

52F13SE2006 2.28216

8216 DOCKE

BRIDGES / DOCKER PROJECT

-Emerald Fields Resource Corporation -Kenora, Ontario P9N 2K2

BRIDGES TOWNSHIP (G.0812) and DOCKER TOWNSHIP (G.0818) - Kenora Mining Division 10 -

2,28236

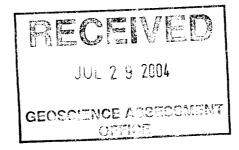
NTS 52F/13

AIRBORNE GEOPHYSICAL SURVEY - Project 446 -

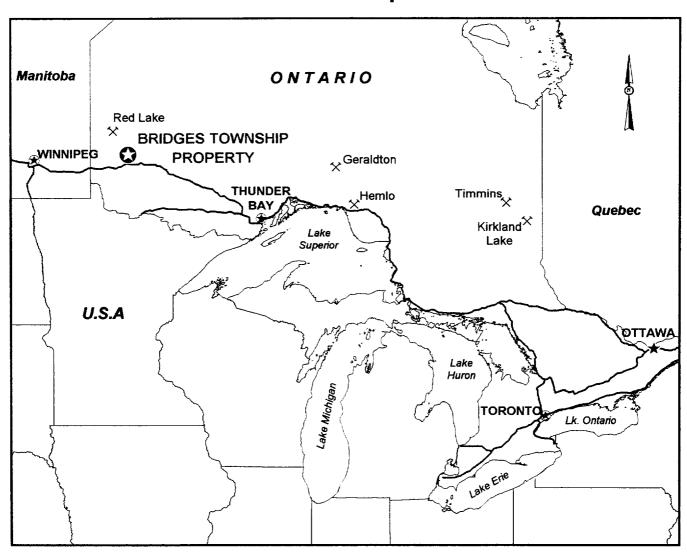
by

GEOTECH LTD. 30 Industrial Parkway, South Aurora, Ontario L4G 3W2

July 2004



Emerald Fields Resource Corporation BRIDGES TOWNSHIP PROPERTY Location Map



Scale: 1cm = 100,000m

PROJECT / PROPERTY NAME: Bridges / Docker

LOCATION: - Kenora Mining Division - 10

- Bridges Township (G.0812) and Docker Township (G.0818)
- NTS 52F/13
- Co-ordinates 49 degrees 51' N by 93 degrees 39' W
- Zone 15, NAD 83

MINERAL COMMODITIES: Zn, Ag, Au and Cu

RECORDED MINING CLAIMS: The property consists of a block of eleven (11) claims totalling 89 - 16 ha claim units located in the Townships of Bridges and Docker in the Kenora Mining Division of Ontario. The claims were optioned from Mr. Robert Fairservice with additional claims being staked by Emerald Fields.

ACCESS: The project is accessed by Hwy # 17 about 70 km east of the City of Kenora predominately lying on the north side of the highway across from Bill's Half Way House (motel). Numerous trails cross through the property.

HISTORY: Refer to previous submitted assessment reports; i.e., November 29th, 2002.

SURVEY TYPE: Helicopter-borne electromagnetic and magnetic geophysical survey.

SURVEY PERFORMED BY: Geotech Ltd., 30 Industrial Parkway, South, Aurora, Ontario L4G 3W2.

SURVEY DATE: May 24th to May 27th, 2004

DISCUSSION: Emerald Fields contracted the airborne geophysical survey to Geotech Ltd., Aurora, Ontario.

The purpose of the survey was to evaluate the known showings and to extrapolate these zones within the complex geological environment.

CONCLUSION: Geotech Ltd. has prepared a report which is attached to this document. The airborne data has been presented in CD computer format to Emerald Fields which is being processed and reviewed. Ground work to follow.

Submitted by: -

Alasdair J. M. Mowat, C.E.T.

