

Assessment Report
Geophysical Surveying
on the
MEL West Claim Block
Northern Tiger Resources Inc.

MEL 49-54 (YC41266 – YC41269), MEL 80-83 (YC41266 – YC41269),
MEL 84 - 89 (YC47288 – YC47293)

Wolverine Creek area,
62°40' N Latitude, 137°19' W Longitude
Whitehorse Mining District

NTS Sheet 115I/11, Zone 8

August 26, 28, 2009

Effective Date: September 14, 2009

By: Dennis Ouellette, BSc, PGeo
Northern Tiger Resources
Suite 220
17010 – 103rd Ave
Edmonton, Alberta T5S 1K7
Tel: 780-428-3465
Fax: 780-428-3476
Douellette@Northern-Tiger.com

Jan 12, 2010

Summary

An exploration program consisting of an airborne magnetic and radiometric survey was conducted by Northern Tiger in 2009. The survey was flown by Precision GeoSurveys Inc. of Vancouver, B.C.

The MEL property consists of 16 contiguous quartz mining claims covering 334.4 hectares (826.3 acres) directly west of the Yukon and Pelly Rivers. It was staked in February 2006 by Minto Explorations Ltd. to cover ground prospective for “Minto-style” copper-gold mineralization. The property is located about 85 km north-northwest of Carmacks, Yukon, and within 10 kilometres of the all-weather Minto mine access road and large airstrip.

The MEL property is located within the northern limit of the Intermontane Superterrane, which occurs as a narrow sequence of Triassic to Lower Jurassic Stikinia Terrane volcanic and volcanoclastic strata mixed with Lower Jurassic Quesnellia Terrane metaigneous units. The MEL property is underlain by the northern portion of the same Quesnellia Terrane batholith (the Klotassin Batholith) that hosts the Minto deposit. Minto-style copper-gold-silver mineralization is the intended target of exploration on the MEL claims.

The Minto deposit occurs as a flat-lying body at depth, with no surface exposure other than minor hydrothermally transported copper oxide mineralization in the form of azurite and malachite. The deposit was discovered and delineated through diamond drilling. Any surface geochemical signatures are likely to be subdued; thus modest anomalies and surface occurrences may represent a significant target at depth.

The MEL property is underlain by medium to coarse grained, moderately foliated granodiorite, with minor zones of strong biotite enrichment. This reflects the alteration setting hosting the Minto deposit. No mineralized occurrences have yet to be identified either historically or during Northern Tiger’s exploration tenure. Soil sampling has returned weak copper values below 100 ppm.

The survey was conducted over a two day period of August 26th and August 28th. The results of the magnetic survey clearly show a strong increase in the magnetic gradient from west to east. Generally, the percentage potassium is strongest in areas with little vegetative cover while the strongest thorium/potassium ratios were recorded over swampy areas. The geophysical report and results are appended at the back of this report.

It is recommended that no further work be conducted on this property until a thorough compilation of existing exploration data is compiled along with information gleaned from other companies working in the area.

Total applicable expenditures incurred in 2009 over the MEL West block were **\$6,718**.

Table of Contents

	<u>Page</u>
Summary	2
1.0 Introduction and Terms of Reference	5
1.1 Introduction	5
1.2 Sources of Information	5
1.3 Terms of Reference	5
2.0 Property Description and Location	5
3.0 Physiography, Climate, Access and Infrastructure	10
3.1 Physiography and Climate	10
3.2 Access, Infrastructure and Local Resources	10
4.0 History	11
5.0 Geological Setting	11
5.1 Regional Geology	11
5.2 Property Geology	11
6.0 Deposit Types	11
7.0 Mineralization	12
8.0 Exploration	13
9.0 Adjacent Properties	13
10.0 Discussion and Conclusion	14
11.0 Recommendations	14
12.0 References	15

List of Tables

	<u>Page</u>
Table 1: Claim Status	8

Figures

Figure 1: Location Map	6
Figure 2: Regional Location Map	7
Figure 3: Claim Map	9

Appendices

Appendix 1: Statement of Qualifications	16
Appendix 2: Statement of Expenditures	17
Appendix 3: Precision Airborne Survey Report	18

1.0 Introduction

1.1 Introduction

The MEL property, located in central Yukon and consisting of 75 full quartz mining claims in a two blocks covering 1,566.0 hectares (3,868 acres), was staked in February 2006 by Minto Explorations Ltd. to cover ground prospective for “Minto-style” copper-gold mineralization. In June 2008 Northern Tiger Resources Inc. (Northern Tiger) obtained a 100% interest in the claims, in exchange for exploration commitments. An exploration program consisting of an airborne magnetic and radiometric survey was conducted by Precision GeoSurveys Inc. on August 26th and August 28th.

This report will focus on discussing details of the 2009 exploration program and interpretation of results.

1.2 Sources of Information

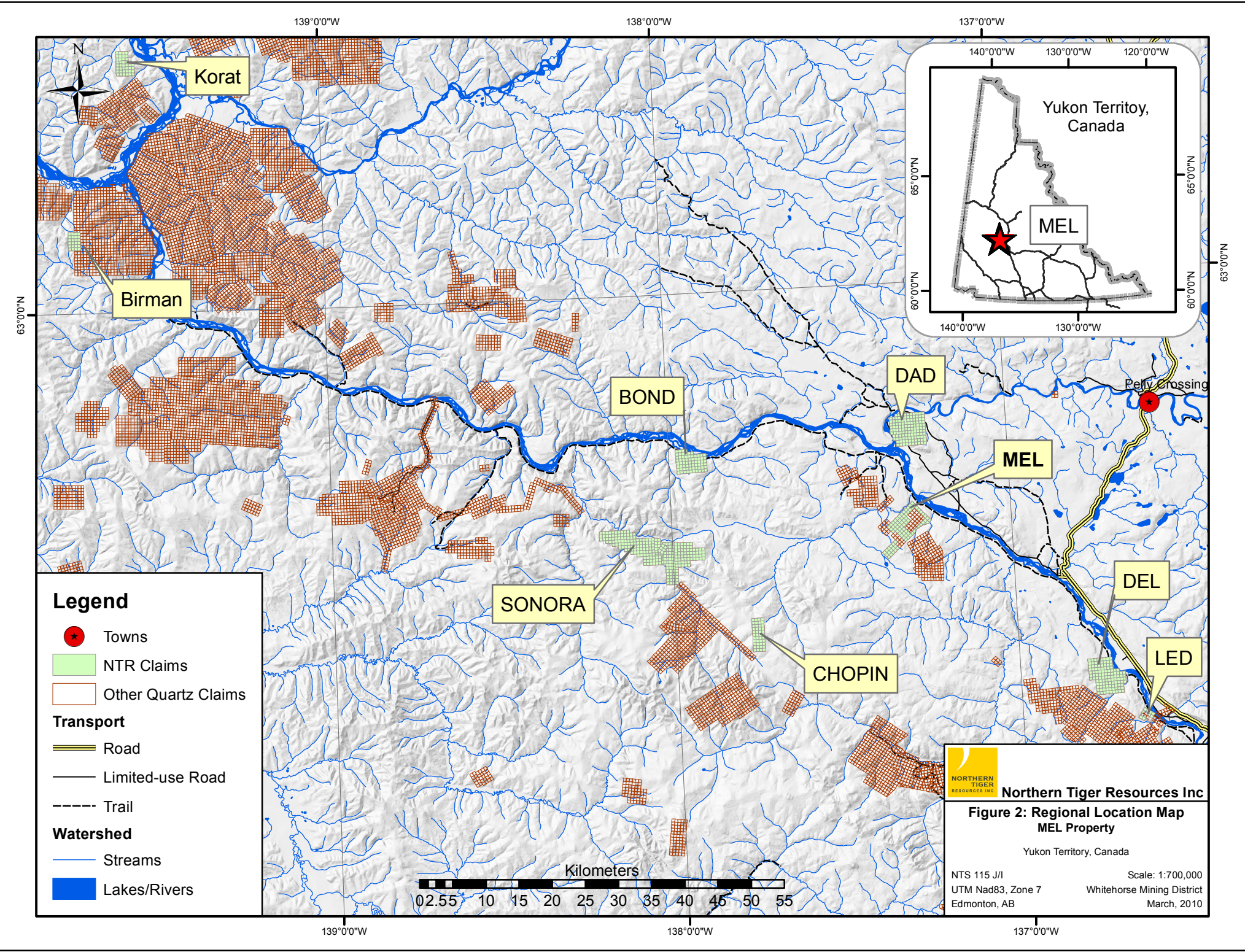
Little information on the geological and mineralogical setting of the actual property is available, although some regional geological data was taken from the Yukon Geology Survey website. The geological setting and potential deposit model is similar to that of Capstone Mining Corporation’s Minto mine site, located about 10 kilometers to the southeast.

