A TECHNICAL REPORT ON GEOPHYSICAL WORK

(INDUCED POLARIZATION SURVEY)

performed by SAGAX Geophysics Inc.

on the

ENGLISH PROJECT

ENGLISH TOWNSHIP, ONTARIO

(NTS 42A/3)

submitted to

CAMECO CORPORATION

SUDBURY (ONTARIO)

SAGAX 96596 **March 1996**

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CONTENTS

APPENDICES

Dipole-dipole pseudosections (21) of the apparent resistivity, apparent chargeability and metal factor (scale 1:2500).

Submitted separately:

- Map 96596-1: Colour stacked pseudosections of the apparent resistivity (Scale 1:5000) (4 copies).

- Map 96596-2: Colour stacked pseudosections of the apparent chargeability (Scale 1:5000) (4 copies).

- Two sets of colour IP pseudosections.

SAGAX GEOPHYSIQUE

1. INTRODUCTION

At the request of Mr. Peter T.A. Chubb, Project Geologist with CAMECO CORPORATION, SAGAX Geophysics Inc. performed an induced polarization survey (dipole-dipole array) over the English Mining Property located 38 kilometres, as the crow flies, south of Timmins, Ontario (NTS 42A/3) (figure 1). The present geophysical work was performed from March 7 to March 24, 1996 and a total of 27,875 kilometres of IP were surveyed (see also section 3.1).

2. THE ENGLISH MINING PROPERTY

2.1 Location and Access

The English Mining Property is located about 38 kilometres, as the crow flies, south of Timmins and about 200 kilometres north of Sudbury (figure 1). Access to the property is possible from Timmins by using the Pine Station Road south, for 48 kilometres, up to the northern boundary of English township, which is located about one kilometre past the southern end of Scott Lake. The northern part of the property is located a kilometre east of that point, and access to the survey grids is possible during winter by snowmobiles using a secondary forestry road.

The field team was based at the Saw Mill Lodge owned by Janet Warnes, which is located ten kilometres further south following the Pine Station Road. From the lodge, a few other accesses were also available to reach the southern part of the property. An electric power line also crosses the English Property from north to south and provides for easy moving of equipment and people between the surveyed areas (see also section 2.3).

2.2 Description

The property consists of 170 claim units located over English, Zavitz and Semple townships (see figure 2). Sixty-four of them, located within the English township, were surveyed and are listed in table 1.

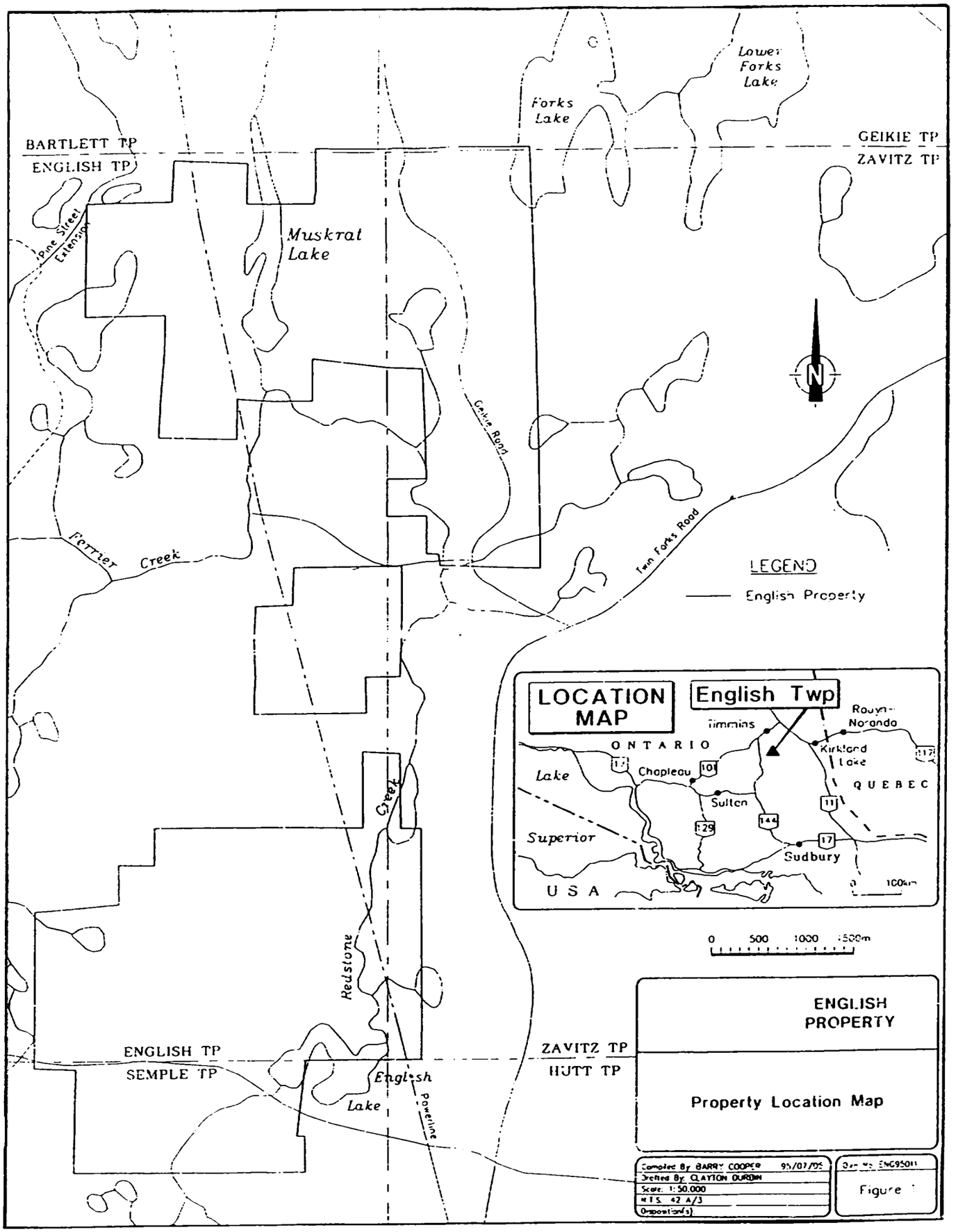

BARTLETT TP
ENGLISH TP
GEIKIE TP
ZAVITZ TP
Forks Lake
Lower Forks Lake
Muskrat Lake
Pine Street Extension
Genie Road
Ferrier Creek
Twin Forks Road
LEGEND
English Property
N
LOCATION MAP
English Twp
Timmins
Rouyn-Noranda
ONTARIO
Kirkland Lake
Chapleau
Lake
Superior
Sultan
Sudbury
QUEBEC
USA
100km
0 500 1000 1500m
Creek
Heistone
ENGLISH TP
SEMPLE TP
ZAVITZ TP
HUTT TP
English Lake
Powerline
ENGLISH PROPERTY
Property Location Map
Compiled By BARRY COOPER
Drafted By CLAYTON DURDIN
Scale: 1:50,000
N.T.S. 42 A/3
Figure

Figure 2: English Property Claims Map

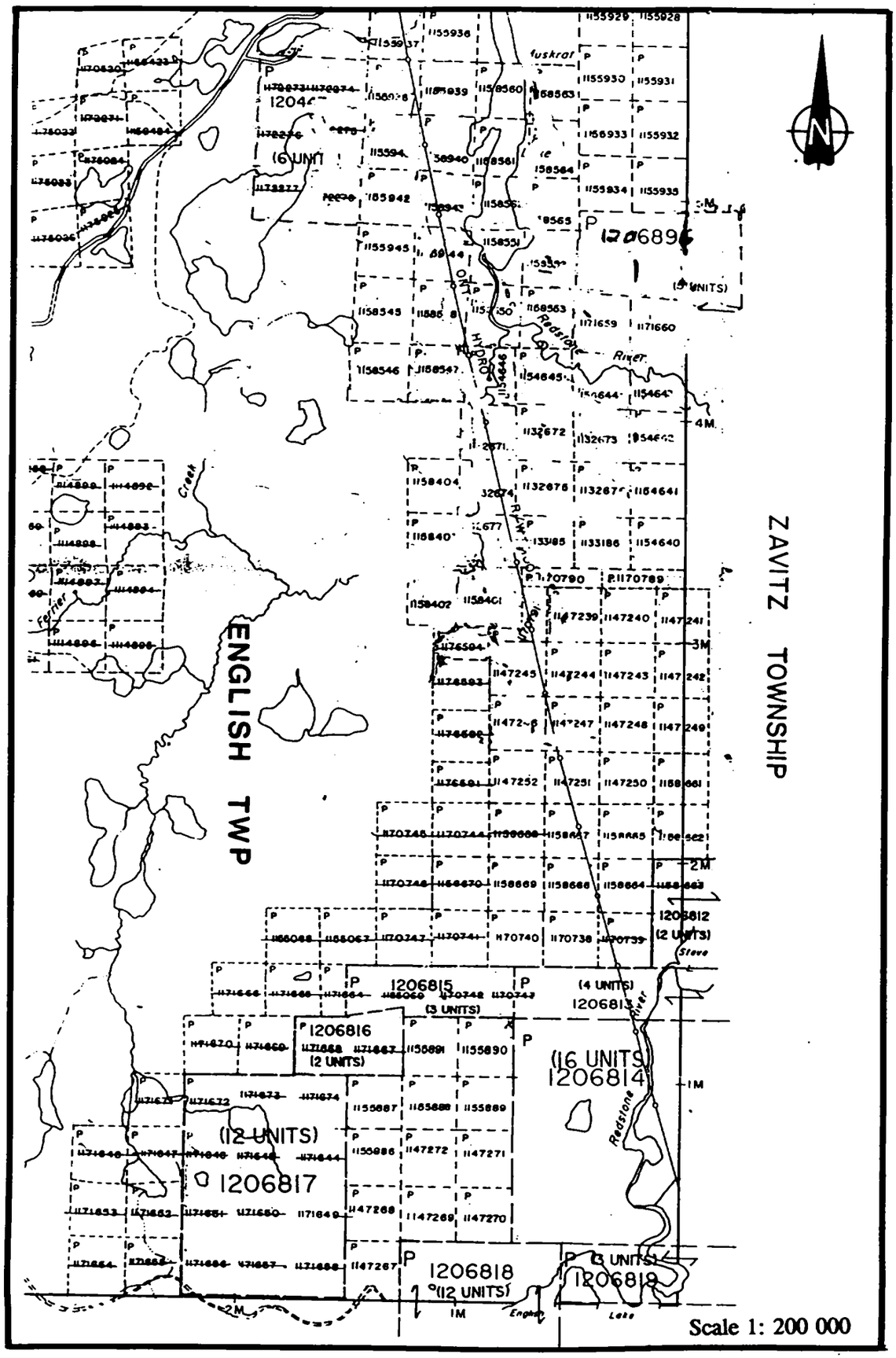


Table 1: The English Mining Property Surveyed Claims.

Claim numbers	Survey grid location
115594-3 and 4 (2)	Grid A
115854-8 (1)	Grid A
115855-0,1,2,3 (4)	Grid A
115856-2 and 5 (2)	Grid A
114724-5,6,7,8 (4)	Grid B
114725-0,1,2 (3)	Grid B
114726-8 and 9 (2)	Grid C
114727-0,1,2 (3)	Grid C
115588-6,7,8,9 (4)	Grid C
115589-0,1 (2)	Grid C
120681-3 (4 claim units)	Grid C
120681-4 (16 claim units)	Grid C
120681-5 (3 claim units)	Grid C
120681-6 (2 claim units)	Grid C
120681-7 (12 claim units)	Grid C

2.3 Survey Grids

Three different survey grids were partially investigated during the present field work and are described below. Access between these three grids is possible by using the electric power line path that crosses the property from north to south.

2.3.1 Grid A

Grid A is metric and made of a base line labelled BL 0+00 and of a tie line labelled TL 12+00E. These lines strike N2° and were regularly picketed and chained every 25 metres (see figure 3).

Survey lines were implemented every 100 metres along base line BL 0+00, which extends over 2900 metres from L 15+00S to L 14+00N. All survey lines were regularly picketed and chained every 25 metres; they strike N92°.

2.3.2 Grid B

Grid B is metric and made of a base line labelled BL 0+00 and of two tie lines labelled TL 5+00W and TL 5+00E. These lines strike N25° and they were regularly picketed and chained every 25 metres (see figure 3).

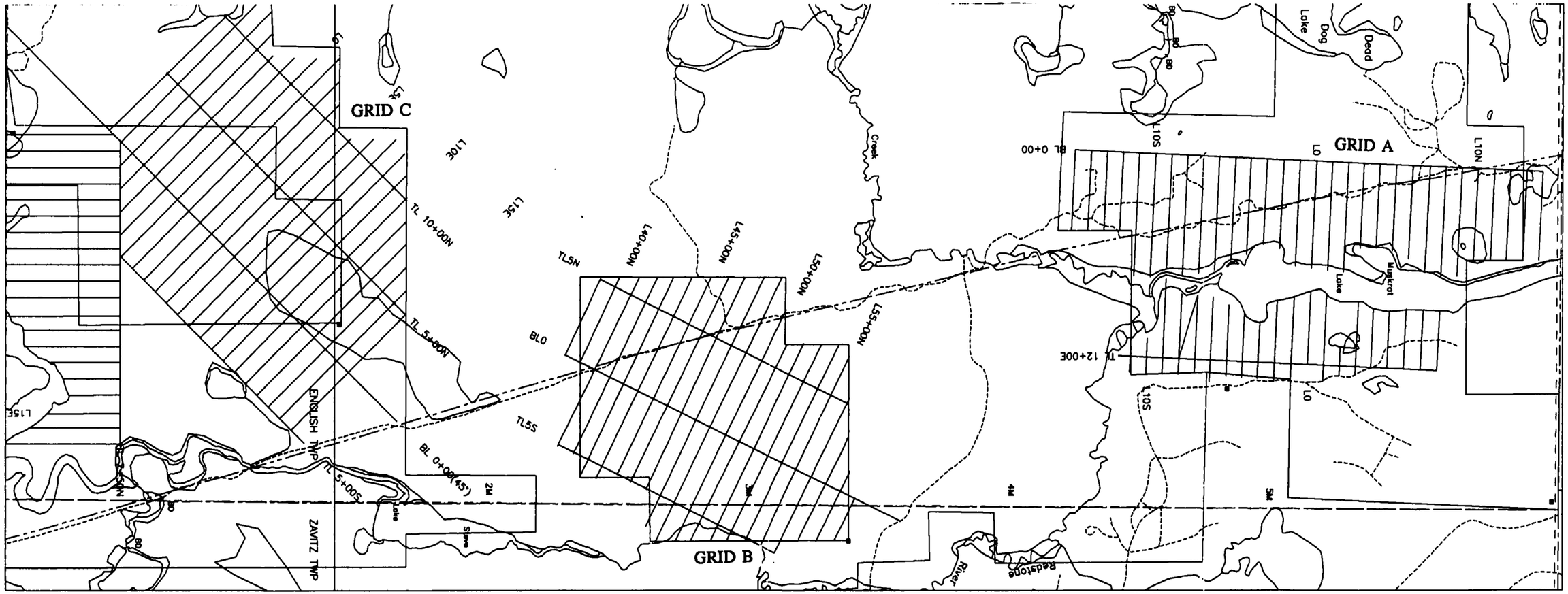
Survey lines were implemented every 100 metres along base line BL 0+00, which extends over 2000 metres from L 39+00N to L 59+00N. All these survey lines were regularly picketed and chained every 25 metres; they strike N115°.

2.3.3 Grid C

Grid C is metric and made of a base line labelled BL 0+00 and of three tie lines labelled TL 10+00N, TL 5+00N and TL 5+00S. These lines strike N45° and they were regularly picketed and chained every 25 metres (see figure 3).

Survey lines were implemented every 100 metres along base line BL 0+00, which extends over 2000 metres from L 6+00W to L 15+00E. All these lines were regularly picketed and chained every 25 metres; they strike N135°.

Figure 3: Survey Grids



Scale 1: 25 000

3. TECHNICAL SPECIFICATIONS OF THE SURVEY

3.1 Generalities

A total of 27,875 kilometres of IP were surveyed from March 7 to March 24, 1996 over the English Mining Property (see table 2). The field work was performed by Mr. Marc Collin, Mining Technician, while five other workers completed the team.

Table 2: IP coverage performed over the English Mining Property

Survey grid	Coverage		Metres
	Line	Stations	
A	L 9+00S	5+50E to 14+00E	850
	L 7+00S	4+00E to 12+75E	875
	L 5+00S	3+75E to 14+25E	1050
	L 3+00S	3+00E to 14+00E	1100
	L 1+00S	2+75E to 14+50E	1175
	L 1+00N	2+00E to 14+25E	1225
B	L 43+00N	3+00W to 6+50E	950
	L 45+00N	4+25W to 6+00E	1025
	L 47+00N	6+25W to 5+25E	1150
C	L 6+00W	4+75S to 10+00N	1475
	L 4+00W	5+00S to 12+00N	1700
	L 2+00W	5+00S to 10+50N	1550
	L 0+00	5+00S to 12+00N	1700
	L 2+00E	5+25S to 11+50N	1675
	L 4+00E	5+00S to 10+25N	1525
	L 6+00E	5+00S to 10+50N	1550
	L 8+00E	5+00S to 12+00N	1700
	L 10+00E	3+00S to 10+25N	1325
	L 12+00E	3+75S to 8+00N	1175
	L 14+00E	5+00S to 5+25N	1025
	TL 5+00N	5+75W to 15+00E	2075
			Total: 27,875 km

3.2 Induced Polarization Survey

3.2.1 Electrode Array

The dipole-dipole array (figure 4) was used for the investigation of all four IP lines performed on the English Property. Nominal spacing *a* between the electrodes was set at 25 metres and separation factor *n* between dipoles ranged from 1 to 6.

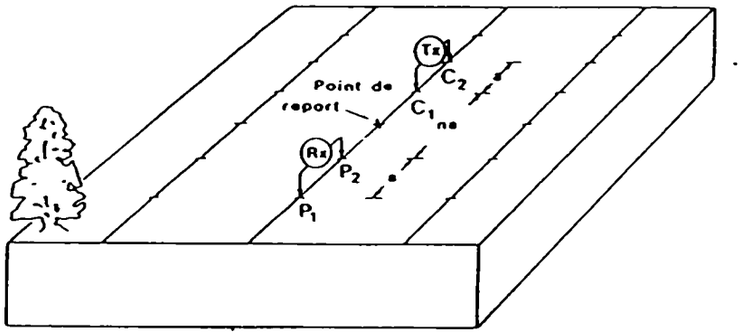


Figure 4: The dipole-dipole array

3.2.2 Equipment

The induced polarization equipment used consisted of a transmitting device as well as a receiving device, both working in pulse current mode. A Phoenix Geophysics Ltd. model IPT-1 device, powered by a motor generator capable of supplying 2 kW of continuous power, was used to provide a stable current. Stainless steel electrodes were used to transmit current. The transmitted current was a bipolar on-off (50 % duty cycle) square wave (figure 5).

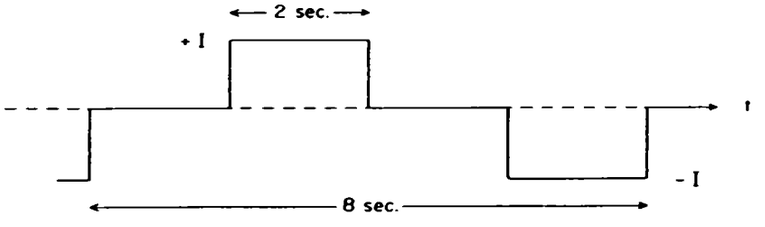


Figure 5: The transmitted signal at C_1-C_2

Primary voltage V_p and apparent resistivity M were measured using an Iris Instruments Inc. IP-6 receiver. Integration of the transient voltage after current shut-off was performed in ten gates of 160 ms each (figure 6).

Parameters M_1 to M_{10} are automatically normalized with respect to a Standard Newmont curve, where the voltage decrease is due to pure electrode polarization. Any parasitic effect on the received signal can then be detected and filtered out using the deviation from the norm of the values of M_1 to M_{10} read at the receiver. Stainless steel electrodes were used for the receiving dipole.