Dated: July, 2004

REPORT ON A HELICOPTER-BORNE TIME DOMAIN ELECTROMAGNETIC GEOPHYSICAL SURVEY

St. Anthony, Scarp Lake, Bridges Blocks

Kenora Area,

Ontario, Canada

for

Emerald Fields Resource Corporation

Ву

Geotech Ltd.
30 Industrial Parkway South
Aurora, Ontario L4G 3W2

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Survey flown in May 2004

Project 446 June, 2004

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REPORT ON A HELICOPTER-BORNE TIME DOMAIN ELECTROMAGNETIC SURVEY

St. Anthony, Scarp Lake, Bridges Blocks, Kenora Area, Ontario, Canada

2.28216

INTRODUCTION

This report describes the helicopter-borne geophysical survey carried out on behalf of Emerald Fields Resource Corporation by Geotech Ltd. under an agreement dated May 2004. Principal geophysical sensors included a time domain electromagnetic system and a cesium magnetometer. Ancillary equipment included a GPS navigation system and a radar altimeter.

Three blocks, referred to as St. Anthony, Scarp Lake, Bridges blocks, were surveyed. The St. Anthony block is located approximately 95 km east of Sioux Lookout. The coordinates of the centre of the St. Anthony block are: 90° 38' W, 53° 9' N. The Scarp Lake block is located approximately 28 km south of Vermilion Bay. The coordinates of the centre of the Scarp Lake block are: 93° 27' W, 49° 37' N. The Bridges block is located approximately 16 km west of Vermilion Bay. The coordinates of the centre of the Bridges block are: 93° 39' W, 49° 51' N. The total area of the blocks is 150.8 km², the total line kilometres flown was 1620 km. Data acquisition was initiated on May 10th and completed on May 27th, 2004.

This report describes the survey, the data processing and presentation.

SURVEY AREA

The survey area is shown in figure 1.

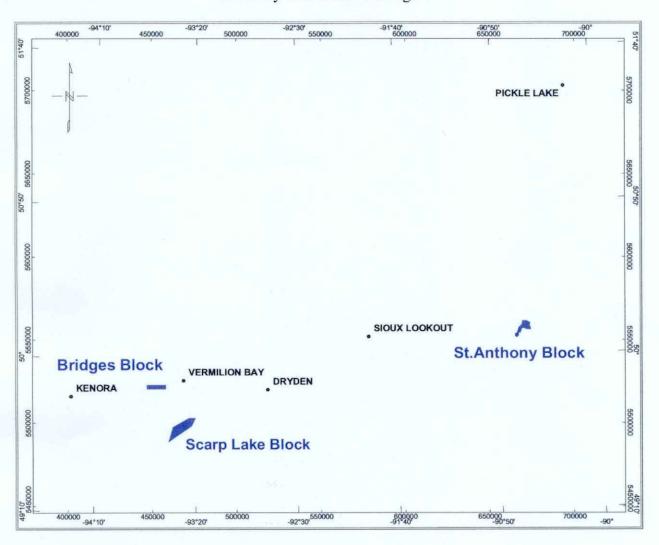


Figure 1 - Location Map

The survey specifications are summarised in the following table:

BLOCK NAME	AREA KM²	LINE SPACING	LINE KM	FLIGHT DIRECTION
St. Anthony	36.1	50 m	690	N-S
Scarp Lake	85.7	150 m	616	N-S
Bridges	29.0	100 m	314	N60W

Table 1 - Survey Blocks

SURVEY OPERATIONS

Survey operations were based out of Sioux Lookout (St. Anthony block) and Dryden (Scarp Lake and Bridges blocks). The following table shows the timing of the flying.

Date	Flight #	Block flown, comments	Flown, km	Stand-by reason
May 9		Crew arrived to Sioux Lookout		
May 10		No production due to snow storm	0	Snow storm starts
May 11		No production due to snow storm	0	Snow storm
May 12		No production due to snow storm	0	Snow storm ends
May 13		The system is damaged		
May 14		The system is damaged		
May 15	1,2	No production, test flights		
May 16	3	No production, test flights		
May 17	4,5	No production, test flights		
May 18	6,7,8	St. Anthony block	265	
May 19	9,10	St. Anthony block	197	Rain after 1 p.m.
May 20	11,12,13	St. Anthony block	228	
May 21	14	Ferry from Sioux Lookout to Dryden	0	
May 22	15,16	Scarp Lake	224	
May 23	17,18,19	Scarp Lake	392	
May 24	20,21	Flight 20 is a test flight	33	
May 25		No production due to rain	0	Rain, low ceiling
May 26		No production due to rain	0	Rain, low ceiling
May 27	22,23,24		281	
		TOTAL	1620	

Table 2 - Survey Schedule

The nominal EM sensor terrain clearance was 30 m (EM bird height above ground, i.e. helicopter is maintained 70 m above ground). Nominal survey speed was 80 km/hour. The data-recording rates of the data acquisition was 0.1 second for electromagnetics and magnetometer, 0.2 second for altimeter and GPS. This translates to a geophysical reading about every 2 metres along flight track. Navigation was assisted by a GPS receiver and data acquisition system, which reports GPS co-ordinates as latitude/longitude and directs the pilot over a pre-programmed survey grid.

