The Best Place on Earth				(T
<b>Ministry of Energy and Mines</b> BC Geological Survey				Assessment Report Title Page and Summary
TYPE OF REPORT [type of survey(s)]: Technical Report_Airborne Ma	lanetics	s & Radiometrics	OTAL COST:	\$53,257.50
AUTHOR(S): Joey Wilkins		SIGNATURE(S):		
NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): N/A				YEAR OF WORK: 2013
STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S):	):			
PROPERTY NAME: MAX				
CLAIN NAME(S) (on which the work was done): 530480, 532537, 532	32538. (	532540. 532541. 53254	2. 532543.	532635, 532638,
551895, 842873, 842874, 842877, 842878	,	,,	_, , ,	,
COMMODITIES SOUGHT: Copper, gold, silver, molybdenum, zinc, MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: None	c, lead			
MINING DIVISION: Omineca		NTS/BCGS: 93K/16		
LATITUDE: <u>54</u> ° <u>56</u> ' " LONGITUDE: <u>124</u>	<b>o</b>	02'" (at c	entre of work	)
OWNER(S): 1) Jama Holdings Inc. (265548)	2)			
MAILING ADDRESS: 1287 McNair Street				
North Vancouver, BC V7K 0A1				
OPERATOR(S) [who paid for the work]: 1) Aztec Metals Corp	2)			
MAILING ADDRESS: 301-700 West Pender Street				
Vancvouer, BC V6C 1G8				
PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, Quesnel Terrane, Mesozoic island arc volcanic and intermediate	re, altera ate intru	tion, mineralization, size an sive rocks largely assoc	d attitude): ciated with t	he Takla Group which
is divided up into the Witch Lake and Inzana Lake Formations.	Alkalir	ne volcanic and intrusive	e rocks loca	lly host porphyry copper
gold and molybdenum mineralization, tyipcally referred to as 'all	alkalic h	osted porphyry'. The Q	uesnel Terra	ane belt is a north-north-

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west trending belt bound by large fault structures referred to as terrain boundaries, but local faults trend northwest and northeast

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 18020, 20530, 29353, 31625, 31939, 32790

Saltish COLUMPL

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping			
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne 653 line kilometer	s, 100m line spacings	All claims listed above	\$48,457.50
GEOCHEMICAL (number of samples analysed for)			
Soil			
Silt			
Rock			
Other			
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
Sampling/assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)	/trail		
Trench (metres)			
Underground dev. (metres)			
Other Program design into	erpretation, report construction	All claims listed above	\$4.800
	,,		\$53 257 50

## AN ASSESSMENT REPORT

BC Geological Survey Assessment Report 34935

<u>ON</u>

#### THE AEROMAGNETIC AND RADIOMETRIC AIRBORNE SURVEY

#### **MAX-K2** Property

Fort St. James Area Omineca Mining Division, British Columbia

#### NTS: 93K/16

LAT/LONG: 54 56'N, 124 02' W

Claims Surveyed: 530480, 532537, 532538, 532540, 532541, 532542, 532543, 532635, 532638, 551895, 842873, 842874, 842877, 842878

Survey Dates: June 21-23, 2013

**PREPARED BY:** JOEY WILKINS, PRESIDENT AND CEO, AZTEC METALS CORP

#### PREPARED FOR:

AZTEC METALS CORP APRIL 16, 2014

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## 1. Summary

A helicopter supported detailed airborne magnetic and radiometric survey was completed by Precision GeoSurveys Inc. at the request of Aztec Metals Corp. on June 23, 2013 over the Max property in central British Columbia. The survey was completed in 3 days including brief weather delays. The quality of the data is considered very good and grossly corresponds to the government airborne surveys. The cost of the survey alone, including delivery of processed data and a report, was \$48,457.50. An additional \$3,200 is applicable and pertains to survey layout, interpretation, and construction of this report.

The survey grid was run east-west with north-south tie lines. The line spacing was 100 meter with an average flight height of 44.6 meters vertically above ground by a Eurocopter AS350 helicopter. The magnetic sensor used by Precision is a Scintrex cesium vapor CS-3 magnetometer and the spectrometer was a fully integrated gamma radiation detection system called IRIS (Integrated Radiometric Information System). A full report by Precision GeoSurveys is attached as Appendix A.

The combination of magnetic and radiometric data provides a powerful combination in the search for alkalic porphyry copper-gold systems where mineralization in these deposits is typically associated with magnetite and potassium alteration. The new data produced very strong positive magnetic anomalies associated with potassium highs in areas with copper and gold in historic soil samples. Strong magnetic anomalies also correspond to induced polarization chargeability anomalies detected in 2011 surveys, thus the potential for discovery of a copper-gold system on the Max property is considered very good.

# 2. Property, Location, and Access

The 5,760.52 hectare Max property is located in central British Columbia roughly 60 kilometers north of Fort Saint James (Figure 1). The property is easily accessed by the North Road out of Fort Saint James which links the Rainbow Road then to a series of logging roads across the northwest side of the property (Figure 2). The newly constructed Mount Milligan mine complex resides 20 kilometer to the north.

The 5,760.52 hectare property consists of 14 contiguous mineral cell tenures and measures approximately 7.5 x 10.0 kilometers, covering a range of elevation from 3,000 to 4,500 feet (915-1,370 meters) (Table 1). Cripple Lake (aka, Nendatoo Lake) is just off the claims to the southwest and Kilner Creek flanks the eastern edge of the claims. Detailed 50,000 topographic maps covering the property are Tezzeron Creek-093K16 and Salmon Creek-093J13.

The Max property is under joint venture option to Aztec Metals Corp from a 3-way partnership consisting of Jama Holdings, Mindat, and 688672 B.C. Ltd whereby Aztec can acquire up to 80% after meeting various work commitments, cash payments, and share issuances over 5 years. The agreement was formalized the 3<sup>rd</sup> of June, 2013.



Figure 1. Max property location map, central British Columbia, Canada



Figure 2. Max property tenure on topographic base map.

<u>Tenure</u> <u>Number</u>	<u>Claim Name</u>	Owner	<u>Tenure</u> <u>Type</u>	<u>Tenure</u> Sub Type	<u>Map</u> Number	Issue Date	<u>Good To</u> Date	Status	<u>Area</u> (ha)
530480	NEWCOPPER WEST	265548	Mineral	Claim	<u>093K</u>	2006/03/24	2016/06/01	GOOD	464.44
532537	MAX COPPER	265548	Mineral	Claim	<u>093K</u>	2006/04/18	2016/06/01	GOOD	464.44
532538	MAX COPPER 2	265548	Mineral	Claim	<u>093K</u>	2006/04/18	2016/06/01	GOOD	464.61
532540	MAX COPPER 3	265548	Mineral	Claim	<u>093K</u>	2006/04/18	2016/06/01	GOOD	464.78
532541	MAX COPPER 4	265548	Mineral	Claim	<u>093K</u>	2006/04/18	2016/06/01	GOOD	445.90
532542	MAX COPPER 5	265548	Mineral	Claim	<u>093K</u>	2006/04/18	2016/06/01	GOOD	371.80
532543	MAX COPPER 6	265548	Mineral	Claim	<u>093K</u>	2006/04/18	2016/06/01	GOOD	334.60
532635	MAX COPPER 7	265548	Mineral	Claim	<u>093K</u>	2006/04/19	2016/06/01	GOOD	446.14
532638	MAX COPPER 8	265548	Mineral	Claim	<u>093K</u>	2006/04/19	2016/06/01	GOOD	222.95

551895	MAX COPPER SOUTH	265548	Mineral	Claim	<u>093K</u>	2007/02/13	2016/06/01	GOOD	464.93
842873		265548	Mineral	Claim	<u>093J</u>	2011/01/12	2016/06/01	GOOD	445.90
842874		265548	Mineral	Claim	<u>093K</u>	2011/01/12	2016/06/01	GOOD	445.77
842877		265548	Mineral	Claim	<u>093K</u>	2011/01/12	2016/06/01	GOOD	445.70
842878		265548	Mineral	Claim	<u>093K</u>	2011/01/12	2016/06/01	GOOD	278.56

# 3. History

Property work on the Max property is considered quite modern having no data older than 1986. That year, staking was undertaken by Arthur A. Halleran and Uwe Schmidt based on gold anomalies in stream sediments and regional magnetic anomalies (Schmidt, 1987). The two owners promptly optioned the property to United Pacific Gold Ltd who carried out a program of geological mapping, stream sediment sampling, prospecting, and soil sampling. This work in 1987 ultimately discovered widespread propylitic alteration in volcanic rocks and was followed-up with work in 1988/89 that included soil sampling, ground magnetics, and VLF-EM geophysical surveys.

United Pacific sold their interest in the property to City Resources in 1990 who then entered into a joint venture with Rio Algom Exploration that same year in May. Rio Algom followed with a robust program that included aerial magnetic and VLF-em geophysical surveys, airphoto interpretation of surficial geology, grid soil geochemical sampling, and geologic mapping in 1990 (McClintock, 1990). This work outlined a coincident copper and gold soil geochemical anomaly that measured 2.0 by 2.5km with associated magnetic and IP chargeability anomalies.

A British Columbia government geological mapping program in 1990 and 1991 documented a copper showing (K-2) on the Max property (Nelson, 1991).

Rio Algom returned in 1991 and furthered their exploration with additional soil sampling, geological mapping, rock chip sampling, and induced polarization geophysical surveys north and south of the Max property on adjoining properties. Their work concluded the copper and gold anomalies had origins from localized shear and vein structures, and then abandoned the property in 1992.

The B.C. government conducted a regional low-level airborne magnetic and radiometric survey that covered the Max property in 1993 (Shives, 2010).

The current Max property was acquired by staking. The first ten claims listed in Table 1 were staked in 2006 by David Blann (Standard Metals Exploration Ltd) with the last four added in 2011 by Jama Holdings.

Standard Metals Exploration Ltd carried out a program of geological mapping, soil and silt geochemical sampling in June and July, 2007 (Blann, 2007). Anomalous gold and copper values were returned from the assays.

The B.C. government carried out a regional aerial gravity survey which covered the Max property (Sander, 2008). The survey shows similarities between the Mount Milligan deposit and the Max property.

Standard Metals Exploration Ltd (David Blann) sold the property to Anthony James Hewett in 2010. Mr Hewett formed the company Jama Holdings which then commissioned Peter Walcott and Associates to carry out a 20.5 line km grid of induced polarization between August and October, 2010 and a further 16.3 line km in 2011 (Walcott, 2011). These surveys outlined several strong chargeability anomalies in areas of historic gold and copper soil geochemical anomalies. All IP lines were oriented north-south, typically 200m apart with 50 to 100m dipole separations.

The property was optioned to Aztec Metals Corp in June of 2013.

# 4.0 Geologic Setting

## a. Regional Geology

The Max property is situated within the Quesnel Terrane, a Mesozoic island arc sequence named the Takla Group and composed of intermediate volcanic rocks, associated coeval intrusive rocks, and sediment derived from both these suites. The Takla Group is divided into four formations; Rainbow Creek, Inzana Lake, Witch Lake, and Chuchi Lake Formations. The Quesnel Terrane runs roughly northwest-southeast through most of British Columbia and described as accreted terrane bound by suture-like faults. This terrane is one of several that span British Columbia and provide a diverse range of complex geotectonic domains rich in mineral deposits of many commodities (Figure 3 below).

The Takla Group in central B.C. and specifically in the region of the Max property consists largely of the Witch Lake and Inzana Lake Formations and bracketed as Upper Triassic. The Inzana Lake is composed of tightly folded grey-green to black siliceous argillite, minor volcanic sandstone, siltstone, augite crystal lapilli tuff, sedimentary breccias, heterolithic volcanic agglomerate and rare, small limestone pods. The Inzana Lake Fm grades into the overlying Witch Lake Fm, a package of rocks composed of augite phyric basalt flows and pyroclastics, plagioclase +/- hornblende porphyry flows and hypabyssal intrusives. The basalt is classified as a potassium rich shoshonite. Both Formations are intruded by coeval mafic intrusive rocks ranging from gabbro to granodiorite to monzodiorite. Regional scale lower greenschist facies metamorphism is ubiquitous on the property.

