NORANDA EXPLORATION COMPANY, LIMITED
(no personal liability)

DIXIE LAKE

REPORT OF WORK

AIRBORNE GEOPHYSICAL SURVEY

N.T.S. 52K/L
PROJECT 1331

RECEIVED

DEC 10 1984
MINING LANDS SECTION

Thunder Bay, Ontario
December, 1984

D. R. CARRIERE
DIVISION GEOPHYSICIST
NORTHWESTERN ONTARIO DIVISION
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FIGURE 3     CUB WEST CLAIM SKETCH                  1"=1/2 mile
FIGURE 4     CONFUSION LAKE CLAIM SKETCH            1"=1/2 mile
FIGURE 5     LONG LEGGED LAKE CLAIM SKETCH          1"=1/2 mile

List of Maps

MAP 1        MAGNETICS (Sheet 1 of 3)                1:25000
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1.0 **INTRODUCTION**

During the months of January and February 1984, an airborne magnetometer survey was carried out by Questor Surveys Limited of 6380 Viscount Road, Mississauga, Ontario on an area south of Red Lake. The location of properties later acquired is shown on Figure 1 and claim sketches are on Figures 2 to 5. Detailed information for the claim groups is listed on the following table and a list of claims is appended.

<table>
<thead>
<tr>
<th>CLAIM GROUP</th>
<th>NO. of CLAIMS</th>
<th>CLAIM MAP</th>
<th>LINE MILES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cub East</td>
<td>4</td>
<td>G.1811</td>
<td>1.5</td>
</tr>
<tr>
<td>Cub West</td>
<td>10</td>
<td>G.1811 &amp; G.1760</td>
<td>4.1</td>
</tr>
<tr>
<td>Confusion</td>
<td>8</td>
<td>G.1760</td>
<td>3.0</td>
</tr>
<tr>
<td>Long Legged</td>
<td>31</td>
<td>G.1811</td>
<td>12.6</td>
</tr>
</tbody>
</table>

2.0 **SURVEY OPERATIONS**

The survey area lies within N.T.S. maps 52L and 52K. A total of 2264 line kilometers was surveyed using a Sky Van aircraft. Flight line spacing was 250 meters.

3.0 **DATA COMPILATION**

The flight path of the aircraft was recorded continuously by a strip camera on black and white 35 mm film. The camera is fired by the fiducial time system of the data acquisition system every three seconds. Fiducial numbers are recorded digitally at the same instant.

Flight line headings are opposite on adjacent lines, which are normally flown sequentially in an "S" pattern. The navigation references are flight strips at a scale of 1:25000 which are made from the base maps. The equipment operator logs the flight details, which are compared to the analog records and the magnetic base station recording at the completion of the survey flight.

The film and all records are developed, edited and checked at the completion of each flight. Recovery of the flight track is carried out by comparing the film to the topographic features of the base map. Points are picked at an average interval of 1 kilometer. These procedures are performed daily so that the data quality and progress may be measured objectively.

The analog records are inspected for coherence and anomalies are selected for classification and plotting. Selected anomalies are positioned by plotting their fiducial position. These resultant positions are located by interpolating between fiducial points established by the flight path recovery.
4.0 SURVEY INSTRUMENTATION

The survey was flown with a Geometrics G803 Proton Magnetometer. The complete specifications are appended.

5.0 GEOLOGY

The area is composed of high rank metavolcanic gneissics of the Red Lake-Uchi Lake Greenstone Belt. This area of the belt is underlain by a series of domal structures made up of metasedimentary and metavolcanic gneisses with granitized cores.

6.0 DISCUSSION OF RESULTS AND CONCLUSIONS

The magnetics on the Cub East group vary from 60300 to 60360 nts. The only feature of significance on the property is the minor northeast trending di-polar feature located on the eastern part of the claim group.

On the Cub West group the magnetics vary from 60330 to 60300 nts. The claim is dominated by a large magnetic low in the center of the property. This low trends northeast.

In the Confusion Lake claim block the mag displays a gradient from 60550 to 60100 nts. The results indicate that the group is probably on a contact between volcanics to the north and sediments to the south.

