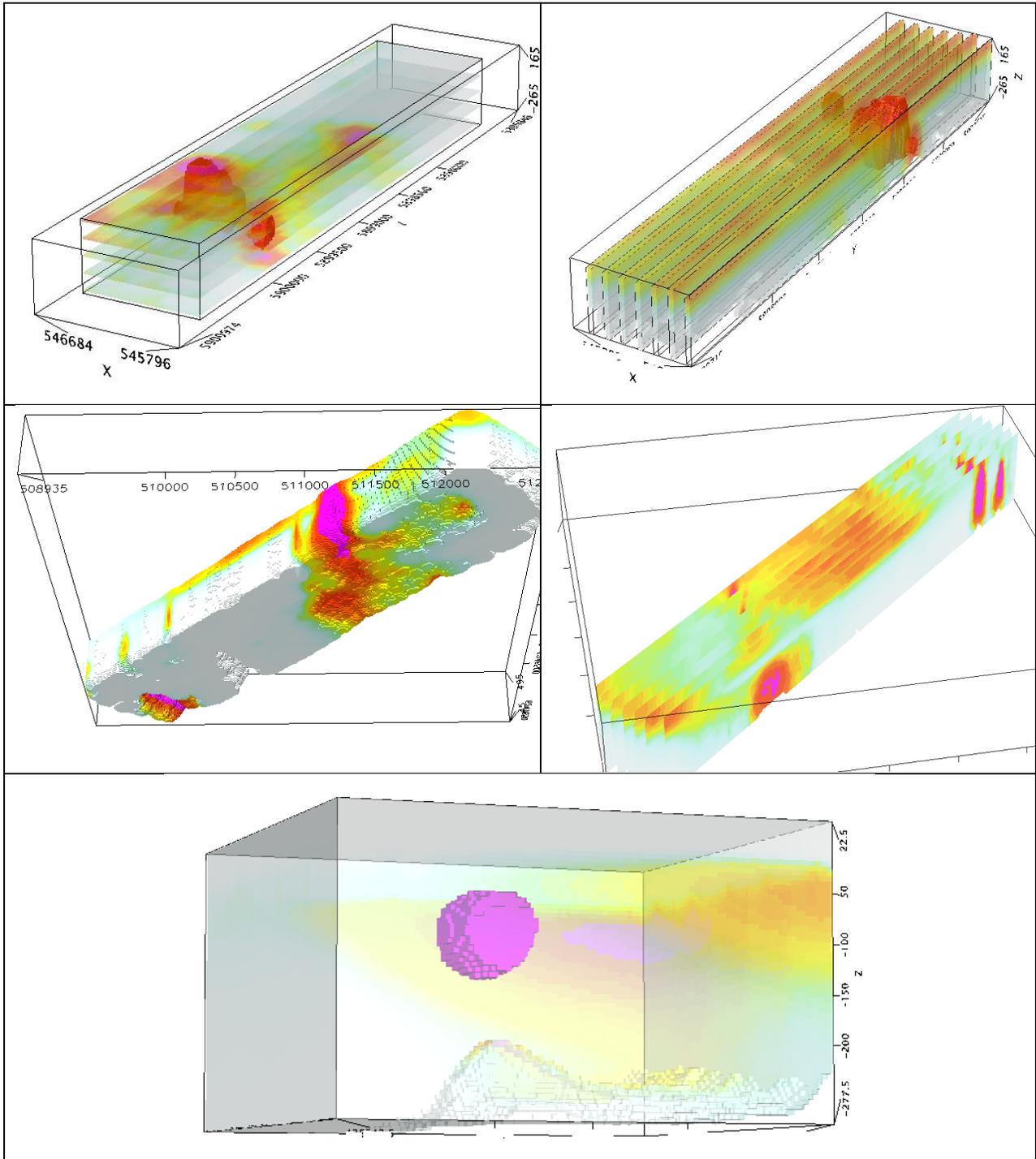
Figure F-11: RDI section for the real horizontal and slightly dipping conductive layers.

FORMS OF RDI PRESENTATION

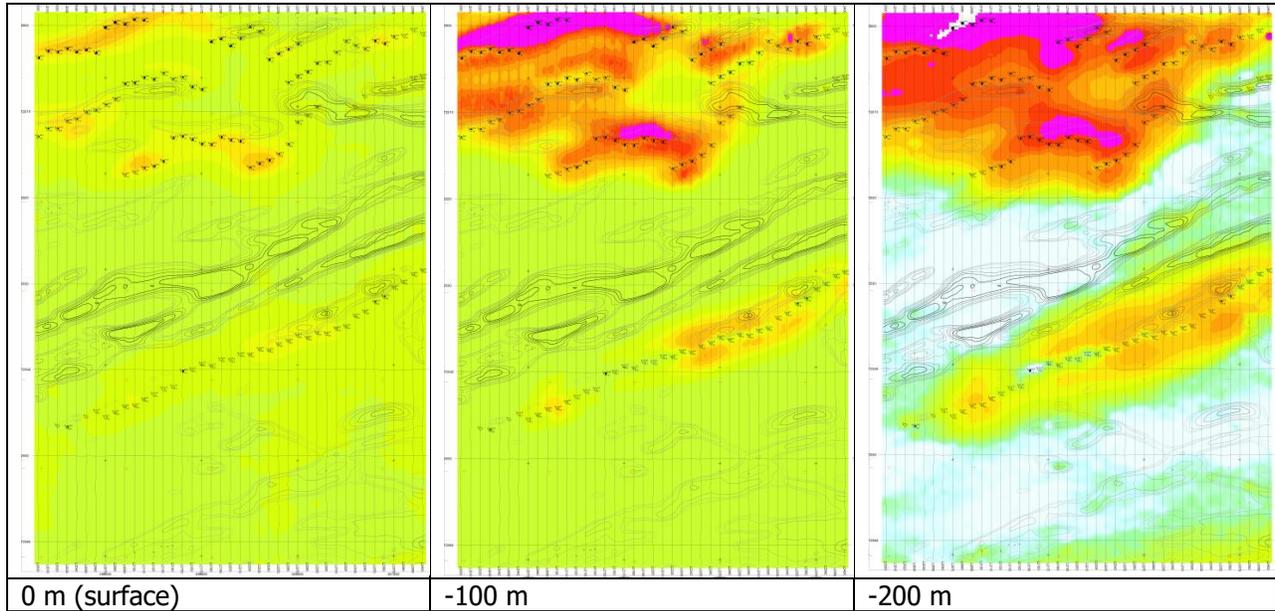
PRESENTATION OF SERIES OF LINES



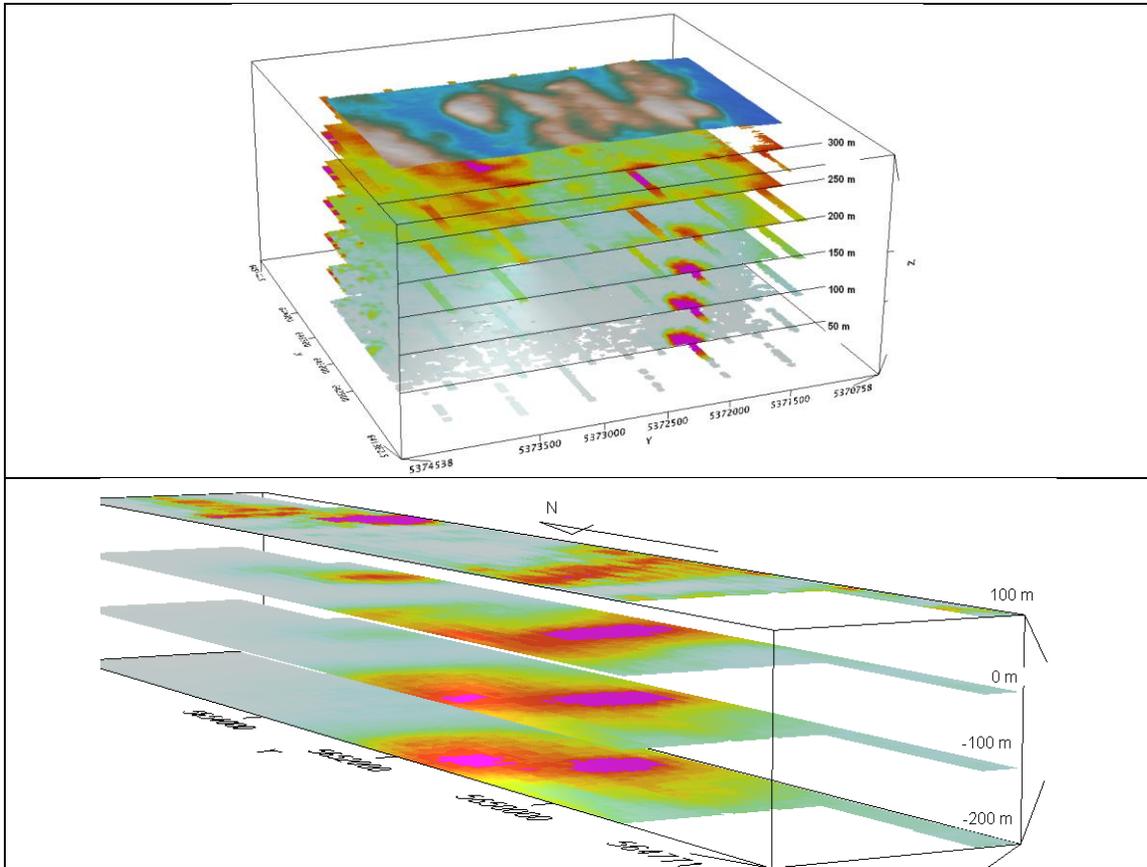
3D PRESENTATION OF RDIS



APPARENT RESISTIVITY DEPTH SLICES PLANS:

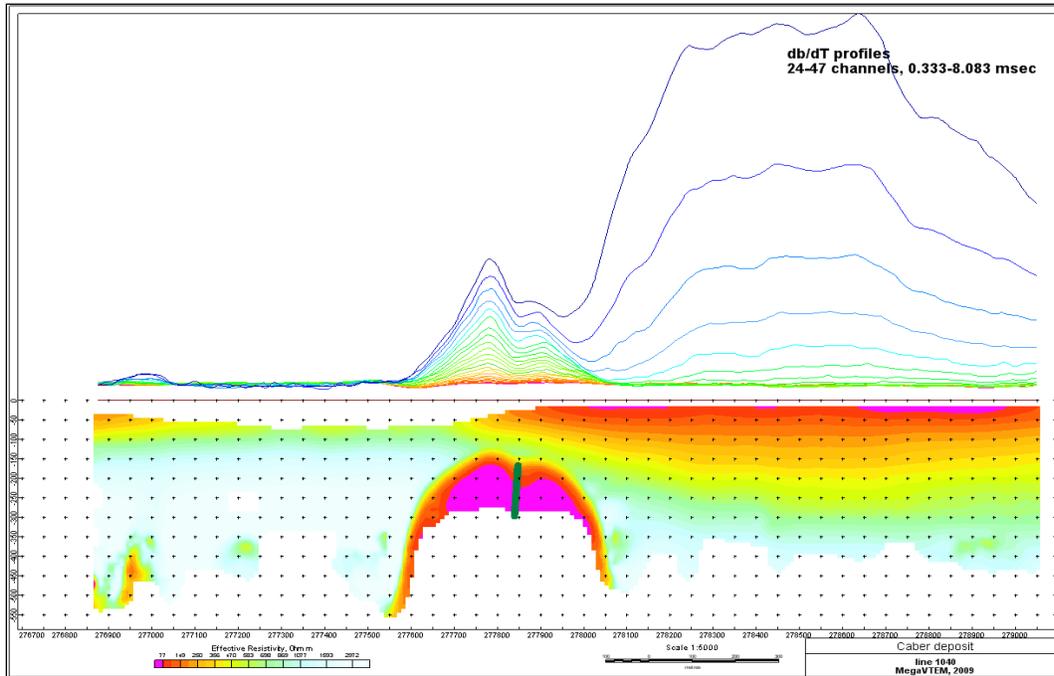


3D VIEWS OF APPARENT RESISTIVITY DEPTH SLICES:

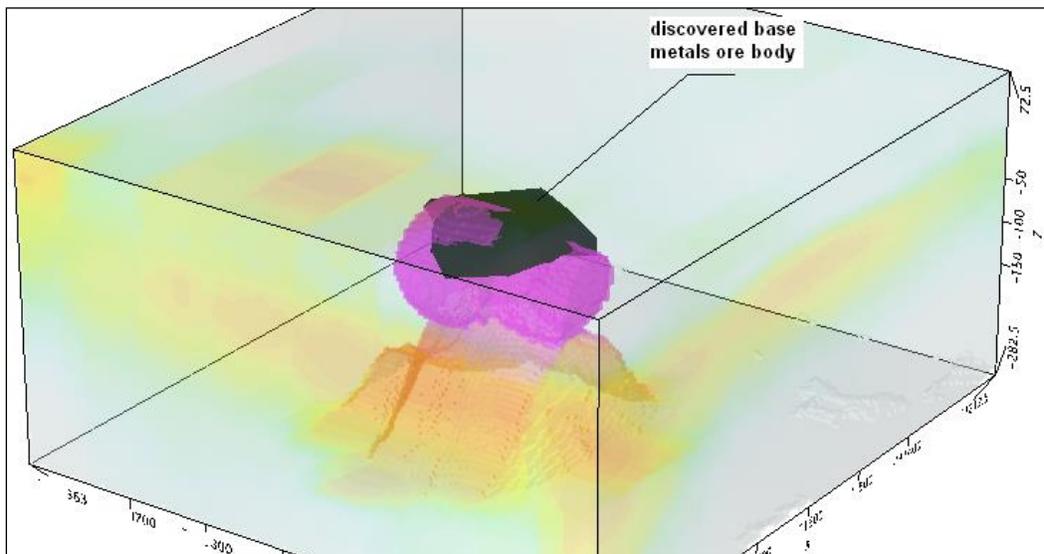


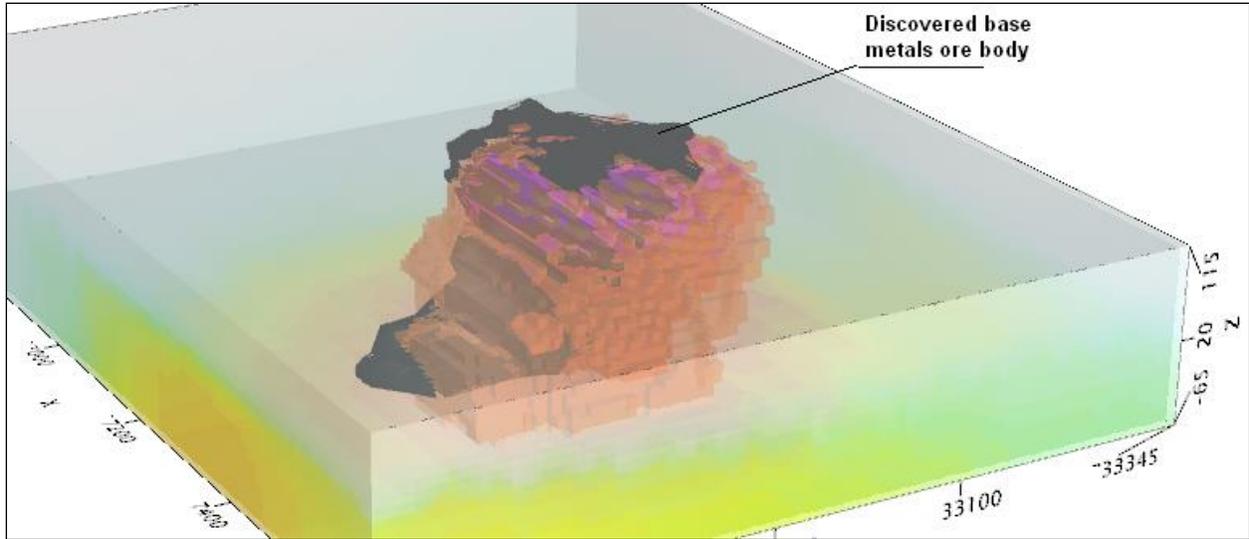
REAL BASE METAL TARGETS IN COMPARISON WITH RDIS:

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):





Geotech Ltd.
April 2011

APPENDIX G
RESISTIVITY DEPTH IMAGES (RDI)
Please see RDI Folder on DVD for the PDF's



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 Account: CANURA

CERTIFICATE VA22341440

Project: EB80002393
 P.O. No.: 3105026774
 This report is for 14 samples of Rock submitted to our lab in Vancouver, BC, Canada on 26-NOV-2022.
 The following have access to data associated with this certificate:

SARTX ACQUIRESERVICE DAVID EICHENBERG CURTIS OVERHOLT	RTXAMRNA ASSAY RESULTS EVAN GLADNEY	SUE DRIEBERG SEAN OBRIEN
---	--	-----------------------------

SAMPLE PREPARATION	
ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
BAG-01	Bulk Master for Storage
CRU-QC	Crushing QC Test
PUL-QC	Pulverizing QC Test
LOG-21	Sample logging – ClientBarCode
CRU-31	Fine crushing – 70% <2mm
WSH-21	"Wash" crushers
SPL-22	Split sample – rotary splitter
PUL-32	Pulverize 1000g to 85% < 75 um
WSH-22	"Wash" pulverizers
SPL-21X	Addnl Crush Split w No Analysis
SPL-34X	Pulp Split – For send out

ANALYTICAL PROCEDURES		
ALS CODE	DESCRIPTION	INSTRUMENT
TOT-ICP06	Total Calculation for ICP06	
OA-GRA05	Loss on Ignition at 1000C	WST-SEQ
C-IR07	Total Carbon (IR Spectroscopy)	LECO
S-IR08	Total Sulphur (IR Spectroscopy)	LECO
ME-MS81	Lithium Borate Fusion ICP-MS	ICP-MS
ME-MS42L	Super Trace AR/ICPMS Selected Analytes	ICP-MS
ME-MS61L	Super Trace Lowest DL 4A by ICP-MS	
PGM-MS23L	Low level PGM – FA ICPMS	ICP-MS
P-ICPDil	Overlimit P by Dilution	ICP-AES
Ti-ICPDil	Overlimit Ti by Dilution	ICP-AES
ME-ICP06	Whole Rock Package – ICP-AES	ICP-AES

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.
 ***** See Appendix Page for comments regarding this certificate *****

Signature: 
 Saa Traxler, Director, North Vancouver Operations



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Project: EB80002393

CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg	ME-ICP06 SiO2 %	ME-ICP06 Al2O3 %	ME-ICP06 Fe2O3 %	ME-ICP06 CaO %	ME-ICP06 MgO %	ME-ICP06 Na2O %	ME-ICP06 K2O %	ME-ICP06 Cr2O3 %	ME-ICP06 TiO2 %	ME-ICP06 MnO %	ME-ICP06 P2O5 %	ME-ICP06 SrO %	ME-ICP06 BaO %	OA-GRA05 LOI %
40483100		1.87	59.7	14.15	8.67	4.25	1.54	3.58	3.99	<0.002	1.38	0.18	1.14	0.07	0.32	0.79
40483101		1.12	61.6	16.25	5.45	2.63	1.10	4.56	4.07	0.002	0.86	0.09	0.36	0.07	0.25	1.14
40483102		4.81	0.60	1.56	65.1	0.02	1.94	<0.01	0.01	0.263	32.4	0.16	0.01	<0.01	<0.01	-2.09
40483103		1.33	47.9	15.25	13.70	8.89	3.09	3.84	1.90	<0.002	2.59	0.31	2.69	0.10	0.24	1.48
40483104		1.13	55.0	26.7	0.84	9.49	0.09	5.34	0.86	<0.002	0.13	0.01	0.04	0.16	0.06	1.10
40483105		1.63	34.8	13.60	29.6	5.34	4.06	2.55	0.49	<0.002	7.45	0.23	0.66	0.08	0.06	0.79
40483106		0.80	43.6	9.28	16.15	12.25	16.30	1.08	0.08	0.070	0.68	0.25	0.01	0.12	0.01	1.29
40483107		2.27	58.6	15.80	7.49	4.17	2.38	3.91	4.50	<0.002	1.74	0.10	1.02	0.10	0.21	1.04
40483108		0.42	42.5	14.05	19.25	8.96	11.45	1.59	0.46	0.018	2.26	0.26	0.14	0.05	0.04	0.71
40483109		0.93	50.0	15.30	7.40	12.20	11.10	1.72	0.68	0.030	0.37	0.13	0.11	0.07	0.03	1.63
40483140		1.76	48.2	16.10	7.03	13.20	11.45	1.56	0.57	0.037	0.32	0.13	0.09	0.08	0.02	1.47
40483141		1.44	65.5	15.55	3.98	3.29	0.93	3.71	4.77	<0.002	0.68	0.10	0.67	0.07	0.36	0.32
40483142		1.74	56.7	18.10	6.21	5.60	1.21	4.67	3.94	<0.002	1.14	0.20	1.15	0.11	0.47	0.13
40483143		1.96	41.2	14.25	16.50	8.23	14.30	1.72	0.34	0.012	1.32	0.22	0.04	0.04	0.02	0.14