The two regional faults that bracket the Quesnel Terrane are the Pinchi Fault, 40 kilometers to the southwest and the Manson Fault, 25 kilometers to the northwest. These faults are sub-parallel and have dextral sense of strike-slip movement. Subsequently, a complex set of conjugate faults trending northeast were developed and mapping has shown they connect the larger northwest dextral faults.

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This region of British Columbia has undergone extensive glaciation and evident by the abundance of glacial morphology and locally thick till. Overall, glacial movement in this area was directed northeast, although local deviations were frequent, dictated by the paleotopography.



Figure 3. Regional geologic map, location of Max property, and significant nearby deposits

# b. Local Geology

The center of the Max property is a topographic high and contains sporadic outcrop, some up to 100 square meters in dimension. Outcrops of stratified rocks are largely composed of augite-rich andesite flows, plagioclase feldspar porphyry bearing andesite, agglomerates of the above lithologies, locally interbedded andesitic tuffs and volcaniclastics, all underlain by a sedimentary sequence of greywacke, siltstone, argillite, and shale. The mafic volcanic package is considered late Jurassic Witch Lake Formation and the underlying sedimentary rocks are likely Inzana Formation. These mostly stratified rocks are intruded by stocks, dikes, and possible sills consisting of diorite, monzodiorite, latite, megacrystic feldspar porphyry, and hornblende latite porphyry.

Structure is difficult to identify due to the lack of exposure, although some topographic lineations and depressions are interpreted to represent faults as well as abrupt geophysical contrast in the various dataset. These lineations frequently run north-east, but a few are oriented north-south and north-west. A ductle/brittle fault mapped in the southeast most part of the property is oriented between 315 and 350 degrees with steep near vertical attitude and traced over a distance of nearly 700 meters. Normal faults at nearby Mount Milligan are a good indication the Max property is likely to contain similar structure and may be identified through further mapping and exploration.

Alteration on the Max property varies from propylitic to potassic with albite and minor phyllic-like aspects. The propylitic alteration is manifested as epidote and chlorite with minor calcite, pyrite, and quartz. The potassic alteration is defined as fine grained biotite, disseminated and as thin veinlets, with sparse amounts of k-feldspar. Magnetite is frequently identified with the biotite as disseminations and veinlets. Albitic alteration, characteristic in alkalic systems, has been identified in proximity to the potassic and propylitic alterations and obvious as white veins or flooding in the intrusive rocks. Actinolite is found in what could be transition zones between the potassic and propylitic alteration, but has not been fully defined in association with any one particular alteration type. Phyllic-like alteration is found with high volumes of disseminated and veinlet pyrite in volcanic rocks and where sericite and weak silicification was identified.

The mineralization at Max is found sporadically and typically as malachite, neotocite, chrysocolla, and sparse chalcopyrite. Copper mineralization is generally restricted to zones, fractures, weak disseminations, and occasional veins often associated with magnetite and hosted in both volcanic and intrusive rocks. Gold flakes have been found in heavy mineral concentration stemming from stream sediment sampling which is an excellent guide to mineralized systems.

Pyrite and sparse pyrrhotite is found on the surface and corresponds well with chargeability anomalies detected in the induced polarization surveys. The pyrite is found in concentrations up to 7%, but more typically in the 3-4% range, finely to medium grained dissemination, occasionally as thin veinlets, and void fillings. Iron oxides do exist as goethite, minor hematite, and rare jarosite, although depth of oxidation is considered quite shallow.



Figure 4. Max property geologic outcrop map and interpretive geologic map

# 5. Geophysical Program

A British Columbia governmental funded airborne magnetic and radiometric survey was flown in 2003 and is an excellent source for identification of both regional and local magnetic features. The survey was flown by fixed wing aircraft over a specific region south of Mount Milligan with flight lines spaced 500 meters apart and a terrain clearance of 120 meters, flown at a speed of 190 kilometers/hour in an east-west direction (Shives, 2010). In addition to the aeromagnetic data, an airborne gravity survey was flown over both the Max property, but over Mount Milligan to the north as part of the regional QUEST program in 2008. While this data is quite good for regional targeting, a more detailed dataset was needed for on the property drill targeting.

The government airborne magnetic anomalies coupled with historic soil geochemistry copper-gold anomalies and government radiometric potassium anomalies suggested the presence of a large system, sufficient to implement an induced polarization survey over the coincidental anomalies. This work was completed over two seasons in 2010 and 2011 by Peter Walcott & Associates per instruction from Anthony Hewett.

The 2-dimensional line data was inverted using the Geotomo RES2DINV algorithm, a process developed by Loke et-al. The results detected large open ended chargeability anomalies associated with airborne magnetic highs and both resistivity highs and lows. Overall, line orientation was north-south with line spacings at 200 to 400 meters. Collectively and after inverting the line data, plan view 2-dimensional slices were produced Walcott recommended additional work to close off the anomalies; however, a program has not yet been designed.

An airborne magnetic and radiometric survey was commissioned by Aztec Metals Corp following review of the government airborne magnetic and radiometric data, 2010-2011 IP results, and historic coppergold geochemical data. An east-west grid was designed at 100m line separation utilizing a helicopter for low altitude clearance. Precision GeoSurveys was contracted to conduct the job using their helicopter and equipment. A total of 653 line kilometers were flown, including 1,000m separation tie lines (Poon, 2013). Specifications for the survey are included in Appendix A.

They survey produced excellent results and shown in Figure5 below. The magnetic data was filtered in Geosoft software and includes total magnetic field, residual magnetic intensity, and calculated vertical gradient datasets. The radiometric survey captured concentrations of radioelements at or near the earth's surface, in particular, U, K, Th, and total count. The data can be manipulated and shown as individual spectral or ratios of the elements.



Figure 5. Residual magnetic intensity map, Max property

# a. Geophysical Results

The airborne survey produced excellent magnetic and radiometric results that will greatly assist furthering our exploration program. The airborne magnetic data show a range of about 2,000 nano-Teslas with values from 55,942 to 57,925 nT, a high spectrum given the small survey area. The total magnetic field data reveal prominent north-northwest trending and oblong magnetic highs truncated by east-northeast trending lows and bound by a prominent and large area of low magnetic susceptibility towards the northeast. The northern half of the grid magnetic features have moderately high susceptibility forming sub-circular to elongate northwest-southeast features in an area with little to no outcrop. The southwest edge of the grid has a pronounced high ringed by an arcuate series of highs, likely representing magnetite rich intrusive rocks.

Some airborne magnetic highs can be linked to magmatic magnetite bearing intrusive rocks such as diorite and monzodiorite, although several highs are found within the volcanic package which infrequently contains primary magnetite. In several cases, strong magnetic highs can be directly associated with hydrothermal magnetite found on the surface in andesite and several types of intrusive rocks found on the property. As much of the property is covered with a thin veneer of soil, the potential to mask volcanic and intrusive rocks rich in hydrothermal magnetite is excellent.

Pronounced magnetic lows, such as one that cuts east-northeast across the center of the property does not correlated to either sedimentary rocks or an area of obvious magnetite destruction. It could represent a prominent structure as one lineation is found in proximity to the magnetic break, but obvious geologic contrast has not been identified in the historic geologic mapping. The large magnetic low in the northeast  $1/4^{th}$  of the grid does correlate to historically mapped sandstone, siltstone, and argillite sedimentary rocks that have no magnetic susceptibility, thus the magnetic data can be very useful in mapping geology, alteration, and likely structure on the Max property.

The vertical gradient derivative map shows pronounced contrast between magnetic highs and lows frequently exhibiting structural characteristics. As the project advances with more exploration, mapping, and drilling, the characteristics of these features will be better defined.

The radiometric data is quality information, although it is suspected areas of clear-cut timbering enhances the higher intensities for K, Th, U, and TC. Outside the obvious clear-cuts and where anomalies were detected, higher K and TC values often correlate to historically mapped outcrops of intrusive and some with mentions of potassic alteration. The radiometric data should undergo another filtering that would exclude known clear-cuts to better define the subtleties of the K and TC images which will better assist future exploration.

# 6. Interpretation of Geophysical Data

Additional and new data to any exploration generally adds value to the project. Commissioning the airborne magnetic and radiometric survey at the Max property was no exception. The new magnetic images show clear and distinct highs and lows, some of which have been correlated to key outcrops where hydrothermal alteration such as magnetite or pervasive pyritic alteration is found. While many questions remain, further reconnaissance and detailed mapping will complement the understanding of the magnetic and radiometric dataset.

Initial interpretation of the magnetic data was completed in a desk-top study primarily looking at structural controls and partitioning magnetic domains that could represent distinct geologic rock types. A structural interpretation of the new magnetic data shows an abundance of north-west trending features, some of which are prominent and bounding like faults in addition to smaller ones that could represent either narrow magnetite rich dikes or magnetite mineralized vein zones (Figure 6 below). There are two distinct and parallel east-northeast trending features that either represents contrasting lithologic breaks, major faults, and areas of pervasive magnetite destruction and/or any combination of the above.



Figure 6. Residual Magnetic Intensity aeromagnetic image with interpretations

There is little doubt the radiometric data maps-out large clear-cut areas and maintained roads. Adding the location of all clear cuts over several K, U, Th, and Total Count (TC) datasets in a GIS environment consistently reveal corresponding positive anomalies as shown in Figure 7 below. That being defined, other areas of anomalism, particularly K/Th ratios and K positives where no clear-cuts are known are areas of great interest as they could represent strongly altered rocks and potential drill targets. Follow-up mapping and sampling over these positive anomalies is a high priority for 2014.



Figure 7. Kcor % equivalent concentration radiometrics with clear-cuts outlined in blue, Max Property

# 7. Discussion of Results

Airborne magnetic and radiometric surveys are invaluable datasets generated in the early stages of exploration projects. The new survey data at Max are an excellent supplement to the existing government magnetics and radiometrics and has provided Aztec Metals with a robust geophysical complement to the existing IP and historical soil geochemistry. Coupling the datasets is proving the merits of further exploration at Max, particularly as numerous strong coincident soil geochemical-IP chargeability-positive magnetic anomalies have been identified in preliminary work. A combination of surface mapping and drill testing will be required to adequately understand the nature of the multiple-datasets.

The quality of the airborne magnetic data is excellent and does more than simply mimic topography as some datasets tend to exhibit. The abundance of magnetic highs and lows show the myriad of potential rock types and potentially distinct alteration signatures typical in an alkalic porphyry environment. The

quantitative results from the radiometrics reveal clear-cuts have the strong potential to result in distinct anomalies that can promptly be eliminated from potential, particularly when there is no outcrop to justify the corresponding anomalies. The anomalies not related to clear-cuts more significantly appear to define areas of potassium anomalism, something diagnostic in the copper-gold mineralized portions of alkalic porphyry systems.

As in most porphyry systems, no two are exactly alike, thus multiple target types and concepts should be tested during the next several phases of exploration. For example, at Mount Milligan 20km to the north, most of the economic copper-gold mineralization is hosted within the intrusive rocks and intrusive breccias with only minor amounts in the peripheral volcanic rocks. The best mineralization is also in close proximity to the intrusive-volcanic rock contact, thus should be a strong consideration for targeting at Max. However, multiple contact relationships or singular lithologic targets should be considered as no two deposits are exactly the same.

The new dataset covers a large area in the 5,760 hectare property and the known targets that merit drill-testing thus far cover an area 5.5 by 3.2 kilometers, something difficult to achieve in one or two rounds of exploration drilling.

# 8. Summary, Conclusions, and Recommendations

The airborne magnetic and radiometric survey conducted over the Max Property is an excellent complement to the induced polarization survey data acquired in 2010/11 and the 2003 government regional surveys. The new data will assist in target development and understanding the copper-gold in soil anomalies discovered in 1990 by Rio Algom.

