GM 26796

REPORT ON GEOPHYSICAL SURVEYS ON THE LOUVICOURT PROPERTY

Documents complémentaires

Additional Files



Licence

License

Cette première page a été ajoutée
au document et ne fait pas partie du
rapport tel que soumis par les auteurs.

Énergie et Ressources naturelles
Québec

CONSTANTINE SALAMIS, P.ENG.

MINING GEOPHYSICS
PROPERTY EVALUATION
EXPLORATION MANAGEMENT

917 WILDER AVENUE
OUTREMONT, QUEBEC
272-1692

Report on

GEOPHYSICAL SURVEYS

on the

LOUVICOURT PROPERTY

Louvicourt Township, N. W. Quebec

for

TRITON EXPLORATIONS LTD.

Ministère des Richesses Naturelles, Québec
7 - AVR 1971
SERVICE DES GITES MINÉRAUX
No GM- 26795

December 1970

INTRODUCTION

Five claims, totalling 500 acres, were optioned by Triton Explorations from Robert Lamothe in Louvicourt township. The claims can be described as follows:

License No.	Claim No.	Lots	Range
306800.	1 and 2	32 and 33	IV
306801.	1 and 2	34 and 35	IV
306802.	1	36	IV

In May an Input airborne EM survey, sponsored by the Ministry of National Resources, revealed the presence of several weak Input anomalies traversing the central and southern part of the property.

The claims were staked in March 1970 by Lamothe and optioned to Triton in September.

A combined magnetometer-electromagnetic survey was recommended to cover the entire property. The line spacing was maintained at 200 feet since most of the known deposits in Louvicourt township have a limited strike length. Because of anticipated overburden problems a coil separation of 300 feet was maintained with the McPhar VHEM horizontal loop. Dual frequency measurements (2400 Hz and 600 Hz) were used to distinguish overburden from bedrock source conductors.

Line-cutting commenced on October 15th and the geophysical surveys on November 1st.

GENERAL GEOLOGY

The area has been mapped a number of times in the past. The most useful and up-to-date publication dealing with this area is:

"Louvicourt Area" - Geological report #135
by J. I. Sharpe
with accompanying map number 1626.
Scale: 1,000 ft. to the inch.

The claims lie within the southern upper sub-group of the Malartic Group of volcanic rocks. All of the copper and copper-zinc deposits in the Malartic-Val D'Or-Louvicourt district are located within this group. Copper and copper-zinc deposits are numerous and include the East Sullivan, Dunraine, Louvem, Manitou-Barvue, Quebec Manitou, Beacon, Abitibi Copper, Dumont Nickel, etc. A total of 22 million tons of copper ore and 7 million tons of zinc ore have been developed and mined on these properties. The average grade is between 1.0 - 1.5% copper from the copper ores and 5.0% zinc with 3.0 ounces of silver from the zinc ores.

The upper sub-group is characterized by felsic lavas, considerable pyroclastic material, and innumerable intrusions of diorite, grandiorite, syenite, and related porphyries. The pyroclastics are the most important host rock for the sulphide deposits.

The claims held by Triton have less than one percent outcrop. These are located within the northern third of the property.

From north to south the claims are underlain by narrow sills of diorite intruding acid pyroclastics.

The southern third of the property is interpreted as interbedded tuffs and sediments (greywackes) belonging to the Pontiac Group. It should be emphasized however that this geological interpretation is uncertain since no geology has been mapped for a distance of one mile both east and west of the southern half of the property.

EXPLORATION HISTORY

The claims were at one time the property of Vicour Mines and subsequently Quebec Gold Belt.

Most of the exploration was carried out in the early 1940's in the search for gold. The main deposit on the Vicour property is located less than one mile north of the present north boundary of the Triton holdings.

Gold mineralization was associated with numerous auriferous quartz veins in the footwall of a thick diorite sill. Development (shaft, 3 levels) work indicated 500,000 tons with a grade of 0.135 ounce of gold per ton. Small amounts of pyrite, pyrrhotite, arsenopyrite, chalcopyrite and tourmaline occur in the veins. The wall rocks are markedly fractured, silicified and pyritized in the sections with the higher gold values.

Two significant holes (T-21 and T-22) were drilled on the

Triton property around 1945. The cross-section was intended to cut a magnetically interpreted diorite sill traversing the central part of the property. The magnetometer survey was carried out by T. Koulomzine.

