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## THUNDER BAY, ONTARIO

# ASSESSMENT REPORT – 2020 Heliborne High-Resolution Magnetic (MAG) Survey PANAMA LAKE PROPERTY NAD 1983 UTM Zone 15N (0525034E/5645241N)

SLATE LAKE AREA
RED LAKE MINING DISTRICT
ONTARIO

**Prepared By** 

**Cathy Salo** 

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#### 1. Introduction

All the mineral claims lie within the Red Lake Mining Division in the Slate Lake Area and the Bowerman Township. The property comprises of 25 Multi-cell Mining Claims totalling 498 cells and covering 9854 hectares and is 100% controlled by Benton Resources Inc.,

The Panama Lake property is underlain by Archean rocks comprising the Red Lake and the Birch-Uchi greenstone belts and is adjacent to the Red Lake gold camp discovered in the 1920s which led to a rush in staking and exploration throughout the district. It has been explored in different areas and capacities throughout the last 50 years. The property hosts high potential for economic mineralization with the north-shore of Panama Lake and the area surrounding Ben Lake being highly prospective for gold mineralization and the Slate Lake area displaying potential for base and precious metal occurrences.

The Panama Lake property displays two different styles of mineralization hosted in two different sequences of geology. The Panama zone located on the north-side of Panama Lake, displays geology and mineralization more typical of orogenic gold deposits. The geology and mineralization encountered on Slate Lake displays characteristics (i.e., stratigraphy and alteration) more akin to VMS type deposits.

Prospectair conducted a heliborne high-resolution magnetic (MAG) survey from May  $6_{th}$  to  $14_{th}$  2019 for a total of 1,638 l-km with using Prospectair's Robinson R-44, registration C-GBOU. The helicopter and survey crew operated out of the Red Lake Airport located 80 km to the west of the property. The survey was flown with traverse lines at 50 m spacing and control lines spaced every 500 m, oriented N145 with control lines at an azimuth of N055.

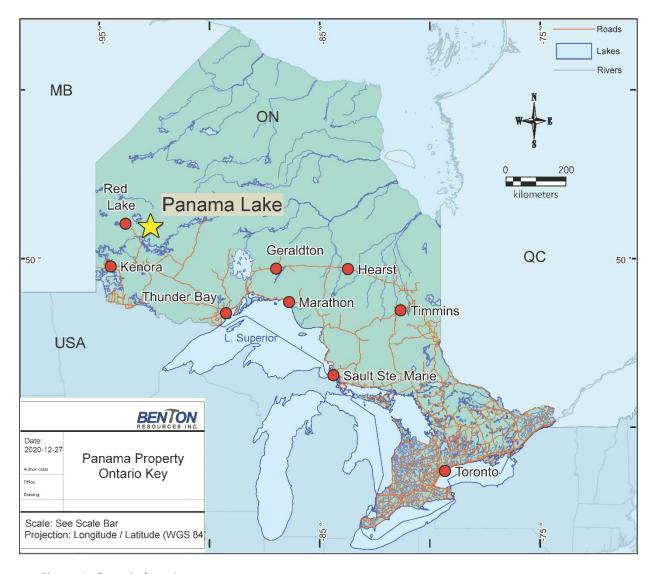


Figure 1: Ontario location map.

#### 2. Property Description and Location

The Panama Lake property is in north-western Ontario, centered around the coordinates 525,270E/5,646,000N (NAD83, Zone 15N), (NTS 052K15) and lies 85 km east of the town of Red Lake and 55 km north-east of the town of Ear Falls (Figure 2).

The Panama property is located mainly in the township of Bowerman and the Slate Lake area and can be accessed by road, off Highway 105 from Ear Falls by taking the Wenesaga road (58 km) up to the Ben Rd (10 km) and then following the Bob road (11 km) into the property.

The Panama zone can be directly accessed by a 4 km bush road that can be accessed using ATV, snowmobile or pickup truck with 4x4.

