GM 25630

REPORT ON MAGNETOMETER AND ELECTROMAGNETIC SURVEYS

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Énergie et Ressources naturelles
Québec

BARVALLEE MINES LIMITED

FIEDMONT TOWNSHIP

QUEBEC

REPORT ON

MAGNETOMOTER AND ELECTROMAGNETIC SURVEYS

Ministère des Richesses Naturelles, Québec
11 FEV 1970
SERVICE DES GITES MINERAUX
No GM- 25630

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SUMMARY

Drilling on the Barvallee Zone during 1956-57 outlined two zinc-copper-silver zones along a strike length of 450 feet. The average of the drill holes through the two zones as estimated by Vallee and Tiphane is:

		Zn %	Cu %	Ag.Oz./ton
Vallee	1965	5.27	1.21	1.33
Tiphane	1957	5.71	1.23	1.42

Additional detailed drilling will be required to provide a reasonably assured tonnage estimate.

Magnetic and electromagnetic surveys were carried out over the property in April and May 1969 as the first stage in a program to locate additional ore horizons. Five areas were outlined by this work which merit further investigation.

A program involving 2,050 feet of diamond drilling with a contingency for an additional 5000 feet has been recommended. The total cost is estimated at $50,000.

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REPORT ON

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INTRODUCTION

The following report describes the results of a magnetometer and horizontal loop electromagnetic survey carried out over the Barvallee Mines Limited, Fiedmont Township property, Quebec. This work was done in April and May, 1969.

A brief summary of work previously performed is also included.

PROPERTY AND LOCATION

The Barvallee Mines Limited, Fiedmont Township property comprises 1,900 acres in the north part of the west half of Fiedmont Township, Quebec. The claims covering this area are numbered as follows:

Certificate	Claim No.	Lot	Range
C-290457 to C-290458	1 and 2	9 - 12	X
C-290481 to C-490484	1 and 2	13 - 20	X
C-290455	1 to 4	N½ 26 - 23	X
C290456	1 to 2	N½ 22 - 21	X
C-53381 to C-53382	1 and 2	27 - 30	X
C-53383	1 and 2	29 - 30	IX
C-290456	3	N½ 20	IX

ACCESS

The property is accessible by road from Barraute ¾ of a mile to the east. Barraute is located on the Canadian National Railway. Hydro-electric facilities are also available here.

Val d'Or, 24 miles to the south is a mining supply centre.

HISTORY

Float, mineralized with galina, dark sphalerite, pyrrhotite and chalcopyrite with some gold and silver values was discovered in the area in 1947. Continued prospecting for float, geophysical surveys and follow-up diamond drilling lead to the discovery of the Vendome Deposit in 1951. A second deposit, referred to as the Belfort Deposit was discovered in 1952 and the Barvallee Deposit in 1956.

These three deposits lie in the same structural and probably the same lithographic horizon. The Barvallee deposit lies ¾ of a mile west of the Vendome deposit and ¼ of a mile east of the Belfort deposit.

The Barvue, Consolidated Pershcourt and Abitibi Silver deposits lie 7 miles to the north. They are also predominantly zinc with appreciable silver. These occurrences indicate that the general area is a centre of zinc-silver mineralization. The Barvue, deposit has been mined out but the others are still in the exploratory phase with the Vendome being opened by underground workings.

Previous to 1956 a magnetometer survey was carried out over the east end of the property. One magnetic anomaly was tested by diamond drilling.

In December of 1966 a vertical loop electromagnetic survey was carried out over selected areas. No significant conductors were encountered.

A program of diamond drilling was carried out between 1951 and 1957 mainly along the Vendome-Belfort zone which crosses the northeast corner of the property for a length of 3,000 feet. A total of 26,945 of diamond drilling was carried out in 39 holes.

A geochemical test survey was carried out in November-December 1967. Samples were collected by drilling through overburden to the till horizon at bed rock surface and samples were collected from the till. The work carried out in this manner was restricted to two lines 200 feet apart across the zinc-silver-copper zone with samples collected at 200 foot intervals. Positive results were obtained indicating this method is a suitable prospecting tool, but sample collection was slow.

GEOLOGY AND STRUCTURE

The Barvallee property is centred in a thick sequence of volcanics with subordinate intercallated sediments intruded by numerous granitic bodies, some of batholithic proportions as well as apophyses, dykes and sills of intermediate to ultrabasic composition. The volcanic sequence is in the order of 40 miles wide and extends southeast for 45 miles to the Grenville front. It extends west to and beyond the provincial boundary, a distance of 85 miles.

