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# CAMECO GOLD INC. INTERPRETATION REPORT FOR A TOTAL FIELD MAGNETICS SURVEY COMPLETED ON THE EMPRESS EAST PROJECT SYINE (G-634) AND SANTOY LAKE (G-612) TOWNSHIPS, ONTARIO

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GEOSCIENCE ASSESSMENT OFFICE

March 1999 Garnet Wood, P.Geo. Geophysicist



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Geophysicist

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#### 1.0 INTRODUCTION

On December 16, 1998, Gibson and Associates of Sault Ste. Marie, Ontario were contracted, under contract EX-98-442, to complete 57.3 line-km of line cutting, chaining, picketing and Total Field magnetic surveying on Cameco's Empress East project. This project is located in Northern Ontario, within NTS map sheets 42D-14 and 42D-15 (Figure 1). The property straddles the Trans-Canada highway approximately 17 km east of Terrace Bay. The objective of the Total Field magnetics survey was to map the magnetic signature of the underlying lithologies and to define structure in order to test for shear hosted gold mineralization.

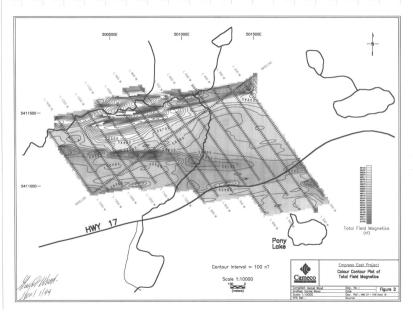
Between January 8 and February 1, 1999, approximately 16 line-km of grid preparation and magnetics surveying was completed on the western portion of the property (Figure 1). The work had to be suspended at this time due to the excessive snow cover and associated topography within the survey area. The remainder of the work will be completed led to be completed following spring break-up. A brief account of the grid preparation is described in an interim logistics report prepared by Gibson and Associates, which is included as Appendix II. The survey statistics for the magnetics survey are presented on a line by line basis in Appendix III.

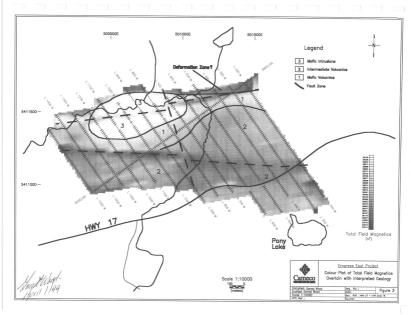
#### 2.0 SURVEY PROCEDURE AND PRESENTATION OF RESULTS

During the survey readings of the Total Magnetic field were collected along the survey lines at 12.5 metre intervals using Scintrex ENVI magnetometers. A detailed account of the survey and data reduction procedures are included in Appendix II. The Total Field magnetics data collected during the survey is presented as a shaded contour plot in Figure 2. A similar plot, overlain with the interpreted geology and structural trends, is included in Figure 3.

#### 3.0 DISCUSSION OF RESULTS

As illustrated in Figure 2 and outlined in Appendix II variances near 5,000 nT are observed in the Total Field magnetics data collected over the southwestern portion of the survey area. The dominant feature in the magnetics is a mafic intrusive, designated as Area 3 in Figure 3, located along the northern portion of the surveyed area. A 085° trending fault zone, defined by the northernmost dashed line on the interpretation map, appears to cut this intrusive in half. The darker colours in Figure 3 define a continuous magnetic low, trending 095° across the centre of the survey grid. This feature is interpreted to be the result of either a reversely magnetised dyke or a fault zone. If this feature is a fault zone, significant amounts of fluids have possibly oxidized the associated magnetic minerals within the adjacent country rock. A 170° trending fault, located subparallel to the survey lines in the centre of the survey grid, appears to cut the east-west structures and is hence interpreted to be a later feature. This 170° structure possible has a right lateral offset, based on the offset of the magnetic responses observed from the intermediate volcanics, located in the southern extent of the survey area.





