

010

REPORT

ON

VLF ELECTROMAGNETIC

AND

MAGNETOMETER

GEOPHYSICAL SURVEYS

PANTHCO RESOURCES INC. MARY ANN-AVALARD MINES PROPERTY GAUTHIER AND MCVITTIE TOWNSHIPS LARDER LAKE MINING DIVISION, ONTARIO

RECEIVED

SEP 6 1988

MINING LANDS SECTION

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

INTRODUCTION

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.



TABLE OF CONTENTS

Ø10C

INTRODUCTION	i.
LOCATION	1.
CLAIMS DATA	1.
ACCESS	1.
TOPOGRAPHY	4.
GENERAL GEOLOGY	4.
LINECUTTING	4.
VLF EM SURVEY	4.
MAGNETOMETER SURVEY	6.
CONCLUSIONS	6.
RECOMMENDATIONS	7.

.

LIST OF FIGURES

1.	LOCATION SKETCH	2.
2.	PROPERTY OUTLINE SHOWING CLAIMS	3.
3.	VLF EM SURVEY RESULTS - SOUTH SHEET	Pocket
4.	VLF EM SURVEY RESULTS - NORTH SHEET	И
5.	MAGNETOMETER SURVEY RESULTS - SOUTH SHEET	n
6.	MAGNETOMETER SURVEY RESULTS - NORTH SHEET	11

VLF ELECTROMAGNETIC AND MAGNETOMETER

GEOPHYSICAL RESULTS

PANTHCO RESOURCES INC. MARY ANN-AVALARD MINES PROPERTY GARTHIER AND MCVITTIE TOWNSHIPS 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 (19 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:

\mathbf{L}	859153		56,	inclusive	(4)	
L	859612		15,	inclusive	(4)	
L	884026	-	28,	inclusive	(3)	
L	884525	-	28,	inclusive	(4)	
L	982246		49,	inclusive	(4)	
L	982471				(1)	
				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



2.





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° 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 approximately 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 S on Line 22 W to 4+50 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 S on Line 19 W to 0+25 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 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 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 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 N on Line 12 W to 5+00 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 N on Line 13 W to 6+75 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 N on Line 4 W to beyond 8+00 N on Line 14 W. Maximum amplitude is 72 degrees, indicating locally moderate conductivity.

Conductor I extends from 8+50 N on Line 12 W to 8+50 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 N on Line 7 W to 8+75 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 N on Line 11 W. Amplitude is 45 degrees.

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

Conductor M extends for approximately 300 meters, from 13+50 N on Line 11 W to 12+00 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 N on Line 6 W to 13+75 N on Line 9 W. Maximum amplitude is 81 degrees, indicating locally moderate conductivity.

Conductor O is a moderate zone that extends for 100 meters from 13+75 N on Line 4 W to 14+25 N on Line 3 W. Maximum amplitude is 61 degrees. Conductor P was detected at station 17+00 N on Line 0. is a very weak response, with amplitude of 17 degrees.

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

Conductor R is at least 100 meters long, and extends from 21+00 N on Line 1 W to 21+25 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 N on Line 5 W to beyond 19+50 N on Line 9 W. It displays locally strong conductivity, with a maximum amplitude of 98 degrees.

Conductor T extends from 8+00 N on Line 10 W to beyond 8+50 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 N on Line 6 W, and 5+50 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 highand-low magnetics in the central part of the property.

6.

