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## MAGNETOMETER SURVEY

## for

MORAD RESOURCES LTD.

## FRANCISCAN LAKE CLAIY GROUP

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Claims \#PA 963401 - 963431 \& 963437
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Echo, Pickeral & McAree Township
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Patricia Mining Division

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Sioux Lookout Region, Ontario
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2.10792
E. C. Hamilton

December 10, 1987

## RECEIVED

FE日 O2 1988

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## Introduction

A ground magnetic survey and geological reconnaissance was performed on the claims listed below during period Oct. 30, 1987 and Nov. 28, 1987 for Norad Resources Ltd. to delineate gold exploration targets.

## Location

The claims adjoin the southeast side of the Goldiund Mines Ltd. gold property and are transected for 2 /4 miles by Highway 72. Sioux Lookout is about 20 miles northeast and Dryden about 30 miles southwest.

Franciscan Lake and creek partially underlie the northern claims.

## Claims

The 27 claims, as listed below, were staked and registered in the name of Costy Bumbu, 2816 Ridgeway St. E., Thunder Bay, Ontario P7E 5K3, and are controlled by Norad Resources Ltd. The claims are located in Echo, Pickeral and McAree Townships.

|  | Claim No. | Recording Da |
| :--- | :--- | :--- |
| PA $963401-963405$ incl. | Dec. $4 / 86$ |  |
| " $963408-963413$ | $"$ | Dec. $4 / 86$ |
| $" 963416-963420$ | $"$ | Dec. $4 / 86$ |
| " $963422-963427$ | $"$ | Dec. $4 / 86$ |
| $" 963428-963431$ | $"$ | Dec. $16 / 86$ |
| " 963437 | Dec. $16 / 86$ |  |

An extension to March $4 / 88$ has been granted for claims $963405-963407,963414,963415,963421$ and 963425.

## Geology

The Franciscan Lake claims are underlain by felsic volcanics, iron formation and greywacke type biotite - quartz schist sediments.

Geology, cont'd.
The rocks generally trend northeast parallel to llwy 72 with frequent folds, crenulations and intense fracturing. The iron formation is reported to contain up to $40 \%$ magnetite.

Previous surveys on or near the Norad claims report gold assays of $0.06 \mathrm{oz} / \mathrm{ton}$ associated with pyroclastics near iron formation.

Reconnaissance geological observations are shown on the Magnetometer map.

The Goldlund and Camreco gold deposits are located about 1 mile west of the Norad claims. The Goldlund deposit occurs in fractured zones of a $60^{\prime}$ wide competent quartz diorite rock band trending northeasterly parallel to the Norad claims.

## Linecutting

A total of 17.73 miles of line were cut. Lines trending northwest were spaced at $400^{\prime}$ intervals with pickets at $100^{\prime}$ intervals on the lines.

The base line starts at Goldlund Mine Road, trends $52^{\circ}$ to the northeast and $49^{\circ}$ to the southwest.

The lines were well cut by Richard Weenusk, Harold Grieves and John James Munroe from Oxford House, Manitoba.

## Magnetometer Survey

## Objective

The objective of the survey was to delineate gold targets in or near
a) bands or masses of competent rock, quartz diorite, etc. near felsic volcanics.
b) iron formation bands.

## Operators

Dave Breeze, an experienced operator from Winnipeg, recorded about $90 \%$ of the field recordings and Erwin Hamilton the remainder.

## Instruments

A. Description

Instruments used are listed below.

1. 1 base station recorder (MR 10) serial \#012-9-40.
2. 1 GM 122 proton Barringer Magnetometer Serial \#7533.
3. 1 GM 122 proton Barringer Magnetometer \#7190.
B. Operation

If a proton rich fluid such as kerosene, jet fuel, heptane, etc. is placed into a magnetic field the protons will align along the magnetic field vector. The magnetic field is induced in the sensor upon depressing the pushbutton. Then this field is suddeny removed. Protons which behave as elementary gyroscopes will start precessing around the remaining magnetic field - that of the earth. The precession frequency is directly proportional to the magnetic field of the earth. The magnetometer counts this frequency, divides it by the appropriate constant to obtain a reading in gammas ( $1 \mathrm{y}=10^{-5}$ gauss) and displays the reading in the form of a 5 digit number.
C. Accuracy

The instrument is sensitive to 1 gamma magnetic change and measures with an accuracy of $\pm 1$ gamma.
The magnetic reading on or near iron formation andor the cable line along Hwy 72 at times reduced accuracy and repeatability of readings to $\pm 25$ gammas or more.