1.3 Terms of Reference

This report was prepared to satisfy requirements for Assessment Report filing by the Yukon Mining Recorder, Ministry of Energy, Mines and Resources, Government of Yukon.

2.0 Property Description and Location

The MEL property is located in central Yukon and consists of 75 quartz mining claims in two blocks covering 1,566.0 hectares (3,868 acres) in the Whitehorse Mining Division. The property is located about 85 km north-northwest of Carmacks, Yukon, and is centered at 62°40’ N Latitude, 137°19’ W Longitude (UTM NAD 83 coordinates: 381320E, 6950600N, Zone 8) within NTS map sheet 115I/11. The property has not undergone a legal survey.



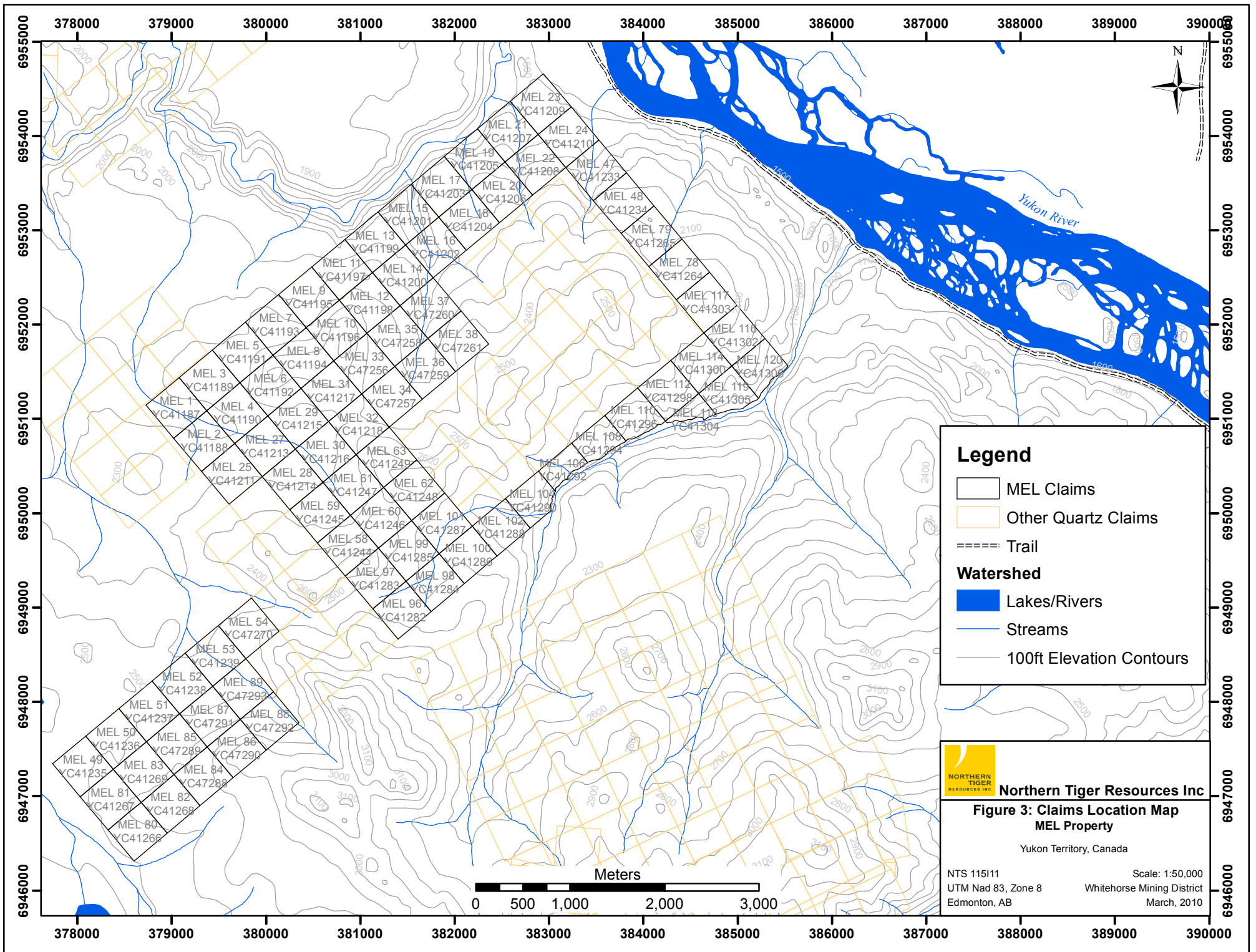
Legend

- ★ Towns
- NTR Claims
- Other Quartz Claims
- Transport**
- Road
- Limited-use Road
- Trail
- Watershed**
- Streams
- Lakes/Rivers

Northern Tiger Resources Inc
Figure 2: Regional Location Map
MEL Property
 Yukon Territory, Canada
 NTS 115 J/I Scale: 1:700,000
 UTM Nad83, Zone 7 Whitehorse Mining District
 Edmonton, AB March, 2010

Table 1: Claim Status

Grant Number	Claim Name	Claim #	Registered Owner	Recording Date	Expiry Date
YC41235	MEL	49	NTR	23/02/2006	23/02/2011
YC41236	MEL	50	NTR	23/02/2006	23/02/2011
YC41237	MEL	51	NTR	23/02/2006	23/02/2011
YC41238	MEL	52	NTR	23/02/2006	23/02/2011
YC41244	MEL	58	NTR	23/02/2006	23/02/2013
YC41245	MEL	59	NTR	23/02/2006	23/02/2012
YC41246	MEL	60	NTR	23/02/2006	23/02/2013
YC41247	MEL	61	NTR	23/02/2006	23/02/2013
YC41248	MEL	62	NTR	23/02/2006	23/02/2012
YC41249	MEL	63	NTR	23/02/2006	23/02/2012
YC41264	MEL	78	NTR	23/02/2006	23/02/2012
YC41265	MEL	79	NTR	23/02/2006	23/02/2012
YC41266	MEL	80	NTR	23/02/2006	23/02/2011
YC41267	MEL	81	NTR	23/02/2006	23/02/2012
YC41268	MEL	82	NTR	23/02/2006	23/02/2011
YC41269	MEL	83	NTR	23/02/2006	23/02/2012
YC47288	MEL	84	NTR	17/07/2006	17/07/2011
YC47289	MEL	85	NTR	17/07/2006	17/07/2011
YC47290	MEL	86	NTR	17/07/2006	17/07/2011
YC47291	MEL	87	NTR	17/07/2006	17/07/2011
YC47292	MEL	88	NTR	17/07/2006	17/07/2011
YC47293	MEL	89	NTR	17/07/2006	17/07/2011



Legend

- MEL Claims
- Other Quartz Claims
- Trail

Watershed

- Lakes/Rivers
- Streams
- 100ft Elevation Contours

NORTHERN TIGER RESOURCES INC.

