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GEOPHYSICAL REPORT FOR FALCONBRIDGE LIMITED ON THE CURRIE-BOWMAN OPTION GRID A, FILL-IN, CURRIE TOWNSHIP LARDER LAKE MINING DIVISION NORTHEASTERN ONTARIO



PREPARED BY: J.C.Grant, CET, FGAC January, 1996 01061 /JOHN GRANT FELLOW



# TABLE OF CONTENTS

010C

|   | PAGE  |
|---|-------|
| INTRODUCTION  | . 1   |
| PROPERTY LOCATION AND ACCESS  | . 1   |
| CLAIM GROUP   | . 1   |
| PERSONNEL   | . 2   |
| GROUND PROGRAM  | . 2   |
| SURVEY PROCEDURE  | . 2,3 |
| SURVEY RESULTS  | . 3   |
| CONCLUSIONS AND RECOMMENDATIONS   | . 4   |
| CERTIFICATE   |       |
| APPENDICIES: A: BRGM OMNI IV SYSTEM<br>B: APEX PARAMETERICS, MAXMIN II SYST                               | ('EM  |
| LIST OF FIGURES: FIGURE 1. LOCATION MAP<br>FIGURE 2. PROPERTY LOCATION MAP<br>FIGURE 3. CLAIM MAP, GRID A |       |
| POCKET MAPS: CONTOURED MAGNETIC MAP<br>PROFILED 1777HZ FREQUENCY<br>PROFILED 444HZ FREQUENCY              |       |

#### INTRODUCTION

The services of Exsics Exploration Limited were retained by Falconbridge Limited to complete several small fill-in grids on a larger grid which had been cut on the Currie-Bowman Option during the summer of 1995. The original grid consisted of 200 meter spaced lines which covered the whole option. This initial grid was then covered by a total field magnetic survey and an HLEM survey. The results of this first program prompted Falconbridge to cut several lines between the existing grid lines to better define weak HLEM anomalies. These new grid were completed during the month of January, 1996 and are called Grids A,B,C and D.

Each of these new lines were then followed-up with an HLEM survey as well as a total field magnetic survey which was tied into the existing surveys.

This report will deal with the results of this new 1996 fill in program on Grid A.

#### PROPERTY LOCATION AND ACCESS

Grid A of the fill-in, 1996, program is located in the southwest section of Currie Township, east of the Little Grindstone Creek and south of the Grindstone River. More specifically it is situated approximately 6 to 7 kilometers south of the Village of Shillington. Shillington is situated on Highway 101, approximately 45 kilometers east of the City of Timmins, Ontario. Currie Township is part of the Larder Lake Mining Division. Figures 1 and 2.

Access to the grid was ideal during the survey period. There is a gravel road running south along the township line between Bond and Currie and in the summer this road would provide drivable access to the west side of the grid. During thw program only a portion of this road was plowed but the grid is easily accessible by skidoo. A good trail running east off of this road parallels the 9200MN baseline and is skidooable to the fill-in lines. Travelling time from Timmins to the site is approximately 1 hour.

#### CLAIM GROUP

The claim numbers which were partially covered by the fill-in program are as follows:

#### L-1201417 L-1201249

Refer to figure 3, copied from the MNDM plan map of Currie Twp.



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| L L L L L L L L L L L L L L L L L L L  | EXSICS EXPLORATION LTD.  |
|  | P.O. Bex 1860, PLN-7X1   |
|  | Suite 13, Hollinger Bldg, Tanaha Ont.<br>Talashana: 705-247-4551   |
|  |  |
|  | CLIENT: FAI CONBRIDGE LIMITED  |
| A A A A A A A A A A A A A A A A A A A  |  |
| IN<br>I  | TITLE  |
|  | UTLE: CURRIE TOWNSHIP PN 8262  |
|  |  |
|  |  |
|  | PROPERTY LOCATION Fig. 2   |
|  | PROPERTY LOCATION         Fig. 2           Date: Jan. 1996         Scale: 1:600,000         MNDM Plan#: 22-6   |
|  | PROPERTY LOCATIONFig. 2Date: Jan. 1996Scale: 1:600,000MNDM Plan#: 22-6Drawn:Interp: J.C. GrantJob No.E-149   |



#### PERSONNEL

The field crew directly responsible for cutting and surveying the grid were as follows.

John derWweduwen..... South Porcupine Bruce Pigeon..... South Porcupine

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

#### GROUND PROGRAM

This program consisted of cutting lines between the existing grid to better define weak HLEM conductors. The new lines to be cut were 10900Me, 11100ME, 11500ME, 11700ME and 11900ME from 9700MN to 9100MN and 8800MN. In all, a total of 5.3 kilometers of new grid were established. The cutting was completed between January 5th and 9th, 1996

The geophysical program consisted of completeing an HLEM survey on the new lines and a detailed total field magnetic survey being completed on the entire grid from lines 10800ME to 12000ME and between 9700MN to 8800MN. In effect, 10.9 kilometers of magnetics were done and 3.5 kilometers of HLEM were done. The survey was completed between January 14th and 15th, 1996.

#### SURVEY PROCEDURE

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 following parameters were kept constant throughout the survey.

| Linespacing         | 100 meters                   |
|---------------------|------------------------------|
| Deadler int         | 20 meters                    |
| Reading interval    | 10 meters                    |
| Diurnal monitor     | base station recorder        |
| Record interval     | 30 seconds                   |
| Reference field     | 57500 gammas                 |
| Datum subtract      | 56900 gammas                 |
| Unit accuracy       | +/- 0.1 gamma                |
| Parameters measured | Earth's total magnetic field |

The collected, corrected and levelled data was then plotted on to a base map at a scale of 1:5000 and contoured at 10 gamma intervals where possible.

A copy of this contoured mag map is included in the back pocket 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.

The following parameters were kept constant throughout the survey.

The collected data was plotted directly onto a base map at a scale of 1:5000, one map for each frequency, and then profiled at lcm=+/-20%. Any and all conductor axis were placed directly onto the base map and interpreted for depth and conductivity where possible. A copy of each profiled frequency is included in the back pocket of this report.

#### SURVEY RESULTS

The HLEM survey outline one moderate conductive zone striking across the grid lines. The zone is interpreted to be at a depth of 75 to 85 meters and with a moderate conductivity of 5 to 6 mhos. The conductor appears to be at the outer limites of the search capabilities of the HLEM survey.

The magnetics suggest that there are a number of cross structure present on the grid. There is two north-south structures paralleling lines 10900ME and the north half of 11800ME. There also appears to be a minor fault structure cross cutting the grid from line 11400ME/9100MN to line 11800ME/9500MN. The only correlation with the HLEM conductor is the mag high bullseye on line 11600ME and the flanking mag high on line 11100ME. The conductor does not appear to have any definite magnetic association.

#### CONCLUSIONS AND RECOMMENDATIONS

The ground program was successful in outlining one weak conductive zone on the grid. Unfortunately, the zone is situated at the maximum penetration capabilities of the survey. The magnetic survey does not appear to enhance the zone.

Should diamond drilling be considered, then the HLEM zone should be followed-up with a deep penetrating survey to better define the zone and to spot a drill hole collar.

Respectfully submitted

J.C.Grant, CET, FGAC January, 1996



#### 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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| namic Range   | <ul> <li>18,000 to 110,000 gammas. Roll-over display feature<br/>SUDDresses first significant digit upon exceeding 100 000.</li> </ul>   |
|---|--|
| Tunina Method   | gamas.   |
| / tomatic Eine Tuning   | developed tuning algorithm   |
|   | $\pm$ 15% relative to ambient field strength of last stored value  |
|   | 0.1 gamma  |
| Cessing Sensitivity   | · ± 0.02 gamma   |
|   | 0.01 gamma   |
|   | <ul> <li>± 1 gamma at 50,000 gammas at 23°C</li> <li>± 2 gamma over total temperature range</li> </ul>   |
| s indard Memory Capacity  |  |
| Tie-Line Points   | 1,200 data blocks or sets of readings     100 data blocks or sets of readings     5 000 data blocks or sets of readings  |
|   | - 5,000 Gald DIUCKS OF SELS OF FEBOINGS  |
|   | Custom designed, ruggedized liquid crystal display with an<br>operating temperature range from -40°C to +55°C. The<br>display contains six numeric digits, decimal point, battery<br>status monitor, signal decay rate and signal amplitude<br>monitor and function descriptors. |
| F 232 Serial I/O Interface  | 2400 baud, 8 data bits, 2 stop bits, no parity   |
|   | 6,000 gammas per meter (field proven)  |
|   | A. Diagnostic testing (data and programmable memory)<br>B. Self Test (hardware)  |
| Sensor  | Optimized miniature design. Magnetic cleanliness is<br>consistent with the specified absolute accuracy.  |
| C adient 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<br>cartridge or belt; rechargeable NiCad or Disposable battery<br>cartridge or belt; or 12V DC power source option for base<br>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                               | 1.2 kg, 235 x 105 x 90mm   |
| NiCad or Alkaline Battery Belt                                      | 1.2 kg. 540 x 100 x 40mm   |
| 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, 56mm diameter x 200mm  |
| Gradient Sensor<br>(0.5 m separation - standard)<br>iradient Sensor | 2.1 kg, 56mm diameter x 790mm  |
| (1.0 m separation · optional)                                       | 22kg Samm dismotory 4700mm   |
| Standard System Complement  | a.2 kg, somm ulameter x isoumm<br>Instrument concole censor, 2 meter cable, aluminum   |
|   | sectional sensor staff, power supply, harness assembly, operations manual.   |
| Base Station Option   | Standard system plus 30 meter cable  |
| Cradiometer 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

Printed in Canada

APPENDIX B

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- J Five frequencies: 222, 444, 888, 1777 and 3555 Hz.
- Maximum coupled (horizontal-loop) operation with reference cable.
- 3 Minimum coupled operation with reference cable.
- J 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.
- 3 Reliable data from depths of up to 180m (600 ft).
- 3 Built-in voice communication circuitry with cable.
- a Tilt meters to control coil orientation.





