ABITIBI GEOPHYSICS

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MAGMA METALS (CANADA) LTD.

RESISTIVITY / INDUCED POLARIZATION SURVEY

THUNDER BAY NORTH PROJECT
ONTARIO, CANADA

LOGISTICS AND INTERPRETATION REPORT

08N011 **APRIL 2008**

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ABSTRACT

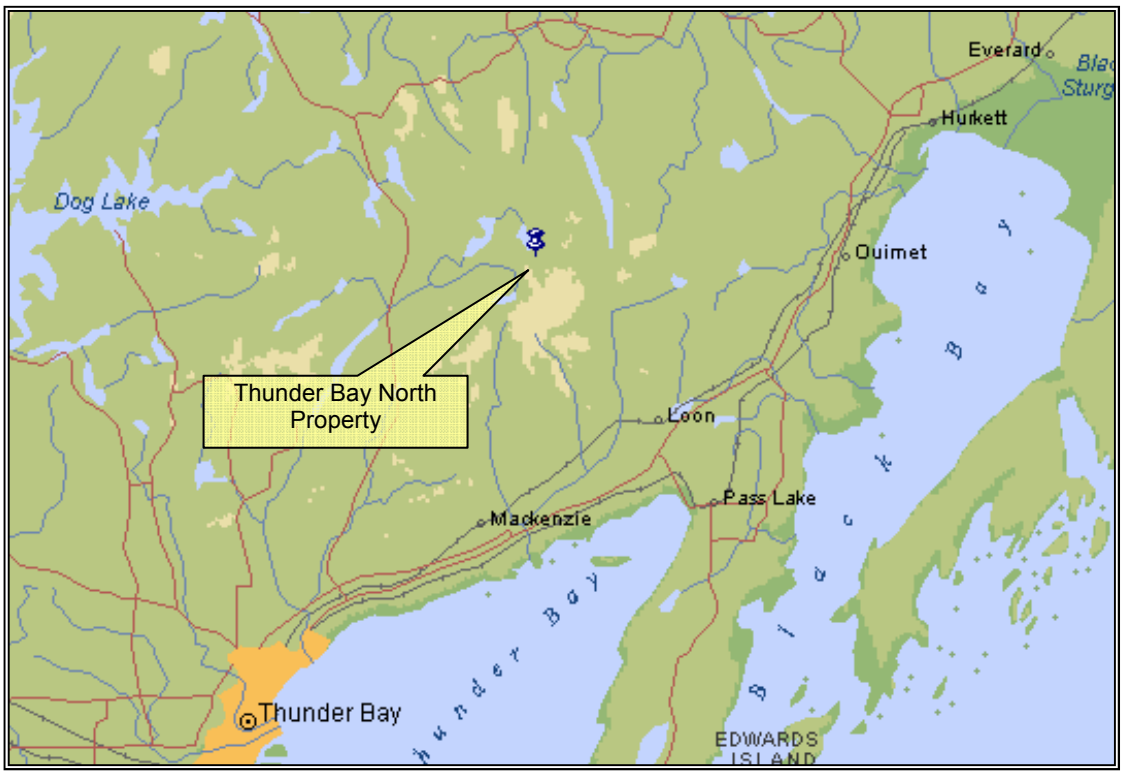
On behalf of Magma Metals (Canada) Ltd., a resistivity / induced polarization survey was completed over the Thunder Bay North Property, located approximately 50 km northeast of Thunder Bay City, in north-western Ontario. The objective of this geophysical campaign was to help locate the source intrusion "up-ice" from the location of clusters of sulphides-bearing boulders deposited by glacial processes.

*During the months of February and March 2008, a total of **48.1 km** of IP surveying was carried out over the property. Out of this, **32.2 km** were acquired in the gradient configuration (MN = 25 m & AB = 2000 m) as an exploration mapping tool and **15.9 km** were achieved using the pole-dipole configuration (a = 50 m & n = 1 to 20) for a greater depth resolution. Survey specifications, instrumentation control, data acquisition, processing and interpretation were all successfully performed within our quality system framework.*

Following meticulous interpretation of both the gradient and pole-dipole survey results, a total of twelve chargeability anomalies were identified and prioritized accordingly. Follow-up recommendations include prospecting over five subcropping-outcropping anomalies, from which three of them could further be assessed by drilling. Five additional deeper / underwater anomalies were also recommended as drilling targets.