On the Long Legged claim group the magnetics vary from 60250 to 60900 nts. The main features on the group are the two main mag highs as shown. Other minor highs exist and there appears to be a northeast trending fault as defined by the mag low cutting through the center of the property.

Respectfully submitted

NORANDA EXPLORATION COMPANY, LIMITED
(no personal liability)

Thunder Bay, Ontario
November 30, 1984

D. R. Carriere
Division Geophysicist
Northwestern Ontario Division
CLAIMS TRAVERSED
IN THE
LONGLEGGED AND CONFUSION LAKE
AREAS

KRL777085     KRL786652     KRL810845
777086        786653        812343
777087        786630        812344
777088        786631        812345
777089        786632        812346
777090        786633        812347
786643        786634        812348
786644        786635        812352
786645        786636        812353
786646        810839        812354
786647        810840        812355
786648        810841        812356
786649        810842        812357
786650        810843        812358
786651        810844        812359
APPENDIX 2

INSTRUMENT SPECIFICATIONS
APPENDIX B

The Survey Aircraft

![Figure B-1]

Manufacturer: Short Brothers Ltd.
Type: SHORT SKYVAN
Model: SH-7 Series 7
Canadian Registration: C-FQSL
Date of INPUT Installation: January 1971

Modifications:
1) Nose, tail and wing booms for coil mounting
2) Long range cabin fuel tank: 8 hours of air time
3) Winch, camera and altimeter ports
4) Aim 800 model - Slave directional gyro
5) Capable of spectrometry
6) Modified hydraulic driven generator system

The SKYVAN is a short take-off and landing aircraft. It is powered by two low maintenance turbine engines. The configuration of the aircraft provides for easy installation of equipment and extra fuel capability. These factors have proven the SKYVAN to be a reliable and efficient geophysical survey aircraft.
GEOMETRICS MODEL G-803 PROTON MAGNETOMETER

The airborne magnetometer is a proton free precession sensor which operates on the principle of nuclear magnetic resonance to produce a measurement of the total magnetic intensity. It has a sensitivity of 1 gamma and an operating range of 20,000 gammas to 100,000 gammas. The sensor is a solenoid type, oriented to optimize results in a low ambient magnetic field. The sensor housing is mounted on the tip-of the nose boom supporting the INPUT transmitter cable loop. A 3 term compensating coil and perma-alloy strips are adjusted to counteract the effects of permanent and induced magnetic fields in the aircraft.

Because of the high intensity electromagnetic field produced by the INPUT transmitter, the magnetometer and INPUT results are sampled on a time share basis. The magnetometer head is energized while the transmitter is on, but the read-out is obtained during a short period when the transmitter is off. Using this technique the sensor head is energized for 0.80 seconds and subsequently the precession frequency is recorded and converted to gammas during the following 0.20 second when no current pulses are induced into the transmitter coil.
DATA ACQUISITION SYSTEM
Sonotek SDS 1200
9 track 800 BPI ASCII
Includes time base, Intervalometer, Fiducial System

CAMERA
Geocam 75 SF
35 mm continuous strip or frame

TAPE DRIVE
Digidata Model 1139

OSCILLOSCOPE
Tektronix Model 305

ANALOG RECORDER
Honeywell Visicorder WS 4010
Kodak Light Sensitive Paper (15cm)

Recording 14 Channels: 50-60 Hz Monitor, 6 INPUT Channels, fine and coarse Magnetics, Altimeter, vertical and horizontal timing lines and fiducial markers.

ALTIMETER
Sperry Radar Altimeter
Type of Survey(s): **Airborne Magnetometer**

Township or Area: Longlegged & Confusion

Claim Holder(s): Noranda Exploration Company, Limited

Survey Company: Questor Surveys Ltd.

