Interpretation Report

Ground and airborne geophysical data

Vortex Property, Gaspésie, Québec April 2013

Gespeg Copper Resources 115-B, route Dion Bonaventure, Québec GOC 1E0

> Dubé Desaulniers **Geo/cience**

Prepared by Joël Dubé, Eng.

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Dubé & Desaulniers Geoscience 6, chemin des Bouleaux L'Ange-Gardien (Québec) J&L 0G2 jdube@ddgeoscience.ca

Dubé Desaulniers **Geo/cience**

Joël Dubé, ing.

jdube@ddgeoscience.ca Tel.:819.598.8486 Discovery oriented Innovative

Profession Intégrité Efficacité

Dubé & Desaulniers GEOSCIENCE

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I. INTRODUCTION

At the request of Bernard-Olivier Martel, Vice-President Exploration of Gespeg Copper Resources (GCR), an interpretation of the geophysical data available for the north-western part of the Vortex Property was performed. The Vortex Property is part of multiple properties owned by GCR in the Gaspé area (Figure 1).

This interpretation work was conducted to meet two specific objectives:

- Identify regional exploration targets in the north-western part of the Vortex property, where more geoscientific information has been collected and where a high density of showings have been found in the past;
- Identify local exploration targets in areas where recent drill hole information is available and where induced polarization and resistivity (IP) surveys have been performed, which provide 3D information about the distribution of the chargeability and the resistivity within the rocks.



Figure 1: General location of Gaspé Properties

To this end, the following steps were performed:

- Review and compilation of available airborne data;
- Analysis of typical response observed for the showings and deposits identified in the area;
- Recommendations regarding regional exploration targets in the area;
- Compilation of recent diamond drill holes (DDH) data within the Vortex Property, and creation of 3D models based on logs and rock assays;
- Reprocessing and inversion of IP data acquired in the recent years, and creation of 3D models of the distribution of resistivity and chargeability within the ground;
- Analysis of 3D models to generate drilling targets.

II. VORTEX PROPERTY'S AVAILABLE DATA

Vortex Property

The Vortex Property is located within the NTS mapsheet 022A13, about 25 km from Murdochville (Figure 2). It is part of the Chic-Choc Mountains, characterized by high plateaus and deep valleys. The north-western corner of the Vortex Property hosts several showings and deposits reported by Québec's MRNF, out of which the Sullipek (Pekan) deposit has historic resource estimation. It also hosts several mapped hydrothermal systems. It has been subject to many ground and airborne geophysical surveys and drilling campaigns. The interpretation and targeting work is therefore focused in this area, which is shown in Figure 3, together with GCR mining claims (in green), known hydrothermal systems (black dashed lines) and showings/deposits (black stars).

Figure 2: Vortex Property



Available airborne geophysical data

Two recent airborne surveys were performed over the Vortex Property. In 2008, Aeroquest conducted an IMPULSE system electromagnetic and magnetic survey over the northern part of the Vortex Property (Garrie et al, 2008). In 2012, Prospectair Geosurveys performed a magnetic and spectrometric survey (Dubé, 2012), which was the object of a thorough interpretative analysis (Dubé, 2013). Only data and interpretation products considered of high interest to the interpretation and targeting work are used and presented in this report.

Available ground geophysical data

Two recent IP surveys have been performed within the Vortex Property, over two distinct zones. One zone is centered over the Sullipeck (Pekan) Deposit, to the west, and a second one is centered over the De La Colline hydrothermal system, to the east. They are referred to as the Deposit zone and the De La Colline zone, respectively.

In November 2009 Vickers Geophysics Inc. conducted an IP survey in pole-dipole configuration, with a number of dipoles (n) of 10, and electrode spacing (a) of 100 m (Vickers, 2009), which is estimated to investigate the ground down to a depth of 430 m. Five lines (orange lines on Figure 3) ranging from 1.3 to 1.6 km in length and totalling 7.3 km were surveyed in the De La Colline zone. Note that actual coordinates were note provided for this survey, only theoretical coordinates.