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CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	TOT-ICP06	C-IR07	S-IR08	ME-MS81											
		Total %	C %	S %	Ba ppm	Ce ppm	Cr ppm	Cs ppm	Dy ppm	Er ppm	Eu ppm	Ga ppm	Gd ppm	Hf ppm	Ho ppm	La ppm
		0.01	0.01	0.01	0.5	0.1	5	0.01	0.05	0.03	0.02	0.1	0.05	0.05	0.01	0.1
40483100		99.76	0.06	0.02	3070	292	6	0.83	19.40	8.60	8.25	31.9	27.7	38.3	3.39	132.0
40483101		98.43	0.09	0.02	2420	230	14	1.15	7.82	3.52	3.57	30.1	10.80	18.10	1.38	120.0
40483102		99.97	0.04	0.09	9.3	1.0	1860	<0.01	0.09	0.08	<0.02	21.6	0.08	9.60	0.02	0.6
40483103		101.98	0.07	0.04	2220	346	6	0.11	24.4	11.00	9.58	27.7	34.1	42.7	4.47	160.5
40483104		99.82	0.05	0.01	513	6.8	6	0.10	0.14	0.07	0.72	19.7	0.30	0.66	0.03	4.2
40483105		99.71	0.08	0.09	521	33.0	10	0.09	2.32	1.06	1.64	30.7	3.37	5.42	0.43	15.8
40483106		101.17	0.10	0.01	123.5	7.6	477	0.20	1.62	0.82	0.74	13.1	2.19	0.42	0.33	2.6
40483107		101.06	0.03	0.02	1930	223	8	2.05	8.19	3.54	3.41	27.8	11.55	13.25	1.40	117.5
40483108		101.74	0.04	0.07	351	18.2	131	0.12	4.54	2.47	1.45	18.6	4.64	1.76	0.89	7.4
40483109		100.77	0.05	0.02	275	21.1	207	0.62	1.96	1.10	0.73	12.4	2.31	1.26	0.38	9.8
40483140		100.26	0.05	0.03	182.0	15.5	260	0.73	1.78	0.89	0.66	11.4	1.93	0.93	0.33	6.9
40483141		99.93	0.09	0.01	3460	218	9	0.82	12.85	6.22	5.00	22.6	16.55	24.2	2.41	105.0
40483142		99.63	0.04	0.04	4390	378	6	0.11	22.7	10.10	11.65	33.2	32.7	44.1	4.08	182.0
40483143		98.33	0.07	0.06	143.0	9.7	85	0.07	3.17	1.82	1.18	16.2	3.27	1.24	0.63	2.8

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CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	ME-MS81														
		Lu ppm	Nb ppm	Nd ppm	Pr ppm	Rb ppm	Sm ppm	Sn ppm	Sr ppm	Ta ppm	Tb ppm	Th ppm	Tm ppm	U ppm	V ppm	W ppm
		0.01	0.05	0.1	0.02	0.2	0.03	0.5	0.1	0.1	0.01	0.05	0.01	0.05	5	0.5
40483100		0.96	42.6	171.0	37.5	110.0	35.8	3.9	603	2.0	3.77	5.77	1.14	1.41	45	<0.5
40483101		0.42	31.8	97.6	26.2	117.0	16.15	3.0	629	1.7	1.50	13.60	0.47	1.84	44	<0.5
40483102		0.02	20.3	0.4	0.12	0.4	0.10	5.1	1.3	1.1	0.01	0.09	0.02	0.18	2260	<0.5
40483103		1.20	32.3	213	47.1	19.6	43.0	3.8	861	1.3	4.60	2.09	1.42	0.67	85	<0.5
40483104		0.01	0.15	3.0	0.80	6.1	0.45	<0.5	1405	<0.1	0.03	0.22	0.01	0.09	7	<0.5
40483105		0.14	15.25	20.5	4.57	2.7	4.18	2.8	629	0.8	0.44	0.42	0.15	0.14	639	<0.5
40483106		0.10	0.14	8.0	1.44	1.9	2.25	<0.5	921	<0.1	0.30	<0.05	0.11	<0.05	340	<0.5
40483107		0.42	35.5	96.5	25.6	135.5	16.65	2.6	795	1.9	1.54	11.45	0.48	3.64	96	0.9
40483108		0.29	2.56	15.0	2.92	5.9	4.25	0.6	390	0.1	0.74	0.63	0.34	0.22	349	<0.5
40483109		0.16	1.98	12.5	2.84	20.4	2.51	<0.5	610	<0.1	0.36	1.17	0.14	0.36	124	<0.5
40483140		0.13	1.28	9.8	2.18	19.6	2.17	<0.5	629	<0.1	0.29	0.56	0.13	0.21	114	0.9
40483141		0.64	17.45	109.5	27.0	113.5	21.2	2.8	621	0.7	2.38	4.20	0.77	1.15	12	<0.5
40483142		1.07	30.3	216	49.5	49.5	41.9	3.3	911	1.1	4.41	2.26	1.28	0.65	20	<0.5
40483143		0.24	2.56	10.3	1.84	4.5	2.97	<0.5	365	0.1	0.52	<0.05	0.26	<0.05	184	<0.5

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CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	ME-MS81	ME-MS81	ME-MS81	ME-MS42L	ME-MS61L	ME-MS61L	ME-MS61L								
		Y	Yb	Zr	As	Bi	Hg	In	Re	Sb	Se	Te	Tl	Ag	Al	As
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
		0.1	0.03	1	0.01	0.0005	0.004	0.005	0.0002	0.005	0.003	0.003	0.001	0.002	0.01	0.02
40483100		87.6	6.72	1765	0.80	0.0270	<0.004	0.086	0.0007	0.047	0.029	0.011	0.136	0.015	7.71	1.24
40483101		36.4	2.89	802	0.68	0.0108	<0.004	0.044	0.0003	0.041	0.029	0.003	0.195	0.017	8.49	1.01
40483102		0.5	0.15	367	0.04	0.0119	<0.004	0.020	0.0007	0.009	0.008	<0.003	0.004	0.075	0.64	0.19
40483103		115.0	8.30	2140	0.41	0.0091	<0.004	0.077	0.0010	0.028	0.039	0.009	0.079	0.027	8.08	0.52
40483104		0.8	0.05	34	0.29	0.0015	<0.004	<0.005	<0.0002	0.018	<0.003	<0.003	0.006	0.010	10.45	0.41
40483105		10.9	0.89	221	0.13	0.0058	<0.004	0.025	0.0002	0.016	0.119	0.005	0.019	0.021	7.27	0.43
40483106		7.9	0.68	10	0.52	0.0039	<0.004	0.013	<0.0002	0.013	0.006	<0.003	0.010	0.014	4.86	0.30
40483107		36.8	2.97	571	0.60	0.0421	<0.004	0.029	0.0003	0.029	0.030	<0.003	0.290	0.008	8.35	0.77
40483108		22.3	1.98	46	0.33	0.0041	<0.004	0.025	0.0005	0.018	0.088	<0.003	0.011	0.015	7.49	0.36
40483109		10.2	1.00	46	0.15	0.0042	<0.004	<0.005	<0.0002	0.009	0.061	0.007	0.057	0.014	8.18	0.26
40483140		8.8	0.79	34	0.27	0.0104	<0.004	<0.005	<0.0002	0.015	0.072	0.008	0.047	0.031	8.61	0.39
40483141		62.7	4.40	1120	0.34	0.0166	<0.004	0.033	0.0004	0.025	0.016	<0.003	0.039	0.013	8.26	0.60
40483142		104.5	7.51	2070	0.42	0.0054	<0.004	0.052	0.0007	0.017	0.020	0.006	0.033	0.020	9.40	0.66
40483143		16.6	1.62	30	0.14	0.0037	<0.004	0.015	0.0003	0.010	0.071	0.004	0.021	0.020	7.27	0.23

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Project: EB80002393

CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	ME-MS61L														
		Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe %	Ga ppm	Ge ppm	Hf ppm	In ppm
		1	0.02	0.002	0.01	0.005	0.01	0.005	0.3	0.01	0.02	0.002	0.05	0.05	0.004	0.005
40483100		2920	3.63	0.037	3.10	0.198	288	7.86	9.2	0.81	2.58	6.13	35.3	0.57	1.615	0.180
40483101		2230	4.16	0.014	1.95	0.074	211	7.67	11.0	1.09	4.82	4.00	32.4	0.39	4.94	0.066
40483102		7	0.05	0.019	0.01	<0.005	0.56	121.5	1295	0.01	25.4	38.6	22.5	0.28	2.48	0.135
40483103		2110	1.63	0.017	5.98	0.262	337	8.32	5.4	0.13	3.63	9.48	32.1	0.72	0.607	0.220
40483104		480	0.20	0.006	6.41	0.019	3.46	0.718	5.3	0.10	0.81	0.530	21.0	0.09	0.034	<0.005
40483105		530	0.54	0.008	3.64	0.063	33.4	37.0	7.8	0.05	40.8	21.5	32.7	0.25	1.340	0.113
40483106		122	0.11	0.009	8.30	0.095	7.35	74.9	304	0.18	7.18	11.70	14.15	0.13	0.416	0.059
40483107		1870	4.68	0.057	3.00	0.111	221	17.70	6.4	2.08	3.57	5.53	32.0	0.43	3.40	0.076
40483108		347	0.38	0.010	6.09	0.211	17.20	86.5	96.4	0.12	18.30	14.00	20.1	0.21	1.720	0.081
40483109		278	0.51	0.019	8.33	0.063	22.3	49.5	127.0	0.60	29.3	5.40	12.95	0.16	1.030	0.032
40483140		181	0.43	0.027	9.08	0.071	16.05	49.4	150.0	0.77	40.1	5.16	12.65	0.14	0.741	0.031
40483141		3190	2.11	0.023	2.42	0.084	212	3.18	7.9	0.92	2.04	2.93	25.7	0.42	1.545	0.091
40483142		4100	2.31	0.007	4.01	0.213	343	3.73	4.7	0.13	3.86	4.50	35.1	0.72	0.911	0.183
40483143		136	0.16	0.010	5.62	0.097	9.45	95.8	63.0	0.10	30.7	12.10	15.30	0.28	1.225	0.057

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CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	ME-MS61L														
		K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P %	Pb ppm	Rb ppm	Re ppm	S %	Sb ppm
		0.01	0.005	0.2	0.01	0.2	0.02	0.001	0.005	0.08	0.001	0.01	0.02	0.0004	0.01	0.02
40483100		3.44	114.0	13.1	0.85	1275	1.37	2.58	42.2	1.19	0.523	25.5	113.5	0.0010	0.01	0.07
40483101		3.34	100.5	8.3	0.62	652	0.72	3.28	23.4	3.53	0.161	23.7	113.5	0.0007	0.02	0.08
40483102		0.01	0.310	2.1	0.91	1060	0.27	0.005	20.4	379	0.001	0.68	0.27	0.0009	0.07	0.03
40483103		1.57	129.0	11.5	1.69	2110	0.78	2.66	21.9	1.15	>1.00	11.60	20.1	0.0013	0.03	0.03
40483104		0.67	1.565	4.2	0.03	78.8	0.15	3.87	0.133	0.87	0.013	2.44	3.02	<0.0004	<0.01	0.03
40483105		0.41	14.05	4.9	2.26	1650	0.67	1.885	16.35	29.5	0.292	2.76	2.96	0.0005	0.09	0.03
40483106		0.07	2.20	3.8	9.64	1795	0.13	0.795	0.177	155.5	0.008	0.89	1.91	<0.0004	<0.01	0.04
40483107		3.75	103.5	14.7	1.34	735	1.62	2.85	32.0	6.56	0.451	25.7	139.0	0.0005	0.01	0.07
40483108		0.39	6.27	4.6	6.66	1835	0.18	1.170	2.72	178.5	0.062	2.36	5.86	0.0008	0.07	0.06
40483109		0.57	8.93	9.4	6.56	958	0.15	1.260	2.11	153.0	0.054	2.69	21.0	0.0004	0.01	0.05
40483140		0.47	6.40	19.0	6.88	936	0.74	1.145	1.380	172.5	0.041	4.01	19.50	0.0006	0.03	0.06
40483141		4.03	90.2	12.0	0.51	723	0.51	2.78	17.20	1.10	0.300	23.1	112.5	0.0007	0.01	0.04
40483142		3.35	146.0	10.3	0.65	1505	0.65	3.43	29.9	0.89	0.520	20.8	47.0	0.0011	0.04	0.03
40483143		0.28	2.36	5.8	8.36	1555	0.09	1.285	2.80	292	0.016	1.16	4.22	0.0006	0.05	0.03

