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REPORT  
on  
**KIMBERLITE EXPLORATION,  
VICTORIA ISLAND PROPERTIES  
Yankee Property**

VICTORIA ISLAND, NUNAVUT

NTS 1:250,000 SHEETS 77C,77D,77F  
110 -107'30 W  
69 30 - 70 15' N

<b>Claims</b>	<b>tags</b>
CA 1 to CA 38	F68431 to F68468

Reported by  
**MAJOR GENERAL RESOURCES LTD**

Work period  
Aug 24 to Sept 23, 2000

- VOL 1** Till sampling, by P.C.LeCouteur
- VOL 2** Ground magnetic geophysics, by J.L.LeBel
- VOL 3** Airborne magnetic geophysical survey, by C.St-Hilaire

Compiled by  
P.C. LeCouteur, P.Eng (BC)  
Vancouver, BC  
28 Feb,2001

*HAWKEYE RESOURCES LTD.*

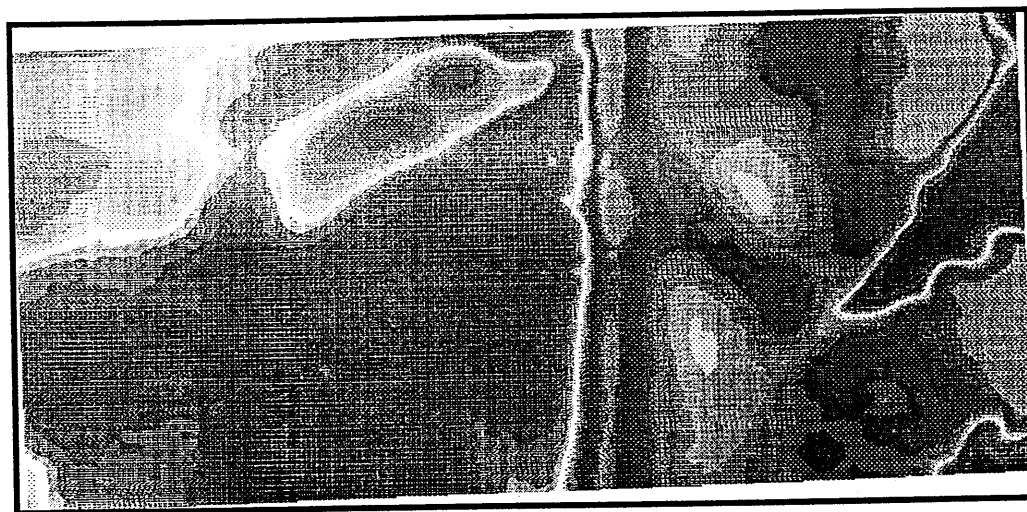
**PRE COPY**

*HIGH RESOLUTION HELICOPTER BORNE SURVEY  
PROJECT REPORT, YANKEE BLOCK*

*Centre-South of Victoria Island  
NTS Map 77F/02*

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*November 2000*



**HAWKEYE RESOURCES LTD.**

**HIGH RESOLUTION HELICOPTER BORNE SURVEY  
YANKEE BLOCK**

**Centre-South of Victoria Island  
NTS Maps: 77F/02**

**SURVEY REPORT**

**Project Ref. 00-H07-23**

**By**

**SIAL GEOSCIENCES INC.**

**November 2000**

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## 1.0 INTRODUCTION

This report describes the data acquisition and processing of a high sensitivity magnetic helicopter borne survey carried out for **HAWKEYE RESOURCES LTD.** by **SIAL Géosciences Inc.**

