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GEOPHYSICAL REPORT FOR FALCONBRIDGE LIMITED ON THE MANN BELT GRID #MAN96-09 MANN TOWNSHIP, PORCUPINE MINING DIVISION RECEIVED TO THE



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Qual. # 2.5943 PREPARED BY: J.C.Grant, CET, FGAC February, 1996

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FELLOW



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INTRODUCTION

The services of Exsics Exploration Limited were retained by Falconbridge Limited to complete a line cutting and geophysical program on a group of claims located in Mann Township, Grid #Man96-09, of the Porcupine Mining Division in Norteastern Ontario. Figure 1 and 2.

The purpose of this program was to locate and outline airborne targets in an area which was considered favourable for base metal deposition.

The linecutting of the grid began on January20th,1996 and was completed on January 29, 1996. The geophysics was started on the 05th of February and was completed on the 6th of February,1996. In all, a total of 12.3 kilometers of grid lines were established on the claim group.

PROPERTY LOCATION AND ACCESS

Grid, Man96-09, is located in the central-east section of Mann Township and generally covers three quarters of Lot 4 in Concession III. The entire grid is located approximately 25 kilometers northwest of the Town of Iroquois Falls. Figure 2.

Access to the grid during the survey period was ideal. Falconbridge Limited has plowed open a drivable road which commences on Highway 11 North at the junction of Concession V and VI. This plowed road runs west along the concession line to an old bridge across the Fredrick House River. A second plowed road was then pushed to the southeast to access the northern section of the grid. Travelling time from Timmins to the grid is approximately 2.2 hours.

CLAIM GROUP

The claim numbers which were partially covered by the grid are as follows.

P-1200920 16 units

Refer to figure 3, copied from the MNDM Plan map #G-3537, of Mann Township, scale 1:20,000.

PERSONNEL

The field crew directly responsible for the collection of all data were as follows:

Richard Mathieu	Timmins,	Ontario
Robin Mathieu	Timmins,	Ontario
Todd Mathieu	Timmins,	Ontario







Page 2

The geophysical program was completed under the direct supervision of J.C.Grant and all plotting and computor compilation was completed by P. Gauthier of Exsics.

LINECUTTING PROGRAM

The grid consisted of 100 meter line spacing and 25 meter station spacing. Tieline 900MS was turned off from the existing tieline of the summer program and was cut at 090 degrees from line 300MW to 500Me The stations were chained from TL 900MS to TL 2000MS.

GEOPHYSICAL PROGRAM

This program consisted of a total field magnetic survey done in conjuction with a Horizontal Loop, electromagnetic, HLEM, survey. The magnetic survey was completed on the entire cut grid however the HLEM survey was completed on the cross lines only.

The magnetic survey was completed using the BRGM, OMNI IV system. Specifications for this system can be found as Appendix A of this report. The HLEM survey was completed using the Apex Parameterics, MaxMIn II system. Specifications for this system can be found as Appendix B of this report.

MAGNETIC SURVEY:

The following parameters were kept constant throughout the survey.

Linespacing	100 meters
Station spacing	25 meters
Reading interval	12.5 meters
Diurnal monitior	Base station recorder
record interval	30 seconds
Reference field	57960 gammas
Datum subtract	57500 gammas
Unit accuracy	+/- 0.1 gamma
Parameters measured	Earth's total magnetic field

The collected, corrected and levelled data was then plotted directly onto a base map at a scale of 1:5000 and then contoured at 5 gamma intervals where possible. A copy of this base map is included in the back pocket of this report. HLEM SURVEY:

The following parameters were kept constant throughout the survey.

The collected data was then plotted directly onto a base map at a scale of 1:5000, one base map for each frequency, and then profiled at 1cm to +/-20%. An interpretation for each line of the conductor was done as far as depth to source and apparent conductivity in Mhos and was put directly onto the base map. A copy of these base maps are included in the back pocket of this report.

SURVEY RESULTS

The HLEM survey was successful in locating and outlining several conductive horizons on the grid. For interpretation purposes they have been labelled Zones A,B,C and D. Each of the zones will be discussed seperately and in detail.

ZONE A:

This zone represents a weak possibly deep structural horizon which is probably being masked by the effect of the massive ultramafic intrusives covering all of the grid. The entire strike length of the zone lies along and within the south flank of the ultramafic unit which generally covers most of the survey grid.

