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ANNUAL REPORT ON EXPLORATION LICENCE 1903

MOUNTAIN VALLEY, NORTHERN TERRITORY

FOR THE YEAR ENDING 5/12/81

by

A.C.A. HOWE AUSTRALIA PTY. LTD.

for

EURALBA MINING LTD.

J.V. McCARTHY

April 1, 1982.

Report No. 90

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SUMMARY

This is an annual report describing exploration work carried out over EL 1903 by Euralba Mining Ltd. The exploration licence is located 130 kilometers east of Katherine in the Northern Territory.

During July 1981, a rapid helicopter supported geological reconnaissance survey was carried out by Euralba geologist Joe Fisher and A.C.A. Howe Australia Pty. Ltd. geologists Steve Harnish and J.B. Felderhof. Although no mineralization was noted on EL 1903, the geological environment was determined to be correct for the occurrence of economic mineral deposits.

In October 1981, Geoex undertook airborne radiometric and magnetometer surveys over EL 1903 on behalf of Euralba. The airborne work outlined one magnetometer and three radiometric anomalies that did not correspond to known geology on EL 1903.

This report discusses the results of the exploration work conducted in 1981 and recommends a two phase exploration programme for 1982. Initially a reconnaissance geological and geophysical investigation should be undertaken to determine the reason for the anomalies (Phase I). The cost of Phase I is estimated to be \$8,162.00 Should this work be encouraging, Phase II or a detailed follow-up programme would be undertaken. Although difficult to actually predict it is anticipated that Phase II will cost approximately ten times Phase I or \$81,620.00.

1.0 INTRODUCTION

In 1981, Euralba Mining Ltd. conducted airborne radiometric and magnetometer surveys over Exploration Licence 1903 (Mountain Valley) in the Northern Territory. Based on the results of these surveys a reevaluation of the geology and economic potential of the permit was undertaken. This report discusses this work and suggests a programme for further examination of the area.

2.0 LOCATION

Exploration Licence 1903 is located in the northeast corner of the Urapunga 4 mile Geological Sheet SP 53-10 published by the Bureau of Mineral Resources in 1964. The permit is centered approximately 130 kilometers east of Katherine near the west boundary of the Arnhem Land Aboriginal Reserve.

3.0 ACCESS

Access to the area is possible by traversing cross-country in four wheel drive all terrain vehicles or by helicopter. At present no road actually crosses the permit, the nearest one, the Katherine - Mountain Valled road, passing approximately 25 kilometers to the south.

4.0 GENERAL GEOLOGY

The majority of the permit is underlain by lower Proterozoic sheet flow volcanics of the Diamond Creek Formation or the West Branch Volcanic Member and, to a lesser but significant extent by the Gundi Greywacks of the Katherine River Group. Other units also present are the Limmen Sandstone, Mountain Valley Limestone Member and the Cororan

Formation, all of the Upper Proterozoic Roper Group. The above mentioned rocks are all unconformably overlain by the lower Cretaceous Mullaman Beds which consist of flat lying conglomerates, and intercalcated sandstones and shales.

5.0 WORK CONDUCTED IN 1981

- a) Field visit by consulting geologists Joe Fisher, J.B. Felderhof and Steven Harnish in July 1981. A helicopter was used to quickly evaluate EL 1902 and EL 1903. No mineralization was observed, however, the geology was considered to be favourable for mineral deposits to be present.
- b) Airborne radiometric and magnetometer surveys undertaken by Geoex on behalf of Euralba, Oct. 1981.
- c) Short report on the Airborne radiometric and magnetometer data by A.C.A. Howe geologist J.V. McCarthy, Jan. 1982. (see Appendix I).
- d) Preparation of an annual report with re-evaluation of airborne data by A.C.A. Howe Australia Pty. Ltd. geologist J.V. McCarthy, March 1982.

6.0 DESCRIPTION OF THE AIRBORNE SURVEYS

Navigational control was by reference to photomosaics and/or photo strips. Flight path analysis was achieved by identification of 16 mm ground tracking photographs on the navigational control. The ground tracking camera was operated at a rate of one camera frame for two data samples, such that successive camera frames overlap.

An attempt was made to recover fiducials at intervals of 1 kilometer and only recovered fiducials are shown on the flight plan maps.

The following is a list of equipment used to conduct the survey with each components specifications;

Cessna A 184E Aircraft

Sonotek IGSS 1 System

O.1 nT Magnetometer

256 Litre NaI (T1) detector

King Kra 10 Radar Altimeter

16 mm Ground Tracking Camera

Industry Standard 9 Track 32 RPM Magnetic Tapes

8 Channel Analogue Recorder

3 " for the Magnetomer

The nominal flight line separation was 500 meters, and the nominal tie line bearing was 0 degrees.

