Total Field Magnctic Survey by<br>Goosearch Consultants Iimited for<br>Tintina Lines Limited<br>on<br>Fnglish Zavitz Group<br>English and Zavitz Townships, Ontario (To Accompany Maps 91-70,71,72 A\&B)

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## REECEIVED


April 11, 1991


## INTRODUCTION

A total field magnetic survey was carried out by Geosearch Consultants Limited for Tintina Mines Limited, on the English Zavitz Group in March 1991.

The area surveyed consists of twenty eight (28) contiguous unpatented mining claims, a list of which is appended to this report. The English Zavitz Group is located approximately fortyfour (44) kilometres due south from the town of South Porcupine, Ontario, situated on the border of English and Zavitz Townships (see location sketch). Access to the property was made via motor vehicle along secondary and logging roads from South Porcupine.

A geological mapping program was completed on sixteen (16) of the claims in 1990. This survey was undertaken to aid the geologic mapping process. A number of faults were identified by the magnetic data as were a number of distinct rock units.

The accompanying maps show the area surveyed and the results obtained. A technical data sheet is appended to this report.


METHOD OF OPERATION

The total field magnetic survey was completed using the Gen Systems GSM - 18 Proton Precession Memory Magnetometers. The diurnal magnetic drift was corrected for by means of a GSM-18 magnetometer used in the base station mode, with readings taken at three second intervals. The corrected data was posted on Maps 91-71 A \& B, The magnetic data was contoured twice. On Maps 91-70 A \& B, the data was contoured with a strict 90 degree line bias using no anomaly trending or smoothing techniques. On Maps 91-72 A\& $B$, the enhanced contour maps, the data was trended where deemed necessary and smoothed with one pass of the Hanning filter.

The power line which crosses the western section of the grid produced areas where no valid readings were obtainable. for the sake of completeness, these values were posted on the postings maps. However, they were deleted prior to contouring to avojd large meaningless anomalies.

There were many errors found in the labelling of the pickets on the grid. These were noted on the posting maps, 91-71 A \& B. They were not noted on the contoured maps due to the congestion of the contour lines.

## SURVEY RESULTS

The total ficld magnetic survey outlined an area with a relatively quiet magnetic background within which numerous anomalous features are evjdent. The background magnetic level is uniform over most of the survey area with a few exceptions.

An abrupt. two hundred (200) gamna drop in magnetic amplitude is noted between lines $51+00 \mathrm{E}$ and $52+00 \mathrm{E}$ from $7+00 \mathrm{~s}$ to the end of the line. This suggests a different rock unit southeast of a line extending from $\mathrm{L} 52+00 \mathrm{E}, 7+00 \mathrm{~S}$ to $\mathrm{L} 57+00 \mathrm{E}, 7+00 \mathrm{~S}$.

A three hundred (300) gamma drop in amplitude occurs between $\mathrm{L} 45+00 \mathrm{E}$ and $\mathrm{L} 46+00 \mathrm{E}$ at $4+00 \mathrm{~N}$ to $5+00 \mathrm{~N}$ and between $\mathrm{L} 46+00 \mathrm{E}$ and $\mathrm{L} 47+00 \mathrm{E}$, from $3+00 \mathrm{~N}$ to $4+00 \mathrm{~N}$. This also suggests a differing rock unit to the southwest of a line extending from $145+00 \mathrm{E}, 6+00 \mathrm{~N}$ to $\mathrm{L} 48+00 \mathrm{E}$, $2+00 s$. Within this less magnetic unit in the southwest corner of the property, there are three narrow, subparallel, east west trending anomalies. These are located as follow:

1) $\mathrm{L} 39+00 \mathrm{E}, 1+00 \mathrm{~N}$ to $\mathrm{L} 47+00 \mathrm{E}, 3+25 \mathrm{~S}$
2) $\mathrm{L} 39+00 \mathrm{E}, 2+75 \mathrm{~N}$ to $\mathrm{L} 48+00 \mathrm{E}, 2+62 \mathrm{~S}$
3) $\mathrm{L} 40+00 \mathrm{E}, 3+62 \mathrm{~N}$ to $\mathrm{L} 44+00 \mathrm{E}, 2+00 \mathrm{~N}$

It is noted that the magnetic amplitudes of these three linear features is highest in \#1 and lowest in \#3. Lineament \#2 is locate along the contact of the diabase and the massive intermediate volcanic unit as mapped in 1990. Lineament \#1 is located in a cedar swamp with little visible outcrop, and the area covered by lineament \#3 has yet to be mapped.