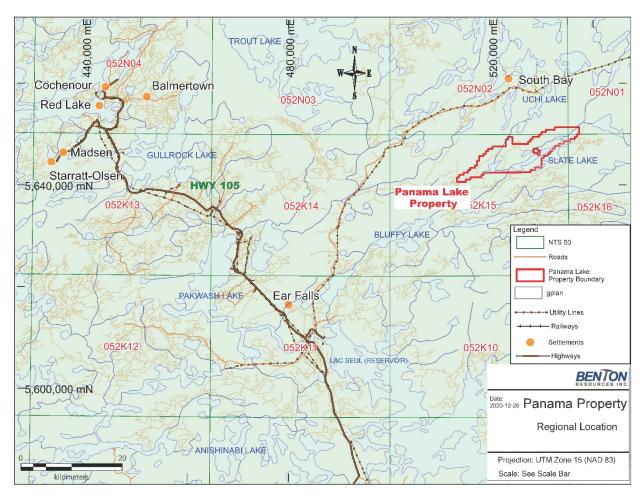


Figure 2: General location map – Red Lake & Ear Falls

The physiography of the area is typical of north-western Ontario mature Boreal type forest - consisting of black spruce, poplar, birch, jack pine and balsam - covering previously glaciated terrane (Figure 3). Low-lying ridges surrounded by muskeg, marshes and abundant lakes, bedrock outcrop is scarce and can range from 5-10% abundant throughout the area. Glacial till and moraines cover the area and can be meters thick in some areas. The property area lies at 350-400 m above mean sea level and displays a climate typical of Boreal-type forests with temperatures ranging from +30°C in summer months (June – August) and can drop as far as -40°C in winter months (December – March).

The property area has a history of logging activity resulting in patches of deforested areas that have been replanted with conifer seedlings. Active logging still occurs throughout the region feeding the lumber mill in Ear Falls. Nearest power infrastructure to the property lies 28 km to the west along the South Bay road where power lines serviced the old South Bay mine. Ontario Power Generation is also active in the region with a hydro-electric generating station situated on the English River in Ear Falls.

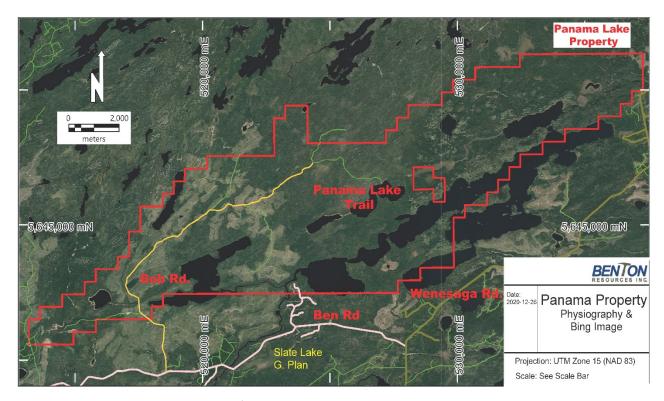


Figure 3: Google satellite image of Panama Lake Property, with highlighted roads.

#### 3. Claim Status

The property consists of 25 claims of various sizes totaling 498 units covering 9854 hectares (Figure 5). All the mineral claims lie within the Red Lake Mining Division and encompass area in the Slate Lake Area and the Bowerman Township. The Panama Lake property is 100% controlled by Benton Resources Inc., all claims are in good standing. See summary in Table 1.

Table 1: Panama property claims

Tenure				number	
No.	Type	Due Date	Holder	of cells	Township/Area
546426	MCMC	20210825	(100) BENTON RESOURCES INC.	24	Slate Lake
546431	MCMC	20210825	(100) BENTON RESOURCES INC.	21	Slate Lake
546432	MCMC	20210825	(100) BENTON RESOURCES INC.	23	Slate Lake
546433	MCMC	20210825	(100) BENTON RESOURCES INC.	8	Slate Lake
546434	MCMC	20210825	(100) BENTON RESOURCES INC.	20	Slate Lake
546438	MCMC	20210825	(100) BENTON RESOURCES INC.	25	Slate Lake
546439	MCMC	20210825	(100) BENTON RESOURCES INC.	23	Slate Lake
546440	MCMC	20210928	(100) BENTON RESOURCES INC.	20	Slate Lake
546441	MCMC	20210825	(100) BENTON RESOURCES INC.	25	Bowerman
546442	MCMC	20210825	(100) BENTON RESOURCES INC.	25	Bowerman
546443	MCMC	20210825	(100) BENTON RESOURCES INC.	25	Slate Lake
546444	MCMC	20210928	(100) BENTON RESOURCES INC.	25	Bowerman
546445	MCMC	20210913	(100) BENTON RESOURCES INC.	24	Bowerman
546446	MCMC	20210928	(100) BENTON RESOURCES INC.	19	Bowerman
546447	MCMC	20210928	(100) BENTON RESOURCES INC.	16	Bowerman
554409	MCMC	20210716	(100) BENTON RESOURCES INC.	22	Slate Lake
556518	MCMC	20210822	(100) BENTON RESOURCES INC.	19	Bowerman
556519	MCMC	20210822	(100) BENTON RESOURCES INC.	24	Bowerman
556949	MCMC	20210905	(100) BENTON RESOURCES INC.	5	Bowerman
562556	MCMC	20210905	(100) BENTON RESOURCES INC.	17	Slate Lake
562557	MCMC	20210905	(100) BENTON RESOURCES INC.	17	Slate Lake
562558	MCMC	20210905	(100) BENTON RESOURCES INC.	16	Slate Lake
622913	MCMC	20210304	(100) BENTON RESOURCES INC.	24	Slate Lake
622914	MCMC	20210304	(100) BENTON RESOURCES INC.	12	Slate Lake
622915	MCMC	20210304	(100) BENTON RESOURCES INC.	19	Slate Lake

