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CANADIAN EXPLORATION SERVICES LTD

BEN NEVIS RESOURCES INC.

Q2425a – Ben Nevis Property Magnetometer Survey

C Jason Ploeger, P.Geo. – September 15, 2017

Ben Nevis Resources Inc.

Abstract

CXS was contracted by Ben Nevis Resources Inc. to perform approximately 3.75 kilometers of magnetometer survey over its Ben Nevis Property near Larder Lake.

Ben Nevis Resources Inc.

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1. SURVEY DETAILS

1.1 PROJECT NAME

This project is known as the **Ben Nevis Property**.

1.2 CLIENT

BEN NEVIS RESOURCES INC.

14579 Government Road Larder Lake, Ontario P0K 1L0

1.3 LOCATION

The Ben Nevis Property is located approximately 25.0 km northeast of Larder Lake, Ontario. The property covers a portion of mining claim 1167260 located in Ben Nevis Township within the Larder Lake Mining Division.



Figure 1: Location of the Ben Nevis Property



1.4 ACCESS

Access to the Ben Nevis property was attained with a 4x4 truck via the Larder Station Road which is located east of Larder Lake, off of provincial highway 66. The Larder Station Road was followed north for approximately 25km to a point where the traverse area crosses the road.

1.5 SURVEY AREA

The traversed lines were established using a GPS in conjunction with the execution of the survey. The GPS operator would establish sample locations while remaining approximately 12.5m in front of the magnetometer operator. GPS waypoints and magnetic samples were taken every 12.5m along these controlled traverses. The GPS used was a Garmin GPSMAP 62s with an external antenna for added accuracy.



Figure 2: Claim Map with Magnetic Traverses



2. SURVEY WORK UNDERTAKEN

2.1 SURVEY LOG

			Min	Мах	Total Survey
Date	Description	Line	Extent	Extent	(m)
September 11,	Locate survey area and begin				
2017	magnetometer survey.	200E	0	500N	500
		400E	0	500N	500
		500E	0	500N	500
		600E	0	500N	500
		700E	0	500N	500
		0N	0	700E	700
		500N	200E	700E	500

Table 1: Survey Log

2.2 PERSONNEL

Claudia Moraga of Britt, Ontario conducted all the magnetic data collection while Bruce Lavalley also of Britt, Ontario was responsible for the GPS control and GPS waypoint collection.

2.3 SAFETY

Canadian Exploration Services prides itself in creating and maintaining a safe work environment for its employees. Each crew member is briefed on the jobsite location, equipment safety, standard operating procedures along with our health and safety manual. An emergency response plan is generated relating to the specific job and with the jobsite predominantly in the field, which is unpredictable, morning safety briefings are essential. Topics are generally chosen based off jobsite characteristics of the area, time of year and crew experience.

2.4 SURVEY SPECIFICATIONS

The survey was conducted with a GSM-19 v7 Overhauser magnetometer with a second GSM-19 magnetometer for a base station mode for diurnal correction.

A total of 3.7 line kilometers of magnetometer was read over the Ben Nevis Project on September 11, 2017. This consisted of 296 magnetometer samples taken at a 12.5 meter sample interval.



3. OVERVIEW OF SURVEY RESULTS

3.1 SUMMARY



Figure 3: Magnetometer Plan on Google Earth

The survey covered a portion of claim number 1167260. No culture was noted that would influence the survey results.

The magnetic survey indicates very little magnetic variation within the survey area. With the exception of a few minor single station anomalies, the general variation for the survey area is less than 50nT.

The two anomalous magnetic readings occur on tie-line 500N at 650E with a 300nT anomaly and line 500E at 287.5N with a negative 600nT anomaly. The anomaly at 500E and 287.5N may be related to a slightly magnetic low trend striking across the survey area at approximately 100 degrees. This may represent a structure or alteration zone crossing the survey area.

I would recommend prospecting the areas of the two anomalies. This may help identify the potential sources for these single station anomalies.