In the centre of the survey area are two short strike length north east trending anomalies. They are situated as follow:

$$
\begin{aligned}
& \text { 4) } \mathrm{L} 50+00 \mathrm{E}, 2+25 \mathrm{~S} \text { to } \mathrm{L} 52+00 \mathrm{E}, 1+87 \mathrm{~S} \\
& \text { 5) } \mathrm{L} 49+00 \mathrm{E}, 4+25 \mathrm{~S} \text { to } \mathrm{L} 53+00 \mathrm{E}, 2+75 \mathrm{~S}
\end{aligned}
$$

These anomalies are significantly more magnetic than the previous three. Anomaly \#4 is coincident with an iron formation outcropping on $L 50+00 \mathrm{E}$, in a massive mafic volcanic unit along its contact with the diabase. The high amplitude magnetic value on L52+00E, $2+00$ s suggests more IF outcropping. Anomaly \#5 correlates very well with the unit mapped as tuffaceous mafic volcanics and iron formation. The magnetics does not extend this unit beyond its mapped location.

These two magnetic anomalies form the edges of a magnetic envelope, which extends to $\mathrm{L} 60+00 \mathrm{E}, 1+87 \mathrm{~S}$. This correlates well with the mapped diabase unit. The fault offsetting the diabase 200 metres to the north is evident in the magnetic data, with the diabase continuing from L62+00E, $1+50 \mathrm{~N}$ to $\mathrm{L} 64+00 \mathrm{E}, 1+50 \mathrm{~N}$. Here a second north west trending fault is suggested by the 150 metre offset of the magnetics to $L 65+00 \mathrm{E}, 3+00 \mathrm{~N}$ to $\mathrm{L} 67+00 \mathrm{~N}$, $3+00 \mathrm{n}$. This area has also not yet been mapped.

The only other feature obvious from the magnetics is located in the north west section of the surveyed area. It extends north west from a line extending between $449+00 \mathrm{E}, 4+50 \mathrm{~N}$ to L55 $+00 \mathrm{E}, 7+00 \mathrm{~N}$. There is no obvious correlation with the mapped geology, however much of the region is covered with swamp.

At the intersection of the three east west trending anomalies, \#1,2 \& 3, and the two north east trending anomalies, \#4 \& 5, there is a very confused magnetic picture. Directly south of this intersection there are numerous magnetic high and low anomalies with no apparent connection. It is a very disrupted area. As well, a line joining the two areas where the background changes abruptly, crosses through this intersection area. This suggests a thrust fault as the source of the break, however this does not explain the disrupted magnetics south of the intersection. There is also no evidence from the geological mapping which suggests faulting. It remains a confused area.

## RECOMMENDATIONS

The magnetic survey has outlined a number of the rock units and structures identified in the geological mapping. It has also identified a number of rock units and structures not identified in the mapping or in areas where mapping has not yet been completed. The area of the showing on the base line near $449+00 \mathrm{E}$ has no recognizable magnetic signature, which is what was expected. However, its location near the very disrupted intersection of anomalies \#1,2,3 with \#4 and 5 does demand a better understanding of this confused structure. It is recommended to complete the geologic mapping on the unmapeed areas, with special attention given to the 'confused' area, between Lines $43+00 \mathrm{E}$ and $49+00 \mathrm{E}$, $2+00 \mathrm{~s}$ to $6+00 \mathrm{~s}$.


