

# REPORT <br> ON <br> VLF ELECTROMAGNETIC <br> AND <br> MAGNETOMETER <br> GEOPHYSICAL SURVEYS 

PANTHCO RESOURCES INC.<br>MARY ANN-AVALARD MINES PROPERTY<br>GAUTHIER AND McVITTIE TOWNSHIPS<br>LARDER LAKE MINING DIVISION, ONTARIO

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June 12, 1988
Toronto, Ontario
E. A. Gallo, B.Sc., F.G.A.C. Gallo Exploration Services Inc.

Panthco Resources Inc. holds 54 claims under option in the Kirkland Lake-Larder Lake gold district of northern ontario. The property includes ground that was formerly held by Mary Ann Mines Ltd., and Avalard Mines Ltd.

Previous exploration performed by the former owners in the 1940's includes diamond drilling. Assays of up to 0.75 oz gold per ton, 6.95 oz silver per ton, and $6.12 \%$ copper across variable widths were reported.

As part of a multi-phase exploration program of the property, Panthco Resources Inc. has completed VLF EM and Magnetometer Surveys. This Report provides details regarding these surveys, and discusses the technical results obtained by them.
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# VLF ELECTROMAGNETIC AND MAGNETOMETER <br> GEOPHYSICAL RESULTS <br> PANTHCO RESOURCES INC. <br> MARY ANN-AVALARD MINES PROPERTY <br> GARTHIER AND MCVITTIE TOWNSHIPS <br> LARDER LAKE MINING DIVISION, ONTARIO 

LOCATION
The 54 claims are situated in the east central part of Gauthier Township, and the west central part of adjoining McVittie Township. The property lies 12 miles (l9 kilometers) due east of the town of Kirkland Lake, Ontario. Figure 1 is a general location sketch.

CLAIMS DATA
All 54 of the claims comprising the property are contiguous. Only 20 of the claims require assessment work credits, and they are numbered:

L 859153-56, inclusive
L 859612 - 15, inclusive
L 884026-28, inclusive
L 884525-28, inclusive
L 982246-49, inclusive
L 982471
TOTAL 20 claims
The 20 claims are shown outlined in red on Figure 2.

## ACCESS

The property is easily reached by car. The gravel road to the old Upper Beaver Mine provides convenient access to the western and northern portions of the property from Provincial Highway 66.

Another gravel road off Highway 66 follows the west bank of the Misema River, and provides access to the eastern portion of the


FIGURE 1
property. The hydro electric transmission line through the southern part of the property serves as a walking trail to the southern portions of the property.

## TOPOGRAPHY

The ground is relatively flat. Outcroppings of rock form low hills up to 60 feet ( 20 meters) high. Ridges of sand and gravel provide similar topographic features, while streams incised into varved clays have formed valleys as much as 60 feet ( 20 meters) deep.

## GENERAL GEOLOGY

The property is underlain mainly by a sequence of Archean metavolcanic and metasedimentary rocks which are part of the Abitibi greenstone belt. The rocks trend generally east-west, and dip vertically. Dykes and small bodies of quartz porphyry have intruded the metavolcanics and metasediments.

## LINECUTTING

A Base Line with Azimuth $90^{\circ}$ was established, and Cross Lines were cut at 100 meter intervals perpendicular to the Base Line. Secondary base lines and tie lines were cut as needed. A total of approzimately 27.6 kilometers of lines were cut on the 20 claims.

VLF EM SURVEY
The Very Low Frequency Electromagnetic (VLF EM) Survey was performed with a Geonics EM 16 instrument. Station NAA, broadcasting on a frequency of 24.0 kHz from Cutler, Maine, was read. Twenty conductive zones were located, and they have been arbitrarily designated $A$ to $T$. Figures 3 and 4 show the results of the VLF EM Survey.
Conductor A extends for at least 700 meters from station $3+25 \mathrm{~S}$ on Line 22 W to $4+50 \mathrm{~S}$ on Line 15 W . Conductivity is locally moderate, with peak-to-peak amplitude response up to 64 degrees.

Conductor $B$ is approximately 400 meters long, and extends from $2+00 \mathrm{~S}$ on Line 19 W to $0+25 \mathrm{~S}$ on Line 23 W , and perhaps further. Peak-to-peak amplitude locally reaches 63 degrees, indicating moderate conductivity.

Conductor C is a single-intercept response detected at $3+00 \mathrm{~N}$ on Line 8 W . It displays weak conductivity, with amplitude of 40 degrees. C appears to be influenced somewhat by its close proximity to parallel conductive zone D, 75 meters to the north.

Conductor $D$ is at least 200 meters long. It was detected at $3+75 \mathrm{~S}$ on Lines 8 W and 9 W . It displays weak to moderate conductivity, with maximum amplitude of 39 degrees.

Conductor E occurs at $5+00 \mathrm{~N}$ on Line 13 W , and extends 100 meters westwards to the west boundary of the claim. Amplitude is 21 degrees, indicating very weak conductivity.