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CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	ME-MS61L														
		Sc ppm	Se ppm	Sn ppm	Sr ppm	Ta ppm	Te ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
		0.01	0.006	0.02	0.02	0.01	0.005	0.004	0.001	0.002	0.01	0.1	0.008	0.01	0.2	0.1
40483100		20.5	0.046	3.70	636	2.05	0.023	5.84	0.756	0.493	1.08	44.7	0.292	86.7	210	58.3
40483101		7.63	0.061	1.99	610	1.16	0.006	12.50	0.371	0.479	1.67	42.2	0.140	30.6	142.5	217
40483102		39.0	0.099	4.01	1.15	1.20	0.039	0.042	>10.0	0.004	0.10	1700	0.049	0.22	167.0	35.3
40483103		32.9	0.054	2.13	916	0.94	0.019	1.935	1.230	0.096	0.39	80.8	0.108	112.0	221	19.9
40483104		0.17	<0.006	0.05	1345	0.01	<0.005	0.096	0.068	0.028	0.03	3.7	0.054	0.37	8.8	1.3
40483105		18.45	0.225	2.57	706	0.86	0.015	0.364	4.74	0.018	0.09	586	0.097	11.20	211	22.7
40483106		54.6	0.015	0.43	1055	0.01	<0.005	0.028	0.399	0.012	0.01	322	0.030	7.75	94.6	9.2
40483107		9.78	0.068	2.28	861	1.65	0.005	10.45	0.992	0.581	3.66	96.6	0.672	36.8	146.0	132.0
40483108		32.4	0.154	0.57	419	0.15	0.006	0.589	1.335	0.025	0.20	314	0.035	21.9	186.0	47.5
40483109		32.8	0.055	0.37	665	0.11	0.008	1.125	0.227	0.072	0.33	117.0	0.116	10.40	54.8	33.1
40483140		33.1	0.081	0.32	687	0.06	0.016	0.554	0.197	0.099	0.20	109.5	0.594	8.96	55.7	22.3
40483141		13.20	0.032	2.38	625	0.75	<0.005	3.91	0.384	0.520	0.92	11.9	0.143	59.6	85.7	61.9
40483142		20.2	0.089	3.01	928	1.10	0.012	1.925	0.670	0.193	0.38	16.0	0.059	94.3	174.5	31.4
40483143		20.1	0.107	0.19	392	0.13	0.008	0.008	0.776	0.031	<0.01	169.0	0.054	16.45	109.0	30.6

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CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	ME-MS61L	ME-MS61L	ME-MS61L	PGM-MS23L	PGM-MS23L	PGM-MS23L	P-ICPDII	Ti-ICPDII
		Au ppm	Pt ppm	Pd ppm	Au ppb	Pt ppb	Pd ppb	P %	Ti %
		0.0004	0.004	0.002	1	0.1	0.2	0.005	0.005
40483100		0.0013	<0.004	<0.002	<1	<0.1	<0.2		
40483101		0.0069	0.005	<0.002	<1	<0.1	<0.2		
40483102		0.0033	0.004	<0.002	1	0.2	<0.2		17.30
40483103		<0.0004	0.004	<0.002	<1	0.7	1.1	1.090	
40483104		<0.0004	<0.004	<0.002	<1	0.8	<0.2		
40483105		0.0015	0.006	<0.002	1	9.0	4.8		
40483106		0.0025	0.011	<0.002	2	19.5	14.8		
40483107		0.0026	<0.004	<0.002	1	4.1	1.5		
40483108		0.0029	0.006	<0.002	1	0.6	1.0		
40483109		0.0021	0.012	0.008	<1	10.1	17.6		
40483140		0.0023	0.006	<0.002	1	10.6	17.9		
40483141		0.0013	0.005	<0.002	1	1.3	1.6		
40483142		0.0005	<0.004	<0.002	<1	0.1	<0.2		
40483143		0.0020	0.004	<0.002	<1	0.3	0.3		

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CERTIFICATE OF ANALYSIS VA22341440

	CERTIFICATE COMMENTS																								
Applies to Method:	<p style="text-align: center;">ANALYTICAL COMMENTS</p> <p>Au, Pt & Pd determinations by this method are semi-quantitative due to the small sample weight used (0.25g) ME-MS61L</p>																								
Applies to Method:	<p style="text-align: center;">LABORATORY ADDRESSES</p> <p>Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">BAG-01</td> <td style="width: 33%;">C-IR07</td> <td style="width: 33%;">CRU-31</td> <td style="width: 33%;">CRU-QC</td> </tr> <tr> <td>LOG-21</td> <td>ME-ICP06</td> <td>ME-MS42L</td> <td>ME-MS61L</td> </tr> <tr> <td>ME-MS81</td> <td>OA-GRA05</td> <td>PGM-MS23L</td> <td>P-ICPDil</td> </tr> <tr> <td>PUL-32</td> <td>PUL-QC</td> <td>S-IR08</td> <td>SPL-21X</td> </tr> <tr> <td>SPL-22</td> <td>SPL-34X</td> <td>Ti-ICPDil</td> <td>TOT-ICP06</td> </tr> <tr> <td>WEI-21</td> <td>WSH-21</td> <td>WSH-22</td> <td></td> </tr> </table>	BAG-01	C-IR07	CRU-31	CRU-QC	LOG-21	ME-ICP06	ME-MS42L	ME-MS61L	ME-MS81	OA-GRA05	PGM-MS23L	P-ICPDil	PUL-32	PUL-QC	S-IR08	SPL-21X	SPL-22	SPL-34X	Ti-ICPDil	TOT-ICP06	WEI-21	WSH-21	WSH-22	
BAG-01	C-IR07	CRU-31	CRU-QC																						
LOG-21	ME-ICP06	ME-MS42L	ME-MS61L																						
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WEI-21	WSH-21	WSH-22																							



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QC CERTIFICATE VA22341440

Project: EB80002393
 P.O. No.: 3105026774
 This report is for 14 samples of Rock submitted to our lab in Vancouver, BC, Canada on 26-NOV-2022.
 The following have access to data associated with this certificate:

SARTX ACQUIRESERVICE DAVID EICHENBERG CURTIS OVERHOLT	RTXAMRNA ASSAY RESULTS EVAN GLADNEY	SUE DRIEBERG SEAN OBRIEN
---	--	-----------------------------

SAMPLE PREPARATION	
ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
BAG-01	Bulk Master for Storage
CRU-QC	Crushing QC Test
PUL-QC	Pulverizing QC Test
LOG-21	Sample logging – ClientBarCode
CRU-31	Fine crushing – 70% <2mm
WSH-21	"Wash" crushers
SPL-22	Split sample – rotary splitter
PUL-32	Pulverize 1000g to 85% < 75 um
WSH-22	"Wash" pulverizers
SPL-21X	Addnl Crush Split w No Analysis
SPL-34X	Pulp Split – For send out

ANALYTICAL PROCEDURES		
ALS CODE	DESCRIPTION	INSTRUMENT
TOT-ICP06	Total Calculation for ICP06	
OA-GRA05	Loss on Ignition at 1000C	WST-SEQ
C-IR07	Total Carbon (IR Spectroscopy)	LECO
S-IR08	Total Sulphur (IR Spectroscopy)	LECO
ME-MS81	Lithium Borate Fusion ICP-MS	ICP-MS
ME-MS42L	Super Trace AR/ICPMS Selected Analytes	ICP-MS
ME-MS61L	Super Trace Lowest DL 4A by ICP-MS	
PGM-MS23L	Low level PGM – FA ICPMS	ICP-MS
P-ICPDil	Overlimit P by Dilution	ICP-AES
Ti-ICPDil	Overlimit Ti by Dilution	ICP-AES
ME-ICP06	Whole Rock Package – ICP-AES	ICP-AES

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.
 ***** See Appendix Page for comments regarding this certificate *****

Signature: 
 Saa Traxler, Director, North Vancouver Operations



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QC CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	ME-ICP06	OA-GRA05	TOT-ICP06													
		SiO2 %	Al2O3 %	Fe2O3 %	CaO %	MgO %	Na2O %	K2O %	Cr2O3 %	TiO2 %	MnO %	P2O5 %	SrO %	BaO %	LOI %	Total %	
STANDARDS																	
AMIS0085																	
Target Range – Lower Bound																	
Upper Bound																	
AMIS0085		68.8	10.65	3.54	3.15	1.69	1.68	4.44	0.076	0.21	0.06	0.07	0.01	0.04			96.96
Target Range – Lower Bound		69.0	10.60	3.33	3.12	1.64	1.62	4.48	0.068	0.18	0.04	0.05	<0.01	0.02			97.99
Upper Bound		72.1	11.35	3.67	3.44	1.86	1.84	4.90	0.090	0.24	0.09	0.10	0.03	0.06			>102.00
AMIS0304		12.20	1.52	20.9	29.1	2.84	0.10	0.27	0.013	1.80	0.47	18.25	0.41	0.30			95.91
Target Range – Lower Bound		11.90	1.42	20.3	27.7	2.72	0.06	0.25	0.005	1.69	0.41	17.80	0.36	0.25			
Upper Bound		12.75	1.62	21.6	29.3	3.02	0.12	0.31	0.016	1.91	0.51	18.90	0.44	0.31			
AMIS0461																	39.0
Target Range – Lower Bound																	36.9
Upper Bound																	40.9
AMIS0547																	37.7
Target Range – Lower Bound																	36.6
Upper Bound																	40.4
AMIS0571																	3.52
Target Range – Lower Bound																	3.18
Upper Bound																	3.54
BCS-512		0.59	0.05	0.03	31.4	21.3	0.12	<0.01	<0.002	<0.01	<0.01	<0.01	0.02	<0.01			53.51
BCS-512																	53.38
Target Range – Lower Bound																	
Upper Bound																	
CDN-W-4																	4.31
Target Range – Lower Bound																	4.08
Upper Bound																	4.53
DS-1																	
Target Range – Lower Bound																	
Upper Bound																	
GPP-04																	
Target Range – Lower Bound																	
Upper Bound																	
GS313-8																	
Target Range – Lower Bound																	
Upper Bound																	
MRGeo08																	
Target Range – Lower Bound																	
Upper Bound																	
MRGeo08																	