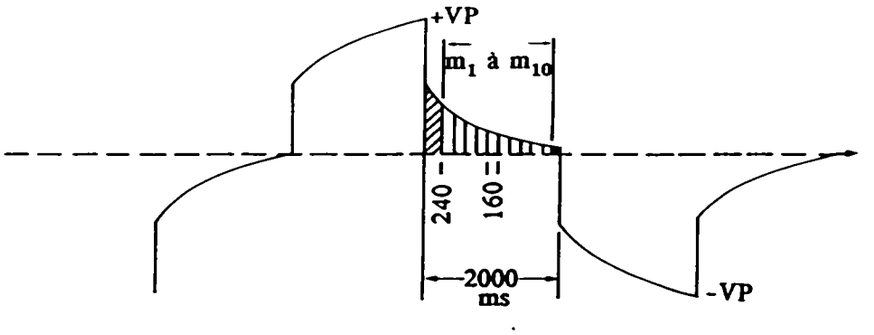


Figure 6: The signal integrations windows at P_1-P_2

3.2.3 IP Survey Parameters Calculation

Apparent resistivity was determined using the following equation:

$$\rho_a = \pi \cdot n\,(n+1) \cdot (n+2) \cdot a \cdot \frac{V_p}{I} \quad (in\ \Omega \cdot m)$$

Where
a = dipole length (25 m)
n = dipole separation factor
V_P = primary voltage (mV)
I = injected current (mA)

Chargeability M is the average of the ten normalized windows, expressed in mV/V.

The metal factor is calculated with the following equation: $FM = \frac{1000 \cdot M}{\sqrt{\rho_a}}$

The Fraser filter used consisted of an equal weight of twelve data point triangle.

3.2.4 Quality Control

The anomalies observed on the western end of the profiles carried out over Grid A must first be taken care of, because of the close presence of the electric power line. These anomalies might be, at least in part, explained by the power line. No particular evidence of a contribution of the power line to the measurements performed over grids B and C can however be observed.

Over grid A, several picketing and chaining errors were observed. In fact, it seems that the survey lines of this grid were cut from the base line west of the lake and from tie line TL 12+00E east of the lake. On the field we observed a line shift of the order of 25 metres from one side of the lake to the other. In addition, tie line TL 12+00E appears to be located less than 1200 metres apart from base line BL 0+00. On grid A, line L 11+00S was not surveyed because only 200 metres of this line were found east of the power line, while originally the survey was to be performed over 850 metres on this line. Again on grid A, the continuity of L 7+00S was not found east of a wide swampy area. Therefore an old survey line identified east of this area was used to complete the survey on L 7+00S east of the swamp. The approximate location of this old line was indicated on the AutoCad base map sent with the IP results (see also the Colour Stacked Pseudosections maps submitted separately). Elsewhere the principal characteristics of the measured parameters are discussed below and summarized in table 3.

The apparent resistivity error is essentially that of the analog current *I* readout and the nominal spacing *a* between the electrodes, approximately 5% in all.

Final chargeability measurements (M_1 to M_{10}) represent the average of 8 to 12 measuring cycles. However the difference between the ten normalized windows is the best indicator of the quality and the purity of a chargeability reading. Hence, if parasitic signals such as telluric noise and electromagnetic coupling are encountered, the repeatability and the stability of an induced polarization measurement (chargeability, frequency effect, or phase angle) do not necessarily mean quality, because these parasitic signals are periodic and affect each measurement in a similar fashion. Normalization enables us to compare precisely and *in situ* the shape of the voltage curve with that of a curve caused by a pure electrode polarization effect.

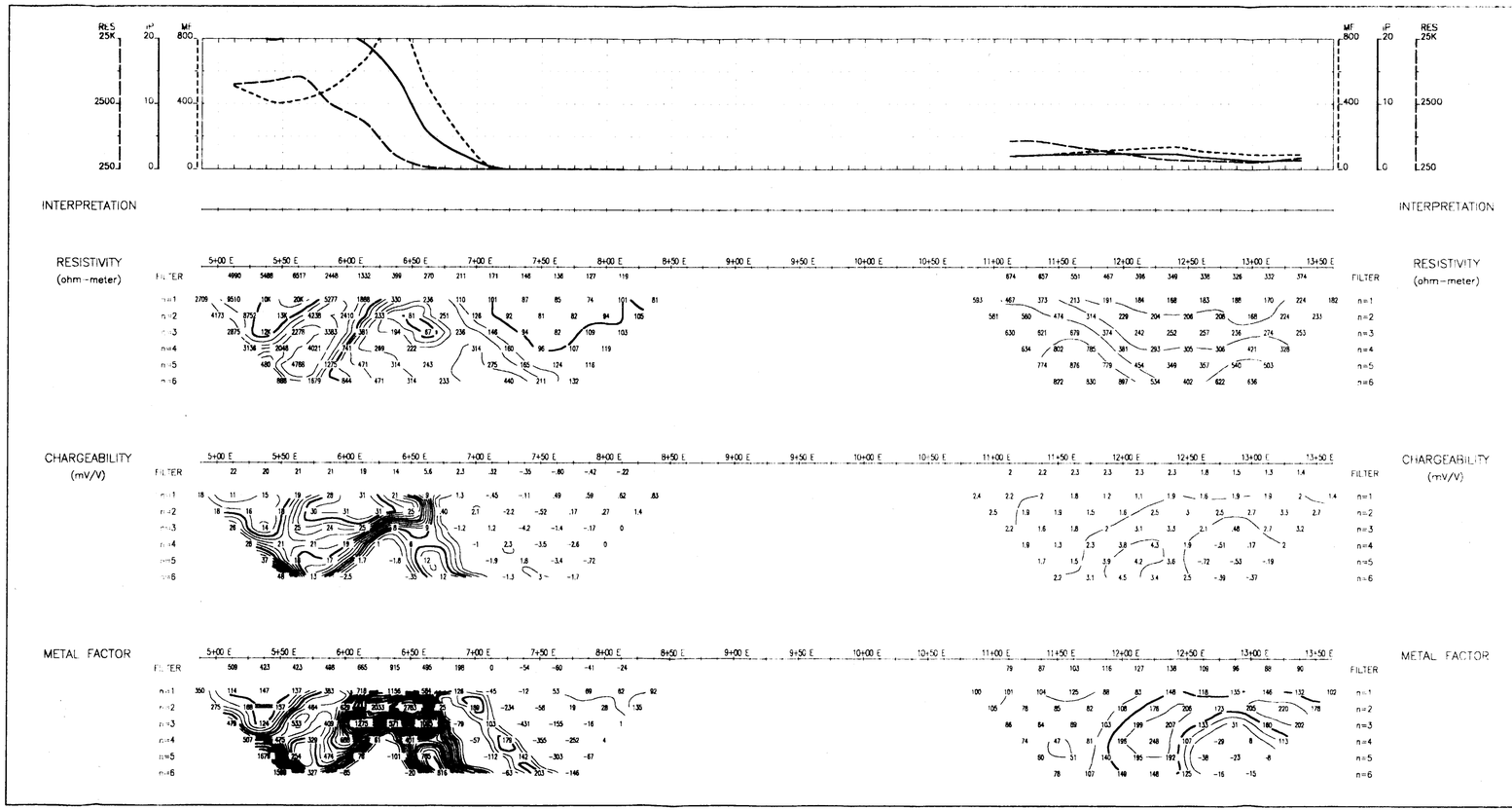
Table 3: Characteristics of IP Measured Parameters

Injected current	50 to 1500 mA (average of 500 mA)
Measured voltage (n = 6)	3 to 50 mV (average of 5 mV)
Accuracy of apparent resistivity measurements	5%
Accuracy of apparent chargeability measurements (n = 6)	0,5 to 1,5 mV/V (average of 0,75 mV/V)
Contact resistance	0,1 to 15 kΩ (average of 1,0 kΩ)

Respectfully submitted,

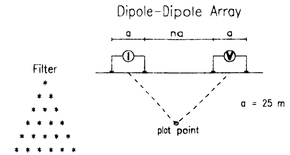
Joël Simard,
Geophysicist

ANNEXES



INDUCED POLARIZATION SURVEY

Dipole-Dipole Array



Contour interval:
Resistivity: 1, 1.5, 2, 3, 5, 7.5, 10,..
Chargeability: 2
Metal Factor: 50

Metal Factor Definition: MF = 1000*Ma/(Ra)^0.5

Instruments: IP-6, IPT-1

Line 9+00 S

Scale 1 : 2500

25 0 25 50 75 100 125 150 175m

CAMECO CORPORATION

ENGLISH PROPERTY
GRID A
ENGLISH TWP, ONTARIO

Interpreted by: Ron Matthews, Geophysicist
Date of survey: March 1996
Surveyed by: Marc Collin, Min. Tech.
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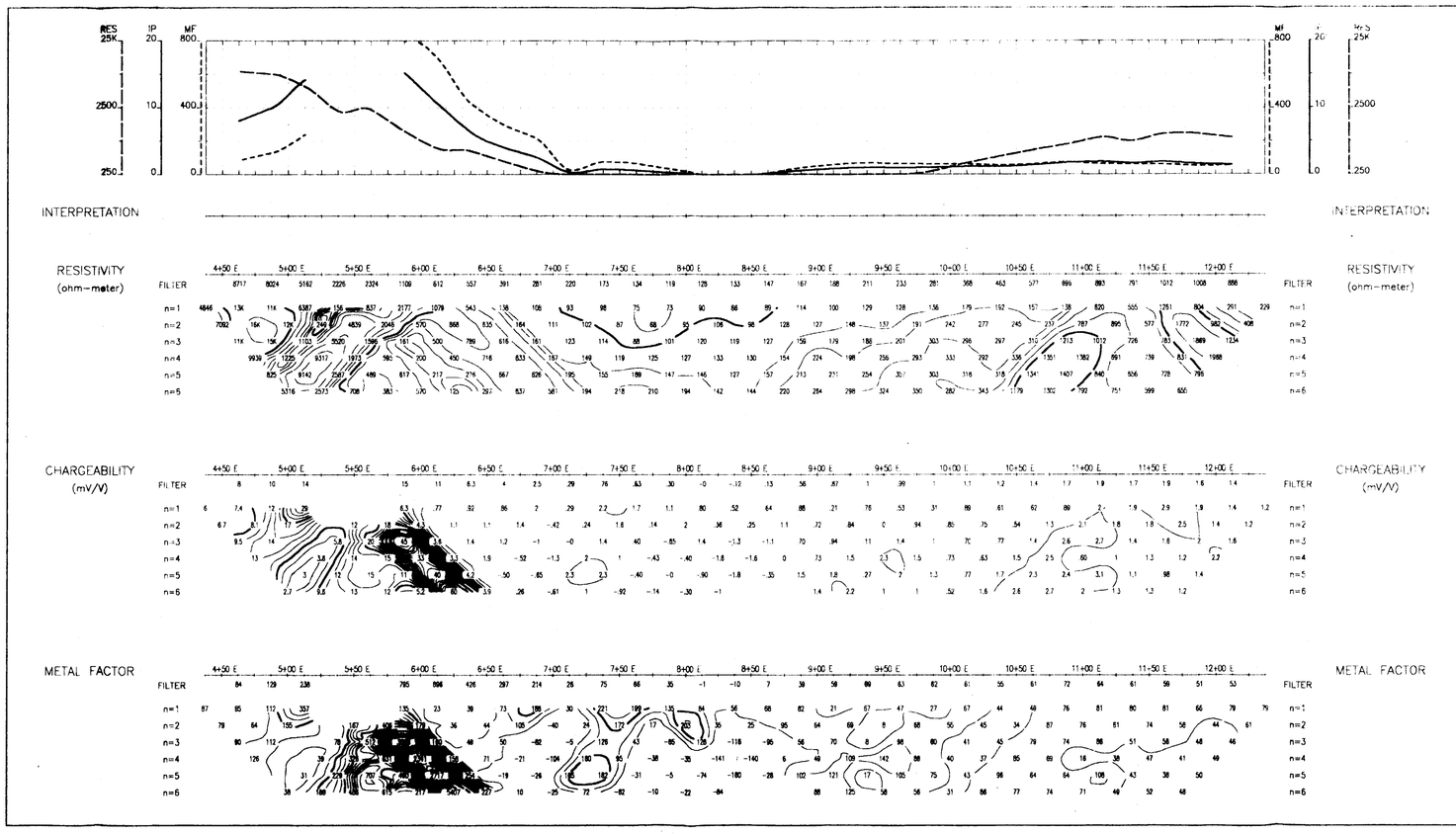
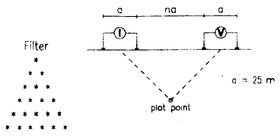


INDUCED POLARIZATION SURVEY

Dipole-Dipole Array



Contour interval:
Resistivity: 1, 1.5, 2, 3, 5, 7.5, 10,..
Chargeability: 2
Metal Factor: 50

Metal Factor Definition: MF = 1000•Ma/(Ra)^0.5

Instruments: IP-6, IPT-1

Line 7+00 S

Scale 1 : 2500

25 0 25 50 75 100 125 150 175m

CAMECO CORPORATION

ENGLISH PROPERTY
GRID A
ENGLISH TWP, ONTARIO

Interpreted by: Ron Matthews, Geophysicist
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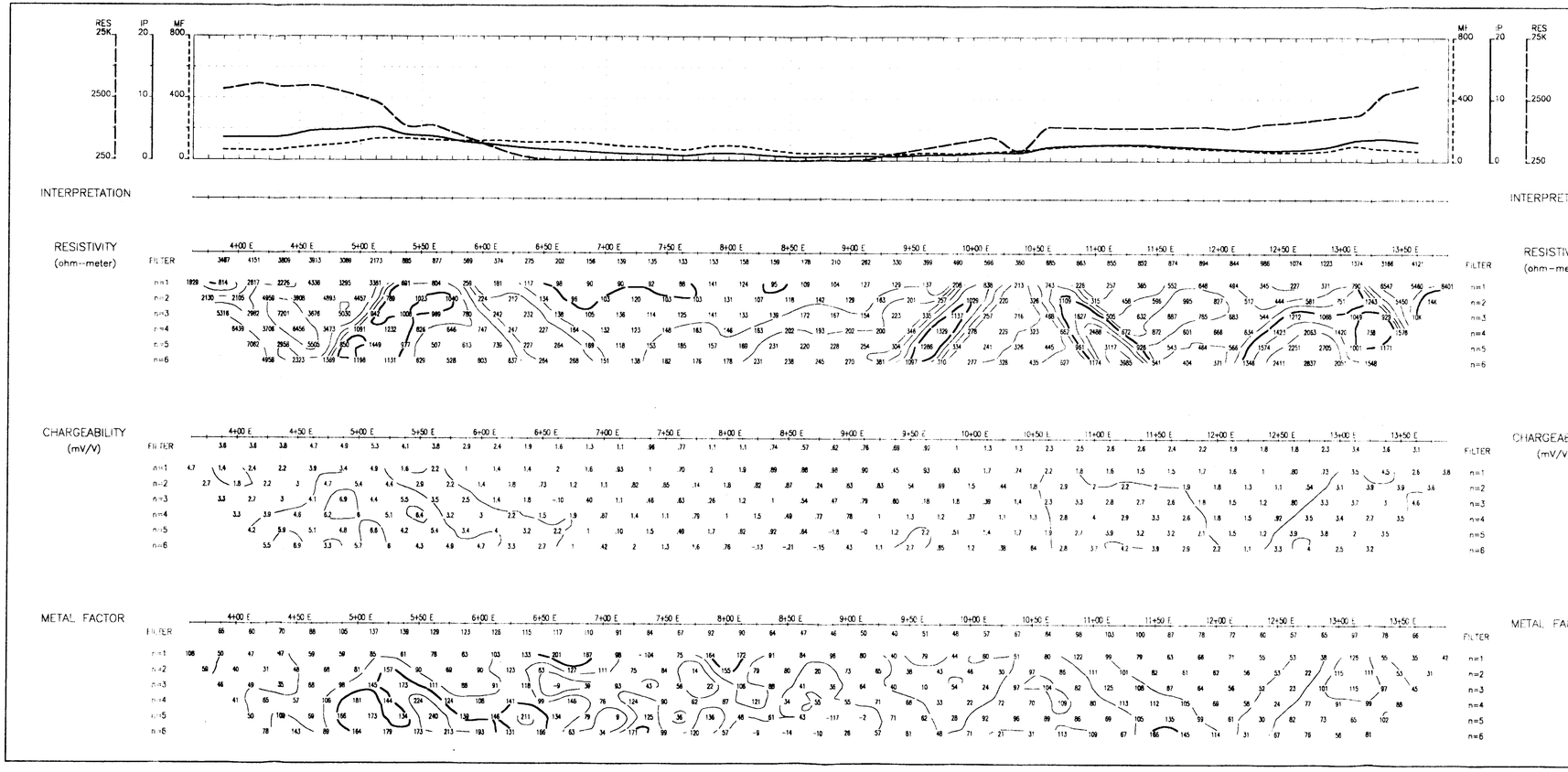
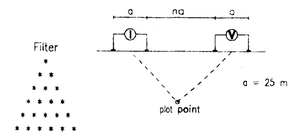
SAGAX GEOPHYSIQUE



INDUCED POLARIZATION SURVEY

Dipole-Dipole Array



Contour interval:
Resistivity: 1, 1.5, 2, 3, 5, 7.5, 10,..
Chargeability: 2
Metal Factor: 50

Metal Factor Definition: MF = 1000*Ma/(Ra)^0.5

Instruments: IP-6, IPT-1

Line 5+00 S

Scale 1 : 2500

25 0 25 50 75 100 125 150 175m

CAMECO CORPORATION

ENGLISH PROPERTY
GRID A
ENGLISH TWP, ONTARIO

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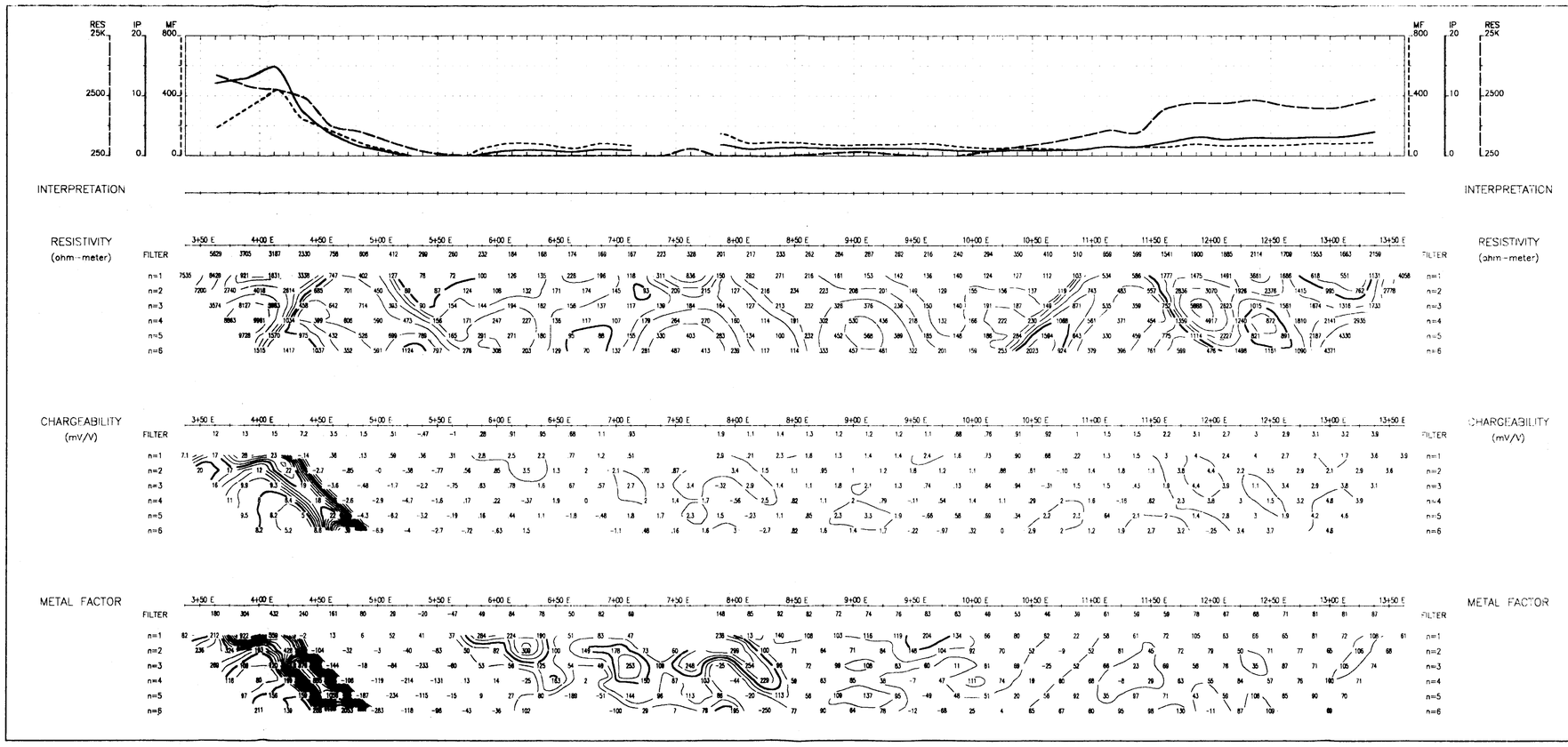
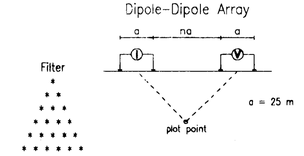