## Base Station Records

The base station, installed far from hydro and highway interferance, recorded and printed out the magnetic change every 30 seconds during field survey periods. Maximum diurnal variation was about 4 gammas.

Magnetometer Survey, cont'd.

## Field Survey

Total magnetic field readings were taken at 50' intervals along the lines and at $25^{\prime}$ intervals in anomalous areas.

A total of 1888 field readings were recorded with the $50^{\prime}$ interval readings plotted on the map on scale of $l^{\prime \prime}=400^{\prime}$.

The anomalous areas where readings were taken at $25^{\prime}$ intervals are listed in the Appendix.

## Results of Magnetic Survey

The proton magnetometer outlined the general trend and flexures of the iron formation and other rock bands as shown on the Magnetometer Map in pocket.

These high magnetic bands and masses are shown as anomalous zones $A, B, C, D, E, F \& G$ and are described below.

| $\begin{gathered} \text { Anomalous } \\ \text { Zone } \end{gathered}$ | Location | Length | Width | Gammas <br> Magnetic Relief |
| :---: | :---: | :---: | :---: | :---: |
| A | $5 \mathrm{~N} \mathrm{~L} 32 \mathrm{E}$ | $2000{ }^{\prime}$ | $50{ }^{\prime}$ | 700-1000 |
|  | B/L L52E |  |  |  |

This anomaly is caused by magnetite, pyrite, pyriotite banded iron formation. A south trending flexure occurs at the east end. A 600' gap of low magnetics separates Zone A from Zone C iron formation.

A previous drill hole tested this anomaly near the base line on L52E. Results are not known.

C 4 S L60E 2000 $^{\circ} 100^{\prime} \quad 700-9200$
to
9S L30E
Anomaly $C$ indicates open folding and is caused by the continuation of anomaly A iron formation. Some outcrop occurs at 8 S on lines 68 E and 84 E .

- Results of Survey, cont'd.


D 13 S L56E $1200^{\prime} \quad 50^{\prime}-100^{\prime} \quad 200$
to
9 S L64E
An interesting anomaly. Outcrop is located near 8 S on L64E.

E $\begin{gathered}\text { 3S L68E } \\ \text { to }\end{gathered} 1600^{\prime} \quad 50^{\prime}-100^{\prime} \quad 100-1300$
5S L84E
An interesting anomaly trending parallel to Anomaly C in a region of very sparse to no outcrop. This conformable anomaly may indicate a competent dyke rock similar to Goldiund Mines.


These anomalies have short strike length but warrant field investigation.
$G \quad$ L38W from 300' $100^{\prime} \quad 100-400$
3 N to $6+50 \mathrm{~N}$
This one line anomaly has outcrop.

## Conclusions

This magnetometer survey and geological reconnaissance delineated the Franciscan Lake area formation trends.

The Franciscan Lake iron formation trend, other bands of high magnetics and the general region warrants further investigation.

The Beaver Pond iron formation on claim 963414 should be delineated with a Fluxgate magnetometer this winter.

## Recommendations

The magnetic anomalies are significant and warrant field reconnaissance, trenching and/or drill testing.

Consideration should be given to additional 1988 gold exploration in the sequence below.

1. Sampling and assaying of drift, outcrop and/or sandy soils and basal till to locate gold values, especially in magnetically anomalous areas.
2. Linecutting at $200^{\prime}$ intervals in areas of interest.
3. A combined EM and magnetic survey to define drill targets such as
a) shear zones near iron formation and acid volcanic and/ or sediment contacts.
b) fracture zones in competent rock.
4. About $3500^{\prime}$ of diamond drilling is warranted to test selected portions of selected magnetic anomalies.

Magnetic anomalies $B$ and $E$ occur in heavy overburden and could be drill tested immediately.


## References $\ddot{¿}$ Sources of Information

## Ontario

Township of Echo $l^{\prime \prime}=1000^{\prime}$, Map \#1950-1
Compilation Map $I^{\prime \prime}=\frac{1}{2}$ mile, showings, conductors, and drill holes.
Claim llaps
Discussions with Ontario Government geologists
Franciscan Lake Sumary leport by L.O. Koskitalo, dated July 31, 1987.

