## AIRBORNE GROUP

MARKER TOWNSHIP<br>LARDER LAKE MINING DIVISION<br>DISTRICT OF COCHRAN, ONTARIO

FOR

ALEXANDER H. PERRON

## RECEIVED.

MAR 271985
MINING LANDS SECTION

MARCH 21, 1985
MARY GREER
GEOPHYSICAL TECHNICIAN

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ILLUSTRATIONS

Claim Location Map - (Figure 1 a). . . . . . . . . . . 3 a)

Location Map - (Figure 1 b). . . . . . . . . . 3 a)

Accompanying Plan Maps. . . . . . . . . . . . In Back Pockets

Scale: 1 inch to 200 feet
Date: March 1985

Airborne Group
Ground Magnetometer Survey

$$
\begin{aligned}
& \text { Map No. 85-PX-A.G. 1a } \\
& \text { Map No. 85-PX-A.G. 1b } \\
& \text { Map No. 85-PX-A.G. 1c } \\
& \text { Map No. 85-PX-A.G. 1d }
\end{aligned}
$$

Ground VLF-EM Survey
Map No. 85-PX-A.G. 2a
Map No. 85-PX-A.G. 2 b
Map No. 85-PX-A.G. 2c
Map No. 85-PX-A.G. 2d

## ON THE

PERREX RESOURCES INC. PROPERTY
AIRBORNE GROUP
HARKER TOWNSHIP
LARDER LAKE MINING DIVISION
DISTRICT OF COCHRANE, ONTARIO

INTRODUCTION
The Perrex Airborne Group was recorded on March 1; 1984.

During the months of October and November, 1984, a geophysical grid, at a 400 foot line spacing, was established by Perrons' Inc. Two geophysical surveys (magnetic, electromagnetic) were subsequently completed by Perrons' Inc. during February 1985, over the entire Perrex Property. The instruments used for this geophysical survey was an EDA OMNI 350 Proton Precession Magnetometer, and a Geonics VLF-EM16 unit.

The geophysical survey was conducted by Mary Greer and Alexander Perron assisting, of Perrons', Kirkland Lake, Ontario.

All drafting and interpretation was completed by Mary Greer.

The purpose of this report is to briefly describe the results obtained in the said surveys.

The anomalies detected therefrom are shown on the accompanying plan
maps at a scale of one inch to 200 feet, that form an integral part of this report.

## PROPERTY DESCRIPTION

The Airborne Group consists of a contiguous block of twenty-four (24) unpatented mining claims located in Harker township, Larder Lake Mining Division, District of Cochrane, Ontario, and are further described as follows:

| Claim Numbers | No. of Claims |
| :---: | :---: |
| L-738054-738060 (inclusive) | 7 |
| L-738078-L-738079 | 2 |
| L-738275-738290 (inclusive) | 15 |
| Total Number of Claims | 24 |

Ownership of the claims has been attested to by Alexander Perron of 103 Government Road East, Kirkland Lake, Ontario, and was not independently ascertained by the writer. (See Figure 1a).

## LOCATION AND ACCESS

The Perrex Property is located in the southwest central part of Harker township, occurring along the Ghost River, one mile east of the HarkerGarrison township boundary. Harker township is approximately thirty (30) miles due east of the town of Matheson, Ontario, along highway No. 101. Matheson is approximately forty (40) miles northeast of the town of Kirkland Lake, Ontario, via highway No. 66 and No. 11.

The property is accessible by standard forestry access roads which criss-cross the Harker area. The main road runs south approximately one mile
east of the Ghost River, to the Harker Elliott township line crossing through the property. Another road extends southwest around the northwest corner of the Airborne Group traversing down the west side of the property. (See figure 1 a and 1 b ).

## PREVIOUS WORK

Due to the large amount of overburden, no previous work has been carried out on the Perrex. ground.

SURVEY PROCEDURE
A baseline was continued from the previous grid at L. $0+00$. The baseline was turned off at an angle of $240^{\circ}$ to traverse approximately parallel to the general line of strike of the underlying bedrock.

The baseline was cut for a total footage of 7,200 feet. A grid system of picket lines at 400 foot spacings with stations every 100 feet, was established at right angles to the baseline. Readings were taken at 50 foot intervals along the picket lines for the magnetic survey and 100 foot intervals for the electromagnetic survey.

The primary magnetic base station was established at the Perrex Base Camp, approximately at L $106+00 \mathrm{E} \quad 1+00 \mathrm{~N}$ on the old grid. Secondary check stations were established at every 2,000 foot mark along the baseline and at each baseline-picketline intersection.

The time interval between each secondary magnetic check was approximately every one hour.