In November 2011, Abitibi Geophysics performed an IP survey in dipole-dipole configuration, with a number of dipoles (n) of 8, and electrode spacing (a) of 100 m (Dubois, 2011), which is estimated to investigate the ground down to a depth of 260 m. Ten lines (magenta lines on Figure 3) of 3.0 km in length and totalling 30.0 km were surveyed in the De La Colline zone, while four lines (purple lines on Figure 3) measuring 3.0 km for a total of 12.0 km were surveyed in the Deposit zone. A ground magnetic survey was conducted over the same lines.

Note that a borehole hole-to-hole 3D IP survey was performed in April 2011 (Brown et al, 2011). Given the few holes used for the survey (five) and the large distance between them, this survey is considered superseded by the ground IP survey performed in November 2011, which covers a more extensive area with a higher resolution, although it doesn't penetrate as deeply.



Figure 3: Vortex Property's claims, IP lines, showings and hydrothermal systems

III. DATA PROCESSING

A number of steps were undertaken to prepare the data and process them into products that can be used for interpretation. This was necessary for borehole and ground IP data. Other data sources were used as provided with the reports mentioned in section II. The necessary processing steps are summarized here.

Borehole data

Borehole data provided by GCR was properly placed in 3D spatial coordinates. In total 33 boreholes were available, all in the De La Colline zone (Figure 4). Lithology logs and rock assays were considered useful. On 3D maps delivered, lithologies are always plotted on the left hand side of figures and rock assays on the right hand side, as bar plots, with Cu in red, Fe in orange, Zn in blue and Mo in pink. Note that rock assays were only available for 9 holes. Hole collars are plotted as circles on the surface, together with the borehole ID. Ticks are placed every 50 m down hole. Figure 4 shows a plan view of existing drill holes in the De La Colline area, with their Cu assay results as red bar plots.



Figure 4: Existing drill holes in the De La Colline zone

IP inversion models

In order to obtain a probable representation of the sources causing the observed IP responses, the RES2DINV inversion software distributed by Geotomo was used. Unconstrained inversions of resistivity and chargeability data were performed, yielding 2D models of the underground distribution of these physical properties.

Since equations used for calculating apparent resistivity assume a flat topographic surface, taking the actual topographic surface into account for the inversion ensures that the causative sources representation is free from any topographical effects. This was particularly important in the Vortex Property's context, characterized by highly dynamic topography.

IV. INTERPRETATION

Presentation of results

For each of the 19 IP survey lines, sections were created where measured apparent resistivity and chargeability are plotted on top of inversion model's sections of the same physical properties. The true depth inversion sections are referred to MSL elevations. These sections are presented at a 1:10,000 scale, and are available in PNG image format and Geosoft Map format.

Results are also presented on plan maps. First of all, IP inversion models have been extracted at several depth and interpolated in between survey lines in order to highlight lateral variations of the chargeability and resistivity distribution within the ground. Plan view slices were extracted at depths of 0 (surface), 100 and 200 meters. On top of the IP results, several other geophysical data products considered of interest for interpretation were reported on maps. They are detailed in Table 1. All maps are referred to NAD-83 datum against the UTM projection zone 20N, in meters. Maps are provided at a 1:10,000 scale, in PDF and Geosoft Map formats. Grids presented on these maps are also available in Geosoft GRD format.

No.	Nom	Description
1	DEM	Digital Elevation Model (m), claims and survey lines location
2	ТМІ	Total Magnetic Intensity (nT), Prospectair airborne survey
3	FVD	First Vertical Derivative of TMI (nT/m), Prospectair airborne survey
4	GND_TMI	Total Magnetic Intensity (nT) measured on the ground
5	К	Potassium concentration (%), Prospectair airborne survey
6	Resistivity_4650Hz	Apparent resistivity measured at 4650 Hz (Ohm-m)
7	Resistivity_23250Hz	Apparent resistivity measured at 23250 Hz (Ohm-m)
8	RES_D0m	Resistivity inversion model extracted at a depth of 0 m (Ohm-m)
9	RES_D100m	Resistivity inversion model extracted at a depth of 100 m (Ohm-m)
10	RES_D200m	Resistivity inversion model extracted at a depth of 200 m (Ohm-m)
11	CHA_D0m	Chargeability inversion model extracted at a depth of 0 m (mV/V)
12	CHA_D100m	Chargeability inversion model extracted at a depth of 100 m (mV/V)
13	CHA_D200m	Chargeability inversion model extracted at a depth of 200 m (mV/V)

Table 1: Maps delivered

Finally, sections and slices of inversion models of resistivity and chargeability at several depths are presented in 3D, together with borehole traces and their associated data. This is a convenient way to visualize the IP data, put them in context with borehole information and determine which significant anomalies are still unexplored with drill holes. 3D maps are provided separately for the Deposit and De La Colline zones, in Geosoft MAP format.