Interpretation of this feature is difficult due the effect of the massive ultramafics.

ZONE B:

This zone also lies within the centre of the massive ultramafic and correlates to the strongest magnetics of the grid. Again the zone may represent a legitimate conductor either deep or at the least, being masked by the ultramafics.

Page 3

Page 4

ZONE C:

This zone lies along the contact of a high and extreme low magnetic signature which is probably representative of a mixture of the gabbros and peridotites within the ultramafics. Again the zone is probably being masked by the effect of the host rocks and the HLEM survey is having difficulty penetrating the unit.

ZONE D:

At this writing, zone D is a short questionable zone which appears to continue off of the grid to the east. The zone lies within or on the southern flank of a magnetic low signature again probably representing the ultramafic mixture. This zone would require further follow-up work to better define it's strike length and direction as well as it's authenticity. The ultramafic unit is also affecting the interpretation of the zone.

CONCLUSIONS AND RECOMMENDATIONS

The HLEM survey method was not effective enough to penetrate the ultramafic unit which generally covers the entire survey grid. The conductive zone albeit weak should be followed-up further by another deeper penetrating survey method to better define their sources and validity.



CERTIFICATE

I, John C. Grant, hereby certify that:

1) I am a graduate geophysicist (1975) of the three year program in Geological Technology at Cambrian College of Applied Arts and Technology, Sudbury, Campus. I have worked subsequentely as an Exploration Geophysicist for Teck Exploration Limited (5 years), North Bay office, and as Exploration Manager and Geophysicist for Exsics Exploration Limited from 1980 to present.

2) I am a Member of the Certified Engineering Technologist Association since 1984.

3) I am a member of the Geological Association of Canada.

4) I have been actively engaged in my profession for the last twenty (20) years, including all aspects of exploration studies, surveys and interpretations.

5) I have no specific or special interest in the described property. I have been retained as a Consulting Geophysicist by the claim holders.

John Charles Grant, CET, FGAC



APPENDIX A

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Four Magnetometers in One Self Correcting for Diurnal Variations Reduced Instrumentation Requirements 25% Weight Reduction User Friendly Keypad Operation Universal Computer Interface Comprehensive Software Packages

Specifications

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	 18,000 to 110,000 gammas. Roll-over display feature suppresses first significant digit upon exceeding 100,000 gammas.
	Tuning value is calculated accurately utilizing a specially developed tuning algorithm
/ tomatic Fine Tuning	\pm 15% relative to ambient field strength of last stored
Display Resolution	
	· U. I garinia
 Itistical Error Resolution 	
	± 1 gamma at 50,000 gammas at 23°C ± 2 gamma over total temperature range
Cotal Field or Cradiont	
Tie-Line Points	10. data blocks of sets of readings
Base Station	- 100 uata blocks of sets of readings
	Custom-designed, suggedized liquid energy display with an
	operating temperature range from -40°C to +55°C. The display contains six numeric digits, decimal point, battery status monitor, signal decay rate and signal amplitude monitor and function descriptors.
	2400 baud, 8 data bits, 2 stop bits, no parity
	6,000 gammas per meter (field proven)
	 A. Diagnostic testing (data and programmable memory) B. Self Test (hardware)
S. ISOr	Optimized miniature design. Magnetic cleanliness is consistent with the specified absolute accuracy.
Cradient Sensors	0.5 meter sensor separation (standard), normalized to gammas/meter. Optional 1.0 meter sensor separation available. Horizontal sensors optional.
Sensor Cable	Remains flexible in temperature range specified, includes strain-relief connector
C :ling Time (Base Station Mode)	Programmable from 5 seconds up to 60 minutes in 1 second increments
Operating Environmental Range	-40°C to +55°C: 0-100% relative humidity; weatherproof
F wer Supply	Non-magnetic rechargeable sealed lead-acid battery cartridge or belt; rechargeable NiCad or Disposable battery cartridge or belt; or 12V DC power source option for base station operation
E :tery Cartridge/Belt Life	2,000 to 5,000 readings, for sealed lead acid power supply, depending upon ambient temperature and rate of readings
Weights and Dimensions	
nstrument Console Only	2.8 kg 238 x 150 x 250mm
liCad or Alkaline Battery Cartridge	12 kg 235 x 105 x 90mm
NiCad or Alkaline Battery Belt	1.2 kg, 200 x 100 x 20mm
'ead-Acid Battery Cartridge	1.8 kg 235 x 105 x 90mm
ead-Acid Battery Belt	1.8 kg 540 x 100 x 40mm
Sensor	1.2 kg, 540 x 100 x 401111
Gradient Sensor (0 5 m senaration - standard)	2.1 kg. 56mm diameter x 200mm
iradient Sensor	
	2.2 Kg, 56mm diameter x 1300mm
	sectional sensor staff, power supply, harness assembly, operations manual.
Base Station Option	Standard system plus 30 meter cable
Gradiometer Option	Standard system plus 0.5 meter sensor

