

2.49974

Report of Induced Polarization, Misse-a-la-Masse, and Total Field Magnetic Surveys

On the

Groves Property Grid

Groves Township, Ontario

Mining Claim Nos. 1228922, 4217813, 4217815

Porcupine Mining Division

For

Liberty Mines Inc.

September 12, 2011 Timmins, Ontario Matthew Johnston

1226 Gatineau Blvd. Timmins, Ont. P4R 1E3

Table of Contents

Page No.

Scale

1.0	Introduction	2
2.0	Location and Access	2
3.0	Summary of 2011 Geophysical and Gridding Program	2
4.0	Discussion of Results	5
5.0	Conclusions and Recommendations	7

Statement of Qualifications

Мар

Appendices

Appendix A Geophysical Instruments and Survey Methods

List of Maps

I.P./Resistivity Pseudo-Sections Lines 100E-400E Groves Grid	1:2500
Filtered Resistivity Contours with I.P. Anomalies Plan Map	1:2500
Total Field Magnetic Survey - Contours	1:2500
Total Field Magnetic Survey – Posted Data	1:2500
Misse-a-la-Masse Survey DDH C45	1:2500
Misse-a-la-Masse Survey DDH E68	1:2500

1.0 Introduction

The Groves grid is located on the Groves property of Liberty Mines Inc., located in northeast Groves Township, Porcupine Mining Division. The Groves grid in Groves Township covers portions of or all of mining claims numbered 1228922, 4217813, and 4217815. These claims are part of a larger group of claims comprising the Groves property of Liberty Mines Inc. During July and August of 2011, a geophysical survey program consisting of induced polarization and resistivity surveys, misse-a-la-masse, and total field magnetic surveys was conducted over a portion of these claims. Ray Meikle and Associates of North Bay, Ontario, carried out the IP geophysical surveys, misse-a-lamasse, and the magnetic surveys. The geophysical surveys were performed in order to evaluate and map the presence of disseminated to massive sulphides with respect to their location, width, and concentrations.