Northern Tiger Resources Inc
Figure 3: Claims Location Map
MEL Property

Yukon Territory, Canada

NTS 115111
 UTM Nad 83, Zone 8
 Edmonton, AB

Scale: 1:50,000
 Whitehorse Mining District
 March, 2010

3.0 Physiography, Climate, Access and Infrastructure

3.1 Physiography and Climate

The MEL property is located in an area of gentle topographic relief just southwest of the confluence of Wolverine Creek and the Yukon River. Elevations range from about 2,000 feet (609m) to 3,100 feet (945m).

Overall, outcrop is sparse on the property as is typical in the region. Permafrost is discontinuous.

Vegetation consists of black spruce in low lying marshy areas spruce and lodgepole pine on dryer slopes with occasional stands of white spruce in the transition areas. South facing slopes are shrubby to clear of substantial vegetation. A forest fire in 1995 has resulted in areas of thick pine growth replacing earlier post-fire aspen and willow.

Typical central Yukon weather can be expected consisting of warm summers and cold winters and light precipitation.

3.2 Access and Infrastructure

The Minto mine site is located 6.8 kilometres south of the MEL property boundary. Recently rehabilitated drill roads extend to within one kilometre. The Minto Landing airstrip is located about 35 km to the south. The mine is serviced by an all-weather access road extending from the North Klondike Highway, with seasonal ferry service across the river, as well as winter road access at the same location. An all-weather airstrip capable of servicing large cargo turboprop aircraft is located at the mine site. The mine is serviced by the Aishihik-Whitehorse electrical grid.

The MEL property is large enough to contain any future mining, milling and waste disposal areas.

Carmacks is serviced by the Klondike Highway, a major all-weather highway extending from Whitehorse to Dawson City, and by grid electric power extending from Whitehorse. The community of about 350 has basic services, including food and fuel supplies and seasonal helicopter and fixed wing services. The community of Pelly Crossing, population about 300, is located about 30 kilometres northeast of Minto Landing, and 102 road kilometres north of Carmacks. Pelly Crossing also has basic services and provides much of the workforce at the Minto mine site. Whitehorse, located 170 km to the south, is a full service community with a population of about 23,000, including a sophisticated mineral exploration service community and an available workforce.

4.0 History

There are no Minfile occurrences located on the MEL property but there are two that are adjacent and which record work overlapping on the current MEL property. They are the GIANT (Minfile 115I 094) and the ORI (115I 079). Both are south of the current MEL boundary.

5.0 Geology

5.1 Regional Geology

The MEL property is located within the northern limit of the Intermontane Superterrane (Hart, 2008), occurring as a narrow sequence of Triassic to Lower Jurassic Stikinia Terrane volcanic and volcanoclastic strata mixed with Lower Jurassic Quesnellia Terrane metaigneous units. This superterrane extends northwest – southeast, largely along the Yukon River, within the much more aerially extensive Yukon-Tanana Terrane (YTT). The latter occurs as a broad sequence of accreted terrane abutted against the northwest – southeast trending Tintina Fault, separating the YTT from shelf to off-shelf sediments bordering the ancient North American Continent to the northeast. The Tintina Fault is located about 65 kilometres northeast of the DAD property. The YTT consists of a belt of Devono-Mississippian metamorphic rocks, mainly metavolcanics with lesser metasediments. The northwest – southeast trending Denali (Shakwak) Fault about 170 km to the southwest forms the southwestern boundary of the YTT, separating it from a younger sequence of accreted terrane farther to the southwest (Davidson, 2008).

Stikinia Terrane units consist largely of Upper Triassic Povoas Formation basalts to andesites, including andesitic ash through lapilli tuffs, with lesser clastic sedimentary units ranging from coarse conglomerate through mudstone to shale. These represent the northernmost portions of the Whitehorse Trough. Stikinia Terrane units commonly abut against Quesnellia Terrane Lower Jurassic Aishikik Suite medium to coarse grained biotite-hornblende metagranites and granodiorites, commonly moderately foliated. The Minto copper-gold mine occurs within the Klotassin Batholith, a foliated biotite granite member of the Aishikik Suite.

Much of the area surrounding the Intermontane Terrane is underlain by Upper Cretaceous to early Tertiary Carmacks Group volcanics, comprised largely of mafic flood basalts and andesites, with lesser felsic flow and tuffaceous units, and localized basal clastic strata (Open File, Geological Survey of Canada, 2001).

5.2 Property Geology

The MEL property occurs entirely within the same large unit of Aishikik Suite metagranite as the Minto copper-gold mine. Sherwood Copper website literature designates this unit as the “Klotassin Batholith”. Within MEL property boundaries, this unit occurs as a medium to coarse grained biotite granite, which is potassic-feldspar porphyritic to megacrystic in northwestern areas. The metagranites are commonly foliated; preliminary mapping has identified two

orientation sets, one extending roughly northeast-southwest and dipping steeply southeast, the other extending north-northwest with steep west-southwest to vertical dips. Narrow, centimetre-scale biotitic zones were identified in northwestern portions of the main block.

Abundant narrow pegmatite dykes, commonly epidote-enriched, occur throughout the property. Preliminary mapping suggests that dykes, and small scale shear zones, confirm to the north-northwest trending lineation exhibited by one of the foliation orientations.

A small unit of Wolverine Creek Suite stratigraphy along the north margin of the southwest block was identified from geological maps provided by the Yukon Geology Survey. This was not identified in the field.

6.0 Deposit Model

The deposit model utilized as an exploration target is that of “Minto-style” copper-gold-silver mineralization, the setting of the Minto deposit, currently in production. The following information was provided by personal communication in early 2008 with Mr. Brad Mercer, then Vice President of Exploration of Sherwood Copper Corporation; the Sherwood Copper website itself, and the Yukon Minfile database.

The Minto deposit occurs as a flat-lying body approximately 1,100 feet (335 metres) long in a north-south orientation, 800 feet (245 metres) in an east-west orientation, and averaging 100 feet (30 metres) thick. The deposit is hosted by foliated granodiorite to granodiorite gneiss, with higher-grade zones hosted by more strongly foliated and strongly biotite-enriched sections. In the Minto deposit area, the main diagnostic feature is the presence of foliation in otherwise non-foliated Klotassin Batholith granodiorite (website, Sherwood Copper Corporation).

The mineralization consists of chalcopyrite, bornite, and minor pyrite with accessory magnetite, with gold and silver occurring with the bornite (Sherwood Copper website, 2008). Gold occurs as free gold, and silver occurs as “hessite”, a silver telluride. Copper oxide minerals, mainly azurite and malachite, occur along the upper portions of the zone where in contact with surface weathering, and along fractures and joint planes outbound from the deposit. A distinct zonation occurs from west to east, extending from bornite-chalcopyrite-magnetite in the west through bornite-chalcopyrite in central areas to pyrite in eastern areas. Hydrothermal alteration also exhibits zonation, extending from potassic and/or phyllic alteration within mineralized zones to epidote +/- chlorite – propylitic assemblages along marginal areas (Sherwood Copper website, 2008). Potassic alteration typically occurs as zones of coarse grained, strongly foliated biotite, comprising up to half of the rock mass. Alteration does not extend far beyond the margins of mineralization (Mercer, pers comm).

This model, which has no analogues on a worldwide basis, has several theories brought forth regarding its origin. In a 1999 report, SRK Consulting Inc. theorized the deposit resulted from emplacement of hydrothermal fluids into dilational zones. Analogies to porphyry-style copper deposits and iron-oxide copper-gold (IOCG) deposits have also been put forth.

7.0 Mineralization

No surface exposures of Minto-style mineralization, or of other mineralized settings, were identified during work done in 2009 geological mapping (Map 1), nor have any been identified through historical exploration.