#### SPECIFICATIONS :

| Frequencies:        | 222, 444, 888, 1777 and 3555 Hz.   | Repeatability:            | ±0.25% to ±1% normally depending   |
|---------------------|--|---------------------------|--|
| Modes of Operation: | MAX: Transmitter coil plane and re-<br>ceiver coil plane horizontal<br>(Max-coupled; Horizontal-loop   | Transmitter Output        | on conditions, frequencies and coil<br>separation used.  |
|                     | mode). Used with refer cable.<br>MIN: Transmitter coil plane horizon-<br>tal and receiver coil plane ver-<br>tical (Min-coupled mode).<br>Used with reference cable. |                           | - 444Hz : 200 Atm <sup>2</sup><br>- 888Hz : 120 Atm <sup>2</sup><br>- 1777Hz : 60 Atm <sup>2</sup><br>- 3555Hz : 30 Atm <sup>2</sup>         |
|                     | V.L.: Transmitter coil plane verti-<br>cal and receiver coil plane hori-<br>zontal (Vertical-loop mode).<br>Used without reference                                   | Receiver Batteries        | : 9V trans. radio type batteries (4).<br>Life: approx. 35hrs. continuous du-<br>ty (alkaline, 0.5 Ah), less in cold<br>weather.              |
| Coil Separations:   | 25,50,100,150,200 & 250m (MMID<br>or 100, 200, 300, 400,600 and  | Transmitter<br>Batteries: | 12V 6Ah Gel-type rechargeable<br>battery. (Charger supplied).  |
|                     | 800 ft. (MMIF).<br>Coil separations in VL.mode not re-<br>stricted to fixed values.  | Reference Cable :         | Light weight 2-conductor teflon<br>cable for minimum friction. Unshield-<br>ed. All reference cables optional                                |
| Parameters Read:    | - In-Phase and Guadrature compo-<br>nents of the secondary field in<br>MAX and MIN modes.  | Voice Link:               | at extra cost. Please specify.<br>Built-in intercom system for   |
|                     | - Tilt-angle of the total field in V.L.<br>mode .  |                           | voice communication between re-<br>ceiver and transmitter operators<br>in MAX and MIN modes, via re-<br>ference, cable                       |
| Headouts:           | - Automatic, direct readout on<br>90mm (3.5") edgewise meters<br>in MAX and MIN modes. No null-<br>ing or compensation necessary.                                    | Indicator Lights:         | Built-in signal and reference warn-<br>ing lights to indicate erroneous<br>readings.   |
|                     | <ul> <li>Tilt angle and null in 90mm edge-<br/>wise meters in V.L.mode.</li> </ul>   | Temperature Range:        | -40°C to+60°C (-40°F to+140°F).  |
| Scale Ranges:       | In-Phase: ±20%.±100% by push-  | Receiver Weight:          | 6kg (13 lbs.)  |
|                     | Guadrature: ±20%, ±100% by push-   | Transmitter Weight:       | 13kg (29 lbs.)   |
|                     | Tilt: ±75% slope.<br>Null(VL): Sensitivity adjustable<br>by separation switch.   | Shipping Weight:          | Typically 60kg (135 lbs.), depend-<br>ing on quantities of reference<br>cable and batteries included.<br>Shipped in two field/shipping resea |
| Readability:        | In-Phase and Guadrature: 0.25 %<br>to 0.5 % ; Tilt: 1% .   | Specifications subject    | t to change without notification   |



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GEOPHYSICAL REPORT FOR FALCONBRIDGE LIMITED ON THE CURRIE-BOWMAN OPTION GRID B, FILL-IN, CURRIE TOWNSHIP LARDER LAKE MINING DIVISION NORTHEASTERN ONTARIO



PREPARED BY: J.C.Grant, CET, FGAC January, 1996





# TABLE OF CONTENTS

020C

|   | PAGE         |
|---|--------------|
| INTRODUCTION  | . 1          |
| PROPERTY LOCATION AND ACCESS  | . 1          |
| CLAIM GROUP   | . 1          |
| PERSONNEL   | . 2          |
| GROUND PROGRAM  | . 2          |
| SURVEY PROCEDURE  | . 2,3        |
| SURVEY RESULTS  | . 3          |
| CONCLUSIONS AND RECOMMENDATIONS   | 4            |
| CERTIFICATE   |              |
| APPENDICIES: A: BRGM OMNI IV SYSTEM<br>B: APEX PARAMETERICS, MAXMIN II SYS                                | 5 <b>TEM</b> |
| LIST OF FIGURES: FIGURE 1. LOCATION MAP<br>FIGURE 2. PROPERTY LOCATION MAN<br>FIGURE 3. CLAIM MAP, GRID A | ?            |
| POCKET MAPS: CONTOURED MAGNETIC MAP<br>PROFILED 1777HZ FREQUENCY<br>PROFILED 444HZ FREQUENCY              |              |

#### INTRODUCTION

The services of Exsics Exploration Limited were retained by Falconbridge Limited to complete several small fill-in grids on a larger grid which had been cut on the Currie-Bowman Option during the summer of 1995. The original grid consisted of 200 meter spaced lines which covered the whole option. This initial grid was then covered by a total field magnetic survey and an HLEM survey. The results of this first program prompted Falconbridge to cut several lines between the existing grid lines to better define weak HLEM anomalies. These new grid were completed during the month of January, 1996 and are called Grids A,B,C and D.

Each of these new lines were then followed-up with an HLEM survey as well as a total field magnetic survey which was tied into the existing surveys.

This report will deal with the results of this new 1996 fill in program on Grid B.

#### PROPERTY LOCATION AND ACCESS

Grid B of the fill-in, 1996, program is located in the south section of Currie Township, immediately east of Grindstone Creek and south of Grassy Lake. A portion of Gridstone Creek crosses the south section of the grid. More specifically it is situated approximately 6 to 7 kilometers southeast of the Village of Shillington. Shillington is situated on Highway 101, approximately 45 kilometers east of the City of Timmins, Ontario. Currie Township is part of the Larder Lake Mining Division. Figures 1 and 2.

Access to the grid was ideal during the survey period. There is a good all weather, gravel road running south along the boundary line between lots 8 and 9 of Currie which comes to within 300 meters of the north boundary of the grid and tieline 10400MN. A good trail running south off of this road parallels line 13200MN. Travelling time from Timmins to the site is approximately 1 hour.

#### CLAIM GROUP

The claim numbers which were partially covered by the fill-in program are as follows:

#### L-1198869

Refer to figure 3, copied from the MNDM plan map of Currie Twp.



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| Montree BBS  |
| ORGUAN REID CARNEGIE PROSSER TULLY KING Ansony The Anso |
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| House 919 House Sources 930  |
| Haltmoon Bigwater 5.1 Pund iller L. Shall Gages Pund iller L. Shall Gages  |
| Stort TIMMINS  |
| New PROPERTY Mathesin  |
| Palley Alangami Pallon Mines 1907  |
| Incential Provide Land Control |
| 1025 ALLIKE ALLIKE   |
| Sharan Barn Barn Barn Barn Barn Barn Barn  |
|  |
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| ETT EMERALD SAURSEY A SATEMAN I HALLBAY REVOICE A MATACHEVIAN ID SATEMAN AND ANIOSON   |
|  |
| P.O. Bex 1980, PGH-7X1   |
| Satre 13, Holunger Diag, Limmuns UNF.<br>Telephone: 705-207-4151   |
| CLIENT: FALCONBRIDGE LIMITED   |
| N PROPERTY: CURRIE - BOWMAN OPTION   |
| TITLE: CURRIE TOWNSHIP PN 8262   |
| PROPERTY LOCATION Fin 2  |
| Date: Jan. 1996 Scale: 1:600,000 MNDM Pion#: 22-6  |
| Drawn: Interp: J.C. Grant Job No.E-149   |



#### PERSONNEL

The field crew directly responsible for cutting and surveying the grid were as follows.

John derWweduwen..... South Porcupine Bruce Pigeon..... South Porcupine

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

#### GROUND PROGRAM

This program consisted of cutting lines between the existing grid to better define weak HLEM conductors. The new lines to be cut were 12800ME, 12900ME, 13100ME, and 13300ME from 10400MN to 9600MN. In all, a total of 4.2 kilometers of new grid were established. The cutting was completed between January 9th and 12th, 1996

The geophysical program consisted of completeing an HLEM survey on the new lines and a detailed total field magnetic survey being completed on the entire grid from lines 12800ME to 13400ME and between 10400MN to 9600MN. In effect, 7.7 kilometers of magnetics were done and 3.5 kilometers of HLEM were done. The survey was completed between January 17th and 18th, 1996.

#### SURVEY PROCEDURE

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 following parameters were kept constant throughout the survey.

| Linespacing         | 100 meters                   |
|---------------------|------------------------------|
| Station spacing     | 20 meters                    |
| Reading interval    | 10 meters                    |
| Diurnal monitor     | base station recorder        |
| Record interval     | 30 seconds                   |
| Reference field     | 57500 gammas                 |
| Datum subtract      | 56900 gammas                 |
| Unit accuracy       | t/-0.1 gamma                 |
| Parameters measured | Earth's total magnetic field |
|                     |                              |

The collected, corrected and levelled data was then plotted on to a base map at a scale of 1:5000 and contoured at 10 gamma intervals where possible. A copy of this contoured mag map is included in the back pocket 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.

The following parameters were kept constant throughout the survey.

The collected data was plotted directly onto a base map at a scale of 1:5000, one map for each frequency, and then profiled at lcm=+/-20%. Any and all conductor axis were placed directly onto the base map and interpreted for depth and conductivity where possible. A copy of each profiled frequency is included in the back pocket of this report.

#### SURVEY RESULTS

The HLEM survey outline one moderate to weak conductive zone striking across the grid lines. The zone is interpreted to be at a depth of 60 to 72 meters and with a moderate conductivity of 3 to 8 mhos. The conductor appears to be within the limites of the search capabilities of the HLEM survey.

The magnetics suggest that the zone has a moderate magnetic low association with most of it's strike length. The zone does appear to follow the strike of the underlaing structure as mapped by the magnetics. The magnetics also outlined a good magnetic high unit striking parallel to the EM zone but to the south. This may represent mafic flow material or a pssible contact zone.

CONCLUSIONS AND RECOMMENDATIONS

The ground program was successful in outlining one weak conductive zone on the grid. The magnetic survey suggest that the zone correlates to a low flanked by two moderate to strong highs. This may suggest the zone relates to a contact zone with associated sulphide stringers.