The observed mean sample interval in the flight direction was 38 meters achieved with a minimal aircraft speed of 100 knots and a reading interval of 0.8 seconds. The mean sensor height was 80 meters, using a towed bird configuration. The magnetometer accuracy is 1.0 nT and the resolution 0.2 nT.

7.0 DISCUSSION OF THE MAGNETOMETER RESULTS ON EL 1903

The data is presented on both contour and profile plans. The data presented on the contour plan is the residual magnetic intensity, after subtracting the International Geomagnetic Reference Field from the observed Total Magnetic Intensity. The data was corrected for diural drift using a base station monitor at Tindal Airfield:

Latitude 14.522S Longitude 132.377E Altitude 132 Metres A.S.L. The sensor height at the base station was 3 meters. The adopted value for this location was 48,133 nt.

Final detailed leveling of the data was performed using tie-line crossover analysis. A simple 3 point filter was applied to the data, which was then gridded and contoured using a 125 m by 125 m mesh cell. The contour interval is 5 nT.

The aeromagnetic contour plan for Exploratin Licence 1903 generally supports the known structure and geology of the block. The most prominent magnetics on the block are displayed by the West Branch Volcanic Member located on the southern portion of the EL. The residual magnetic background drops from an average of 250 nT over the West Branch Volcanics to an average of 200 nT over the remaining rock types. A notable structural feature outlined by the magnetics is a portion of the trace of the Diljin Fault which is clearly marked by a string of magnetic highs in the northwest corner of EL 1903.

Overall, the contour plan does not display much in the way of magnetic response suggestive of economic mineralization, however, one anomaly located in the central western edge of the EL (coloured red on magnetic contour plan) cannot be easily related to the known geology. The anomaly is circular to eliptical in shape and is surrounded by relatively low magnetics. It will be necessary to investigate the area of this anomaly on the ground to determine the reason for its occurrence.

8.0 DISCUSSION OF THE RADIOMETRIC RESULTS ON E.L. 1903

The radiometric results are presented as total count (ie. U., Th., K) coutour plans or profiles along the flight lines.

In general, as was the case with the magnetometer survey, the radiometric results reflect the rock type over which the reading was obtained.

Background with the exception of the West Branch Volcanic Member is 600 c.p.s. Over the W.B. Volcanics background approaches 1000 c.p.s.

Two anomalies of greater than twice background are present in the central portion of EL 1903. A third, although less striking anomaly is also notable since it is coincident with the magnetometer anomaly discussed in the previous section. A ground check in the area of these three features is recommended in an effort to explain their occurrence.

9.0 RECOMMENDED EXPLORATION PROGRAMME FOR 1982

The airborne surveys have discovered several interesting features on EL 1903. It is necessary to investigate the rocks in the vicinity of these anomalies in an effort to determine their cause. A reconnaissance geological investigation of selected portions of EL 1903 should be undertaken to evaluate the radiometric and magnetometer anomalies. If the anomalies are found to be related to economically interesting features or mineralization, further detailed ground geophysical and geological surveys will then be required. The programme therefore, can be broken down into two phases as follows:

PHASE I -		Ground Chec	k of Airborne A	nomalies		
Geologist -	•	2 weeks @	\$4,200/Mo.		\$2,	100.00
Assistant -	f	2 weeks @	\$2,000/Mo.		\$1,	000.00
Transportation -		- Airfar	Airfares (Syd-Darwin-Syd)		\$1,800.00	
		- 4WD Ve	hicle @ \$1,40	00/Mo.	\$	700.00
	•	- fuel (approx.)		\$	300.00
Instrument Ren	tal	- GIS 4	Spectrometer (9 \$10/day	\$	140.00
		- Proton	Magnetometer @	\$20/day	\$	280.00

Board and Lodging @ \$50/day		\$ 700.00
Assay Costs (approx.)		\$ 200.00
Expendables (field books, flags, tape, e	etc.	\$ 200.00
s	Sub-total	\$7,420.00
C	Contingency @ 10%	\$ 742.00
		
F	Phase I - Total	\$8,162.00

The cost, duration and scope of Phase II is dependent on encouraging results from Phase I of the programme. A rule of thumb estimate at ten times the cost of the reconnaissance work can be applied to Phase II of the programme (i.e. \$81,620.00).