Several reconnaissance-style soil geochemical sampling traverses conducted across the property revealed one area of weakly elevated copper values in the western margin of the main block. The highest value was 77 ppm copper, with 0.4 g/t silver and above-background gold values. This sample was obtained directly along the property boundary, and likely reflecting a source within the adjacent APEX claims to the south, uphill from the sample (Map 3b). Analysis for gold revealed only one anomalous value of 0.021 g/t, obtained in the north-central property area (Map 4b). However, copper values exceeding 25 ppm are commonly associated with above-background gold values. No other “pathfinder element” anomalies were revealed.

Silt sampling focusing along the stream forming the southern property boundary revealed one slightly elevated value of 0.013 g/t gold (Map 4a) towards the eastern downstream limit of sampling along the stream. No other significant anomalies, including those of pathfinder elements, were returned.

8.0 Exploration Program

Precision GeoSurveys Incorporated of Vancouver, B.C. conducted an airborne magnetic and radiometric survey in conjunction with a survey carried out over the MEL East block over the period of two days on August 26th and August 27th, 2009. The survey was based out of the Sonora camp where the flight crew and geophysicist were lodged at the company’s expense. The geophysical report and results are appended at the back of this report.

9.0 Adjacent Properties

The two MEL claim blocks were originally staked as a single block of 120 claims. A claim dispute resulted from near-simultaneous staking of the APEX 1-39 claims by Mr. Sean Ryan; the claims were awarded to the latter, resulting in a “halo” of MEL claims surrounding the Apex 1-27 block. The APEX 28-39 block occurs between, and is contiguous with, the boundaries of the main and southwest MEL blocks (Figure 3). Mr Ryan also added the SPEAR 1-12 claims along the northwest boundary of the main MEL block.

The DEF 1-88 block extends to within 0.5 km of the southern boundary of the main MEL block. This block is held by Minto Explorations Ltd, a wholly owned subsidiary of Sherwood Copper Corporation, and is contiguous with the 76-claim MINTO block, held by Minto Explorations Ltd and hosting the Minto copper-gold mine.

10.0 Discussion and Conclusion

The survey revealed a weak magnetic response over the WEL West survey area. Two narrow northwest trending magnetic features on the western end of the claim block have corresponding elevated Th/K ratio response.

Slightly elevated uranium and potassium over weak magnetic anomalies on the eastern portion of the block suggest that there are granites underlying this part of the property.

11.0 Recommendations

It is recommended that no further work be conducted on this property until a full compilation of existing data is completed including, where possible, the review of work done on adjacent properties.

14.0 References

Gordey, S.P. and Makepeace, A.J., (compilers), 2001: Bedrock Geology, Yukon Territory; Geological Survey of Canada, Open File 3754 and Exploration and Geological Services Division, Yukon Indian and Northern Affairs Canada, Open File 2001-1.

Nusbaum, R.W. 1974: Diamond Drilling Report for Black Giant Mines Ltd (N.P.L.) On the Navaho Mineral Claims, Whitehorse Mining Division, Minto Area, Yukon Territory. In-house report for Black Giant Mines.

Website, Capstone Copper Corporation, 2009.

Yukon Geological Survey, 2008: Yukon Minfile website, Ministry of Energy, Mines and Resources, Government of Yukon.

Appendix 1. Certificate of Author

I, Dennis Ouellette, PGeol, hereby certify that:

- 1) I graduated with a Bachelor of Science Degree in geology from Brandon University, Brandon, Manitoba, in 1984.
- 2) I am a member in good standing of the Association of Professional Engineers Geologists and Geophysicists of Alberta (APEGGA).
- 3) I have worked as a geologist for a total of 26 years since my graduation from Brandon University.
- 4) I consent to the public filing of the Assessment Report with the Yukon Mining Recorder, Ministry of Energy, Mines and Resources, Government of Yukon.

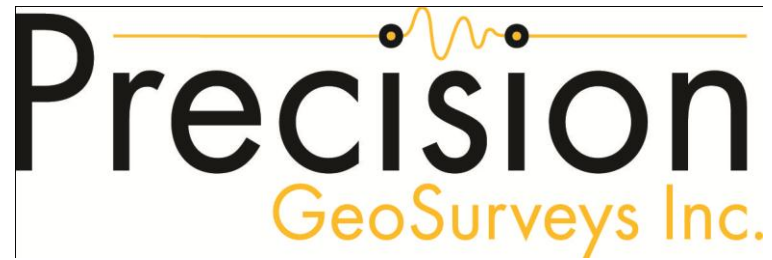
"Dennis Ouellette"

Dennis Ouellette, BSc, PGeol
Suite 220
17010-103rd Ave
Edmonton, Alberta, T5S 1K7
T: 780-428-3465
F: 780-428-3465
Northern-Tiger.com

Appendix 2: Statement of Expenditures**MEL Claims, Northern Tiger Resources Inc.**

Type of Work	No. of Units	Value/Unit	Value
Wages, Project Geologist:	2	\$ 425.00	\$ 850.00
Precision Invoice:	16	\$ 248.00	\$ 3,968.00
Report writing, digitizing (estimate):	4	\$ 424.00	\$ 1,700.00
Supplies, report writing:			\$ 200.00
Totals:			\$ 6,718.00

Appendix 3: Precision GeoSurveys Report



Airborne Geophysical Survey Report MEL Property

Prepared for: Northern Tiger Resources
November 30, 2009



Precision GeoSurveys Inc.
520-355 Burrard Street, Vancouver, Canada V6C 2G8
www.precisiongeosurveys.com

Table of Contents

1.0	Introduction.....	3
2.0	Geophysical Data.....	4
2.1	Magnetic Data.....	4
2.2	Radiometric Data.....	5
3.0	Survey Operations.....	5
4.0	Equipment.....	6
4.1	AGIS.....	6
4.2	Spectrometer.....	7
4.3	Magnetometer.....	7
5.0	Data Processing.....	8
5.1	Magnetic Processing.....	8
5.2	Radiometric Processing.....	8
5.3	Final Data Format.....	9
	Appendix A: Maps.....	10

1.0 Introduction:

This report outlines the survey operations and data processing actions taken during the airborne geophysical survey flown over the MEL Property. The airborne geophysical survey was flown by Precision GeoSurveys Inc. for Northern Tiger Resources. The geophysical survey, carried out on August 26 and August 28, 2009, saw the acquisition of gamma ray spectrometer data and magnetic data.



Figure 1: Survey lines outlined in red

The MEL property, located along the Yukon River (Figure 1), is located approximately 80 km north-west of Carmacks, YT and 30 km east of the Sonora Gulch Camp (Figure 2). The survey area itself is approximately 4 km by 9 km. A total of 288 line kilometers of radiometric and magnetic data were flown for this survey, this total includes tie lines and survey lines. The survey lines were flown at 100 meter spacing's at a 50°/230° heading; the tie lines were flown at 1 km spacing's at a heading of 140°/320°.



Figure 2: MEL survey area location relative to Sonora Gulch Camp and Carmacks, YT.

2.0 Geophysical Data:

Geophysical data are collected in a variety of ways and are used to aid in the exploration and determination of geology, mineral deposits, oil and gas deposits, contaminated land sites and UXO detection.

For the purposes of this survey, airborne gamma ray spectrometer and magnetic data were collected to serve in the exploration of the MEL property which is host to copper bearing rocks.

2.1 Magnetic Data:

Magnetic surveying is probably the most common airborne survey type to be conducted for both mineral and hydrocarbon exploration. The type of survey specifications, instrumentation, and interpretation procedures, depend on the objectives of the survey. Typically magnetic surveys are performed for:

1. Geological Mapping to aid in mapping lithology, structure and alteration in both hard rock environments and for mapping basement lithology, structure and alteration in sedimentary basins or for regional tectonic studies.
2. Depth to Basement mapping for exploration in sedimentary basins or mineralization associated with the basement surface.