Conductor F is over 500 meters long, extending from $6+00 \mathrm{~N}$ on Line 12 W to $5+00 \mathrm{~N}$ on Line 7 W . Conductivity is locally strong, with maximum amplitude of 164 degrees.

Conductor $G$ is approximately 300 meters long. It extends from $7+00 \mathrm{~N}$ on Line 13 W to $6+75 \mathrm{~N}$ on Line 10 W . Conductivity is weak, with maximum amplitude of 45 degrees.

Conductor H is over 1,000 meters long, extending from $6+00 \mathrm{~N}$ on Line 4 W to beyond $8+00 \mathrm{~N}$ on Line 14 W . Maximum amplitude is 72 degrees, indicating locally moderate conductivity.

Conductor $I$ extends from $8+50 \mathrm{~N}$ on Line 12 W to $8+50 \mathrm{~N}$ on Line 13 W , a distance of 100 meters. Moderately-weak conductivity is displayed, with a maximum amplitude of 49 degrees.

Conductor $J$ is also 100 meters long. It extends from $8+50 \mathrm{~N}$ on Line 7 W to $8+75 \mathrm{~N}$ on Line 6 W . Maximum amplitude is 46 degrees, indicating weak to moderate conductivity.

Conductor $K$ is a weak, single-intercept response at $10+50 \mathrm{~N}$ on Line 11 W. Amplitude is 45 degrees.

Conductor $L$ is a very weak zone that extends for 100 meters from $12+50 \mathrm{~N}$ on Line 13 W to $12+50 \mathrm{~N}$ on Line 12 W . Maximum amplitude is 38 degrees.

Conductor M extends for approximately 300 meters, from $13+50 \mathrm{~N}$ on Line 11 W to $12+00 \mathrm{~N}$ on Line 8 W . Maximum amplitude is 61 degrees, indicating locally moderate conductivity.

Conductor N is 300 meters long. It extends from $13+50 \mathrm{~N}$ on Line 6 W to $13+75 \mathrm{~N}$ on Line 9 W . Maximum amplitude is 81 degrees, indicating locally moderate conductivity.

Conductor 0 is a moderate zone that extends for 100 meters from $13+75 \mathrm{~N}$ on Line 4 W to $14+25 \mathrm{~N}$ on Line 3 W . Maximum amplitude is 61 degrees.

Conductor P was detected at station $17+00 \mathrm{~N}$ on Line 0 . It is a very weak response, with amplitude of 17 degrees.

Conductor $Q$ was also detected on one line only, this one at $18+00 \mathrm{~N}$ on Line 1 W . It too is very weak.

Conductor R is at least 100 meters long, and extends from $21+00 \mathrm{~N}$ on Line 1 W to $21+25 \mathrm{~N}$ on Line 0 , and perhaps further. It is a weakly conductive zone, with maximum amplitude of 34 degrees.

Conductor $S$ is at least 400 meters. It extends from $17+00 \mathrm{~N}$ on Line 5 W to beyond $19+50 \mathrm{~N}$ on Line 9 W . It displays locally strong conductivity, with a maximum amplitude of 98 degrees.

Conductor $T$ extends from $8+00 \mathrm{~N}$ on Line 10 W to beyond $8+50 \mathrm{~N}$ on Line 13 W , a distance of at least 300 meters. It is a moderate conductor, with maximum amplitude of 68 degrees.

## MAGNETOMETER SURVEY

The Magnetometer Survey was performed with a GEM-8 Proton Precession Magnetometer. Base readings were taken along the Base and Tie Lines, and Cross Lines were read by the loop method, with all loops less than 1 hour duration.

The Magnetometer Survey results indicate a variable pattern of magnetic susceptibilities for the property. Background values appear to range between 58,100-58,200 nanoteslas for the north and southwest parts of the property. The entire central part of the property is distinguished by a disrupted pattern of oval magnetic highs and lows. The highest reading obtained in the survey, 59,414 nanoteslas, as well as the lowest, 57,946 nanoteslas, both occur in this area, at $7+25 \mathrm{~N}$ on Line 6 W , and $5+50 \mathrm{~N}$ on Line 6 W , respectively. This disrupted magnetic pattern may reflect the presence of a mafic intrusive body such as a gabbro or a basic diorite.

Figures 5 and 6 show the results of the Magnetometer Survey.

## CONCLUSIONS

The VLF EM Survey located 20 conductive zones, of which 2 are strongly conductive, and 8 are moderately conductive.

The Magnetometer Survey located a broad zone of variable high-and-low magnetics in the central part of the property.

## RECOMMENDATIONS

All 10 of the strong and moderate conductive zones should be examined in detail to determine their causes. The zone of variable high-and-low magnetics should similarly be examined in detail to determine the nature of the underlying strata.

The property should be geologically mapped in detail, with emphasis placed on explaining the 10 strong and moderate conductive zones, and the area of variable magnetics.