E D A Instruments Inc. 4 Thorncliffe Park Drive Toronto, Ontario Canada M4H 1H1 Telex: 06 23222 EDA TOR Cable: Instruments Toronto (416) 425 7800

in U.S.A. E D A instruments Inc. 5151 Ward Road Wheat Ridge, Colorado U.S.A 80033 (303) 422 9112

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Printed in Canada

APPENDIX B

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Five frequencies: 222, 444, 888, 1777 and 3555 Hz. Maximum coupled (horizontal-loop) operation with reference cable. Minimum coupled operation with reference cable. Vertical-loop operation without reference cable. Coil separations: 25, 50, 100, 150, 200 and 250 m (with cable) or 100, 200, 300, 400, 600 and 800 ft. Reliable data from depths of up to 180 m (600 ft). Built-in voice communication circuitry with cable.

MAXMIN

PORADA BA





 Instants () 	222,444,888,1777 and 3555 Hz.	· • · · · · · · · ·	±0.25% to ±1% normally, depending
ta di la la fina estato	MAX: Transmitter coil plane and re- ceiver coil plane horizontal (Max-counced: Horizontal-hono	••••••••••••••••••••••••••••••••••••••	separation used.
	mode). Used with refer.cable.		- 444Hz : 200 Atm ²
	MIN: Transmitter coilplane honzon- tal and receiver coilplane ver- tical (Min-coupled mode). Used with reference cable.	_	- 888Hz : 120 Atm ² - 1777Hz : 60 Atm ² - 3555Hz : 30 Atm ²
	V.L. : Transmitter coilplane verti- cal and receiver coilplane hori- zontal (Vertical-loop mode). Used without reference cable, in parallel lines.		Life: approx. 35 hrs. continuous du- ty (alkaline, 0.5 Ah), less in cold weather.
Cuk Bocarational	25,50,100,150,200 & 250m (MMI) or 100, 200, 300, 400,600 and	⊒o st a tos.	12V 6Ah Gel-type rechangeable battery. (Changer supplied).
	800 ft. (MMIF). Coil separations in V.L.mode not re- stricted to fixed values.	తెల్లారి చూడి	Light weight 2-conductor teflon cable for minimum friction. Unshield- ed. All reference cables optional at extra cost. Please specify
Prettrissen Resc.	 In-Phase and Quadrature compo- nents of the secondary field in MAX and MIN modes. 	ter se en en s	Built-in intercom system for voice communication between re-
	- Tilt-angle of the total field in V.L. mode .		ceiver and transmitter operators in MAX and MIN modes, via re- ference cable.
" (20093);	- Automatic, direct readout on 90mm (3.5") edgewise meters in MAX and MIN modes. No null- ing or compensation necessary.	juma a con imérica.	Built-in signal and reference wam- ing lights to indicate erroneous readings.
	 Tilt angle and null in 90mm edge- wise meters in V.L.mode. 	Tankaansi ka Cooka	-40°C to +60°C (-40°F to +140°F).
Zodia Mangola	In-Phase: ±20%,±100% by push-	Fnæbrigen – Salving	: 6kg (13 lbs.)
	button switch. Guadrature: ±20%, ±100% by push-	Texesto s u un li el jos	: 13kg (29 lbs.)
	button switch. Tilt: ±75% slope.	Simmer Carlies	Typically 60kg (135lbs.), depend- ing on quantities of reference
	by separation switch.		cable and batteries included. Shipped in two field/shipping cases.
Passi 10.5	In-Phase and Quadrature: 0.25 % to 0.5 % ; Tilt: 1% .	Specifications subje	ct to change without notification
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Total Number	حر														P1200921	P 1200920	Claim Number (see Note 2)
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Total Value Work	7308															7308	Assessment Work Done on this Claim
Total Value	8022														246	6562	Applied Claim
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Total Assigned	りれと															645	Assigned from this Claim
Total Reserve												-					Work to be Claimed at a Future Date