2.2 Radiometric Data:

Radiometric surveys detect and map natural radioactive emanations, called gamma rays, from rocks and soils. All detectable gamma radiation from earth materials come from the natural decay products of three primary elements, uranium, thorium, and potassium. The purpose of radiometric surveys is to determine either the absolute or relative amounts of U, Th., and K in surface rocks and soils.

3.0 Survey Operations:

Precision GeoSurveys flew the MEL property using a Bell 206 BIII Jet Ranger (Figure 3). The survey lines were flown at a nominal line spacing of one hundred (100) meters and the tie lines were flown at 1 km spacing for both the spectrometer and magnetometer as they were acquired simultaneously. The average survey elevation was 37.5 meters vertically above ground. The experience of the pilot helped to ensure that the data quality objectives were met and that the safety of the flight crew was never compromised given the potential risks involved in airborne surveying.



Figure 3: Bell 206 Jet Ranger equipped with mag stinger for magnetic data acquisition.

The base of operations for this survey was the Sonora Gulch Camp located approximately 106 km north-west of Carmacks, YT. The Precision crew consisted of a total of three members:

Spring Harrison – Pilot
Paula Vera – Co-pilot/operator
Chris Brown – On-site geophysicist

The first day of survey took place on August 26 and August 28, 2009. The survey was completed without any interference from the weather or equipment issues.

4.0 Equipment:

For this survey a magnetometer, spectrometer and a data acquisition system were required to carry out the survey and collect quality, high resolution data.

4.1 AGIS:

The Airborne Geophysical Information System, AGIS, (Figure 4), is the main computer used in data recording, data synchronizing, displaying real-time data for the operator to QC, pilot navigation and pilot display information.



Figure 4: AGIS installed in the Bell 206.

The AGIS was manufactured by Pico Envirotec; therefore the system uses standardized Pico software and external sources are connected to the system via RS-232 serial communication cables. The AGIS data format is easily converted into Geosoft or ASCII file formats by a supplied conversion program called PEIView. Additional Pico software allows for post survey quality control procedures.

4.2 Spectrometer:

The IRIS, or Integrated Radiometric Information System is a fully integrated, gamma radiation detection system containing two downward facing NaI detecting crystals for a total volume of 8.4 litres (figure 5). Real time data acquisition, navigation and communication tasks are integrated into a single unit that is installed in the rear of the aircraft as indicated below. Information such as total count, counts of various elements (K, U, Th, etc.), temperature, barometric pressure, atmospheric humidity and survey altitude can all be monitored on the AGIS screen for immediate QC. All the radiometric data are recorded at 1 Hz.

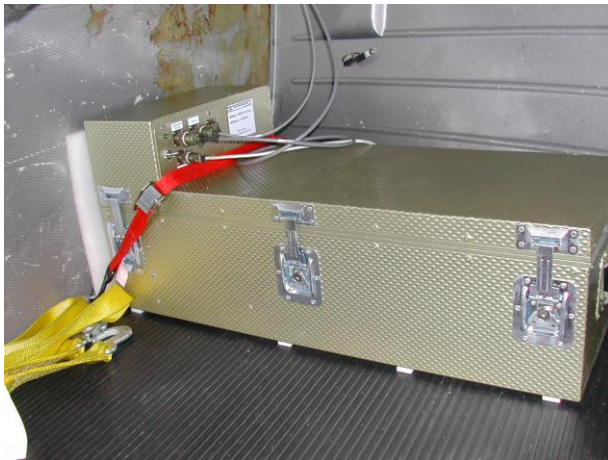


Figure 5:

IRIS strapped into the cargo box of the helicopter.

4.3 Magnetometer:

The magnetometer used by Precision GeoSurveys is a Scintrex cesium vapor CS-3 magnetometer. The system was housed in a front mounted “stinger” (Figure 6). The CS-3 is a high sensitivity/low noise magnetometer with automatic hemisphere switching and a wide voltage range, the static noise rating for the unit is ± 0.01 nT. On the AGIS screen the operator can view the raw magnetic response, the magnetic fourth difference and the survey altitude for immediate QC of the magnetic data. The magnetic data are recorded at 10 Hz. A magnetic compensator is also used to remove noise created by the movement of the helicopter as it pitches, rolls and yaws within the Earth’s geomagnetic field.



Figure 6:

View of the mag stinger.

5.0 Data Processing:

After all the data are collected after a survey flight several procedures are undertaken to ensure that the data meet a high standard of quality. All data were processed using Pico Envirotec software and Geosoft Oasis Montaj geophysical processing software.

5.1 Magnetic Processing:

During aeromagnetic surveying noise is introduced to the magnetic data by the aircraft itself, movement in the aircraft (roll, pitch and yaw) and the permanent magnetization of the aircraft parts (engine and other ferric objects) are large contributing factors to this noise. To remove this noise a process called magnetic compensation is implemented. The magnetic compensation process starts with a test flight at the beginning of the survey where the aircraft flies in the four orthogonal headings required for the survey ($50^{\circ}/230^{\circ}$ and $140^{\circ}/320^{\circ}$ in the case of this survey) at an elevation where there is no ground effect in the magnetic data. In each heading roll, pitch and yaw maneuvers are performed by the pilot, these maneuvers provide the data that is required to calculate the necessary parameters for compensating the magnetic data. A computer program called PEIComp is used to create a model for each survey to remove the noise induced by aircraft movement; this model is applied to each survey flight so the data can be further processed.

A magnetic base station is set up before every flight to ensure that diurnal activity is recorded during the survey flights. Precision GeoSurveys uses a Geometrics 858 base station and sampled at 0.1Hz. Base station readings were reviewed at regular intervals to insure that no data were collected during periods with high diurnal activity (greater than 5 nT per minute). The base station was installed at a magnetically noise-free area, away from metallic items such as steel objects, vehicles, or power lines. The magnetic variations recorded from the stationary base station are removed from the magnetic data recorded in flight to ensure that the anomalies seen are real and not due to solar activity.

Some filtering of the magnetic data is also required. A Non Linear filter was used for spike removal. The 1D Non-Linear Filter is ideal for removing very short wavelength, but high amplitude features from data. It is often thought of as a noise spike-rejection filter, but it can also be effective for removing short wavelength geological features, such as signals from surficial features. The 1D Non-Linear Filter is used to locate and remove data that are recognized as noise. The algorithm is 'non-linear' because it looks at each data point and decides if that datum is noise or a valid signal. If the point is noise, it is simply removed and replaced by an estimate based on surrounding data points. Parts of the data that are not considered noise are not modified. The combination of a Non-Linear filter for noise removal and a low pass trend enhancement filter resulted in level data as indicated in the results section of this report. The low pass filters simply smoothes out the magnetic profile to remove isolated noise.

A lag correction was applied to the total magnetic field data to compensate for the lag in the recording system as the magnetometer sensor flies 6.45 m ahead of the GPS antenna. Following a lag correction of 1.7 seconds, a low-pass filter equivalent to 1 second was then applied to the lag corrected data.

5.2 Radiometric Processing:

Radiometric data are processed by windowing the full spectrum to create channels for U, K, Th and total count. The data are then lightly filtered and corrected for survey altitude at standard temperature and pressure. Background radioactive contributions from the aircraft, cosmic radiation and atmospheric radon must also be removed. Finally the data are corrected by removing spectral overlap; this is done using the striping ratios that have been calculated for the spectrometer by prior calibration, this breaks the corrected elemental values down to the apparent radioelement concentrations.

5.3 Final Data Format

X – Easting in NAD83, UTM zone 8N
Y – Northing in NAD83, UTM zone 8N
utctime – UTCtime
basemag – diurnal data
mag – total magnetic field
lalt – laser altimeter readings
tc_cor – corrected total count
eK – percent potassium
eU – equivalent uranium
eTh – equivalent thorium

The file format will be provided in two (2) formats, the first will be a .GDB file for use in Geosoft Oasis Montaj, the second format will be a .XYZ file, this is text file. Two separate files will be provided for each format, one for the magnetic and one for the radiometrics.