Review of known mineralized occurrences

The MRNF keep records of mineralized occurrences within Québec's territory. Those within the map area have been reviewed. They are reported on each map. The principal commodities reported are Cu, Pb, Zn, Ag, Mo and Au. The deposit types identified include porphyry Cu (Mo, Ag, Au), skarn Cu, skarn Cu associated with porphyry intrusions (Mo, Ag, Au), and vein type mineralization (Cu or Zn, Pb, Ag). All these deposit types are found in porphyry systems environment. The relation of these deposit types to porphyry intrusions is schematized in Figure 5.



Figure 5: Deposit types related to porphyry intrusions (after Sillitoe, 1993)

The vast majority of mineralized occurrences contain iron sulfides and/or oxides, with pyrrhotite and magnetite being reported for most of them. The distribution of these two magnetic minerals within the ground is known to control most of the magnetic response at surface.

Regional interpretation and exploration targets based on available geophysical data

In the context of this report, "regional" is defined as the area outside the Deposit and De La Colline zones, where no IP data are available. The regional interpretation and exploration targets definition is based on the data presented on plan maps.

The three Porphyry-Cu deposits with estimated tonnage (Mont Copper, Mont Porphyre and Sullipek), as well as the past producing skarn deposit of Gaspé Copper Mine all have high intensity magnetic response. Early mineralization at the Mont Porphyre and Mont Copper

plugs is mainly characterized by pyrrhotite, and also throughout the surrounding metamorphic aureoles (Allcock, 1982), which explain the observed anomalies. For these reasons, magnetic anomalies identified with the thorough interpretation of the Prospectair survey (Dubé, 2013) are reported here with the same ID numbers and should be considered as potential targets for exploration.

In addition, airborne apparent resistivity data are available in the northern part of the Vortex block. Apparent resistivity measured at a lower frequency (4650 Hz) reflects resistivity distribution at a greater depth than the one measured at higher frequency (23250 Hz), which is mainly controlled by surficial effects.

In general, good correlation of the airborne resistivity data from Aeroquest has been found to the shallow resistivity response observed with the resistivity measured from the ground with the IP survey. Since mineralization intersected by drill holes is characterized by low resistivity, it is recommended to investigate other low resistivity areas as outlined from the IMPULSE EM airborne surveys. These conductive zones have been outlined on all maps as purple polygons. Those partly associated with a magnetic anomaly should be prioritized. The highly conductive area with a strong correlation to the magnetic anomaly M-354, just north of the Rivière Madeleine Ouest (Zone Rusty) deposit is of great interest. Another conductive area partly associated with M-338 and M-345 magnetic anomalies, located in between the Grande Rivière showing and the Rivière Madeleine-Est deposit is worth mentioning. The conductive area located just east of drill holes 11-V-01 to 11-V-05, which have revealed copper mineralization close to surface, and extending 1km further east, in an ENE direction is also of interest. If favourable environments are recognized on the ground, it is recommended to perform a Deep-IP survey over these zones in order to properly outline chargeable material and define drilling targets.

Background Potassium concentrations are high in the area of study. The strongest responses occur within the De La Colline hydrothermal aureole, close to the Sullipek east deposit, and at the edge of the Sullipek (Pekan) hydrothermal system, confirming that both systems have been subject to potassic alteration. This also confirms that these areas are highly prospective, and the additional IP and borehole data found in these zones enable the identification of local targets, which is the subject of the next section

Local interpretation and exploration targets based on ground IP data

General

In the context of this report, "local" is defined as the area where ground IP data is available, yielding information at depth that enables identification of drilling targets with a higher degree of confidence than possible with other geophysical methods used over the Property.