The airborne survey completed in June of 2013 was completed quickly, without incident, and on budget as estimated by the contractor, Precision GeoSurveys Inc. Total cost of the survey, including data capture, creating of GIS images and filtered data, and final report, was \$48,457.50 CAD.

The deliverables from Precision are high quality, although further processing of the data is recommended. For instance, masking the radiometric data is recommended where removal of areas impacted by historic clear-cuts for timber and where roads clearly influence the data results. The new magnetic data should be inverted into a 3-D model to further define size and depth of potential magnetic targets. Additional field work and systematic capture of rock magnetic susceptibility will likely be required to adequately model the airborne data and is a recommendation. Field traverses over the numerous magnetic highs is also recommended as new outcrops with hydrothermal magnetite and the possibility of copper bearing potassic alteration may be discovered.

The cost of geophysicsal processing such as filters and 3-D modeling is estimated at \$10,000 with \$15,000 of field data capture of magnetic susceptibility measurements necessary to quantify the 3-D modeling.

## 9. Cost Statement

Airborne Geophysical Survey by Precision GeoSurvey's	\$ 48,457.50
Deliverables: Report, Geosoft grids, jpegs, & raw data	
Joey Wilkins: 1 day, grid layout	\$ 800.00
Joey Wilkins: 1 day, data interpretation	\$ 800.00
Joey Wilkins: 2 days, report preparation	\$ 1,600.00

Total Expenditure......\$ 53,257.50

## **10. References & Sources of Information**

Blann, D.E., 2007. Geological and Geochemical Report on the MAX-K2 Property. ARIS # 29353

McClintock, J.A., 1990. MAX Property: Geology, Geochemistry, and Geophysics. For Rio Algom. ARIS # 20530

Nelson, J., Bellefontaine, K., Green, K., MacLean, M, 1990. Regional Geological Mapping Near the Mount Milligan Copper-Gold Deposit (93K/16, 93N/1). In Geological Fieldwork 1990, Paper 1991-1

Poon, J., 2013. MAX Survey Block. From Precision GeoSurveys Inc. for Aztec Metals Corp.

Sander Geophysics, 2008. Sander Geophysics Limited (SGL) high-definition airborne gravity survey for Geoscience BC (GBC), part of Geoscience BC's QUEST (QUesnellia Exploration STrategy Project).

Schmidt, U., 1988. Report on the Geochemistry of the MAX 16-21 Claims. For United Pacific Gold Ltd. ARIS # 18020.

Shives, R.B.K., 2010. Interpretation Report of the 1995 Regional Fixed Wing Airborne Gamma Ray Spectrometric/Magnetic Data of the Max Property. For A.J. Hewett.

Walcott, P., 2011. A report on the Induced Polarization survey of the Max-K2 property. For A.J. Hewett.

# **11.** Author's Statement of Qualifications

Re: Assessment Report on the Aeromagnetic and Radiometric Survey - Max Property, Omineca Mining Division, British Columbia, Canada dated 23 April, 2014.

I, Joseph Wilkins, President & CEO of Aztec Metals Corp with business address of 301-700 West Pender Street, Vancouver, BC, V6C 1G8, certify that:

- 1. I am a graduate of the University of Arizona, Tucson, AZ, USA and hold a degree of Bachelor of Science in Geoscience.
- 2. I have practiced my profession as a prospector and geologist for 28 years. This practice included work as a principal geologist with Rio Tinto Exploration (Kennecott Exploration) on porphyry copper deposits including Bingham Canyon, Stockton, Penasquito, and other properties throughout the Western US, Mexico, and South America.
- 3. I have been a member of the Society of Economic Geologists since 1992.
- 4. I have visited the Max Property on July 11 for 6 days.
- 5. I have based this report on the work conducted by Precision GeoSurveys as described herein.

Respectfully submitted,

Joey Wilkins, President and CEO, Aztec Metals Corp.

# Appendix A – Geophysical Report

# Airborne Geophysical Report (Precision GeoSurveys Inc.)



Precision GeoSurveys Inc.

# Max Survey Block

Prepared for: Aztec Metals Corp.

July 2013 Jenny Poon, B.Sc., G.I.T

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# 1.0 Introduction

This report outlines the survey operations and data processing procedures taken during the airborne geophysical survey flown at the Max survey block. The survey area is located just northeast of Fort St. James, British Columbia (Figure 1). The airborne geophysical survey was flown by Precision GeoSurveys Inc. for Aztec Metals Corp. The geophysical survey was carried out on June 21, 2013 and completed on June 23, 2013. This survey saw to the acquisition of high resolution magnetic and radiometric data.



Figure 1: Block location map.



# 1.1 Survey Area

The Max survey block is located approximately 53.25 km northeast of Fort St. James, BC and approximately 140.3 km northwest of Prince George, BC (Figure 2).



Figure 2: Max survey block location relative to Prince George, BC and Fort St. James, BC on Google Earth.



The Max survey block is approximately 10.4 km by 8.0 km (Figure 3). A total of 653 line kilometers of magnetic and radiometric data were flown for this survey; this total includes tie lines and survey lines.



Figure 3: Max survey block survey boundary in red.



The Max block survey lines were flown at 100 meter spacing at a  $090^{\circ}/270^{\circ}$  heading; the tie lines were flown at 1 km spacing at a heading of  $000^{\circ}/180^{\circ}$  (Figures 4 and 5).



Figure 4: Plan View – Max survey block with actual survey and tie lines outlined in yellow, and the survey block boundary in red.



Figure 5: Terrain View – Max survey block with actual survey and tie lines outlined in yellow, and the survey boundary in red.



# 1.2 Survey Specifications

The geodetic system used for this survey is WGS 84 and the area is contained in zone 10N (Figure 6). Subsequently to processing, the collected data was converted into WGS 84 in Zone 10N. The survey data acquisition specifications and coordinates for the Max survey block are specified as follows (Tables 1 and 2).



Figure 6: Survey map of Max survey block showing proposed survey lines (blue), tie lines (red), and the survey boundary (brown).

Survey Block	Line Spacing m	Planned Survey Line km	Planned Tie Line km	Survey Line Orientatio n	Nominal Survey Height m	Total Planned Line km	Total Actual Flown km
Max	100	589	60	090 <sup>°</sup> /270 <sup>°</sup>	30	649	653
Total						649	653

Table 1: Max survey block acquisition specifications.



Longitude	Latitude	Easting	Northing	N/S	E/W
124.14502818	54.96656841	426695	6091671	Ν	W
124.03897737	54.96648720	433484	6091556	Ν	W
124.03865653	54.95405196	433484	6090172	Ν	W
123.98261074	54.95400553	437073	6090115	Ν	W
123.98245687	54.92913088	437044	6087347	Ν	W
124.00764316	54.92905951	435430	6087362	Ν	W
124.00757780	54.90833600	435401	6085056	Ν	W
124.02622902	54.90817992	434205	6085056	Ν	W
124.02615327	54.89600310	434190	6083701	Ν	W
124.09490338	54.89540301	429780	6083701	Ν	W
124.09548868	54.90834818	429765	6085142	Ν	W
124.12043103	54.90838139	428166	6085171	Ν	W

Table 2: Max block survey polygon coordinates using WGS 84 in zone 10N.

## 2.0 Geophysical Data

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

For the purposes of this survey, airborne magnetic and radiometric data were collected to serve in the exploration of Max survey block.

## 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 <u>Radiometric Data</u>

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 (U), thorium (Th), and potassium (K). The purpose of radiometric surveys is to determine either the absolute or relative amounts of U, Th, and K in surface rocks and soils which are then useful in mapping lithology, alteration, and structure.

## 3.0 Survey Operations

Precision GeoSurveys flew the survey out of Fort St. James, BC. 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. Field processing and quality control checks were done daily.

## 3.1 Operations Base and Crew

The base of operation for this survey was at the airport in Fort St. James, BC. The airport is approximately 60.3 km southeast of the Max block (Figure 7).



Figure 7: Base of operation at Fort St. James airport.



The Precision crew consisted of three members:

Harmen Keyser – Pilot Erik Keyser – Operator Jenny Poon –Geophysicist

The survey was started on June 21, 2013 and completed on June 23, 2013. The survey did encounter delays due to rain and thunderstorms.

## 3.2 Base Station Specifications

Two magnetic base stations were set up before the survey to ensure that diurnal activity was recorded during the survey flight. In this case, two GEM GSM 19T base stations GEM 3 (Serial # 5081669) and GEM 4 (Serial # 2065370) were set up south of the Max survey block (see Table 3).

Station name	Easting/ Northing	Longitude/ Latitude	Datum/ Projection
GEM 3 (Serial # 5081669)	0428232E,	124° 7' 6.221" W	WGS 84, Zone
	6081127N	54° 52' 19.398" N	10N
GEM 4 (Serial #	0428228E,	124° 7' 6.445" W	WGS 84, Zone
2065370)	6081127N	54° 52' 19.395" N	10N

Table 3: Base station specifications.

Base station readings were reviewed at regular intervals to ensure that no data were collected during periods with high diurnal activity (greater than 5 nT per minute). The magnetic base stations were installed at a magnetically noise-free area, away from metallic items such as steel objects, vehicles, or power lines (Figure 8) that could affect the survey data.





Figure 8: GEM 3(right) and GEM 4 (left) magnetic base station locations.

The diurnal magnetic variations recorded from the stationary base station was removed from the magnetic data recorded in flight to ensure that the anomalies seen were real and not due to solar activity.

## 3.3 Field Processing and Quality Control

On a flight-by-flight basis, the survey data were transferred from the helicopter's data acquisition system onto a USB flash drive and copied onto a field data processing laptop. The raw data files were in PEI binary data format and were converted into Geosoft GDB database format. Using Geosoft Oasis Montaj 8.0, the quality of the data was inspected to see if it met the contract specifications (see Table 4). If survey and tie lines exhibit excessive navigational deviation (left/right or up/down) from the contract specifications, or were considered to be inferior quality, the lines were re-flown. All suspect anomalies, especially those found on a single flight line, were re-flown. Any re-flight lines were a minimum of 1500 m long, survey line re-flights crossed at least two tie lines, and tie line re-flights crossed at least 15 survey lines where applicable. For this survey project, the nominal height of 35 m had to be changed to 40 m as there were taller trees then expected. There were several lines that required to be re-flown as it exceeded the nominal height. All data were confirmed and verified by a geophysicist before the survey helicopter and crew demobilized on June 23, 2013.



Specification	Technology	Details	
Line Spacing	Position	Flight line deviation from flight path by more than +/-	
Line Spacing		15 m left/ right for 1 km or more.	
Height		Flight line deviation from height by more than +/- 10	
		up/down with a nominal flight height of 40 m (was 35	
		m originally) above ground for 1 km or more.	
GPS		Any flight lines where 3 or less GPS satellites	
		received for distances of greater than 1 km, provided	
		signal loss is not due to topography	
Diurnal		Non-linear magnetic diurnal variations exceed 10nT	
Variations	Magnetics	from a linear chord of length one (1) minute	
Normalized 4 <sup>th</sup> Difference		Magnetic data exceeding 0.25 nT peak to peak for	
		distances greater than 1 km or more (provided noise is	
		not due to geological or cultural features).	
Test Line Data	Radiometrics	If signal from the four spectrometer windows (K, Th,	
		U, and TC) over the test line exceed by more than	
		12%, the flights shall be re-flown or suspended.	

Table 4: Contract re-flight specifications.

## 4.0 Aircraft and Equipment

All geophysical and subsidiary equipment are carefully installed on Precision GeoSurvey's aircraft. For this survey, a magnetometer, spectrometer, a data acquisition system, base stations, laser altimeter, and a pilot guidance unit (PGU) were required to carry out the survey and collect quality, high resolution data. The survey magnetometer was carried in an approved "stinger" configuration to enhance flight safety and improve data quality in this mountainous terrain.

## 4.1 Aircraft

Precision GeoSurveys flew the Max survey block using a Eurocopter AS350 helicopter (Figure 9), registration CGOHK. The survey lines were flown at a nominal line spacing of two hundred (100) meters and the tie lines were flown at one thousand (1000) meters spacing for both the magnetometer and spectrometer. The average survey elevation was 44.6 meters vertically above ground.