APPENDIX A

STATEMENT OF QUALIFICATIONS

I, C. Jason Ploeger, hereby declare that:

- 1. I am a professional geophysicist with residence in Larder Lake, Ontario and am presently employed as a Geophysicist and Geophysical Manager of Canadian Exploration Services Ltd. of Larder Lake, Ontario.
- 2. I am a Practicing Member of the Association of Professional Geoscientists, with membership number 2172.
- 3. I graduated with a Bachelor of Science degree in geophysics from the University of Western Ontario, in London Ontario, in 1999.
- 4. I have practiced my profession continuously since graduation in Africa, Bulgaria, Canada, Mexico and Mongolia.
- 5. I am a member of the Ontario Prospectors Association, a Director of the Northern Prospectors Association and a member of the Society of Exploration Geophysicists.
- 6. I do not have nor expect an interest in the properties and securities of **Ben Nevis resources Inc.**
- 7. I am responsible for the final processing and validation of the survey results and the compilation of the presentation of this report. The statements made in this report represent my professional opinion based on my consideration of the information available to me at the time of writing this report.



C. Jason Ploeger, P.Geo., B.Sc. Geophysical Manager Canadian Exploration Services Ltd.

September 15, 2017



APPENDIX B

THEORETICAL BASIS AND SURVEY PROCEDURES

TOTAL FIELD MAGNETIC SURVEY

Base station corrected Total Field Magnetic surveying is conducted using at least two synchronized magnetometers of identical type. One magnetometer unit is set in a fixed position in a region of stable geomagnetic gradient, and away from possible cultural effects (i.e. moving vehicles) to monitor and correct for daily diurnal drift. This magnetometer, given the term 'base station', stores the time, date and total field measurement at fixed time intervals over the survey day. The second, remote mobile unit stores the coordinates, time, date, and the total field measurements simultaneously. The procedure consists of taking total magnetic measurements of the Earth's field at stations, along individual profiles, including Tie and Base lines. A 2 meter staff is used to mount the sensor, in order to optimally minimize localized near-surface geologic noise. At the end of a survey day, the mobile and base-station units are linked, via RS-232 ports, for diurnal drift and other magnetic activity (ionospheric and sferic) corrections using internal software.

For the gradiometer application, two identical sensors are mounted vertically at the ends of a rigid fiberglass tube. The centers of the coils are spaced a fixed distance apart (0.5 to 1.0m). The two coils are then read simultaneously, which alleviates the need to correct the gradient readings for diurnal variations, to measure the gradient of the total magnetic field.



APPENDIX C

GSM 19



Specifications

Overhauser Performance

Resolution: 0.01 nT Relative Sensitivity: 0.02 nT Absolute Accuracy: 0.2nT Range: 20,000 to 120,000 nT Gradient Tolerance: Over 10,000nT/m Operating Temperature: -40°C to +60°C

Operation Modes

Manual: Coordinates, time, date and reading stored automatically at min. 3 second interval.

Base Station: Time, date and reading stored at 3 to 60 second intervals. Walking Mag: Time, date and reading stored at coordinates of fiducial. Remote Control: Optional remote control using RS-232 interface. Input/Output: RS-232 or analog (optional) output using 6-pin weatherproof connector.

Operating Parameters

Power Consumption: Only 2Ws per reading. Operates continuously for 45 hours on standby.

Power Source: 12V 2.6Ah sealed lead acid battery standard, other batteries available

Operating Temperature: -50°C to +60°C

Storage Capacity

Manual Operation: 29,000 readings standard, with up to 116,000 optional. With 3 VLF stations: 12,000 standard and up to 48,000 optional.

Base Station: 105,000 readings standard, with up to 419,000 optional (88 hours or 14 days uninterrupted operation with 3 sec. intervals)

Gradiometer: 25,000 readings standard, with up to 100,000 optional. With 3 VLF stations: 12,000, with up to 45,000 optional.



Omnidirectional VLF

Performance Parameters: Resolution 0.5% and range to $\pm 200\%$ of total field. Frequency 15 to 30 kHz.

Measured Parameters: Vertical in-phase & out-of-phase, 2 horizontal components, total field coordinates, date, and time.