INDUCED POLARIZATION SURVEY

Dipole-Dipole Array



Contour interval:
Resistivity: 1, 1.5, 2, 3, 5, 7.5, 10,..
Chargeability: 2
Metal Factor: 50

Metal Factor Definition: MF = 1000*Ma/(Ra)^0.5

Instruments: IP-6, IPT-1

Line 3+00 S

Scale 1 : 2500

25 0 25 50 75 100 125 150 175m

CAMECO CORPORATION

ENGLISH PROPERTY
GRID A
ENGLISH TWP, ONTARIO

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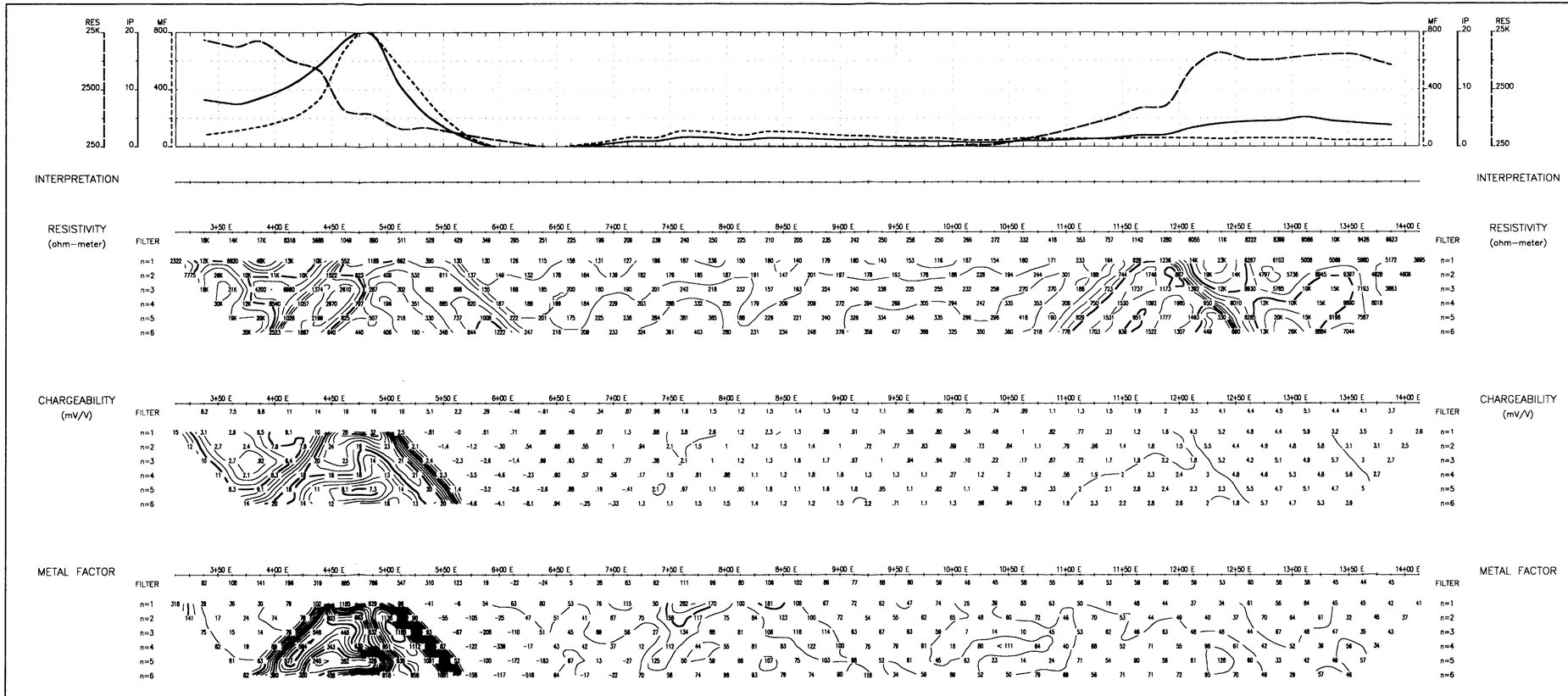
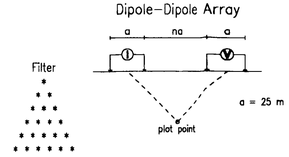
SAGAX GEOPHYSIQUE



INDUCED POLARIZATION SURVEY

Dipole–Dipole Array



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Chargeability: 2
Metal Factor: 50

Metal Factor Definition: MF = 1000*Ma/(Ra)^0.5

Instruments: IP-6, IPT-1

Line 1+00 S

Scale 1 : 2500

25 0 25 50 75 100 125 150 175m

CAMECO CORPORATION

ENGLISH PROPERTY
GRID A
ENGLISH TWP, ONTARIO

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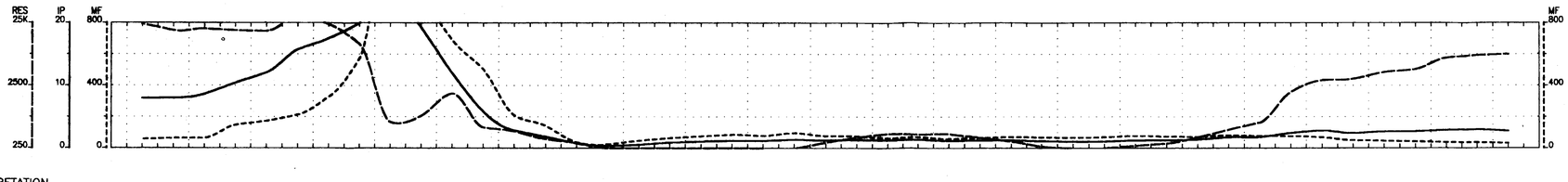
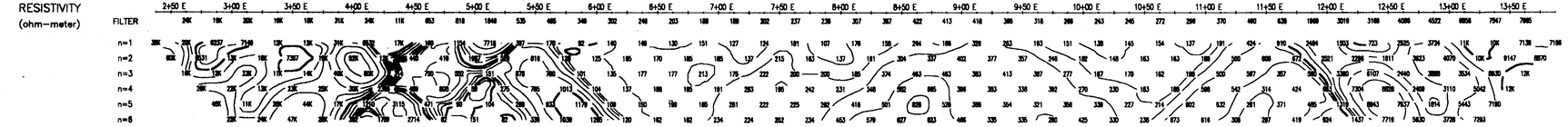
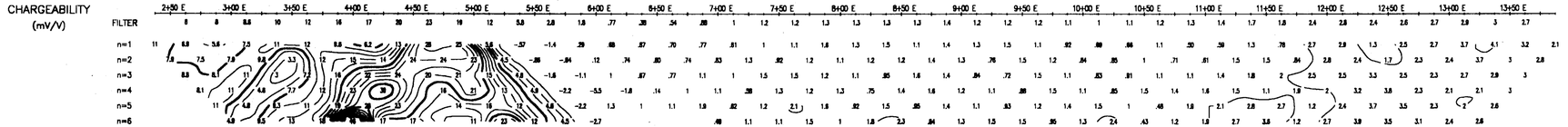
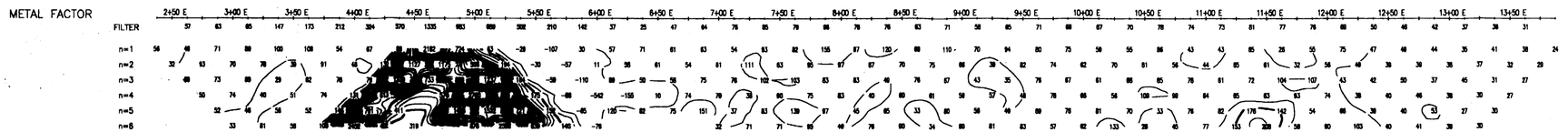


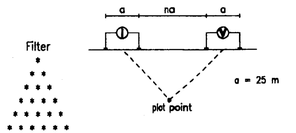






INDUCED POLARIZATION SURVEY

Dipole-Dipole Array



Contour interval:
- Resistivity: 1, 1.5, 2, 3, 5, 7.5, 10,..
- Chargeability: 2
- Metal Factor: 50

Metal Factor Definition: MF = 1000*Ma/(Ra)^0.5

Instruments: IP-6, IPT-1

Line 1+00 N

Scale 1 : 2500

25 0 25 50 75 100 125 150 175m

CAMECO CORPORATION

ENGLISH PROPERTY
GRID A
ENGLISH TWP, ONTARIO

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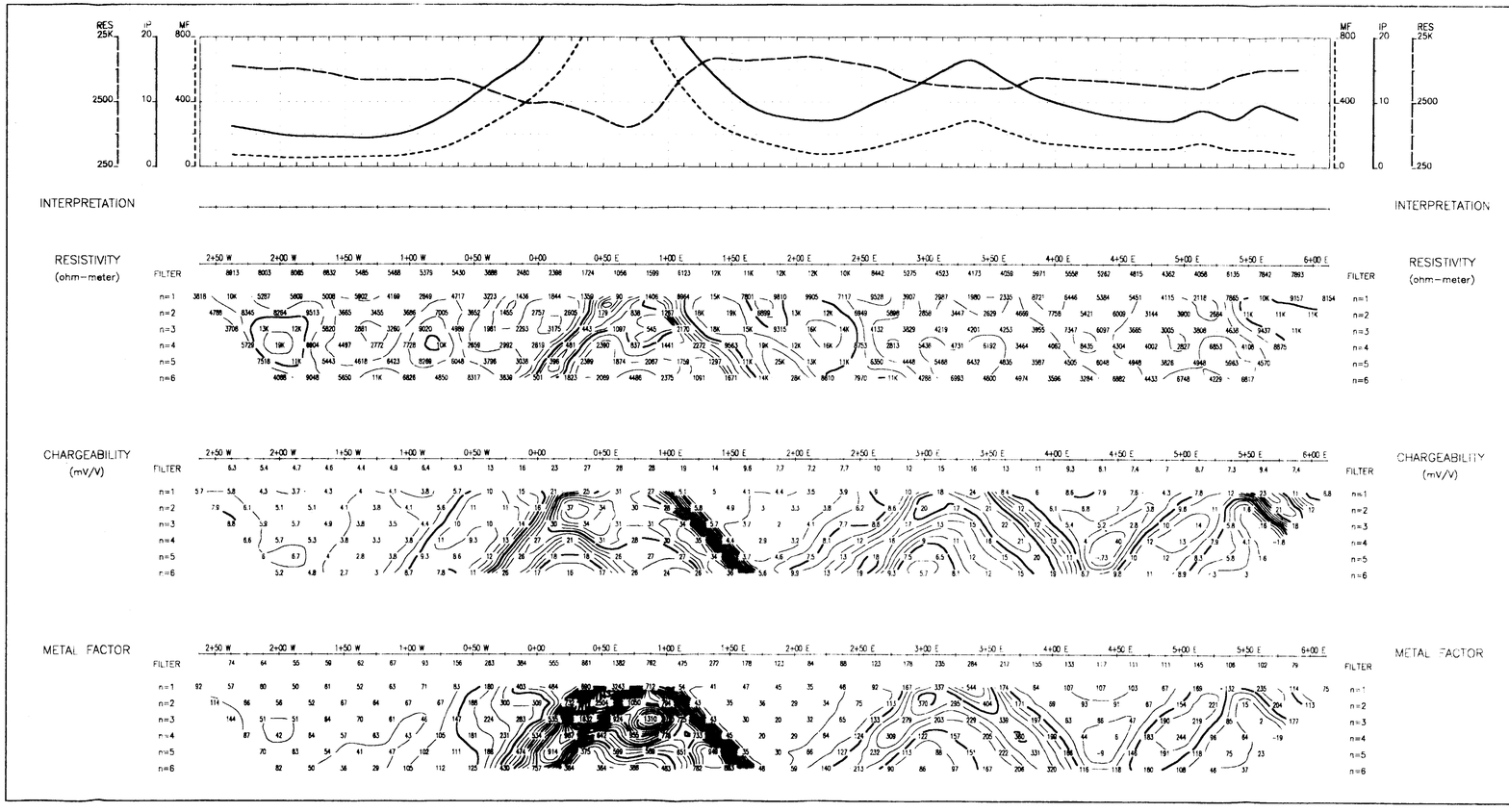
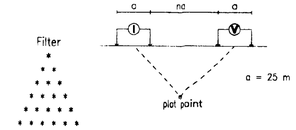


INDUCED POLARIZATION SURVEY

Dipole-Dipole Array



Contour interval:
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Chargeability: 2
Metal Factor: 50

Metal Factor Definition: MF = 1000•Ma/(Ra)0.5

Instruments: IP-6, IPT-1

Line 43+00 N

Scale 1 : 2500

25 0 25 50 75 100 125 150 175m

CAMECO CORPORATION

ENGLISH PROPERTY
GRID B
ENGLISH TWP, ONTARIO

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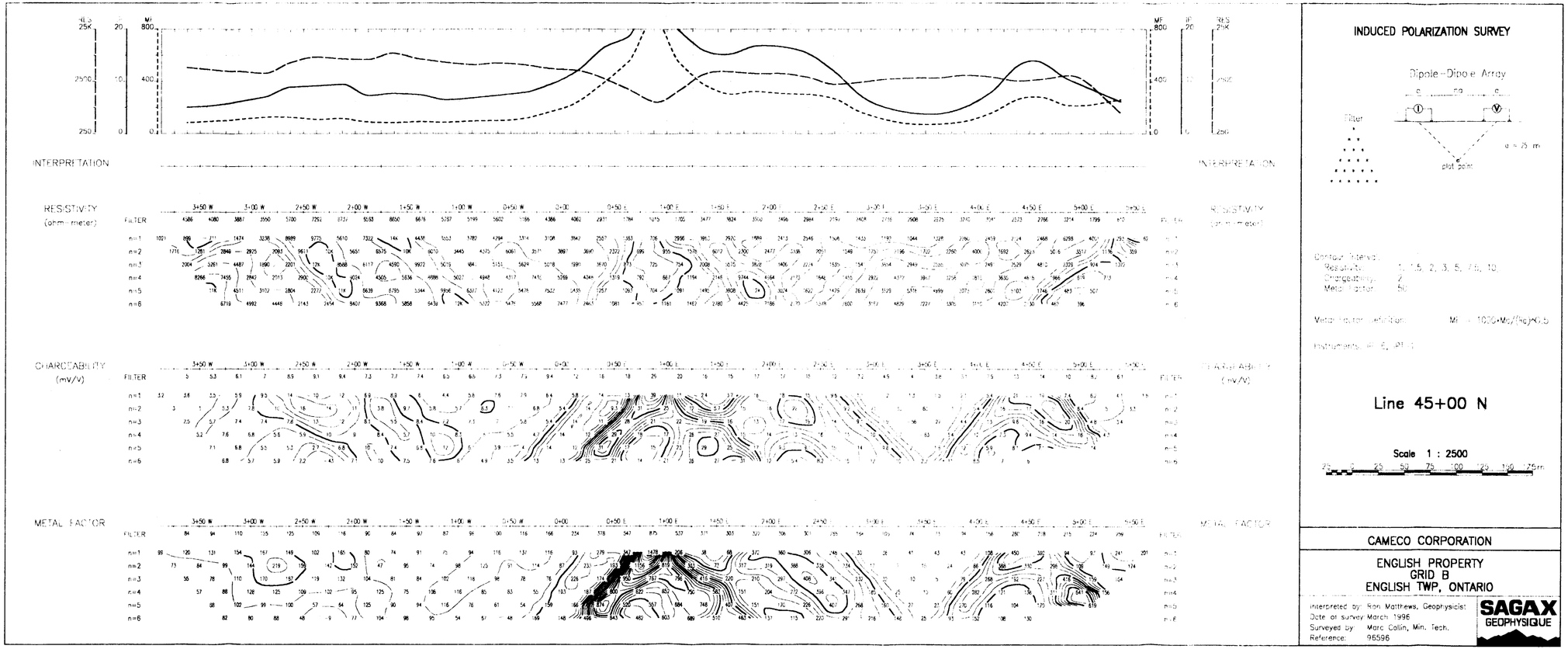
SAGAX GEOPHYSIQUE



INDUCED POLARIZATION SURVEY

Dipole-Dipole Array

Contour Intervals:
Resistivity: 1, 1.5, 2, 3, 5, 7.5, 10
Chargeability: 2
Metal Factor: 50

Metal Factor definition: MF = 1000•Me/(Ra)•(G.I.)²

Instruments: IP-6, PP-15

Line 45+00 N

Scale 1 : 2500

25 0 25 50 75 100 125 150 175m

CAMECO CORPORATION

ENGLISH PROPERTY
GRID B
ENGLISH TWP, ONTARIO

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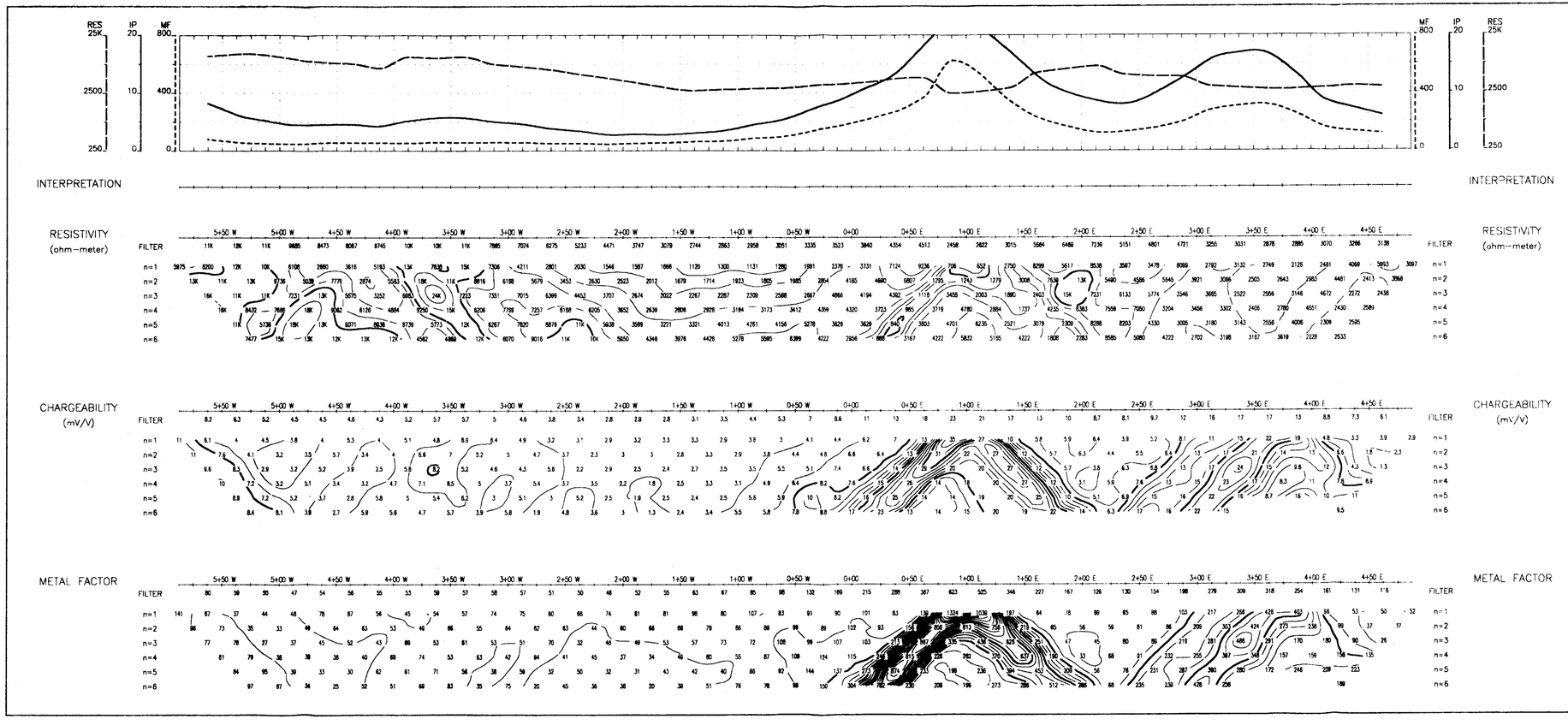
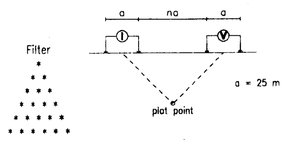
Reference: 96596