#### 4.0 CONCLUSIONS AND RECOMMENDATIONS

In view of the limited survey coverage the Total Field magnetic survey has done a good job in mapping basement geology and structure given coverage within the Empress East property. High priority targets include the three structural zones interpreted from the magnetics coverage, particularly where these features intersect or where there is an indicated change in lithology. It is highly recommended to continue using Total Field magnetic surveying to map lithology and structure within the Empress East property.

# APPENDIX I

STATEMENT OF QUALIFICATIONS

#### STATEMENT OF QUALIFICATIONS

I, Garnet Wood, of the city of Saskatoon, in Saskatchewan, Canada,

#### HEREBY CERTIFY:

- 1. That my address is 2121 11th Street West, Saskatoon, Saskatchewan, Canada, S7M 1J3.
- 2. That I am a graduate of the University of Saskatchewan in Geology:
  - a) B.Sc. The University of Saskatchewan, 1987.
- 3. That I have been practicing Geophysicist since 1987:

January 1987 - July 1991	Geoterrex Ltd. Ottawa, ON	Geophysicist
November 1991 - October 1992	Cominco Exploration Ltd. Saskatoon, SK	Geophysicist
January 1993 - July 1994	Covello, Bryan and Associat Yellowknife, NWT	es Geophysicist
September 1994 - January 1996	Cogema Resources Inc. Saskatoon, SK	Geophysicist
January 1996 to Present	Cameco Corporation Saskatoon, SK	Geophysicist

4. That I am currently registered as a Professional Geoscientist in the Province of Saskatchewan.

Dated this 1st day of April, 1999 at Saskatoon, Saskatchewan.

Garnet Wood, P.Geo

#### APPENDIX II

GIBSON AND ASSOCIATES
REPORT ON LINECUTTING AND GEOPHYSICS
EMPRESS EAST PROJECT
CONTRACT #EX-98-442

# **REPORT ON**

# LINECUTTING AND GEOPHYSICS

**EMPRESS EAST PROJECT** 

CONTRACT #EX-98-442

P.O. 233317

JAN. 06/99 TO FEB.01/99

FOR

CAMECO GOLD INC.

BY

**GIBSON AND ASSOCIATES** 

**FEBRUARY 05, 1999** 

### Table of Contents

- 1. Introduction
- 2. Property Location
- 3. Access
- 4. Survey Specifications
  - : Linecutting/Grid construction
  - : Total Field Magnetic Survey
- 5. Interpretation
- 6. Recommendations
- 7. Summary

#### **INTRODUCTION**

This report will outline the activities of the field work performed on the Empress East property, by Gibson and Associates, on behalf of Cameco Gold Inc., during the winter of 1999 from January 06/99 to February 01/99.

On December 16, 1998, Gibson and Associates was contracted by Cameco Gold Inc. to perform 57.3 kilometers of grid construction and magnetic survey upon the Empress East property. Work upon the property was delayed by Cameco Gold Inc. until January 06/99. Grid construction began on the property on January 08/99, at which time Gibson and Associates was advised to complete only the western portion of the grid, as much as possible, and to return in the spring to complete the remainder. Grid work was completed on January 27, 1999 and the magnetic survey was completed on February 01, 1999.

#### PROPERTY LOCATION

The Empress East property is located approximately 17 kilometers east of the town of Terrace Bay Ontario along the Trans Canada Highway #17. The property is within Syine township, G-634, and Santoy Lake Area, G-612 of the Thunder Bay Mining Division.

#### **ACCESS**

The southern portion of the property can be accessed by a number of small logging roads leading north from the Trans Canada Highway, as well as the Trans Canada Highway itself. The Empress mine road leading off the Trans Canada provides the best access to the southern portion of the property. There are no roads or trails leading to the northern portion of the grid. Extreme topographical conditions make the majority of the grid and

the northern portion impassable by foot or vehicle. Helicopter or plane would be required to access these areas.

#### SURVEY SPECIFICATIONS

#### **Linecutting/Grid construction**

A total of 57.3 kilometers of linecutting/grid construction was contracted to Gibson and Associates to be performed on the Empress East property on December 16th of 1998 by Cameco Gold Inc. On January 08th of 1999 Gibson and Associates was advised by Cameco Gold Inc. to perform construction of only the western portion of the grid, as much as would be possible, and complete the remainder in the spring of the year. Gibson and Associates completed 15.683 kilometers of grid construction on January 27th of 1999.