Features: Up to 3 stations measured automatically, in-field data review, displays station field strength continuously, and tilt correction for up to $\pm 10^{\circ}$ tilts.

Dimensions and Weights: 93 x 143 x 150mm and weighs only 1.0kg.

Dimensions and Weights

Dimensions: Console: 223 x 69 x 240mm Sensor: 170 x 71mm diameter cylinder Weight: Console: 2.1kg Sensor and Staff Assembly: 2.0kg

Standard Components

GSM-19 magnetometer console, harness, battery charger, shipping case, sensor with cable, staff, instruction manual, data transfer cable and software.

Taking Advantage of a "Quirk" of Physics

Overhauser effect magnetometers are essentially proton precession devices except that they produce an order-of magnitude greater sensitivity. These "supercharged" quantum magnetometers also deliver high absolute accuracy, rapid cycling (up to 5 readings / second), and exceptionally low power consumption.

The Overhauser effect occurs when a special liquid (with unpaired electrons) is combined with hydrogen atoms and then exposed to secondary polarization from a radio frequency (RF) magnetic field. The unpaired electrons transfer their stronger polarization to hydrogen atoms, thereby generating a strong precession signal-- that is ideal for very high-sensitivity total field measurement. In comparison with proton precession methods, RF signal generation also keeps power consumption to an absolute minimum and reduces noise (i.e. generating RF frequencies are well out of the bandwidth of the precession signal).

In addition, polarization and signal measurement can occur simultaneously - which enables faster, sequential measurements. This, in turn, facilitates advanced statistical averaging over the sampling period and/or increased cycling rates (i.e. sampling speeds). The unique Overhauser unit blends physics, data quality, operational efficiency, system design and options into an instrumentation package that ... exceeds proton precession and matches costlier optically pumped cesium capabilities



APPENDIX C

GARMIN GPS MAP 62S



Physical & Performance:		
Unit dimensions, WxHxD:	2.4" x 6.3" x 1.4" (6.1 x 16.0 x 3.6 cm)	
Display size, WxH:	1.43" x 2.15" (3.6 x 5.5 cm); 2.6" diag (6.6 cm)	
Display resolution, WxH:	160 x 240 pixels	
Display type:	transflective, 65-K color TFT	
Weight:	9.2 oz (260.1 g) with batteries	
Battery:	2 AA batteries (not included); NiMH or Lithium recom- mended	
Battery life:	20 hours	
Waterproof:	yes (IPX7)	
Floats:	no	
High-sensitivity re- ceiver:	yes	



Interface:

high-speed USB and NMEA 0183 compatible

Maps & Memory:	
Basemap:	yes
Preloaded maps:	no
Ability to add maps:	yes
Built-in memory:	1.7 GB
Accepts data cards:	microSD™ card (not included)
Waypoints/favorites/locations:	2000
Routes:	200
Track log:	10,000 points, 200 saved tracks

Features & Benefits:	
Automatic routing (turn by turn routing on	yes (with optional mapping for detailed
roads):	roads)
Electronic compass:	yes (tilt-compensated, 3-axis)
Touchscreen:	no
Barometric altimeter:	yes
Camera:	no
Geocaching-friendly:	yes (paperless)
Custom maps compatible:	yes
Photo navigation (navigate to geotagged photos):	yes
Outdoor GPS games:	no
Hunt/fish calendar:	yes
Sun and moon information:	yes



Tide tables:	yes
Area calculation:	yes
Custom POIs (ability to add additional points of interest):	yes
Unit-to-unit transfer (shares data wire- lessly with similar units):	yes
Picture viewer:	yes
Garmin Connect™ compatible (online community where you analyze, catego- rize and share data):	yes

• Specifications obtained from www.garmin.com



APPENDIX D

LIST OF MAPS (IN MAP POCKET)

Magnetometer Plan Map (1:2500)

1) Q2425a-Ben Nevis-Ben Nevis-Mag-Cont

Traverse Plan Map (1:20000)

2) Q2425a-Ben Nevis-Ben Nevis-Traverse

TOTAL MAPS = 2