At the time of the heliborne high-resolution magnetic (MAG) survey from May 6<sup>th</sup> to 14<sup>th</sup> 2019 by Prospectair the property consists of 70 claims of various sizes totaling 378 units covering 7,400 hectares. In the interterm of writing the report additional claims have been added and claims in the centre of the property have been merged. See Figure 4 for claims as there were

before merged into claims 622913, 622914 and 622915. The survey was not done in area of the new claims acquired on the western and eastern ends of the property.

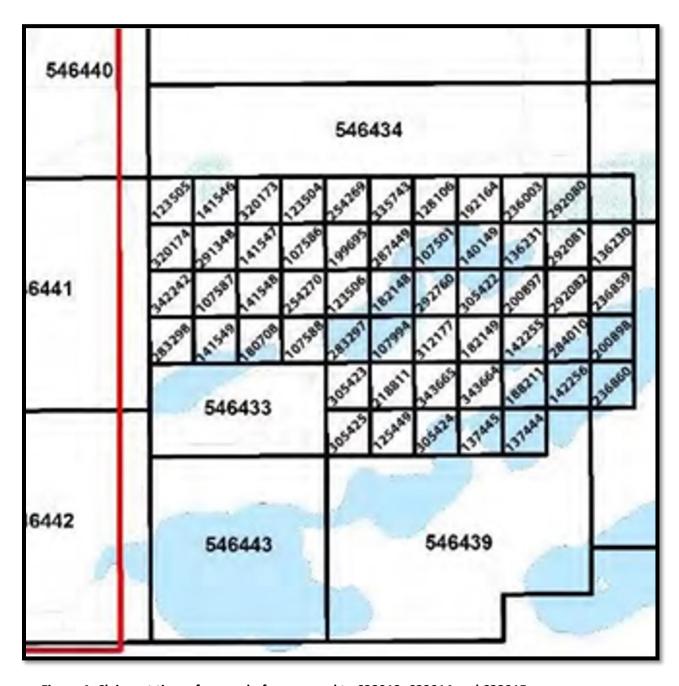


Figure 4: Claims at time of survey before merged to 622913, 622914 and 622915.