Should diamond drilling be considered, then the HLEM zone should be followed-up with a deep penetrating survey to better define the zone and to spot a drill hole collar.



#### 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

# 



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**

| Dipoles H Sterimultaneau                                     |                             |
|--|-----------------------------|
| Input Voltage (Vp) Range Standard Dust                       | les.                        |
| Standard: - 8 volt maximu                                    | m for each dipole           |
| maximum sum  | of 12 volts from the        |
| Additional Setting   | sixth dipole.               |
| - attenuation of   |                             |
|  | up to 40 volts on the       |
| Input Voltage Protection Up to 1000 volts                    |                             |
| Vp Resolution  |                             |
| Vp Accuracy 0.3% typical: maximum 1%                         | Over temporatura reales     |
| Chargeability Resolution 1 millivolt/volt for Vo greate      | er than 10 millionte range. |
| 0.1 millivolt/volt for Vp great                              | ter than 100 millivolts.    |
| Chargeability Accuracy 0.6% typical: maximum 2%              | for Vn greater than         |
| Automatic CD Competition 10 millivolts over temperatu        |                             |
| Automatic SP compensation $\pm 1$ volt with linear drift cor | rection un to               |
| 1 millivolt/second.  |                             |
| Sample Pate  |                             |
| Automatic Steeling   |                             |
| Synchronization  |                             |
| Peiestion Filter   | vel of 40 microvolts        |
| Rejection Filters  | ction greater than          |
| 100 dB.  |                             |
| Compatible Transmitter                                       |                             |
| Any time domain waveform                                     | transmitter with a pulse    |
| duration of 1, 2, 4 or 8 secon                               | ds and a crystal timing     |
| Programmable Paramotors Stability of 100 ppm.                | i i foto cirinig            |
| Geometric parameters, time                                   | parameter, intensity of     |
| Current, type of array, line ar                              | d station number, dipole    |
| Display Two line to the                                      | lay time (mode 2).          |
| display protocological                                       | umeric liquid crystal       |
| temperature conditions                                       | nal heater for low          |
| Memory Capacity 1800 sets of readings                        |                             |
| RS-232C Serial VO Interface 300 to 19 200 baud acts 7        |                             |
| bits odd even no parity                                      | 8 data bits; 1 or 2 stop    |
| Console Power Supply   |                             |
| Save feature 20 hours of one                                 | eries with auto power       |
| Operating Environmental Range - 40°C to + 60°C 0 to 400%     | ration at 20°C.             |
| weatherproof   | relative humidity;          |
| Weight and Dimensions 8.5 kg. (with batteries) 300 y         | 200 × 240                   |
| Standard System Complement                                   | 200 X 240 mm                |
| transfer cable and operations                                | manual manual               |
| Displayed Parameters Primary voltage partial and the         | manual.                     |
| chargeabilities, running and c                               |                             |
| total chargeabilities (in fixed n                            | andiative average of        |
| deviation of primary voltage a                               | ind total chargeshility     |
| self potential, number of cycle                              | s, dipole being             |
| Available Options measured and contact resista               | nce.                        |
| Stainless steel transmitting ele                             | ctrodes, copper             |
| sulphate receiving electrodes,                               | alligator clips, bridge     |
| reads, multi dipole wire cable, v                            | vire spools and software    |
| programs,  | · · · · · ·                 |

EDA Instruments Inc. 4 Thorncliffe Park Drive Toronto, Ontario Canada M4H 1H1 Telex 06 23222 EDA TOR Cable EDAINSTRMTS TORONTO Telephone (416) 425 7800 Fax: (416) 425 8135

In USA EDA Instruments Inc 9200 E. Mineral Avenue Suite 370 Englewood, Colorado, U.S.A. 80112 Telephone (303) 790 2541 Fax: (303) 790 2902

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 180m (600 ft).
- Built-in voice communication circuitry with cable.

I

Tilt meters to control coil orientation.





#### SPECIFICATIONS :

| Frequencies:        | 222, 444, 888, 1777 and 3555 Hz.  | Repeatability:         | ±0.25% to ±1% normally, depending  |
|---------------------|---|------------------------|--|
| Modes of Operation: | MAX: Transmitter coil plane and re-<br>ceiver coil plane horizontal<br>(Max-coupled; Horizontal-loop<br>methol   bed; Horizontal-loop                             | Transmitter Output     | separation used.   |
|                     | MIN: Transmitter coil plane horizon-<br>tal and receiver coil plane ver-<br>tical (Min-coupled mode).   |                        | - 444Hz : 200 Atm <sup>2</sup><br>- 888Hz : 120 Atm <sup>2</sup><br>- 1777Hz : 60 Atm <sup>2</sup><br>- 3555Hz : 30 Atm <sup>2</sup>         |
|                     | Used with reference cable.<br>V.L. : Transmitter coil plane verti-<br>cal and receiver coil plane hori-<br>zontal (Vertical-loop mode).<br>Used without reference | Receiver Batteries     | 9V trans. radio type batteries (4).<br>Life: approx. 35hrs. continuous du-<br>ty (alkaline, 0.5 Ah), less in cold<br>weather.                |
|                     | cable, in parallel lines.   | Transmitter            |  |
| Coil Separations:   | 25,50,100,150,200 & 250m (MMID<br>or 100, 200, 300, 400,600 and   | Batteries:             | 12V 6Ah Gel-type rechargeable<br>battery. (Charger supplied).  |
|                     | BOU ft. (MMIF).<br>Coil separations in VL.mode not re-<br>stricted to fixed values.   | Reference Cable :      | Light weight 2-conductor teflon<br>cable for minimum friction. Unshield-<br>ed. All reference cables optional                                |
| Parameters Read:    | <ul> <li>In-Phase and Quadrature compo-<br/>nents of the secondary field in<br/>MAX and MIN modes.</li> </ul>   | Voice Link:            | at extra cost. Please specify.<br>Built-in intercom system for   |
| _                   | - Tilt-angle of the total field in V.L.<br>mode   |                        | voice communication between re-<br>ceiver and transmitter operators<br>in MAX and MIN modes, via re-<br>ference cable.                       |
| Readouts:           | - Automatic, direct readout on<br>90mm (3.5") edgewise meters<br>in MAX and MIN modes. No null-<br>ing or compensation necessary.                                 | Indicator Lights:      | Built-in signal and reference wam-<br>ing lights to indicate erroneous<br>readings.  |
|                     | - Tilt angle and null in 90mm edge-<br>wise meters in V.L.mode.   | Temperature Range:     | -40°C to +60°C (-40°F to +140°F).  |
| Scale Ranges:       | In-Phase: ±20%,±100% by push-   | Receiver Weight:       | 6kg (13 lbs.)  |
|                     | Guadrature: ±20%, ±100% by push-  | Transmitter Weight:    | 13kg (29 lbs.)   |
|                     | Tilt: ±75% slope.<br>Null (VL): Sensitivity adjustable<br>by separation switch.   | Shipping Weight:       | Typically 60kg (135 lbs.), depend-<br>ing on quantities of reference<br>cable and batteries included.<br>Shipped in two field/shipping cases |
| Readability:        | In-Phase and Quadrature:0.25 %<br>to 0.5 % ; Tilt: 1% .   | Specifications subject | t to change without notification   |

# APEX PARAMETRICS LIMITED 200 STEELCASE RD. E., MARKHAM, ONT., CANADA, LOR 162

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030

GEOPHYSICAL REPORT FOR FALCONBRIDGE LIMITED ON THE CURRIE-BOWMAN OPTION GRID C, FILL-IN, CURRIE TOWNSHIP LARDER LAKE MINING DIVISION NORTHEASTERN ONTARIO

# 2.16532



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



## TABLE OF CONTENTS

030C

| INTRODUCTION 1  |  |  |  |  |
|---|--|--|--|--|
| PROPERTY LOCATION AND ACCESS 1  |  |  |  |  |
| CLAIM GROUP 1   |  |  |  |  |
| PERSONNEL 2   |  |  |  |  |
| GROUND PROGRAM 2  |  |  |  |  |
| SURVEY PROCEDURE 2,3  |  |  |  |  |
| SURVEY RESULTS  |  |  |  |  |
| CONCLUSIONS AND RECOMMENDATIONS 4   |  |  |  |  |
| CERTIFICATE   |  |  |  |  |
| APPENDICIES: A: BRGM OMNI IV SYSTEM<br>B: APEX PARAMETERICS, MAXMIN II SYSTEM<br>C: CRONE, PEM MOVING COIL SYSTEM |  |  |  |  |
| LIST OF FIGURES: FIGURE 1. LOCATION MAP<br>FIGURE 2. PROPERTY LOCATION MAP<br>FIGURE 3. CLAIM MAP, GRID A         |  |  |  |  |
| POCKET MAPS: CONTOURED MAGNETIC MAP<br>PROFILED 1777HZ FREQUENCY<br>PROFILED 444HZ FREQUENCY<br>PEM PROFILE MAPS  |  |  |  |  |

#### INTRODUCTION

The services of Exsics Exploration Limited were retained by Falconbridge Limited to complete several small fill-in grids on a larger grid which had been cut on the Currie-Bowman Option during the summer of 1995. The original grid consisted of 200 meter spaced lines which covered the whole option. This initial grid was then covered by a total field magnetic survey and an HLEM survey. The results of this first program prompted Falconbridge to cut several lines between the existing grid lines to better define weak HLEM anomalies. These new grids were completed during the months of January and February, 1996 and are called Grids A,B,C and D.

Each of these new lines were then followed-up with an HLEM survey as well as a total field magnetic survey which was tied into the existing surveys. Several lines were also read with the Crone PEM, moving coil system for a better depth penetration in the event the fill in grid coverage was not seeing deep enough.

This report will deal with the results of this new 1996 fill in program on Grid C.

#### PROPERTY LOCATION AND ACCESS

Grid C of the fill-in, 1996, program is located in the central section of Currie Township, immediately west of Watabeag Creek and south of Grassy Lake. More specifically it generaly covers the central portion of Lot 6, Concession III of the Township of Currie and spills over into a portion of Lot 5. The entire grid is situated approximately 6 to 7 kilometers southeast of the Village of Shillington. Shillington is situated on Highway 101, approximately 45 kilometers east of the City of Timmins, Ontario. Currie Township is part of the Larder Lake Mining Division. Figures 1 and 2.