The operator was responsible for monitoring of the system integrity. He also maintained a detailed flight log during the survey noting the times of the flight as well as any unusual geophysical or topographic feature.

On return of the aircrew to the base camp the survey data was transferred from a compact flash card (PCMCIA) to the data processing computer.

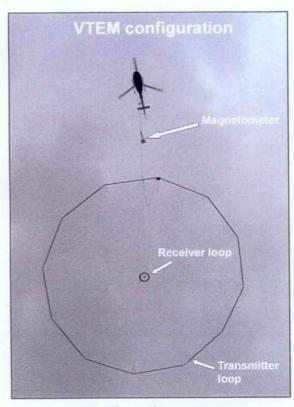
AIRCRAFT AND EQUIPMENT

1 Aircraft

An Astar BA helicopter, registration C-GHSM - owned and operated by Abitibi Helicopters was used for the survey. Installation of the geophysical and ancillary equipment was carried out by Geotech Ltd.

2 Electromagnetic System

The electromagnetic system was a Geotech Time Domain EM system. The layout is as indicated in Figures 2 below.



VersaTEM 30 Hz Base Frequency
Sample Times

Location of decay windows (center points)

Tx Pulse

Tx Pulse

Half-Waveform

Half-Waveform

Figure 2

Figure 3

Receiver and transmitter coils were concentric and Z-direction oriented. Transmitter coil diameter was 26 metres, the number of turns was 3. Receiver coil diameter was 1.1 metre, the number of turns was 60. Transmitter pulse repetition rate was 30 Hz.

Peak current was 145 A.

Duty cycle was 40%.

Peak dipole moment was 230000 NIA.

Wave form - trapezoid.

Twenty-five measurement gates were used in the range from 130 µs to 6340 µs.

The transmitter waveform and the receiver decay recording scheme is shown diagrammatically in Figure 3.

Recording sampling rate was 10 samples per second.

The EM bird was towed 40 m below the helicopter.

3 Airborne magnetometer

The magnetic sensor utilized for the survey was a Geometrics optically pumped cesium vapor magnetic field sensor, mounted in a separate bird towed 15 m below the helicopter. The sensitivity of the magnetic sensor is 0.02 nanoTesla (nT) at a sampling interval of 0.1 seconds. The magnetometer sends the measured magnetic field strength as nanoTeslas to the data acquisition system via the RS-232 port.

4 Ancillary Systems

4.1 <u>Radar Altimeter</u>

A Terra TRA 3000/TRI 30 radar altimeter was used to record terrain clearance. The antenna was mounted beneath the bubble of the helicopter cockpit.

4.2 GPS Navigation System

The navigation system used was a Geotech PC based navigation system utilizing a NovAtel's WAAS enable OEM4-G2-3151W GPS receiver, Geotech navigate software, a full screen display with controls in front of the pilot to direct the flight and an NovAtel GPS antenna mounted on the helicopter tail.

The co-ordinates of the blocks were set-up prior to the survey and the information was fed into the airborne navigation system.

4.3 <u>Digital Acquisition System</u>

A Geotech data acquisition system recorded the digital survey data on an internal compact flash card. Data is displayed on an LCD screen as traces to allow the operator to monitor the integrity of the system. Contents and update rates were as follows:

2 28216

Д АТА ТҮРЕ	SAMPLING
TDEM	0.1 sec
Magnetometer	0.1 sec
GPS Position	0.2 sec
RadarAltimeter	0.2 sec

Table 3 - Sampling Rates

5 Base Station

A combine magnetometer/GPS base station was utilized on this project. A Scintrex CS-2 Cesium vapour magnetometer was used as a magnetic sensor with a sensitivity of 0.001 nT. The base station was recording the magnetic field together with the GPS time at 1 Hz on a base station computer. The base station magnetometer sensor was installed in Sioux Lookout (St. Anthony block) and in Dryden (Scarp Lake and Bridges) away from electric transmission lines and moving ferrous objects such as motor vehicles. The magnetometer base station's data was backed-up to the data processing computer at the end of each survey day.