A baseline was oriented at an azimuth of 55 degrees, extending the existing baseline from 1+00 W to 15+00W. The baseline was cut with chainsaw in excess of 1.5 meters of minimum width. All brush, small trees and dead fall were removed from the baseline to permit easy access for survey crews. The baseline was cut with clear line of sight with no stumps higher than 30 cm above the snowline at the time of cutting.

Pickets were erected at 25 meter station intervals by horizontal two man chaining. Pickets were painted with fluorescent paint and labeled with lumber crayon on both sides and faced in the direction of the line. Metal tags were affixed to every 50 meter station as opposed to every 25 meter stations, as instructed by Mr. Ike Osmani of Cameco Gold Inc.

Cross-lines were cut in excess of 1.0 meters in width, with chainsaw, perpendicular to the baseline. A turning board was used to turn cross-lines from the baseline. All brush, small trees and dead fall were removed from the line to permit easy access for survey crews. The cross-lines were cut with clear line of sight with no stumps higher than 30 cm above the snowline at the time of cutting.

Pickets along the cross-lines were erected at 25 meter station intervals by horizontal two man chaining. Pickets were painted with fluorescent paint and labeled with lumber crayon on both sides and faced in the direction of the line. Metal tags were affixed to every 50 meter station as opposed to every 25 meter stations, as instructed by Mr. Ike Osmani of Cameco Gold Inc.

#### TOTAL FIELD MAGNETIC SURVEY

The Total Field Magnetic survey was performed on January 30, 31st of 1999 and February 01st of 1999, with the use of two Scintrex Envi-Mag portable total-field magnetometers with a resolution of 0.1 nt. One unit was used as a base station to correct for diurnal variations which took reading every 0.5 of a second. Field/base station reading synchronization was check daily and was within 1 second per day. The departures of the base station from chords two minutes long, were observed and departures were within 2 nt during the survey period.

The second unit was used as a field unit operated in the stop and go mode configured for mineral exploration. The sensor was back-pack frame mounted for ease of handling while in the field.

Field readings were taken at 12.5 meter intervals along all cut grid lines, including baselines.

Data was collected nightly from the field unit and the base unit. Diurnal corrections were performed nightly by coupling method, between the field and base magnetometer units and downloaded to a P.C.

On January 29th of 1999, Mr. Garnet Wood, of Cameco's head office in Saskatoon, instructed Gibson and Associates to forward all magnetic data via e-mail to garnet\_wood@cameco.com, and all work concerning the magnetic data would be performed in-house. On February 01st of 1999, when all data had been worked, it was forwarded to Mr. Garnet Wood as per instructions. The generation of maps, griding, posting, recommendations,...etc., with regards to the magnetic survey and its data are being performed in house as per Mr. Garnet Wood.

#### RECOMMENDATIONS

Geophysical data was turned over to Mr. Garnet Wood of Cameco for interpretation and recommendations as instructed of January 29th of 1999.

# **SUMMARY**

Summary of events and data is to be provided by Cameco Gold Inc. as per Mr. Garnet Wood.