Figure 9: Eurocopter AS350 equipped with mag stinger for magnetic data acquisition, and internal spectrometer crystals for radiometric data acquisition.

## 4.2 Equipment

## 4.2.1 <u>AGIS</u>

The Airborne Geophysical Information System, AGIS, (Figure 10), is the main computer used in data recording, data synchronizing, displaying real-time QC data for the geophysical operator, and the generation of navigation information for the pilot and operator display system. Information such as magnetic field, total count, counts of various radioelements (K, U, Th, etc.), temperature, cosmic radiation, barometric pressure, atmospheric humidity and survey altitude can all be monitored on the AGIS screen for immediate QC.




Figure 10: AGIS operator display installed in the Eurocopter AS350B2.

The AGIS was manufactured by Pico Envirotec; therefore the system uses standardized Pico software and external sensors 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 real time magnetic compensation and survey quality control procedures.

#### 4.2.2 Magnetometer

The airborne magnetic sensor used by Precision GeoSurveys is a Scintrex cesium vapor CS-3 magnetometer. The system was housed in a front mounted "stinger" (Figure 11). 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, compensated and uncompensated data, aircraft position, 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 11: View of the mag stinger.

#### 4.2.3 <u>Spectrometer</u>

The IRIS, or Integrated Radiometric Information System, is a fully integrated, gamma radiation detection system containing 8.4 litres of NaI (T1) synthetic downward looking crystals and 4.2 litres of NaI (T1) synthetic upward looking crystals (Figure 12) with 256 channel output at 1 Hz sampling rate. The downward-looking crystals are designed to measure gamma rays from below the aircraft and are equipped with upward-shielding high density RayShield® gamma-attenuating blankets to minimize cosmic and solar gamma noise. 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.





Figure 12: IRIS strapped in the back seat of the Eurocopter AS350.

#### 4.2.4 Base Station

For monitoring and recording of the Earth's diurnal magnetic field variation, Precision GeoSurveys operates two magnetometer base stations continuously throughout the airborne data acquisition survey. Precision GeoSurveys operates a GEM GSM-19T magnetometer base station. The base stations were positioned south of the survey block, and in an area with low magnetic gradient, to give accurate magnetic field data. The base stations were located in an area away from electric transmission power lines and moving ferrous objects, such as aircraft and motor vehicles that could affect the survey data integrity.

The GEM GSM-19T magnetometer with integrated GPS (Figure 13) or time synchronization uses the proton precession technology sampling at a rate of 0.5 Hz. The GSM-19T has an accuracy of +/- 0.2 nT at 1 Hz. Base station data are recorded on the solid-state memory of the base station, and downloaded onto a field laptop computer using a serial cable and GEMLink 5.0 software. Profile plots of the base station readings are generated and updated at the end of each survey day.





Figure 13: GEM GSM-19T proton precession magnetometer.

#### 4.2.5 Laser Altimeter

The pilot is provided with terrain guidance and clearance information from an Opti-Logic RS800 laser altimeter (Figure 14). This is attached at the aft end of the magnetometer boom. The RS800 sensor is a time-of-flight sensor that measures distance by a rapidly-modulated and collimated laser beam that creates a dot on the target surface. The maximum range of the laser altimeter is 700 m off of natural surfaces with an accuracy of +/- 1 meter on 1 x 1 m<sup>2</sup> diffuse target with 50% (+/- 20%) reflectivity. Within the sensor unit, reflected signal light is collected by the lens and focused onto a photodiode. Through serial communications and digital outputs, the ground clearance data are transmitted to an RS-232 compatible port and recorded and displayed by the AGIS and PGU at 10 Hz.



Figure 14: Opti-Logic RS800 laser altimeter.



#### 4.2.6 Pilot Guidance Unit

The PGU (Pilot Guidance Unit) is a graphical display type unit that provides continuous steering and elevation information to the pilot (Figure 15). It is mounted remotely from the data system on top of the instrument panel. The PGU assists the pilot to keep the helicopter on the flight path and at the desired ground clearance.



Figure 15: Pilot Guidance Unit.

The LCD monitor measures 7 inches, with a full VGA 800 x 600 pixel display. The CPU for the PGU is housed in the PC-104 console and uses Windows XP Embedded operating system control, with input from the GPS antenna, laser altimeter, and AGIS.

#### 4.2.7 GPS Navigation System

A Hemisphere GPS Mini Max navigation system integrated with the pilot display (PGU) and AGIS provided navigational information and control. The Hemisphere GPS Mini Max is composed of a receiver with an MGL-3 antenna (Figure 16). It has a position accuracy to within 1 meter and supports SBAS (WAAS, EGNS, and others), Beacon, and Satloc's patented e-Dif.





Figure 16: Hemisphere GPS – Mini Max

A differential correction signal (DGPS –Differential GPS) is applied to the GPS signal received through the MGL-3 antenna and can be applied up to 5 times per second (5 Hz). Therefore, the high- performance Mini Max differential correction provides positional accuracy on the order of 1 meter or less.

#### 5.0 Data Acquisition Equipment Checks and Calibration

Airborne equipment tests were conducted at the start of the survey. There are three tests conducted for the airborne magnetometer: compensation flight, lag test, and the heading error test (clover leaf test). Gamma ray spectrometer checks and calibrations are also conducted prior to the start of the survey. The three tests conducted were the calibration pad test, cosmic flight test, and the Breckenridge test range.

#### 5.1 Magnetometer Checks

#### 5.1.1 Compensation Flight Test

During aeromagnetic surveying a small but significant amount of noise is introduced to the magnetic data by the aircraft itself, as the magnetometer is within the helicopter's magnetic field. Movement of 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 (000'/180° and 090'/270° in the case of this survey) at an altitude (typically > 1,500 m AGL) where there is no ground effect in the magnetic data. In each heading, three specified roll, pitch, and yaw maneuvers are performed by the pilot at constant elevation so that any magnetic variation recorded by the airborne magnetometer can be attributed to the aircraft movement. The variations recorded by these maneuvers provide the data that are required to calculate the necessary parameters for compensating the magnetic data and removing the aircraft noise.



#### 5.1.2 <u>Lag Test</u>

A lag test was performed to determine the relationship between the time the digital reading was recorded by the instrument magnetic sensor and the time for the position fix that the fiducial of the reading was obtained by the GPS system.

The test was flown in the four orthogonal headings over an identifiable magnetic anomaly (ie. Truck, Trailer, etc.) at survey speed and height. A lag of 10 fiducials (1.0 seconds) was determined from the lag test.

#### 5.1.3 Heading Error Test

To determine the magnetic heading effect a cloverleaf pattern flight test was conducted and a heading test table was generated (Figure 17). The cloverleaf test was flown in the same orthogonal headings as the survey and tie lines at >1000 m AGL in area with low magnetic gradient. For all four directions it must pass over the same mid-point all four times at the same elevation.

Line Number	Fiducials	Heading	Mag (nT)	Average (nT)
LO	6192.0	N-000°	56389.7862	
L90	5952.7	E-090°	56417.6314	
L180	6311.0	S-180°	56406.4622	
L270	6052.0	W-270°	56388.6324	
5	•			56400.62805

Table 5: Heading error test data format flown on June 21, 2013.



HeadingCor.tbl - Notepad	- • ×
File Edit Format View Help	
/Geosoft Heading Correction Table	*
1	
/=Direction:real:i	
/=Correction:real	
/Direction Correction	
090 -17.00335	
180 -5.83415	
360 +10.84185	
	+
	4
	Ln 2, Col 1

Figure 17: Heading data results in .tbl format in Geosoft table.

### 5.2 Gamma-ray Spectrometer Checks and Calibrations

Pre-survey calibrations and testing of the GRS-10 airborne gamma-ray spectrometry system were carried out prior to the start of the survey. The calibration of the spectrometer system involved three tests which enabled the conversion of airborne data to ground concentration of natural radioactive elements. These tests were the calibration pad test, cosmic flight test, and the Breckenridge test range. The measurements were made in accordance with IAEA technical report series No. 323, "Airborne Gamma Ray Spectrometer Surveying", and AGSO Record 1995/60, "A Guide to the Technical Specification for Airborne Gamma-Ray Surveys".

### 5.2.1 Calibration Pad Test

The calibration pad test was conducted by Pico Envirotec at the GSC (Geological Survey of Canada) testing facility in Ottawa, Ontario over the approved GSC calibration pad. It is a slab of concrete containing known concentrations of the radioelements (K, Th, and U) and is ideally used to simulate a geological source of radiation. The measurements collected from the calibration pad test are used to determine the Compton scattering and Grasty Backscatter (spectral overlap between element windows) coefficients.



### 5.2.2 Cosmic Flight Test

As the height of the aircraft increases, cosmic radiation in each spectral window increases exponentially due to radiation of cosmic origin. Also, the background source of radiation from the aircraft itself is constant. The cosmic flight test is conducted to determine the aircraft's background attenuation coefficients for the detector crystal packs and the cosmic coefficients. The pilot is required to fly over the same location repeatedly in opposite directions starting from 1,500 m to 3,000 m at every 500 m interval for approximately 2 minutes each.

#### 5.2.3 Breckenridge Test Range

The Breckenridge test range is very similar to the cosmic flight test but is conducted at lower elevations (from ground level). The pilot is required to fly over the same location at the following elevations in meters above ground; 30, 50, 100, 150, 200, 250, and 300. As the distance of the aircraft increases away from the radioactive source, the source signature exponentially degrades. As a result, this test is used to determine the altitude attenuation coefficients and the radio-element sensitivity of the airborne spectrometer system.

#### 6.0 Data Processing

After all the data were collected from a survey flight several procedures were undertaken to ensure that the data met a high standard of quality. All data were processed using Pico Envirotec software and Geosoft Oasis Montaj 8.0 geophysical processing software along with proprietary processing algorithms.

#### 6.1 Magnetic Processing

The data obtained from the compensation flight test was applied to the raw magnetic data before any further processing and editing was applied to the raw magnetic data. The computer program called PEIComp was used to create a model from the compensation flight test for each survey to remove the noise induced by aircraft movement; this model was applied to each survey flight so the data can be further processed.

Over water or fog, the laser altimeter is unable to record a valid reading and a zero is recorded; therefore all data points recorded at zero were replaced with a nominal height of 40 m. Filtering was then applied to the laser altimeter data to remove vegetation clutter and to show the actual ground clearance. To remove vegetation clutter a Rolling Statistic filter was applied to the laser altimeter data and a low pass filter was used to smooth out the laser altimeter profile to remove isolated noise. As a result, filtering the data will yield a more uniform surface in close conformance with the actual terrain. A digital terrain model channel was calculated by subtracting the filtered laser altimeter data from the filtered GPS altimeter data defined by the WGS 84 ellipsoidal height.



The processing of the magnetic data first involved the correction for diurnal variations. The base station data were edited, plotted and merged into a Geosoft (.gdb) database on a daily basis. The airborne magnetic data were corrected for diurnal variations by subtracting the observed magnetic base station deviations. Following the diurnal correction, a lag correction was applied. A lag correction of 1.0 seconds was applied to the total magnetic field data to compensate for the combination of lag in the recording system and the magnetometer sensor flying 5.70 m ahead of the GPS antenna. Lastly, a heading correction was applied to the data. As a result, after all corrections have been applied the initial Total Magnetic Intensity (TMI) data was generated.

The initial Total Magnetic Intensity (TMI) data from the survey and tie lines were used to level the entire survey dataset. Two forms of leveling were applied to the corrected data: conventional leveling and micro-leveling. There were two components to conventional leveling; the first involved statistical leveling of magnetic data to correct miss ties (intersection errors) followed by specific patterns or trends. For the second component, tie lines were brought to a common regional base value using the mean value of the cross-level error. To obtain the best possible leveled data, individual corrections were edited at selected intersections. Lastly, micro-leveling was applied to the corrected conventional leveled data. This will remove any residual noise related to flight line direction, and any low amplitude component of flight line noise, that still remained in the data after tie line leveling.