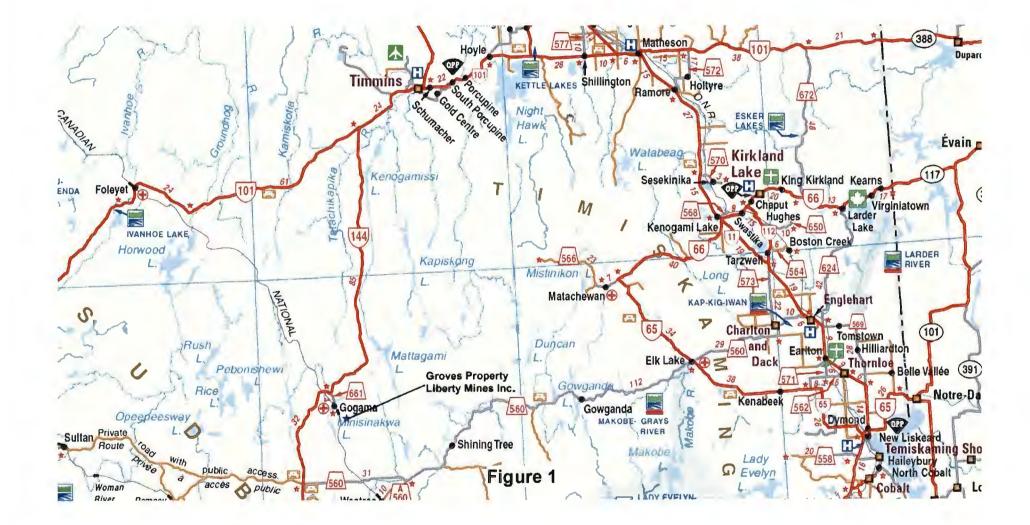
2.0 Location And Access

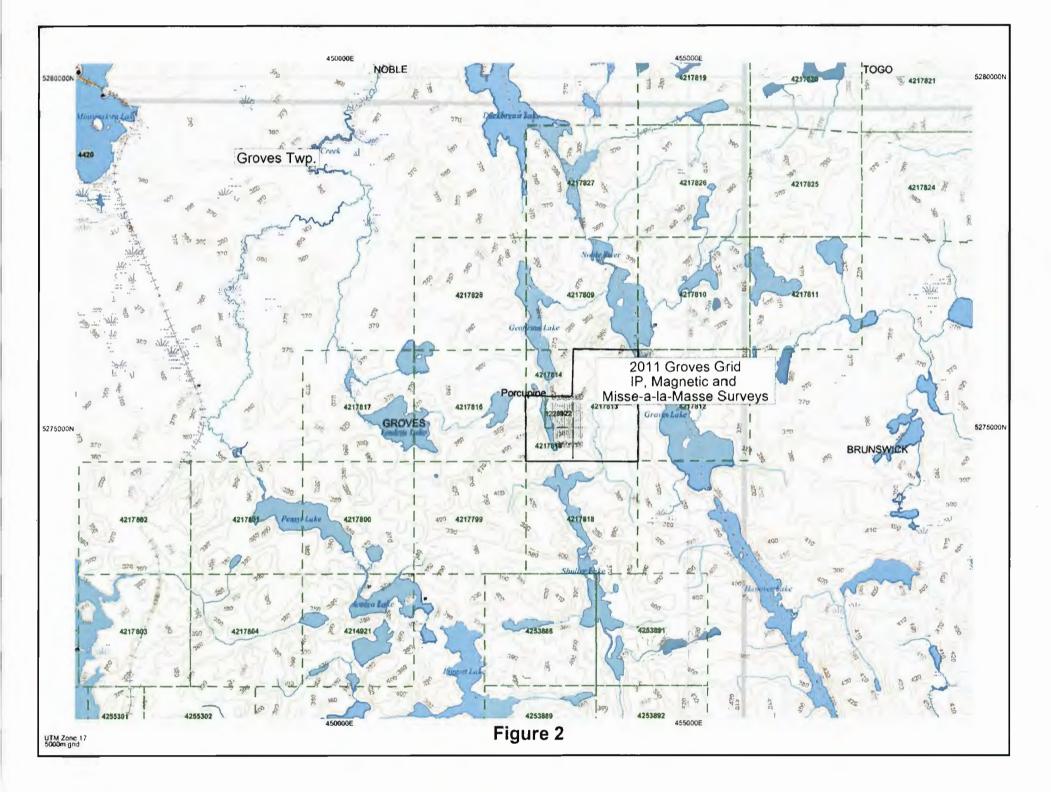
The Groves property is located approximately 98 kilometers south west of the city of Timmins in northeast Groves Township. Access to the grid area is via highway 144 south from Timmins for approximately 140 kilometers. From this point travel 24 kilometers east on Highway 560 and then 19 kilometers northwest on along West Londondary road. At this point a number of bush roads and trails can be accessed by four wheel drive vehicles, ATV, or snowmobiles for 10 kilometers in a northerly direction to the southern area of the cut grid (see figures 1 and 2).

3.0 Summary of 2011 Geophysical Program

The geophysical program consisted of induced polarization and resistivity surveying (I.P.), misse-a-la-masse surveys and total field magnetic surveys. These surveys were carried out on a grid of recently cut lines oriented at 0° spaced every 25 meters and chained and marked every 25 meters. The grid lines were surveyed every 25 meters along a baseline 0.425 km. in length and ranged in length between 275 and 450 meters.

-2-





The I.P. survey was performed using a pole-dipole electrode configuration. The dipole 'a' spacing was 25 meters and increasing separations of n=1, n=2, n=3, n=4, n=5, and n=6, times the dipole spacing was measured in order to map the response at depth. A total of approximately **3.6 km.** of I.P. data was measured and recorded. The I.P. equipment used for the survey consisted of a Phoenix IPT-1 3000 watt transmitter operating in the time domain powered by a 2 kilowatt motor generator. The chargeability (measured in mV/V) between the transmitted current and the received voltage is recorded by an Iris Elrec IP Pro receiver which records the chargeability and the apparent resistivity for each set of dipoles. The Misse-a-la-Masse survey used the same equipment and recorded surface chargeability from two drill hole current electrode locations. A total of 2.44 kilometers of misse-a-la-masse surveying was completed. The chargeability measured in this survey is a measure of the polarization of the underlying lithology.