#### APPENDIX III

EMPRESS EAST PROJECT TOTAL FIELD MAGNETICS SURVEY SURVEY STATISTICS

XYZSTAT version 1.50.02 Copyright GEOSOFT Inc. 1994

Statistics report for file: MAG.XYZ

Z column number: 1

		<del></del> -						
type	line#	#pts	X-min	X-max	Y-min	Y-max	Z-min	Z-max
line	-200	81	-1000	5	-200	-200	57217.9	58963.5
line	-300	83	-1000	50	-300	-300	57269.6	58783.7
line	-400	70	-800	87.5	-400	-400	58075.4	58751.9
line	-500	65	-600	200	-500	-500	58096.3	58731
line	-600	65	-575	225	-600	-600	58044	59054.8
line	-700	66	-562.5	250	-700	-700	58038.7	61368.5
line	-800	75	-525	400	-800	-800	57792.6	60758.2
line	-900	77	-500	450	-900	-900	57859.4	62349
line	-500	19	-870	-650	-500	-500	58349.3	58469.3
line	-600	16	-815	-625	-600	-600	58302.4	58552.7
line	-1000	59	-325	400	-1000	-1000	57495.8	61630.2
line	-1100	57	-200	500	-1100	-1100	57739.6	62117.8
line	-1200	53	-175	475	-1200	-1200	57721	60885.7
line	-1300	50	-87.5	525	-1300	-1300	57865	59000.1
line	-1400	51	-50	575	-1400	-1400	57986.2	59146.4
line	-1500	43	0	520	-1500	-1500	57601.1	58675.7
base	0	113	0	0	-1500	-100	57758.7	58751.7

Statistics report for file: MAG.XYZ

Z column number: 1

Number of points: 1043
Number of lines: 16
Base lines: 1
Tie lines: 0
Trend lines: 0
Test lines: 0

 SUMMARY
 X-min:
 -1000
 X-max:
 575

 Y-min:
 -1500
 Y-max:
 -100

 Z-min:
 57217.9
 Z-max:
 62349

 Z-mean:
 58524.02
 Z-dev:
 529.6684



Ministry of Northern Development and Mines

## **Declaration of Assessment Work** Performed on Mining Land

Mining Act, Subsection 65(2) and 66(3), R.S.O. 1990

Transaction Number (office use) W 99 40. 00/0/ Assessment Files Research arch Imaging



ubsections 65(2) and 66(3) of the Mining Act. Under section 8 of the iew the assessment work and correspond with the mining land holder. scorder, Ministry of Northern Development and Mines, 6th Floor,

9 42D15SW2005 2.19384 SYINE	900	
•	ed on Crown Lands before reco	ording a claim, use form 0240.
- Please type or pr	int in ink. L Please Sea	
1. Recorded holder(s) (Attach	a list if necessary) altoched St	ned-
Name George Danie	N.	192011
Address P.O. Rox 58		Telaphone Number 825-9097
Terrace Bay	ON! POT 2WO	Fax Number 825-9097
Name	<del></del>	Client Number A A I
Address DA D 100	_	Telaphone Number 807 - 825 - 9214
<u> </u>	<del></del>	Fax Number
16 Lace Par	QW: POT QW	······································
See oth	a page for thered Rec	. Holder.
	- Dhysicals	NE of the following groups for this declaration.  drilling, stripping,  Rehabilitation
Geotechnical: prospecting, s assays and work under secti		and associated assays
Work Type Commed Magnetic	Zurvey	Office Use Commodity
Ground Magnetic ! Line cutting	g ,	Total \$ Value of
Dates Work From OG O	99 TO 01,02,9	Work Claimed 45 8980
Performed Day Month   Global Positioning System Data (if available)	Year Day Month Yea	Ir .
	Mor G-Plan Number	Resident Geologist
	G-634, G-612	District Schreiber - Hemlo
Please remember to: - obtain a we	ork permit from the Ministry of Noper notice to surface rights hold	
- complete a - provide a r	and attach a Statement of Costs, map showing contiguous mining	form 0212; lands that are linked for assigning work;
- İnclude two	copies of your technical report.	10
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· · · · · · · · · · · · · · · · · · ·	repared the technical report	
Name Garmet Woo	<u>[</u>	(306) 956 - 6349
Address 2121-11th St	neet West-Saskatoons	Saskath (306) 956-6390
Name	STM	133 Telephone Number
Address		Fax Number
Name	RECORDED	Telephone Number
Address	APR - 9 1999	Fax Number
		<u>GEOSGIENCE ASSESSMENT</u> OFFICE
4. Certification by Recorded H	older or Agent	8661 8 0 A9A
TI. Manager		4.19 01.14
1, <u>Lke CSman</u>	, do nereby ce	rtify that I have personal in the lacts set
forth in this Declaration of Assess or after its completion and, to the		ork to be performed or witnessed the same during exed report is true.
Signature of Recorded Holder or Agent	Sucar,	Date 07/04/99
CH.		01/07/11



Ministry of Northern Development and Mines

# Declaration of Assessment Work Performed on Mining Land

Mining Act, Subsection 65(2) and 66(3), R.S.O. 1990

Transaction Number (office use)
1).9940,00101 Assessment Files Research (maging
Assessment Files Research Imaging

Personal information collected on this form is obtained under the authority of subsections 65(2) and 66(3) of the Mining Act. Under section 8 of the Mining Act, the information is a public record. This information will be used to review the assessment work and correspond with the mining land holder. Questions about this collection should be directed to the Chief Mining Recorder, Ministry of Northern Development and Mines, 6th Floor, 933 Ramsey Lake Road, Sudbury, Ontario, P3E 6B5.