#### 6.1.1 IGRF Removal and Calculation of the First Vertical Derivative

The International Geomagnetic Reference Field (IGRF) model is the empirical representation of the Earth's magnetic field (main core field without external sources) collected and disseminated from satellites and from observatories around the world. The IGRF is generally revised and updated every five years by a group of modelers associated with the International Association of Geomagnetism and Aeronomy (IAGA). In this case, the IGRF values were calculated from model year 2010 and the actual survey dates were obtained from the "Date" channel.

With the removal of the IGRF from the observed Total Magnetic Intensity (TMI) a Residual Magnetic Intensity (RMI) was generated. This created a more valid model of individual near surface anomalies and the data will not be referenced to a time which can be easily incorporated into databases of magnetic data acquired in the past or in the future.

The first vertical derivative was computed from the Total Magnetic Intensity (TMI) data. Long wavelengths and vertical rate of change were suppressed in the magnetic field. Therefore, the edges of magnetic anomalies were highlighted and spatial resolution was increased.



#### 6.2 <u>Radiometric Processing</u>

Radiometric surveys map the concentration of radioelements at or near the earth's surface; typically up to 1.5 meters below surface. Thus, the first and vital step before processing of the airborne radiometric data is to calibrate the spectrometer system. Once calibration of the system has been completed, the radiometric data was processed by windowing the full spectrum to create channels for U, K, Th and total count. A 5-point Hanning filter was applied to the Cosmic window before going any further with processing the radiometric data.

Aircraft background and cosmic stripping corrections were applied to all three elements, and total count using the following formula:

$$C_{ac} = C_{lt} - (a_c + b_c * \operatorname{Cos}_f)$$

where:  $C_{ac}$  is the background and cosmic corrected channel  $C_{lt}$  is the live time corrected channel  $a_c$  is the aircraft background for this channel  $b_c$  is the cosmic stripping coefficient for this channel  $Cos_f$  is the filtered cosmic channel

The radon backgrounds were first removed followed by Compton stripping. Spectral overlap corrections were applied on to potassium, uranium, and thorium as part of the Compton stripping process. This was done by using the stripping ratios that have been calculated for the spectrometer by prior calibration; this breaks the corrected elemental values down into the apparent radioelement concentrations. Lastly, attenuation corrections were applied to the data which involves nominal survey altitude corrections, in this case 44.6 metres is applied to total count, potassium, uranium, and thorium data.

With all corrections applied to the radiometric data, the final step is to convert the corrected potassium, uranium, and thorium to apparent radioelement concentrations using the following formula:

$$eE = C_{cor}/s$$

where: eE is the element concentration K(%) and equivalent element concentration of U(ppm) & Th(ppm) s is the experimentally determined sensitivity  $C_{cor}$  is the fully corrected channel

Finally, the natural air exposure rate is determined using the following formula:



E = [(13.08 \* K + 5.43 \* eU + 2.69 \* eTh)/8.69]

where: E is the absorption dose rate in µR/h
K is the concentration of potassium (%)
eU is the equivalent concentration of uranium (ppm)
eTh is the equivalent concentration of thorium (ppm)

To calculate for radiometric ratios the guidelines of the IAEA were followed. Due to statistical uncertainties in the individual radioelement measurements, some care was taken in the calculation of the ratio in order to obtain statistically significant values. Following IAEA guidelines, the method of determining ratios of the eU/eTh, eU/K and eTh/K was as follows:

- 1. Any data points where the potassium concentration was less than 0.25% were neglected.
- 2. The element with the lowest corrected count rate was determined.
- 3. The element concentrations of adjacent points on either side of each data point were summed until they exceeded a pre-determined threshold value. This threshold was set to be equivalent to 100 counts of the element with the lowest count rate. Additional minimum thresholds of 1.6% for potassium, 20 ppm for thorium, and 30 ppm for uranium were set up to ensure meaningful ratios.
- 4. The ratios were calculated using the accumulated sums.

With this method, the errors associated with the calculated ratios were minimized and comparable for all data points.

#### 7.0 Deliverables

All digital data are presented on a compact disc (CD) and USB stick with the logistic report. The survey data are presented as digital databases, maps, and a report.



#### 7.1 <u>Digital Data</u>

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. A complete file provided in each format will contain both magnetic and radiometric data. Full description of the digital data and contents are included in the report (Appendix B).

The digital data are represented into grids. The following grids prepared for the Max survey block are listed below:

- Digital terrain model (DTM)
- Total magnetic intensity (TMI)
- Residual Magnetic Intensity (RMI) removal of IGRF from TMI
- Calculated vertical gradient (CVG) first vertical derivative of TMI
- Potassium (Kcor) radiometric data in percentage
- Thorium (Thcor) radiometric data in concentrations
- Uranium (Ucor) radiometric data in concentrations
- Total count (TCcor) radiometric data in equivalent dose rate
- Total count (TCexp) radiometric data in exposure rate
- Thorium over Potassium ratio (eTh/%K) radiometric ratios
- Uranium over Potassium ratio (eU/%K) radiometric ratios
- Uranium over Thorium ratio (eU/eTh) radiometric ratios

### 7.2 KMZ Grids

The digital data represented into grids were exported into kmz files which can be displayed using Google Earth. The grids can be draped onto topography and rendered to give a 3D view.

#### 7.3 <u>Maps</u>

Digital maps were created for the Max survey block. The following map products were prepared:

Survey Overview Maps (colour images with elevation contour lines):

- Flight lines
- Digital terrain model

Magnetic Maps (colour images with elevation contour lines):

- Total magnetic intensity
- Residual magnetic intensity
- Total magnetic intensity with plotted flight lines



• Calculated vertical gradient of the total magnetic intensity

Radiometric Maps (colour images with elevation contour lines):

- Potassium percentage
- Thorium equivalent concentration
- Uranium equivalent concentration
- Total Count equivalent dose rate
- Total Count exposure rate
- Thorium over Potassium ratio
- Uranium over Potassium ratio
- Uranium over Thorium ratio
- Ternary ratios of all three elements K, Th, and U

All maps were prepared in World Geodetic System (WGS 84) and UTM zone 10N.

#### 7.4 Report

The report provides information about the acquisition procedures, magnetic and radiometric processing, and presentation of the Max block survey data. A pdf copy of the report is included along with the digital data and maps that are provided on the CD and USB stick.

## Appendix A

**Equipment Specifications** 

- GEM GSM-19T Proton Precession Magnetometer (Base Station)
- Hemisphere GPS Mini Max
- Opti-Logic RS800 Laser Altimeter
- Scintrex CS-3 Survey Magnetometer
- Bartington Mag-03 three-axis fluxgate magnetic field sensor
- Pico Envirotec GRS-10 Gamma Spectrometer
- Pico Envirotec AGIS data recorder system (for Navigation, Gamma spectrometer, VLF-EM and Magnetometer Data Acquisition)



Configuration Options	15
Cycle Time	999 to 0.5 sec
Environmental	-40 to +60 ° Celsius
Gradient Tolerance	7,000 nT/m
Magnetic Readings	299,593
Operating Range	10, 000 to 120,000 nT
Power	12 V @ 0.62 A
Sensitivity	0.1 nT @ 1 sec
Weight (Console/ Sensor)	3.2 Kg
Integrated GPS	Yes

#### GEM GSM-19T Proton Precession Magnetometer (Base Station)



#### Hemisphere GPS – MiniMax

	Receiver Type	LI, C/A code, with carrier phase smoothing
	Channels	I2-channel, parallel tracking (10-channel when tracking SBAS)
	WAAS Tracking	2-channel, parallel tracking
	Update Rate	1 Hz default, 5 Hz max
GPS Sensor Specifications	·	< 1 m 95% confidence (DGPS)
	Horizontal Accuracy	< 5 m 95% confidence (autonomous, no
	C 1104	SA)
	Cold Start	l min typical
	Impedance	50 Ω
	Channels	2-channel, parallel tracking
	Frequency Range	283.5 to 325 kHz
	Channel Spacing	500 Hz
	MSK Bit Rates	50, 100, and 200 bps
	Operating Modes	Manual, automatic, semi-automatic
Baagan Sansar	Cold Start Time	< 1 minute typical
Deacon Sensor	Reacquisition Time	< 2 seconds typical
Specifications	Demodulation	Minimum shift keying (MSK)
	Sensitivity	2.5µV for 6dB SNR @ 200 bps
	Dynamic Range	100dB
	Frequency Offset	±8 Hz (~ 27 ppm)
	Adjacent Channel	$61 \text{ dB} \pm 1 \text{dB}$ @ fo $\pm 400 \text{ Hz}$
	Serial ports	2 full dupley
	Interface Level	RS-232C
	Baud Rates	4800 9600 19200
	Correction Input/	4000, 7000, 17200
Communications	Output Protocol	RTCM SC-104
	Raw Measurement Data	Proprietary binary (RINEX utility available)
	Timing Output	1 PPS (HCMOS, active high, rising edge sync, $10k\Omega$ , $10pF$ load)
	Operating Temperature	-32°C to +74°C
	Storage Temperature	-40°C to +85°C
Environmental	Humidity	95% non-condensing
	EMC	FCC Part I 5, Subpart B, Class B CISPR 22
	Input Voltage Range	9 to 32 VDC
	Reverse Polarity	Ver
	Protection	res
Power	Power Consumption	3W
	Current Consumption	<250 mA @ 12 VDC
	Antenna Short Circuit Protection	Yes
	1100000000	1



Accuracy	+/- 1 yard
Com. Protocol	RS232-8,N,1
Baud Rate	19200
Raw Data Rate	~200 Hz
Calibrated Data Rate	~10 Hz
Laser	Class I (eye-safe) 905nm +/- 10nm
Power	7-to-9 Vdc
Typical Range	400 yards
Laser Wavelength	905 nm +/- 10 nm
Laser Divergence	Vertical axis 3.5 mrad half- angle divergence Horizontal axis 1 mrad half- angle divergence (Approximate beam footprint at 100 m is 5 cm x 5 cm)
Data Rate	~200 Hz raw counts for un-calibrated operation ~10 Hz for calibrated operation (averaging algorithm seeks 8 good readings)
Dimensions	32 x 78 x 84 mm (lens face cross section is 32 x 78 mm)
Casing	RS100/RS400/RS800 units are supplied as OEM modules consisting of an open chassis containing optics and circuit boards. Custom housings can be designed and built on request.