Appendix A
Maps

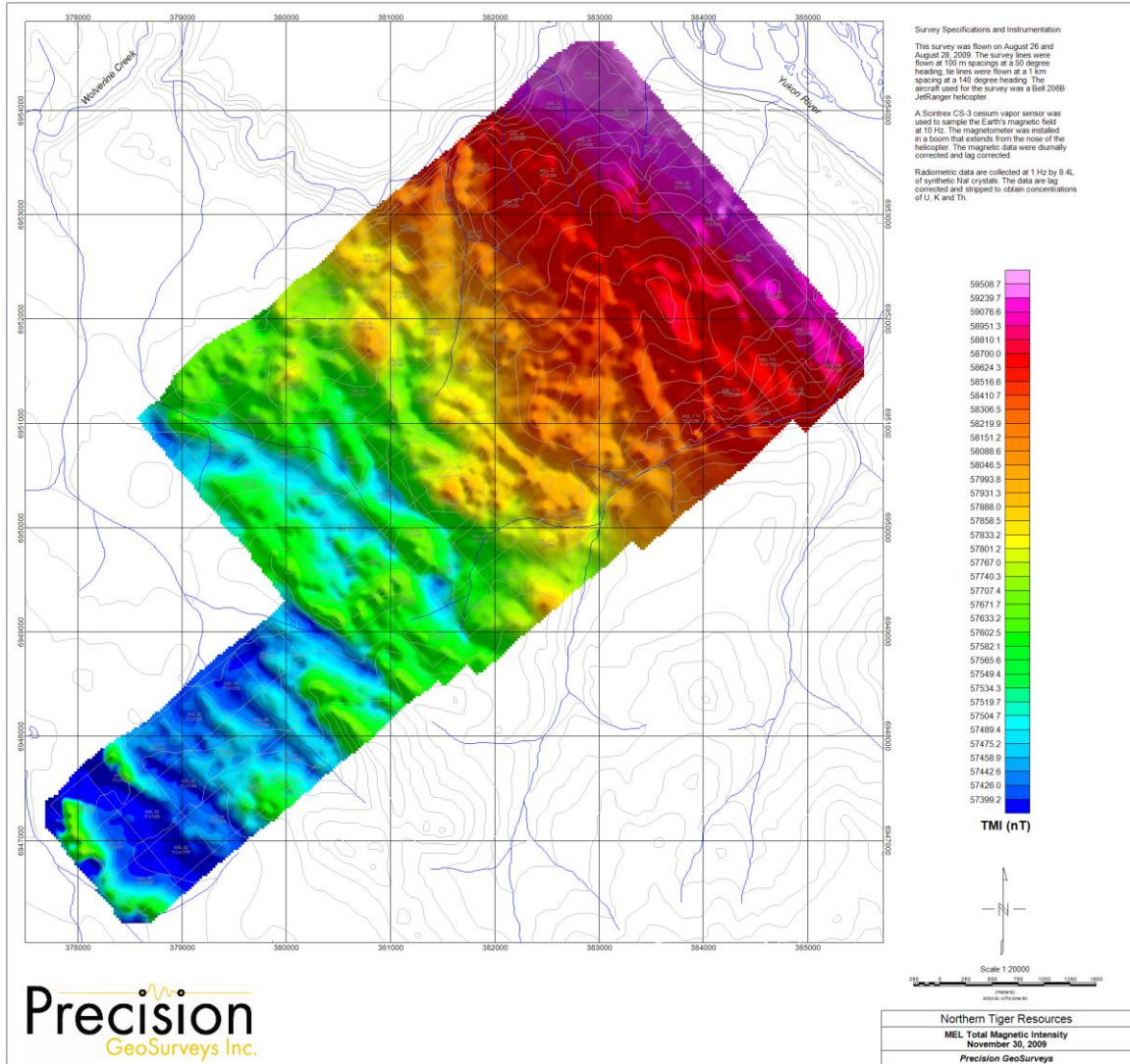


Figure 1: MEL total magnetic intensity.

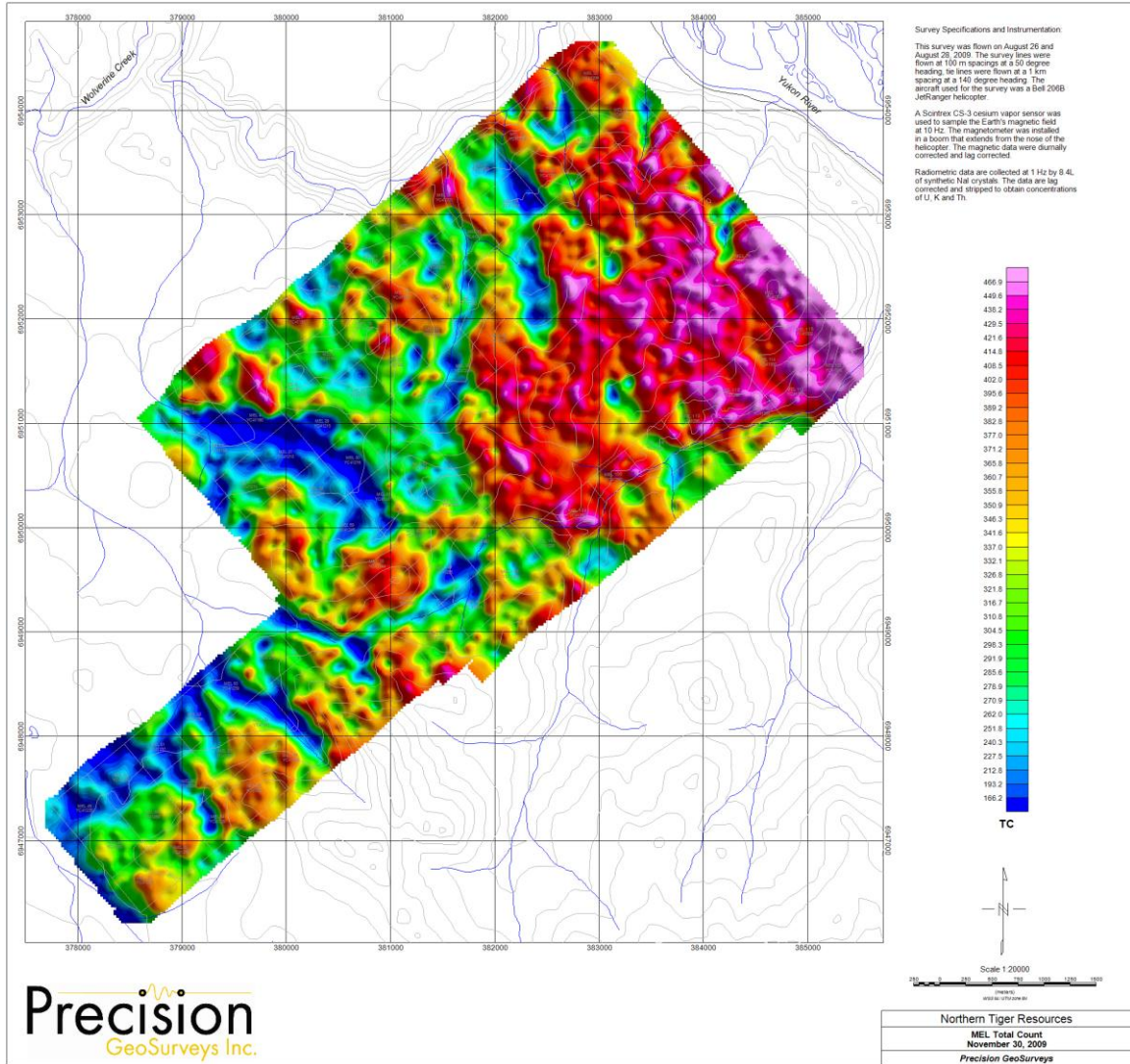


Figure 2: MEL total count.