Access to the grid was ideal during the survey period. There is a good all weather, gravel road running south along the boundary line between lots 4 and 5 of Currie which comes to within 1000 meters of the north boundary of the grid and tieline 10400MN. A good trail running south along line 15600ME allows skidoo access to the eastern boundary of the grid. Travelling time from Timmins to the site is approximately 1.5 hours.

#### CLAIM GROUP

The claim numbers which were partially covered by the fill-in program are as follows:

L-866721, L-866722, L-866723, L-866724, L-1201084, L-1201418 Refer to figure 3, copied from the MNDM plan map of Currie Twp.


|  | - I Straik - VINore  | abeea Stimson   |
|--|--|---|
|  |  | NE Withington Burger L  |
| Reaume   | HANNA EL SI JOHN -   | Arpin MORTIMER SHERRIG MARAIHUN Kurte<br>Doucting L   |
| ARY MAHAFFY CRAWFORD   | ree<br>Dids<br>Inatango Fa   | Buckdeer<br>Rabos<br>UNORA It NUMERIC WESLEY  |
| Fairs  | New Market 2   |   |
| DRBURN REID CARNEGIE. PROSSER TURLY  | HI<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U  | Montrock 885<br>TEEFY R/II  |
| Nerandeau Li   | Fredericki, S  | Ogragon<br>9400   |
| The Chised   | House Fielding   | Iroquois Falls  |
| Hallmann   | Barbers Barber | 0 Wardea  |
| skona<br>ona TIMMINS   | swal 11 - 5 Junit at Lity  | 928 - Punk dier L - Show Centre<br>Hd.<br>KES (- Watakean G Fails - Hd.   |
| skerte<br>Hill<br>Saltin Vit. Janbersen  | Nigrit Hawk Samannuk Ca  | rid L PROPERTY  |
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| BEIN GOUIN MUMER SEMPLE  | Charleson  | Old Woman<br>Mindailan Raada  |
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| TIN EMERALD SURSEY LASATHMAN 4 HALLIDAY  | Anothing L - MATACHEW  | WIRLISON  |
|  | E E  |   |
|  | <b>{</b> L}}   | C. Bez 1980, PLN-7X1<br>#Pe 13, Hollinger Bidg, Timmins Ont.  |
|  |  | septene: 705-267-4151   |
| <b>₽</b><br>N  |  | RIE - ROWMAN OBTION   |
|  | TITLE: CUF   | RE TOWNSHIP PN 8262   |
|  | PROPE  | ERTY LOCATION Fin 2   |
|  | Date: Jan. 1996  | Scale: 1:600,000 MNDM Plan#: 22-6   |
|  | Drawn:   | Interp: J.C. Grant Job No.E-149   |



PERSONNEL

The field crew directly responsible for cutting and surveying the grid were as follows.

> John derWweduwen..... South Porcupine Bruce Pigeon..... South Porcupine Raymond Collin.... Timmins, Ontario Roly Collins..... Timmins, Ontario Norm Collins..... Timmins, Ontario John Grant..... Timmins, Ontario

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

#### GROUND PROGRAM

This program consisted of cutting lines between the existing grid to better define weak HLEM conductors. The new lines to be cut were 15100ME, 15300ME, 15500ME, and 15700ME from 10400MN to 9600MN. In all, a total of 4.5 kilometers of new grid were established. The cutting was completed between February 9th and 16th, 1996

The geophysical program consisted of completeing an HLEM survey on the new lines and a detailed total field magnetic survey being completed on the entire grid from lines 15000ME to 15800ME and between 10400MN to 9600MN. In effect, 8.6 kilometers of magnetics were done and 3.1 kilometers of HLEM were done. The survey was completed between February 17th and 18th, 1996.

The moving coil PEM survey was completed on lines 15300, 15400 and 15500ME.

#### SURVEY PROCEDURE

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 following parameters were kept constant throughout the survey.

| Linespacing         | 100 meters                   |
|---------------------|------------------------------|
| Station spacing     | 20 meters                    |
| Reading interval    | 10 meters                    |
| Diurnal monitor     | base station recorder        |
| Record interval     | 30 seconds                   |
| Reference field     | 57500 gammas                 |
| Datum subtract      | 56900 gammas                 |
| Unit accuracy       | +/- 0.1 gamma                |
| Parameters measured | Earth's total magnetic field |

Page 2

#### Page 3

The collected, corrected and levelled data was then plotted on to a base map at a scale of 1:5000 and contoured at 10 gamma intervals where possible.

A copy of this contoured mag map is included in the back pocket 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.

The following parameters were kept constant throughout the survey.

The collected data was plotted directly onto a base map at a scale of 1:5000, one map for each frequency, and then profiled at lcm=+/-20%. Any and all conductor axis were placed directly onto the base map and interpreted for depth and conductivity where possible. A copy of each profiled frequency is included in the back pocket of this report.

The PEM survey was completed using the Crone PEM system. Specifications for the unit can be found as Appendix C of this report. The following parameters were kept constant throughout the survey.

| Linespacing               | 100 meters                       |
|---------------------------|----------------------------------|
| Station spacing           | 20 meters                        |
| Reading inteval           | 20, 40 meters                    |
| Coil seperation           | 180-200 meters                   |
| Theoretical search depth. | 120-160 meters                   |
| Parameters measured       | 8 samples of the secondary field |
| Unit accuracy             | +/- 0.5 percent                  |
| Time base                 | lOms                             |
| Syncranization            | Radio link                       |

#### SURVEY RESULTS

The HLEM survey was not successful in locating our outlining any definite bedrock conductor. A weak questionable zone was noted on line 15100ME at 9969MN which appears to continue off of the grid to the west. Further work would be required to better define the source of the zone.

### Page 4

The magnetic survey suggest the weak zone is on the south flank of a broad weak magnetic high. The survey also outlined a north-south structure generally paralleling line 15400ME which may suggest there is a dike like feature crosscutting the grid. The magnetic high unit covering the south portion of the grid may relate to the metavolcanics and felsic contact.

The PEM survey did not seem to outline any additional conductive zones on the grid. A weak questionable and deep zone was noted on line 15300ME at 9940MN with a conductivity of 3 mhos. This may relate to the western edge of the cross structure or may relate to the eastern extension of the weak HLEM zone noted on line 15100ME. Further testing may be required to better define the zone.

### CONCLUSIONS AND RECOMMENDATIONS

The ground surveys were not successful in outlining any good bedrock conductors. The two zones outlined by the HLEM and PEM surveys would require further follow-up work to better define their sources.

The magnetics did outline the suspected geological strike of the grid as well as outline a good north-south cross structure which may by dike related.

Should a follow-up program be contemplated then a Deep penetrating type survey should be considered and be concentrated on the weak conductive zones noted.

Respectfully submitted

J.C.Grant, CET, FGAC January, 1996



#### 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

•





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**

| r namic Range                   | 18,000 to 110,000 gammas. Roll-over display feature suppresses first significant digit upon exceeding 100,000 gammas.  |
|---------------------------------|--|
|                                 | <ul> <li>Tuning value is calculated accurately utilizing a specially<br/>developed tuning algorithm</li> </ul>   |
| / tomatic Fine Tuning           | $\pm$ 15% relative to ambient field strength of last stored value  |
| Display Resolution              | 0.1 gamma  |
| Corressing Sensitivity          | + 0.02 gamma   |
| S itistical Error Resolution    | 0.01 gamma   |
| Absolute Accuracy               | ± 1 gamma at 50,000 gammas at 23°C<br>± 2 gamma over total temperature range   |
| S INDARD Memory Capacity        |  |
| Tie-Line Points<br>Base Station | <ul> <li>1,200 data blocks or sets of readings</li> <li>100 data blocks or sets of readings</li> <li>5,000 data blocks or sets of readings</li> </ul>  |
| <b>C</b> play                   | Custom-designed iniquedized liquid coastal display with an   |
|                                 | operating temperature range from -40°C to +55°C. The<br>display contains six numeric digits, decimal point, battery<br>status monitor, signal decay rate and signal amplitude<br>monitor and function descriptors. |
| R 232 Serial I/O Interface      | 2400 baud, 8 data bits, 2 stop bits, no parity   |
|                                 | 6,000 gammas per meter (field proven)  |
|                                 | A. Diagnostic testing (data and programmable memory)<br>B. Self Test (hardware)  |
| Sc. ISOF                        | • Optimized miniature design. Magnetic cleanliness is consistent with the specified absolute accuracy.   |
| C <sup></sup> ndient Sensors    | 0.5 meter sensor separation (standard), normalized to<br>gammas/meter. Optional 1.0 meter sensor separation<br>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   |
| P ver supply                    | Non-magnetic rechargeable sealed lead-acid battery<br>cartridge or belt; rechargeable NiCad or Disposable battery<br>cartridge or belt; or 12V DC power source option for base<br>station operation.               |
| B 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          |  |
|                                 | 2.8 kg, 238 x 150 x 250mm  |
|                                 | 1.2 kg, 235 x 105 x 90mm   |
|                                 | 1.2 kg, 540 x 100 x 40mm   |
|                                 | 1.8 kg, 235 x 105 x 90mm   |
|                                 | 1.8 kg, 540 x 100 x 40mm   |
| Gradient Sensor                 | 1.2 kg, somm diameter x 200mm  |
| radient Sensor                  | 2.3 kg, somm diameter x 790mm  |
|                                 | 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  |
|                                 | 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

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. Tilt meters to control coil orientation.