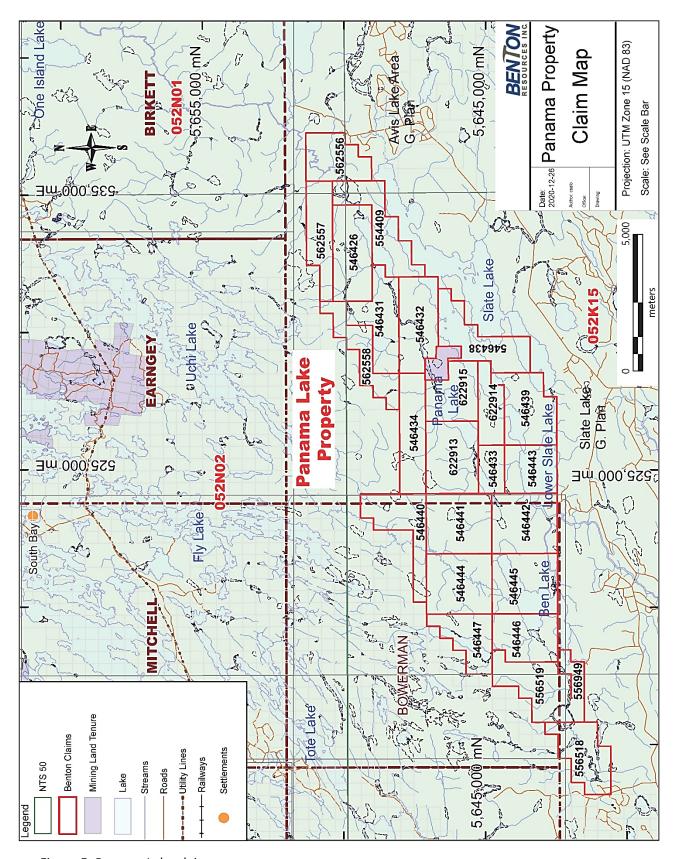


Figure 5: Panama Lake claim map.

#### 4. History

The Panama Property is situated within the Birch-Confederation-Uchi Lake Areas which has a history of mineral production and exploration. The property is adjacent to the prolific Red Lake gold camp, which was discovered in the 1920s and led to a rush in staking and exploration throughout the district. There were several gold occurrences found and prospected during the 30s and 40s, with nine mines producing about a quarter of a million ounces of gold from 1928 – 1966. The area has also had a past producing iron ore operation with the Griffith mine operating from 1968 to 1986. As well as base metal production with Selco Mining Corp. operating the South Bay Cu-Zn mine from 1971-1981.

#### **Property work history:**

The Panama Lake property has been explored in different areas and capacities throughout the last 50 years. The property hosts high potential for economic mineralization with the north-shore of Panama Lake and the area surrounding Ben Lake being highly prospective for gold mineralization and the Slate Lake area displaying potential for base and precious metal occurrences. Historic work conducted on these three areas is summarized below.

**1939:** Mapping conducted in the district by Ontario government geologist Bateman.

**1945 to 1946:** Pemican Mines Ltd. performed surface work and reportedly 1500 feet of diamond drilling in 1946. Drilling returned nothing prospective.

**1960:** A joint ODM-GSC aeromagnetic survey of the area was published.

**1969 to 1970:** Armore Mines Ltd. contracted Shield Geophysics Ltd. to conduct a geological and electromagnetic survey in the Ben Lake area to investigate potential base metal mineralization. Survey identified a number of weak north-east striking conductors, mainly located on the north-west shore of Ben Lake.

**1977 to 1980:** St. Joseph Exploration Ltd. conducted a ground geophysical survey consisting of HLEM and magnetometer surveys in the Slate Lake area. Mapping was carried out following the survey in order to investigate the anomalies. Follow-up drilling consisting of two diamond drill holes was performed to test the HLEM anomalies, no significant mineralization was intersected.

1980: Area mapped by Ontario government geologist Bowen (Preliminary Map P.1200).

**1986 to 1988:** Noranda Exploration Company staked land around Panama Lake property, following anomalous gold values returned from samples from historic trenches. Detailed mapping, humus sampling, magnetometer and VLF surveys were conducted to test the occurrence and extent of gold mineralization. In January 1988 an 8-hole (953 m) diamond drill program was conducted to test a quartz-flooded shear zone along strike and at depth. Anomalous gold values were noted from the program, no follow up work was conducted.

**1991 to 1992:** GSC collects till samples in Red Lake and Confederation Lake areas, identifies 107 pristine gold grains in sample along the shore of Slate Lake.

**1994 to 1996:** Cumberland Resources Ltd. performed geological reconnaissance in the Slate Lake area during the summer of 1994 and identified favorable VMS hosting stratigraphy. The geological groundwork was followed up by a single diamond drill hole, to the east of Panama Lake, that intersected a 9 cm wide horizon of Zn-rich massive sulphide. No follow-up work was conducted.

**2008 to 2010:** Metals Creek Resources conducted a line cutting and a total field magnetic survey (9.79 line kilometers) over the main Panama Lake occurrence. In 2010 Metals Creek contracted Ray Meikle and Associates out of North Bay, ON to conduct an IP survey along the previously cut lines from 2008. Ground prospecting consisting of transect sampling was also conducted on the property in 2010 and returned gold anomalous assay results from historic trenches.