Instructions: - For work performed - Please type or print		ording a claim, use form 0240.	
1. Recorded holder(s) (Attach a li			
1. Recorded holder(s) (Attach a li	st if necessary)	Client Number	
Hudrey Ferguson	η	Client Number 86	
Address P.O.Box 1058		Telephone Number (807) 895 - 9214	
Terrace Bay Ont.	POT 2WO	Pax Nulliper	
Name		Client Number	
Address		Telephone Number	
		Fax Number	
2. Type of work performed: Chec		NE of the following groups for this declaration.  drilling, stripping, Rehabilitation	
assays and work under section	18 (regs) L trenching	g and associated assays	<u> </u>
Work Type		Office Use	
•		Commodity  Total \$ Value of	
Dates Work From	То	Work Clainted	
Performed Day Month Year Global Positioning System Data (if available)	1 1	NTS Reference	
Giodal Positioning System Data (it available)	, , , , , , , , , , , , , , , , , , ,	Mining Division Bay	
	M or G-Plan Number	Resident Geologist	
- complete and - provide a map	notice to surface rights hold attach a Statement of Costs,	fers before starting work; , form 0212; lands that are linked for assigning work;	
3. Person or companies who prep	ared the technical report	(Attach a list if necessary)	
Name	ared the technical report	Telephone Number	
Address		Fax Number	
Name		Telephone Number	
Address	/ HECOHD	Fax Number	
Name	APR - 9 199	9 Telephone Number	
Address		Fax Number	·
	•	RECEU	
4. Certification by Recorded Holde	er or Agent	APR 0 9 1993	
		APR 0 9 1997	
(Print Name)	, do hereby ce	rtify that floor personal knowledge of the facts of the facts of the facts of the facts of the same during the facts of the same during the facts of	se
forth in this Declaration of Assessment or after its completion and, to the be-	nt Work having caused the wast of my knowledge, the anno	vork to be perion for withes ed the same duri exed report is true.	ng
Signature of Recorded Holder or Agent		Date	
Agent's Address	Tel	ephone Number Fax Number	

Ontario

Ministry of Northern Development and Mines

#### Schedule for Declaration of Assessment Work on Mining Land

Transaction Number (office use) 9940.00101

Amendment

work was o	nim Number. Or if done on other eligible d, show in this column n number indicated m map.	Number of Claim Units. For other mining land, list hectares.	Value of work performed on this claim or other mining land	Value of work applied to this claim	Value of work assigned to other mining claims	Bank. Value of work to be distributed at a future date  M. Kozi of Si
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71 Kuzul Sic Coolingst



Ministry of Northern Development and Mines

#### **Statement of Costs** for Assessment Credit

Transaction Number (office use) 10100.0PPPW

07/04/1999

Amend ment

Personal Information collected on this form is obtained under the authority of subsection 8(1) of the Assessment Work Regulation 6/96. Under section 8 of the Mining Act, the information is a public record. This information will be used to review the assessment work and correspond with the mining land holder. Questions about this collection should be directed to the Chief Mining Recorder, Ministry of Northern Development and Mines, 6th Floor, 933 Ramsey Lake Road, Sudbury, Ontario, P3E 6B5.