#### 

| Fritriggt 1 ga  | 222, 444, 888, 1777 and 3555 Hz.  |  | ±0.25% to ±1% normally, depending<br>on conditions, frequencies and coil   |
|---|---|--|--|
| inti di secondo de la composición de la | MAX: Transmitter coil plane and re-<br>ceiver coil plane horizontal                             |  | separation used.   |
|   | (Max-coupled; Horizontal-loop<br>mode). Used with refer.cable.                                  | •  | - 222Hz : 220 Atm <sup>2</sup><br>- 444Hz : 200 Atm <sup>2</sup>   |
|   | MIN: Transmitter coil plane honzon-   |  | - 868Hz : 120Atm <sup>2</sup><br>- 1777Hz : 60Atm <sup>2</sup>   |
|   | tical (Min-coupled mode).   |  | - 3555Hz : 30Atm <sup>2</sup>  |
|   | V.L. : Transmitter coilplane venti-   |  | 9V trans. radio type batteries (4).<br>Life: approx. 35hrs. continuous du-   |
|   | cal and receiver coil plane hori-<br>zontal (Vertical-loop-mode).<br>Used-without-reference     |  | ty (alkaline, 0.5 Ah), less in cold weather.   |
|   | cable, in parallel lines.   | ••   |  |
|   |   | - + 1  | 12V 6Ah Gel-type rechargeable  |
|   | es. 50, 100, 150, 200 & 250m (MMI)<br>or 100, 200, 300, 400, 600 and                            |  | battery. (Charger supplied).   |
|   | Coil separations in VL.mode not re-   |  | Light weight 2-conductor teflon<br>cable for minimum friction. Unshield-   |
|   | stricted to fixed values.   |  | ed. All reference cables optional at extra cost. Please specify.   |
| Partinizant Pesti   | - In-Phase and Quadrature compo-  |  |  |
|   | MAX and MIN modes.  |  | Built-in intercom system for voice communication between re-   |
|   | - Tilt-angle of the total field in V.L.<br>mode .   |  | ceiver and transmitter operators<br>in MAX and MIN modes, via re-<br>ference cable.  |
| £задацья.   | - Automatic, direct readout on<br>90mm (3.5") edgewise meters<br>in MAX and MIN modes. No null- | nu icin u pria   | Built-in signal and reference warn-<br>ing lights to indicate erroneous  |
|   | ing or compensation necessary.  |  | reduigs.   |
|   | - Tilt angle and null in 90 mm edge-<br>wise meters in V.L.mode.                                | ter per contra l'orrege  | $-40^{\circ}C$ to $+60^{\circ}C$ ( $-40^{\circ}F$ to $+140^{\circ}F$ ).  |
| <b>Дос</b> на (Ралди)   | In Phase: \$20%, \$100% by push-  | Rozanni (alt   | 6kg (13 lbs.)  |
|   | Quadrature: ±20%, ±100% by push-  | innegen totte i al ita   | 13kg (29 lbs.)   |
|   | Tilt: ±75% slope  | lhome yra:   | Typically 60kg (135 lbs.), depend-   |
|   | Null (VL): Sensitivity adjustable   |  | ing on quantities of reference   |
|   | by separation switch.   |  | Shipped in two field/shipping cases.   |
| Rogula I. (F)   | In-Phase and Quadrature: 0.25 %<br>to 0.5 % ; Tilt: 1%.   | Specifications subject   | ct to change without notification  |
|   |   | andra in the second second<br>Second second second<br>Second second | na en la companya de la companya de<br>La companya de la comp |
|   | 200 STEELCASE R   | D.E. MARKHAM, C  | DNT. CANADA LOR 162  |
| Phone: (416   | ) 495-1612 Cables: APEXPARA T   | DRONTC Telex :   | 06-966773 NORDVIK TOR  |

APPENDIX C

-





3607 WOLFEDALE ROAD, MISSISSAUGA, ONTARIO, CANADA, L5C 1V8

Phone: (416) 270-0096 TELEX: 06-961260 AUSTRALIA OFFICE: 244 Newbridge Road, MOOREBANK, N.S.W. 2170.

Phone: (02) 602-0937 TELEX: 71-22922





## FLEXIBILITY:

The equipment is not restricted to a fixed method. Since it is a Time Domain Method there are no rigid geometrical restrictions as to coil configurations. The transmit coil energizes — as small or large horizontal loops or a vertical loop. The receive coil measures — all three components of the secondary fields if required. The wide frequency spectrum discriminates between zones of varying conductivity. With minor modifications the equipment has borehole capabilities to a depth of 300 meters.

## **INTERPRETATION:**

The equipment is capable of measuring all 3 components of the secondary fields. This information can be translated into accurate estimates of the shape and position of the conductors. The method of direct plotting of induced current paths at different frequencies is a very effective interpretative method that can be performed in the field. A complete study of borehole response curves is available, (D. Wood's Thesis).

TRANSMITTER

# **PEM SPECIFICATIONS**

#### **TRANSMITTER:**

Transmit Control: 37x25x21cm, Weight: 11kg (23 lbs)

- Output Voltage: 24 volt, maximum output current 20 amps
- Output Waveform: Switch selectable timebase of "10ms" or "20ms" with "10ms" timebase current on 10.8ms, ramp shut off for 1.4ms, current off 9.4ms reversing continuous waveform. With "20ms" timebase current on and off times are doubled.
- Input Power from 2 of 12 volt rechargeable batteries. Standard equipment uses 2 of 12 volt, 20 amp hour Globe gel cells in an aluminum case that can be mounted on a packframe. Weight 18.1 kg (40 lbs) Optional Equipment lightweight powerpack 4 of 6 volt, 8 amp hour rechargeable gel cells, Weight 9 kg (20 lbs). Motor generator for continuous operation "DEEPEM" or Borehote EM, packframe mounted 3 HP, 4 cycle gasoline engine and 24 volt generator. Total weight 18 kg (40 lbs).
- Timing controls by radio and /or cable to receiver. Cable standard length 100M.
- Control box dimensions: 20.5cm x 25.5cm x 36.5cm. Weight 10 kg (22 lbs).
- Transmit Loop: Variable in size and number of turns from standard 6 and 9 meter diameter aluminum loops to breakable loop 9 meters in diameter and single turn 100 meter square (or 400x400 feet square) for DEEPEM and Borehole capabilities. All loops have approximately 1 Ohm resistance and a weight of 15 kg (30 lbs).
- Battery Chargers: 2 of modified Gel cell chargers 14.4 volts, initial charge current 3 to 4 amps, 110 volts or optional 220 volt supply 50-60Hz.
- Vertical Loop Mast: Optional extra 5 pieces tubular aluminum 9 meters high. Weight 6 kg.
- High powered transmitters (24 volts, 80 amps) are available upon request.

#### **HECEIVER:**

eceiver Coil: Ferrite core antenna with preamplifier, mounted on a tripod. Dimensions: Height 63 cm, uiameter 11 cm, weight 7 kg (16 lbs). Preamplifier power supply 2 of 9 volt batteries, vertical and horizontal levels are mounted on the coil.

eceiver Measuring Unit. Dimensions: 28 cm x 27 cm x 18 cm; weight 7 kg (16 lbs). Measurements on "10ms" time base. — Primary pulse: -100 to 0  $\mu$  sec., mid point — 50  $\mu$  s, position variable by means of a 10 turn pot — used to set zero time position at peak primary pulse. Primary pulse sample is usually set at 1000" by means of variable gain pot.

Eight samples of secondary field: (1) 100 to 200  $\mu$ s middle point 150  $\mu$ s (2) 200 to 400  $\mu$ s middle point 300  $\mu$ s (3) 400 to 700  $\mu$ s middle point 550  $\mu$ s (4) 700 to 1100  $\mu$ s middle point 900  $\mu$ s (5) 1100 to 1800  $\mu$ s middle point 1450  $\mu$ s (6) 1800 to 3000  $\mu$ s middle point 2400  $\mu$ s (7) 3000 to 5000  $\mu$ s middle point 4000  $\mu$ s (8) 5000 to 7800  $\mu$ s middle point 6400  $\mu$ s

Sample times can be doubled by switching to "20ms" time base. Receiver voltages are integrated over sample width and automatically stored and averaged over a 11 second period. Samples can also be read ontinuously.

| S <u>HI</u> | PPING: All instruments packed in foam lined wood boxes.       | Shipping Weight   |
|-------------|---|-------------------|
| )           | Box Receiver unit   | Shipping Weight   |
| (2)         | Box Transmitter unit  | 14.5 kb ( 32 lbs) |
| (3)         | Box Battery unit  | 20 kg ( 45 lbs)   |
| ì           | Box Beceive Coll  | 28 kg ( 61 lbs)   |
| 3           | Box Transmit Coll neel/former but an an an an                 | 16 kg ( 36 lbs    |
| . 4         | box transmit Coll, packframe, battery, chargers, timing cable | 36 kg ( 80 lbs ;  |

Total approximate shipping weight:

114.5 kg (254 lbs)



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GEOPHYSICAL REPORT FOR FALCONBRIDGE LIMITED ON THE CURRIE-BOWMAN OPTION GRID D, FILL-IN, CURRIE TOWNSHIP LARDER LAKE MINING DIVISION NORTHEASTERN ONTARIO

2.16532





TABLE OF CONTENTS

PAGE

| INTRODUCTION 1  |
|---|
| PROPERTY LOCATION AND ACCESS 1  |
| CLAIM GROUP 1   |
| PERSONNEL 2   |
| GROUND PROGRAM 2  |
| SURVEY PROCEDURE 2,3  |
| SURVEY RESULTS  |
| CONCLUSIONS AND RECOMMENDATIONS 4   |
| CERTIFICATE   |
| APPENDICIES: A: BRGM OMNI IV SYSTEM<br>B: APEX PARAMETERICS, MAXMIN II SYSTEM<br>C: CRONE, PEM MOVING COIL SYSTEM |
| LIST OF FIGURES: FIGURE 1. LOCATION MAP<br>FIGURE 2. PROPERTY LOCATION MAP<br>FIGURE 3. CLAIM MAP, GRID A         |
| POCKET MAPS: CONTOURED MAGNETIC MAP<br>PROFILED 1777HZ FREQUENCY<br>PROFILED 444HZ FREQUENCY<br>PEM PROFILE MAPS  |

#### INTRODUCTION

The services of Exsics Exploration Limited were retained by Falconbridge Limited to complete several small fill-in grids on a larger grid which had been cut on the Currie-Bowman Option during the summer of 1995. The original grid consisted of 200 meter spaced lines which covered the whole option. This initial grid was then covered by a total field magnetic survey and an HLEM survey. The results of this first program prompted Falconbridge to cut several lines between the existing grid lines to better define weak HLEM anomalies. These new grids were completed during the months of January and February, 1996 and are called Grids A,B,C and D.