Author of Report: D. R. Carriere

Address of Author: P. O. Box 2656, Thunder Bay, Ont. P7B 5G2

Covering Dates of Survey: February/March, 1984

Total Miles of Line Cut: 0

**SPECIAL PROVISIONS CREDITS REQUESTED**

<table>
<thead>
<tr>
<th>Geophysical</th>
<th>DAYS per claim</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electromagnetic</td>
<td></td>
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<tr>
<td>Magnetometer</td>
<td></td>
</tr>
<tr>
<td>Radiometric</td>
<td></td>
</tr>
</tbody>
</table>

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

**AIRBORNE CREDITS** (Special provision credits do not apply to airborne surveys)

<table>
<thead>
<tr>
<th>Magnetometer</th>
<th>Electromagnetic</th>
<th>Radiometric</th>
</tr>
</thead>
</table>

(enter days per claim)

Airborne Certificate (Magnetic)

**DATE:** Dec. 3, 1984 **SIGNATURE:** D. R. Carriere

Author of Report or Agent

Res. Geol. ________ Qualifications ________

Previous Surveys

<table>
<thead>
<tr>
<th>File No.</th>
<th>Type</th>
<th>Date</th>
<th>Claim Holder</th>
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<tbody>
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**TOTAL CLAIMS** 45
### SELF POTENTIAL

<table>
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<tr>
<th>Instrument</th>
<th>Range</th>
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<tbody>
<tr>
<td>Survey Method</td>
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<tr>
<td>Corrections made</td>
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</tr>
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### RADIOMETRIC

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<td>Values measured</td>
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<tr>
<td>Energy windows (levels)</td>
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</tr>
<tr>
<td>Height of instrument</td>
<td>Background Count</td>
</tr>
<tr>
<td>Size of detector</td>
<td></td>
</tr>
<tr>
<td>Overburden</td>
<td></td>
</tr>
</tbody>
</table>

(type, depth — include outcrop map)

### OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

| Type of survey |       |
| Instrument |       |
| Accuracy |       |
| Parameters measured |       |
| Additional information (for understanding results) |       |

### AIRBORNE SURVEYS

| Type of survey(s) | Magnetic |
| Instrument(s) | Geometrics G-803 Proton Magnetometer |
| Accuracy | 1 nts |
| Aircraft used | Short Skyvan |
| Sensor altitude | 120m |
| Navigation and flight path recovery method | Visual Navigation with recovery from film |
| Aircraft altitude | 120m |
| Line Spacing | 250m |
| Miles flown over total area | 1407 miles |
| Over claims only | 21.2 miles |
# Claims Traversed in the Longlegged and Confusion Lake Areas

<table>
<thead>
<tr>
<th>KRL777085</th>
<th>KRL786652</th>
<th>KRL810845</th>
</tr>
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<td>777086</td>
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<td>786651</td>
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</table>
Mining Lands Section

Control Sheet

File No 27545

TYPE OF SURVEY

✓ GEOPHYSICAL

☐ GEOLOGICAL

☐ GEOCHEMICAL

☐ EXPENDITURE

MINING LANDS COMMENTS:

Airborne certificate

[Signature]

L.D.

[Signature of Assessor]

Dec. 12/84

Date
December 6, 1984

VIA PUROLATOR

Lands Administration Branch
Ministry of Natural Resources
Room 6450, Whitney Block
Queen's Park
Toronto, Ontario
M5A 1W3

Attention: Mr. E. F. Anderson

Dear Mr. Anderson:

Please find enclosed Report of Work and Pink Technical Data Statement in duplicate for an Airborne Certificate which we are applying for on the Dixie Lake properties and covers claims KRL777085 et al.

Yours truly,

D. R. Carriere
Division Geophysicist
Northwestern Ontario Division

DRC:js

c. c. F. Tergie
C. S. Wallis
File 1331

Enclosure
Dear Sir:


Enclosed is an Airborne Geophysical Certificate issued under Section 78 of the Mining Act R.S.O. 1980.

Please indicate on your records that the time for performing the first and all subsequent periods of work for claims listed shall fall due one year later than the times prescribed in subsection 1 of Section 76.

Yours sincerely,

S.E. Yundt
Director
Land Management Branch
Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3
Phone:(416)965-6918

cc: Noranda Exploration Company, Limited
    Suite 400
    55 Yonge Street
    Toronto, Ontario
    M5E 1J4

cc: Resident Geologist
    Noranda Exploration Company, Limited
    P.O. Box 2656
    Thunder Bay, Ontario
    P7B 5G2
    Attn: D.R. Carrier.