Work Type	Units of Work  Depending on the type of work, list the number of hours/days worked, metres of drilling, kilometres of grid line, number of samples, etc.	Cost Per Unit of work	Total Cost
Line culting (grid construct	m) 16.010 km line	# 340.00 km	5,443
Ground magnetometer	15.410 Km Dime	\$ 80.00 Km	1,233
Refost-Waiting	2 days	\$\$ 402.00 day	804
0	mobilization and demobilization).		ge A Ke
Granos pe	% (W(∏)>		Sr. Ceclos
Transpo	ortation Costs (Mob. + demob.)		1,500
Food a	nd Lodging Costs		
	M.K.2.3	SR Cercognit	\$ 8,980
		of Assessment Work	d <del>4,005</del>
<ol><li>If work is filed after two years a Value of Assessment Work. If t</li></ol>	performance is claimed at 100% of the and up to five years after performance his situation applies to your claims, us	, it can only be claimed se the calculation below	at 50% of the Total
TOTAL VALUE OF ASSESSME	NT WORK × 0.50 =	Total \$ val	ue of worked claimed.
	ed to verify expenditures claimed in the ection/clarification. If verification and/o		
Certification verifying costs:  1. The OSMani (please print full name) reasonably be determined and the	, do hereby certify, that the	assessment work on th	e lands indicated on
the accompanying Declaration	ECEIVErscorded holder, agent, or state	COMPANY POSITION WITH SIGNING AU	thority)
to make this certification.	- 8 1950	Fr. A France, contradiguity and	<b></b>

GEOSCIENCE ASSESSMENT ;

Ministry of Northern Development and Mines

August 17, 1999

**BOX 526** 

P0T-2W0

GEORGE RAY DANIELS

TERRACE BAY, Ontario

Dear Sir or Madam:

**45 EAST GROVE CRESCENT** 

Ministère du Développement du Nord et des Mines



Geoscience Assessment Office 933 Ramsey Lake Road 6th Floor Sudbury, Ontario P3E 6B5

Telephone: (888) 415-9846 Fax: (877) 670-1555

Submission Number: 2.19384

Visit our website at: www.gov.on.ca/MNDM/MINES/LANDS/mlsmnpge.htm

www.gov.on.ca/MNI

Status

Subject: Transaction Number(s): W9940.00101 Approval After Notice

We have reviewed your Assessment Work submission with the above noted Transaction Number(s). The attached summary page(s) indicate the results of the review. WE RECOMMEND YOU READ THIS SUMMARY FOR THE DETAILS PERTAINING TO YOUR ASSESSMENT WORK.

If the status for a transaction is a 45 Day Notice, the summary will outline the reasons for the notice, and any steps you can take to remedy deficiencies. The 90-day deemed approval provision, subsection 6(7) of the Assessment Work Regulation, will no longer be in effect for assessment work which has received a 45 Day Notice. Allowable changes to your credit distribution can be made by contacting the Geoscience Assessment Office within this 45 Day period, otherwise assessment credit will be cut back and distributed as outlined in Section #6 of the Declaration of Assessment work form

Please note any revisions must be submitted in DUPLICATE to the Geoscience Assessment Office, by the response date on the summary.

If you have any questions regarding this correspondence, please contact Bruce Gates by e-mail at bruce.gates@ndm.gov.on.ca or by telephone at (705) 670-5856.

Yours sincerely,

ORIGINAL SIGNED BY

Blair Kite

Supervisor, Geoscience Assessment Office

20 Ha

Mining Lands Section

# **Work Report Assessment Results**

**Submission Number:** 

2.19384

Date Correspondence Sent: August 17, 1999

Assessor:Bruce Gates

Transaction Number

First Claim

Number

Township(s) / Area(s)

**Status** 

**Approval Date** 

W9940.00101

1196616

SYINE, SANTOY LAKE

Approval After Notice

August 12, 1999

Section:

14 Geophysical MAG

The revisions outlined in the Notice dated June 28, 1999, have been corrected. Accordingly, assessment work credit has been approved as outlined on the AMENDED Declaration of Assessment Work Form accompanying this submission.

Correspondence to:

Resident Geologist

Thunder Bay, ON

Assessment Files Library

Sudbury, ON

Recorded Holder(s) and/or Agent(s):

Ike Osmani

SUDBURY, ONTARIO

GEORGE RAY DANIELS TERRACE BAY, Ontario

JON DUDLEY FERGUSON

TERRACE BAY, Ontario