SAGAX GEOPHYSIQUE



INDUCED POLARIZATION SURVEY

Dipole-Dipole Array



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Chargeability: 2
Metal Factor: 50

Metal Factor Definition: MF = 1000*Ma/(Ra)^0.5

Instruments: IP-6, IPT-1

Line 47+00 N

Scale 1 : 2500

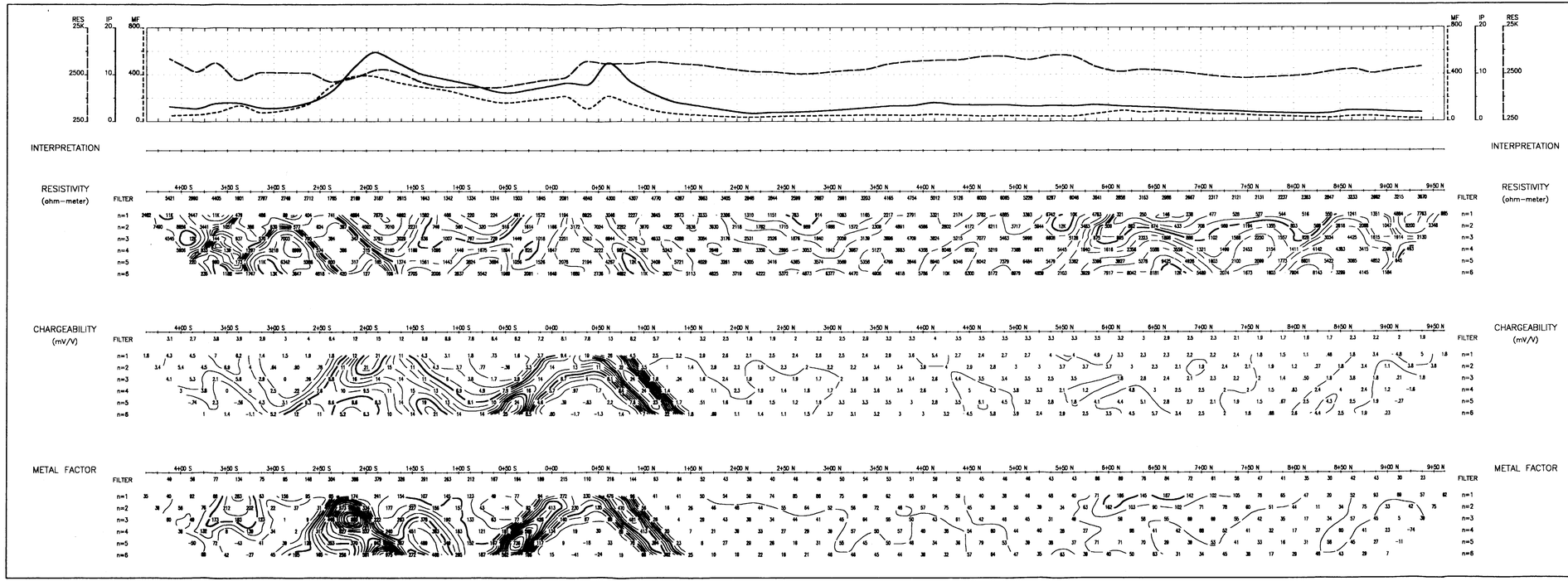
25 0 25 50 75 100 125 150 175m

CAMECO CORPORATION

ENGLISH PROPERTY
GRID B
ENGLISH TWP, ONTARIO

Interpreted by: Ron Matthews, Geophysicist
Date of survey: March 1996
Surveyed by: Marc Collin, Min. Tech.
Reference: 96596

SAGAX GEOPHYSIQUE



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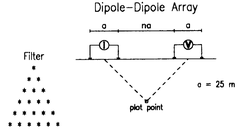

Contour interval:
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Chargeability: 2
Metal Factor: 50

Metal Factor Definition: MF = 1000*Ma/(Ra)*0.5

Instruments: IP-6, IPT-1

Line 6+00 W

Scale 1 : 2500

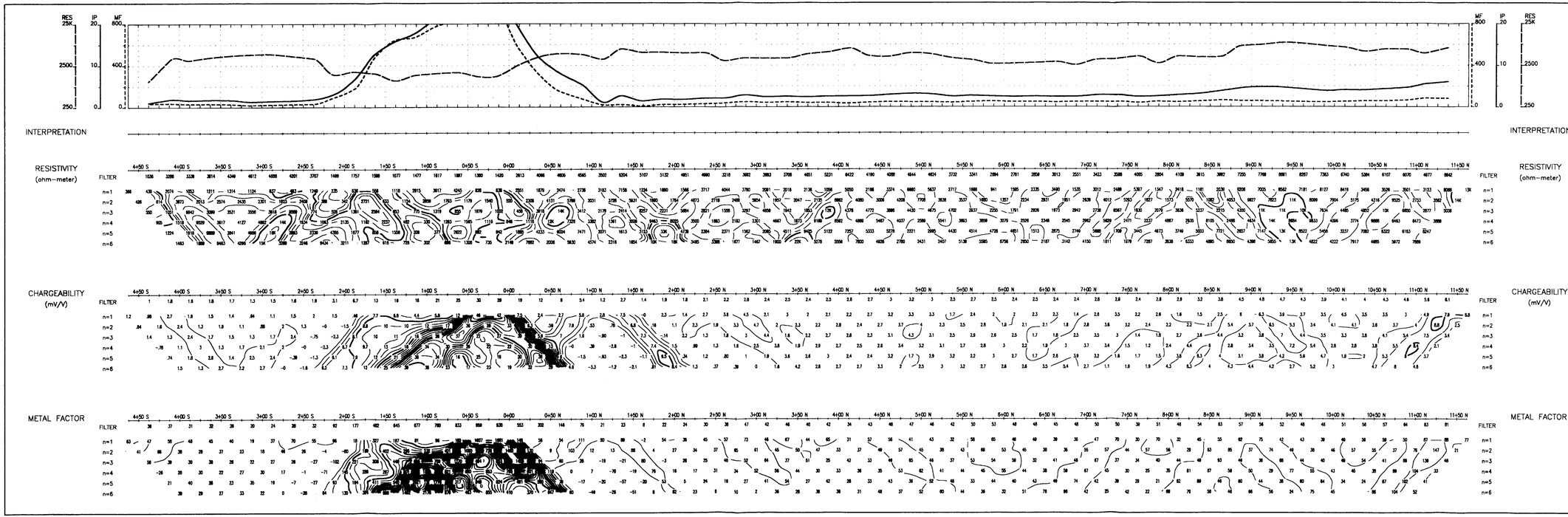
25 0 25 50 75 100 125 150 175m

CAMECO CORPORATION

ENGLISH PROPERTY
GRID C
ENGLISH TWP, ONTARIO

Interpreted by: Ron Matthews, Geophysicist
Date of survey: March 1996
Surveyed by: Marc Collin, Min. Tech.
Reference: 96596

SAGAX GEOPHYSIQUE



INDUCED POLARIZATION SURVEY

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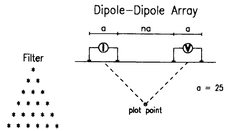

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Chargeability: 2
Metal Factor: 50

Metal Factor Definition: MF = 1000•Ma/(Ra)^0.5

Instruments: IP-6, IPT-1

Line 4+00 W

Scale 1 : 2500

25 0 25 50 75 100 125 150 175m

CAMECO CORPORATION

ENGLISH PROPERTY
GRID C
ENGLISH TWP, ONTARIO

Interpreted by: Ron Matthews, Geophysicist
Date of survey: March 1996
Surveyed by: Marc Collin, Min. Tech.
Reference: 96596

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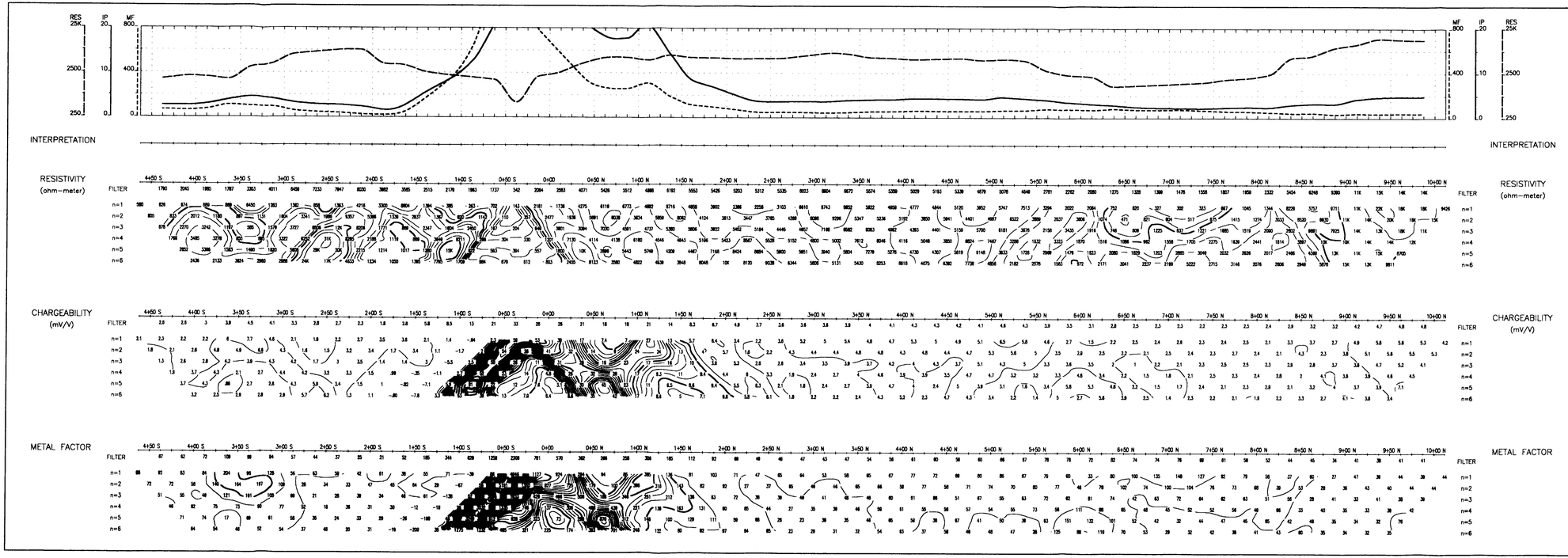

INDUCED POLARIZATION SURVEY

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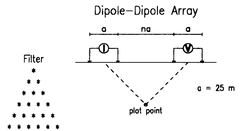

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Chargeability: 2
Metal Factor: 50

Metal Factor Definition: $MF = 1000*Ma/(Ra)^{0.5}$

Instruments: IP-6, IPT-1

Line 2+00 W

Scale 1 : 2500

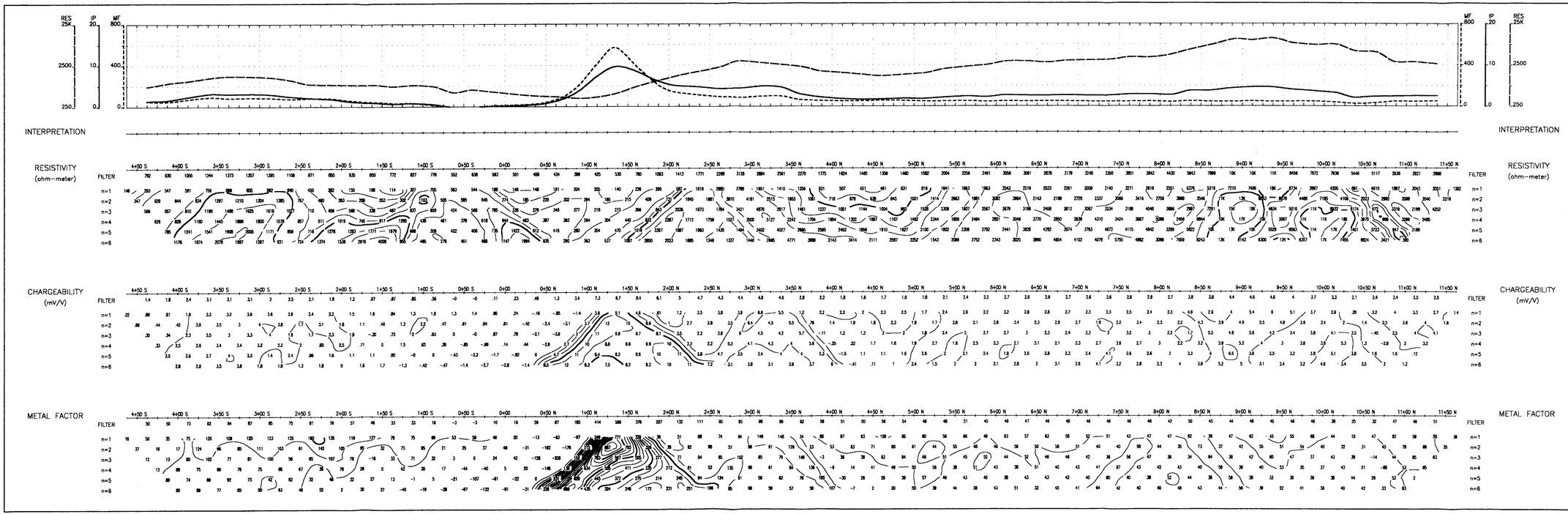
25 0 25 50 75 100 125 150 175m

CAMECO CORPORATION

ENGLISH PROPERTY
GRID C
ENGLISH TWP, ONTARIO

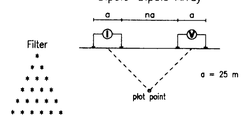
Interpreted by: Ron Matthews, Geophysicist
Date of survey: March 1996
Surveyed by: Marc Collin, Min. Tech.
Reference: 96596

SAGAX GEOPHYSIQUE



INDUCED POLARIZATION SURVEY

Dipole–Dipole Array



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Chargeability: 2
Metal Factor: 50

Metal Factor Definition: MF = 1000•Ma/(Ra)•0.5

Instruments: IP-6, IPT-1

Line 0+00

Scale 1 : 2500

25 0 25 50 75 100 125 150 175m

CAMECO CORPORATION

ENGLISH PROPERTY
GRID C
ENGLISH TWP, ONTARIO

Interpreted by: Ron Matthews, Geophysicist
Date of survey: March 1996
Surveyed by: Marc Collin, Min. Tech.
Reference: 96596

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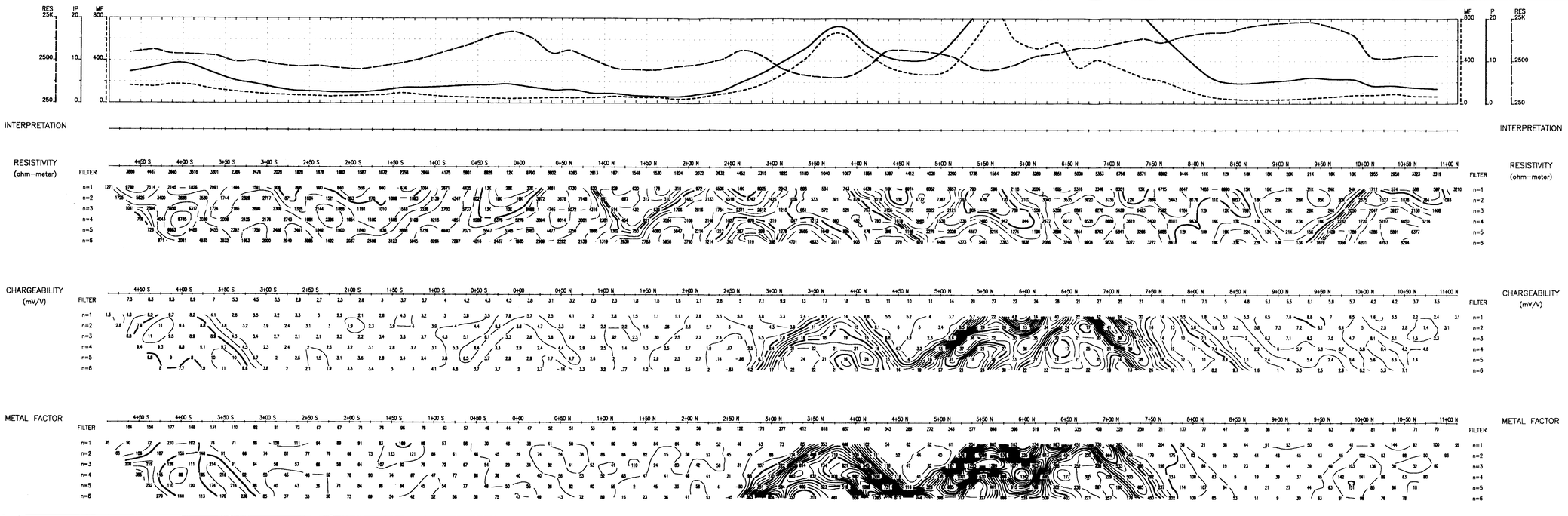
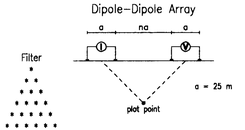


INDUCED POLARIZATION SURVEY

Dipole–Dipole Array



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Chargeability: 2
Metal Factor: 50