**2011:** Mount Morgan Resources was contracted by Mainstream Minerals Corp. and performed a soil geochemical survey in the Slate Lake area. Several multi-element anomalies were identified on the property; however, no follow up work was conducted.

**2012 to 2013:** In 2012 Clark Exploration Consulting Inc. completed a soil sampling program in the Ben Lake area on behalf of Goldcorp Red Lake Gold Mines. The 2012 work was followed up in 2013 by a field mapping, geochemical sampling and soil sampling program to locate prospective areas. Also completed in 2013 was a ground magnetic field survey conducted by Abitibi Geophysics for Goldcorp. A total of 640.7 km

of magnetic surveying was completed across the property. No follow-up work was ever completed on the area.

**2019:** Drilling of 1430 m, completed between January 14th, 2019 and March 10th, 2019 by Benton Resources.

#### 5. Regional Geology

The Panama Lake property is situated within the Red Lake Mining District, which is underlain by Archean rocks comprising the Red Lake and the Birch-Uchi greenstone belts. The Red Lake and Birch-Uchi greenstone belt are located in the western end of the Uchi Domain of the lager Superior Province that comprises the bulk of the Canadian shield (Figure 6). These belts are dominantly north-east trending and are mainly comprised of mafic to felsic metavolcanics rocks intercalated with metasedimentary rocks. The supracrustal rocks have been surrounded on all sides by intrusions of various ages and composition. The metamorphic grade throughout these belts can vary from greenschist up to amphibolite facies and rocks can locally undergo varying degrees of alteration such as carbonatization, silicification, sericitization and chloritization.

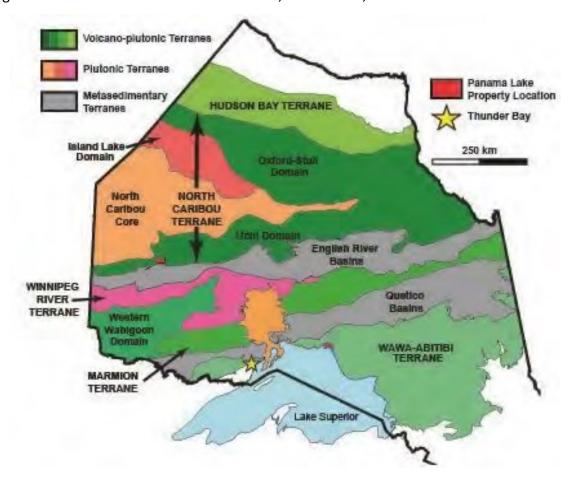


Figure 6: Panama Property location map within the Superior Province (after Stott, 2010).

The metavolcanic rocks comprising the Red lake and Birch-Uchi greenstone belts have been subdivided into three main assemblages based on geochronology, geochemistry and field relationships. These assemblages are the Balmer assemblage (3000 – 2940 Ma), the Woman assemblages (2900 – 2894 Ma) and the Confederation assemblage (2800 – 2730 Ma). The Balmer assemblage is dominated by tholeiitic mafic to ultramafic rocks and hosts the majority of the gold mineralization within the Red Lake greenstone belt. The Balmer assemblage is only found within a north-western area of the Birch-Uchi greenstone belt. The presence of the Woman assemblage within the Birch-Uchi greenstone belt has been debated but could exist as a sliver in north-eastern part of the belt. The Confederation assemblage which makes upthe southern flank of the Red Lake greenstone belt and the bulk of the Birch-Uchi greenstone has been characterized as being composed of dominantly calk-alkaline mafic volcanic rocks intercalated with variable amounts of felsic volcanic sequences.

The Confederation assemblage is the widest spread assemblage within the Birch-Uchi greenstone belt and is comprised of three-cycles of metavolcanic-metasedimentary rocks. Cycle-I begins with tholeiitic suite, pillowed basalts and andesite flows that are overlain by felsic to intermediate to pyroclastic rocks and minor flows that get capped by thin iron formation and marble units. Cycle-II consist of calk-alkaline volcanic sequences deposited on-top of Cycle-I during early caldera development. Cycle-III consists of volcanic flows produced by resurgent volcanism and also hosts hypabyssal felsic intrusions. Cycle-III also hosts the past-producing South Bay Cu-Zn-Ag VMS deposit that produced 1.6 million tons of ore with an average grade of 11% Zn, 2% Cu and 2.12 ounces per ton of Ag. The physical and geochemical characteristics of the volcanic sequences that comprise the Confederation assemblage have led to the interpretation that it represents a back-arc-like sequence. Regionally the general structural trend of the rocks is east to north-east, with the metavolcanics rock cycles folded into a north trending syncline that has cycle-III at its core. The metamorphic grade for most of the sequences ranges from low greenschist up to middle amphibolite facies.