(Taken from a Jan. 1985 claim map)
Figure la


After the survey was completed, the lines were tied into topographical features using air photos at a scale of one inch to 1,320 feet.

## TOPOGRAPHY

The general terrain of the property consists of sand and glacial till covered over a gentle undulating land. The Ghost River flows nowth, meandering through the west half of the property. Some small creeks and beaver ponds were noted on the property.

Due to recent logging operations carried out in 1979, the area is open scrub bush covered with young poplar and thick dense stands of willow and alder.

GENERAL GEOLOGY
The underlying bedrock of Harker township are of the Archean age belonging to the Abitibi greenstone belt of the Superior Province.

The bedrock is primarily basic to acidic lava flows, with the basic lava types being the most predominate. Lying between these lava flows are interflow sedimentary bands of greywacke, arkose and some iron formation.

The Abitibi greenstone belt is part of a large synclinorium which trends east-west. The Destor-Porcupine fault occurs on the northern edge and the Kirkland-Larder Lake Break occurs on the southern edge.

The Perrex property is crossed in a northeast southwest direction by the Ghostmount fault and sedimentary horizon and by the Cryderman sedimen-
tary horizon. Both horizons run parallel to each other along the strike of the underlying bedrock.

ECONOMIC GEOLOGY
There are five (5) parallel complex horizons of interflow sediments and fault zones which trend northeast - southwest through Holloway, Harker, Elliott and Thackeray townships.

Extensive diamond drilling programs in Holloway and Harker townships by Barrick and Camflo Resources are proving up large gold bearing zones.

A gold discovery was recently found along the Ghostmount sedimentary horizon, only two (2) miles northeast along strike of the Perrex property.

The same zones found along strike to the southwest of the Perrex property are being found in Thackeray township by Kerr Addison Mines.

The newly discovered zones have potential economic gold tonnage and future full scale mining operations are being proposed.

The Perrex property lies in the middle of these areas with the same gold bearing horizons crossing the property.

## INSTRUMENTATION

i) Electromagnetic Survey:

The VLF-EM method uses as a source, one of the main submarine communications transmitters in the 15 to 25 kHz band found throughout the world. These submarine communication radio waves travel in a single mode parallel to the surface of the earth along the earth-air interface.

Without vertical conductors and travelling over flat ground, the magnetic field component of this radio or surface wave is horizontal and perpendicular to it's direction of travel.

VLF instruments are capable of picking up these structures that change the direction of the waves by measuring the tilt angle of the major axis of the polarization ellipse. This is illustrated by the tilt angle being zero on flat ground, but when a conductor is present the tilt angle will acquire a finite value. The direction of tilt indicates the direction of the conductor. Calculations of such parameters as depth, depth extent, dip and width of the conductor is very minimal.

The VLF easily illustrates the location of the upper limit of dipping structures which can be seen or plotted as VLF profiles as areas of greatest change in tilt angle per unit of distance.

The instrument used for this survey was a Geonics VLF-EM16 unit. The sensitivity of this unit is $\pm 1 \%$ for the in-phase and $\pm 1 \%$ for the quadrature. The operating frequency for the EM16 is from 15 - 25 kHz and the station selection is made by plug-in units.

For the purpose of this survey the station used was Cutler, Maine, which has a frequency of 24.0 kHz .

All readings were taken perpendicular to the station and the topography was noted for further use in the interpretation of the EM results.
ii) Magnetic Survey:

This system uses a backward motion of spinning protons of a hydrogen atom within a fluid of hydrogen and carbon. These spinning magnetic protons are caused to have two opposite poles by applying a magnetic field using a current within a coil of wire. When the current is stopped, the protons precess about the earth's magnetic field and in turn generate a small current in the wire. This frequency of precession is proportional to the earth's total magnetic field.

This instrument is read directly in gammas which is the absolute value of the earth's total field for that station.

The instrument used for this survey was an EDA OMNI 350 Proton Precession Magnetometer, this instrument has a sensitivity of .01 gamma.

The diurnal variation was monitored by closing each loop at any secondary check station, at a gridline-baseline intersection.

Diurnal corrections were applied by linear distribution of any observed variation over the time between base stations. The corrections were calculated by using a time vs. drift graph.
i) Electromagnetic Survey:

The field data is presented on four (4) map sheets, at a horizontal scale of one inch to 200 feet, Map Numbers - 85-PX-A.G.-2a, $2 b, 2 c, 2 d$, found in the back pockets of this report.

The VLF-EM data is illustrated as profiled data along the survey lines and is plotted at a vertical scale of one inch $= \pm 20 \%$ with the in-phase to the left and the quadrature to the right.