10.0 BREAKDOWN OF EXPENDITURE FOR 1981 ON EL 1903

Airborne Surveys	\$5,109.68		
Helicopter Supported Ground Surveys	\$3,420.00		
Travel	\$1,554.00		
Miscellaneous Field Expenses	\$ 201.00		
Communications, Postage etc.	\$ 326.00		
Consulting Fees	\$9,361.58		
Office Overheads and Administration	\$1,290.00		
Total Expenditure	\$21,262.26		

Respectfully Submitted:

A.C.A. HOWE AUSTRALIA PTY. LTD.

Carthy

J.V. McCARTHY SENIOR GEOLOGIST

A. C. A. HOWE AUSTRALIA PTY, LTD.

C) All locations, outside the granitic outcrop areas with counts over 1000 c.p.s. were considered anomalous for the purposes of this report. None of these anomalies (coloured red on the map) were found to occur in areas where they could not be explained geologically. Further differentiation of the anomalies can only be achieved if the plots for uranium and thorium are obtained so that the anomalies can be graded according to source of the radioactivity.

4.0 EPO 1903

4.1 MAIN FEATURES OF THE MAGNETIC DATA IN EPO 1903 (Figure IV)

As with the case with Lease 1902, the magnetic data over E.P.O. 1903 strongly correlates to known geology and structure. The following are the main features noted;

- A) The most striking feature on the magnetic intensity contour plan is the Diljin Fault which strikes northward across the lease. It is well marked by a linear pattern of magnetic anomalies.
- B) Large volcanic outcrops and smaller windows of volcanics are marked by relatively high magnetic intensity and variability. The larger bodies of basalt are located to the west of the Diljin Fault and in the southern portion of the eastern segment of the lease.
- C) The remaining areas of E.P.O. 1903 are underlain by sediments of a variety of types (ie. sandstone, siltstone, chert, limestone and greywacke) and these areas display relatively quiet magnetics.
- D) No isolated anomalies which could have economic significance are evident in this area of the survey.

4.2 MAIN FEATURES OF THE TOTAL COUNT RADIOMETRIC DATA FOR E.P.O. 1903 (Figure V)

The total count radiometric data for E.P.O. 1903 has a slightly higher background count than that of E.P.O. 1902 (ie. 600 c.p.s. as oposed to 500 c.p.s.) and there are fewer anomalies of twice background or greater on the lease. This marginal increase in background radioactivity reflects the increased representation of feldspathic sediments and volcanic rocks underlying the E.P.O. The following are the other main features noted on the total count contour plan;

- A) The Dilgin Fault, although not as distinctive a feature on the radiometric total count plan as on the magnetic map, is still easily identifiable, as a linear contour pattern.
- B) The West Branch Volcanic member is anomalously radioactive relative to the surrounding sediments and is clearly marked by a large irregular shaped area with counts above 1,200 c.p.s. on the map (see Figure V).
- C) There are only four other widely scattered anomalies of greater than twice background on the sheet and these can be related to exposed volcanic rocks.

5.0 CONCLUSIONS AND RECOMMENDATIONS

- A) The airborne magnetometer and radiometric surveys conducted over the E.P.O.'s 1902 and 1903, very accurately outline the rock types and major structural features of the leases.
- B) Areas of high magnetic and radiometric intensity and variability can be directly related to basic volcanic flows and/or granitic rocks underlying the permits.

THE NORTHERN TERRITORY OF AUSTRALIA

Mining Act

APPLICATION FOR RENEWAL

Pursuant to the provisions of the <u>Mining Act</u> application is hereby made for renewal of Exploration Licence 1903 over an area of 38.43 square miles for a further period of 12 months.

FULL NAME OF APPLICANT

EURALBA MINING LTD.

ADDRESS IN THE NORTHERN TERRITORY FOR SERVICE OF NOTICE AND NORMAL POSTAL ADDRESS

c/- W.J. Fisher, 19 Kirkland Crescent, DARWIN. N.T. 5790

Dated this 18th

day of

February

19 82

Signature of Applicant:

EURALBA MINING LTD.

DESCRIPTION OF AREA

(if reduction in area is not applicable quote "NO ALTERATION IN AREA")

Commencing at the intersection of:-

Latitude 140.05 and longitude 1330 30 thence to the intersection of

14⁰ 05' " " 133⁰ 35'

14⁰ 11' " 133⁰ 35'

14° 11' " 133° 30' thence back to

commencement excluding all mining tenements held or applied for. Area 38.43 sq. miles or 95.94 sq.kms.

APPENDIX II



