The southwest end of the Mogador plug underlies the extreme northeast corner of the property. This plug is predominantly granodiorite in composition with some dioritic, gabbroic and amphibolitic phases. It is roughly lense-shaped, with a length of about 12,000 feet and a width of 2,500 feet. This is succeeded to the southwest by a sequence of

intercallated acid volcanics, agglomerate, tuff and intermediate flows.

A northeast trending composit intrusive lies adjacent to the west boundary of the southern portion of the property. It strikes N.N.W., has a length of 6,000 to 7,000 feet and an average width of 15,000 to 2,000 feet. It has a central core of granodiorite with marginal facies of quartz diorite and amphibolite. Peridotite occurs at the northwest end. Low tenors in nickel occur in the amphibolite.

The axis of an overturned syncline trending northwest is projected across the southeast corner of the property. Thus the formations lie mainly on the north flank of the syncline and dip 60° to 65° north and face south. The average strike is N. 70° W.

No faulting has been recognized but the Mannville fault is inferred to cross the south boundary in range IX with a strike of N. 75° W.

THE BARVALLEE DEPOSIT

The Barvallee deposit is centred on the west boundary of lot 28, 600 feet south of the north boundary. It strikes N. 60° W. and dips 60° to 65° N.E. Appreciable zinc-silver-copper values occur along a strike length of 450 feet and across widths of up to 20 feet.

The host rock is pyritized and silicified rhyolitic lava. There are at least three zinc-silver-copper shoots present. Two of these are referred to as Zone A and Zone B.

Zone A lies at the east end of the pyritized section and has been intersected by three drill holes at 50 foot intervals at a vertical depth of 140 to 175 feet.

The B Zone lies 130 feet below the A Zone, the two being separated by marginal metal values. This zone has been drilled at 50 foot intervals for a strike length of 290 feet and to depths of 320 to 420 feet.

The limited number of intersections through these two zones preclude a reliable estimate of tonnage. The average of the intersections through the A zone has been estimated as follows:

	A + B ZONES, AVERAGE		
	Zn. %	Cu %	Ag. Oz/ton
Vallee 1965	5.27	1.21	1.33
Tiphane 1957	5.71	1.23	1.42

Considerable detail drilling will be required to establish a reasonably assured tonnage estimate.

GEOPHYSICAL SURVEYS

Since the previous geophysical work was carried out additional property has been acquired adjoining to the west. It was decided that an electromagnetic survey be carried out over the north half of lots 21 to 26 and all of lots 27 to 30 in range X,and all of lots 29 and 30 in range IX. A complementary magnetic survey was also carried out.

This work was done during April and May 1969.

Magnetometer Survey

In general the magnetic terrain is relatively uniform with a background in the range of 30 to 150 gammas. The minimum reading obtained was -405 gammas and the maximum 3,095 gammas. This latter reading is questionable and the next highest reading is 1,507 gammas.

Structural trends as indicated by the magnetic contours are not well defined.

There are four areas of higher than normal magnetics which are inferred to be due to rock type phenomena.

Two of these are in the north part of lots 24 and 25, range X. They are north trending and are interpreted as being caused by basic dykes. The other two are respectively in the west central part of lot 27 range X and the southwest corner of lot 29, range IX. These are inferred to be due to the eastern contact of the basic phase of the granodiorite plug which lies just to the west. The magnetics also suggest the presence of sills east of the contact in the more northerly of these two anomalous areas.

A pronounced magnetic linear conformable with the strike of the formations crosses the central parts of lots 26 to 29 range X. A drill hole through this linear indicates that the anomaly is due to pyrrhotite-pyrite mineralization and thus has economic significance.

Two other areas of higher than normal magnetic permeability lie respectively 1,000 feet southeast and 600 feet southwest of the above mentioned linear.

The former is the stronger of the two and is 700 to 800 gammas above background. The latter is 100 to 150 gammas above background. Due to lack of outcrop and diamond drilling, there is no information available as to the cause of these anomalies.

A strong narrow linear extends in an east-west direction across lot 30, range X, 1,200 feet south of the north boundary. This anomaly was not indicated in a previous magnetic survey. It is extremely straight and

narrow and could be due to a cultural effect.

There are several other areas of higher than normal magnetic intensities present. Their profile gradients indicate that they are due to shallow overburden.

Electromagnetic Survey

The horizontal loop method was employed as it provides better definition between conductors caused by overburden on those caused by bedrock than does the vertical loop method.

The results of the survey indicate the overburden to be conductive particularly in the south half of lots 27 to 30 range X, and along the creek in lots 29 and 30 range IX.

Conductivity as indicated by in phase to out of phase ratios is in general weak although the phase response is often strong. Conductors which apparently are due to bedrock phenomena are shown on the map and numbered for identification. There are cases where the cause of a conductive zone is in doubt. Some of these doubtful conductors are also shown.