1. THE MANDATE

❑ *PROJECT ID*	**Thunder Bay North Project** (Our survey reference: **08N011**)
❑ *GENERAL LOCATION*	Thunder Bay region of northwestern Ontario.
❑ *CUSTOMER*	**Magma Metals (Canada) Ltd.** Level 3, 18 Richardson Street, West Perth, WA 6005, Australia Telephone: + 61 (0) 8 9324 1500 Fax: + 61 (0) 8 9324 1700
❑ *REPRESENTATIVES*	**Allan Mactavish** admactavish@magmametals.ca **Bill Peters** bill@sgc.com.au
❑ *SURVEY TYPE*	**Time Domain Resistivity / Spectral IP**
❑ *GEOPHYSICAL OBJECTIVES*	• To help locate the source intrusion "up-ice" from the location of clusters of sulphides-bearing boulders deposited by glacial processes. • Evaluate the potential for mineralization zones associated with base and precious metals. • Propose a follow-up program over the most promising anomalies.



GENERAL LOCATION OF THE THUNDER BAY NORTH PROPERTY

2. THE THUNDER BAY NORTH PROJECT

- ❑ *LOCATION* — **Thunder Bay region**, northwestern Ontario
  Centered on 48° 46' N and 88° 56' W
  NTS sheet: **52A/15**

- ❑ *NEAREST SETTLEMENT* — **Thunder Bay**: 50 km to the southwest.

- ❑ *ACCESS* — From Thunder Bay, drive east (for approximately 10 km from the city center) onto Highway 11 to the intersection with Road 527. Turn north onto the later and continue for about 20 km. At this point, turn east onto a logging road which leads directly to the survey area.

- ❑ *GEOMORPHOLOGY* — This property offers very little to none topographic relief as most of the survey grid covers lakes and swampy area.

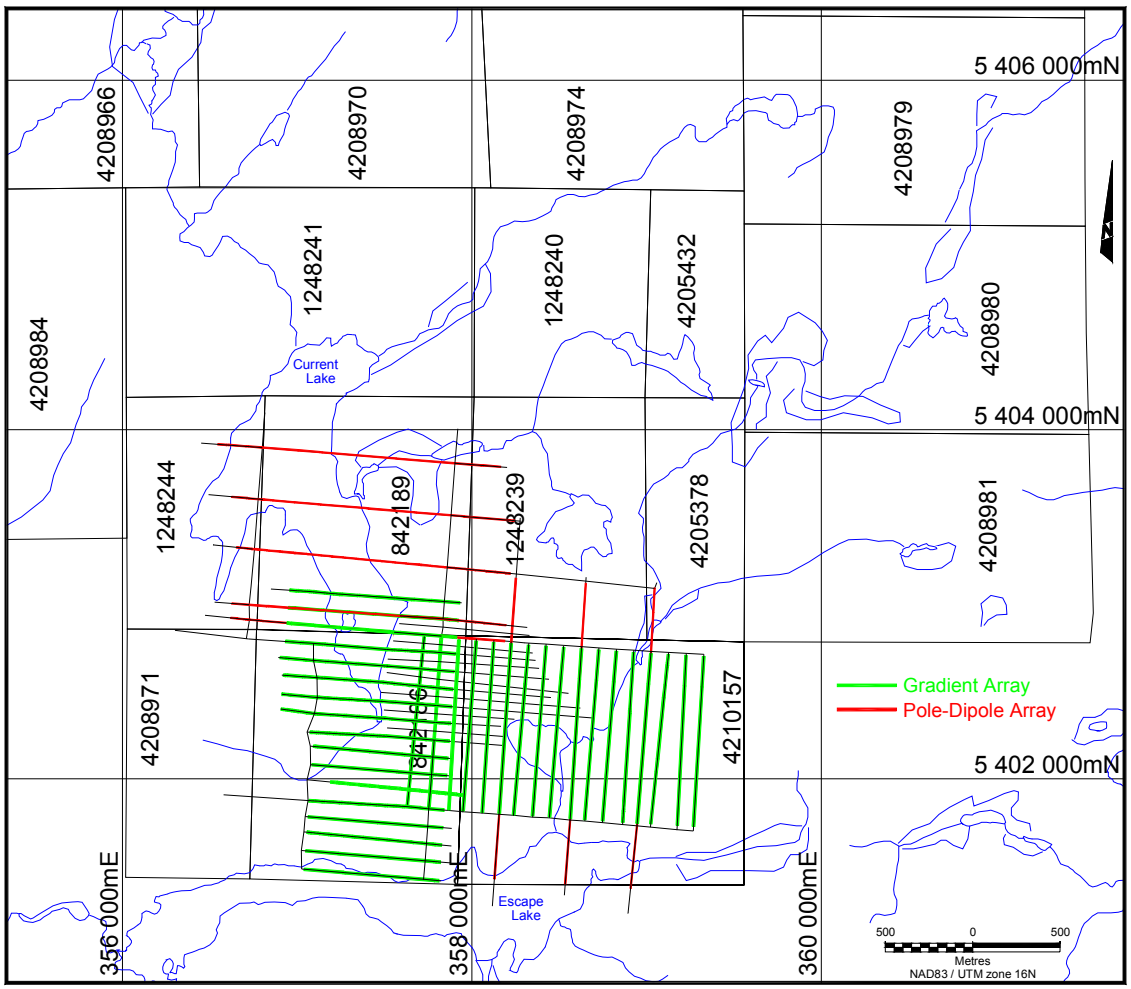
- ❑ *CULTURAL FEATURES* — A logging road crosses the survey area without any effect on data quality.