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To: RIO TINTO EXPLORATION CANADA INC.
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Project: EB80002393

QC CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	C-IR07	S-IR08	ME-MS81												
		C %	S %	Ba ppm	Ce ppm	Cr ppm	Cs ppm	Dy ppm	Er ppm	Eu ppm	Ga ppm	Gd ppm	Hf ppm	Ho ppm	La ppm	Lu ppm
		0.01	0.01	0.5	0.1	5	0.01	0.05	0.03	0.02	0.1	0.05	0.05	0.01	0.1	0.01
STANDARDS																
AMIS0085				364	78.0	570	4.21	11.20	8.61	0.87	14.0	7.07	4.76	2.59	39.6	1.46
Target Range – Lower Bound																
Upper Bound																
AMIS0085																
Target Range – Lower Bound																
Upper Bound																
AMIS0304				2880	8910	100	0.42	144.5	36.7	158.5	20.6	377	30.1	19.30	3960	2.23
Target Range – Lower Bound				2340	7280	78	0.35	119.0	30.6	135.0	14.3	309	25.2	16.20	3250	1.84
Upper Bound				2860	8900	108	0.45	145.5	37.4	165.0	17.7	377	30.9	19.80	3970	2.27
AMIS0461																
Target Range – Lower Bound																
Upper Bound																
AMIS0547																
Target Range – Lower Bound																
Upper Bound																
AMIS0571																
Target Range – Lower Bound																
Upper Bound																
BCS-512				4.3	0.5	5	0.04	<0.05	<0.03	<0.02	<0.1	0.05	<0.05	0.01	0.4	0.01
BCS-512																
Target Range – Lower Bound																
Upper Bound																
CDN-W-4																
Target Range – Lower Bound																
Upper Bound																
DS-1		3.15	2.59													
Target Range – Lower Bound		3.01	2.51													
Upper Bound		3.25	2.71													
GPP-04																
Target Range – Lower Bound																
Upper Bound																
GS313-8		0.90														
Target Range – Lower Bound		0.90														
Upper Bound		0.98														
MRGeo08																
Target Range – Lower Bound																
Upper Bound																
MRGeo08																

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QC CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	ME-MS81														
		Nb ppm	Nd ppm	Pr ppm	Rb ppm	Sm ppm	Sn ppm	Sr ppm	Ta ppm	Tb ppm	Th ppm	Tm ppm	U ppm	V ppm	W ppm	Y ppm
STANDARDS																
AMIS0085		10.90	28.4	8.11	235	6.81	3.0	101.0	1.5	1.50	58.2	1.41	275	38	1.7	72.8
Target Range – Lower Bound																
Upper Bound																
AMIS0085																
Target Range – Lower Bound																
Upper Bound																
AMIS0304		>2500	4200	>1000	11.9	668	27.0	3600	13.2	37.0	491	3.79	25.4	410	5.7	434
Target Range – Lower Bound		4670	3610	925	9.3	543	22.0	3060	11.1	30.8	406	3.14	21.6	331	3.8	369
Upper Bound		>2500	4410	>1000	11.8	664	28.0	3740	13.8	37.7	496	3.86	26.5	415	6.3	451
AMIS0461																
Target Range – Lower Bound																
Upper Bound																
AMIS0547																
Target Range – Lower Bound																
Upper Bound																
AMIS0571																
Target Range – Lower Bound																
Upper Bound																
BCS-512		0.05	0.2	0.07	0.2	0.04	<0.5	195.0	<0.1	0.02	0.07	0.01	1.90	<5	<0.5	0.2
BCS-512																
Target Range – Lower Bound																
Upper Bound																
CDN-W-4																
Target Range – Lower Bound																
Upper Bound																
DS-1																
Target Range – Lower Bound																
Upper Bound																
GPP-04																
Target Range – Lower Bound																
Upper Bound																
GS313-8																
Target Range – Lower Bound																
Upper Bound																
MRGeo08																
Target Range – Lower Bound																
Upper Bound																
MRGeo08																

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QC CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	ME-MS81	ME-MS81	ME-MS42L	ME-MS61L	ME-MS61L	ME-MS61L	ME-MS61L								
		Yb ppm	Zr ppm	As ppm	Bi ppm	Hg ppm	In ppm	Re ppm	Sb ppm	Se ppm	Te ppm	Tl ppm	Ag ppm	Al %	As ppm	Ba ppm
STANDARDS																
AMIS0085		9.70	161													
Target Range – Lower Bound																
Upper Bound																
AMIS0085																
Target Range – Lower Bound																
Upper Bound																
AMIS0304		18.35	1210													
Target Range – Lower Bound		15.25	1005													
Upper Bound		18.75	1230													
AMIS0461																
Target Range – Lower Bound																
Upper Bound																
AMIS0547																
Target Range – Lower Bound																
Upper Bound																
AMIS0571																
Target Range – Lower Bound																
Upper Bound																
BCS-512		<0.03	1													
BCS-512																
Target Range – Lower Bound																
Upper Bound																
CDN-W-4																
Target Range – Lower Bound																
Upper Bound																
DS-1																
Target Range – Lower Bound																
Upper Bound																
GPP-04																
Target Range – Lower Bound																
Upper Bound																
GS313-8																
Target Range – Lower Bound																
Upper Bound																
MGeo08				32.8	0.657	0.052	0.148	0.0070	2.65	0.731	0.017	0.779				
Target Range – Lower Bound				29.7	0.585	0.047	0.137	0.0070	2.84	0.672	0.013	0.662				
Upper Bound				36.3	0.717	0.075	0.179	0.0090	3.86	0.828	0.027	0.898				
MGeo08													4.28	7.73	36.9	1100

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QC CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	ME-MS61L Be ppm	ME-MS61L Bi ppm	ME-MS61L Ca %	ME-MS61L Cd ppm	ME-MS61L Ce ppm	ME-MS61L Co ppm	ME-MS61L Cr ppm	ME-MS61L Cs ppm	ME-MS61L Cu ppm	ME-MS61L Fe %	ME-MS61L Ga ppm	ME-MS61L Ge ppm	ME-MS61L Hf ppm	ME-MS61L In ppm	ME-MS61L K %
		0.02	0.002	0.01	0.005	0.01	0.005	0.3	0.01	0.02	0.002	0.05	0.05	0.004	0.005	0.01
STANDARDS																
AMIS0085	Target Range – Lower Bound															
	Upper Bound															
AMIS0085	Target Range – Lower Bound															
	Upper Bound															
AMIS0304	Target Range – Lower Bound															
	Upper Bound															
AMIS0461	Target Range – Lower Bound															
	Upper Bound															
AMIS0547	Target Range – Lower Bound															
	Upper Bound															
AMIS0571	Target Range – Lower Bound															
	Upper Bound															
BCS-512	Target Range – Lower Bound															
	Upper Bound															
CDN-W-4	Target Range – Lower Bound															
	Upper Bound															
DS-1	Target Range – Lower Bound															
	Upper Bound															
GPP-04	Target Range – Lower Bound															
	Upper Bound															
GS313-8	Target Range – Lower Bound															
	Upper Bound															
MRGeo08	Target Range – Lower Bound															
	Upper Bound															
MRGeo08		3.32	0.666	2.69	2.22	76.3	20.5	95.5	11.95	626	4.06	20.5	0.24	3.26	0.164	3.16

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QC CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	ME-MS61L La ppm	ME-MS61L Li ppm	ME-MS61L Mg %	ME-MS61L Mn ppm	ME-MS61L Mo ppm	ME-MS61L Na %	ME-MS61L Nb ppm	ME-MS61L Ni ppm	ME-MS61L P %	ME-MS61L Pb ppm	ME-MS61L Rb ppm	ME-MS61L Re ppm	ME-MS61L S %	ME-MS61L Sb ppm	ME-MS61L Sc ppm
STANDARDS																
AMIS0085																
Target Range – Lower Bound																
Upper Bound																
AMIS0085																
Target Range – Lower Bound																
Upper Bound																
AMIS0304																
Target Range – Lower Bound																
Upper Bound																
AMIS0461																
Target Range – Lower Bound																
Upper Bound																
AMIS0547																
Target Range – Lower Bound																
Upper Bound																
AMIS0571																
Target Range – Lower Bound																
Upper Bound																
BCS-512																
BCS-512																
Target Range – Lower Bound																
Upper Bound																
CDN-W-4																
Target Range – Lower Bound																
Upper Bound																
DS-1																
Target Range – Lower Bound																
Upper Bound																
GPP-04																
Target Range – Lower Bound																
Upper Bound																
GS313-8																
Target Range – Lower Bound																
Upper Bound																
MRGeo08																
Target Range – Lower Bound																
Upper Bound																
MRGeo08		38.5	33.7	1.34	560	15.10	2.00	21.1	715	0.105	1070	215	0.0082	0.30	4.35	12.75

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QC CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	ME-MS61L Se ppm 0.006	ME-MS61L Sn ppm 0.02	ME-MS61L Sr ppm 0.02	ME-MS61L Ta ppm 0.01	ME-MS61L Te ppm 0.005	ME-MS61L Th ppm 0.004	ME-MS61L Ti % 0.001	ME-MS61L Tl ppm 0.002	ME-MS61L U ppm 0.01	ME-MS61L V ppm 0.1	ME-MS61L W ppm 0.008	ME-MS61L Y ppm 0.01	ME-MS61L Zn ppm 0.2	ME-MS61L Zr ppm 0.1	ME-MS61L Au ppm 0.0004
STANDARDS																
AMIS0085																
Target Range – Lower Bound																
Upper Bound																
AMIS0085																
Target Range – Lower Bound																
Upper Bound																
AMIS0304																
Target Range – Lower Bound																
Upper Bound																
AMIS0461																
Target Range – Lower Bound																
Upper Bound																
AMIS0547																
Target Range – Lower Bound																
Upper Bound																
AMIS0571																
Target Range – Lower Bound																
Upper Bound																
BCS-512																
BCS-512																
Target Range – Lower Bound																
Upper Bound																
CDN-W-4																
Target Range – Lower Bound																
Upper Bound																
DS-1																
Target Range – Lower Bound																
Upper Bound																
GPP-04																
Target Range – Lower Bound																
Upper Bound																
GS313-8																
Target Range – Lower Bound																
Upper Bound																
MRGeo08																
Target Range – Lower Bound																
Upper Bound																
MRGeo08		0.813	3.93	311	1.55	0.020	21.0	0.505	1.050	5.67	113.0	4.55	28.1	812	106.5	0.0060