The latter two holes confirmed the existence of the important pyroclastic member in the central part of the property.

A partial log of T-22 showing the mineralized sections only gave the following gold values (gold at $35/ounce).

18.5 - 73 - $4.07/ton over 54.5 ft.

Diorite cut by quartz stringers carrying tourmaline. Pyrite and arsenopyrite present. Arsenopyrite cubes up to 5 mm. Considerable feldspar.

688.2 - 728.2 - $4.87/ton over 40.0 ft.

Diorite.

includes:

715.5 - 718.2 - $8.40/ton over 2.9 ft.

Milky quartz with some massive pyrite:- quartz, tourmaline - pyrrhotite - pyrite - sparse chalcopyrite.

783 - End of hole.

The presence of pyroclastics in the greater part of the hole is indicated only on a company map. The main log is not available in the assessment files.

In addition to T-21 and T-22, three holes (T-16, T-17, and T-18) were drilled near the north boundary of the claims.

The information on the Vicour drilling was obtained from the assessment files at the resident geologist's (Ministry of Natural Resources) office in Val D'Or.

ELECTROMAGNETIC SURVEY

An electromagnetic survey was carried out using the McPhar VHEM horizontal loop. The higher frequency (2400 Hz) was employed for the entire survey. When anomalies were encountered, lower frequency (600 Hz) measurements were taken as well. A cable length of 300 feet was maintained for the surveys.

Transmitting and receiving coils are linked by a reference cable and this fixed array traverses along lines normal to the geological strike. The quantity measured is the change (percent) in the in-phase (real) and out-of-phase (quadrature) components of the resultant vertical magnetic field.

The system has the virtue of measuring the significant parameters of a conductor (width, depth, resistivity thickness). The major limitation for the method is its limited depth range (less than 150 feet for a 300 foot cable).

This did not pose a major problem on the Louvicourt claims since all of the INPUT anomalies were readily located on the ground.

Six electromagnetic anomalies were located by the surveys. These are indicated on the map as E_1E_1 to E_6E_6 respectively.

Anomaly E_1E_1 is a short anomaly approximately 400 feet long. The anomaly has a resistivity-thickness ratio of 10 x 10^{-2} ohms as calculated from the high frequency measurements. It is favourably located near the contact between the volcanics and the diorite sill. The anomaly shows excellent conductivity on the low frequency as well. A short drill hole (71-4) is recommended to cut the anomaly at shallow depth.

E_2E_2 is a small anomaly with excellent conductivity on both frequencies. Drilling will be deferred on this anomaly subject to the results obtained on E_1E_1. The anomaly appears to be well within the intrusive sill.

Anomaly E_3E_3 is located in the central part of the property. The anomaly is 1400 feet long. It is located within the favourable pyroclastics. The widest (40 ft.) part of the anomaly is located on line 2^E. The resistivity-thickness ratio is calculated at 24 x 10^{-2} ohms. The indicated depth is approximately 100 feet. A drill hole (71-3) is recommended to test this anomaly, on L-2^E.

Anomaly E_4E_4 is located immediately east of E_3E_3. This conductor is approximately 1,000 feet long. Drill hole (T-22) by Vicour appears to have adequately tested the anomaly. Unfortunately the log is not available. An attempt will be made to locate the log of this

hole from the present optioners (McIntyre Porcupine) of the Quebec Gold Belt claims.

Anomaly E_5E_5 is a 600 foot long conductor located near the south end of the property. The resistivity-thickness ratio on L-16E is 45 x 10^{-2} ohms, indicative of a poor conductor.

Although the conductivity is poor, it should be emphasized that this is typical of most of the ore deposits in the Louvicourt area. All of the known ones exhibit low conductivity and have a high copper to total sulphide ratio. Graphite is almost always absent.

A single drill hole (71-2) on L-16^E is recommended to test this anomaly.

The best [illegible]tor observed on the property is anomaly E_6E_6. The conductor is 700 feet long and averages 60 feet in width. The most promising part of this zone is located on L-28^E where the width of the anomaly is 100 feet, the depth is 50 feet and the resistivity-thickness is 18 x 10^{-2} ohms.

Drill hole 71-1 is designed to test this anomaly.

All of the Input anomalies have been located by the ground surveys. The noise level as indicated by the EM profiles appears to be at a minimum.

MAGNETOMETER SURVEY

The magnetometer survey results are indicated on a separate map. Measurements were carried out using an Askania torsion type magnetometer. Contours have been drawn for the entire grid with maxima indicated where significant only.