Each of these new lines were then followed-up with an HLEM survey as well as a total field magnetic survey which was tied into the existing surveys. Several lines were also read with the Crone PEM, moving coil system for a better depth penetration in the event the fill in grid coverage was not seeing deep enough.

This report will deal with the results of this new 1996 fill in program on Grid D.

#### PROPERTY LOCATION AND ACCESS

Grid D of the fill-in, 1996, program is located in the central east section of Currie Township, immediately east of Watabeag Creek. More specifically it generaly covers the south half of Lot 3, Concession III of the Township of Currie and spills over into a portion of Lot 4. The entire grid is situated approximately 6 to 7 kilometers southeast of the Village of Shillington. Shillington is situated on Highway 101, approximately 45 kilometers east of the City of Timmins, Ontario. Currie Township is part of the Larder Lake Mining Division. Figures 1 and 2.

Access to the grid was ideal during the survey period. There is a good all weather, gravel road running south along the township line between Bowman and Currie which intersects the concession line between concessions III and IV. Current logging operations in the area has opened up a road along this concession line for approximately 1.0 kilometers. A short skidoo ride along this line from the end of the plowed road to a second road running south will allow access to the southwest corner of the survey grid. Travelling time from Timmins to the site is approximately 2.0 hours.

#### CLAIM GROUP

The claim numbers which were partially covered by the fill-in program are as follows:

L-1201083 8 units Refer to figure 3, copied from the MNDM plan map of Currie Twp.







PERSONNEL

The field crew directly responsible for cutting and surveying the grid were as follows.

John derWweduwen..... South Porcupine Bruce Pigeon..... South Porcupine Raymond Collin.... Timmins, Ontario Roly Collins..... Timmins, Ontario Norm Collins..... Timmins, Ontario John Grant..... Timmins, Ontario

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

#### GROUND PROGRAM

This program consisted of cutting lines between the existing grid to better define weak HLEM conductors. The new lines to be cut were 17100ME, 17300ME, 17500ME, and 17700ME from 10000MN to 9200MN. In all, a total of 3.2 kilometers of new grid were established. The cutting was completed between February 6th and 09th, 1996

The geophysical program consisted of completeing an HLEM survey on the new lines and a detailed total field magnetic survey being completed on the entire grid from lines 17000ME to 17800ME and between 10000MN to 9200MN. In effect, 8.8 kilometers of magnetics were done and 3.2 kilometers of HLEM were done. These surveys were completed between February 09th and 10th, 1996.

The moving coil PEM survey was completed on lines 17200, 17300 17600 and 17700ME.

#### SURVEY PROCEDURE

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 following parameters were kept constant throughout the survey.

| Linespacing         | 100 meters                   |
|---------------------|------------------------------|
| Station spacing     | 20 meters                    |
| Reading interval    | 10 meters                    |
| Diurnal monitor     | 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 |

Page 2

#### Page 3

The collected, corrected and levelled data was then plotted on to a base map at a scale of 1:5000 and contoured at 10 gamma intervals where possible.

A copy of this contoured mag map is included in the back pocket 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.

The following parameters were kept constant throughout the survey.

| Linespacing               | 200 meters  |
|---------------------------|---|
| Station spacing           | 20 meters   |
| Reading interval          | 20 meters   |
| Coil Seperation           | 150 meters  |
| Theoretical search depth. | 75-85 meters  |
| Frequencies recorder      | 1777hz and 444hz  |
| Parameters measured       | inphase and quadrature components of the secondary field. |

The collected data was plotted directly onto a base map at a scale of 1:5000, one map for each frequency, and then profiled at lcm=+/-20%. Any and all conductor axis were placed directly onto the base map and interpreted for depth and conductivity where possible. A copy of each profiled frequency is included in the back pocket of this report.

The PEM survey was completed using the Crone PEM system. Specifications for the unit can be found as Appendix C of this report. The following parameters were kept constant throughout the survey.

| Linespacing               | 100 meters                       |
|---------------------------|----------------------------------|
| Station spacing           | 20 meters                        |
| Reading inteval           | 20, 40 meters                    |
| Coil seperation           | 200 meters                       |
| Theoretical search depth. | 160 meters                       |
| Parameters measured       | 8 samples of the secondary field |
| Unit accuracy             | +/- 0.5 percent                  |
| Time base                 | 10ms                             |
| Syncronization            | Radio link                       |

#### SURVEY RESULTS

The HLEM survey was not successful in locating our outlining any definite bedrock conductor. A weak questionable zone was noted on lines 17100ME, 17300ME and 17500ME at approximately 9780MN and it appears to continue off of the grid to the west. Interpretation of this zone suggests it is shallow at 15 meters and weak with a conductivity of 2 mhos.

#### Page 4

The magnetic survey suggest the west portion of the zone is on the south flank of a broad weak magnetic high and that the eastern extension relates to a moderate magnetic low unit. The survey also outlined a north-south structure generally paralleling line 173COME which may suggest there is a dike like feature crosscutting the grid. The magnetic high units covering the central and south portions of the grid may relate to the metavolcanics and felsic contact.

The PEM survey on lines 17700ME and 17600ME appeared to suggest that there is a weak deep zone situated at 9540 to 9560MN. This zone appears weakly on the bottom channels. The western two lines, 17200ME and 17300ME did not seem to outline any additional conductive zones on the grid. The negative readings between 9700MN and 9600MN may relate to a hill to swamp contact.

### CONCLUSIONS AND RECOMMENDATIONS

The ground surveys were not successful in outlining any good bedrock conductors. The two zones outlined by the HLEM and PEM surveys would require further follow-up work to better define their sources.

The magnetics did outline the suspected geological strike of the grid as well as outline a good north-south cross structure which may by dike related.

Should a follow-up program be contemplated then a Deep penetrating type survey should be considered and be concentrated on the weak conductive zones noted.

Respectfully submitted

J.C.Grant, CET, FGAC January, 1996



#### 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**

| namic Range                                      | 18 000 to 110 000 gammas. Poll over display feature   |
|--|---|
|  | Suppresses first significant digit upon exceeding 100,000<br>gammas.  |
|  | <ul> <li>Tuning value is calculated accurately utilizing a specially<br/>developed tuning algorithm</li> </ul>  |
|  | $\pm$ 15% relative to ambient field strength of last stored value   |
| Display Resolution                               | 0.1 gamma   |
| Ocessing Sensitivity                             | + 0.02 gamma  |
| atistical Error Resolution                       | . 0.01 gamma  |
| Absolute Accuracy                                | $\pm$ 1 gamma at 50,000 gammas at 23°C<br>+ 2 gamma over fotal temperature range  |
| andard Memory Capacity                           |   |
| Total Field or Gradient                          | 1,200 data blocks or sets of readings   |
|  | 100 data blocks or sets of readings   |
|  | 5,000 data blocks or sets of readings   |
| spiay · · · · · · · · · · · · · · · · · · ·      | <ul> <li>Custom-designed, ruggedized liquid crystal display with an</li> </ul>  |
|  | Operating temperature range from -40°C to +55°C. The  |
|  | display contains six numeric digits, decimal point, battery   |
|  | Monitor and function decay rate and signal amplitude  |
| 232 Serial I/O Interface                         | 2400 baud 8 data bits 2 stop bits and reading   |
| Gradient Tolerance                               | 6 000 dammac not motor (field manual)   |
| Test Mode  | A Diagnostic testing (deta and succession)  |
| nsor   | B. Self Test (hardware)   |
| Cadient Soncor                                   | Oplimized miniature design. Magnetic cleanliness is<br>consistent with the specified absolute accuracy.   |
|  | 0.5 meter sensor separation (standard), normalized to   |
| Sensor Cable                                     | gammas/meter. Optional 1.0 meter sensor separation<br>available. Horizontal sensors optional.   |
|  | Remains flexible in temperature range specified, includes strain-relief connector   |
|  | <ul> <li>Programmable from 5 seconds up to 60 minutes in 1<br/>second increments</li> </ul>   |
| Operating Environmental Range                    | ~40°C to +55°C; 0-100% relative humidity; weatherproof  |
| • wer supply                                     | Non-magnetic rechargeable sealed lead-acid battery<br>cartridge or belt; rechargeable NiCad or Disposable battery<br>cartridge or belt; or 12V DC power source option for base<br>station operation |
| E ttery Cartridge/Belt Life                      | 2 000 to 5 000 readings for soaled load asid news and   |
|  | 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 20mm  |
| NiCad or Alkaline Battery Belt                   | 12 kg 540 x 100 x 40mm  |
| 'ead-Acid Battery Cartridge                      | 18 kg 235 x 105 x 90mm  |
| ead-Acid Battery Belt                            | 18 kg 540 x 100 x 40mm  |
| sensor   | 12 kg 56mm diameter v 200mm   |
| Gradient Sensor<br>(0.5 m separation - standard) | 2 1 kg. 56mm diameter x 200mm   |
| radient Sensor<br>(1.0 m separation - optional)  |   |
| Standard System Complement                       | Letrumont consols   |
|  | 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

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 180m (600 ft). Built-in voice communication circuitry with cable. Tilt meters to control coil orientation.