Both ground IP survey configuration were aiming at penetrating the ground at great depth. However, the large dipole used in order to achieve this (100 m) results in low resolution. Also, note that the resolution of inversion models decreases with depth, reflecting the fact that a larger volume of rocks contributes to the response for larger dipoles separation. This is not critical in the exploration context of the Vortex property, as exploration is focussing on large volumes of disseminated sulphides of porphyry Cu type, or on large size skarn or veins deposits or concentrations of these types of deposits.

Regarding porphyry Cu resistivity distribution, it is generally admitted that the potassic alteration zone in the center is mostly resistive, while the Py-propyllitic alteration halo surrounding the potassic alteration core is mostly conductive. With respect to direct detection of mineralized occurrence, the resistivity will decrease as conductive minerals (such as sulphide or graphite) become more continuous or massive. However, rocks resistivity can be affected by a broad range of rock types and geological phenomena such as alteration, metamorphism, shearing, fracturation, etc. In all cases, the chargeability will increase with the amount of sulphide minerals, should it be disseminated, in veinlets or stringer, semi-massive or massive. Therefore, the chargeability is seen as the primary targeting tool, although chargeable anomalies coincident with conductive anomalies will be prioritized.

The Deposit and De La Colline zones are treated separately in the following sections.

Deposit zone

The geophysical signature of the Sullipek (Pekan) Deposit is characterised by a strong chargeable anomaly associated with a conductive response. Furthermore, it is associated with a strong magnetic anomaly (labeled M-39). Aside from the immediate vicinity of the Sullipek Deposit, two areas have been identified as prospective within the overlapping zone of the Deposit IP line with the Vortex Property.

At the north end of lines 2400, 2600 and 2800E, a conductive zone is identified from station 184+00N to 185+50N, with a partial chargeable response. The chargeable anomaly is stronger on line 2400E. This conductive axis correlates very well with a conductive area outlined from the airborne IMPULSE EM survey, which is also associated with the M-361 and M-365 magnetic anomalies. If favourable geological environment is found, a drill hole could be attempted to verify the source of anomalies. Due to the lack of proper coverage of the anomaly with the IP/resistivity survey, it is recommended to choose the drill hole location and orientation on the basis of available geological data. Note that this anomalous lineament has not been identified on line 3000E, but it may very well be located just off the north end of the line, which is suggested by the eastward continuation of the conductive lineament seen on the airborne EM survey, towards the Rivière Madeleine Ouest deposit.

A group of weak to intermediate chargeable anomalies with partial association to low resistivity are identified between stations 177+50N and 182+50N. They are also associated to the magnetic anomaly M-373, and located just west of a conductive anomaly identified with the airborne EM survey data. The inversion models show that the bulk of the source is buried at a depth exceeding 100m, but it is also possible that some signs of mineralization come closer to surface. The best target to verify the source of the anomaly is located on

line 2600E, at a depth of 150m under station 178+50N (this is the target location, not the collar). A proposed drill hole (Proposed-DP1) is shown on Figures 6 and 7, and described in Table 2. If encouraging results are obtained, further targets can be extracted based on the data.



Figure 6: Proposed drill hole along line 2600E and chargeability, view from SE

Figure 7: Proposed drill hole along line 2600E and resistivity, view from SE



Holo		TARGET					COLLAR						
	Priority	Line	Station	Depth	X	Y	Line	Station	Х	Y	Dir	Incl	Distance
		_ (m) _	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	_ (°) _	_ (°) _	(m)
DP1	2	2600	17850	150	282601.5	5417852	2600	17936.6	282601.4	5417939	180	60	300

Table 2: Identified target and proposed drill hole in the Deposit zone

Note that if it is of interest for GCR to identify further drilling targets in the vicinity of the Sullipek (Pekan) Deposit based on the geophysical data compiled in this report, it is recommended to compile historical drill hole information first. This would allow better understanding of the geophysical signature of the known mineralization, and would avoid targeting areas that have already been drilled in the past.