#### Opti-Logic RS800 Laser Altimeter



#### Scintrex CS-3 Survey Magnetometer

<b>Operating Principal</b>	Self-oscillation split-beam Cesium Vapor (non-radioactive Cs-133)	
Operating Rage	15,000 to 105,000 nT	
Gradient Tolerance	40,000 nT/metre	
<b>Operating Zones</b>	$10^{\circ}$ to $85^{\circ}$ and $95^{\circ}$ to $170^{\circ}$	
Hemisphere Switching	<ul> <li>a) Automatic</li> <li>b) Electronic control actuated by the control voltage levels</li> <li>(TTL/CMOS)</li> <li>c) Manual</li> </ul>	
Sensitivity	0.0006 nT √Hz rms.	
Noise Envelope	Typically 0.002 nT P-P, 0.1 to 1 Hz bandwidth	
Heading Error	+/- 0.25 nT (inside the optical axis to the field direction angle range $15^{\circ}$ to $75^{\circ}$ and $105^{\circ}$ to $165^{\circ}$ )	
Absolute Accuracy	<2.5 nT throughout range	
Output	a) continuous signal at the Larmor frequency which is proportional to the magnetic field (proportionality constant 3.49857 Hz/nT) sine wave signal amplitude modulated on the power supply voltage b) square wave signal at the I/O connector, TTL/CMOS compatible	
Information Bandwidth	Only limited by the magnetometer processor used	
Sensor Head	Diameter: 63 mm (2.5") Length: 160 mm (6.3") Weight: 1.15 kg (2.6 lb)	
Sensor Electronics	Diameter: 63 mm (2.5") Length: 350 mm (13.8") Weight: 1.5 kg (3.3 lb)	
Cable, Sensor to Sensor Electronics	3m (9' 8"), lengths up to 5m (16' 4") available	
Operating Temperature	$-40^{\circ}$ C to $+50^{\circ}$ C	
Humidity	Up to 100%, splash proof	
Supply Power	24 to 35 Volts DC	
Supply Current	Approx. 1.5A at start up, decreasing to 0.5A at 20°C	
Power Up Time	Less than 15 minutes at -30°C	



Number of Axes	3
D 1 14h	0 to 3kHz at 50µT peak
Bandwidth	
Internal Noise: Basic version Standard version Low Noise version	>10 to 20pTrms/√Hz at 1Hz 6 to ≤10pTrms/√Hz at 1Hz <6pTrms/√Hz at 1Hz
Scaling error (DC)	<±0.5%
Orthogonality error	<0.1°
Alignment error (Z axis to reference face)	<0.1°
Linearity error	<0.0015%
Frequency response	0 to 1kHz maximally flat, ±5% maximum at 1kHz
Input voltage	$\pm 12V$ to $\pm 17V$
Supply current	+30mA, -10mA (+1.4mA per 100µT for each axis)
Power supply rejection ratio	5µV/V (-106dB)
Analog output	±10V (±12V supply) swings to within 0.5V of supply voltage
Output impedance	10 Ω
Operating temperature range	-40°C to +70°C
Environmental protection	IP51
Dimensions (W x H x L)	32 x 32 x 152mm
Weight	160g
Enclosure material	Reinforced epoxy
Connector	ITT Cannon DEM-9P-NMB
Mating connector	ITT Cannon DEM-9S-NMB
Mounting	2 x M5 fixing holes

#### Bartington Mag-03 three-axis fluxgate magnetic field sensor



Crystal volume	8.4 litres of NaI (T1) downward crystals
Resolution	256/512 channels
Tuning	Automatic using peak determination algorithm
Detector	Digital Peak
Calibration	Fully automated detector
Real Time	Linearization and gain stabilization
Communication	RS232
Detectors	Expandable to 10 detectors and digital peak
Count Rate	Up to 60,000 cps per detector
Count Capacity per channel	65545
Energy detection range:	36 KeV to 3 MeV
Cosmic channel	Above 3 MeV
Upward Shielding	RayShield® non-radioactive shielding on downward looking crystals
Spectra	Collected spectra of 256/512 channels, internal spectrum resolution 1024
Software	<b>Calibration:</b> High voltage adjustment, linearity correction coefficients calculation, and communication test support <b>Real Time Data Collection:</b> Automatic Gain real time control on natural isotopes, and PC based test and calibration software suite
Sensor	Each box containing two (2) gamma detection NaI(Tl) crystals – each 4.2 liters. (256 cu in.) (approx. 100 x 100 x 650 mm) Total volume of approx 8.4 litres or 512 cu in with detector electronics
Spectra Stabilization	Real time automatic corrections on radio nuclei: Th, Ur, K. No implanted sources.

#### Pico Envirotec GRS-10 Gamma Spectrometer



<b>Pico Envirotec</b>	AGIS	data	recorder	system
(C NT '	0			

(for Navigation, Gamma spectrometer, VLF-EM and Magnetometer Data Acquisition)		
Functions	Airborne Geophysical Information System (AGIS) with integrated Global Positioning System Receiver (GPS) and all necessary navigation guidance software. Inputs for geophysical sensors - portable gamma ray spectrometer GRS-10, MMS4 Magnetometer, Totem 2A EM, A/D converter, temperature probe, humidity probe, barometric pressure probe, and laser altimeter. Output for the 2 line Pilot Indicator	
Display	Touch screen with display of 800 x 600 pixels; customized keypad and operator keyboard. Multi- screen options for real-time viewing of all data inputs, fiducial points, flight line tracking, and GPS channels by operator.	
GPS Navigation	Garmin 12-channel, WAAS-enabled	
Data Sampling	Sensor dependent	
Data Synchronization	Synchronized to GPS position	
Data File	PEI Binary data format	
Storage	80 GB	
Supplied Software	<b>PEIView:</b> Allows fast data Quality Control (QC) <b>Data Format:</b> Geosoft GBN and ASCII output <b>PEIConv:</b> For survey preparation and survey plot after data acquisition	
Software	Calibration: High voltage adjustment, linearity correction coefficients calculation, and communication test support Real Time Data Collection: Automatic Gain real time control on natural isotopes and PC based test and calibration software suite	
Power Requirements	24 to 32 VDC	
Temperature	Operating:-10 to +55 deg C; storage:-20 to +70 deg C	



## Appendix B

Digital File Descriptions

- Magnetic database description
- Radiometric database description
- Grids
- Maps



## Magnetic Database:

Abbreviations used in the GDB files listed below:

Channel	Units	Description
X_WGS84	m	UTM Easting – WGS 84 Zone 10 North
Y_WGS84	m	UTM Northing – WGS 84 Zone 10 North
Lon_deg	deg	Longitude
Lat_deg	deg	Latitude
Date	yyyy/mm/dd	Dates of the survey flight(s)
FLT		Flight Line numbers
STL		Number of satellite(s)
LineNo		Line numbers
Geos_m	m	Geoidal separation
GPSfix		GPS fix
GPStime	Hours:min:secs	GPS time (UTC)
Galt	m	GPS height - WGS 84 Zone 10 North
Lalt	m	Laser Altimeter readings
DTM	m	Digital Terrain Model
basemag	nT	Base station diurnal data
TMI	nT	Total Magnetic Intensity
IGRF		International Geomagnetic Reference Field 2010
RMI	nT	Residual Magnetic Intensity
Declin		Calculated declination of magnetic field
Inclin		Calculated inclination of magnetic field



## Radiometric Database:

Abbreviations used in the GDB files listed below:

Channel	Units	Description
X_WGS84	m	UTM Easting – WGS 84 Zone 10 North
Y_WGS84	m	UTM Northing – WGS 84 Zone 10 North
Lon_deg	deg	Longitude
Lat_deg	deg	Latitude
Date	yyyy/mm/dd	Dates of the survey flight(s)
FLT		Flight numbers
STL		Number of satellite(s)
LineNo		Line numbers
GPStime	Hours:min:secs	GPS time (UTC)
Geos_m	m	Geoidal separation
GPSFix		GPS fix
Galt	m	GPS height – WGS 84 Zone 10 North
Lalt	m	Laser Altimeter readings
DTM	m	Digital Terrain Model
BaroSTP_Kp	KiloPascal	Barometric Altitude (Press and Temp Corrected)
Temp_degC	Degrees C	Air Temperature
Press_kP	KiloPascal	Atmospheric Pressure
COSFILT	counts/sec	Spectrometer - Filtered Cosmic
Kcor	%	Equivalent Concentration - Potassium
THcor	ppm	Equivalent Concentration - Thorium
Ucor	ppm	Equivalent Concentration - Uranium
TCcor	μR	Equivalent Dose Rate
TCove	uR/hour	Exposure Rate - SUM(%k, eU, eTh) * determined
ТСехр	μινπου	factors
THKratio		Spectrometer – eTh/%K ratio
UKratio		Spectrometer – eU/%K ratio
UTHratio		Spectrometer – eU/eTh ratio



## Grids: WGS 84 Datum, Zone 10N

File Name	Description
MaxSurveyBlock_DTM.grd	Max survey block digital
	terrain model
MaxSurveyBlock_TMI.grd	Max survey block total
	magnetic intensity
MaxSurveyBlock_RMI.grd	Max survey block residual
	magnetic intensity
MaxSurveyBlock_CVG.grd	Max survey block
	calculated vertical gradient
MaxSurveyBlock_Kcor_EquivalentConcentration.grd	Max survey block
	potassium (Kcor)
	percentage
MaxSurveyBlock_Thcor_EquivalentConcentration.grd	Max survey block Thorium
	(Thcor) equivalent
	concentration
MaxSurveyBlock_Ucor_EquivalentConcentration.grd	Max survey block Uranium
	(Ucor) equivalent
	concentration
MaxSurveyBlock_TotalCount_EquivalentDoseRate.grd	Max survey block Total
	Count (TCcor) equivalent
	dose rate
MaxSurveyBlock_TotalCount_ExposureRate.grd MaxSurveyBlock_Thorium_over_Potassium_Ratio.grd	Max survey block Total
	Count (ICexp) exposure
	rate
	Max survey block thorium
	(aTh/%K)
	Max survey block uranium
MaxSurveyBlock_Uranium_over_Potassium_Ratio.grd	over notassium ratio
	(eU/%K)
MaxSurveyBlock_Uranium_over_Thorium_Ratio.grd	
	Wax survey block uranium
	over morium ratio (eU/eIh)



## Maps: WGS 84 Datum, Zone 10N

File Name	Descriptionin
MaxSurveyBlock_FlightLines.pdf	Max survey block plotted flight lines
MaxSurveyBlock_DigitalTerrainModel.pdf	Max survey block digital terrain model
MaxSurveyBlock_TotalMagIntensity.pdf	Max survey block total magnetic intensity
MaxSurveyBlock_TotalMagIntensity_with_FlightLines .pdf	Max survey block total magnetic intensity with plotted actual flight lines
MaxSurveyBlock_ResidualMagIntensity.pdf	Max survey block residual magnetic intensity
MaxSurveyBlock_CalculatedVerticalGradient.pdf	Max survey block calculated vertical gradient
MaxSurveyBlock_Kcor_Potassium_EquivalentConcent ration.pdf	Max survey block potassium (Kcor) percentage
MaxSurveyBlock_Thcor_Thorium_EquivalentConcent ration.pdf	Max survey block Thorium (Thcor) equivalent concentration
MaxSurveyBlock_Ucor_Uranium_EquivalentConcentr ation.pdf	Max survey block Uranium (Ucor) equivalent concentration
MaxSurveyBlock_TCcor_TotalCount_EquivalentDose Rate.pdf	Max survey block Total Count (TCcor) equivalent dose rate
MaxSurveyBlock_TCexp_TotalCount_ExposureRate.p df	Max survey block Total Count (TCexp) exposure rate
MaxSurveyBlock_eTH%K_Thorium_over_Potassium_ Ratio.pdf	Max survey block thorium over potassium ratio (eTh/%K)
MaxSurveyBlock_eU%K_Uranium_over_Potassium_R atio.pdf	Max survey block uranium over potassium ratio (eU/%K)
MaxSurveyBlock_eUeTh_Uranium_over_Thorium_Rat io.pdf	Max survey block uranium over thorium ratio (eU/eTh)
MaxSurveyBlock_TernaryMap.pdf	Max survey block displaying ratios of all three elements (%K, eTh, eU)



## Appendix C

#### Max survey block Maps

Survey Overview Maps (colour image with elevation contour lines):

- Flight Lines (FL)
- Digital Terrain Model (DTM)

Magnetic Maps (colour image with elevation contour lines):

- Total Magnetic Intensity (TMI)
- Total Magnetic Intensity (TMI) with flight lines
- Residual Magnetic Intensity (RMI)
- Calculated Vertical Gradient (CVG)

Radiometric Maps (colour image with elevation contour lines):

- Potassium Equivalent Concentration (Kcor)
- Thorium Equivalent Concentration (Thcor)
- Uranium Equivalent Concentration (Ucor)
- Total Count Equivalent Dose Rate (TCcor)
- Total Count Exposure Rate (TCexp)
- Thorium over Potassium Ratio Spectrometer eTh/%K ratio
- Uranium over Potassium Ratio Spectrometer eU/%K ratio
- Uranium over Thorium Ratio Spectrometer eU/eTh ratio
- Ternary (TM)





Map 1: Max survey block actual flight lines.



Map 2: Max survey block digital terrain model.





Map 3: Max survey block total magnetic intensity.



Map 4: Max survey block total magnetic intensity with plotted flight lines.





Map 5: Max survey block residual magnetic intensity.



Map 6: Max survey block calculated vertical gradient of the total magnetic intensity.