PERSONNEL

The following Geotech Ltd. personnel were involved in the project

Field

Geophysicists/Data Processor:

Shawn Grant

Operator:

Michel Roy

Office

Data Processing/Reporting:

Andrei Bagrianski

The survey pilot and the mechanic were employed directly by the helicopter operator – Abitibi Helicopters.

Pilot:

Don Plattel

Mechanic:

Marco Blais

Overall management of the survey was carried out from the Aurora offices of Geotech Ltd. by Edward Morrison, President.

DATA PROCESSING AND PRESENTATION

Flight Path

The flight path, recorded by the acquisition program as WGS 84 latitude/longitude, was converted into the UTM co-ordinate system in Oasis Montaj.

The flight path was drawn using linear interpolation between x,y positions from the navigation system. Positions are updated every second and expressed as UTM eastings (x) and UTM northings (y).

Electromagnetic Data

A three stage digital filtering process was used to reject major sferic events and to reduce system noise. Local sferic activity can produce sharp, large amplitude events that cannot be removed by conventional filtering procedures. Smoothing or stacking will reduce their amplitude but leave a broader residual response that can be confused with geological phenomena. To avoid this possibility, a computer algorithm searches out and rejects the major sferic events. The filter used was a 16 point non-linear filter.

The signal to noise ratio was further improved by the application of a low pass linear digital filter. This filter has zero phase shift which prevents any lag or peak displacement from occurring, and it suppresses only variations with a wavelength less than about 1 second or 20 metres. This filter is a symmetrical 1 sec linear filter.

The results are presented as stacked profiles of EM voltages for the gate times.

Magnetic Data

The processing of the magnetic data involved the correction for diurnal variations by using the digitally recorded ground base station magnetic values. The base station magnetometer data was edited and merged into the Geosoft GDB database on a daily basis. The aero magnetic data was corrected for diurnal variations by subtracting the observed magnetic base station deviations. The corrected magnetic line data from the survey was interpolated between survey lines using a random point gridding method to yield x-y grid values for a standard grid cell size of approximately 0.2 cm at the mapping scale. The Minimum Curvature algorithm was used to interpolate values onto a rectangular regular spaced grid.

DELIVERABLES

The survey is described in a report, which is provided in two copies. The preliminary and final maps were produced at a scale of 1:20,000.

MAPS

The final results of the survey are presented in a colour magnetic contour map and an EM profiles map at a logarithmic scale. The coordinate/projection system used was WGS84(NAD83), Universal Transverse Mercator, zone 15. For reference the WGS84 latitude and longitude are also noted on the maps. All the maps show the flight path trace.

The map products are as follows:

Standard maps:

- 1. Total Field Magnetic color contour map on the GPS flight path, on paper in two copies
- 2. EM Profile Map at a logarithmic scale of the twenty one gates times $(220 6340 \mu s)$ on the GPS flight path, on paper in two copies.

DIGITAL DATA on CD-ROM

Two copies of CD-ROMs were prepared to accompany the report. Each CD-ROM contains a digital file of the line data in GDB Geosoft Montaj format in addition to the maps in Geosoft Montaj Map format. A *readme.txt* file may be found on the CD-ROM that describes the contents in more detail.

CONCLUSIONS

A time domain electromagnetic helicopter-borne geophysical survey has been completed over three blocks in the Kenora Area, Ontario, Canada. The total areal coverage amounts to 150.8 km². Total survey line coverage is 1620 line kilometres. The principal sensors included a Time Domain EM system and a magnetometer. Results have been presented as colour maps at a scale of 1:20,000.

A number of EM anomaly groupings were identified. Ground follow-up of those anomalies should be carried out if favourably supported by other geoscientific data.

Respectfully submitted,

Andrei Bagrianski,

Geotech Ltd.