Metal Factor Definition: MF = 1000•Ma/(Ra)•0.5

Instruments: IP-6, IPT-1

Line 2+00 E

Scale 1 : 2500

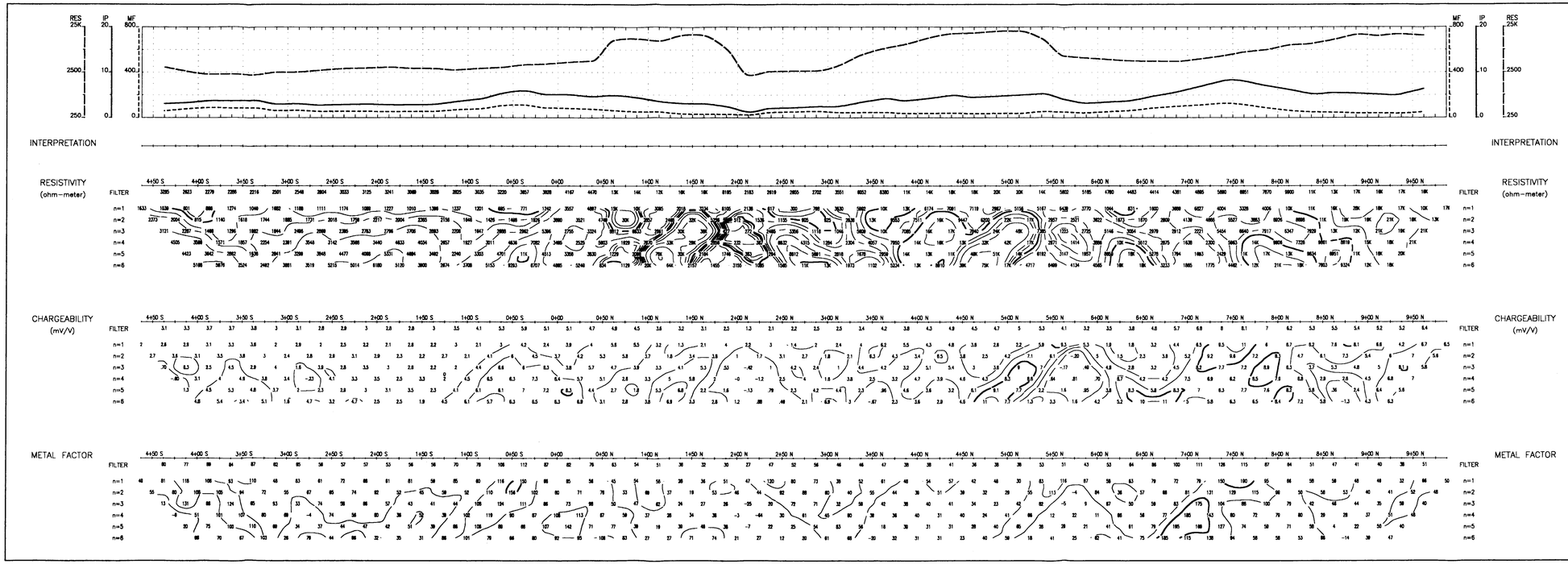
25 0 25 50 75 100 125 150 175m

CAMECO CORPORATION

ENGLISH PROPERTY
GRID C
ENGLISH TWP, ONTARIO

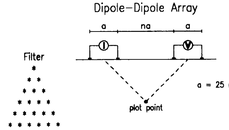
Interpreted by: Ron Matthews, Geophysicist
Date of survey: March 1996
Surveyed by: Marc Collin, Min. Tech.
Reference: 96596

SAGAX GEOPHYSIQUE



INDUCED POLARIZATION SURVEY

Dipole-Dipole Array



Contour interval:
Resistivity: 1, 1.5, 2, 3, 5, 7.5, 10,..
Chargeability: 2
Metal Factor: 50

Metal Factor Definition: MF = 1000•Ma/(Ra)•0.5

Instruments: IP-6, IPT-1

Line 4+00 E

Scale 1 : 2500

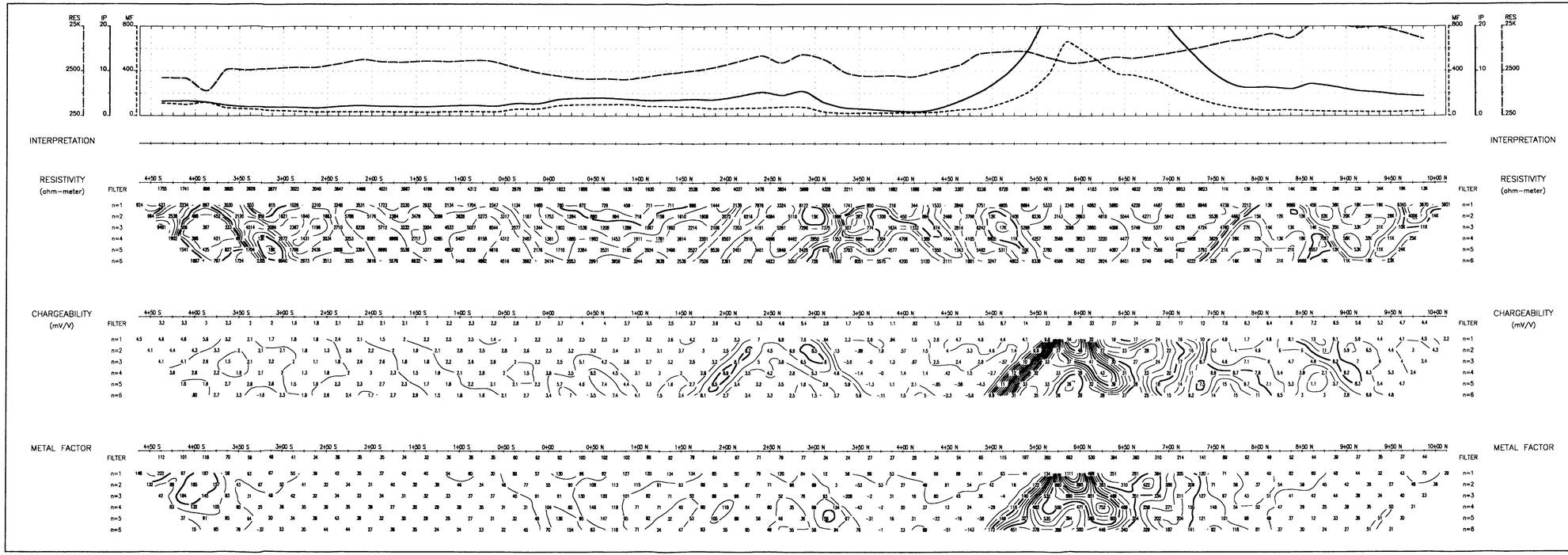
25 0 25 50 75 100 125 150 175m

CAMECO CORPORATION

ENGLISH PROPERTY
GRID C
ENGLISH TWP, ONTARIO

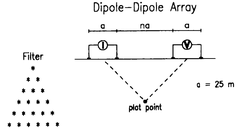
Interpreted by: Ron Matthews, Geophysicist
Date of survey: March 1996
Surveyed by: Marc Collin, Min. Tech.
Reference: 96596

SAGAX GEOPHYSIQUE



INDUCED POLARIZATION SURVEY

Dipole-Dipole Array



Contour interval:
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Chargeability: 2
Metal Factor: 50

Metal Factor Definition: MF = 1000*Ma/(Ra)*0.5

Instruments: IP-6, IPT-1

Line 6+00 E

Scale 1 : 2500

25 0 25 50 75 100 125 150 175m

CAMECO CORPORATION

ENGLISH PROPERTY
GRID C
ENGLISH TWP, ONTARIO

Interpreted by: Ron Matthews, Geophysicist
Date of survey: March 1996
Surveyed by: Marc Collin, Min. Tech.
Reference: 96596

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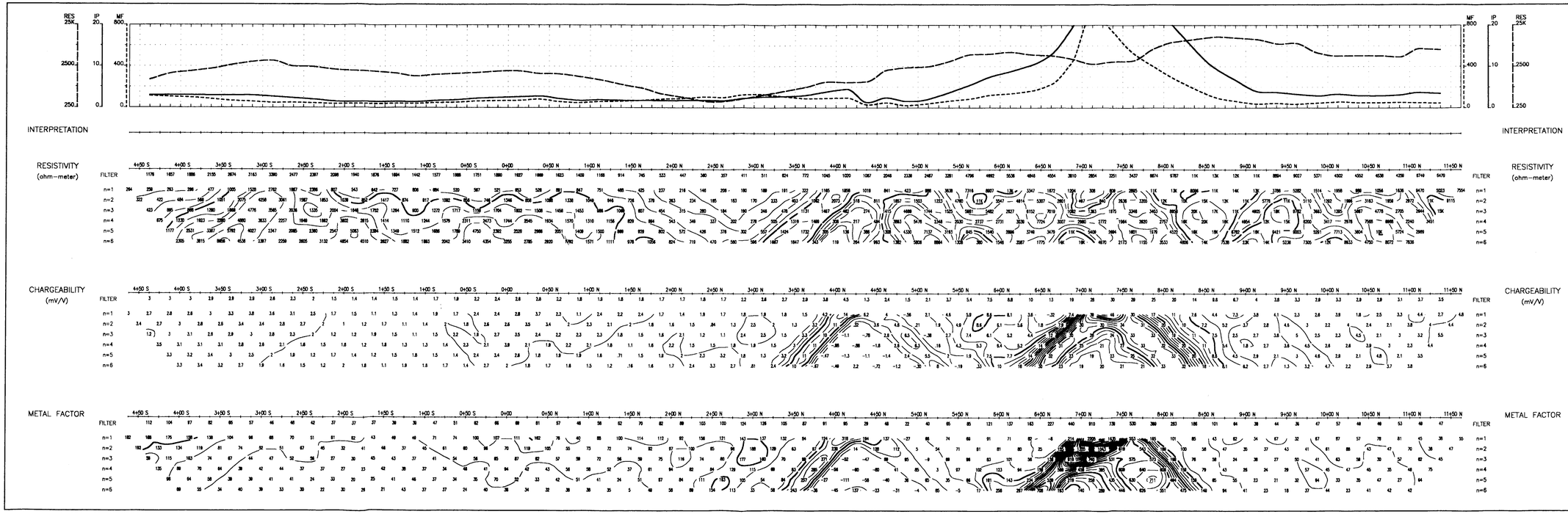

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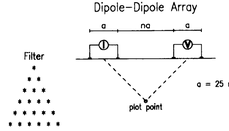
Dipole-Dipole Array



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Chargeability: 2
Metal Factor: 50

Metal Factor Definition: MF = 1000*Ma/(Ra)^0.5

Instruments: IP-6, IPT-1

Line 8+00 E

Scale 1 : 2500

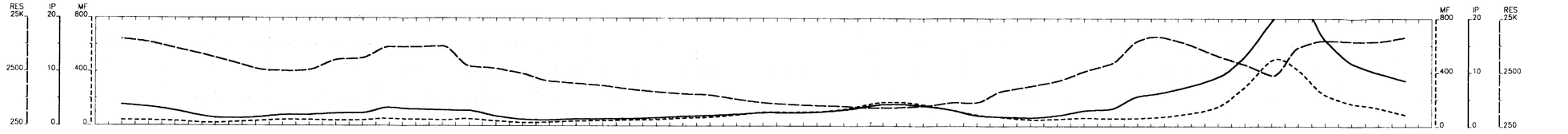
25 0 25 50 75 100 125 150 175m

CAMECO CORPORATION

ENGLISH PROPERTY
GRID C
ENGLISH TWP, ONTARIO

Interpreted by: Ron Matthews, Geophysicist
Date of survey: March 1996
Surveyed by: Marc Collin, Min. Tech.
Reference: 96596

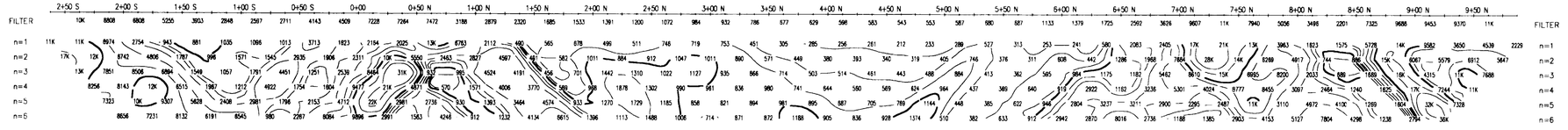
SAGAX GEOPHYSIQUE



INTERPRETATION

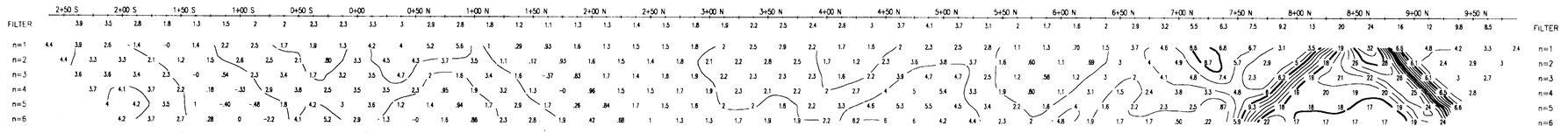
INTERPRETATION

RESISTIVITY
(ohm-meter)



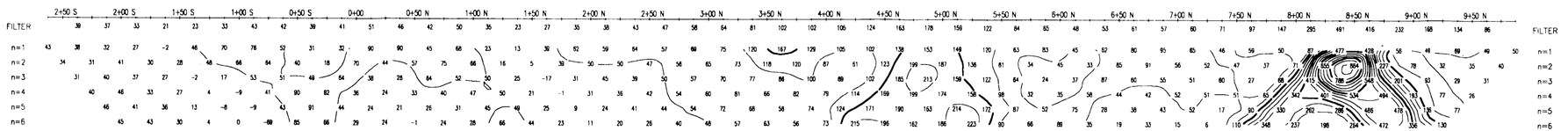
RESISTIVITY
(ohm-meter)

CHARGEABILITY
(mV/V)



CHARGEABILITY
(mV/V)

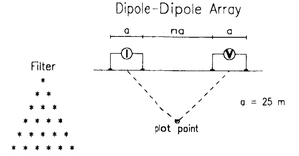
METAL FACTOR



METAL FACTOR

INDUCED POLARIZATION SURVEY

Dipole-Dipole Array



Contour interval:
Resistivity: 1, 1.5, 2, 3, 5, 7.5, 10,..
Chargeability: 2
Metal Factor: 50

Metal Factor Definition: MF = 1000*Ma/(Ra)^0.5

Instruments: IP-6, IPT-1

Line 10+00 E

Scale 1 : 2500

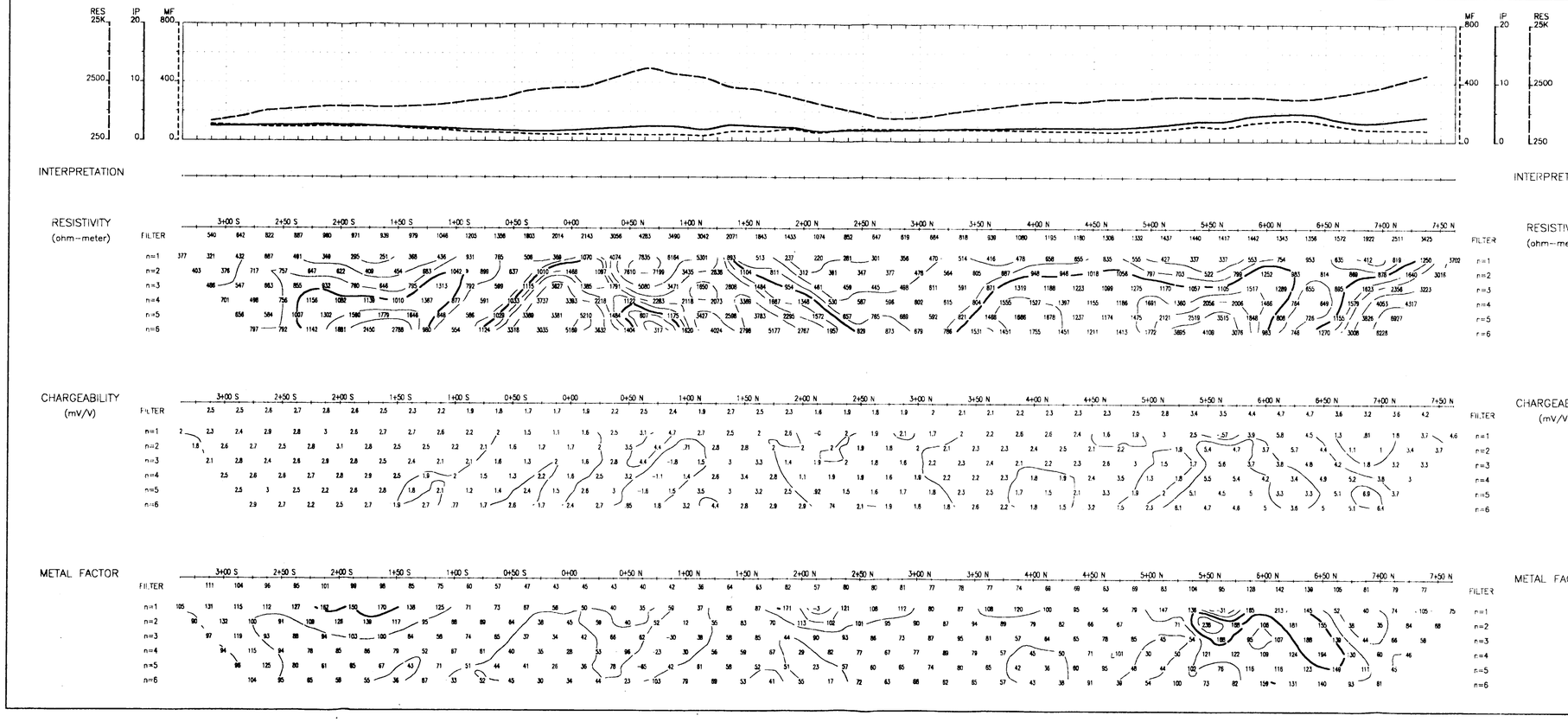
25 0 25 50 75 100 125 150 175m

CAMECO CORPORATION

ENGLISH PROPERTY
GRID C
ENGLISH TWP, ONTARIO

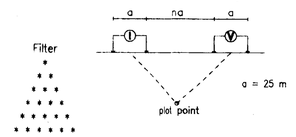
Interpreted by: Ron Matthews, Geophysicist
Date of survey: March 1996
Surveyed by: Marc Collin, Min. Tech.
Reference: 96596

SAGAX GEOPHYSIQUE



INDUCED POLARIZATION SURVEY

Dipole-Dipole Array



Contour interval:
Resistivity: 1, 1.5, 2, 3, 5, 7.5, 10,..
Chargeability: 2
Metal Factor: 50

Metal Factor Definition: MF = 1000*Ma/(Ra)^0.5

Instruments: IP-6, IPT-1

Line 12+00 E

Scale 1 : 2500

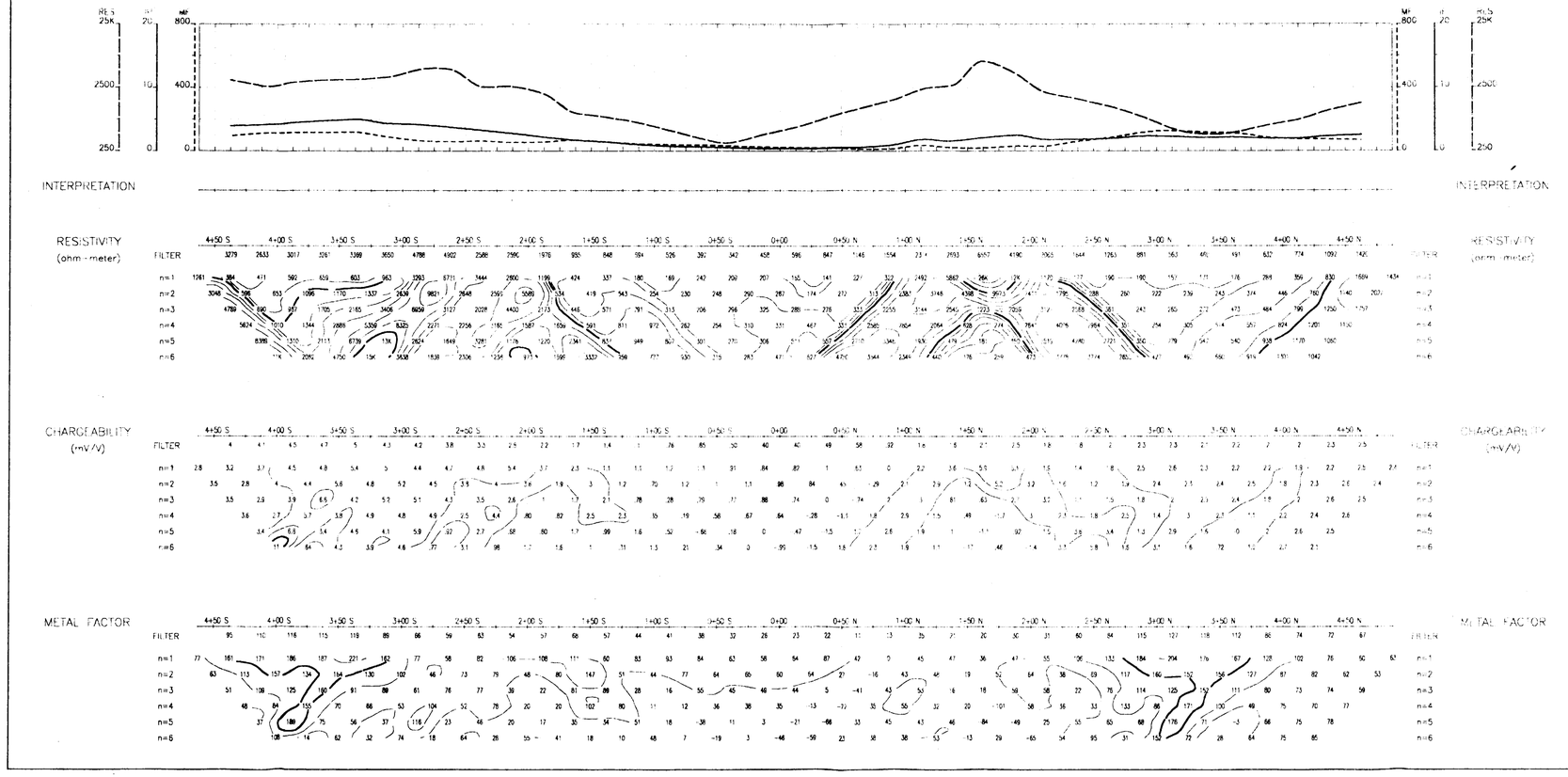
25 0 25 50 75 100 125 150 175m

CAMECO CORPORATION

ENGLISH PROPERTY
GRID C
ENGLISH TWP, ONTARIO

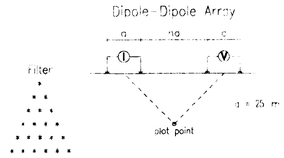
Interpreted by: Ron Matthews, Geophysicist
Date of survey: March 1996
Surveyed by: Marc Collin, Min. Tech.
Reference: 96596