1. Credits are to be cut back starting with the claim listed last, working backwards.

2. Credits are to be cut back equally over all claims contained in this report of work.

3. \square Credits are to be cut back as priorized on the attached appendix. $P_{1200920}$

In the event that you have not specified your choice of priority, option one will be implemented.

Note 1: Examples of beneficial interest are unrecorded transfers, option agreements, memorandum of agreements, etc., with respect to the mining claims.

Note 2: If work has been performed on patented or leased land, please complete the following:

I certify that the recorded holder had a beneficial interest in the patented	Signature	Date
or leased land at the time the work was performed.		
	L	

Ministry of Northern Development and Minee

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Ministère du Développement du Nord et des mines

Statement of Costs for Assessment Credit

État des coûts aux fins du crédit d'évaluation

Mining Act/Lol sur les mines

Personal information collected on this form is obtained under the authority of the Mining Act. This Information will be used to maintain a record and ongoing status of the mining claim(s). Questions about this collection should be directed to the Provincial Manager, Minings Lands, Ministry of Northern Development and Mines, 4th Floor, 159 Cedar Street, Sudbury, Ontario P3E 6A5, telephone (705) 670-7264.

1. Direct Costs/Coûts directs

Туре	Description	Amount Montant	Totals Total global
Wages Salaires	Labour Main-d'oeuvre	300	
	Fleid Supervision Supervision sur le terrain	300	600 *
Contractor's and Consultant's	tinecutting		Invoice#
Pees Droits de l'entrepreneur	HLEM		402
et de l'expert- conseil	Mag		6498
Supplies Used Fournitures utilisées	Flagging	10	
	Pieket lags	50	
	Tuna		60
Equipment Rental Location de	Truck	100	
matériei	Snow mobile	50	
			150
	ect Costs is directs	7308	

Note: The recorded holder will be required to verify expenditures claimed in this statement of costs within 30 days of a request for verification. If verification is not made, the Minister may reject for assessment work all or part of the assessment work submitted.

Filing Discounts

- 1. Work liled within two years of completion is claimed at 100% of the above Total Value of Assessment Credit.
- Work filed three, four or five years after completion is claimed at 50% of the above Total Value of Assessment Credit. See calculations below:

Total Value of Assessment Credit	Total Assessment Claimed
× 0.50 =	

Certification Verifying Statement of Costs

I hereby certify:

that the amounts shown are as accurate as possible and these costs were incurred while conducting assessment work on the lands shown on the accompanying Report of Work form.

to make this certification

GRID MAN96-09 Transaction No./Nº de transaction (N.9660.0030)

Les renseignements personnels contenus dans la présente formule sont recueillis en vertu de la Loi sur les mines et serviront à tenir à jour un registre des concessions minières. Adresser toute queston sur la collece de ces renseignements au chef provincial des terrains miniers, ministère du Développement du Nord et des Mines, 159, rue Cedar, 4^o étage, Sudbury (Ontario) P3E 6A5, téléphone (705) 670-7264.

2. indirect Costs/Coûts indirects

* Note: When claiming Rehabilitation work indirect costs are not allowable as assessment work. Pour le remboursement des travaux de réhabilitation, les coûts indirects ne sont pas admissibles en tant que travaux d'évaluation.

Туре	Descripti	ion	Amount Montant	Totals Total global
Transportation Transport	Туре			
				1
	REC	EI	/ED	
	JUL	5 19	96	
Food and Lodging Nourriture et hébergement		INDS BE	ANCH	
Mobilization an Demobilization Mobilisation et démobilisation				
	Sub Tota Total partiel d	l of Indir les coûts	ect Costs Indirects	
Amount Allowab Montant admissi	e (not greater than ; de (n'excédant pas ;	20% of Dire 20% des c	ot Costs) oûts directs)	
Total Value of A: (Total of Direct an Indirect costs)	sessment Credit d Allowsbie	Valeur total d'évaluation (Total des co	le du crédit h Ots directs destation	7308

Note : Le titulaire enregistré sera tenu de vérifier les dépenses demandées dans le présent état des coûts dans les 30 jours suivant une demande à cet effet. Si la vérification n'est pas effectuée, le ministre peut rejeter tout ou une partie des travaux d'évaluation présentés.