The decision was made to survey every second line of the original grid as well as the critical sections in the vicinity of the electromagnetic anomalies.

The contacts of the various geological units are indicated on the magnetic map. The degree of certainty in ascertaining the contacts is good because of the marked differences in susceptibility.

The diorite (2D) is clearly the most magnetic rock unit traversing the claims.

Typically the volcanics (V, $V_9 - V_6$) exhibit moderate to low susceptibilities and give rise to a slightly irregular magnetic profile. The volcanics underline the central part of the grid.

The gabbro-diorite (3G, 2D) is probably a differentiated sill thus explaining the marked magnetic high near the south contact and the lower measurements near the north.

The intercalated sedimentary and volcanic rocks (ST) located in the southern half give rise to a magnetic "low" and a reasonably constant profile.

Anomaly "D" is a narrow conformable magnetic anomaly traversing the central part of the area. The anomaly is probably due to the westward extension of a diabase dyke cut in a drill hole on strike in lot 38.

A study of the magnetic maxima as well as the topography further north suggests the presence of fault F_1F_1. The maxima are displaced by approximately 100-200 feet (east side moving south) at various points adjacent to this feature.

The measurements over the vicinity of the four potential drill sites (71-1 to 71-4 inclusive) gave the following results:

(1) Drill hole 71-1, EM anomaly E_6E_6

A direct magnetic association exists over anomaly E_6E_6. The amplitude of the anomaly is approximately 200 gammas. The depth of the anomaly is 125 feet.

(2) Drill hole 71-2, EM anomaly E_5E_5

A direct magnetic association exists over this anomaly. The amplitude is approximately 120 gammas. The depth of the anomaly is 65 feet.

(3) Drill hole 71-3, EM anomaly E_3E_3

The anomaly is the site of a magnetic "depression" located between two highs. The depth of the adjacent magnetic anomalies is estimated between 115 and 130 feet.

(4) Drill hole 71-4, EM anomaly E_1E_1 - No magnetic correlation.

CONCLUSIONS AND RECOMMENDATIONS

Six anomalies were obtained by the electromagnetic surveys.

One of the six (E_4E_4) has been tested from previous drilling carried out on the property (Vicour - hole T-22). A second anomaly (E_2E_2) is considered too small and geologically unfavourable for base-metal deposits.

Four drill holes have been recommended to test four of the anomalies. In order of priority, the most important anomalies are E_6E_6, E_3E_3, E_1E_1, and E_5E_5.

The parameters of the four drill holes are as follows:

Drill hole #	Anomaly #	Location	Direction	Inclination	Depth
71-1	E_6E_6	L-28^E 17+30^S	S	50°	375'
71-2	E_5E_5	L-16^E 16+80S	S	50°	300'
71-3	E_3E_3	L-2^E 2+90^N	S	50°	350'
71-4	E_1E_1	L-16^E 23+00^N	S	50°	275'
					1300'

A total of 1,300 feet of drilling is recommended. The cost of this work, including analysis and engineering supervision, is estimated at $13,000.

The surveys were successful in locating at least four targets that could be caused by an economic base-metal deposit.

The Louvicourt area is the site of a large number of copper and copper-zinc deposits. The absence of graphite and the high copper to total sulphide ratio of most of the deposits makes drilling compulsory on the EM anomalies obtained on the Triton property.

C. Salamis

C. Salamis

APPENDIX

Picket lines

Picket lines were established from the township center post on range line IV/V. The base line was established by chaining due south a distance of 2,700 feet from the post and then turning off at right angles. Picket lines were turned off at 200 foot intervals along the base line.

A total of 22.5 miles of picket line was cut as well as 2.2 miles of base line and tie lines.

Magnetometer Survey

The magnetometer survey was performed over every second picket line between 0 and 40^{E}.

In addition, a few measurements were taken on some intermediate lines where deemed necessary.

A total of 11.7 miles was completed. An Askania torsion type magnetometer was used for the survey.

All magnetic measurements were referred to a magnetic base located at $L-26^{E}$ $27+22^{N}$ on the north tie line (Range line).

Electromagnetic Survey

A McPhar VHEM horizontal loop unit was used. The operating

frequency of 2400 Hz was maintained except for anomalous areas. In the latter instance, the lower 600 Hz frequency was read as well.

A total of 22.3 miles of survey was carried out.