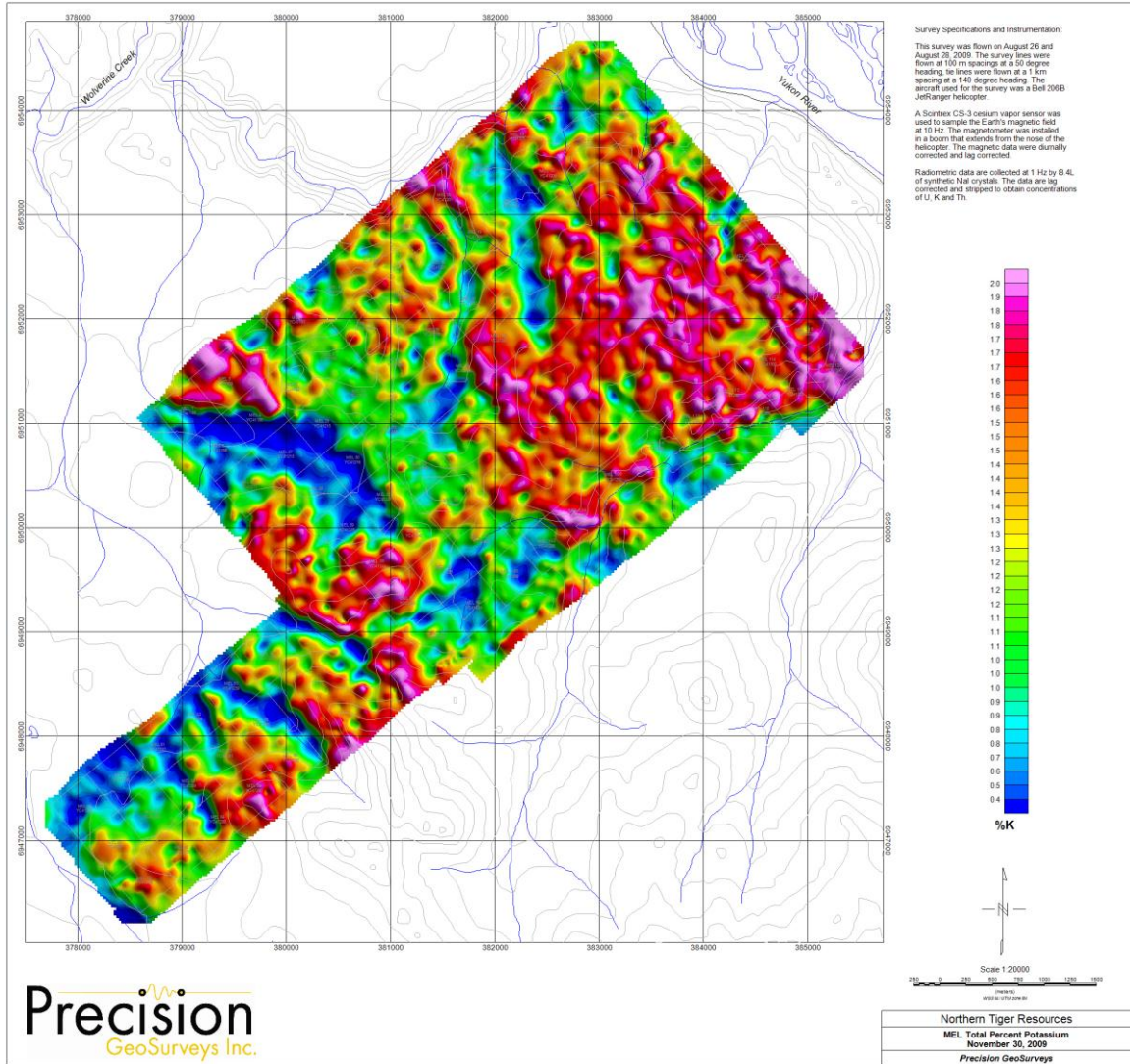


Figure 3: MEL percent potassium

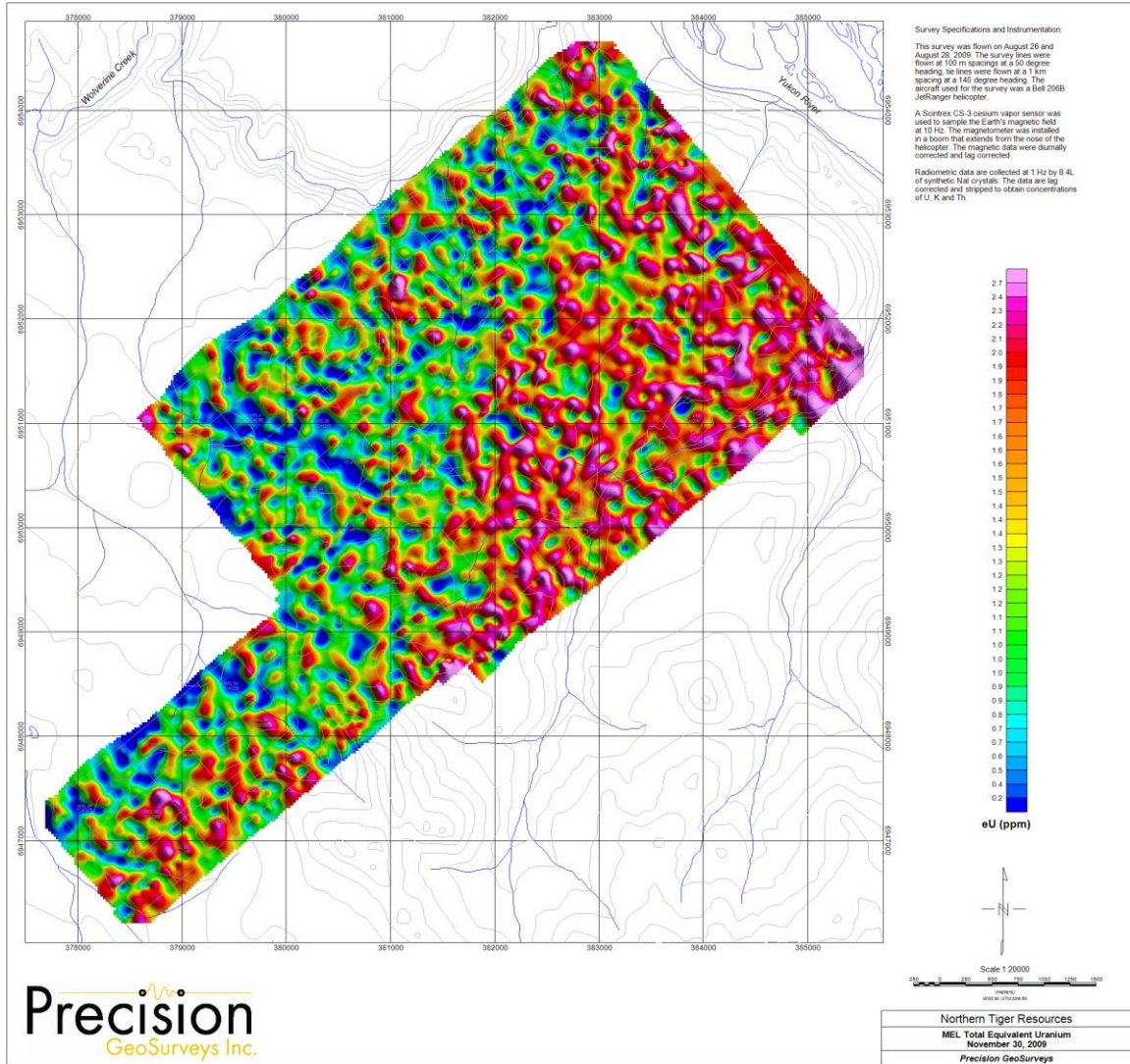


Figure 4: MEL equivalent uranium

