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## **Assessment Report**

On

VLF EM-16 Surveying

Claim 543982

#### Norberg Township

Sault Ste. Marie Mining Division District of Algoma N.T.S: 41N/01

**Prepared For** 

### **Rich Copper Exploration Corp**

Prepared by: Shaun Parent

Superior Exploration & Climbing Co Ltd

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#### **Introduction:**

Claim 543982 is located in the Sault Ste. Marie Mining Division, approximately 65 kilometers north of Sault Ste. Marie, Ontario. The Claim consists of 1 - 16 hectare unit and is located approximately 700 meters north east of the deposit known as the East Breccia.

A VLF EM-16 Survey was carried out on January 2, 2022 using a VLF EM-16 and a handheld Garmin GPS-60C using 2 transmitter stations one to the east NAA (Cutler, Maine) and one to the west NML (La Moure, North Dakota)

The objective of the VLF Em-16 Survey was to determine if the weak magnetic anomaly east of the East Breccia deposit represented a possible mineralized Breccia Pipe. There are three known mineralized breccia pipes located to the west of Claim 543982.

- The Breton Breccia containing an estimated 40 million tons of 0.3-0.4% Copper
- The West Breccia having a resource of 223,000 tons of 0.75% copper
- The East Breccia containing a historical resource of 125 million tons of 0.13% copper

As well, the West Breccia and the East Breccia deposits have associated high airborne magnetic responses.

#### **Claim Location**

The Claim group is located near the West boundary of Norberg Township.

The claims are located on NTS Maps 41N/1. The Mining claims are found on Norberg Plan G-3120. (Figure-1)



#### Map 1 General Location Map of Claim 543982

#### Map 2 VLF Lines on Claim Block



#### **Property Access**

Access to the property can be accomplished using a 2 wheel drive vehicle along the Carp River Road. Winter access is by snow machine only, unless logging is taking place in the immediate vicinity of claims and along the East Breccia Access road.

#### Directions to the property is as follows:

- Drive north from Sault Ste. Marie on Highway 17 for approximately 40 minutes to the junction of the Highway 538 to the Batchawana Bay.
- Continue north on Highway 17 for 200 meters to the Carp River Road.
- Follow the Carp River Road for 20 kilometers until you reach the bypass to Mile 67 Road.
- Turn right and continue on the main road. As you pass a lake on the left side, there is a steep turn to the right.
- Claim 543982 can be accessed from here.

#### Personnel

The VLF EM-16 and GPS field navigator responsible for the collection of all raw data was Shaun Parent. Processing, Modelling and Interpretation of data was conducted by Shaun Parent and Sandra Slater.

#### **Work Performed**

#### Fieldwork

The VLF EM-16 survey consisted of running 2 VLF traverse Lines

#### Table 1 VLF Line Descriptions

			Stations Sur	veyed
Line	True Azimuth	Length (m)	From	То
2E	154	560	7+00S	12+60S
3E	157	420	0+60S	4+80S

The VLF survey lines were chosen to best cover the complete Claim as in Figure-2 (Page 5)

All VLF were aligned to cover the magnetic anomalies. A total of 980 meters of VLF surveying was carried out.

The VLF lines were completed while using a handheld Garmin 60-CSX GPS. Each VLF station was located based on its azimuth and distance from the start of the survey line. At each line station, 2 transmitter stations were read using the Geonics VLF- Em-16

#### **Paramaters of VLF Survey:**

Equipment Used: VLF EM-16 unit and a handheld Garmin 60-CSX PS

VLF Transmitters Used:	NAA:	24.0 KHz. Cutler, Maine (East)
	NML:	25.2 KHz La Moure, North Dakota (West

Note: Only data collected for transmitter NAA Cutler, Maine has been processed for this report

Datum: Data was collected using UTM NAD 83

VLF survey direction:

The direction faced while taking each reading:

- Line 2E: 154 degrees true azimuth
- Line 3E: 157 degrees true azimuth

**Parameters of Measurement:** In-phase and Quad-phase components of a vertical magnetic field is measured as a percentage of horizontal primary fields. (Tangent of tilt angle and ellipticity). VLF transmitter NAA (East), NLK (West) The transmitters are chosen so that the direction to the transmitting station is as close to the orientation of the bedrock strike.

#### **VLF Data Collection Process**

Field data was collected as follows on each surveyed line.