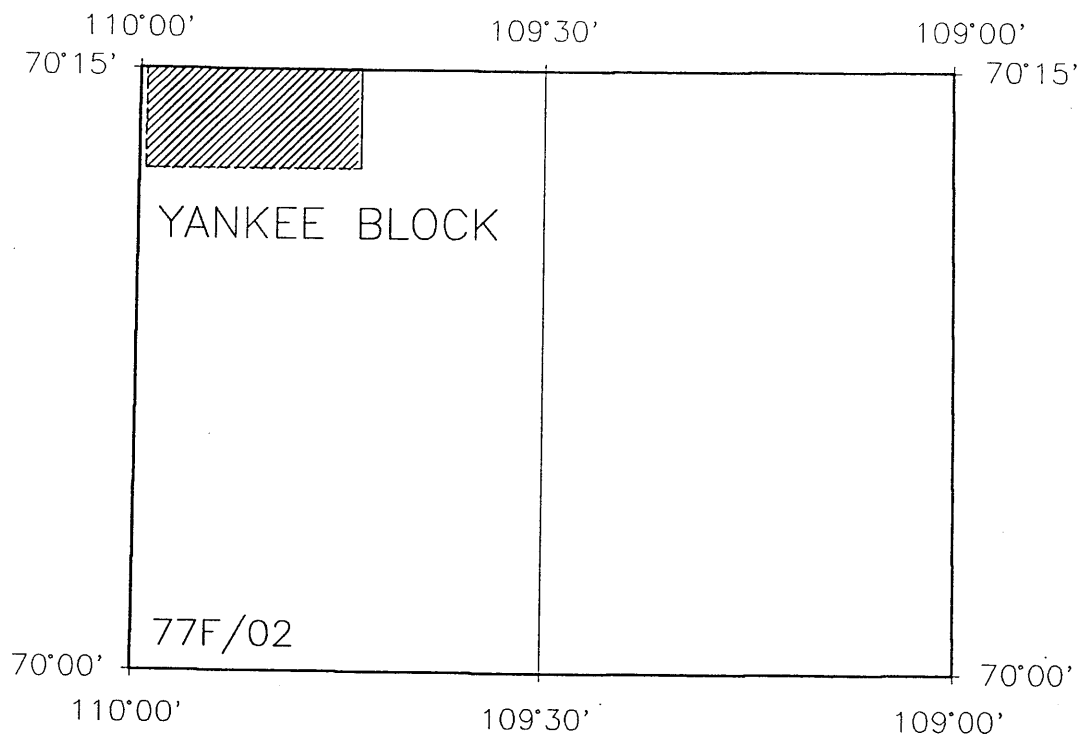
The survey area consisted of one block located to Centre-South of Victoria Island, on NTS map sheet 77F/02. The base of operation was established at Fred's camp, which own to **MAJOR GENERAL RESOURCES LTD.**, and is located approximately 55 km south of the block. The UTM co-ordinates (NAD83, zone 12) of the base camp are:

<u>Latitude</u>	<u>Longitude</u>
7744012N	589125E

Survey flying commenced on September 14, 2000 and was completed on September 19, 2000. Final processed data on CD-ROM were delivered to **HAWKEYE RESOURCES LTD.** at the beginning of November 2000.

A total of 512 line-km of airborne survey was flown on traverse lines oriented 88.58°, at nominal line spacing of 100 metres and helicopter ground clearance of 60 metres. Spacing between traverse lines never exceeded 1.5 times the nominal line spacing at any point over a distance of 3 km. Tie-lines, 1 400 metres spaced, were flown in a direction perpendicular to traverse lines.

The purpose of the survey was to map elongated or round-shaped magnetic anomalies that could be related to kimberlite intrusive bodies.



NTS MAP : 77F/02

HAWKEYE RESOURCES Ltd.

AIRBORNE GEOPHYSICAL SURVEY—VICTORIA ISLAND

FIGURE 1: SURVEY AREA LOCATION



**SIAL** Géosciences inc.



SIAL

## 2.0 SCHEDULE

Mobilisation of the personnel and equipment was done from Montreal to Edmonton, Alberta, on September 3, 2000. Instrument installation and survey tests were done between September 4 to 7, 2000, at St-Albert's Airport. Mobilisation from Edmonton to Yellowknife was done on September 7, where the helicopter was 3-day grounded for bad weather. Mobilisation from Yellowknife to Cambridge Bay was done on September 10, where the crew was grounded for another three days for bad weather (fog, snow, freezing rain). Finally, mobilisation to the base camp was done on September 13, 2000. Survey started on September 14, 2000 and ended on September 19, 2000. Demobilisation was done on September 20, 2000.

The main cause of down-time and reflight (4 hours) were weather and diurnal (magnetic storm).

## 3.0 PERSONNEL

The survey crew consisted of:

Hussein El Moussaoui:	An experienced operator/electronic technician who operated the geophysical instruments and assisted with helicopter navigation
Isabelle Dumas:	An experienced geophysicist who compiled and checked the data with the in-field workstation
Joël Berton:	A professional pilot who flew the geophysical instrumentation safely and within survey specifications
Rob Major:	A certified engineer who maintained the helicopter and minimised down time due to technical difficulties.

Ms. Isabelle D'Amour, an experienced SIAL's geophysicist, carried out final data evaluation and processing at SIAL's head office in St-Laurent, Québec.