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QC CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	ME-MS61L	ME-MS61L	PGM-MS23L	PGM-MS23L	PGM-MS23L
		Pt ppm	Pd ppm	Au ppb	Pt ppb	Pd ppb
STANDARDS						
AMIS0085						
Target Range – Lower Bound						
Upper Bound						
AMIS0085						
Target Range – Lower Bound						
Upper Bound						
AMIS0304						
Target Range – Lower Bound						
Upper Bound						
AMIS0461						
Target Range – Lower Bound						
Upper Bound						
AMIS0547						
Target Range – Lower Bound						
Upper Bound						
AMIS0571						
Target Range – Lower Bound						
Upper Bound						
BCS-512						
BCS-512						
Target Range – Lower Bound						
Upper Bound						
CDN-W-4						
Target Range – Lower Bound						
Upper Bound						
DS-1						
Target Range – Lower Bound						
Upper Bound						
GPP-04			81	88.9	95.7	
Target Range – Lower Bound			74	82.6	91.9	
Upper Bound			86	93.4	104.0	
GS313-8						
Target Range – Lower Bound						
Upper Bound						
MRGeo08						
Target Range – Lower Bound						
Upper Bound						
MRGeo08		0.007	<0.002			

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QC CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	ME-ICP06 SiO2 %	ME-ICP06 Al2O3 %	ME-ICP06 Fe2O3 %	ME-ICP06 CaO %	ME-ICP06 MgO %	ME-ICP06 Na2O %	ME-ICP06 K2O %	ME-ICP06 Cr2O3 %	ME-ICP06 TiO2 %	ME-ICP06 MnO %	ME-ICP06 P2O5 %	ME-ICP06 K2O %	ME-ICP06 SrO %	ME-ICP06 BaO %	OA-GRA05 LOI %	TOT-ICP06 Total %
STANDARDS																	
Target Range – Lower Bound																	
Upper Bound																	
OREAS 906																	
Target Range – Lower Bound																	
Upper Bound																	
OREAS-101b																	
Target Range – Lower Bound																	
Upper Bound																	
OREAS-101b		60.3	9.85	14.80	1.58	2.01	0.08	2.74	0.004	0.65	0.12	0.27	<0.01	0.02			92.42
Target Range – Lower Bound		60.7	9.90	14.90	1.52	1.92	0.04	2.77	0.023	0.58	0.09	0.24	<0.01	<0.01			
Upper Bound		63.5	10.65	15.90	1.72	2.16	0.08	3.07	0.037	0.70	0.15	0.30	0.03	0.04			
OREAS-260																	
Target Range – Lower Bound																	
Upper Bound																	
BLANKS																	
BLANK																	
Target Range – Lower Bound																	
Upper Bound																	
BLANK																	
Target Range – Lower Bound																	
Upper Bound																	
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Target Range – Lower Bound																	
Upper Bound																	
BLANK																	
Target Range – Lower Bound																	
Upper Bound																	
BLANK																	
Target Range – Lower Bound																	
Upper Bound																	
BLANK		0.19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		0.19
Target Range – Lower Bound		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Upper Bound		0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.004	0.02	0.02	0.02	0.02	0.02	0.02		
BLANK		0.14	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		0.14
Target Range – Lower Bound		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Upper Bound		0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.004	0.02	0.02	0.02	0.02	0.02	0.02		

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QC CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	C-IR07 C %	S-IR08 S %	ME-MS81 Ba ppm	ME-MS81 Ce ppm	ME-MS81 Cr ppm	ME-MS81 Cs ppm	ME-MS81 Dy ppm	ME-MS81 Er ppm	ME-MS81 Eu ppm	ME-MS81 Ga ppm	ME-MS81 Gd ppm	ME-MS81 Hf ppm	ME-MS81 Ho ppm	ME-MS81 La ppm	ME-MS81 Lu ppm	
		0.01	0.01	0.5	0.1	5	0.01	0.05	0.03	0.02	0.1	0.05	0.05	0.01	0.1	0.01	
STANDARDS																	
Target Range – Lower Bound																	
Upper Bound																	
OREAS 906																	
Target Range – Lower Bound																	
Upper Bound																	
OREAS-101b																	
Target Range – Lower Bound																	
Upper Bound																	
OREAS-101b				179.5	1315	31	2.18	31.5	18.65	7.08	20.5	32.9	10.80	6.35	812	2.60	
Target Range – Lower Bound					1200			28.8	16.80	6.97	19.7	32.4		5.70	710	2.31	
Upper Bound					1465			35.4	20.6	8.57	24.3	39.7		6.98	868	2.85	
OREAS-260																	
Target Range – Lower Bound																	
Upper Bound																	
BLANKS																	
BLANK																	
Target Range – Lower Bound																	
Upper Bound																	
BLANK																	
Target Range – Lower Bound																	
Upper Bound																	
BLANK		0.01	0.01														
Target Range – Lower Bound		<0.01	<0.01														
Upper Bound		0.02	0.02														
BLANK				1.0	<0.1	<5	0.01	<0.05	<0.03	<0.02	<0.1	<0.05	<0.05	<0.01	0.1	<0.01	
Target Range – Lower Bound																	
Upper Bound																	

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QC CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	ME-MS81 Nb ppm 0.05	ME-MS81 Nd ppm 0.1	ME-MS81 Pr ppm 0.02	ME-MS81 Rb ppm 0.2	ME-MS81 Sm ppm 0.03	ME-MS81 Sn ppm 0.5	ME-MS81 Sr ppm 0.1	ME-MS81 Ta ppm 0.1	ME-MS81 Tb ppm 0.01	ME-MS81 Th ppm 0.05	ME-MS81 Tm ppm 0.01	ME-MS81 U ppm 0.05	ME-MS81 V ppm 5	ME-MS81 W ppm 0.5	ME-MS81 Y ppm 0.1
STANDARDS																
Target Range – Lower Bound																
Target Range – Upper Bound																
OREAS 906																
Target Range – Lower Bound																
Target Range – Upper Bound																
OREAS-101b																
Target Range – Lower Bound																
Target Range – Upper Bound																
OREAS-101b		55.2	388	128.0	188.0	46.1	9.5	20.9	2.6	5.19	35.8	2.80	401	79	19.2	175.0
Target Range – Lower Bound			340	114.5		43.2				4.82	32.7	2.38	348	66		160.0
Target Range – Upper Bound			416	139.5		52.8				5.92	40.1	2.94	426	94		196.0
OREAS-260																
Target Range – Lower Bound																
Target Range – Upper Bound																
BLANKS																
BLANK																
Target Range – Lower Bound																
Target Range – Upper Bound																
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QC CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	ME-MS61L Be ppm	ME-MS61L Bi ppm	ME-MS61L Ca %	ME-MS61L Cd ppm	ME-MS61L Ce ppm	ME-MS61L Co ppm	ME-MS61L Cr ppm	ME-MS61L Cs ppm	ME-MS61L Cu ppm	ME-MS61L Fe %	ME-MS61L Ga ppm	ME-MS61L Ge ppm	ME-MS61L Hf ppm	ME-MS61L In ppm	ME-MS61L K %
		0.02	0.002	0.01	0.005	0.01	0.005	0.3	0.01	0.02	0.002	0.05	0.05	0.004	0.005	0.01
STANDARDS																
Target Range – Lower Bound		3.01	0.591	2.35	2.01	66.2	17.80	82.1	11.25	587	3.56	17.50	<0.05	2.88	0.155	2.78
Upper Bound		3.73	0.727	2.90	2.47	81.0	21.8	101.0	13.75	675	4.36	21.5	0.28	3.52	0.201	3.42
OREAS-906																
Target Range – Lower Bound																
Upper Bound																
OREAS-101b		6.65	0.417	1.17	0.019	1310	43.8	28.5	2.26	420	9.73	25.5	1.07	3.34	0.032	2.39
Target Range – Lower Bound		5.77	0.365	1.04	0.015	1190	40.5	25.4	2.18	383	9.63	21.6	0.83	3.23	0.023	2.11
Upper Bound		7.09	0.451	1.30	0.037	1460	49.5	31.7	2.68	441	11.75	26.5	1.23	3.95	0.047	2.61
OREAS-101b																
Target Range – Lower Bound																
Upper Bound																
OREAS-260																
Target Range – Lower Bound																
Upper Bound																
BLANKS																
BLANK																
Target Range – Lower Bound																
Upper Bound																
BLANK		<0.02	0.003	<0.01	<0.005	<0.01	<0.005	<0.3	<0.01	<0.02	<0.002	0.06	0.09	<0.004	<0.005	<0.01
Target Range – Lower Bound		<0.02	<0.002	<0.01	<0.005	<0.01	<0.005	<0.3	<0.01	<0.02	<0.002	<0.05	<0.05	<0.004	<0.005	<0.01
Upper Bound		0.04	0.004	0.02	0.010	0.02	0.010	0.6	0.02	0.04	0.004	0.10	0.10	0.008	0.010	0.02
BLANK																
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Sample Description	Method Analyte Units LOD	ME-MS61L														
		La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P %	Pb ppm	Rb ppm	Re ppm	S %	Sb ppm	Sc ppm
STANDARDS																
Target Range – Lower Bound		31.6	29.5	1.17	502	13.65	1.770	19.10	622	0.093	971	173.5	0.0069	0.27	3.92	11.15
Upper Bound		38.6	36.5	1.45	614	16.75	2.17	23.3	760	0.115	1185	212	0.0093	0.35	5.36	13.65
OREAS-906																
Target Range – Lower Bound																
Upper Bound																
OREAS-101b		740	25.7	1.16	926	19.60	0.054	47.5	8.71	0.119	21.5	175.5	0.0891	0.09	1.00	8.78
Target Range – Lower Bound		679	22.8	1.03	808	18.05	0.049	44.9	7.30	0.105	20.7	175.5	0.0807	0.07	0.85	8.17
Upper Bound		829	28.4	1.28	988	22.1	0.062	54.9	9.10	0.131	25.3	215	0.0995	0.11	1.19	10.00
OREAS-101b																
Target Range – Lower Bound																
Upper Bound																
OREAS-260																
Target Range – Lower Bound																
Upper Bound																
BLANKS																
BLANK																
Target Range – Lower Bound																
Upper Bound																
BLANK		<0.005	<0.2	<0.01	<0.2	<0.02	0.001	<0.005	<0.08	<0.001	0.01	<0.02	<0.0004	<0.01	<0.02	<0.01
Target Range – Lower Bound		<0.005	<0.2	<0.01	<0.2	<0.02	<0.001	<0.005	<0.08	<0.001	<0.01	<0.02	<0.0004	<0.01	<0.02	<0.01
Upper Bound		0.010	0.4	0.02	0.4	0.04	0.002	0.010	0.16	0.002	0.02	0.04	0.0008	0.02	0.04	0.02
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QC CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	ME-MS61L Se ppm 0.006	ME-MS61L Sn ppm 0.02	ME-MS61L Sr ppm 0.02	ME-MS61L Ta ppm 0.01	ME-MS61L Te ppm 0.005	ME-MS61L Th ppm 0.004	ME-MS61L Ti % 0.001	ME-MS61L Tl ppm 0.002	ME-MS61L U ppm 0.01	ME-MS61L V ppm 0.1	ME-MS61L W ppm 0.008	ME-MS61L Y ppm 0.01	ME-MS61L Zn ppm 0.2	ME-MS61L Zr ppm 0.1	ME-MS61L Au ppm 0.0004
STANDARDS																
Target Range – Lower Bound		0.669	3.64	277	1.43	0.010	17.90	0.447	0.875	4.97	98.0	4.18	23.8	723	92.6	0.0029
Upper Bound		0.831	4.50	339	1.77	0.032	21.9	0.549	1.190	6.09	120.0	5.68	29.2	885	125.5	0.0049
OREAS 906																
Target Range – Lower Bound																
Upper Bound																
OREAS-101b		4.52	7.66	21.5	2.08	0.091	35.4	0.316	0.681	380	70.9	15.50	120.0	22.5	117.5	0.0110
Target Range – Lower Bound		4.13	7.01	20.2	1.87	0.076	32.8	0.314	0.573	348	69.2	13.75	119.5	20.7	108.0	0.0100
Upper Bound		5.07	8.61	24.8	2.31	0.106	40.0	0.386	0.779	426	84.8	18.65	146.5	25.7	146.0	0.0132
OREAS-101b																
Target Range – Lower Bound																
Upper Bound																
OREAS-260																
Target Range – Lower Bound																
Upper Bound																
BLANKS																
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Target Range – Lower Bound																
Upper Bound																
BLANK		0.013	<0.02	<0.02	<0.01	<0.005	<0.004	<0.001	0.003	<0.01	0.1	<0.008	<0.01	<0.2	<0.1	0.0008
Target Range – Lower Bound		<0.006	<0.02	<0.02	<0.01	<0.005	<0.004	<0.001	<0.002	<0.01	<0.1	<0.008	<0.01	<0.2	<0.1	<0.0004
Upper Bound		0.012	0.04	0.04	0.02	0.010	0.008	0.002	0.004	0.02	0.2	0.016	0.02	0.4	0.2	0.0008
BLANK																
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Sample Description	Method Analyte Units LOD	ME-MS61L	ME-MS61L	PGM-MS23L	PGM-MS23L	PGM-MS23L
		Pt ppm	Pd ppm	Au ppb	Pt ppb	Pd ppb
		0.004	0.002	1	0.1	0.2
STANDARDS						
Target Range – Lower Bound		<0.004	<0.002			
Upper Bound		0.012	0.010			
OREAS 906						
Target Range – Lower Bound						
Upper Bound						
OREAS-101b		0.006	<0.002			
Target Range – Lower Bound			<0.002			
Upper Bound			0.004			
OREAS-101b						
Target Range – Lower Bound						
Upper Bound						
OREAS-260				16	0.6	1.1
Target Range – Lower Bound				14	0.8	1.1
Upper Bound				18	1.2	1.9
BLANKS						
BLANK						
Target Range – Lower Bound						
Upper Bound						
BLANK		<0.004	<0.002			
Target Range – Lower Bound		<0.004	<0.002			
Upper Bound		0.008	0.004			
BLANK						
BLANK						
Target Range – Lower Bound						
Upper Bound						
BLANK				2	1.3	3.7
BLANK				1	0.2	0.3
Target Range – Lower Bound				<1	<0.1	<0.2
Upper Bound				2	0.2	0.4
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Target Range – Lower Bound						
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Target Range – Lower Bound						
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Sample Description	Method Analyte Units LOD	ME-ICP06 SiO2 %	ME-ICP06 Al2O3 %	ME-ICP06 Fe2O3 %	ME-ICP06 CaO %	ME-ICP06 MgO %	ME-ICP06 Na2O %	ME-ICP06 K2O %	ME-ICP06 Cr2O3 %	ME-ICP06 TiO2 %	ME-ICP06 MnO %	ME-ICP06 P2O5 %	ME-ICP06 SrO %	ME-ICP06 BaO %	OA-GRA05 LOI %	TOT-ICP06 Total %
		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	0.01	0.01	0.01	0.01	0.01	0.01	0.01
ORIGINAL		DUPLICATES														
DUP																
Target Range – Lower Bound																4.78
Upper Bound																5.04
ORIGINAL																
DUP																
Target Range – Lower Bound																
Upper Bound																
ORIGINAL																
DUP																
Target Range – Lower Bound																
Upper Bound																
40483106																
DUP																
Target Range – Lower Bound																
Upper Bound																
40483109																
DUP																
Target Range – Lower Bound																
Upper Bound																
ORIGINAL																
DUP																
Target Range – Lower Bound																32.3
Upper Bound																33.1
ORIGINAL																
DUP																
Target Range – Lower Bound																31.5
Upper Bound																32.3
ORIGINAL		59.4	14.90	4.18	3.27	2.42	0.05	2.35	<0.002	0.41	0.10	0.19	0.02	0.04		
DUP		60.8	15.25	4.26	3.34	2.47	0.06	2.40	<0.002	0.42	0.10	0.19	0.02	0.05		
Target Range – Lower Bound		58.6	14.70	4.10	3.21	2.37	0.04	2.31	<0.002	0.39	0.09	0.18	<0.01	0.03		
Upper Bound		61.6	15.45	4.34	3.40	2.52	0.07	2.44	0.004	0.44	0.11	0.20	0.03	0.06		