- ❑ *MINING LAND TENURE* — The entire property comprises 17 contiguous mining claims covering an area of approximately 36 km^2 totally owned by Magma Metals (Canada) Ltd. The associated claim numbers encompassed in the present survey are illustrated on the following page.

- ❑ *SURVEY GRID* — The gradient survey lines consist of 17 E-W oriented lines, covering the south part of Current Lake (from line 14+00N to 30+00N, stations 71+00E to 79+00E), and 17 N-S oriented lines, covering Beaver Lake (from line 77+00E to 93+00E, stations 18+00N to 28+00N).

  The pole-dipole survey lines consist of six E-W oriented lines, covering the north part of Current Lake (lines 28+00N, 29+00N, 32+00N, 35+00N, 38+00N and 40+00N), and three N-S oriented lines, covering the Beaver Lake (lines 82+00E, 86+00E and 90+00E).

- ❑ *COORDINATE SYSTEM* — Projection: Universal Transverse Mercator (UTM).
  Datum: NAD83.
  Zone : 16N.



INDEX OF CLAIMS AND AREA COVERED BY THE PRESENT SURVEY

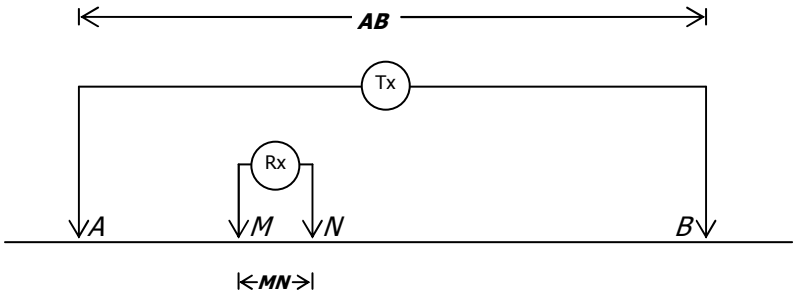
3. RESISTIVITY / INDUCED POLARIZATION SURVEY

❑ *TYPE OF SURVEY*

Time domain resistivity / spectral induced polarization

Gradient array, "MN" = 25 m, "AB" = 2000 m
(Lines 14+00N to 30+00N and 77+00E to 93+00E)

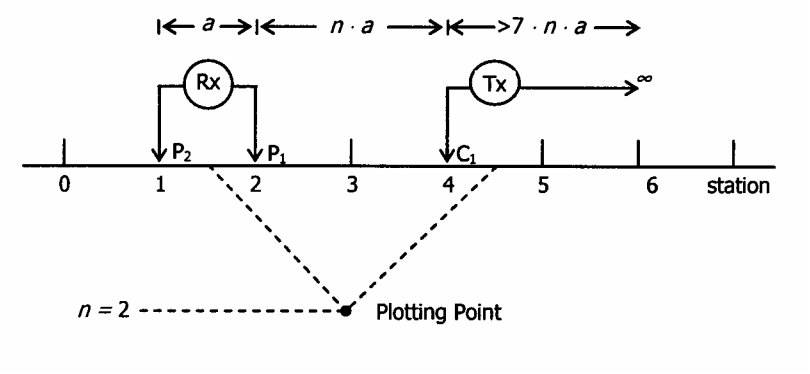
Locations of AB : Line 18+00N / Stations 82+25E & 66+00E
Line 27+00N / Stations 84+00E & 65+00E
Line 85+50E / Stations 37+00N & 10+50N



AB >> MN

Pole-dipole *array, "a" = 50 m, "n" = 1 to 20*
(Lines 28+00N, 29+00N, 32+00N, 35+00N, 38+00N, 40+00N, 82+00E, 86+00E & 90+00E)

Location of C_∞ (NAD83): 361 971 mE, 5 406 692 mN



❑ *PERSONNEL*

Israël Bacon,	crew chief, geophysical operator
Francis Thibeault,	field assistant
Guillaume Guillemette,	field assistant
Pascal Girard,	field assistant
Paul Mélançon,	fieldwork supervision & logistics
Carole Picard, Tech.,	data processing & plotting
Carlos Cifuentes, Eng.,	QC & interpretation
Steve Boucher, Eng.,	final validation of product conformity

❑ *DATA ACQUISITION*

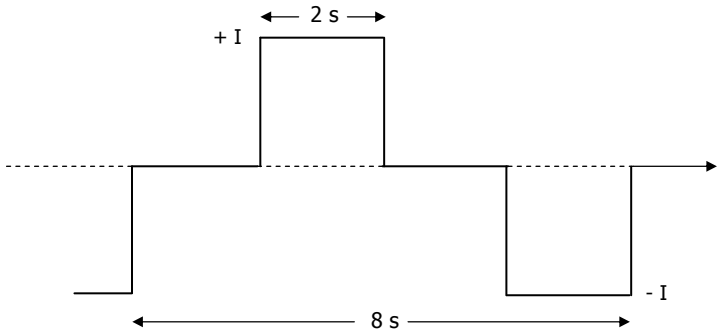
February 21th to March 13th, 2008.