Remises pour dépôt

- Les travaux déposés dans les deux ans suivant leur achévement sont remboursés à 100 % de la valeur totale susmentionnée du crédit d'évaluation.
- Les travaux déposés trois, quatre ou cinq ans après leur achèvement sont remboursés à 50 % de la valeur totale du crédit d'évaluation susmentionné. Voir les calculs cl-dessous.

Valeur totale du crédit d'évaluation	Evaluation totale demandée
× 0,50 =	

Attestation de l'état des coûts

J'atteste par la présente :

que les montants indiqués sont le plus exact possible et que ces dépenses ont été engagées pour ellectuer les travaux d'évaluation sur les terrains indiqués dans la formule de rapport de travail ci-joint.

Et qu'à titre de ______ je suis autorisé (titulaire enregistré, représentant, poste occupé dans la compagnie)

à faire cette attestation.

Signature 11294 \mathcal{O} 11-

C212 (C4/91)

Nota : Dans cette formule, lorsqu'il désigne des personnes, le masculin est utilisé au sens neutre.



EXSICS EXPLORATION LIMITED CONTRACTING & CONSULTING GEOPHYSICS

Tel. (705) 267-4151 Fax (705) 264-5790

P.O. Box 1880 Timmins, Ontario P4N 7X1



INVOICE #:402 PROJECT #:e-144

ON ACCOUNT WITH:

Falconbridge Limited P.O. Box 1140 Timmins, Ontario

Attention: Paul Nagerl

G.S.T. REGISTRATION # 113433791

2.16644

Mann96-09, linecutting, magnetics, HLEM surveys RE:

ÀТ	A H 12 12 9	RAT: 2.3 2.3 9.9	E OF: kilometers kilometers kilometers		of of of	lines @ \$265.00/km magnetics @ \$100.00/km HLEM @ \$160.00/km sub-total	\$3259.50 \$1230.00 <u>\$1584.00</u> \$6073.50
ارم	* *		1.23	boxes	of	sub-total tags, PST, GST INCL	<u>\$ 425.15</u> \$6498.65 \$ 50.91

TOTAL OF THIS INVOICE:

\$6549.56

DATE: fEBRUARY 7, 1996

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SIGNED:

RECEIVED FEB (9 ESS

Part Noyin 5269

PAYMENT DUE UPON RECEIPT OF INVOICE. TERMS: NET 30, 2% INTEREST PER MONTH ON OVERDUE ACCOUNTS.



Ministry of Ministère du Geoscience Assessment Office Northern Development Développement du Nord 933 Ramsey Lake Road and Mines et des Mines 6th Floor Sudbury, Ontario P3E 6B5 Telephone: (705) 670-5853 Fax: (705) 670-5863 July 19, 1996 Our File: 2.16644 Transaction **#:** W9660.00301

Mining Recorder Ministry of Northern Development & Mines 60 Wilson Ave. 1st Floor Timmins, Ontario P4N 2S7

Dear Mr. White:

SUBJECT: APPROVAL OF ASSESSMENT WORK CREDIT ON MINING LAND, CLAIM(S) 1200920 (ET AL.) IN MANN TOWNSHIP(AREA)

Assessment work credit has been approved as outlined on the Declaration of Assessment Work Form accompanying this submission. The credit has been approved under Section 14, Geophysics(MAG,EM) of the Assessment Work Regulation.

The approval date is July 15, 1996. Please indicate this approval on the claim record.

If you have any questions regarding this correspondence, please contact Bruce Gates at (705) 670-5856.

Yours sincerely, ORIGINAL SIGNED BY;

2m CG

Ron C. Gashinski Senior Manager, Mining Lands Section Mines and Minerals Division

BIG/jf

cc: Resident Geologist Timmins, Ontario Assessment Files Library Sudbury, Ontario



LANNA TOWNSHIP

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