## Anomalous Areas

Readings at $25^{\prime}$ intervals were taken between stations listed below.
$\frac{\text { Line }}{32+00 E}$
$36+00 E$
$40+00 E$
$44+00 E$

| $48+00 E$ | $0+25 S-0+75 S$ |
| ---: | :--- |
| 15 | $+25 S-15+75 S$ |


| $52+00 E$ | $4+75 S-0+25 S$ |
| ---: | ---: |
| $56+00 E$ | $1+25 S-2+75 S$ |
|  | $6+75 S-9+25 S$ |
|  | $13+25 S-13+75 S$ |
| $14+75 S-16+25 S$ |  |
| $60+00 E$ | $17+75 S-17+25 S$ |
|  | $12+25 S-11+25 S$ |
|  | $4+25 S-2+75 S$ |

$64+00 F$
$3+75 S-4+75 S$
$7+75 S-1+25 S$
$68+00 E$
$8+25 S-5+75 S$
$3+75 S-2+75 S$ $0+75 S-0+25 S$
$72+00 E$
$4+25 S-5+25 S$ $8+25 S-8+75 S$
$76+00 \mathrm{E}$
$9+25 S-4+75 S$ $0+75 S-0+25 S$

APPENDIX, Anomalous Areas, Cont'd.
$\frac{\text { Line }}{}$
$80+00 E$
$84+00 E$

80E
76E

72 E

68 E

56E

48E

44E
36E
32 E
28 E
10W
38W
62W

60 W

## Interval

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\begin{aligned}
& 4+75 S-10+25 S \\
& 6+25 S-4+75 S
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6+75 N
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16+75 N-16+25 N
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13+75 \mathrm{~N}-0+25 \mathrm{~N}
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3+25 N-4+75 N
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6+75 N-7+75 N
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9+25 N-11+75 N
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2+75 \mathrm{~N}-1+75 \mathrm{~N}
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1+25 N-2+75 N
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8+25 N-10+25 N
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1+75 \mathrm{~N}-0+25 \mathrm{~N}
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10+25 \mathrm{~N}-9+75 \mathrm{~N}
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2+25 \mathrm{~N}-0+25 \mathrm{~N}
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5+25 N-0+25 N
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0+25 \mathrm{~N}-6+25 \mathrm{~N}
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9+25 N-0+25 N
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0+25 \mathrm{~N}-0+75 \mathrm{~N}
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16+25 \mathrm{~S}
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3+75 N-3+25 N
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16+25 N-15+75 N
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4+75 N-4+25 N
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2+25 N-0+75 S
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\begin{array}{r}
1+75 S-3+25 N \\
5+75 N-11+75 N \\
13+25 N-15+25 N
\end{array}
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## CERTIFICATE

I, Erwin C. Hamilton, of the City of Winnipeg, in the Province of Manitoba, hereby certify that:

1. I reside at 816 Jubilee Avenue, Winnipeg, Manitoba R3L IP.
2. I am a graduate of McGill University at Montreal, Quebec, and was awarded the degree of M. Sc. (Geology) in 1953. I am also a Professional Engineer in the Provinces of Ontario and Manitoba.
3. I an a mineral explorationist and have been practising my profession for more than 30 years.
4. I have no interest directly or indirectly in the propertics of Norad Resources, nor do $I$ anticipate receiving or acquiring any interest therein.

Dated this lath day of December, 1987 at Winnipeg, Manitoba


Ministry of FRANCISCAN LARE EAST \& WE tiorthern Development and Mines
Ontario $\rightarrow$ oobrian is ag hards.Saction
Type of Survey(s)

| Claim Holder(s) | Magnetometer |
| :--- | :--- |
|  | Costy Burbu |

(Geophysica!, Geological, Geochemical and Expenditures)


2816 Ridgevay ST.E. Thunder Bay, Ontario. P7R 5K3
Survey Company

Name and Address of Author (of Geo-Technical report)

Credits Requested per Each Claim in Columns at right


Expenditures (excludes power stripping)

| Type of Work Performed |
| :--- |
| Performed on Claim(s) |
|  |
| Total <br> Calculation of Expenditure Oays Credits <br> Total Expenditures |
| $\$ \square$ |

Insiructions
Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Mining Claims Traversed (List in numerical sequence)


I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.
Nome and Postat Adariess of Porson Corrifying
E.C. HAMILTON, 81\% Jubilee Ave.. Winnipeg, Manitoba R3L 1P9


Ministry of Northern Development an nes

Technical Assessment Work Credits

| File <br> 2.10792 |  |
| :--- | :--- |
| Dote  <br> February 8, 1988  | Mining Recorder's Report of <br> Work No. <br> $87-231$ |


| Recorded Holder | Costy Bumbu |
| :--- | :--- |
| Township कrakd | Echo, McAree and Pickeral |



Special credits under section 77 (16) for the following mining claims
30 days Magnetometer 10 days Magnetometer
PA-963420
PA-963430
963431
963405

No credits have been allowed for the following mining claimsnot sufficiently covered by the survey

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical - 80; Geologocal - 40; Geochemical - 40; Section 77(19)-60.

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## TOWNSHIP

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