❑ *SURVEY COVERAGE*

48.1 km
*(**32.2 km of gradient** array and **15.9 km of pole-dipole** array)*

❑ *IP TRANSMITTERS (TX)*

GDD Instrument:	TxIII - 3600, s/n 259 & 260
Power supply:	Pramac 7500 VA & Honda 6500 VA
Maximum output:	up to 3.6 kW or **10 A** or 2400 V
Electrodes:	shape memory alloy
Resolution:	1 mA on output current display **I**
Waveform:	bipolar square wave with 50% duty cycle
Pulse duration:	2 seconds



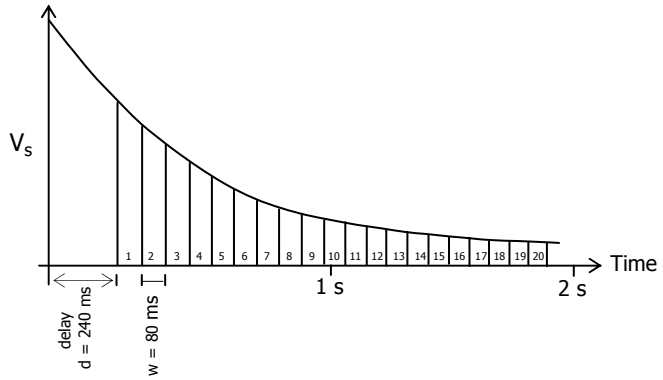
❑ *IP RECEIVERS (RX)*

IRIS Elrec-PRO, s/n 131 & 190 (10 input channels)
Electrodes: shape memory alloy
V_P Primary voltage measurement:

- Input impedance: 100 MΩ
- Resolution: 1 µV
- Typical accuracy: **0.2%**

M_a Apparent chargeability measurement:

- Resolution: 0.01 mV/V
- Typical accuracy: **0.4%**
- Arithmetic sampling mode, 20 time slices (M_1 to M_{20})



- All gates are normalized with respect to a standard decay curve for QC in the field.

❑ *APPARENT RESISTIVITY CALCULATION*

***Gradient** array:*

$$\rho_a = \frac{2 \cdot \pi \cdot V_p}{I \cdot \left(\frac{1}{AM} - \frac{1}{BM} - \frac{1}{AN} + \frac{1}{BN} \right)} \quad (in\ \Omega \cdot m)$$

Cumulative error: 5% max, mainly due to chaining accuracy.

***Pole-dipole** array:*

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

Cumulative error: 5% max, mainly due to chaining accuracy.

❑ *QUALITY CONTROL (Records available upon request)*

Before the survey:

- Transmitter & motor generator were checked for maximum output using calibrated loads.
- Receiver was checked using the Abitibi Geophysics SIMP™ certified and calibrated V_P & M_a signal simulator.

During data acquisition:

- Rx & Tx cable insulation was verified every morning.
- Proprietary Software *Refusilo*® allowed a daily thorough monitoring of data quality and survey efficiency.
- Enough pulses were stacked: 6 pulses for every reading.

At the Base of Operations:

- Field QCs were inspected & validated.
- Each IP decay curve was analyzed with *Refusilo*®. The few gates that were rejected were not included in the calculation of the plotted M_a.

❑ *QUALITY STATISTICS*

Thunder Bay North Project	Gradient: AB = 2000 m, MN = 25 m	Pole-dipole: n = 1 to 10, a = 50 m	
Average contact resistance at the R_x	18.3 kΩ	11.9 kΩ	
Average output current across C_1-C_2	2484 mA	805 mA	
Average measured voltage Vp across P_1-P_2	180 mV	n = 1	4995 mV
		n = 20	100 mV
Observed gates found to fit a pure electrode polarization relaxation curve	97.9 %	96.9 %	
Average deviation of the validated normalized gates with respect to the plotted mean chargeabilities	0.03 mV/V	n = 1	0.03 mV/V
		n = 20	0.09 mV/V

4. DATA PROCESSING AND DELIVERABLES

- ***TRUE-DEPTH IP SECTIONS***

Apparent resistivity and chargeability pseudosections were inverted using our proprietary ***image2D***® package. The process is fully automated as there is no need to guess a starting model or to filter the pseudosection to generate one. The ground is divided in cells of $^{a}/_{4}$ side and a back-projection of the raw data is performed.