# 

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| =                    | 222,444,888.1777 and 3555 Hz.  | ' -  | ±0.25% to ±1% normally, depending  |
|----------------------|--|--|--|
| 1                    | MAX: Transmitter coil plane and re-<br>ceiver coil plane horizontal<br>(Max-coupled; Horizontal-loop   | •  | <ul> <li>222Hz : 220 Atm<sup>2</sup></li> </ul>  |
|                      | mode). Used with refer cable.<br>MIN: Transmitter coilplane honzon-<br>tal and receiver coil plane ver-<br>tical (Min-coupled mode).                             |  | - 444Hz : 200 Atm <sup>2</sup><br>- 888Hz : 120 Atm <sup>2</sup><br>- 1777Hz : 60 Atm <sup>2</sup><br>- 3555Hz : 30 Atm <sup>2</sup>   |
|                      | V.L. : Transmitter coll plane verti-<br>cal and receiver coll plane hori-<br>zontal (Vertical-loop mode).<br>Used without reference<br>cable, in parallel lines. | ан<br>Полого и стала,  | SV trans. radio type batteries (4).<br>Life: approx. 35hrs. continuous du-<br>ty (alkaline, 0.5 Ah), less in cold<br>weather.  |
| Dus Backmolums       | 25.50,100,150,200 & 250m (MMI)<br>or 100, 200, 300, 400,600 and  | 1 trail  | 12V 6Ah Gel-type rechargeable<br>battery. (Charger supplied).  |
|                      | 800 ft. (MMIF).<br>Coilseparations in V.L.mode not re-<br>stricted to fixed values.  | in an an in <del>n</del> a   | Light weight 2-conductor teflon<br>cable for minimum friction. Unshield-<br>ed. All reference cables optional<br>at extra cost. Please specific  |
| Participant (Pelisa) | <ul> <li>In-Phase and Quadrature components of the secondary field in MAX and MIN modes.</li> <li>Tilt-angle of the total field in V.L.</li> </ul>               | 1 - 2 - 2 <sup>- 1</sup>   | Built-in intercom system for<br>voice communication between re-<br>ceiver and transmitter operators  |
| -                    | mode.  |  | in MAX and MIN modes, via re-<br>ference cable.  |
| F 30 249 13          | - Automatic, direct readout on<br>90mm (3.5") edgewise meters<br>in MAX and MIN modes. No null-<br>ing or compensation necessary.                                | ארי בכבי ערייביאי  | Built-in signal and reference warn-<br>ing lights to indicate erroneous<br>readings.   |
|                      | <ul> <li>Tilt angle and null in 90mm edge-<br/>wise meters in V.L.mode.</li> </ul>   | о <mark>т</mark> става сласка к Сланиу   | -40°C to +60°C (-40°F to +140°F).  |
| Zotia Rangui         | In-Phase: ±20%,±100% by push-  | Eggnelige i st   | 6kg (13 lbs.)  |
|                      | Guadrature: ±20%,±100% by push-  | i Tronsen da comune por la port  | 13kg (29 lbs.)   |
|                      | Tilt: ±75% slope.<br>Null (V.L): Sensitivity adjustable<br>by separation switch.   | Africation (1993   | Typically 60kg (135 lbs.), depend-<br>ing on quantities of reference<br>cable and batteries included.<br>Shipped in two field/shipping cases.  |
| Figure :             | In-Phase and Quadrature:0.25 %<br>to 0.5 % ; Tilt: 1% .  | Specifications subje   | ct to change without notification  |
|                      |  | 1996 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -<br>1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -<br>1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -<br>1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -<br>1997 - 19 | and a second sec |
| · · · · ·            | 200 STEELCASE R  | D.E., MARKHAM, C   | DNT. CANADA, LOR 162   |
| Phone: ( <b>416</b>  | ) 495-1612 Cables: APEXPARA T  | ORONTO Telex:  | 06-966773 NOROVIK TOR  |

APPENDIX C

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3607 WOLFEDALE ROAD, MISSISSAUGA, ONTARIO, CANADA, L5C 1V8

Phone: (416) 270-0096 TELEX: 06-961260 AUSTRALIA OFFICE: 244 Newbridge Road, MOOREBANK, N.S.W. 2170.

Phone: (02) 602-0937 TELEX: 71-22922







## FLEXIBILITY:

The equipment is not restricted to a fixed method. Since it is a Time Domain Method there are no rigid geometrical restrictions as to coil configurations. The transmit coil energizes — as small or large horizontal loops or a vertical loop. The receive coil measures — all three components of the secondary fields if required. The wide frequency spectrum discriminates between zones of varying conductivity. With minor modifications the equipment has borehole capabilities to a depth of 300 meters.

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The equipment is capable of measuring all 3 components of the secondary fields. This information can be translated into accurate estimates of the shape and position of the conductors. The method of direct plotting of induced current paths at different frequencies is a very effective interpretative method that can be performed in the field. A complete study of borehole response curves is available, (D. Wood's Thesis).

TRANSMITTER

# PEM SPECIFICATIONS

#### **TRANSMITTER:**

- Transmit Control: 37x25x21cm, Weight: 11kg (23 lbs)
- Output Voltage: 24 volt, maximum output current 20 amps
- Output Waveform: Switch selectable timebase of "10ms" or "20ms" with "10ms" timebase current on 10.8ms, ramp shut off for 1.4ms, current off 9.4ms reversing continuous waveform. With "20ms" timebase current on and off times are doubled.
- Input Power from 2 of 12 volt rechargeable batteries. Standard equipment uses 2 of 12 volt, 20 amp hour Globe gel cells in an aluminum case that can be mounted on a packframe. Weight 18.1 kg (40 lbs) Optional Equipment lightweight powerpack 4 of 6 volt, 8 amp hour rechargeable gel cells, Weight 9 kg (20 lbs). Motor generator for continuous operation "DEEPEM" or Borehote EM, packframe mounted 3 HP, 4 cycle gasoline engine and 24 volt generator. Total weight 18 kg (40 lbs).
- Timing controls by radio and / or cable to receiver. Cable standard length 100M.
- Control box dimensions: 20.5cm x 25.5cm x 36.5cm. Weight 10 kg (22 lbs).
- Transmit Loop: Variable in size and number of turns from standard 6 and 9 meter diameter aluminum loops to breakable loop 9 meters in diameter and single turn 100 meter square (or 400x400 feet square) for DEEPEM and Borehole capabilities. All loops have approximately 1 Ohm resistance and a weight of 15 kg (30 lbs).
- Battery Chargers: 2 of modified Gel cell chargers 14.4 volts, initial charge current 3 to 4 amps, 110 volts or optional 220 volt supply 50-60Hz.
- Vertical Loop Mast: Optional extra 5 pieces tubular aluminum 9 meters high. Weight 6 kg.
- High powered transmitters (24 volts, 80 amps) are available upon request.

#### **RECEIVER:**

Receiver Coil: Ferrite core antenna with preamplifier, mounted on a tripod. Dimensions: Height 63 cm, diameter 11 cm, weight 7 kg (16 lbs). Preamplifier power supply 2 of 9 volt batteries, vertical and horizontal levels are mounted on the coil.

Receiver Measuring Unit. Dimensions: 28 cm x 27 cm x 18 cm; weight 7 kg (16 lbs). Measurements on "10ms" time base. — Primary pulse: -100 to 0  $\mu$  sec., mid point — 50  $\mu$  s, position variable by means of a 10 turn pot — used to set zero time position at peak primary pulse. Primary pulse sample is usually set at "1000" by means of variable gain pot.

Eight samples of secondary field:

(1) 100 to 200  $\mu$ s middle point 150  $\mu$ s (2) 200 to 400  $\mu$ s middle point 300  $\mu$ s (3) 400 to 700  $\mu$ s middle point 550  $\mu$ s (4) 700 to 1100  $\mu$ s middle point 900  $\mu$ s (5) 1100 to 1800  $\mu$ s middle point 1450  $\mu$ s (6) 1800 to 3000  $\mu$ s middle point 2400  $\mu$ s (7) 3000 to 5000  $\mu$ s middle point 4000  $\mu$ s (8) 5000 to 7800  $\mu$ s middle point 6400  $\mu$ s

Sample times can be doubled by switching to "20ms" time base. Receiver voltages are integrated over sample width and automatically stored and averaged over a 11 second period. Samples can also be read continuously.

| SH               | IPPING: All instruments packed in foam lined wood boxes.      | Shipping Weight    |
|------------------|---|--------------------|
| $\overline{(1)}$ | Box Receiver unit   | 14.5 kb ( 32 lbs)  |
| (2)              | Box Transmitter unit  | 20 kg ( 45 lbs)    |
| (3)              | Box Battery unit  | 28 kg (61 lbs)     |
| (4)              | Box Receive Coil  | 16 kg ( 36 lbs     |
| (5)              | Box Transmit Coil, packframe, battery, chargers, timing cable | ⁄ ز 36 kg ( 80 lbs |

Total approximate shipping weight:

114.5 kg (254 lbs)



# Report of Work Conducted After Recording Claim Mining Act



Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used for correspondence. Questions about this collection should be directed to the Provincial Manager, Mining Lands, Ministry of Northern Development and Mines, Fourth Floor, 159 Cedar Street, Sudbury, Ontario, P3E 6A5, telephone (705) 670-7264. Instructions: A Please type or print and authority is destinated within the distribution of the Mining Act. This information will be used for correspondence. Questions about this collection should be directed to the Provincial Manager, Mining Lands, Ministry of Northern Development and Mines, Fourth Floor, 159 Cedar Street, Sudbury, Ontario, P3E 6A5, telephone (705) 670-7264. 2.165532

Instructions: - Please type or print and submit in duplicate.

- Refer to the Mining Act and Regulations for Recorder.

A separate copy of this form must be compliTechnical reports and maps must accompan
A sketch, showing the claims the work is as:

2A07NE0015 2 16532 CURRIE

.

900

| FALCONBRIDGE LIMITED   |                        | Client No.                    |
|--|------------------------|-------------------------------|
| Address<br>P. D. BOX 1140, 571 MONETA AVI<br>Mining Division | E, TIMMINS, ON P4N 7H9 | Telephone No.<br>705 267-1188 |
| LARDER LAKE  | CURRIE TOWNSHIP        | M or G Plan No.<br>M - 341    |
| Work From: JANUARY 5,19                                      | 96 TO: FEBRUARY        | 16, 1996                      |

Work Performed (Check One Work Group Only)

| Work Group                           | Туре   |
|--------------------------------------|--|
| Geotechnical Surve                   | GEOPHYSICS (GROUND MAGNETICS, HLEM, MOVING LOOP PEN) + LINECUTUR |
| Physical Work,<br>Including Drilling |  |
| Rehabilitation                       |  |
| Other Authorized<br>Work             | DECEIVED   |
| Assays                               |  |
| Assignment from<br>Reserve           | MAY 1 5 1996   |
| Total Assessment Mi                  | A THUNG LANDS BRANCH   |

Total Assessment Work Claimed on the Attached Statemining ANDS Diverse 13, 457

Note: The Minister may reject for assessment work credit all or part of the assessment work submitted if the recorded holder cannot verify expenditures claimed in the statement of costs within 30 days of a request for verification.