SAGAX GEOPHYSIQUE



INDUCED POLARIZATION SURVEY

Dipole-Dipole Array



Contour intervals:
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Chargeability: 2
Metal Factor: 50

Metal Factor Definition: MF = 1000•Ma/(Ra)^0.5

Instruments: tm-6,

Line 14+00 E

Scale 1 : 2500

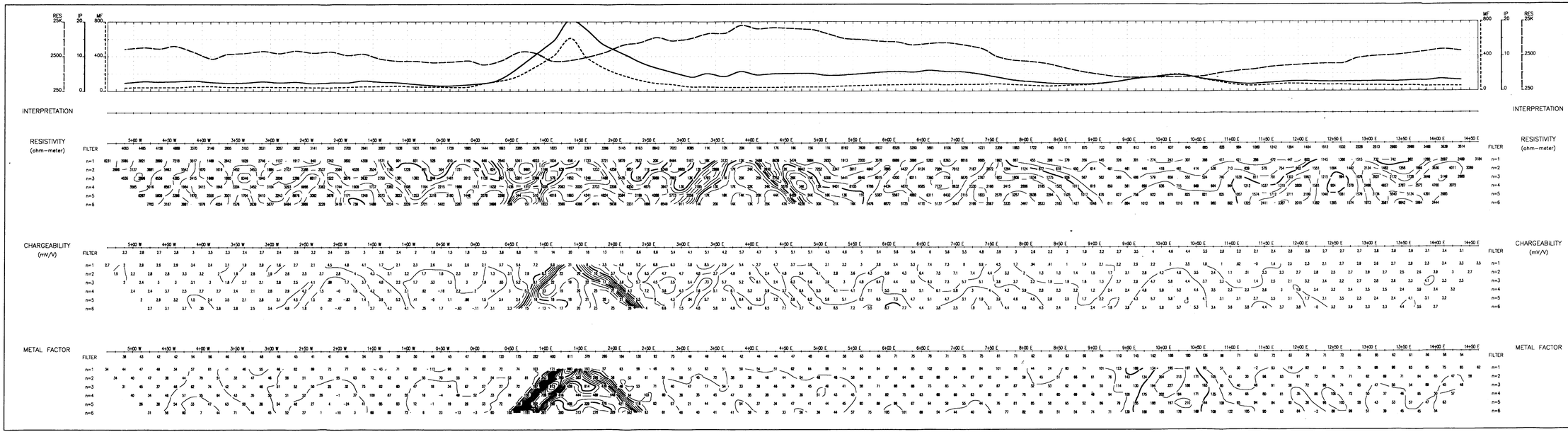
25 0 25 50 75 100 125 150 175m

CAMECO CORPORATION

ENGLISH PROPERTY
GRID C
ENGLISH TWP, ONTARIO

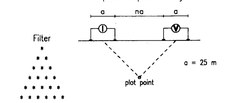
Interpreted by: Ron Matthews, Geophysicist
Date of survey: March 1996
Surveyed by: Marc Collin, Min. Tech.
Reference: 96596

SAGAX GEOPHYSIQUE



INDUCED POLARIZATION SURVEY

Dipole–Dipole Array



Contour interval:
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Chargeability: 2
Metal Factor: 50

Metal Factor Definition: MF = 1000•Ma/(Ra)•0.5

instruments: IP-6, IPT-1

T 5+00 N

Scale 1 : 2500

25 0 25 50 75 100 125 150 175m

CAMECO CORPORATION

ENGLISH PROPERTY
GRID C
ENGLISH TWP, ONTARIO

Interpreted by: Ron Matthews, Geophysicist
Date of survey: March 1996
Surveyed by: Marc Collin, Min. Tech.
Reference: 96596

SAGAX GEOPHYSIQUE

List of Figures

ENGLISH PROPERTY GEOPHYSICAL INTERPRETATION

Introduction

This report discusses an IP-resistivity survey carried out on the English project, Ontario, by Sagax Geophysics Inc. The program included 27.875 km of dipole-dipole array coverage and was carried out between March 7 to 24 under contract number EX-96-187. This work was undertaken to better define and extend a number of previously defined IP trends, which represent potential targets for gold mineralisation. Other objectives of the present survey were to resolve with more confidence a number of cross-cutting structural breaks and determine the association of the IP anomalies with iron formation and ultramafic flows. The IP-resistivity coverage was carried out in three grid areas, A, B and C as shown on the attached location map.

Previous Work

Airborne

The project area is covered by the Shining Tree regional aeromagnetic and Geotem survey flown in 1990 by Geoterrex for the OGS. An archive of the data, together with magnetic and EM grids, was acquired from Controlled Geophysics Inc. Plots at a scale of 1:50,000 of the aeromagnetic and channel 2 EM grids are included as Figures 1 and 2. A vertical sun, shadow image of the magnetic data is presented. This image provides the best overall definition of the regional structural and geological setting of the area. Superimposed on this map are the main interpreted breaks, together with the axes of the dominant magnetic highs. The major geologically inferred structural trends are confirmed and a number of less well resolved lineaments are also indicated.

The geological units are also reasonably well defined by the aeromagnetics. The diabase dikes are clearly apparent and the less magnetic felsic units are also readily mapped. However, the more magnetic mafic units in general cannot be readily resolved. The iron formation trends are also indicated in the magnetics. These units also appear to often have an EM correlation. The folded sequence in the south is clearly observed, complicated by cross-cutting structural breaks.

The grid cell size of 200 m for the EM grid, as opposed to 50 m for the magnetics, has contributed to the blocky character of the plot shown in Figure 2. Despite this, as well as the numerous line levelling problems, the conductivity distribution of the project area is reasonably well imaged. The major conductivity anomalies are highlighted, together with a number of less distinct zones. If required the EM data could be reprocesses and enhanced a lot more rigorously, including line-to-line decorrugation, to fully define the conductivity setting of the area. A number of cultural features are also clearly evident on the channel 2 grid.

Ground

Previous ground surveys carried out in the early nineties over Tri-Origin blocks A, B and C, corresponding to the three grid areas, has been re-evaluated and is compiled in Figures 3 to 5 at

a scale of 1:5,000. The surveys include magnetic and VLF coverage carried out by Mertens and McNeil in all three areas in 1991, as well as IP-resistivity coverage undertaken by Mertens and McNeil and Tandem Geophysics in 1992 and 1994. The interpreted IP anomalies and trends are plotted on the figures, together with resistivity features and interpreted breaks. The magnetic and VLF data for the three blocks was reprocessed and replotted and the interpreted VLF axes, magnetic trends and linears are plotted on the compilation maps. The locations of the interpreted Geotem anomalies shown on the OGS maps are also plotted on these maps.

Since the aeromagnetic data is of good quality it was decided not to compile the other ground data that was available for the area, including work carried out for Essex in 1978, Chevron in 1984 and Tintina Mines in 1991. A MaxMin survey carried out for Essex located a single line, relatively strong response in the northern portion of block C, corresponding to the Geotem anomaly. The only other previous geophysical data included are the Esso IP anomalies, which overlap onto Block B, and had been previously compiled by Tri-Origin. The anomalous IP trends delineated by this work are plotted on the Block B compilation map.

Present Program

The lines surveyed, together with the interpreted results of the new IP-resistivity coverage, are presented in Figures 6 to 8, again at 1:5000, for grids A, B and C respectively. A dipole-dipole array was employed with a dipole spacing of 25 m and n = 1 to 6 dipoles were measured. An IP-6 receiver was employed in conjunction with a Phoenix IPT-1 transmitter powered by a 2 kW motor generator. No major problems were encountered in carrying out the survey and the data is of good quality. However, on grid A several picketing and chaining errors were encountered. Tie line 12+00E was mislocated and only a portion of line 11+00S could be found. This line was not surveyed. The eastern portion of line 7+00S also could not be located and an old survey line was used instead. Location problems have been corrected as far as possible in Figures 6 To 8. Some uncertainty in the exact positioning of the grids, however, remains and field checking of a number of location points is recommended. More detailed discussion of field procedures and equipment is found in the contractor's logistics report, which is included as Appendix 1.

The IP and resistivity data are presented as pseudosections at a scale of 1:2500 in Appendix 1. Shown on Figures 6 to 8 are the interpreted IP anomalies and trends together with conductive trends and zones as well as any discrete resistivity features. IP trends interpreted from the previous work are also shown and the location of the power line is indicated. The power line appears to have had mimimal effect on the data.

Discussion of Results

The IP anomalies and anomalous trends interpreted from the new coverage on grids A, B and C are shown on Figures 6, 7 and 8 respectively. In general good agreement is noted with the previous coverage, though there is some uncertainty in the relative locations of the grids and topography, particularly for grid A. Trends obtained on grids A and B can fairly readily be extrapolated from the previous work. In the case of grid C the northern portion of the block was

effectively resurveyed on a northwest-southeast oriented grid as opposed to the north-northeast Tri-Origin grid orientation. The trends are more clearly resolved on the new grid. The majority of the anomalies on all three grids appear to have a limited depth extent.

On grid A relatively strong IP anomalies are indicated to the west and very weak trends are obtained in the east. The IP trends are oriented approximately north-south and flank a broad, complex magnetic high, which also corresponds to a conductive zone indicating deeper overburden in this area. The outline of the gabbro corresponds to the magnetic high, though its complex signature indicates a magnetically mixed package, including ultramafic flows. A sequence of flanking iron formation units is also indicated. The stronger IP trends to the west appear to be bona fide anomalies apart from those located at the extreme ends of the lines. A cross-cutting break is inferred in the vicinity of line 6+00S. To the north of this break it appears that the IP trends can be extended under the power line to join up with the trends indicated by the previous work. The IP trends are open to the north and south and also west of the power line.

The present program included three lines of coverage on grid B and the IP anomalies delineated would seem to readily extend the previously defined Tri-Origin trends. Initial interpretation of the data indicated three relatively strong trends, oriented north-northeast to north-south, together with a weaker trend to the west. Re-evaluation of the stacked pseudosections, however, led to the reinterpretation of the eastern trends, indicated on Figure 7. These trends are now more in line with the anomalous features delineated by the 1987 Esso survey. A series of more north-easterly trends are now inferred cross-cutting the grid. A discontinuity in the extreme easterly trend is apparent between the new and previous work, between lines 47 and 49+00N. This discontinuity corresponds to the extension of the well defined north-northwest cross-cutting break indicated in the northern part of the block by the previous work. This break is apparent in both the ground and airborne magnetics and is supported by the previous IP-resistivity and VLF coverage.

The IP trends have a strong, direct correlation with linear magnetic features, flanking a broad magnetic low unit, indicating the presence of a fold closure. A folded, fault controlled sequence of interbedded diabase and iron formation units is indicated. The presence of an ultramafic package, however, can not be readily identified. A weak IP anomaly is indicated on line 44+00N at around 2+50W, located within the magnetic low. The anomalies located along the extreme western edge of the lines are probably associated with the power line. The IP anomalies are open to the south.

The IP trends on grid C are better resolved by the new grid orientation. The north-northeast oriented IP trends are disrupted in the vicinity of line 0+00 by a major north-west trending cross-cutting break. A distinct offset in the IP trends is apparent. This break is also clearly indicated in the previous resistivity, magnetic and VLF surveys. A MaxMin survey carried out in 1978 also indicates a limited, but northwest striking EM conductor. Strong IP anomalies are noted north and south of the break. A number of potentially significant flanking trends are also noted, associated with the main anomalous trends.

The interpretation shown on Figure 8 is also supported by coverage obtained on tie line 5+00N,

as well as the contoured IP and resistivity plots presented in Figures 9 and 10. These two plots were produced using the Fraser triangular filter, which effectively collapses the pseudosections to a single value suitable for contour presentation. The offset anomaly observed on line 2+00E is probably the result of smearing of sulphides along the structural break. This setting is probably also the cause of the EM anomaly. The disjointed character of this zone also indicates that the structural break is complex and broad. The magnetic association is not clear because of the poor orientation of the original grid. In general the IP trends appear to correspond to complex magnetic high units, probably indicating the presence of iron formation, together with ultramafics flanking a less magnetic felsic sequence. The IP anomalies are open both to the north and south.

Conclusions and Recommendations

The new IP-resistivity coverage has provided better resolution of anomalies and has resulted in an improved understanding of the structural and geological setting of the three survey areas. A number of target areas are indicated. Major structural breaks are delineated on grids B and C and a cross-cutting disruption is also indicated on grid A. The IP trends appear to have a structurally controlled north-south to north-northeast orientation. In particular the newly oriented grid coverage for block C has provided a much clearer picture of the setting of this complex area.

The present program has extended and located a number of previously indicated IP trends. In general the stronger IP anomalies have a shallow relatively narrow source, with a limited depth extent. On grids B and C the stronger anomalies also have an apparent magnetic correlation, and are probabaly associated with iron formation. This association is not so clear for grid A. On this grid IP trends appear to extend underneath the power line. On grids B and C a number of potentially interesting flanking trends are indicated. In general the IP trends defined in all three areas remain open.

Additional IP-resistivity coverage should be considered west of the power line on grid A, and depending on the results of the summer field program further extension work might be warranted for a number of the other trends. The magnetic setting for grid C is poorly resolved and magnetic surveying on the new, better oriented grid is recommended. It is also recommended that additional processing of the airborne EM data is carried out to assist future planning.

STATEMENT OF QUALIFICATIONS

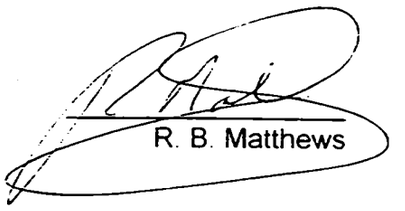
THIS IS TO CERTIFY THAT:

I am an employee of Cameco Corporation, and I am based in the Corporate Head Office, which is located in Saskatoon, Saskatchewan.

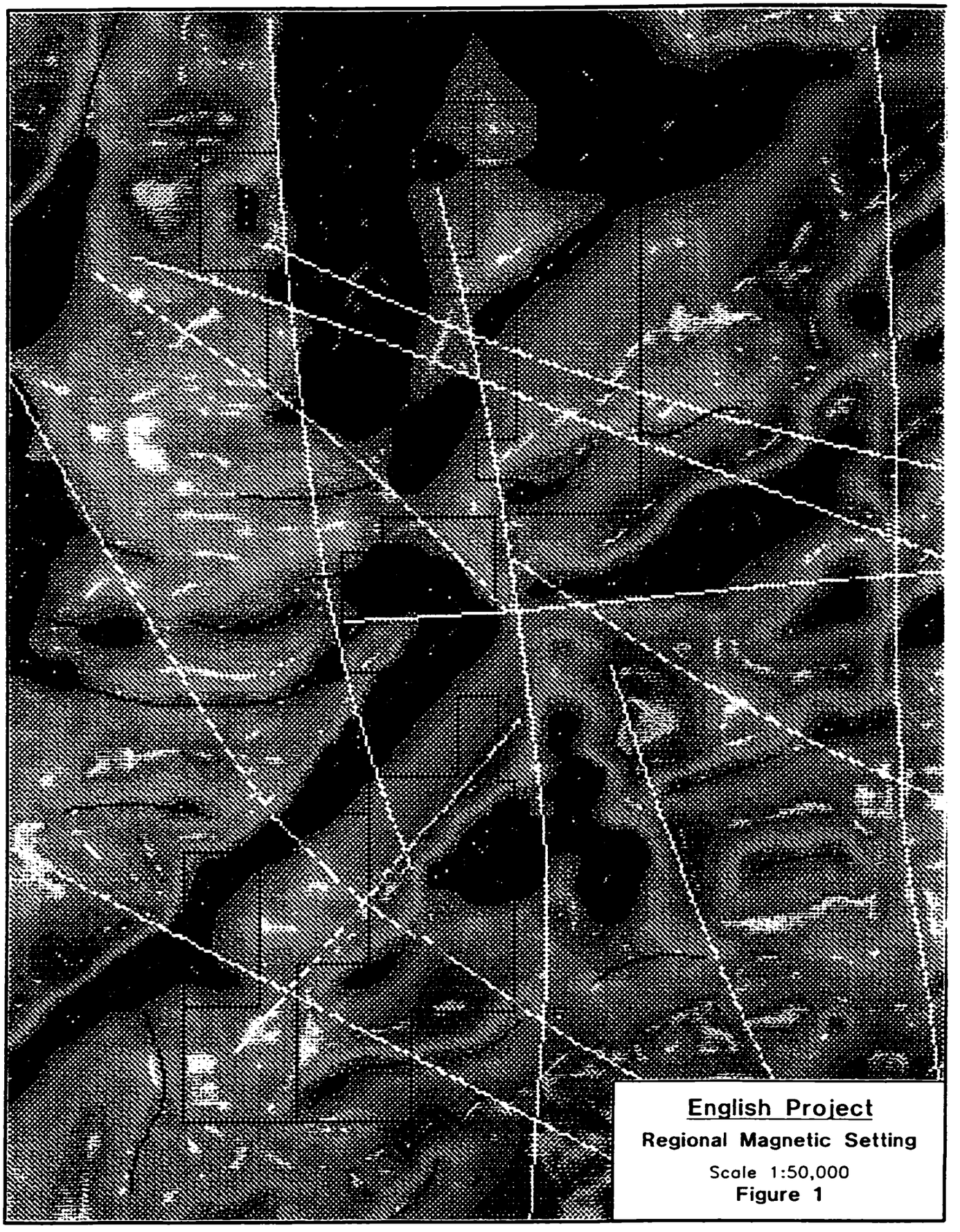
I am a qualified Geophysicist and have practiced my profession for the last 20 years. I have a PhD in Geophysics from Imperial College, University of London, England (1976) and a BSc in Physics from the University of Exeter, England (1970).

I am an active member of the Society of Exploration Geophysicists.

SIGNED in Saskatoon, Saskatchewan, September 4, 1996.