The result is a smooth earth model showing all conductive, resistive and polarizable sources. The resulting true-depth sections integrate all possible solutions, highlighting the most probable ones.

A synthetic example showing the ability of ***image2D***® to resolve sources and to facilitate the location of DDH is presented on page 10.

- ***PRECISIONS CONCERNING image2D***®

Imaging cannot create information that is not in the raw data set (pseudosections), i.e., the limitations of the technique and array that was used will still prevail. With pole-dipole, for instance, resolution is asymmetrical and vertical sources may show a false dip. However, noise is efficiently rejected, near-surface effects are easily identified and complex responses, such as two adjoining sources, a wide body or a dipping geological contact, are well resolved.

This imaging process will not recover intrinsic resistivities unless the source is very wide. However, as opposed to pseudosections, geological data from drill-holes may be superimposed on ***image2D***® true-depth sections.

❑ *MAPS PRODUCED*

The following colour maps are bound or inserted in pouches at the end of this report. Our Quality System requires that every final map be inspected by at least two qualified persons before being approved and included within a final report.

Map Number	IP Array	Description	Scale
Survey lines: *28+00N,* *29+00N,* *32+00N,* *35+00N,* *38+00N,* *40+00N,* *82+00E, 86+00E and 90+00E* (9 plates)	Pole-dipole	Color Apparent Resistivity / Chargeability Pseudosections and ***image2D*** ® True-depth Sections with Interpretation	1:5000
8.2a 8.2b 8.2c	Pole-dipole	Apparent Resistivity Contours at a depth of 50 m Apparent Resistivity Contours at a depth of 100 m Apparent Resistivity Contours at a depth of 200 m	1:5000 1:5000 1:5000
8.3a 8.3b 8.3c		Apparent Chargeability Contours at a depth of 50 m Apparent Chargeability Contours at a depth of 100 m Apparent Chargeability Contours at a depth of 200 m	1:5000 1:5000 1:5000
Map Number	**IP Array**	**Description**	**Scale**
8.22	Gradient	Apparent Resistivity Contours	1:5000
8.23		Apparent Chargeability Contours	1:5000
10.0	Pole-dipole & Gradient	Geophysical Interpretation	1:5000

❑ *DIGITAL DATA*

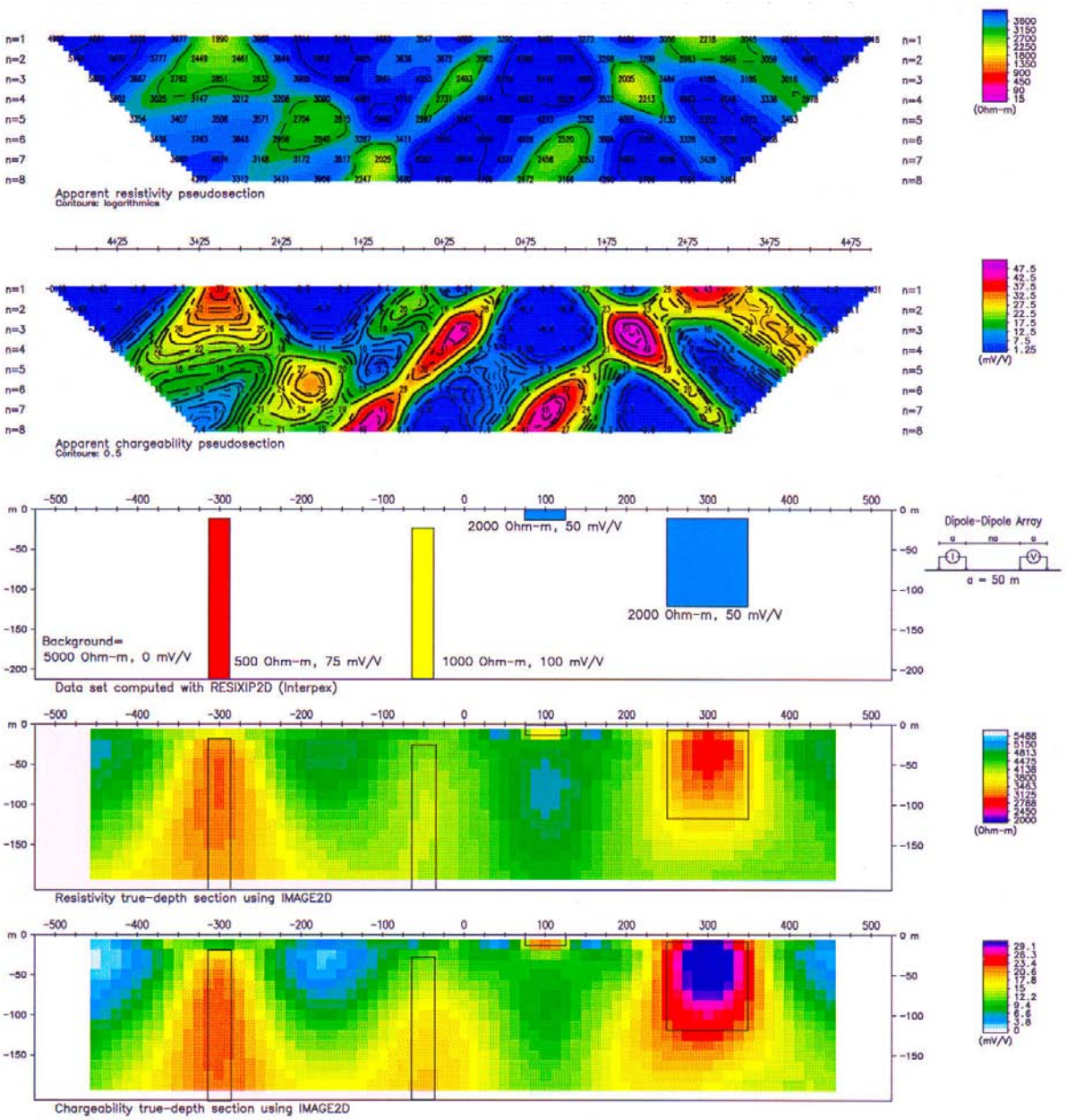
The above-described maps are delivered in the Oasis Montaj map file format on CD-Rom.