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Method Analyte Units LOD	C-IR07 C %	S-IR08 S %	ME-MS81 Ba ppm	ME-MS81 Ce ppm	ME-MS81 Cr ppm	ME-MS81 Cs ppm	ME-MS81 Dy ppm	ME-MS81 Er ppm	ME-MS81 Eu ppm	ME-MS81 Ga ppm	ME-MS81 Gd ppm	ME-MS81 Hf ppm	ME-MS81 Ho ppm	ME-MS81 La ppm	ME-MS81 Lu ppm	
Sample Description	0.01	0.01	0.5	0.1	5	0.01	0.05	0.03	0.02	0.1	0.05	0.05	0.01	0.1	0.01	
ORIGINAL DUP Target Range – Lower Bound Upper Bound	DUPLICATES															
ORIGINAL DUP Target Range – Lower Bound Upper Bound																
ORIGINAL DUP Target Range – Lower Bound Upper Bound	10.95 10.90 10.65 11.20	0.11 0.11 0.10 0.12														
40483106 DUP Target Range – Lower Bound Upper Bound																
40483109 DUP Target Range – Lower Bound Upper Bound																
ORIGINAL DUP Target Range – Lower Bound Upper Bound																
ORIGINAL DUP Target Range – Lower Bound Upper Bound																
ORIGINAL DUP Target Range – Lower Bound Upper Bound				403 411 386 428	42.9 44.4 41.4 45.9	7 7 <5 10	19.70 19.70 18.70 20.7	2.10 2.16 1.97 2.29	1.27 1.16 1.12 1.31	0.92 0.86 0.83 0.95	17.7 17.2 16.5 18.4	2.60 2.57 2.41 2.76	3.06 2.63 2.65 3.04	0.43 0.42 0.39 0.46	24.6 25.1 23.5 26.2	0.21 0.20 0.18 0.23

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Sample Description	Method Analyte Units LOD	ME-MS81 Nb ppm 0.05	ME-MS81 Nd ppm 0.1	ME-MS81 Pr ppm 0.02	ME-MS81 Rb ppm 0.2	ME-MS81 Sm ppm 0.03	ME-MS81 Sn ppm 0.5	ME-MS81 Sr ppm 0.1	ME-MS81 Ta ppm 0.1	ME-MS81 Tb ppm 0.01	ME-MS81 Th ppm 0.05	ME-MS81 Tm ppm 0.01	ME-MS81 U ppm 0.05	ME-MS81 V ppm 5	ME-MS81 W ppm 0.5	ME-MS81 Y ppm 0.1
ORIGINAL DUP Target Range – Lower Bound Upper Bound	DUPLICATES															
ORIGINAL DUP Target Range – Lower Bound Upper Bound																
ORIGINAL DUP Target Range – Lower Bound Upper Bound																
40483106 DUP Target Range – Lower Bound Upper Bound																
40483109 DUP Target Range – Lower Bound Upper Bound																
ORIGINAL DUP Target Range – Lower Bound Upper Bound																
ORIGINAL DUP Target Range – Lower Bound Upper Bound																
ORIGINAL DUP Target Range – Lower Bound Upper Bound	5.32 5.58 5.13 5.77	19.2 20.1 18.6 20.7	5.02 5.17 4.82 5.37	63.1 63.4 59.9 66.6	3.72 3.73 3.51 3.94	0.6 0.6 <0.5 1.0	127.0 127.0 120.5 133.5	0.3 0.3 0.2 0.4	0.38 0.37 0.35 0.40	7.37 7.35 6.94 7.78	0.18 0.18 0.16 0.20	5.39 5.34 5.05 5.68	96 93 85 104	1.9 2.0 1.4 2.5	11.4 11.4 10.7 12.1	

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Sample Description	Method Analyte Units LOD	ME-MS61L Be ppm	ME-MS61L Bi ppm	ME-MS61L Ca %	ME-MS61L Cd ppm	ME-MS61L Ce ppm	ME-MS61L Co ppm	ME-MS61L Cr ppm	ME-MS61L Cs ppm	ME-MS61L Cu ppm	ME-MS61L Fe %	ME-MS61L Ga ppm	ME-MS61L Ge ppm	ME-MS61L Hf ppm	ME-MS61L In ppm	ME-MS61L K %
		0.02	0.002	0.01	0.005	0.01	0.005	0.3	0.01	0.02	0.002	0.05	0.05	0.004	0.005	0.01
ORIGINAL DUP Target Range – Lower Bound Upper Bound	DUPLICATES															
ORIGINAL DUP Target Range – Lower Bound Upper Bound		1.69 1.72 1.60 1.81	30.1 28.5 27.8 30.8	3.52 3.57 3.36 3.73	0.075 0.082 0.070 0.087	59.6 63.6 58.5 64.7	8.33 8.58 8.03 8.88	22.4 23.4 21.5 24.3	8.81 9.07 8.48 9.40	106.5 106.5 103.0 110.0	3.42 3.44 3.26 3.60	19.55 19.40 18.45 20.5	0.17 0.20 0.12 0.25	1.090 1.165 1.065 1.190	0.041 0.042 0.034 0.049	3.33 3.39 3.18 3.54
40483106 DUP Target Range – Lower Bound Upper Bound																
40483109 DUP Target Range – Lower Bound Upper Bound																
ORIGINAL DUP Target Range – Lower Bound Upper Bound																
ORIGINAL DUP Target Range – Lower Bound Upper Bound																
ORIGINAL DUP Target Range – Lower Bound Upper Bound																

