REPORT ON
AEROMAGNETIC SURVEY
WHITEHORSE AREA, YUKON TERRITORY
ON BEHALF OF
LEWES RIVER MINES LTD.

by

Richard O. Crosby, B.Sc., P.Eng.

July 8, 1968

This report has been examined by the Geological Evaluation Unit. Approved as to technical worth by:

Resident Geologist

Approved as to cost in the amount of $5,865

Approved as representation work under Section 83(4) Yukon Quartz Mining Act.

Commissioner of Yukon
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INTRODUCTION

During April, 1968, an aeromagnetic survey was flown over an area centered approximately at Whitehorse, Yukon Territory. The area extends north-south for a distance of about 15 miles and its east-west dimension is about 3 miles.

Survey traverses were flown at 500 foot intervals except in the extreme north where lines were flown at 1000 foot intervals. Flight line direction was generally magnetic north-south except for those lines spaced at 1000 feet intervals which were flown slightly east of north. Magnetic control lines were flown normal to the traverses and all lines were at a mean terrain clearance of about 200 feet. A total of about 600 line miles of survey were flown.

A Scintrex NPM-1 total intensity nuclear precession magnetometer was employed on this survey. It was towed on a cable approximately 65 feet below a Bell G331 helicopter. A 16 millimeter camera was employed for positioning purposes. Flight path recovery was achieved through the use of the 16 mm film strip and the photomosaic of the area. The photomosaic scale was 1:12,000 approximately.

The purpose of the aeromagnetic survey was to obtain information relating to the distribution of intrusive bodies and to contact
alteration zones containing magnetite. In the present geological environment these localities could be of interest for copper mineralization.

The aeromagnetic survey was under the direction of Mr. Andrew Price with assistance from Mr. Ronald Pollard.

PRESENTATION OF DATA

The magnetic information is presented on five map sheets on a scale of 1:12,000. The planimetry on these sheets has been traced from the uncontrolled photomosaics employed for navigation purposes. Magnetic data are contoured at a 100 gamma interval. Corrections have been made for diurnal variations and any possible instrumental drift by means of (a) a recording magnetic base station and (b) control lines.

DISCUSSION OF RESULTS

Map Sheet 1

A 400 gamma linear anomaly extends southward from line 147 to line 136 centred along the western edge of the survey area. Quantitative depth determinations suggest the source of the anomaly to be shallow, probably at the surface of the ground. The linearity of the feature suggests a magnetic dike.

A circular anomaly of about 500 gammas relief is located approximately 1 mile northeast of this feature between lines 139 and 202. The magnetic relief of this feature is due to magnetite either in igneous rocks (intrusive or extrusive) or in skarn alteration zones. The source of this anomaly is also near surface.

Map Sheet 2

The most prominent feature on this map is a contorted area of
500 to 1000 gammas relief lying in the southwest half of the survey area. The relief is obviously not of sedimentary origin and is due to magnetite either in igneous rocks ( intrusive or extrusive) or in skarn alteration zones. The 1500 gamma contour generally outlines the contact of this igneous mass.

Map Sheet 3

The igneous contact referred to in the discussion of Map Sheet 2 continues southeasterly across this map sheet. The extreme southwest corner of the survey area consists of high frequency, high amplitude anomalies rising to a maximum of about 3000 gammas on line 54. This area of high magnetic relief is interpreted as arising from magnetite, probably in extrusive rocks.

Map Sheets 4 & 5

The limit of the igneous rock on the southwestern edge of the survey area continues to be outlined by the 1500 gamma contour. The disturbed magnetic pattern on the eastern edge of Map Sheet 5 suggests an easterly swing to this contact. The magnetic gradient centred on line 27 trend parallel to the direction of flight suggests a major structure in this vicinity.

A magnetic dike is interpreted on Map Sheet 4 northeast of Canyon Mountain north of Cantlie Lake.

CONCLUSIONS AND RECOMMENDATIONS

The aeromagnetic survey has outlined areas of igneous activity and possible skarn alteration zones.

It is recommended that these contact zones be surveyed by the
induced polarization method to check the distribution of metallic sulphide mineralization.

Respectfully submitted,

SEIGEL ASSOCIATES LIMITED

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Vancouver, B.C.
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LEWES RIVER MINES LTD.

WHITEHORSE AREA, Y.T.

AIRBORNE MAGNETOMETER SURVEY

ISOMAGNETIC CONTOUR MAP

CONTOUR INTERVAL - 100 Gammams

FLown AND Compiled BY

SEIGEL ASSOCIATES LIMITED

APRIL - MAY, 1968

SHEET 4 OF 5