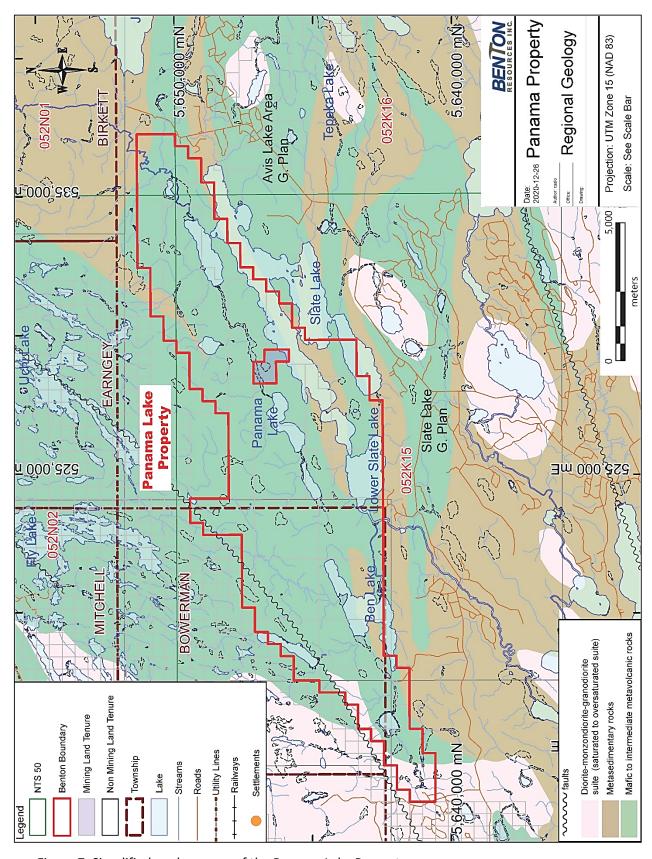


Figure 7: Simplified geology map of the Panama Lake Property.

#### 6. Property Geology and Mineralization

The Panama Lake property displays two different styles of mineralization hosted in two different sequences of geology. The Panama zone located on the north-side of Panama Lake, displays geology and mineralization more typical of orogenic gold deposits. The geology and mineralization encountered on Slate Lake displays characteristics (i.e., stratigraphy and alteration) more akin to VMS type deposits. Due to the differences observed between the two areas they will be discussed separately.

Mineralization at the Panama zone is hosted within a silicified shear zone that sits along the contact between intermediate metavolcanic flows and pyroclastics, argillicious metasedimentary rocks and mafic metavolcanic flows. Mineralization consists of cloudy-white to blue-grey quartz with variable amounts of fine-grained pyrite and tourmaline stringers hosted within a highly sheared argillite unit. Gold has been only found to occur within this silicified zone, with higher-grade gold occurring within massive quartz intervals.

The Au and base metal mineralization occurring at Slate Lake is hosted within a package of felsic volcaniclastic rocks that are interbedded with various metasedimentary rocks. Base metal mineralization primarily consists of pyrrhotite stringers and veins hosted with graphitic sediments and volcaniclastic units, it can be associated with variable degrees of sericitization, chloritization and silicification. Anomalous Au mineralization was found to occur within two zones in the Slate Lake area: (1) disseminated to blebby arsenopyrite associated with quartz stockwork veining and sericite alteration in a feldspar porphyry and (2) disseminated finegrained arsenopyrite, pyrite and sphalerite hosted within variable silicified and sericite altered felsic volcaniclastic rocks that also contain pyrrhotite stringers.

#### 7. Exploration Program

Prospectair conducted a heliborne high-resolution magnetic (MAG) survey from May 6th to 14th 2019 on Benton Resources Panama Property partially in Birch-Uchi Greenstone Belt area. One survey block was flown for a total of 1,638 l-km. A total of 9 production flights were performed using Prospectair's Robinson R-44, registration C-GBOU. The helicopter and survey crew operated out of the Red Lake Airport located 80 km to the west of the block. The Panama block was flown with traverse lines at 50 m spacing and control lines spaced every 500 m. The survey lines were oriented N145 and control lines were flown at an azimuth of N055.