It

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

E. A. Gallo, B.Sc., F.G.A.C.

,	WFF of 2	46					-	/
Ministry of	Report of We	ork 「	DOCUME				IN N I I I I I I I I I I I I I I I I I	
and Mines	(Geophysical, (Geologica	3088W					
Ontario	Geochemical a	nd Expent		320041100081				
Land	L. Wand	2 - 5 - 5 - 12	Minir		2.11583 GAU			900
Geophysic	2		15	83	Cout	or Area	Malling	-
Claim Holder(s)		<u>.</u>	<u> </u>	<u> </u>	Gaut	Prospecto	r's Licence No.	Twps.
PANTHCO RESOURCE	S INC. (Opt	ioned	from 65	57873 Ont	ario Lt	d) T	-5050	
595 Argus Ro	ad, Oakville	, Onta	ario L6	J 3J4	v (from 8, to)		Total Miles of line	Cut.
GALLO EXPLORAT	ION SERVICES	INC.		23 11 Day Mo.	87 10 Yr. Day	06 88 Mo. Yr.	Approx.	60
E. A. Gallo, 1	48 Allanhurs	t Driv	ze, Isli	ngton, O	ntario	м9а 4	к7	
Credits Requested per Each (Claim in Columns at r	ight	Mining Cl	aims Traversed	(List in num	erical sequ	ence)	
Special Provisions	Geophysical	Days per Claim	Prefix	ning Claim Number	Expend. Days Cr.	N Prefix	lining Claim Number	Expend. Days Cr.
Enter 40 days, (This V	LF - Electromagnetic	40					859153	
includes line cutting)	- Magnetometer	20					859154	
For each additional survey:	- Radiometric			· · · · · · · · · · · · · · · · · · ·			859155	
using the same grid:	- Other						859156	
	Geological						859612	
	Geochemical						859613	
Man Days	Geophysical	Days per	C. S. Marine	·····			859614	
Complementerspatia LAT NA		Claim					050615	
and enter rotal s field			and an article state				859615	
RECEIVE	D Wiagneromater						884026	_
TUT JUN 27	1981		ina na dadari art Maria				884027	
JUL 1, 3. 1988,	Other		2.				884028	
B	Geological					-	884525	
MINING LANDS SEC	Seochemical					1. S. C. C.	884526	
Airborne Credits		Days per Claim					884527	
Note: Special provisions	Electromagnetic						884528	
to Airborne Surveys.	Magner operted B I	DED					982246	
	Radiometric						982247	
Expenditures (excludes pow	er stripping)	······				- -	982248	
Type of Work Performed	JUN 27	1989				.	982249	
Performed on Claim(s)			-				-002471-	
	Receipt #		·			A	982471	
Calculation of Expenditure Days	s Credits	lotai					- Management of the second statement of the second second second second second second second second second seco	
Total Expenditures	Days	s Credits				l		
\$	÷ [15] = [Total nur claims co	nber of mining F	F20
Instructions report of work. 20								
choice. Enter number of days credits per claim selected For Office Use Only Total Days Cr. Date Recorded / Mining Recorder				<u> </u>				
Re /			Recorded	Aun	27/88	M.C	i. ()eur	nei
Date Rec	corded Holder or Adentits	gnature)	1,200	Pate Approve	d as Recorded	Branch Di	rector /	
Certification Verifying Repo	Certification Verifying Report of Work							
				ash in she Demos	of Mort area		haulan naufauranta	hawark

I harable cartify that I have a corrected and intimate knowledge of the factories forth in the Banort of Work annaved herets, having performed the work



Ministry of 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 1A2

Dear Sir:

ONTARIO GEOLOGICAL SURVEY ASSESSMENT FILES OFFICE NOV 7 1988 RECEIVED

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 M7A 1W3

Telephone: (416) 965-4888 *Rm* RM:pl Enclosure

cc: Mr. G.H. Ferguson Mining and Lands Commissioner Toronto, Ontario

> Panthco Resources Inc. 595 Argus Road Oakville, Ontario L6J 3J4

Resident Geologist Kirkland Lake, Ontario



(



	File
	2.11583
Date	Mining Recorder's Report of
October 4/88	Work No. W8808,286

Township or Area	
GAUTHIER	
Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical 40 days	L 859153 to 156 inclusive
Magnetometer 20 days	859612 to 615 inclusive
Radiometric days	884026 to 028 inclusive
Induced polarization days	884525 to 528 inclusive
Other days	982249
Section 77 (19) See "Mining Claims Assessed" column	982471
Geological days	
Geochemical days	
Man days 🗌 🛛 Airborne 🗍	
Special provision 🕅 Ground 🕅	
Credits have been reduced because of partial	
Coverage of claims. Credits have been reduced because of corrections to work dates and figures of applicant.	
pecial credits under section 77 (16) for the following mi	ining claims
30 days ELECTROMAGNETIC	20 days ELECTROMAGNETIC
15 days MAGNETOMETER	10 days MAGNETOMETER
L 982248	L982246-247
o credits have been allowed for the following mining cla	aims
not sufficiently covered by the survey] insufficient technical data filed

828 (85/12)