The electromagnetic relief showed no major responses, the in-phase and quadrature were flat with little change. Some sections of the grid had larger responses but had no continuity.

## ii) Magnetic Survey:

The field data is presented on four (4) map sheets, at a horizontal scale of one inch to 200 feet, Map Numbers 85-PX-A.G.-1a, 1b, $1 \mathrm{c}, 1 \mathrm{~d}$, found in the back pockets of this report.

The magnetic data is illustrated as isomagnetic contours (contour interval: 100 gammas) on a map of corrected magnetic values recorded at each station.

The distinct magnetic trend is in a northeast-southwest direction and does not appear to be interrupted by any cross structures.

There is a magnetic high found just south of the baseline
occurring between $2+00 \mathrm{~S}$ and $7+00 \mathrm{~S}$ on lines $0+00$ to $\mathrm{L} 24+00 \mathrm{~W}$. These magnetic highs swing to $5+00 \mathrm{~S}$ and $10+00 . \mathrm{S}$ from $\mathrm{L} 28+00 \mathrm{~W}$ to $L 48+00 \mathrm{~W}$. There is also a magnetic high occurring below this, in the southeast corner of claim L-738284 at approximately $L 28+00 W$ and $\mathrm{L} 24+00 \mathrm{~W}$ at $16+00 \mathrm{~S}$ to $23+00 \mathrm{~S}$.

Another major magnetic high occurs in the north and northwest corner on the property, north of $45+00 \mathrm{~N}$ on all north 1 ines.

In between these magnetic highs is a wide magnetic low area consistantly lower than the surrounding high magnetic relief. Two areas of major interest occurs from $\mathrm{L} 16+00 \mathrm{~W} 18+00 \mathrm{~N}$ to $25+00 \mathrm{~N}$ to $\mathrm{L} 24+00 \mathrm{~W} 25+00 \mathrm{~N}$ and $\mathrm{L} 48+00 \mathrm{~W} 22+00 \mathrm{~N}$ to $\mathrm{L} 68+00 \mathrm{~W}$ $20+00 \mathrm{~N}$. These are magnetic depressions found in the general relief of the area. Parallel lows were also found appearing as elongated shapes.

One intermediate magnetic low is found between the two highs south of the baseline.

## CONCLUSIONS AND RECOMMENDATIONS

The purpose of this magnetic survey was to extend the magnetic relief found from the first survey performed on the Perrex 41 claim group. It was also performed to determine the continuity of certain conclusions made from the Perrex 41 survey.

One conclusion made was the location of the Cryderman horizon which
in this survey on the Airborne Group appears to continue on just south of the baseline between the two highs. The characteristics are the same, it is a fairly consistant pattern trending northeast-southwest. This pattern is assumed to be caused by interbedded sediments occuring between the mafic volcanic flows which are shown as magnetic highs.

The large low crossing most of the Airborne Group immediately north of the baseline appears to be a ballooning effect of the Ghostmount horizon. The boundaries of this horizon are not as clear as the Cryderman horizon. The previously described low (L $16+00 \mathrm{~W}-18+00 \mathrm{~N}$ to $\mathrm{L} 24+00 \mathrm{~W} .22+00 \mathrm{~N}$ and $L 48+00 \mathrm{~W} 22+00 \mathrm{~N}$ to $\mathrm{L} 68+00 \mathrm{~W} 20+00 \mathrm{~N}$ ) may indicate the centre or boundaries of the Ghostmount horizon. Again this low may indicate an interbedded sediment or due to the extreme size of this low it may be caused by some type of felsic intrusion.

The VLF-EM survey was performed to try and delineate on the ground the location of the Airborne Em conductors found in the Electromagnetic survey conducted in 1983 by Questor Surveys for the Ontario Geological Survey.

These anomalies were not picked up by the Geonics EM16 which may possibly be due to the deep overburden cover.

When the anomalies are plotted on air photographs, they are found to coincide with the magnetic lows found north of the baseline. It is concluded that these magnetic lows are produced by the airborne conductors.

With this conclusion it is recommended that these magnetic lows be re-examined with a more advanced EM system. Induced Polarization or a Resisti-
vity survey should also be considered over this area of importance.

Performing these types of surveys may help further define these areas of interest and Reverse Circulation south of the zones should also be proposed.

Respectfully submitted,

March 21, 1985


Mary Greer Geophysical Technician

> Perron'

## BIBLIOGRAPHY

- Sixtieth Annual Report of the Ontario Department of Mines. being Vol. LX, Part VII, 1951 Geology of Harker Township by J. Satterly.