Prospectair provided the following instrumentation for this survey:

#### **Airborne Magnetometer**

#### **Geometrics G-822A**

The heliborne system used a non-oriented (strap-down) optically-pumped Cesium splitbeam sensor. These magnetometers have a sensitivity of 0.005 nT and a range of 15,000 to 100,000 nT with a sensor noise of less than 0.02 nT. The heliborne sensor was mounted in a bird made of non-magnetic material located 21 m below the helicopter when flying. Total magnetic field measurements were recorded at 10 Hz in the aircraft.

#### **Real-Time Differential GPS**

#### **Omnistar DGPS**

Prospectair uses an OmniStar differential GPS navigation system to provide real-time guidance for the pilot and to position data to an absolute accuracy of better than 5 m. The Omnistar receiver provides real-time differential GPS for the Agis on-board navigation system. The differential data set was relayed to the helicopter via the Omnistar network appropriate geosynchronous satellite for the survey location. The receiver optimizes the corrections for the current location.

# Airborne Navigation and Data Acquisition System Pico-Envirotec AGIS-XP system

The Airborne Geophysical Information System (AGIS-XP) is advanced, software driven instrument specifically designed for mobile aerial or ground geophysical survey work. The AGIS instrumentation package includes an advanced navigation system, real-time flight path information that is displayed over a map image of the area, and reliable data acquisition software. Thanks to simple interfacing, the radar and barometric altimeters and the Geometrics magnetometer are easily integrated into the system and digitally recorded. Automatic synchronization to the GPS position and time provides very close correlation between data and geographical position. The AGIS is equipped with a software suite allowing easy maintenance, upgrades, data QC, and project and survey area layout planning.

# Magnetic Base Station

#### **GEM GSM-19**

A GEM GSM-19 Overhauser magnetometer, a computer workstation and a complement of spare parts and equipment serve as the base station. Prospectair establish the base station in a secure location with low magnetic noise. The GSM-19 magnetometer has resolution of 0.01 nT, and 0.2 nT accuracy over its operating range of 20,000- to 100,000 nT. The ground

system was recording magnetic data at 1 Hz.

#### **Altimeters**

#### **Free Flight Radar Altimeter**

The Free Flight radar altimeter measures height above ground to a resolution of 0.5 m and an accuracy of 5% over a range up to 2,500 ft. The radar altimeter data is recorded and sampled at 10 Hz.

Digital Barometric Pressure Sensor

The barometric pressure sensor measures static pressure to an accuracy of 2 4 m and resolution of 2 m over a range up to 30,000 ft above sea level. The barometric altimeter data are sampled at 10 Hz.

#### Survey helicopter

Robinson R-44 (registration C-GBOU)

The survey was flown using Prospectair's Robinson R-44 helicopter that handles efficiently the light equipment load and the survey range for magnetic surveys

For additional information see report Technical Report High-Resolution Heliborne Magnetic Survey Panama Property, Birch-Uchi Greenstone Belt Area, Red Lake Mining Division, Ontario, 2019, Prospectair Geosurveys, Dynamic Discovery Geoscience Prepared by: Joël Dubé, P.Eng., June 2019

#### 8. Conclusions and Recommendations

The purpose of the Prospectair conducted a heliborne high-resolution magnetic (MAG) survey was to determine additional diamond drill targets for possibility of economic gold and/or base metal mineralization within the Panama Lake and Slate Lake areas.

Further work is recommended in the Panama Lake and Slate Lake such as bedrock and structural mapping, along with surface sampling program. This along with the survey would assist in determining future drilling programs.

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## **Certification of qualifications**

- I, Cathy Salo, of 475 Francis St. East, Thunder Bay, Ontario, do hereby certify that:
- 1. I hold a Bachelor of Science Degree in Earth Science (1989) from Memorial University of Newfoundland, St. John's, Newfoundland and Labrador.
- 2. I have practised my profession in Ontario since 1989 and have been consulting with Ontario mining exploration companies since 2002 as the sole proprietary of Salo Geoscience Services.

Cathy Salo, B.Sc., P.Geo.

Date: January 12, 2021

Appendix 1

TMI Map 1