A copy of all survey acquisition data (ASCII text format) and processed data (Geosoft Montaj databases) area also delivered on CD-Rom.

image2D® demo on synthetic datasets

Top half of figure: classic apparent resistivity and chargeability pseudosections.

Centre of plate: the synthetic model that generates these pseudosections.



Bottom half of figure: the reconstructed resistivity and chargeability true-depth sections after inversion of the pseudosections using ***image2D***®.
The model is superimposed on these sections.

5. RESULTS AND RECOMMENDATIONS

❑ *RESISTIVITY MAP*

The *Apparent Resistivity Map* (8.2a) at a depth of 50 m, derived from the pole-dipole array survey, shows a NW-SE conductive anomaly over the Current Lake. This map also shows an EW conductive anomaly over the Beaver Lake.

The *Apparent Resistivity Map* (8.22), derived from the gradient array survey, shows a very good correlation with the previously described map 8.2a. It shows the extension of the NW-SE conductive anomaly over the Current Lake and also shows the strong E-W conductive anomaly over the Beaver Lake.

On the *Geophysical Interpretation Map* (10.0), the most conductive zones are defined by the areas of less than 3 000 Ωm, and they are outlined using green contoured / shaded areas. These conductive zones were derived from the gradient array survey results. On the pseudosections and ***image2D***® true-depth sections, resulting from the pole-dipole survey, most of these conductive features seem to be confined to a depth of 50 m, with the exception of few anomalies that could go up to 150 m deep. On the same map, the most resistive zones are defined by the areas of more than 12 000 Ωm, and they are outlined using blue contoured / shaded areas. These resistive zones may be related to places where bedrock is outcropping.

❑ *CHARGEABILITY MAP*

Following a meticulous interpretation of both gradient and pole-dipole surveys, a total of fifteen anomaly trends (labeled **TBN-01** to **TBN-15**) were compiled and prioritized accordingly. These include twelve anomalies defined by the pole-dipole survey (**TBN-01** to **TBN-12**) and three anomalies from the gradient survey (**TBN-13** to **TBN-15**).

On this property, the chargeability values are distributed over a large range with anomalous areas varying from 10 to more than 45 mV/V, over a background of less than 5 mV/V. On the *Geophysical Interpretation Map* (10.0), the most chargeable zones are defined by the areas exceeding 20 mV/V on the gradient array data, and they are outlined using red contoured / shaded areas (anomalies **TBN-13** to **TBN-15**). On the other hand the grey shaded chargeability trends were delineated from the pole-dipole survey (anomalies **TBN-01** to **TBN-12**). The results from these two survey configurations were found to agree fairly well. For example anomalies **TBN-10** and **TBN-11**, defined by the pole-dipole survey, correspond exactly to the anomaly **TBN-13**, defined from the gradient array survey. Some very minor discrepancies may be observed but it should be noted that the lateral resolution resulting from the gradient array is somewhat superior to that of the pole-dipole array. However, depth resolution is greater for survey carried out in the pole-dipole configuration.

The inferred surface projection of the resistivity / IP signatures shown on the pseudosection plates and reported on *Geophysical Interpretation Map* (10.0), were correlated from line-to-line according to their strength, resistivity association and the general strike orientation. They are fully described in the Appendix found at the end of this report.