R. B. Matthews

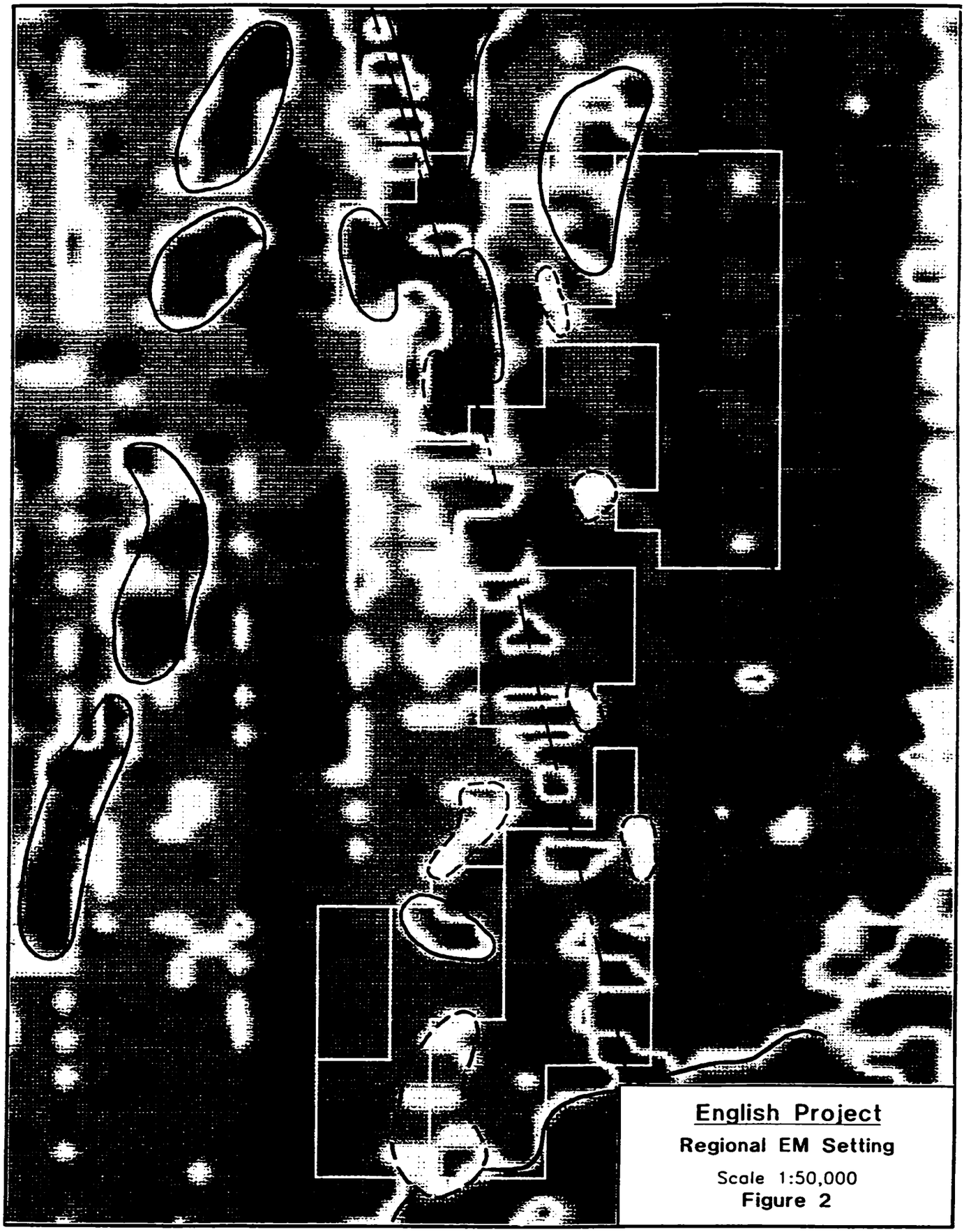


English Project

Regional Magnetic Setting

Scale 1:50,000

Figure 1

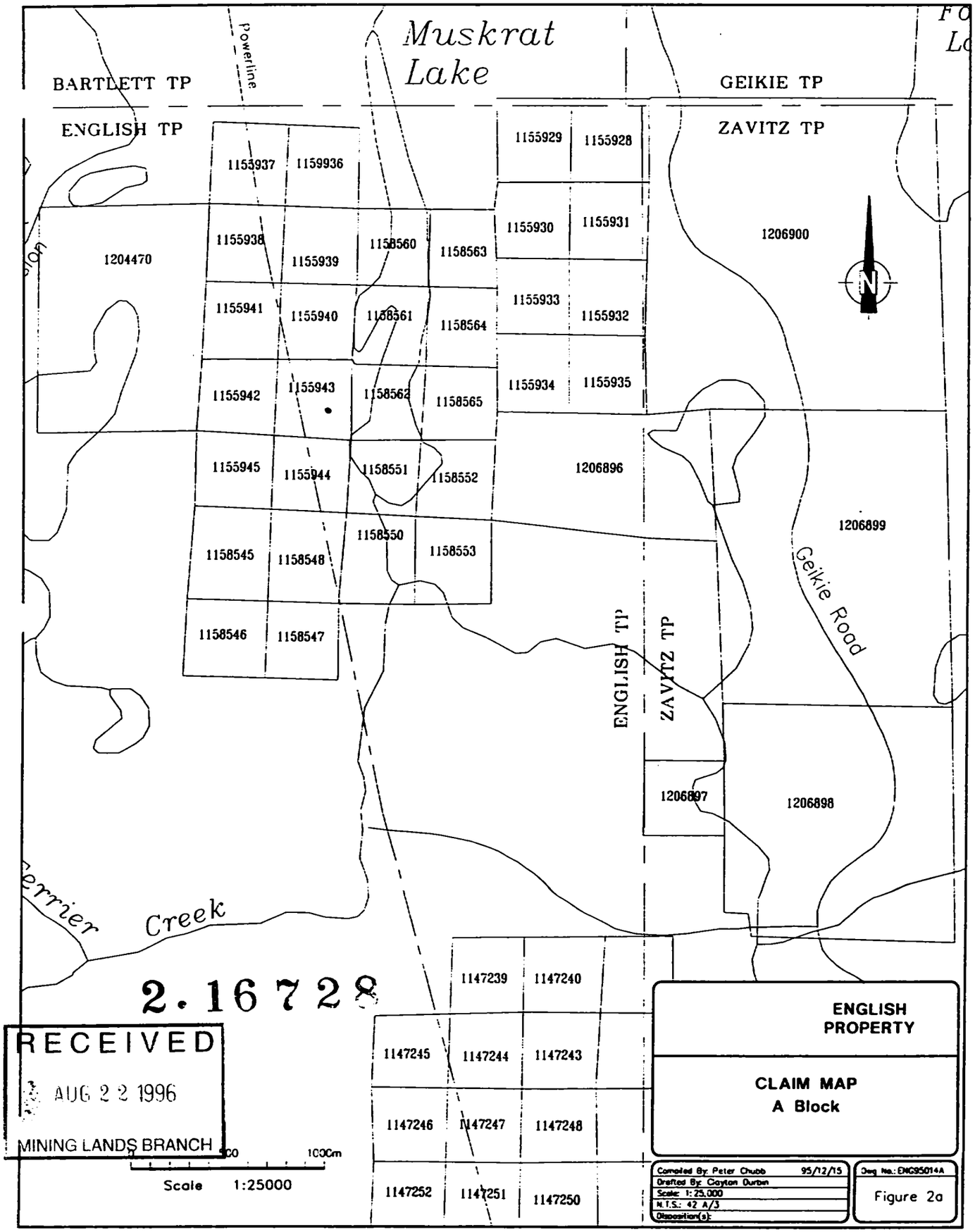


English Project

Regional EM Setting

Scale 1:50,000

Figure 2


Muskrat Lake
BARTLETT TP
GEIKIE TP
ENGLISH TP
ZAVITZ TP
Powerline
1155937
1159936
1155929
1155928
1155938
1155939
1158560
1158563
1155930
1155931
1204470
1206900
1155941
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1158546
1158547
ENGLISH TP
ZAVITZ TP
Geikie Road
1206897
1206898
Creek
1147239
1147240
1147245
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1147250
N
2.16728
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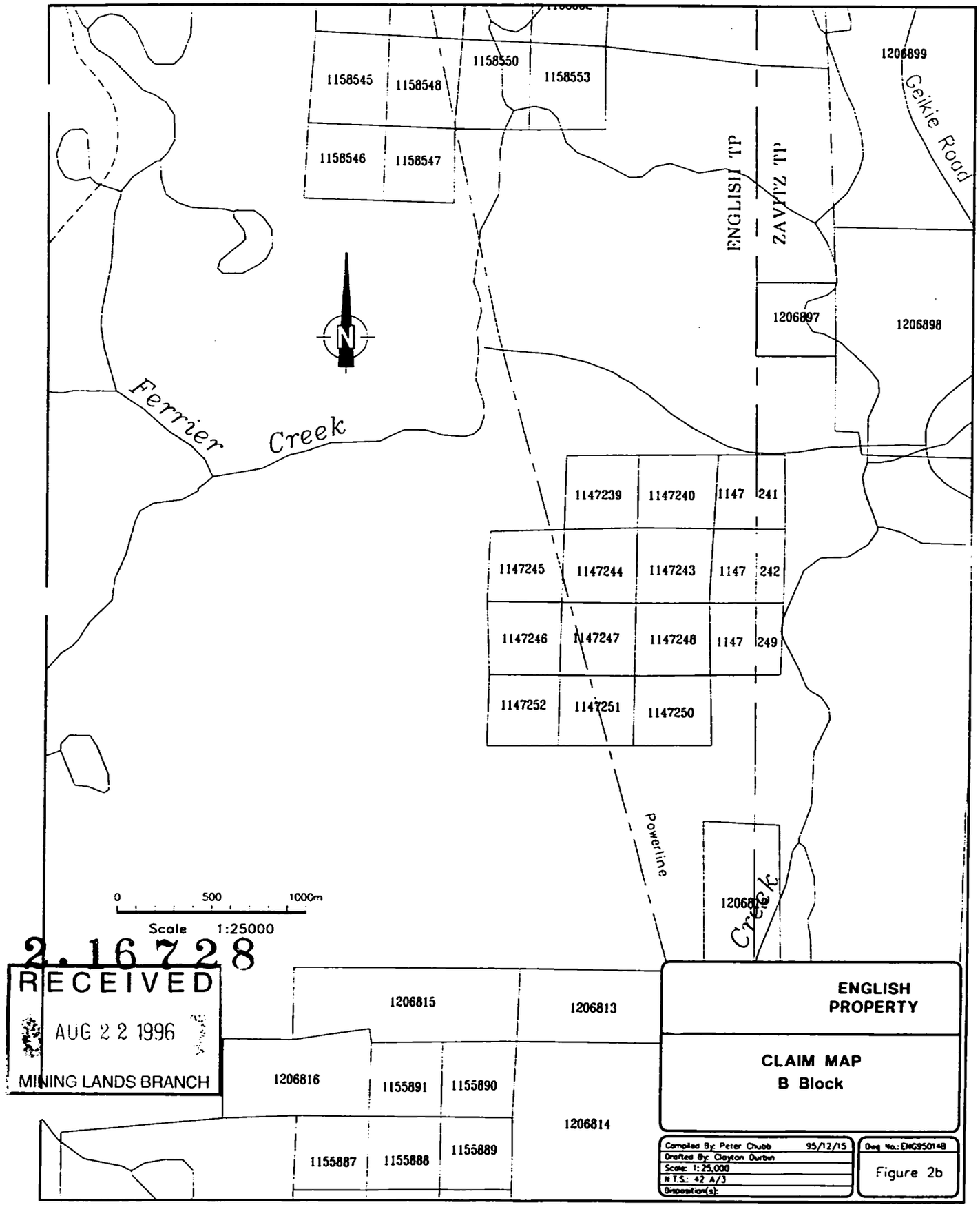
AUG 2 2 1996
MINING LANDS BRANCH
Scale 1:25000
ENGLISH PROPERTY
CLAIM MAP
A Block
Compiled By: Peter Chubb 95/12/15
Drafted By: Clayton Durbin
Scale: 1:25,000
N.T.S.: 42 A/3
Disposition(s):
Dwg No.: ENG95014A
Figure 2a



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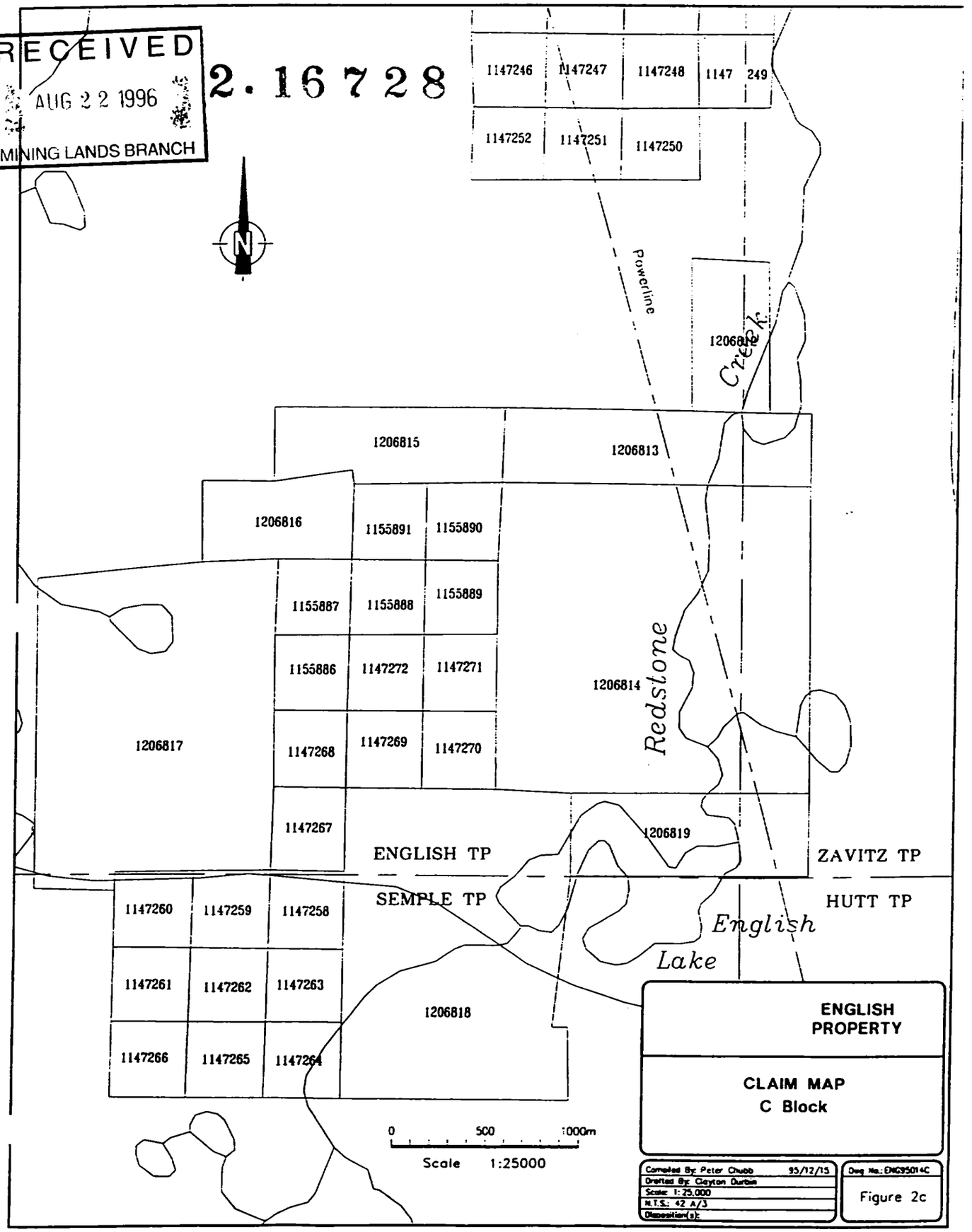

Ministry of Northern Development and Mines
Ontario

Report of Work Conducted After Recording Claim

Mining Act

Transaction Number: W9660.00409

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.

2.16728

Instructions:
- Please type or print and submit in duplicate.
- Refer to the Mining Act and Regulations for r Recorder.
- A separate copy of this form must be comple
- Technical reports and maps must accompan
- A sketch, showing the claims the work is ass

42A03SE0021 2.16728 ZAVITZ

900

Recorded Holder(s): Tri-Origin Exploration Ltd. / Cameco Corp.		Client No.: 203126 / 114820
Address: 15449 Yonge St. Ste 102, Toronto / Unit #6, 1349 Kelly Lake Rd, Sudbury		Telephone No.: (905) 841-3559 / (705) 523-4555
Mining Division: Porcupine L4G 1P3	Township/Area: English, Zavitz Townships	M or G Plan No.:
Dates Work Performed: From: 2nd August, 1995	To: 7th June, 1996	

Work Performed (Check One Work Group Only)

	Work Group	Type
✓	Geotechnical Survey	Geophysical I.P. Survey
	Physical Work, Including Drilling	
	Rehabilitation	
	Other Authorized Work	
	Assays	SECTION 18 ONLY
	Assignment from Reserve	

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Total Assessment Work Claimed on the Attached Statement of Costs $ 24,601.00

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
Joel Simard, SAGAX Inc.	2901, 7th Street, Val D'Or, Quebec, J9P 6P6

(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 report were recorded in the current holder's name or held under a beneficial interest by the current recorded holder.	Date: 7th June, 1996	Recorded Holder or Agent (Signature):

Certification of Work Report

I certify that I have a personal knowledge of the facts set forth in this Work report, having performed the work or witnessed same during and/or after its completion and annexed report is true.

Name and Address of Person Certifying: Peter Chubb, Unit #6, 1349 Kelly Lake Road, Sudbury, Ontario P3E 5P5

Telepone No.: (705) 523-4555	Date: 7th June, 1996	Certified By (Signature):

For Office Use Only

Total Value Cr. Recorded	Date Recorded	Mining Recorder: NOT OAKP Gary White	Received Stamp
	Deemed Approval Date: Sept. 9/96	Date Approved	
	Date Notice for Amendments Sent		

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JUN 11 1996
9:45a (AC)
PORCUPINE MINING DIVISION

0241 (03/91)

[redacted] of
[redacted]rn Development
[redacted] Mines

[redacted]inistère du
[redacted] 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

Transaction No./N° de transaction

2.16728

[redacted]rsonal information collected on this form is obtained under the authority [redacted] 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.

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

1. Direct Costs/Coûts directs

Type	Description	Amount Montant	Totals Total global
Wages Salaires	Labour Main-d'oeuvre		
	Field Supervision Supervision sur le terrain		
Contractor's and Consultant's Fees Droits de l'entrepreneur et de l'expert-conseil	Type Geophysics I.P.	23,376	
			23,376
Supplies Used Fournitures utilisées	Type		
Equipment Rental Location de matériel	Type		
	Total Direct Costs Total des coûts directs		23,376

2. Indirect Costs/Coûts indirects

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

Type	Description	Amount Montant	Totals Total global
Transportation Transport	Type		
Food and Lodging Nourriture et hébergement			
Mobilization and Demobilization Mobilisation et démobilisation	Demob/Mob of Geophysics Crew	1,225	1,225
	Sub Total of Indirect Costs Total partiel des coûts indirects		1,225
	Amount Allowable (not greater than 20% of Direct Costs) Montant admissible (n'excédant pas 20 % des coûts directs)		1,225
	Total Value of Assessment Credit (Total of Direct and Allowable Indirect costs) Valeur totale du crédit d'évaluation (Total des coûts directs et indirects admissibles		24,601

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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.

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

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 =	

Remises pour dépôt

1. Les travaux déposés dans les deux ans suivant leur achèvement sont remboursés à 100 % de la valeur totale susmentionnée du crédit d'évaluation.

2. Les travaux déposés trois, quatre ou cinq ans après leur achèvement sont remboursés à 50 % de la valeur totale du crédit d'évaluation susmentionné. Voir les calculs ci-dessous.

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

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JUN 11 1996
09:45 a.m. (P)
POF ... DIVISION

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.

that as Peter Chubb, Geologist II (Recorded Holder, Agent, Position in Company) I am authorized

to make this certification

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 ci-joint.

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

à faire cette attestation.