# Persons and Survey Company Who Performed the Work (Give Name and Address of Author of Report)

| Name                             | Address                                    |
|----------------------------------|--|
| J GEANT EXSICS EXPLORATION LTD   | SUITE 13, HOLLINGER BLOG; TIMMINS, ONTARIO |
| GARY DE SCHWITTER (FALLUNBLIDGEL | D) 571 MONETA AVENUE, TIMMINS, ONTARIO     |
|                                  |  |
|                                  |  |

### (attach a schedule if necessary)

# Certification of Beneficial Interest \* See Note No. 1 on reverse side

|   | I certify that at the time the work was performed, the claims covered in this work<br>report were recorded in the current holder's name or held under a beneficial interest<br>by the current recorded helder. | Date<br>Mars 10, 1994 | Recorded Holder or Agent (Signature) |
|---|--|-----------------------|--------------------------------------|
| Į | by the current recorded holder.  | Wug to, the           | Rutethit                             |

## **Certification of Work Report**

| i certify that I have a personal kn<br>its completion and annexed report | owledge of the facts set fort | h in this Work report, having pe | formed the work or with | essed same during and/or after   |
|--|-------------------------------|----------------------------------|-------------------------|----------------------------------|
| Name and Address of Person Certify                                       | ing                           |                                  |                         |                                  |
| GARY DE SCHUTTER;  | P.O.BOX 1140, 571             | MONETA AVE, TIMN                 | NS, ONTARIO             | PYN 7H9                          |
| Telepone No.<br>705 267-1188   | Date<br>May 10, 19            | Certifier By (S                  | ignejure)               |                                  |
| For Office Use Only  |                               | P                                |                         | Pate strik TO                    |
| Total Value Cr. Recorded Date I  | Recorded                      | Mining Recorder                  | Received Star           | NO VELL                          |
| appl 9   | 6 May 13                      | 9 Day Lan                        |                         | "" LARDER LAKE"<br>MINDIE EMERON |
| (1765 Deep   | od Approval Date              | Qate Approved                    |                         |                                  |
| Kize 1600 Tale   | 19.13/96                      |                                  |                         | MAY 13 1953                      |
|  | tone for Amendments Sent      |                                  |                         |                                  |
| 2241 (03/91)   |                               |                                  |                         |                                  |

| Total As<br>Fro               | Total Value<br>Work Applied          | Total Value Work<br>Done                             |          |                                | Total Number<br>of Claims    | 0241 (03/91)                                     |
|-------------------------------|--------------------------------------|--|----------|--------------------------------|------------------------------|--|
| \$ 100                        | \$ 11765                             | \$13457  | <b></b>  |                                | 14                           |  |
|                               |                                      |  | L        |                                |                              |  |
|                               |                                      |  | !<br>r   |                                |                              |  |
|                               |                                      |  | L        |                                |                              |  |
| 0                             | \$ 800                               | 0  | l        | N                              | 1201419                      |  |
| 0                             | 008#                                 | \$P \$   | F        | Ч                              | 1201418                      |  |
| \$16                          | 0                                    | # 1982   |          | S.                             | 1201417                      |  |
| 0                             | \$ 80Û                               | 0  | L        | Ν                              | 1201250                      |  |
| 0                             | \$ 3625                              | \$ 991   | Ś        | 12                             | 1201249                      |  |
| 0                             | \$ 4140                              | 0  |          | 12                             | 1201248                      |  |
| 0                             | 0                                    | \$ 450   | 5        | 4                              | 120/084                      |  |
| 17 15                         | 0                                    | \$ 4280  | 5        | 16                             | 1201083.                     |  |
| <i>Z / B</i>                  | 0                                    | \$ 2359  | 5        | 12                             | 6988611                      |  |
| 0                             | \$ 1600                              | C  | l        | 4                              | 1193806                      |  |
| \$ 70                         | 0                                    | # 700  | ्र       | /                              | 866724                       |  |
| 56\$                          | 0                                    | \$ 950   | <u>۲</u> | -                              | 866723                       |  |
| \$ 80                         | 0                                    | \$ 950   | 5        |                                | 866722                       |  |
| # 70                          | 0                                    | \$ 700   | 9        |                                | 866721                       |  |
| Val<br>Assig<br>fro<br>this C | Value<br>Applied<br>to this<br>Claim | Value of<br>Assessment<br>Work Done<br>on this Claim |          | Number<br>of<br>Claim<br>Units | Claim Number<br>(see Note 2) | Work Report<br>Number for<br>Applying<br>Reserve |

| Total Reserve   | Total Assigned                          |
|---|---|
| \$ 1697   | \$10679                                 |
|   |   |
|   |   |
|   |   |
| 0   | 0                                       |
| 0   | 0                                       |
| # 382   | \$ 1600                                 |
| 0   | 0                                       |
| 0   | 0                                       |
| 0   | 0                                       |
| \$ 450  | 0                                       |
| \$ 140  | \$ 4140                                 |
| # 570   | \$\$ 1789                               |
| 0   | 0                                       |
| 0   | \$700                                   |
| 0   | \$950                                   |
| \$ 150  | \$ 800                                  |
| 0   | # 700                                   |
| Reserve:<br>Work to be<br>Claimed at<br>a Future Date | Value<br>Assigned<br>from<br>this Claim |

Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to priorize the deletion of credits. Please mark ( $\nu$ ) one of the following:

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. Credits are to be cut back as priorized on the attached appendix.

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.

Signature

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

 ) centry that the recorded noiser had a beneficial interor leased land at the time the work was performed.

Cale La la il 1996
Ministry of Northern Development and Mines

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/Loi sur les mines

Personal information collected on this form is obtained under the authority 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

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

# 2. Indirect Costs/Coûts indirects

|  | Туре  | Description                                     | Amount<br>Montant        | Totais<br>Totai globa |
|--|---|---|--------------------------|-----------------------|
|  | Wages<br>Salaires   | Labour<br>Main-d'oeuvre                         |                          |                       |
|  |   | Field Supervision<br>Supervision sur le terrain |                          | +                     |
|  | Contractor's<br>and Consultant's<br>Fees<br>Droits de<br>l'entrepreneur<br>et de l'expert-<br>consell | Type<br>MONING LOOF FEM<br>LINECUTTING & HLEM   | \$\$ 3,500<br>\$\$ 6,604 | -                     |
| $\left  \right $                               |   | MAGNETICS                                       | \$13,353                 | \$ 13,457             |
|  | Supples Used<br>Fournitures<br>utilisées  |   |                          |                       |
| Equipment<br>Rental<br>Location de<br>matériei |   | Гуре  |                          |                       |
|  |   | \$ 13,457                                       |                          |                       |

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 filed within two years of completion Is claimed at 100% of the above Total Value of Assessment Credit.
- 2. 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.

NT ASSOCIATE GEDUCCIST corded Holder, Agent, Position In Comparity) that as AGENT \_ I am authorized

to make this certification

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  | Descr   | iplion                     | Amount    | Totals       |
|---|---|----------------------------|-----------|--------------|
| Transportation<br>Transport   | Туре  |                            |           | rotal global |
|   |   |                            |           | 1            |
|   |   |                            |           |              |
|   |   |                            |           |              |
| Food and  |   |                            |           |              |
| Lodging<br>Nourriture et<br>hébergement                                 |   |                            |           |              |
| Mobilization and<br>Demobilization<br>Mobilisation et<br>démobilisation |   |                            |           |              |
|   | Sub To<br>Total partiel   | tai of Indire<br>des coûts | oct Costs |              |
| Amount Allowable (n<br>Montant admissible (                             | ot greater than<br>n'excédant pai                                   | 20% of Dire                | ct Costs) |              |
| Total Value of Asses<br>(Total of Direct and Al<br>Indirect costs)      | Valeur totale<br>d'évaluation<br>(Total des colt<br>et indirects ad | du crédit                  |           |              |

Note : Le titulaire enregistré sera tenu de vérifier les dépenses demandées dans le présent état des coûts dans les 30 jours sulvant 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

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

aleur 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 effectuer les travaux d'évaluation sur les terrains indiqués dans la formule de rapport de travail cl-joint.

Et qu'à titre de je suis autorisé (ti.ulaire enregistré, représentant, poste occupé dans la compagnie)

à faire cette attestation.

Dela Uni 4 I U

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

0212 (04:91)



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 August 07, 1996 Our File: 2.16532 Transaction #: W9680.00228 Mining Recorder

Ministry of Northern Development & Mines 4 Government Road East Kirkland Lake, Ontario P2N 1A2

Dear Mr. Spooner:

SUBJECT: APPROVAL OF ASSESSMENT WORK CREDIT ON MINING LAND, CLAIM(S) 866721 ET AL. IN CURRIE TOWNSHIP

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 August 07, 1996. Please indicate this approval on the claim record.

If you have any questions regarding this correspondence, please contact Steven Beneteau at (705) 670-5855.

Yours sincerely, ORIGINAL SIGNED BY:

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

SBB/jf

cc: Resident Geologist Kirkland Lake, Ontario

Assessment Files Library Sudbury, Ontario

FALCONBRIDGE



### **FALCONBRIDGE LIMITED - EXPLORATION**

P.O. Box 1140, 571 Moneta Avenue Timmins, Ontario P4N 7H9 Telephone: 705-267-1188 Fax: 705-264-6080

Mining Recorders Office Larder Lake Mining Division 4 Government Road East Kirkland Lake, Ontario P2N 1A2 (705) 567-9242 (705) 567-5621 (Fax)

### **RE: ASSESSMENT WORK - CURRIE TOWNSHIP**

To Whom it May Concern,

Please find enclosed geophysical reports to be filed for assessment purposes on a group of claims that Falconbridge Limited holds in Currie Township, near Matheson, Ontario. A total of \$13,457 of assessment work has been done on a number of claims in Currie Township, \$11,765 is to be assigned to contiguous claims; the remainder (\$1,692) is to be kept on reserve.

The total direct cost was divided by the amount of work (approximate %) performed on each claim to get the \$/claim value used on the "Report of Work" form.

### Should it become necessary, cut credits from claims 1201418 and 1201419.

Should you have any questions concerning this matter, please call me at my office in Timmins at (705) 267-1188 extension 250. Thank you.

Sincerely;

Gary De Schutter Associate Geologist Falconbridge Limited







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