Ministry of Northern Development and Mines

Geophysical-Geological-Geochemical Technical Data Statement

File_

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) <u>Geophysical - VLF EM & Mag</u>	
Township or Area realized foundary (0.0211)	HA MINING CLAIMS TRAVERSED
Claim Holder(s)	List numerically
595 Arg <u>us Road, Oakville, Ontario L6J 3J4</u>	
Survey Company Gallo Exploration Services Inc.	L 859153
Author of Report E. A. Gallo, 148 Allannurst Dr.	L 859154
Address of Author Islington, Ontario M9A 4K7	
Covering Dates of Survey Nov. 23/87 - June 10/88	L. 859155
Total Miles of Line Cut Approx. 27 kms.	L. 859156
	L 859612
SPECIAL PROVISIONS DAYS	L 859613
<u>CREDITS REQUESTED</u> Geophysical VLF Electromagnetic 40	L 859614
ENTER 40 days (includes -Magnetometer 20	L 859615
survey. –Radiometric	L 884026
ENTER 20 days for each —Other	L 884027
same grid. Geochemical	L 884028
AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)	L 884525
Magnetometer Electromagnetic Radiometric (enter days per claim)	L 884526
DATE: Sept. 6/88 SIGNATURE:	L 884527
Author of Report or Agent	L 884528
	L 982246
Res. GeolQualifications 63.2224	L 982247
Previous Surveys File No. Type Date Claim Holder	L 982248
	L 982249
	L 982471
	TOTAL CLAIMS20

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

GROUND SURVETS - It more than one survey,	specify data for each type of survey				
Number of Stations Approx. 1,100	Number of Readings Approx. 1,000				
Station interval25 meters	Line spacing 100 meters				
Profile scale 50 meters = 20% (1:250	00)				
Contour interval100 nanoteslas					
Instrument <u>GEM-8 Proton Precessio</u>	on Magnetometer				
Accuracy – Scale constant0.5 nanote	eslas				
B Diurnal correction method <u>Closed loops</u>	Diurnal correction method <u>Closed loops of Max 1 hour duration</u> , progressive correction				
Base Station check-in interval (hours) Maximu	Base Station check-in interval (hours) <u>Maximum 1 hour</u>				
Base Station location and value <u>Base</u> stati	ons along base lines at Cross Lines				
Geonics EM 16					
Coil configuration					
Coil separation					
Accuracy <u>l degree</u>					
Method: Fixed transmitter	□ Shoot back □ In line □ Parallel line				
Frequency Cutler, Maine - 24.0 kH					
Parameters measured <u>In-Phase Dip Ang</u>	gles, Out-of-Phase				
Instrument					
Scale constant					
Corrections made					
Base station value and location					
Elevation accuracy					
Instrument					
Method 🗌 Time Domain	Frequency Domain				
Parameters – On time	Frequency				
> − Off time	Range				
— Delay time					
- Integration time					
Power					
Electrode array					
Electrode spacing					
Type of electrode					

INDUCED POLARIZATION RESISTIVITY



SELF POTENTIAL	
Instrument	Range
Survey Method	~
Corrections made	
RADIOMETRIC	
Instrument	
Values measured	
Energy windows (levels)	·
Height of instrument	Background Count
Size of detector	-
Overburden	
(type	, depth include outcrop map)
OTHERS (SEISMIC, DRILL WELL LOGGING	ETC.)
Type of survey	
Instrument	
Accuracy	
Parameters measured	
Additional information (for understanding resul	lts)
· · · · · · · · · · · · · · · · · · ·	,
AIRBORNE SURVEYS	
Type of survey(s)	
Instrument(s)	
(spec	ify for each type of survey)
Accuracy(spec	ify for each type of survey)
Aircraft used	
Sensor altitude	
Navigation and flight path recovery method	
Aircraft altitude	Line Spacing
Miles flown over total area	Over claims only

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken_____

Total Number of Samples	ANALYTICA	L METHOD	2
Type of Sample(Nature of Material) Average Sample Weight		per cent p. p. m. p. p. b.	
Method of Collection	Cu, Pb, Zn, Ni, Co,	Ag, Mo,	As,-(circle)
Soil Horizon Sampled	Others		
Horizon Development	Field Analysis (tests)
Sample Depth	Extraction Method		
Terrain	Analytical Method Reagents Used		
Drainage Development	Field Laboratory Analysis		
Estimated Range of Overburden Thickness	No. (tests)
0	Extraction Method		
	Analytical Method		
	Reagents Used	- <u></u>	
SAMPLE PREPARATION (Includes drying, screening, crushing, ashing) Mesh size of fraction used for analysis	Commercial Laboratory (Name of Laboratory Extraction Method Analytical Method Reagents Used		tests)
General	General		
			·····

REFERENCES

AREAS WITHDRAWN FROM DISPOSITION

M.R.O. - MINING RIGHTS ONLY

- e

i de

S.R.O. - SURFACE RIGHTS ONLY

M.+ S. -- MINING AND SURFACE RIGHTS

5 M

4 M

e ci 2338

0.248

Crystal

L.

L\$.

D.

 \vdash

EBEL

siang HWT L.D. \$165

2M

BARRICK POWER LINE (Application pending under Public Lands Act)

SAND and GRAVEL

Ð	M, T C.	PT No. 1666	FILE 101421
9	MTC	PIT 3F-27	







McELROY TP.

200

ARNOLD TP.













······ -----

·····