The total field magnetic survey, using a GEM GSM-19 magnetometer/VLF system, totaled **8.775** kilometers with readings collected every 12.5 meters along all lines.

A description of the survey method and equipment used can be found in Appendix A.

4.0 Discussion of Results

The results of the I.P. survey are presented as contoured and posted pseudosections of the apparent resistivity and recorded chargeability's at a scale of 1:2500. In addition, plan maps at a scale of 1:5,000 showing the contours of the filtered apparent resistivity with the interpretation and location of the I.P. anomalies is also presented. All maps accompany this report in the pocket at the back of this report.

The magnetic data has been presented on plan maps at a scale of 1:2500, showing the contours and postings, as well as the interpretations (see maps in pocket).

The misse-a-la-masse data has been presented on plan maps at a scale of 1:2500, showing the contours and postings of the recorded chargeabilities. (see maps in pocket).

The resistivity data as displayed by the contoured resistivity plan map shows a moderate variation of measured resistivities in the range of 1258 to 51704 ohm-m with a

mean background resistivity of approximately 10482 ohm-m. The higher resistivity areas of the grid may likely be mapping areas of bedrock ridges and sub-cropping bedrock areas. These areas are quite evident on the plan map. It is also possible the high resistivity zones may be outlining more resistive felsic lithology or silica altered horizons as well.

A prominent area of resistivity highs can be observed between lines 150E and 350E from 5275000N to 5275200N.

The I.P. anomalies have been interpreted and are displayed on the plan map of the filtered resistivity as well. Emphasis was placed on identifying I.P. anomalies, which were thought to originate within the bedrock as opposed to those I.P. anomalies that, may be associated with bedrock relief. Two anomaly trends were identified and labeled on the plan map as G1 and G2. In addition, several isolated, moderate and strong IP anomalies were also mapped which are not readily grouped into trends. Anomaly trend G1 (L100E/5050N, L150E/5075N, L200E/5062.5N, L225E/5062.5N, L250E/5062.5N, and L300E/5062.5N) is comprised of strong, well defined IP chargeability anomalies. The responses however, suggest a limited depth extent to the mapped mineralization. Anomaly trend G2 is comprised of weak to moderate strength IP chargeability responses.

The interpreted depths to the top of the chargeable zones is between 4 and 10 meters for all of the IP anomalies.

If possible the anomalies and trends should be followed up by prospecting and geological mapping in order to determine their sources. These anomalies may reflect underlying lithology containing sulphide or graphitic mineralization which could be considered prospective for base metals.

The magnetic survey on the Groves grid indicates a relatively active magnetic background with magnetic values ranging between 55322 nT. and 60144 nT. The background magnetic field strength is 56466 nT. The overall magnetic pattern is disrupted by a moderate strength linear anomalous magnetic high striking at approximately 340 degrees azimuth. This anomaly is labeled as M1. This magnetic

anomaly may represent a matic diabase dike, common to this geologic setting or possibly matic or ultramatic lithology.

The isomagnetic contour pattern suggests an underlying lithology striking in an generally east-west direction through the grid area. All of the anomalies are easily identified and are labeled on the plan maps.

In addition to magnetic anomaly M1, several fault zones have been interpreted within the grid area. These anomalies may represent major lithological contacts or structural anomalies which may be significant in this area. These anomaly locations are indicated and shown on the contour map. There is no direct correlation between the magnetic responses and the mapped IP anomalies

The misse-a-la-masse survey on the Groves grid utilized mineralization located in previously drill holes GR-90-C45 and GR-90-E68. These hole locations are shown on the plan maps of the IP chargeabilities recorded on the surrounding lines. The results of the misse-a-la-masse survey display nearly identical responses with a very strong chargeability zone indicated between lines 125E and 275E from 5000N to 5125N.