De La Colline zone

On a general note, according to the MRNF showing/deposits database, the Sullipek-Est deposit indicated on the map has been located in the middle of the potassic alteration zone, which is also confirmed by the Potassium concentration results from the Prospectair survey. All targets selected in the vicinity of the Sullipek-Est deposit have therefore a potential to indicate non-eroded skarn, mantos, or vein/breccia deposits surrounding the core affected by potassic alteration.

Based on the IP results, the mineralization intersected close to surface on drill holes 11-V-01 to 11-V-05 is characterized by a chargeable and conductive response. This confirms that combined chargeability and resistivity anomalies are adequate targeting vectors.

Close to the mineralisation intersected on drill holes 11-V-01 to 11-V-05, an E-W striking chargeable and conductive lineament is extending further east. Note that it is directly associated with a conductive area shown on the airborne EM data. In order to confirm the eastward continuity of the known mineralization, it is recommended to drill (Proposed-DC1) a target at a depth of 150m under station 166+25N on line 7800E (target, not collar).

Another chargeable and conductive lineament is mapped about 400m north of the one just described. It is striking ENE, and it seems drill holes 01-67, 02-67 and 04-67 were all implemented outside the chargeable anomaly zone. A prospective target to verify the source of this anomaly would be on line 7800E, at a depth of 200m under station 170+50N (Proposed-DC2). The recommend drill holes are shown on Figures 8 and 9, and listed in Table 3.

If interesting results are found, two other targets could be defined further east, on line 8000E.



Figure 8: Proposed drill holes along line 7800E and chargeability, view from NE

Figure 9: Proposed drill holes along line 7800E and resistivity, view from NE



West of the shallow mineralization intersected by drill holes 11-V-01 to 11-V-05, the eastwest conductive and chargeable lineament identified to the east is not as prominent. The conductive lineament is disrupted, and trends NNW, however a weak chargeable anomaly continues towards the west, passing by drill holes SL-3, SL4 and 09-K-03. The fact that the anomaly is weak and that a few holes have already been drilled close to it do not prompt for additional investigation in this area. However, south- west of hole 09-K-03, the chargeability response becomes stronger, and is associated with an increase in conductivity (also confirmed on the airborne EM survey data). The best target to investigate this anomaly at shallow depth seems to be on Line 6900E, 100m under station 164+75N (Proposed-DC3 on Figures 10 and 11). If interesting results are obtained, a similar hole should be attempted on line 7100E, targeting a depth of 150m under station 164+00N (Proposed-DC4 on Figures 12 and 13).



Figure 10: Proposed drill hole along line 6900E and chargeability, view from NE

Figure 11: Proposed drill hole along line 6900E and resistivity, view from NE



The anomaly described above extends further to the west, and actually gets stronger both in chargeability and conductivity, close to the Vortex Property limit, where it is also associated to an airborne EM anomaly and partly associated with the magnetic anomaly M-325. The anomaly is strong and well defined on Line 6300E, and a drill hole is recommended at a depth of 100m under station 164+50N (Proposed-DC5 on Figures 16 and 17). Given that there is a second anomaly further north, which is interpreted with a southward dip, it is recommended to extend this hole deeper.

South of the area described above, another chargeability anomaly striking mostly east-west is seen. This anomaly is rather associated with an increase in resistivity and seems to be partly associated with the M-325 magnetic anomaly. The best location to verify the source of the anomaly is on Line 7100E, at a depth of 125 under station 162+00N (Proposed-DC6 on Figures 12 and 13). If encouraging results are encountered on the anomaly north of this one (Proposed-DC4), Proposed-DC6 should be extended further down in order to reach the northern anomaly source at a greater depth. Note that another similar east-west striking anomaly is identified at a greater depth south of this one (centered at station 158+00N on line 7100E), and would deserve investigation if mineralization is intersected in Proposed-DC6.