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Method Analyte Units LOD	ME-MS61L La ppm	ME-MS61L Li ppm	ME-MS61L Mg %	ME-MS61L Mn ppm	ME-MS61L Mo ppm	ME-MS61L Na %	ME-MS61L Nb ppm	ME-MS61L Ni ppm	ME-MS61L P %	ME-MS61L Pb ppm	ME-MS61L Rb ppm	ME-MS61L Re ppm	ME-MS61L S %	ME-MS61L Sb ppm	ME-MS61L Sc ppm
Sample Description	0.005	0.2	0.01	0.2	0.02	0.001	0.005	0.08	0.001	0.01	0.02	0.0004	0.01	0.02	0.01
ORIGINAL DUP Target Range – Lower Bound Upper Bound	DUPLICATES														
ORIGINAL DUP Target Range – Lower Bound Upper Bound	27.7 30.5 27.6 30.6	26.3 26.5 24.9 27.9	0.94 0.97 0.90 1.01	377 388 363 402	3.65 3.96 3.59 4.02	1.605 1.620 1.530 1.695	9.34 9.34 8.87 9.81	3.50 3.34 3.17 3.67	0.048 0.050 0.046 0.052	20.2 20.6 19.35 21.4	146.0 151.5 141.5 156.0	0.0015 0.0012 0.0009 0.0018	0.29 0.29 0.27 0.31	0.55 0.52 0.47 0.60	14.95 15.10 14.25 15.80
ORIGINAL DUP Target Range – Lower Bound Upper Bound															
40483106 DUP Target Range – Lower Bound Upper Bound															
40483109 DUP Target Range – Lower Bound Upper Bound															
ORIGINAL DUP Target Range – Lower Bound Upper Bound															
ORIGINAL DUP Target Range – Lower Bound Upper Bound															
ORIGINAL DUP Target Range – Lower Bound Upper Bound															

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 Account: CANURA

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QC CERTIFICATE OF ANALYSIS VA22341440

Method Analyte Units LOD	ME-MS61L Se ppm 0.006	ME-MS61L Sn ppm 0.02	ME-MS61L Sr ppm 0.02	ME-MS61L Ta ppm 0.01	ME-MS61L Te ppm 0.005	ME-MS61L Th ppm 0.004	ME-MS61L Ti % 0.001	ME-MS61L Tl ppm 0.002	ME-MS61L U ppm 0.01	ME-MS61L V ppm 0.1	ME-MS61L W ppm 0.008	ME-MS61L Y ppm 0.01	ME-MS61L Zn ppm 0.2	ME-MS61L Zr ppm 0.1	ME-MS61L Au ppm 0.0004
ORIGINAL DUP Target Range – Lower Bound Upper Bound	DUPLICATES														
ORIGINAL DUP Target Range – Lower Bound Upper Bound	0.403 0.384 0.368 0.419	7.34 7.41 6.99 7.76	303 306 289 320	0.71 0.70 0.66 0.75	3.72 3.21 3.29 3.64	11.75 12.25 11.40 12.60	0.399 0.406 0.381 0.424	0.662 0.665 0.612 0.715	2.82 2.80 2.66 2.96	78.9 79.5 75.1 83.3	41.0 35.6 35.4 41.2	19.75 20.2 18.95 21.0	35.6 35.8 33.7 37.7	25.3 26.8 24.0 28.1	0.1725 0.1880 0.1710 0.1895
ORIGINAL DUP Target Range – Lower Bound Upper Bound															
40483106 DUP Target Range – Lower Bound Upper Bound															
40483109 DUP Target Range – Lower Bound Upper Bound															
ORIGINAL DUP Target Range – Lower Bound Upper Bound															
ORIGINAL DUP Target Range – Lower Bound Upper Bound															
ORIGINAL DUP Target Range – Lower Bound Upper Bound															

***** See Appendix Page for comments regarding this certificate *****



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To: RIO TINTO EXPLORATION CANADA INC.
 CANADA URANIUM
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 Finalized Date: 12-MAR-2023
 Account: CANURA

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QC CERTIFICATE OF ANALYSIS VA22341440

Sample Description	Method Analyte Units LOD	ME-MS61L	ME-MS61L	PGM-MS23L	PGM-MS23L	PGM-MS23L
		Pt ppm	Pd ppm	Au ppb	Pt ppb	Pd ppb
ORIGINAL DUP Target Range – Lower Bound Upper Bound		0.004	0.002	1	0.1	0.2
DUPLICATES						
ORIGINAL DUP Target Range – Lower Bound Upper Bound		0.004 0.005	<0.002 <0.002			
ORIGINAL DUP Target Range – Lower Bound Upper Bound		<0.004 0.008	<0.002 0.004			
40483106 DUP Target Range – Lower Bound Upper Bound				2 2 <1 3	19.5 16.2 16.9 18.8	14.8 12.6 12.8 14.6
40483109 DUP Target Range – Lower Bound Upper Bound						
ORIGINAL DUP Target Range – Lower Bound Upper Bound						
ORIGINAL DUP Target Range – Lower Bound Upper Bound				2 2 <1 3	10.6 11.6 10.4 11.8	8.2 12.6 9.7 11.1
ORIGINAL DUP Target Range – Lower Bound Upper Bound						

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QC CERTIFICATE OF ANALYSIS VA22341440

CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

Applies to Method: Au, Pt & Pd determinations by this method are semi-quantitative due to the small sample weight used (0.25g)
 ME-MS61L

LABORATORY ADDRESSES

Applies to Method: Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.

BAG-01	C-IR07	CRU-31	CRU-QC
LOG-21	ME-ICP06	ME-MS42L	ME-MS61L
ME-MS81	OA-GRA05	PGM-MS23L	P-ICPDil
PUL-32	PUL-QC	S-IR08	SPL-21X
SPL-22	SPL-34X	Ti-ICPDil	TOT-ICP06
WEI-21	WSH-21	WSH-22	

ProjectCode	SampleID *	ClaimID	Original_X	Original_Y	Original_Z	Original_Grid	SampleType	Commodity	Country
GARNEAU	40483100	2642778	-63,373041	51,405963	534,640945	WGS84_WORLD_LL	Rock	Titanium	CA
GARNEAU	40483101	2642498	-63,377805	51,357808	418,941037	WGS84_WORLD_LL	Rock	Titanium	CA
GARNEAU	40483102	2642778	-63,37	51,41	511,8	WGS84_WORLD_LL	Rock	Titanium	CA
GARNEAU	40483103	2642462	-63,354234	51,358362	495,607788	WGS84_WORLD_LL	Rock	Titanium	CA
GARNEAU	40483104	2642760	-63,413372	51,34768	625,870132	WGS84_WORLD_LL	Rock	Titanium	CA
GARNEAU	40483105	2642760	-63,413299	51,348193	614,631836	WGS84_WORLD_LL	Rock	Titanium	CA
GARNEAU	40483106	2642526	-63,398956	51,3949	445,347	WGS84_WORLD_LL	Rock	Titanium	CA
GARNEAU	40483107	2642526	-63,399918	51,394488	449,97685	WGS84_WORLD_LL	Rock	Titanium	CA
GARNEAU	40483108	2642486	-63,400586	51,391322	461,982143	WGS84_WORLD_LL	Rock	Titanium	CA
GARNEAU	40483109	2642778	-63,373111	51,405394	520,407	WGS84_WORLD_LL	Rock	Titanium	CA
GARNEAU	40483140	2642504	-63,330701	51,355665	552,585467	WGS84_WORLD_LL	Rock	Titanium	CA
GARNEAU	40483141	2642758	-63,309939	51,34601	507,545803	WGS84_WORLD_LL	Rock	Titanium	CA
GARNEAU	40483142	2642763	-63,313471	51,350471	515,015307	WGS84_WORLD_LL	Rock	Titanium	CA
GARNEAU	40483143	2642758	-63,309854	51,346391	500,742095	WGS84_WORLD_LL	Rock	Titanium	CA

StateName	SampleDate	SampleCondit	RockSampleType	RockWeight_kg	LithCat	LithSpec	Min1
Quebec	2022-10-21 12:51	Dry	OutcropGrab	1,81	FelsicIntrusive	<Null>	<Null>
Quebec	2022-10-23 13:52	Dry	OutcropGrab	1,09	FelsicIntrusive	<Null>	Magnetite
Quebec	21-oct-22	Dry	BouldersGrab	4,72	MineralisedZone	<Null>	Ilmenite
Quebec	20-oct-22	Dry	BouldersGrab	1,41	FelsicIntrusive	Mangerite	Magnetite
Quebec	20-oct-22	Dry	OutcropGrab	1,32	FelsicIntrusive	Anorthosite	Plagioclase
Quebec	20-oct-22	Dry	OutcropGrab	1,59	Granitoid	Mangerite	Magnetite
Quebec	21-oct-22	Dry	BouldersGrab	0,82	UltramaficIntrusive	Pyroxenite	Pyroxene
Quebec	21-oct-22	Dry	OutcropGrab	2,54	Granitoid	Mangerite	Magnetite
Quebec	21-oct-22	Dry	BouldersGrab	0,32	UltramaficIntrusive	Pyroxenite	Magnetite
Quebec	21-oct-22	Dry	BouldersGrab	0,91	MaficIntrusive	Gabbro	Amphibole
Quebec	2022-10-22 11:55	Dry	BouldersGrab		MaficIntrusive		
Quebec	2022-10-23 13:27	Dry	OutcropGrab		Granitoid		
Quebec	2022-10-23 14:34	Dry	OutcropGrab		Granitoid		
Quebec	2022-10-23 15:48	Dry	BouldersGrab		MaficIntrusive		

Min2	Min3	MagSus_SI_Measured	MagSus_SI_Scale
<Null>	<Null>	108	-3
<Null>	<Null>	66	-3
Hematite	Sulphide	17	-3
<Null>	<Null>	90	-3
<Null>	<Null>	0,4	-3
<Null>	<Null>	250	-3
<Null>	<Null>	80	-3
<Null>	<Null>	35	-3
<Null>	<Null>	90	-3
Plagioclase	<Null>	0,3	-3
		0,5	-3
		<Null>	-3
		100	-3
		<Null>	-3

RockComments	SurveyMethod
Coarse-grained Felsic intrusive with Magsus ranging from 50-250 on outcrop; 105 for sample taken. Bt-Qtz-Fsp-Mag	GPS
Granitic composition (Mangerite?) with localized Magnetite (~50 avg Magsus), OC ranges 9-80.	GPS
Massive Hemo-Ilmenite (Sulfide-bearing)	GPS
Rapakivi Felsic Intrusive Boulder (Mangerite?) Higher Magsus Variety (~50-180). Pl phenocrysts w/ f.g Magnetite Matrix	GPS
Homogeneous Anorthosite w/ trace Py+Mag. 0.2-0.4 Magsus	GPS
m-c grained Granitoid (Mangerite?) with high magsus 200-390 and Titano-magnetite (XRF) w/ ~10% Ti	GPS
Mafic/UM boulder. Likely Pyroxenite	GPS
Rapakivi Granitoid (Mangerite?) with localized magnetite. Magsus 25-40	GPS
Mafic/UM? Boulder. Mag+Px. Magsus 80-310	GPS
Gabbroic boulder. Amp+Bt. Magsus 0.2-0.6	GPS
<Null>	GPS
<Null>	GPS
Additional mangerite sample from higher magnetic variety	GPS
<Null>	GPS