Emerald Fields Resource Corporation Kenora, Ontario

St. Anthony/Sturgeon Lake, Scarp Lake and Bridges Township Project Areas

ASSESSMENT REPORT MAPS: INDEX 28216

Map 1	BRIDGES TOWNSHIP: Total Field Magnetics
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Map 3	BRIDGES TOWNSHIP: TDEM – Time Gates 0.22-6.34 ms
Map 4	SCARP LAKE: Total Field Magnetics
Map 5	SCARP LAKE: TDEM – Time Gates 0.19-0.68 ms
Map 6	SCARP LAKE: TDEM – Time Gates 0.22-6.34 ms
Map 7	ST. ANTHONY/STURGEON LAKE: Total Field Magnetics
Map 8	ST. ANTHONY/STURGEON LAKE: TDEM – Time Gates 0.19-0.68 ms
Map 9	ST. ANTHONY/STURGEON LASS Fine rates 0.22-6.34 ms

AUG 0 3 2004

GEOSCIENCE ACGESSMENT



Work Report Summary

Transaction No:

W0410.01229

Status: APPROVED

Recording Date:

2004-AUG-03

Work Done from: 2004-MAY-24

Approval Date:

2004-OCT-22

to: 2004-MAY-27

Client(s):

303602

EMERALD FIELDS RESOURCE CORPORATION

Survey Type(s):

AEM

AMAG

W	ork Report D	etails:								
CI	aim#	Perform	Perform Approve	Applied	Applied Approve	Assign	Assign Approve	Reserve	Reserve Approve	Due Date
K	1221101	\$400	\$400	\$400	\$400	\$0	0	\$0	\$0	2006-DEC-14
Κ	1221211	\$1,200	\$1,200	\$1,200	\$1,200	\$0	0	\$0	\$0	2005-AUG-20
K	1221212	\$2,400	\$2,400	\$2,400	\$2,400	\$0	0	\$0	\$0	2005-AUG-20
Κ	1221214	\$3,200	\$3,200	\$3,200	\$3,200	\$0	0	\$0	\$0	2005-AUG-27
K	1221215	\$1,600	\$1,600	\$1,600	\$1,600	\$0	0	\$0	\$0	2005-SEP-05
Κ	3007346	\$1,200	\$1,200	\$1,200	\$1,200	\$0	0	\$0	\$0	2006-NOV-27
Κ	3007347	\$1,600	\$1,600	\$1,600	\$1,600	\$0	0	\$0	\$0	2006-NOV-27
K	3007348	\$4,800	\$4,800	\$4,800	\$4,800	\$0	0	\$0	\$0	2006-NOV-27
Κ	3009681	\$6,400	\$6,400	\$6,400	\$6,400	\$0	0	\$0	\$0	2005-DEC-12
Κ	3009682	\$6,400	\$6,400	\$6,400	\$6,400	\$0	0	\$0	\$0	2005-DEC-12
K	3009683	\$6,400	\$6,400	\$6,400	\$6,400	\$0	0	\$0	\$0	2005-DEC-12
		\$35,600	\$35,600	\$35,600	\$35,600	\$0	\$0	\$0	\$0	-

External Credits:

\$0

Reserve:

\$0 Reserve of Work Report#: W0410.01229

\$0

Total Remaining

Status of claim is based on information currently on record.



52F13SE2006 2.28216

DOCKER

Ministry of Northern Development and Mines

Ministère du Développement du Nord et des Mines



Date: 2004-OCT-22

GEOSCIENCE ASSESSMENT OFFICE 933 RAMSEY LAKE ROAD, 6th FLOOR SUDBURY, ONTARIO P3E 6B5

ALASDAIR JAMES MOWAT **EMERALD FIELDS RESOURCE CORPORATION** 1546 PINE PORTAGE RD., KENORA, ONTARIO P9N 2K2 CANADA

Tel: (888) 415-9845 Fax:(877) 670-1555

Submission Number: 2.28216 Transaction Number(s): W0410.01229

Dear Sir or Madam

Subject: Approval of Assessment Work

We have approved your Assessment Work Submission with the above noted Transaction Number(s). The attached Work Report Summary indicates the results of the approval.

At the discretion of the Ministry, the assessment work performed on the mining lands noted in this work report may be subject to inspection and/or investigation at any time.

If you have any question regarding this correspondence, please contact BRUCE GATES by email at bruce.gates@ndm.gov.on.ca or by phone at (705) 670-5856.

Yours Sincerely,

Rom c Gashinsh. Ron C. Gashinski

Senior Manager, Mining Lands Section

Cc: Resident Geologist

Emerald Fields Resource Corporation

(Claim Holder)

Assessment File Library

Emerald Fields Resource Corporation

(Assessment Office)