Map 7: Max survey block potassium - (percentage) equivalent concentration.



Map 8: Max survey block thorium – equivalent concentration.





Map 9: Max survey block uranium – equivalent concentration.



Map 10: Max survey block total count – equivalent dose rate.





Map 11: Max survey block total count-exposure rate.



Map 12: Max survey block thorium over potassium ratio.





Map 13: Max survey block uranium over potassium ratio.



Map 14: Max survey block uranium over thorium ratio.





#### LEGEND

#### Map Projection:

Projection: Universal Transverse Mercator Central Meridian: 237 Zone 10N Datum: WGS 84



June 21, 2013 to June 23, 2013

Magnetic and Radiometric survey.

Stinger with 3 axis compensation

Fort St. James, BC

Eurocopter AS350

C-GOHK

40 meters

40 meters 40 meters

44 meters

100 meters

090°-270°

000°-180°

10 Hz 0.01 nT

1 Hz

1000 meters

Survey Dates: Survey Base: Helicopter Type: **Registration:** Survey Technology:

#### SURVEY PARAMETERS:

Helicopter: Magnetometer: Spectrometer: Actual Mean Terrain Clearance:

#### Max Survey Block:

Survey Line Spacing: Survey Line Direction: Tie Line Spacing: Tie Line Direction:

#### AIRBORNE SYSTEMS:

Scintrex CS-3 Magnetometer Sensor

Configuration: Sample Rate: Sensitivity:

Gamma Ray Spectrometer

Pico Envirotec GRS-10 Gamma Spectrometer 8.4 litres of Nal(T1) synthetic "downward looking" crystals Sample Rate:

# **Aztec Metals Corp.**

## **Overview Map**

Max Survey Block Actual Flight Line Created By: Precision GeoSurveys Inc. July 2, 2013

Precision GeoSurveys Inc.

1500 2000 2500 3000 (meters) WGS 84 / UTM zone 10N




500 0 500



LEGEND

#### Map Projection:

Projection: Universal Transverse Mercator Central Meridian: 237 Zone 10N Datum: WGS 84



Survey Dates: Survey Base: Helicopter Type: Registration: Survey Technology:

#### SURVEY PARAMETERS:

Helicopter: Magnetometer: Spectrometer: Actual Mean Terrain Clearance:

#### Max Survey Block:

Survey Line Spacing: Survey Line Direction: Tie Line Spacing: Tie Line Direction:

#### AIRBORNE SYSTEMS:

Scintrex CS-3 Magnetometer Sensor

Configuration: Sample Rate: Sensitivity:

Gamma Ray Spectrometer

Pico Envirotec GRS-10 Gamma Spectrometer 8.4 litres of Nal(T1) synthetic "downward looking" crystals Sample Rate:

## **Aztec Metals Corp.**

### **Overview Map**

Max Survey Block Digital Terrain Model Created By: Precision GeoSurveys Inc. July 2, 2013

Precision GeoSurveys Inc.

1000 1500 2000 2500 300 (meters) WGS 84 / UTM zone 10N



June 21, 2013 to June 23, 2013 Fort St. James, BC Eurocopter AS350 C-GOHK Magnetic and Radiometric survey.

40 meters 40 meters 40 meters 44 meters

100 meters 090°-270° 1000 meters 000°-180°

Stinger with 3 axis compensation 10 Hz 0.01 nT

1 Hz



57925.60	
57689.24	
57518.70	
57410.29	
57285.91	
57159.72	-
57068.62	-
56991.27	
56910.70	
56832.12	
56762.50	
56695.40	
56622.43	
56560.27	
56510.29	
56474.34	
56443.56	
56415.71	
56391.29	
56366.78	
56346.19	
56328.12	
56311.15	
56296.04	
56279.32	
56264.98	
56253.23	
56242.37	
56228.22	
56213.31	
56196.58	
56181.74	
56165.21	
56148.61	
56129.09	
56094.73	
56036.83	
55942.83	
TMI	(nT)

#### Map Projection:

Projection: Universal Transverse Mercator Central Meridian: 237 Zone 10N Datum: WGS 84



June 21, 2013 to June 23, 2013

Magnetic and Radiometric survey.

Stinger with 3 axis compensation

Fort St. James, BC

Eurocopter AS350

C-GOHK

40 meters

40 meters

40 meters

44 meters

100 meters

090°-270°

000°-180°

10 Hz 0.01 nT

1 Hz

1000 meters

Survey Dates: Survey Base: Helicopter Type: **Registration:** Survey Technology:

#### SURVEY PARAMETERS:

Helicopter: Magnetometer: Spectrometer: Actual Mean Terrain Clearance:

#### Max Survey Block:

Survey Line Spacing: Survey Line Direction: Tie Line Spacing: Tie Line Direction:

#### AIRBORNE SYSTEMS:

Scintrex CS-3 Magnetometer Sensor

Configuration: Sample Rate: Sensitivity:

Gamma Ray Spectrometer

Pico Envirotec GRS-10 Gamma Spectrometer 8.4 litres of Nal(T1) synthetic "downward looking" crystals Sample Rate:

## Aztec Metals Corp.

## Magnetic Map

Max Survey Block Total Magnetic Intensity Created By: Precision GeoSurveys Inc. July 2, 2013

Precision GeoSurveys Inc.





500 0 500

57925.60	
57689.24	
57410.29	
57285.91	
57159.72	
57068.62	
56991.27	_
56910.70	
56832.12	
56762.50	
56695.40	
56622.43	
56560.27	
56510.29	
56474.34	
56443.56	
56415.71	
56391.29	
56366.78	
56346.19	
56311 15	
56296.04	
56279 32	
56264.98	
56253.23	
56242.37	
56228.22	
56213.31	
56196.58	
56181.74	
56165.21	
56148.61	
56129.09	
56004 72	
50094.75	
56036.83	
56036.83 55942.83	
56036.83 55942.83	

### LEGEND

#### Map Projection:

Projection: Universal Transverse Mercator Central Meridian: 237 Zone 10N Datum: WGS 84



June 21, 2013 to June 23, 2013

Magnetic and Radiometric survey.

Stinger with 3 axis compensation

Fort St. James, BC

Eurocopter AS350

C-GOHK

40 meters

40 meters

40 meters

44 meters

100 meters

1000 meters

090°-270°

000°-180°

10 Hz 0.01 nT

1 Hz

Survey Dates: Survey Base: Helicopter Type: Registration: Survey Technology:

#### SURVEY PARAMETERS:

Helicopter: Magnetometer: Spectrometer: Actual Mean Terrain Clearance:

#### Max Survey Block:

Survey Line Spacing: Survey Line Direction: Tie Line Spacing: Tie Line Direction:

#### AIRBORNE SYSTEMS:

Scintrex CS-3 Magnetometer Sensor

Configuration: Sample Rate: Sensitivity:

Gamma Ray Spectrometer

Pico Envirotec GRS-10 Gamma Spectrometer 8.4 litres of Nal(T1) synthetic "downward looking" crystals Sample Rate:

## **Aztec Metals Corp.**

## Magnetic Map

Max Survey Block Total Magnetic Intensity With Flight Lines Created By: Precision GeoSurveys Inc. July 2, 2013

Precision GeoSurveys Inc.

1000 1500 2000 2500 (meters) WGS 84 / UTM zone 10N 3000

### TMI\_wFL





179.76 944.06 773.34 664.27 540.23 411.11 318.59 242.42 160.88 81.34 11.95 -56.51 -129.96 -192.18 -243.07 -278.63 -309.47 -337.48 -309.47 -337.48 -362.03 -386.63 -408.09 -426.15 -443.62 -386.63 -408.09 -426.15 -443.62 -503.96 -515.23 -503.96 -515.23 -526.99 -542.12 -558.73 -573.80 -590.15 -606.44 -625.06 -515.23 -573.80 -590.15 -606.44	
RMI	(nT)

#### Map Projection:

Projection: Universal Transverse Mercator Central Meridian: 237 Zone 10N Datum: WGS 84



June 21, 2013 to June 23, 2013

Magnetic and Radiometric survey.

Stinger with 3 axis compensation

Fort St. James, BC

Eurocopter AS350

C-GOHK

40 meters

40 meters

40 meters

44 meters

100 meters

090°-270°

000°-180°

10 Hz 0.01 nT

1 Hz

1000 meters

Survey Dates: Survey Base: Helicopter Type: **Registration:** Survey Technology:

#### SURVEY PARAMETERS:

Helicopter: Magnetometer: Spectrometer: Actual Mean Terrain Clearance:

#### Max Survey Block:

Survey Line Spacing: Survey Line Direction: Tie Line Spacing: Tie Line Direction:

#### AIRBORNE SYSTEMS:

Scintrex CS-3 Magnetometer Sensor

Configuration: Sample Rate: Sensitivity:

Gamma Ray Spectrometer

Pico Envirotec GRS-10 Gamma Spectrometer 8.4 litres of Nal(T1) synthetic "downward looking" crystals Sample Rate:

## Aztec Metals Corp.

## Magnetic Map

Max Survey Block Residual Magnetic Intensity Created By: Precision GeoSurveys Inc. July 2, 2013

Precision GeoSurveys Inc.





500 0 500

nT/m
/!!!

### LEGEND

#### Map Projection:

Projection: Universal Transverse Mercator Central Meridian: 237 Zone 10N Datum: WGS 84



June 21, 2013 to June 23, 2013

Magnetic and Radiometric survey.

Stinger with 3 axis compensation

Fort St. James, BC

Eurocopter AS350

C-GOHK

40 meters

40 meters 40 meters

44 meters

100 meters

090°-270°

000°-180°

10 Hz 0.01 nT

1 Hz

1000 meters

Survey Dates: Survey Base: Helicopter Type: Registration: Survey Technology:

#### SURVEY PARAMETERS:

Helicopter: Magnetometer: Spectrometer: Actual Mean Terrain Clearance:

#### Max Survey Block:

Survey Line Spacing: Survey Line Direction: Tie Line Spacing: Tie Line Direction:

#### AIRBORNE SYSTEMS:

Scintrex CS-3 Magnetometer Sensor

Configuration: Sample Rate: Sensitivity:

Gamma Ray Spectrometer

Pico Envirotec GRS-10 Gamma Spectrometer 8.4 litres of Nal(T1) synthetic "downward looking" crystals Sample Rate:

## **Aztec Metals Corp.**

## Magnetic Map

Max Survey Block Calculated Vertical Gradient Created By: Precision GeoSurveys Inc. July 2, 2013

Precision GeoSurveys Inc.

1000 1500 2000 2500 3000 (meters) WGS 84 / UTM zone 10N





500 0

0.16 0.14 0.13 0.12 0.12 0.11 0.11 0.10 0.10 0.09 0.09 0.09 0.09	
NCO	「(%)

#### LEGEND

Map Projection:

Projection: Universal Transverse Mercator Central Meridian: 237 Zone 10N Datum: WGS 84



Survey Dates: Survey Base: Helicopter Type: Registration: Survey Technology:

#### SURVEY PARAMETERS:

Helicopter: Magnetometer: Spectrometer: Actual Mean Terrain Clearance:

#### Max Survey Block:

Survey Line Spacing: Survey Line Direction: Tie Line Spacing: Tie Line Direction:

#### **AIRBORNE SYSTEMS:**

Scintrex CS-3 Magnetometer Sensor

Configuration: Sample Rate: Sensitivity:

Gamma Ray Spectrometer

Pico Envirotec GRS-10 Gamma Spectrometer 8.4 litres of Nal(T1) synthetic "downward looking" crystals Sample Rate: June 21, 2013 to June 23, 2013 Fort St. James, BC Eurocopter AS350 C-GOHK Magnetic and Radiometric survey.