Louis Racic
Geophysicist Quad 2.8017




Ministry of Northern Development and Mines

## Geophysical-Geological-Geochemical Technical Data Statement



Res. Geol. Qualifations 2.8017

## Previous Surveys



GROUND SURVEYS - If more than one survey, specify data for each type of survey


Gem Systems GSM-18 Proton Precession Magnetometers
Instrument
Accuracy - Scale constant 0.1 gamma

Diurnal correction method Base station recorder with readings taken
Base Station check-in interval (hours) at 3 second intervals

Base Station location and value $\qquad$

Instrument
Coil configuration $\qquad$
Coil separation $\qquad$
Accuracy $\qquad$

| Method: $\quad \square$ Fixed transmitter | $\square$ Shoot back | $\square$ In line | $\square$ Parallel line |
| :--- | :--- | :--- | :--- |
| Frequency |  |  |  |
| Parameters measured | (specify V.L.F. station) |  |  |

Instrument $\qquad$
Scale constant
Corrections made $\qquad$

Base station value and location $\qquad$

Elevation accuracy $\qquad$

Instrument $\qquad$
Method $\square$ Time Domain
Frequency Domain
Parameters - On time Frequency

- Off time Range
- Delay time
- Integration time $\qquad$
Power $\qquad$
Electrode array
Electrode spacing $\qquad$
Type of electrode $\qquad$

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## Geophysical-Geological-Geochemical Technical Data Statement

## TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT <br> FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.



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


Res. Geol. $\qquad$ Qualifications



GROUND SURVEYS - If more than one survey, specify data for each type of survey

Number of Stations

Station interval
748

| Number of Readings | 1466 |
| :--- | :--- |
|  | 100 m |

## Profile scale

Contour interval 50 gammas

Instrument $\qquad$ Gem Systems GSM-18 Proton Precession Magnetometers
Accuracy - Scale constant 0.1 gamma
Diurnal correction method $\qquad$ Base station recorder with readings taken
Base Station check-in interval (hours)_at at second intervals
Base Station location and value $\qquad$
Instrument
Coil configuration
Coil separation
Accuracy $\qquad$
Method:Fixed transmitter
$\square$ Shoot backIn line Parallel line
Frequency $\qquad$ (specify V.L.F, station)
Parameters measured $\qquad$

Instrument $\qquad$
Scale constant
Corrections made $\qquad$

Base station value and location

Elevation accuracy

Instrument $\qquad$
Method $\square$ Time Domain Frequency Domain
Parameters - On time
Frequency

- Off time
$\qquad$ Range
- Delay time
- Integration time $\qquad$
Power $\qquad$
Electrode array
Electrode spacing
Type of electrode

REFERENCES
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M.R.O. - MINING RIGHTS ONLY
M.R.O. - SURFACE RIGHTS ONLY
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| LEGEND |  |
| :---: | :---: |
| highway and route no. OTHER ROADS | $-3$ |
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| SURVEYED LINES: |  |
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| unsurvered lines: |  |
| Lot lines |  |
| parcel boundaty | --------- |
| mining claims etc. |  |
| ratlway ano right of way | $\square$ |
| UTILITY LINES |  |
| NON.PERENNIAL STREAM |  |
| FLOODING OA FLODING RIGHTS | \% |
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| MINES | * |
| traverse monument |  |

DISPOSITION OF CROWN LANDS


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## ENGLISH

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TIMMINS

ITY DIVISION
PORCUPINE
and rities/ registry division
SUDBURY

| $(8)$ Ministry of <br> Natural <br> ResourcesMinistry of <br> Northern Development <br> and Mines |
| :---: | :---: |
| Ontario |

Geikie Twp.(M.320)


ZAVITZ
DISTRICT OF SUDBURY

## PORCUPINE MINING DIVISION

SCALE: 1 -INCH $=40$ CHAINS


## NOTES

400' surface: rights reservation along the Shores of all lakes and rivers.
(5) THU TWP II SUBUECT TO FOREST ACTVITIES

plan no. M. 1189

MINISTRY OF NATYRAL RESOURCES
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