6. FOLLOW-UP SUMMARY

❒ *PROSPECTING*

Priority	Anomaly	Location	
		Line	Station
1	TBN-09*	86+00E 90+00E	17+88N 19+50N
	TBN-10*	82+00E 86+00E 90+00E	22+00N 21+25N 22+00N
	TBN-11*	82+00E 86+00E 90+00E	24+50N 25+25N 24+50N
2	TBN-06	32+00N	74+75E
3	TBN-08	40+00N	77+25E
*Possible follow-up drilling.			

❑ *DRILLING*

Priority	Anomaly	DDH target (not collar)		
		Line	Station	Depth (m)
1	TBN-09**	90+00E	19+50N	130
	TBN-10**	82+00E	21+50N	150
	TBN-11**	86+00E	25+25N	100
2	TBN-01	28+00N	73+50E	130
	TBN-02	35+00N	71+00E	75
3	TBN-03	40+00N	70+00E	75
	TBN-05	28+00N	70+75E	200
	TBN-07	28+00N	77+25E	160
**Pending prospecting results.				

❑ *POLE-DIPOLE SURVEY*

Priority	Anomaly	Location	
		Line	Station
1	TBN-13 TBN-14 TBN-15	From line 14+00N to line 27+00N	From station 65+00E to station 81+00E

The interpretation of the geophysical data embodied in this report is essentially a geophysical appraisal of the Thunder Bay North Project. As such, it incorporates only as much geoscientific information as the author has on hand at the time. Geologists thoroughly familiar with the area are in a better position to evaluate the geological significance of the various geophysical signatures. Moreover, as time passes and information provided by follow-up programs are compiled, exploration targets recognized in this study might be downgraded or upgraded.

Respectfully submitted,
Abitibi Geophysics Inc.

Carlos Cifuentes, Eng.
Geophysicist

APPENDIX
Description of all IP / Resistivity anomalies interpreted on the Thunder Bay North Property

Anomaly	Location		Contrast		Comments	Priority
	Line	Station	Charg.	Res.		
Anomalies related to project 07N019						
TBN-01	28+00N	73+50E	3	↓↓	Related to anomaly **TBN-02** described on project 07N019. Strongly polarizable trend oriented N-S. The anomaly is located in the south part of Current Lake. **Could be investigated by drilling on line 28+00N, station 73+50E, depth 130 m.**	**2**
	29+00N	73+00E	3	-		
TBN-02	29+00N	71+50E	1	↓	Related to anomaly **TBN-02** described on project 07N019. Moderately polarizable trend oriented N-S, associated to a conductive zone delineated by the IP Gradient data. Located along shore (and possibly under water) of Current Lake. **Could be investigated by drilling at line 35+00N, station 71+00E, depth 75 m.**	**2**
	32+00N	71+00E	2	↓		
	35+00N	71+00E	2	↓		
TBN-03	35+00N	68+75E	1	↓	Related to anomaly **TBN-03** described on project 07N019. Moderately polarizable trend oriented N-S, located in the middle of two conductive zones. May represent a change in overburden thickness but could also suggest altered units (silicified / carbonatized) having resisted weathering, with or without minor disseminated sulphides. Located under lake. **Could be investigated by drilling at line 40+00N, station 70+00E, depth 75 m.**	**3**
	38+00N	69+12E	1	-		
	40+00N	70+00E	2	↓↓		
TBN-04	35+00N	75+00E	1	-	Related to anomaly **TBN-04** described on project 07N019. Week to moderately polarizable trend oriented N-S. May represent a change in overburden thickness but could also suggest altered units (silicified / carbonatized) having resisted weathering, with or without minor disseminated sulphides. No further investigation is recommended at this moment, without analyzing additional information that might help to better define the anomaly.	3
	38+00N	73+50E	?	↓		
	40+00N	73+25E	1	-		
TBN-05	28+00N	70+75E	2	↓	Related to anomaly **TBN-05** described on project 07N019. Moderately polarizable trend oriented N-S, located along a contact between units of different resistivities. The north part of the anomaly is subcropping. May represent a change in overburden thickness but could also suggest altered units (silicified / carbonatized) having resisted weathering, with or without minor disseminated sulphides. **Could be investigated by drilling at line 28+00N, station 70+75E, depth 200 m**	**3**
	29+00N	70+38E	1	↓		