Signature	Date
	7th June, 1996

0212 (04/91)

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

Work Report Number for Applying Reserve	Claim Number (see Note 2)	Number of Claim Units	Total Number of Claims
	1206817	12 ✓	
	1206818	12 ✓	
	1206814	16 ✓	
	1206815	3 ✓	
	1206813	4 ✓	
	1206816	2 ✓	
	11472681	1 ✓	
	11472671	1 ✓	
	11472772	1 ✓	
	11472769	1 ✓	
	11472770	1 ✓	
	11472771	1 ✓	
	11558861	1 ✓	
	11558871	1 ✓	
	11558881	1 ✓	
	11558911	1 ✓	
	11558891	1 ✓	

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Value of Assessment Work Done on this Claim	Value Applied to this Claim
2300	2300
136	136
1993	3619
2235	1200
529	529
1391	800
689	400
73	400
696	285
774	78
681	400
786	400
1219	400
696	90
1282	400
779	400

Total Value Work Done	Total Value Work Applied

Value Assigned from this Claim	Reserve: Work to be Claimed at a Future Date
0	0
0	0
0	0
1035	0
0	0
591	0
289	289
0	0
311	135
696	0
281	0
386	0
819	0
606	0
282	0
379	0

Total Assigned From	Total Reserve

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 prioritize the deletion of credits. Please mark (✓) 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.

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 or leased land at the time the work was performed.

Signature: [signature]

Date: Aug 19, 1996

Work Report Number for Applying Reserve	Claim Number (see Note 2)	Number of Claim Units	Value of Assessment Work Done on this Claim	Value Applied to this Claim
	115890	1	765	400
	115943	1	627	400
	115944	1	453	400
	115948	1	262	542
	115953	1	746	746
	115951	1	685	685
	115952	1	740	740
	115962	1	724	724
	115965	1	713	713
	114246	1	203	466
	114247	1	604	400
	114248	1	387	400
	114250	1	673	400
	114251	1	599	400
	114252	1	0	0
	114249	1	0	0
	114258	1	0	400
Total Number of Claims			Total Value Work Done	Total Value Work Applied

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Total Assigned From	Total Reserve	Value Assigned from this Claim	Reserve: Work to be Claimed at a Future Date
		365	0
0	0	227	0
0	0	53	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
199	0	0	0
273	0	0	0
0	0	0	0
204	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

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 (✓) one of the following:

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2. ☐ Credits are to be cut back equally over all claims contained in this report of work.
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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 or leased land at the time the work was performed.	Signature	Date

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Work Report Number for Applying Reserve	Claim Number (see Note 2)	Number of Claim Units	Value of Assessment Work Done on this Claim	Value Applied to this Claim	Value Assigned from this Claim	Reserve: Work to be Claimed at a Future Date
	1147259	1	0	400	0	0
	1147260	1	0	400	0	0
	1147261	1	0	400	0	0
	1147262	1	0	464	0	0
	1147263	1	0	490	0	0
	1147264	1	0	490	0	0
	1147265	1	0	490	0	0
	1147266	1	0	490	0	0
	1147245	1	0	398	0	0
	1155936	1	0	0	0	0
	1155937	1	0	0	0	0
	1155938	1	0	0	0	0
	1155939	1	0	0	0	0
	1155941	1	0	0	0	0
	1155940	1	0	0	0	0
	1158560	1	0	0	0	0
	1158561	1	0	0	0	0
	Total Number of Claims		Total Value Work Done: 24,601	Total Value Work Applied: 24,177	Total Assigned From: 7,596	Total Reserve: 424

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 (✓) one of the following:

1. ☐ Credits are to be cut back starting with the claim listed last, working backwards.
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P3

Ministry of
Northern Development
and Mines

Ministère du
Développement du Nord
et des Mines

Ontario

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

Telephone: (705) 670-5853
Fax: (705) 670-5863

September 18, 1996

Gary White
Mining Recorder
60 Wilson Avenue, 1st Floor
Timmins, ON
P4N 2S7

Dear Sir or Madam:

Submission Number: 2.16728

Subject: Transaction Number(s): W9660.00409

After reviewing the Work Report(s) we have prepared this letter and the attached summary, which lists the results of our review. Requirements of the Assessment Work Regulation may not have been fully met. Please examine the summary to determine the next course of action concerning the identified Work Report(s).

NOTE: The 90 day deemed approval provision, subsection 6(7) of the Assessment Work Regulation, is no longer in effect for this submission.

PLEASE NOTE ANY REQUESTED REVISIONS MUST BE SUBMITTED IN DUPLICATE.

If the anniversary dates for the mining claims affected by this correspondence have not passed, a number of options are available. Please contact the Mining Recorder to discuss these options.

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

Yours sincerely,

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

Correspondence ID: 10217
Copy for: Assessment Library

Work Report Assessment Results

Submission Number: 2.16728

Date Correspondence Sent: September 18, 1996 **Assessor:** Steve Beneteau

General Comment:

Thank you for your prompt response to the 45 Day Notice issued August 26, 1996. The information provided has corrected all deficiencies associated with this submission. Accordingly, assessment credit have been approved as outlined on the original report of work form.

Transaction Number	First Claim Number	Township(s) / Area(s)	Status	Approval Date
W9660.00409	1206817	ENGLISH, ZAVITZ	Approval After Notice	September 18, 1996

Section:

14 Geophysical IP

Correspondence to:

Mining Recorder
Timmins, ON

Resident Geologist
Timmins, ON

Assessment Files Library
Sudbury, ON

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

Peter Chubb
SUDBURY, ONTARIO

CAMECO CORPORATION
SASKATOON, SASKATCHEW

TRI ORIGIN EXPLORATION LTD.
AURORA, Ontario

Correspondence ID: 10217

REFERENCES

AREAS WITHDRAWN FROM DISPOSITION

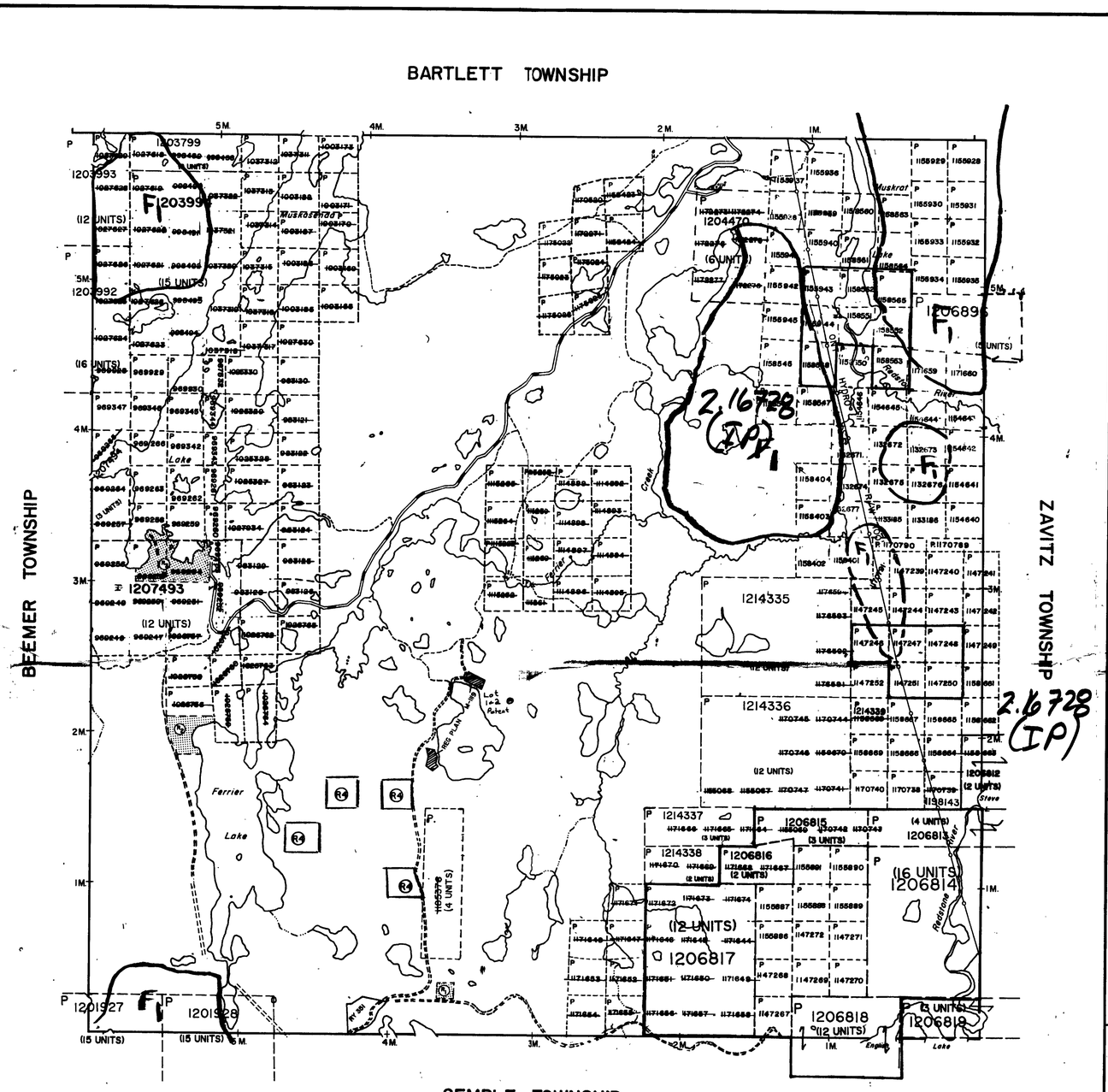
M.R.O. – MINING RIGHTS ONLY
S.R.O. – SURFACE RIGHTS ONLY
M.+ S. – MINING AND SURFACE RIGHTS

Description	Order No.	Date	Disposition	File
(R1) SEC.36/80	W. 18 / 77	28/02/77	S.R.O.	83582
(R2) SEC36/80	W.19/78	10/04/78	S.R.O	188543
(R3) SEC.36/80	W.30/78	02/06/78	S.R.O	192219

(R4) MINING AND SURFACE RIGHTS WITHDRAWN FROM PROSPECTING, STAKING OUT, SALE OR LEASE UNDER SECTION 35 OF THE MINING ACT R.S.O. 1990 ORDER NO. W-P 43/94 IER DATED 94-MAY-02

MINING AND SURF

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.



LEGEND

- HIGHWAY AND ROUTE No.
- OTHER ROADS
- TRAILS
- SURVEYED LINES:
  - TOWNSHIPS, BASE LINES, ETC.
  - LOTS, MINING CLAIMS, PARCELS, ETC.
- UNSURVEYED LINES:
  - LOT LINES
  - PARCEL BOUNDARY
  - MINING CLAIMS ETC.
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON-PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN
- RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" , SURFACE RIGHTS ONLY	◒
" , MINING RIGHTS ONLY	◒
LEASE, SURFACE & MINING RIGHTS	■
" , SURFACE RIGHTS ONLY	▣
" , MINING RIGHTS ONLY	▣
LICENCE OF OCCUPATION	▼
ORDER-IN-COUNCIL	OC
RESERVATION	⊕
CANCELLED	⊕
SAND & GRAVEL	⊕

F2

SCALE: 1 INCH = 40 CHAINS

FEET 0 1000 2000 4000 6000 8000
METRES 0 200 1000 (1 KM) 2000 (2 KM)

F1 THIS TWP IS SUBJECT TO FOREST ACTIVITY IN 1994/95 1995/96 FURTHER INFORMATION ON FILE.

TOWNSHIP

ENGLISH

M.N.R. ADMINISTRATIVE DISTRICT

TIMMINS

MINING DIVISION

PORCUPINE

LAND TITLES / REGISTRY DIVISION

SUDBURY

Ontario Ministry of Natural Resources | Ministry of Northern Development and Mines

Date SEPTEMBER 1990

ACTIVATED : SEPT. 25/90 S.R.

Number G-3938

2.16728 (IP)

G-3938

L10N

L10S

L10S

BL 0+00

TL 12+00E

N

LEGEND

- Mertens & McNeil IP Coverage (1992)
- Tandem IP Coverage (1994)
- IP Anomalies
- IP Trends
- Resistive Zone
- Resistivity Breaks
- Resistivity Highs
- Mag High Trends
- Linear Mag Trends
- Region of High Resistivity
- Mag Contact
- Mag Breaks
- VLF Trends
- EM Anomalies
- Drill Hole
- Power Line

210

42A03SE0021 2.16728 ZAVITZ

2.16728

0 100 200 300 400 500m

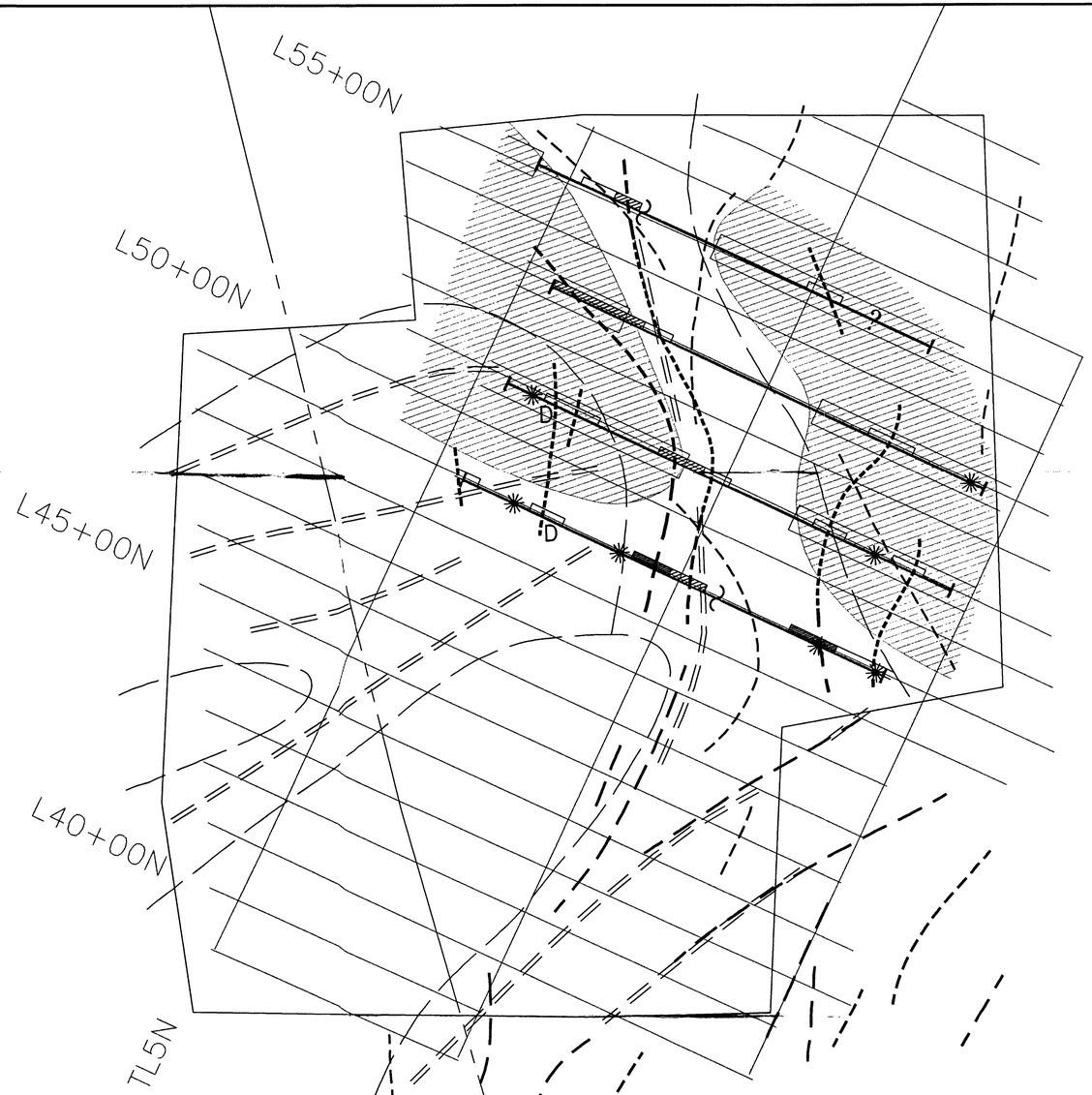
Scale 1:5000

Cameco

ENGLISH TOWNSHIP

GEOPHYSICAL COMPILATION BLOCK A

Compiled By: RON MATTHEWS 95/10/26	Dwg No.: ENG95012A
Drafted By: CLAYTON DURBIN	Figure 3
Scale: 1:5,000	
N.T.S.:	
Disposition(s):	



LEGEND

- Tandem IP Coverage (1994)
- IP Anomalies (D=Deep)
- IP Trends
- Esso IP Trends (1988)
- Resistive Zone
- Resistivity Breaks
- Resistivity Highs
- Linear Mag Trends
- Mag Contact
- VLF Trends
- EM Anomalies
- Power Line

2.16728

0 100 200 300 400 500m

Scale 1:5000

Cameco

ENGLISH TOWNSHIP

GEOPHYSICAL COMPILATION BLOCK B

Compiled By: RON MATTHEWS 95/10/26	Dwg No.: ENG95012B
Drafted By: CLAYTON DURBIN	
Scale: 1:5,000	Figure 4
N.T.S.:	
Disposition(s):	

220

LEGEND

- Mertens & McNeil IP Coverage (1992)
- Tandem IP Coverage (1994)
- IP Anomalies
- IP Trends
- High IP Zone
- Resistive Zone
- Resistivity Breaks
- Resistivity Highs
- Linear Mag Trends
- Mag Contact
- VLF Trends
- EM Anomalies
- Drill Hole
- Power Line
- Region of High Resistivity

TL 10+00N

TL 5+00N

L5E

L5W

BL 0+00

L15E

L5E

TL 10+00S

L10W

L5W

L0

N

2.16728

0 100 200 300 400 500m

Scale 1:5000

Cameco

ENGLISH TOWNSHIP

GEOPHYSICAL COMPILATION BLOCK C

Compiled By: RON MATTHEWS 95/10/26	Dwg No.: ENG95012C
Drafted By: CLAYTON DURBIN	
Scale: 1:5,000	Figure 5
N.T.S.:	
Disposition(s):	

L10N

Muskrat

Lake

LO

LO

L10S

L10S

TL 12+00E

BL 0+00

N

2.16728

LEGEND

1996 IP Coverage

IP Anomalies

IP Trends

Previous IP Trends

Conductive Trends

Resistive Trends

Conductive Zone

L/D Limited Depth Extent/Deep

0 100 200 300 400 500m

Scale 1:5000

Cameco

ENGLISH TOWNSHIP

IP-RESISTIVITY COMPILATION BLOCK A

Compiled By: RON MATTHEWS 96/05/02	Dwg No.: ENG96006A
Drafted By: CLAYTON DURBIN	Figure 6
Scale: 1:5,000	
N.T.S.:	
Disposition(s):	

240

42A03SE0021 2.16728 ZAVITZ

Creek

River

ENGLISH TWP

ZAVITZ TWP

L55+00N

L50+00N

L45+00N

L40+00N

TL5W

BLO

TL5E

L15E

N

LEGEND

1996 IP Coverage

IP Anomalies

IP Trends

Previous IP Trends

Conductive Trends

Resistive Trends

L/D Limited Depth Extent/Deep

2.16728

0 100 200 300 400 500m

Scale 1:5000

Cameco

ENGLISH TOWNSHIP

IP-RESISTIVITY COMPILATION BLOCK B

Compiled By: RON MATTHEWS 96/05/02	Dwg No.: ENG96006B
Drafted By: CLAYTON DURBIN	
Scale: 1:5,000	Figure 7
N.T.S.:	
Disposition(s):	

250

4DADSB001.1.16728.ZAVITZ

L10E

TL 10+00N

TL 5+00N

L5E

L0

L

D

?

TL

BL 0+00

L15E

L5E

English
Lake

River

TL 10S

L10W

L5W

L0

N

LEGEND

- 1996 IP Coverage
- ? IP Anomalies
- IP Trends
- Previous IP Trends
- Conductive Trends
- Resistive Trends
- Conductive Zone
- L/D Limited Depth Extent/Deep

2.16728

0 100 200 300 400 500m

Scale 1:5000

Cameco

ENGLISH TOWNSHIP

IP-RESISTIVITY COMPILATION BLOCK C

Compiled By: RON MATTHEWS 96/05/02	Dwg No.: ENG96006C
Drafted By: CLAYTON DURBIN	
Scale: 1:5,000	Figure 8
N.T.S.:	
Disposition(s):	

42A05SE0021 2.16728 ZAVITZ

260