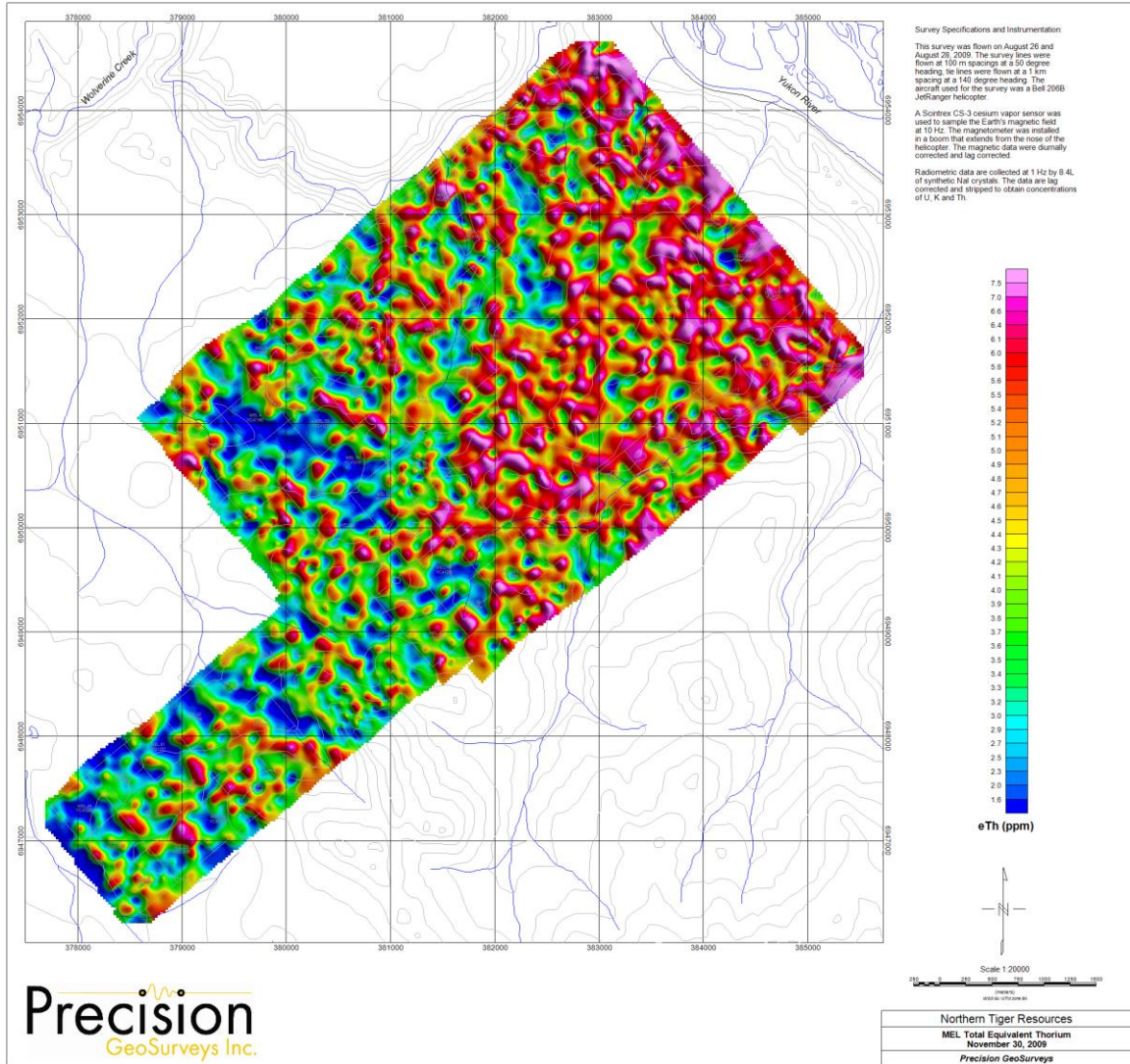
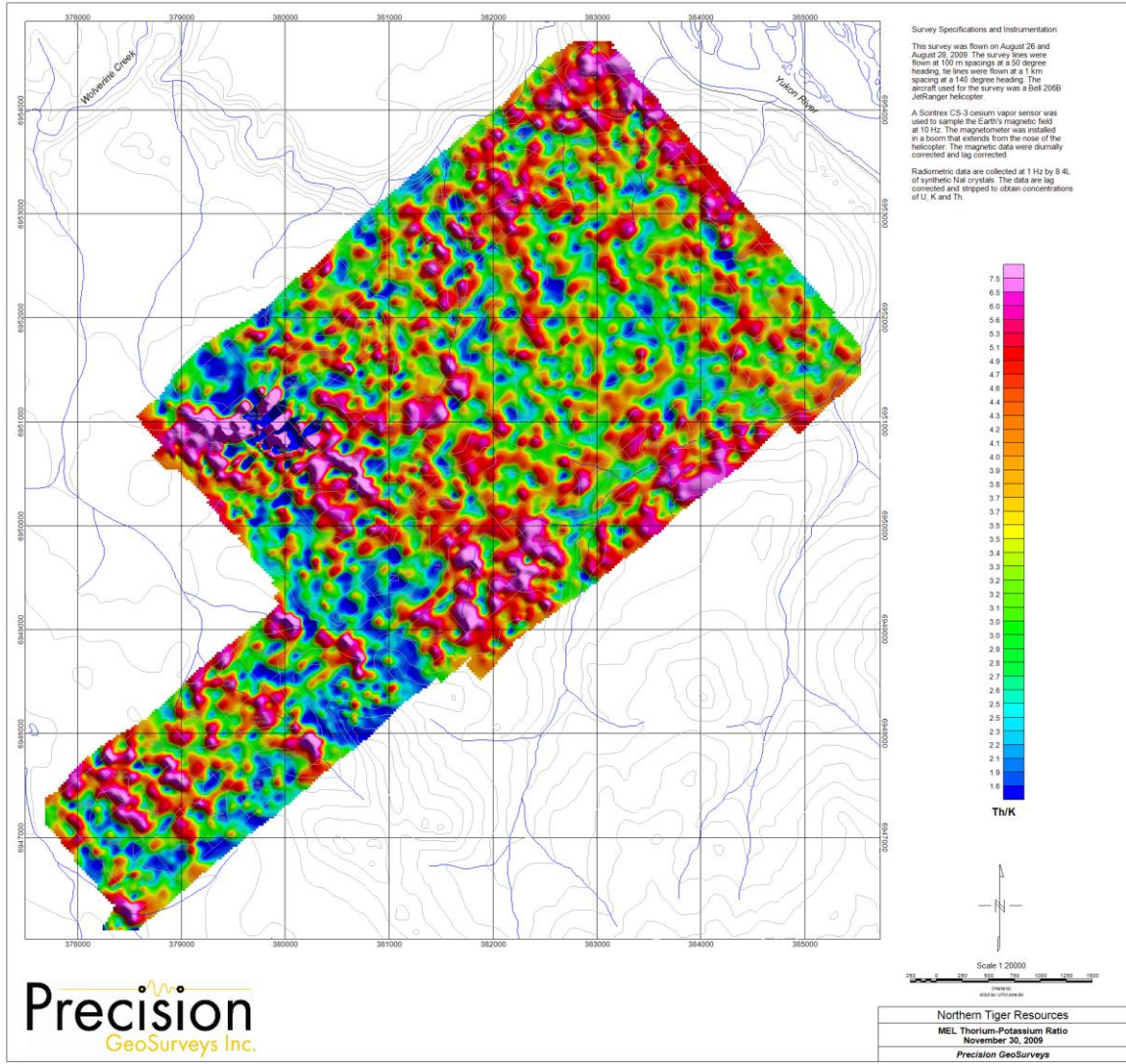


Figure 5: MEL equivalent thorium



Precision
 GeoSurveys Inc.