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Anomaly	Location		Contrast		Comments	Priority
	Line	Station	Charg.	Res.		
Anomalies non associated to anomalies found on project 07N019						
TBN-06	29+00N	74+63E	3	↓	Strongly polarizable trend oriented N-S, associated to a conductive zone delineated by the IP Gradient data at the south end of the anomaly, which extends from line 28+50N to 21+00N. Located beside a polarizable trend delineated by the IP Gradient data at the south end of the anomaly. The north part of the anomaly is subcropping, located along shore of Current Lake. The south end of the anomaly is under water (line 29+00N). **Could be investigated by prospecting (stripping / trenching) on line 32+00N, station 74+75E.**	**2**
	32+00N	74+75E	2	-		
TBN-07	28+00N	77+25E	3	↓	Strongly polarizable trend present on a single line, related to a conductive zone. **Could be investigated by drilling at line 28+00N, station 77+25E, depth 160 m**	**3**
TBN-08	38+00N	77+75E	?	↓	Weakly polarizable trend oriented N-S, related to a conductive zone. The anomaly is subcropping at the north (line 40+00N). **Could be investigated by prospecting (stripping / trenching) on line 40+00N, station 77+25E.**	**3**
	40+00N	77+25E	1	-		
TBN-09	82+00E	16+25N	3	↓	Very strong polarizable trend oriented E-W, associated to a conductive zone at the west end (line 82+00E). Located in close proximity of **TBN-10** and **TBN-11**. Likely originates from the same source. It is likely that the anomaly is subcropping. **Could be investigated by prospecting (stripping / trenching) on lines 86+00E (station 17+88N) and 90+00E (station 90+50N).** **If the prospecting results are positive, it is highly recommended to investigate by drilling in order to define the anomaly extent.**	**1**
	86+00E	17+88N	2	↓		
	90+00E	19+50N	4	-		
TBN-10	82+00E	21+50N	4	↓↓	Very strong polarizable trend oriented E-W, associated to a conductive zone and a polarizable trend delineated by the IP Gradient data. Located in close proximity of **TBN-09** and **TBN-11**. Likely originates from the same source. It is likely that the anomaly is subcropping. **Could be investigated by prospecting (stripping / trenching) on lines 82+00E (station 22+00N), 86+00E (station 21+25N) and 90+00E (station 22+00N).** **If the prospecting results are positive, it is highly recommended to investigate by drilling in order to define the anomaly extent.**	**1**
	86+00E	21+25N	4	↓↓		
	90+00E	22+00N	4	↓↓		

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Anomaly	Location		Contrast		Comments	Priority
	Line	Station	Charg.	Res.		
TBN-11	82+00E	24+50N	4	↓↓	Very strong polarizable trend oriented E-W, associated to a conductive zone and a polarizable trend delineated by the IP Gradient data. Located in close proximity of **TBN-09** and **TBN-10**. Likely originates from the same source, with the difference that his anomaly is not associated to any conductive zone delineated by the IP Gradient data. It is likely that the anomaly is subcropping. **Could be investigated by prospecting (stripping / trenching) on lines 82+00E (station 24+50N), 86+00E (25+25N) and 90+00E (24+50N).** **If the prospecting results are positive, it is highly recommended to investigate by drilling in order to define the anomaly extent.**	**1**
	86+00E	25+25N	4	↓↓		
	90+00E	24+50N	4	↓↓		
TBN-12	28+00N	66+25E	1	↓	Weakly polarizable trend oriented N-S, associated to a conductive zone. The north part of the anomaly is under Current Lake. May represent a change in overburden thickness but could also suggest altered units (silicified / carbonatized) having resisted weathering, with or without minor disseminated sulphides. No further investigation is recommended at this moment, without analyzing additional information that might help to better define the anomaly.	3
	29+00N	66+88E	1	↓		
	32+00N	66+50E	1	↓		
	35+00N	66+00E	?	↓		
TBN-13	From line 75+00E to 93+00E	From station 20+00N to 29+00N	4		Strongly polarizable anomaly, defined by the gradient survey, trending E-W over Beaver Lake and then trending SE-NW towards Current Lake. Related to anomalies **TBN-10** and **TBN-11**. **Could be investigated in the by prospecting (stripping / trenching) on lines 82+00E (station 24+50N), 86+00E (25+25N) and 90+00E (24+50N).** **Could be investigated by a pole-dipole survey (from line 81+00E to the east), to define its vertical extension.**	**1**
TBN-14	From line 74+00E to 78+00E	From station 17+00N to 23+00N	4		Strongly polarizable anomaly, defined by the gradient survey, trending SE-NW, south of Current Lake, over a resistive zone. **Could be investigated by a pole-dipole survey (from line 78+00E to 74+00E), to define its vertical extension.**	**1**
TBN-15	From line 71+00E to 73+00E	From station 14+00N to 23+00N	4		Strongly polarizable anomaly, defined by the gradient survey, trending N-S, over a resistive zone. **Could be investigated by a pole-dipole survey (from line 71+00E to 73+00E), to define its vertical extension.**	**1**

APPENDIX
Description of all IP / Resistivity anomalies interpreted on the Thunder Bay North Property

LEGEND:

Chargeability Increase
? = Marginal
1 = Weak
2 = Moderate
3 = High
4 = Very High

Resistivity Increase
↑ = Resistive
↑↑ = Very Resistive

Decrease
↓ = Conductive
↓↓ = Very Conductive