~~The conductors interpreted as being due to bedrock phenomena are briefly described in the following table.~~

CONCLUSIONS

The Barvallee deposit was not detected by the magnetic or electromagnetic survey.

There is magnetic coincidence with one conductor. This coincidence is with the magnetic linear in the central part of lots 27 and 28 range X. The conductor is in the doubtful category, but a drill hole through the magnetic linear just east of the eastern termination of the conductor intersected 32 feet of 50 to 60% pyrite and pyrrhotite. The magnetic linear and the conductor thus have economic significance.

Conductor No. 1 - 350 feet south of the west end of the Barvallee deposit could indicate the presence of an en-echelon zone and for this reason has economic significance.

Conductor No. 6 is the best defined conductor indicated by the current survey. A previous drill hole put down to test the magnetic high that is believed to be due to a basic dyke passed by its eastern termination. Results of this hole are not known.

The inferred dyke also passes by the western termination of conductor 5 suggesting that the dyke occupies a north trending fault zone, with conductor 5 being the offset continuation of 6, having a right handed strike separation of 500 feet.

Conductors 3 and 4 are associated with the area of disturbed magnetics at the south end of lots 27 and 28, range X. These irregular magnetics are believed due to the contact phase of a grandodiorite intrusive to the west. It is possible that there is a sulphide association present here and for this reason the conductors merit further investigation.

Conductor No. 9 is coincident with the inferred location of the Manneville fault just off the southeast nose of the composite granodiorite intrusive. This association has possible economic significance and further investigation is warranted.

RECOMMENDATIONS

Five areas are recommended for diamond drill investigation. One is to test an electromagnetic conductor with coincident high magnetic readings with associated sulphides. The other three to test the better conductors on the property or conductors with inferred structural or geologic features of economic significance.

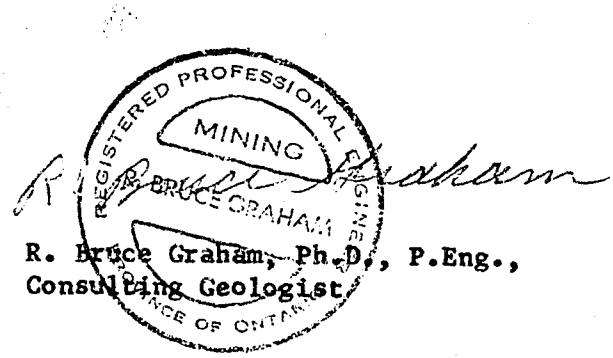
Depending on the results of the above referred to drilling, additional drilling could be required to follow up favorable results obtained. This drilling will also provide empirical information to better assess the importance of the untested conductors and additional drilling could be required to assess these.

The five recommended drill holes totalling 2,050 feet are listed below. A contingency for an additional 5,000 feet of drilling should also be provided.

Conductor	Location with Reference to Main Base Line			
5A	30 + 00W. 5 + 00N.	Az 200°	Dip 55°	L. 550'
1	33 + 00W. 7 + 00N.	Az 200°	Dip 55°	L. 300
6	57 + 00W. 8 + 00N.	Az 200°	Dip 55°	L. 300
3	24 + 00W. 17 + 80S.	Az 200°	Dip 55°	L. 600
9	12 + 00W. 300' N. of S. Boundary, Lot 29, Range IX	Az 180°	Dip 55°	L. 300
		Total		2,050

COST

2,050 feet of diamond drilling including supervision and assaying	$ 14,000
Follow up drilling	32,000
Contingencies	4,000
Total	$ 50,000



Toronto, Ontario
June 16, 1969

R. Bruce Graham, Ph.D., P.Eng.,
Consulting Geologist

APPENDIX

SURVEY DATA

A base line trending N. 70° W. crosses the property from a point 2000feet north of the southeast corner of lot 30 Range X to a point 230 feet south and 200 feet east of the northwest corner of lot 21.

Chained picket lines were turned of at right angles to the base line at 300 foot intervals to the limits of the area surveyed.

A second north south survey grid to cover lots 29 and 30 Range IX was also chained and picketed. These lines are also at 300 foot intervals. The range lines were used as controls.

Nine thousand, one hundred and thirty feet of base line and 27.3 miles of picket line were established in this manner.

The magnetometer survey was carried out with an MF - 1 Sharpe Fluxgate magnetometer, Serial No. 505150. Diurnal corrections were made to 25 gammas.

The electromagnetic survey was carried out with two Geonics E - M 16 Horizontal Loop units, Serial Numbers 101 and 120.

Readings for both surveys were taken at 100 foot intervals with readings at 50 feet intervals over anomalous areas.