40 meters 40 meters 40 meters 44 meters

100 meters 090°-270° 1000 meters 000°-180°

Stinger with 3 axis compensation 10 Hz 0.01 nT

1 Hz

# **Aztec Metals Corp.**

### **Radiometric Map**

Max Survey Block Kcor - (Percentage) Equivalent Concentration Created By: Precision GeoSurveys Inc. July 4, 2013

(meters) WGS 84 / UTM zone 10N





500 0

1.07 0.98	
0.93	
0.88	
0.82	
0.80	
0.78	
0.76	
0.72	
0.70	
0.68	
0.65	
0.64	
0.62	
0.61	
0.58	
0.57	
0.55	
0.54	
0.51	
0.50	
0.48	
0.47	
0.43	
0.42	
0.40	
0.38	
0.33	
0.29	
0.25	
0.19	

Thcor (ppm)

#### LEGEND

#### Map Projection:

Projection: Universal Transverse Mercator Central Meridian: 237 Zone 10N Datum: WGS 84



Survey Dates: Survey Base: Helicopter Type: Registration: Survey Technology:

#### SURVEY PARAMETERS:

Helicopter: Magnetometer: Spectrometer: Actual Mean Terrain Clearance:

#### Max Survey Block:

Survey Line Spacing: Survey Line Direction: Tie Line Spacing: Tie Line Direction:

#### **AIRBORNE SYSTEMS:**

Scintrex CS-3 Magnetometer Sensor

Configuration: Sample Rate: Sensitivity:

Gamma Ray Spectrometer

Pico Envirotec GRS-10 Gamma Spectrometer 8.4 litres of Nal(T1) synthetic "downward looking" crystals Sample Rate: June 21, 2013 to June 23, 2013 Fort St. James, BC Eurocopter AS350 C-GOHK Magnetic and Radiometric survey.

40 meters 40 meters 40 meters 44 meters

100 meters 090°-270° 1000 meters 000°-180°

Stinger with 3 axis compensation 10 Hz 0.01 nT

1 Hz

# **Aztec Metals Corp.**

### **Radiometric Map**

Max Survey Block Thcor - Equivalent Concentration Created By: Precision GeoSurveys Inc. July 4, 2013









Map Projection:

Projection: Universal Transverse Mercator Central Meridian: 237 Zone 10N Datum: WGS 84



Survey Dates: Survey Base: Helicopter Type: **Registration:** Survey Technology:

#### SURVEY PARAMETERS:

Helicopter: Magnetometer: Spectrometer: Actual Mean Terrain Clearance:

#### Max Survey Block:

Survey Line Spacing: Survey Line Direction: Tie Line Spacing: Tie Line Direction:

#### **AIRBORNE SYSTEMS:**

Scintrex CS-3 Magnetometer Sensor

Configuration: Sample Rate: Sensitivity:

Gamma Ray Spectrometer

Pico Envirotec GRS-10 Gamma Spectrometer 8.4 litres of NaI(T1) synthetic "downward looking" crystals Sample Rate:

June 21, 2013 to June 23, 2013 Fort St. James, BC Eurocopter AS350 C-GOHK Magnetic and Radiometric survey.

40 meters 40 meters 40 meters 44 meters

100 meters 090°-270° 1000 meters 000°-180°

Stinger with 3 axis compensation 10 Hz 0.01 nT

1 HZ

# **Aztec Metals Corp.**

### **Radiometric Map**

Max Survey Block Ucor - Equivalent Concentration Created By: Precision GeoSurveys Inc. July 4, 2013







7.99		
7.60		
7.34		
7.14		
6.96		
<mark>6.81</mark>		
6.68		
6.55		
6.43		
6.31		
6.20		
6.10		
6.00		
5.90		
5.80		
5.71		
5.62		
5.54		
5.46		
5.38		
5.30		
5.22		
5.14		
5.06		
4.98		
4.89		
4.82		
4.73		
4.64		
4.55		
4.45		
4.33		
4.21		
4.08		
3.93		
3.74		
3.48		
3.05		
ГСсо	r (µR)	

Map Projection:

Projection: Universal Transverse Mercator Central Meridian: 237 Zone 10N Datum: WGS 84



Survey Dates: Survey Base: Helicopter Type: **Registration:** Survey Technology:

#### SURVEY PARAMETERS:

Helicopter: Magnetometer: Spectrometer: Actual Mean Terrain Clearance:

#### Max Survey Block:

Survey Line Spacing: Survey Line Direction: Tie Line Spacing: Tie Line Direction:

#### **AIRBORNE SYSTEMS:**

Scintrex CS-3 Magnetometer Sensor

Configuration: Sample Rate: Sensitivity:

Gamma Ray Spectrometer

Pico Envirotec GRS-10 Gamma Spectrometer 8.4 litres of NaI(T1) synthetic "downward looking" crystals Sample Rate:

June 21, 2013 to June 23, 2013 Fort St. James, BC Eurocopter AS350 C-GOHK Magnetic and Radiometric survey.

40 meters 40 meters 40 meters 44 meters

100 meters 090°-270° 1000 meters 000°-180°

Stinger with 3 axis compensation 10 Hz 0.01 nT

1 HZ

## **Aztec Metals Corp.**

### **Radiometric Map**

Max Survey Block Total Count - Equivalent Dose Rate Created By: Precision GeoSurveys Inc. July 4, 2013

Precision GeoSurveys Inc.





(meters) WGS 84 / UTM zone 10N



TCexp (µR/Hr)

#### LEGEND

Map Projection:

Projection: Universal Transverse Mercator Central Meridian: 237 Zone 10N Datum: WGS 84



Survey Dates: Survey Base: Helicopter Type: **Registration:** Survey Technology:

#### SURVEY PARAMETERS:

Helicopter: Magnetometer: Spectrometer: Actual Mean Terrain Clearance:

#### Max Survey Block:

Survey Line Spacing: Survey Line Direction: Tie Line Spacing: Tie Line Direction:

#### **AIRBORNE SYSTEMS:**

Scintrex CS-3 Magnetometer Sensor

Configuration: Sample Rate: Sensitivity:

Gamma Ray Spectrometer

Pico Envirotec GRS-10 Gamma Spectrometer 8.4 litres of NaI(T1) synthetic "downward looking" crystals Sample Rate:

June 21, 2013 to June 23, 2013 Fort St. James, BC Eurocopter AS350 C-GOHK Magnetic and Radiometric survey.

40 meters 40 meters 40 meters 44 meters

100 meters 090°-270° 1000 meters 000°-180°

Stinger with 3 axis compensation 10 Hz 0.01 nT

1 HZ

# **Aztec Metals Corp.**

### **Radiometric Map**

Max Survey Block Total Count - Exposure Rate Created By: Precision GeoSurveys Inc. July 4, 2013





500 0

33 49	
24.98	
20.64	
18.08	
16.11	
14.76	
13.67	
12.07	
12.02	
12.04	
11.42	
10.89	
10.39	
9.94	
9.53	
9.14	
8.79	
8.46	
8.15	
7.84	
7.56	
7.29	
7.02	
6.76	
6.50	
6.25	
6.01	
5.78	
5.54	
5.29	
5.04	
4.78	
4.52	
4.23	
3.93	
3.58	
3.21	
2.74	
2.08	

eTh/%K ratio

#### LEGEND

#### Map Projection:

Projection: Universal Transverse Mercator Central Meridian: 237 Zone 10N Datum: WGS 84



Survey Dates: Survey Base: Helicopter Type: Registration: Survey Technology:

#### SURVEY PARAMETERS:

Helicopter: Magnetometer: Spectrometer: Actual Mean Terrain Clearance:

#### Max Survey Block:

Survey Line Spacing: Survey Line Direction: Tie Line Spacing: Tie Line Direction:

#### **AIRBORNE SYSTEMS:**

Scintrex CS-3 Magnetometer Sensor

Configuration: Sample Rate: Sensitivity:

Gamma Ray Spectrometer

Pico Envirotec GRS-10 Gamma Spectrometer 8.4 litres of Nal(T1) synthetic "downward looking" crystals Sample Rate: June 21, 2013 to June 23, 2013 Fort St. James, BC Eurocopter AS350 C-GOHK Magnetic and Radiometric survey.

40 meters 40 meters 40 meters 44 meters

100 meters 090°-270° 1000 meters 000°-180°

Stinger with 3 axis compensation 10 Hz 0.01 nT

1 Hz

# Aztec Metals Corp.

### **Radiometric Map**

Max Survey Block Thorium over Potassium Ratio Created By: Precision GeoSurveys Inc. July 4, 2013

Precision GeoSurveys Inc.







eU/%K ratio

#### LEGEND

#### Map Projection:

Projection: Universal Transverse Mercator Central Meridian: 237 Zone 10N Datum: WGS 84



Survey Dates: Survey Base: Helicopter Type: **Registration:** Survey Technology:

#### SURVEY PARAMETERS:

Helicopter: Magnetometer: Spectrometer: Actual Mean Terrain Clearance:

#### Max Survey Block:

Survey Line Spacing: Survey Line Direction: Tie Line Spacing: Tie Line Direction:

#### **AIRBORNE SYSTEMS:**

Scintrex CS-3 Magnetometer Sensor

Configuration: Sample Rate: Sensitivity:

Gamma Ray Spectrometer

Pico Envirotec GRS-10 Gamma Spectrometer 8.4 litres of NaI(T1) synthetic "downward looking" crystals Sample Rate:

June 21, 2013 to June 23, 2013 Fort St. James, BC Eurocopter AS350 C-GOHK Magnetic and Radiometric survey.

40 meters 40 meters 40 meters 44 meters

100 meters 090°-270° 1000 meters 000°-180°

Stinger with 3 axis compensation 10 Hz 0.01 nT

1 HZ

# **Aztec Metals Corp.**

### **Radiometric Map**

Max Survey Block Uranium over Potassium Ratio Created By: Precision GeoSurveys Inc. July 4, 2013

Precision GeoSurveys Inc.







Map Projection:

Projection: Universal Transverse Mercator Central Meridian: 237 Zone 10N Datum: WGS 84



Survey Dates: Survey Base: Helicopter Type: **Registration:** Survey Technology:

#### SURVEY PARAMETERS:

Helicopter: Magnetometer: Spectrometer: Actual Mean Terrain Clearance:

#### Max Survey Block:

Survey Line Spacing: Survey Line Direction: Tie Line Spacing: Tie Line Direction:

#### **AIRBORNE SYSTEMS:**

Scintrex CS-3 Magnetometer Sensor

Configuration: Sample Rate: Sensitivity:

Gamma Ray Spectrometer

Pico Envirotec GRS-10 Gamma Spectrometer 8.4 litres of NaI(T1) synthetic "downward looking" crystals Sample Rate:

June 21, 2013 to June 23, 2013 Fort St. James, BC Eurocopter AS350 C-GOHK Magnetic and Radiometric survey.

40 meters 40 meters 40 meters 44 meters

100 meters 090°-270° 1000 meters 000°-180°

Stinger with 3 axis compensation 10 Hz 0.01 nT

1 HZ

# **Aztec Metals Corp.**

### **Radiometric Map**

Max Survey Block Uranium over Thorium Ratio Created By: Precision GeoSurveys Inc. July 4, 2013







Map Projection:

Projection: Universal Transverse Mercator Central Meridian: 237 Zone 10N Datum: WGS 84



Survey Dates: Survey Base: Helicopter Type: **Registration:** Survey Technology:

#### SURVEY PARAMETERS:

Helicopter: Magnetometer: Spectrometer: Actual Mean Terrain Clearance:

#### Max Survey Block:

Survey Line Spacing: Survey Line Direction: Tie Line Spacing: Tie Line Direction:

#### AIRBORNE SYSTEMS:

Scintrex CS-3 Magnetometer Sensor

Configuration: Sample Rate: Sensitivity:

Gamma Ray Spectrometer

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June 21, 2013 to June 23, 2013 Fort St. James, BC Eurocopter AS350 C-GOHK Magnetic and Radiometric survey.

40 meters 40 meters 40 meters 44 meters

100 meters 090°-270° 1000 meters 000°-180°

Stinger with 3 axis compensation 10 Hz 0.01 nT

1 HZ

## **Aztec Metals Corp.**

## **Radiometric Map**

Max Survey Block Ternary Map Created By: Precision GeoSurveys Inc. July 4, 2013

Precision GeoSurveys Inc.





436000

438000