- Each station was saved onto the Handheld Garmin 60CSX GPS Unit (including any local features such as power lines, fences and geological structures)
- VLF readings for each station were recorded on the GPS as In-Phase and Quadrature, corresponding to the line number and station number.
- Garmin and VLF data were compiled and processed. All UTM Values are NAD 83.
- Data processing, profiling & modeling of individual line VLF data was completed Various Review of data was done and an interpretation report completed.

#### **Interpretation & Modelling**

#### **Data Processing**

The following filters, inversions, profiling and modelling were completed and used in the interpretation process, however, only the Raw VLF Data Profiles and Fraser Pseudo Sections are included in the Appendices at the end of this report.

#### **Raw VLF Profiles for Transmitter NAA**

The Raw data collected in the field is plotted showing the In-Phase component as a red dashed line and the quadrature component as a blue dashed line. . In-Phase inflections and cross overs are usually plus to minus, while Quadrature responses are negative to positive.

#### **Fraser Filter Profiles for Transmitter NAA**

The data processing technique commonly referred to as the Fraser Filter was applied to the raw data. This filter transforms In-Phase cross overs and inflections into positive peaks, while Quadrature responses are negative to positive giving a negative peak anomaly when the Fraser Filter is applied.

#### **Fraser Filtered Section for Transmitter NAA**

The VLF2DMF software uses the Fraser filtered profiled data and produces contoured results on Line profiles. Positive peaks in the In-Phase Component are shown as orange and negative peaks in the Quadrature component are shown as blue. The intensity of the response is measured on the scale bar to the right of the line profile.

#### Conclusions

The Ground VLF Survey Interpretation was successful in:

- Outlining conductors that could be the mineralized zones near the tops of a breccia pipe
- Identifying Fraser Filter Conductors on lines 2E and 3E that are similar to other breccia pipes in the area



#### Map 3 VLF Stations showing VLF Fraser Pick Conductors

#### Tables 2 & 3 VLF Conductors Identified

		UTM		
Conductor	Station	Easting	Northing	Result
А	8+20S	692293	5219339	Strong Bedrock Conductor with sulphides
В	9+60S	692344	5219207	Weak Bedrock conductor, possible contact
С	11+00S	692412	5219088	Strong Bedrock Conductor with sulphides

#### *Line 2E:* VLF Conductors were identified using the Fraser Filter

*Line 3E:* VLF Conductors were identified using the Fraser Filter

		UTM		
Conductor	Station	Easting	Northing	Result
А	1+60S	692327	5219359	Weak Contact
В	2+20S	692355	5219309	Moderate Bedrock Conductor with sulphides
С	3+20S	692398	5219215	Possible bedrock contact
D	4+00S	692433	5219146	Bedrock Conductor

#### Recommendations

- Further VLF lines at 100 meter stations across claim 543982
- Prospecting and sampling of outcrops near VLF Conductors on line 2E and 3E

#### **List of References**

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#### **Certificate of Qualifications**

I, Shaun Parent, P. Geo . Residing at 282 B Whispering Pines Road, Batchawana Bay, Ontario do certify that:

- 1. I am a consulting Geoscientist with Superior Exploration, Adventure & Climbing Co. Ltd.
- 2. I graduated with a Geological Technician Diploma from Sir Sandford Fleming College in 1986.
- 3. I graduated with a BSc. from the University of Toronto in 1986.
- 4. I am a member in good standing with the Association of Professional Geoscientists of Ontario #1955 and a member of the Prospectors and Developers Association of Canada.
- 5. I have been employed continuously as a Geoscientist for the past 37 years since my graduation from University.

Dated this 23<sup>rd</sup> day of February 2022

Shaun Parent, Diploma-Geo, BSc. P. Geo

# **APPENDIX A**

# **Figures**

#### Figure 1 Line 2E Raw Data Profile



#### Figure 2 Line 2E Fraser Filter with VLF Picks





#### Figure 3 Line 2E Fraser Pseudo Section with VLF Picks



Fraser Section — Imaginary Component Data (raw data) 2E NAA; "Rich Copper Exp, Tribag Project, Sandra Breccía Area, Line 2E''



#### Figure 4 Line 3E Raw Data Profile



#### Figure 5 Line 3E Fraser Filter with VLF Picks



#### Figure 6 Line 3E Fraser Pseudo Section with VLF Picks



Fraser Section — Imaginary Component Data (raw data) 3E NAA; "Rich Copper, Tribag Project, Sandra Breccia Area, Line 3E"