## CERTIFICATE

1, Mary Greer, of Kirkland Lake, Ontario, do hereby certify:

1) That I am a Geophysical Technician and reside at: 49 McKelvie Avenue, Kirkland Lake, Ont. P2N 2K6.
2) That I graduated from Sir Sandford Fleming College at Lindsay, Ontario, in 1978, with a diploma as a Geological Technician:
3) That I was employed as a Geophysical Technician by H. E. Neal and Associates for 18 months.
4) That I have been practising my profession for a period of five (5) years and I am qualified to write this report.
5) That I supervised and participated in this survey.



Expenditures (excludes power stripping)
Type of Work Performed

Performed on Claim (s)

|  | Calculation of Expenditure Days Credits <br> Total Expenditures |
| :--- | :--- |
| $\$$ | 15 |

Claim in Columns at right

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






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## GEOPHYSICAL - GEOLOGICAL - GEOCHEMICAL TECHNICAL DATA STATEMENT

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

## - MAGNETIC

Type of Survey (s) GEOPHYSICAL - ELECTROMAGNETIC
Township or Area HARKER
Claim Holder(s)_ALEX $H_{1}$ PERRON, 103 GOV'T RD, Es, KIRKLAND LAKE, ONT, P2N IA
Survey Company - PERRONS'
Author of Report $\qquad$ MARY GREER
Address of Author 49 MCKELVIE AVE, KIRKLAND LAKE,
Covering Dates of Survey NOV, 1/84-FEB, 10/850NT. P2N 2K6
(linecutting to office)
Total Miles of Line Cut 26,9 MILES


AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys) Magnetometer $\qquad$ Electromagnetic (enter days per claim)


Res. Geol. $\qquad$ Qualifications $\qquad$ 24529



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


Instrument EDA OMNI 350 PROTON PRECESSION MAGNETOMETER
Accuracy - Scale constant - 01 GAMMA
Diurnal correction method CLOSED LOOPS - BASELINE TIE IN
Base Station check-in interval (hours)_APPROXIMATELY $1 / 2$ HOUR TO 1 HOUR
Base Station location and value $\quad 1106$ E - $1+00 \mathrm{~N} 58957$ GAMMAS

| Instrument GEONICS VLF-EM16 |  |  |
| :---: | :---: | :---: |
| Coil configuration HORIZONTAL AND VERTICAL |  |  |
| Coil separation INFINITY |  |  |
| Accuracy $\pm 1$ |  |  |
| Method: $\square$ Fixed transmitter $\square$ Shoot back | $\square \mathrm{In}$ line | $\square$ Parallel line |
| Frequency $24.0 \mathrm{kHz} \mathrm{CUTLER}$, |  |  |

Instrument
Scale constant
Corrections made $\qquad$

Base station value and location

Elevation accuracy

## Instrument

$\qquad$


CONT'D. . . . . . . . . . -2-

MINING CLAIMS TRAVERSED
L-738289
L-738290

## SELF POTENTIAL

Instrument Range
Survey Method $\qquad$

Corrections made

## RADIOMETRIC

Instrument
Values measured
Energy windows (levels)
Height of instrument $\qquad$ Background Count $\qquad$

## Size of detector

$\qquad$
Overburden

> (type, depth - include outcrop map)

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

Type of survey $\qquad$
Instrument $\qquad$
Accuracy
Parameters measured $\qquad$

Additional information (for understanding results)
$\qquad$
$\qquad$

## AIRBORNE SURVEYS

Type of survey(s)
Instrument(s)
Accuracy (specify for each type of survey)

> (specify for each type of survey)

Aircraft used $\qquad$
Sensor altitude $\qquad$
Navigation and flight path recovery method $\qquad$

Aircraft altitude $\qquad$ Line Spacing
Miles flown over total area Over claims only

Numbers of claims from which samples taken. $\qquad$


## REGISTERED MAIL

ERRONS

Mr. Fred Matthews, Lands Administration Branch, Mining Lands Section,
Ministry of Natural Resources, Room 6450, Whitney Block, Queen's Park, Toronto, Ontario MFA IW3

## RECEIVED

 MAR 271985Dear Sir:

## RE: Geophysical Survey Report Hacker Township Larder Lake Mining Division

Enclosed herewith please find a duplicate copy of the following:

- Report dated March 21, 1985, by Mary Greer entitled:

Geophysical Survey Report on the
Perrex Resources Inc. Property
Airborne Group
Marker Township
Larder Lake Mining Division
District of Cochrane, Ontario
I trust this is the information required to correspond with the Report of Work filed concerning the above noted township.

Yours truly,
PERRON'


MG/p
Encls.


MINING LANDS COMMENTS:
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