June 12, 1988
Toronto, Ontario



Ontario

Northern Development and Mines

Ministère du
Développement du Nord et des Mines

October 19, 1988

Your file: W8808-286
Our file: 2.11583

Mining Recorder
Ministry of Northern Development and Mines 4 Government Road East
Kirkland Lake, Ontario
P2N 1 A2
Dear Sir:
Re: Notice of Intent dated October 4, 1988
Geophysical (Electromagnetic \& Magnetometer) Survey
submitted on Mining Claims L 859153 et al
in the Township of Gauthier
The assessment work credits, as listed with the above-mentioned Notice of Intent, have been approved as of the above date.

Please inform the recorded holder of these mining claims and so indicate on your records.

Yours sincerely,

W.R. Cowan

Provincial Manager, Mining Lands
Mines \& Minerals Division
Whitney Block, Room 6610
Queen's Park
Toronto, Ontario
N7A 1W3
Telephone: (416) 965-4888
RM
RM:pl
Enclosure
cc: Mr. G.H. Ferguson
Mining and Lands Commissioner Toronto, Ontario

Resident Geologist
Kirkland Lake, Ontario

Technical Assessment Work Credits


Recorded Holdar

| Rocorrded Holdar $\quad$ PANTHCO Resources Inc. |  |
| :--- | :--- |
| Townshlp or Area | GAUTHIER |


| Type of survey and number of Assessment days credit per claim | Mining Claims Assessed |
| :---: | :---: |
|  | L 859153 to 156 inclusive 859612 to 615 inclusive 884026 to 028 inclusive 884525 to 528 inclusive 982249 982471 |

Special credits under section 77 (16) for the following mining claims

## 30 days ELECTROMAGNETIC <br> 15 days MAGNETOMETER <br> 20 days ELECTROMAGNETIC <br> 10 days MAGNETOMETER

L 982248

L982246-247

No credits have been allowed for the following mining claims
$\square$ not sufficiently covered by the survey
Insufficient technical data filed

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 es follows: Geophysical - 80; Geologocal - 40; Geochemical - 40; Section 77(19) -60.

Ministry of
Northern Development and Mines

## Geophysical-Geological-Geochemical <br> Technical Data Statement

File $\qquad$

## 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.

> Type of Survey (s) Geophysical - VLF EM \& Mag Township or Area Gauthier Township (G-3211) Claim Holders) Panthco Resources Inc. (657873 Ont. 595 Argus Road, Oakville, ontario L6J 3J4

> Survey Company Gallo Exploration Services Inc. Author of Report _ E. A. Gallo, 148 Allanhurst Dr.

> Address of Author Islington, Ontario M9A 4K7 Covering Dates of Survey Nov. $23 / 87 \cdots$ June $10 / 88$
> Total Miles of Line Cut
> Approx. 27 kms .


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

DATE: Sept. 6/88

Res. Geol. $\qquad$ Qualifications 63.2224 Previous Surveys



L 884028
L 884525
L 884526
L 884527
L 884528
L 982246
L 982247
L 982248
L 982249
L 982471

TOTAL CLAIMS
20

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

Number of Stations Approx. 1, 100
Station interval 25 meters
Profile scale 50 meters $=20 \% \quad(1: 2500)$
Contour interval_ 100 nanoteslas

Instrument GEM-8 Proton Precession Magnetometer
Accuracy - Scale constant 0.5 nanoteslas
Diurnal correction method Closed loops of Max 1 hour duration, progressive correction Base Station check-in interval (hours) Maximum 1 hour
Base Station location and value Base stations along base lines at Cross Iines

Instrument
Geonics EM 16
Coil configuration $\qquad$
Coil separation $\qquad$
Accuracy 1 degree
Method: $\quad$ Fixed transmitter
$\square$ Shoot backIn line

Frequency Cutler, Maine - 24.0 kHz (specify V.L.F. station)
Parameters measured.In-Phase Dip Angles, Out-of-Phase

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

Base station value and location

Elevation accuracy

Instrument $\qquad$
Method $\square$ Time Domain $\square$ Frequency Domain

Parameters - On time Frequency

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


## SELF POTENTIAL

 $\qquad$
Survey Method $\qquad$

Corrections made $\qquad$

## RAIDIOMETRIC

Instrument $\qquad$
Values measured $\qquad$
Energy windows (levels) $\qquad$
Height of instrument $\qquad$ Background Count $\qquad$
Size of detector
Overburden $\qquad$ (type, depth - include outcrop map)

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

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

Additional information (for understanding results)

## AIRBORNE SURVEYS

Type of survey(s)

| Instrument(s) |  |
| :--- | :--- |
| Accuracy___ | (specify for each type of survey) |
| Aircraft used | (specify for each type of survey) |

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

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

## GEOCHEMICAL SURVEY - PROCEDURE RECORD

Numbers of claims from which samples taken

Total Number of Samples
Type of Sample
(Nature of Material)
Average Sample Weight
Method of Collection $\qquad$

Soil Horizon Sampled
Horizon Development $\qquad$
Sample Depth $\qquad$
Terrain $\qquad$

Drainage Development
Estimated Range of Overburden Thickness $\qquad$
$\qquad$
$\qquad$

SAMPLE PREPARATION
(Includes drying, screening, crushing, ashing)
Mesh size of fraction used for analysis $\qquad$

General $\qquad$
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