Figure 12: Proposed drill holes along line 7100E and chargeability, view from SE

Figure 13: Proposed drill holes along line 7100E and chargeability, view from SE



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Finally, in the north-western part of the De La Colline grid, the chargeability values are generally higher than in the rest of the block. This is well seen on the chargeability slice extracted at a depth of 200m. The high Potassium concentration observed at the surface on this area is of interest. Also note that the hole-to-hole 3D IP survey performed by Abitibi Geophysics in 2011 revealed a chargeable source in between drill holes 09-K01, 09-K-02 and 09-K-05 (this anomalous area was named zone A). Two drilling targets are recommended in this area. One located on Line 6700E, at a depth of 150m under station 170+50N (Proposed-DC7 on Figures 14 and 15), which is associated to a decrease in resistivity and a weak magnetic anomaly from the ground survey. The other one on Line 6300E, also associated to a decrease in resistivity and a stronger ground magnetic anomaly, under station 169+00N, at a depth of 150m (Proposed-DC8 on Figures 16 and 17). If positive results are obtained in this area, further drilling targets could be identified in between the two holes, north of the existing hole 09-K-05 or further north.



Figure 14: Proposed drill hole along line 6700E and chargeability, view from NW

Figure 15: Proposed drill hole along line 6700E and resistivity, view from NW



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Figure 16: Proposed drill holes along line 6300E and chargeability, view from NW

Figure 17: Proposed drill holes along line 6300E and resistivity, view from NW



Proposed drill holes have been plotted on each plan maps delivered. It is also recommended to let holes extend past the targets, down to the depth proposed in the distance column, given the vertical location uncertainty inherent to inversion models. Note that no holes were proposed along the lines surveyed by Vickers Geophysics since stations location were provided only in theoretical coordinates, not actually geo-referenced.

Holo		TARGET						COLLAR					
ID	Priority	Line (m)	Station (m)	Depth (m)	X (m)	Y (m)	Line (m)	Station (m)	X (m)	Y (m)	Dir (°)	Incl (°)	Distance (m)
DC1	1	7800	16625	150	287787	5416635	7800	16499.14	287797.9	5416509	0	50	400
DC2	-	7800	17050	200	287822	5417060	7800	16882 18	287815 7	5416892	0	50	400
DC3	1	6900	16475	100	286901	5/16/65	6900	16301 00	286901 6	5/16381	0	50	300
DCJ	1	7400	10475	100	200901	5410405	7400	10391.09	200901.0	5410501	0	50	300
DC4	2	/100	16400	150	28/102	5416394	/100	16274.14	28/101.2	5416268	0	50	400
DC5	1	6300	16450	100	286336.6	5416408	6300	16366.09	286300.2	5416324	0	50	500
DC6	1	7100	16200	125	287100.7	5416194	7100	16095.11	287102	5416089	0	50	400
DC7	1	6700	17050	150	286713.8	5417037	6700	16924.14	286715.3	5416911	0	50	400
DC8	1	6300	16900	150	286312	5416858	6300	16774.14	286325	5416732	0	50	400

Table 3: Identified targets and proposed drill holes in the De La Colline zone

V. CONCLUSION

The airborne and ground geophysical data compiled have enabled the delineation of additional regional targets in the north-western part of the Vortex Property. In the Deposit and De La Colline zones, where IP data were available, reprocessing and 2D inversion of the data were performed. Drill hole data were also compiled and analysed. Both data sets were combined in 3D space, in order to confirm the geophysical signature of known mineralized occurrences, which are chargeable and conductive. Based on these observations, similar responses were outlined, and a total of nine drill hole targets were proposed in the area.

Respectfully submitted,

Joël Dubé, Eng. April 30th 2013

VI. Statement of Qualifications

Joël Dubé 6 Chemin des Bouleaux L'Ange-Gardien, QC, Canada, J8L 0G2

Telephone: 819.598.8486 E-mail: jdube.ddgeoscience.ca

I, Joël Dubé, ing., do hereby certify that:

- 1. I am an independent consultant in geophysics, working for Dubé & Desaulniers Geoscience Ltd, registered in Quebec.
- 2. I earned a Bachelor of Engineering in Geological Engineering in 1999 from the École Polytechnique de Montréal.
- 3. I am an Engineer registered with the Ordre des Ingénieurs du Québec, No. 122937.
- 4. I have practised my profession for 13 years in exploration geophysics.
- 5. I have not received and do not expect to receive a direct or indirect interest in the properties covered by this report.

Dated this 30th of April, 2013

Joël Dubé, Eng. #122937

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