## 4.0 EQUIPMENT USED

### 4.1 Helicopter

An Astar AS-350-D helicopter rented from Abitibi Helicopter based at Edmonton, Alberta, was used. The helicopter carried the magnetometer sensor, which was dragged in a bird located 30 meters below the helicopter (figure 2). Qualified **SIAL** personnel did installation of the survey equipment in the helicopter. Average flying speed was 110 km/h, while mean terrain clearance was 60 metres. At this speed, and with a recording rate of 10 times per second, the distance between Total-Field Magnetic readings along survey lines was typically 3 metres.

### 4.2 Magnetometers

#### 4.2.1 Airborne Magnetometer

The airborne magnetometer system consisted of a Scintrex CS-2 cesium-vapour total field sensor mounted in a kevlar bird. Sensor specifications were:

Sensor static resolution:	better than 0.1 nT
In-flight sensitivity:	0.001 nT
Resolution:	0.005 nT
Absolute accuracy:	10 nT
Dynamic range:	20 000 - 100 000 nT
In-flight noise envelope:	< 0.5 nT
Sampling rate:	ten readings per second or approximately 6 metres
Heading error:	< 0.25 nT
Gradient tolerance:	10 000 nT/m

#### 4.2.2 Ground Magnetometer

A GEM GSM-19 overhausser base station magnetometer was used to monitor the fluctuations in the earth's magnetic field. The earth's magnetic field was measured every 3 seconds to record the diurnal activity. The base station was located in an area of low magnetic gradient and free of cultural interference.

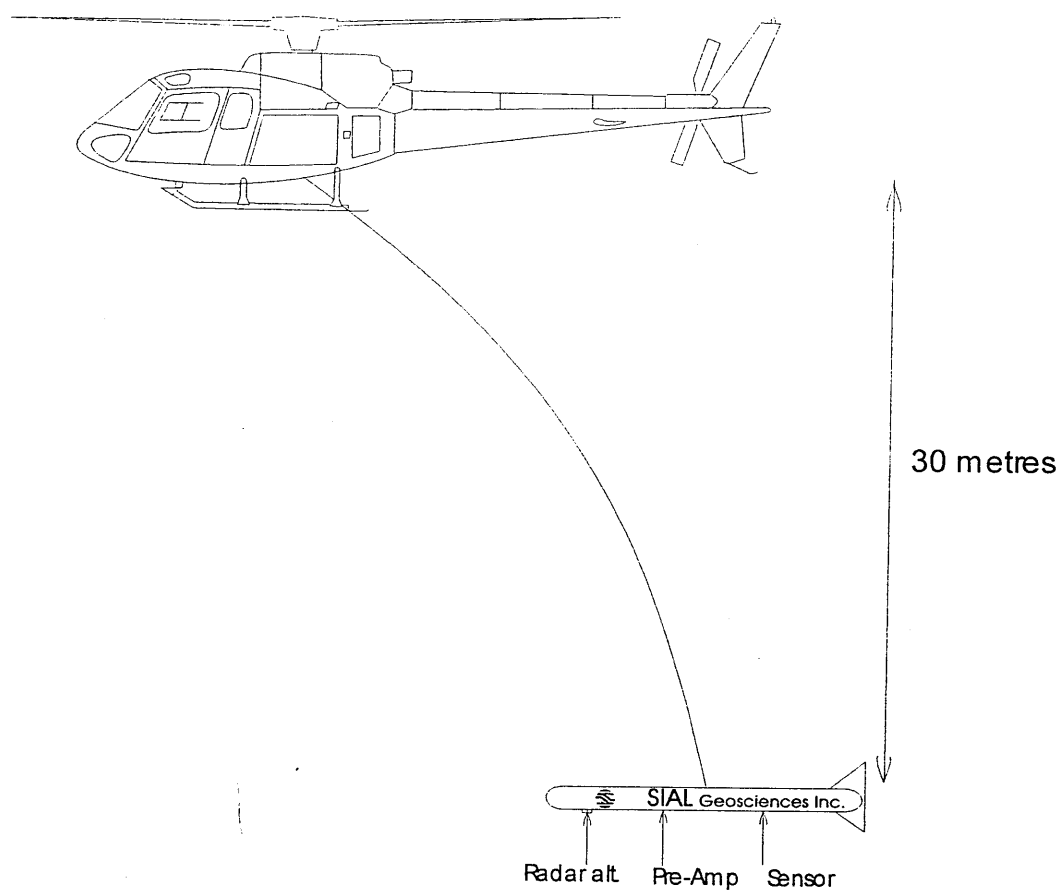


Figure 1: Helicopter borne magnetic system

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Data were recovered daily and diurnal corrections computed and applied to the survey data in order to produce preliminary maps for quality control. Airborne and base station magnetometers were synchronised with accuracy better than 1.0 second. Technical specifications of the base station are:

Base station magnetometer:	GEM GSM-19 overhausser
Sensor static resolution:	better than 0.1 nT
Sensitivity:	0.001 nT
Dynamic range:	20,000 - 95,000 nT
Noise envelope:	less than 0.1 nT
Recording interval:	3 seconds

### 4.3 Positioning System

#### 4.3.1 GPS Receiver

In flight positioning was sampled at a rate of 1 hertz using an Ashtek GG-24 real-time differential GPS receiver system, in conjunction with a LandStar satellite-link and a PICODAS PNAV-2100 navigation console. The system provided real-time guidance for the pilot and position data to an absolute accuracy of better than 5 metres. At least, 4 satellites were monitored at all times during the survey.

#### 4.3.2 Altimeter

Terrain clearance was sampled each 0.2 second, using a TERRA TRA-3000 radar altimeter. The radar altimeter, mounted in the magnetometer bird (figure 2), recorded the ground clearance to an accuracy of 1 metre. Recordings were in both digital and analog form.

#### 4.3.3 Video Camera

A vertically mounted continuous recording ELMO TSN272 colour video camera with a wide-angle lens recorded at all times the flight path terrain beneath the aircraft. The video camera recorded, in the top portion of each frame, the flight line number, fiducial, time and GPS generated X-Y UTM co-ordinates.

## 4.4 Acquisition System

A RMS DGR-33 data logging system and an on-board HDS250 graphical display data-acquisition system were used. These systems:

- Accepted digital data from the magnetometer, radar altimeter, time and raw GPS positions
- Produced a hard-copy graphic record (analog) of both coarse and fine scales data from the magnetometer, radar altimeter data, fiducial date and time
- Produced a digital machine-readable record of raw data on an external disk-drive

The analog records were of sufficient resolution to enable visual checks to be made of system performance. Two-second intervals were indicated on the analog by means of short ticks and fiducial numbers printed at 10-seconds intervals.

The data acquisition system was synchronised to GPS time through a one-second GPS pulse. Synchronisation was checked at the end of each day of survey.

## 5.0 DATA PROCESSING

### 5.1 Flight path

Flight path was recovered from the differential GPS X and Y data. It was verified daily to enable reflights to be called where needed.

### 5.2 Magnetic data processing

The aeromagnetic data was quality controlled using the fourth difference and edited as necessary. The base station magnetometer variations and lag error were removed from the entire data set. The resulting data were further levelled using tie lines and gridded using the Random gridding algorithm supplied in the GEOSOFT software. The grid-cell size was 25 metres (1/4 of the line

spacing). The International Geomagnetic Reference Field was not removed from the total magnetic field.

## 6.0 SURVEY PRODUCTS

### 6.1 Maps

**SIAL** made base maps for the survey area from information on published topographic maps. Final map were produced at a scale of 1:10 000, which display base-map features, the flight path and UTM co-ordinates.

**SIAL** delivered to **HAWKEYE RESOURCES LTD.** a transparent copy, three paper-copies and two colour copies of the following final maps:

- Total-Magnetic-Field Contours
- Vertical-Magnetic-Gradient Contours

### 6.2 Digital Data

Two copies of a CD-ROM containing the digital data archives of XYZ line data and grids in ASCII format compatible with GEOSOFT data processing software were delivered. The archived information contains raw and processed information separated on a line basis, including the magnetic base station channel and all channels required to produce the final map products.

All digital data were georeferenced to the standard UTM-system for the area (NAD83).

### 6.3 Other Products

Three copies of this survey report have been finally produced and delivered to **HAWKEYE RESOURCES LTD.**

The survey area was split into 2 projects named “Yankee”, for **HAWKEYE RESOURCES Ltd.**, and “Washburn”, for **MAJOR GENERAL RESOURCES LTD.**, comprising respectively 40% (West) and 60% (East) of the survey area. The following co-ordinates (NAD83, zone 12) represent the line split between the projects:

<u>Latitude</u>	<u>Longitude</u>
7794000N	548050E
7790000N	548150E

**SIAL** produced a set of maps and reports for each project.



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Chief Geophysicist