5.0 Conclusions and Recommendations

The induced polarization, misse-a-la-masse, and magnetic surveys completed over the Groves grid were successful in mapping several zones of anomalous I.P. effects, and magnetic anomalies, as well as mapping the bedrock resistivity. All of the interpreted I.P. anomalies are strong to moderate in strength and generally well defined and will likely require further investigation in order to determine their causes. The most promising I.P. anomalies, which are thought to arise from bedrock sources, have been interpreted and identified. In particular IP anomaly trends G1, and G2 should be considered as priority exploration follow-up targets. Anomaly G1 has a direct correlation with the strongest portion of the misse-a-la-masse responses.

It is always difficult to quantitatively rate all of the I.P. anomalies in terms of their economic potential when searching for exploitable mineral deposits, but it is possible that some of the I.P. anomalies mapped by this survey are caused by disseminated to semimassive metallic mineralization. This type of mineralization is often associated which valuable deposits of massive sulphides and platinum group minerals.

All of the responses should be investigated further in order to determine the priority of follow-up needed. The anomalies should be further screened utilizing any other different types of geophysical surveys that may have been undertaken on the Groves grid. This would aid greatly in further refining the interpretation of the I.P. survey. Any existing geological, diamond drilling or geochemical information that may exist in the mining recorder assessment files should be investigated and compiled prior to further exploration of the Groves property in order to accurately assess the area of the current geophysical surveys and to determine the most effective follow-up exploration method for this property.

Respectively Submitted,

Modew Setitu

Matthew Johnston

Statement of Qualifications

This is to certify that: MATTHEW JOHNSTON

I am a resident of Timmins; province of Ontario since June 1, 1995.

I am self-employed as a Consulting Geophysicist, based in Timmins, Ontario.

I have received a B.Sc. in geophysics from the University of Saskatchewan; Saskatoon, Saskatchewan in 1986.

I have been employed as a professional geophysicist in mining exploration, environmental and other consulting geophysical techniques since 1986.

Signed in Timmins, Ontario, this September 12, 2011

Matter Jetita

Appendix A

Survey Theory - Total Field Magnetics

Magnetic Survey

Theory:

The magnetic method is based on measuring alteration in the shape and magnitude of the earth's naturally occurring magnetic field caused by changes in the magnetization of the rocks in the earth. These changes in magnetization are due mainly to the presence of the magnetic minerals, of which the most common is magnetite, and to a lesser extent illuminate, pyrrhotite, and some less common minerals. Magnetic anomalies in the earth's filed are caused by changes in two types of magnetization: (1) Induced, caused by the magnetic field being altered and enhanced by increases in the magnetic susceptibility of the rocks, which is a function of the concentration of the magnetic minerals. (2) Remanent magnetism is independent of the earth's magnetic field, and is the permanent magnetization of the magnetic particles (magnetite, etc.) in the rocks. This is created when these particles orient themselves parallel to the ambient field when cooling. This magnetization may not be in the same direction as the present earth's field, due to changes in the orientation of the rock or the field. The **unit** of measurement (variations in intensity) is commonly known as the Gamma which is equivalent to the nanotesla (nT).

Method:

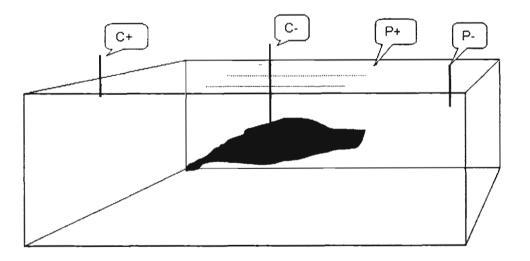
The magnetometer, a GEM Systems **GSM-19** with an Overhauser sensor measures the **Total Magnetic Field** (TFM) perpendicular to the earth's field (horizontal position in the polar region). The unit has no moving parts, produces an absolute and relatively high resolution measurement of the field and displays the measurement on a digital lighted display and is recorded (to memory). Initially, the tuning of the instrument should agree with the nominal value of the magnetic field for each particular area. The Overhauser procession magnetometer collected the data with a **0.2 nanoTesla accuracy.** The operator read each and every line at a 12.5 m intervals with the sensor attached to the top of four (56cm), aluminum tubing sections. The readings were corrected for changes in the earth's magnetic field (diurnal drift) with a similar GSM-19 magnetometer, acting as a stationary base station which automatically read and stored the readings at every 15 seconds. The data from both nnits was then downloaded to PC and base corrected values were computed.

Mise-a-la-Masse

The Mise-a-la-Masse method of surveying is used for examining highly conductive subsurface bodies and the area around them. The continuity, extent, dip and strike of the body can be determined with greater ease if the current is injected directly into the conductive body than by the other resistivity mapping methods. If the body does not extend to the surface, the connection could be made through a drill hole.

One current electrode (C-) is connected to the conductive body and the other current electrode (C+) is placed at a considerable distance. One potential electrode (P-) is located in line with the two current connections and at considerable distance on the opposite side of the conductive body. The survey is then conducted with only one potential electrode (P+) being moved over a square grid of measuring points. The readings from the instrument and the potential electrode (P+) coordinates are recorded. A contour map is then generated from these data.

The distance of the far current electrode (C+) from the potential electrode grid (P+) should be at least 2 or 3 times the maximum dimension of the grid. The same is true for the distance between the grid and the stationary potential electrode (P-).

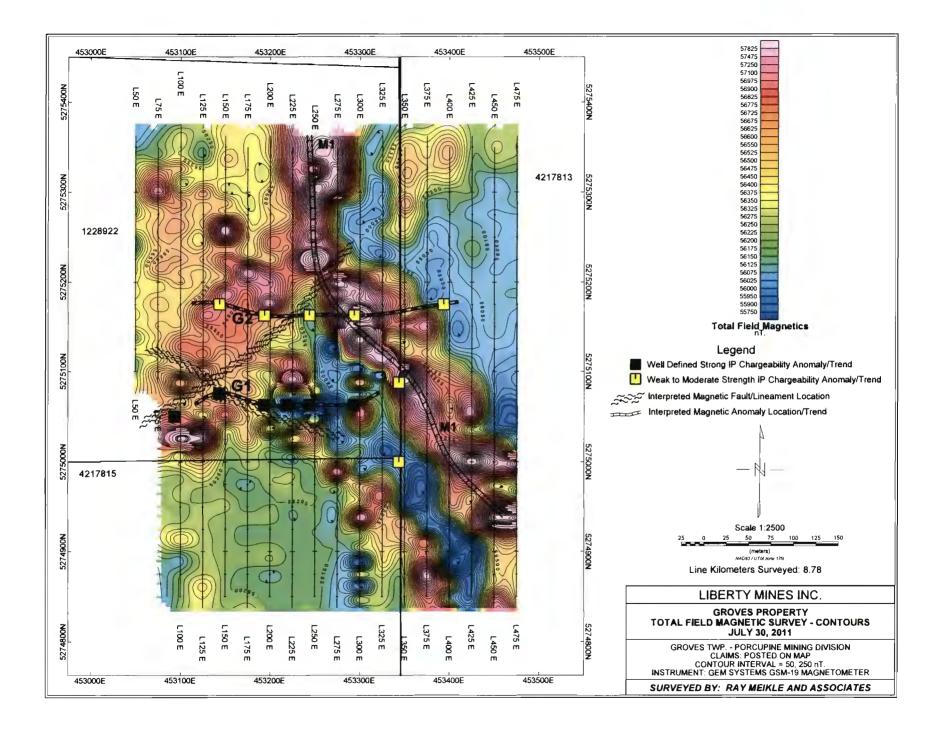


Induced Polarization Surveys

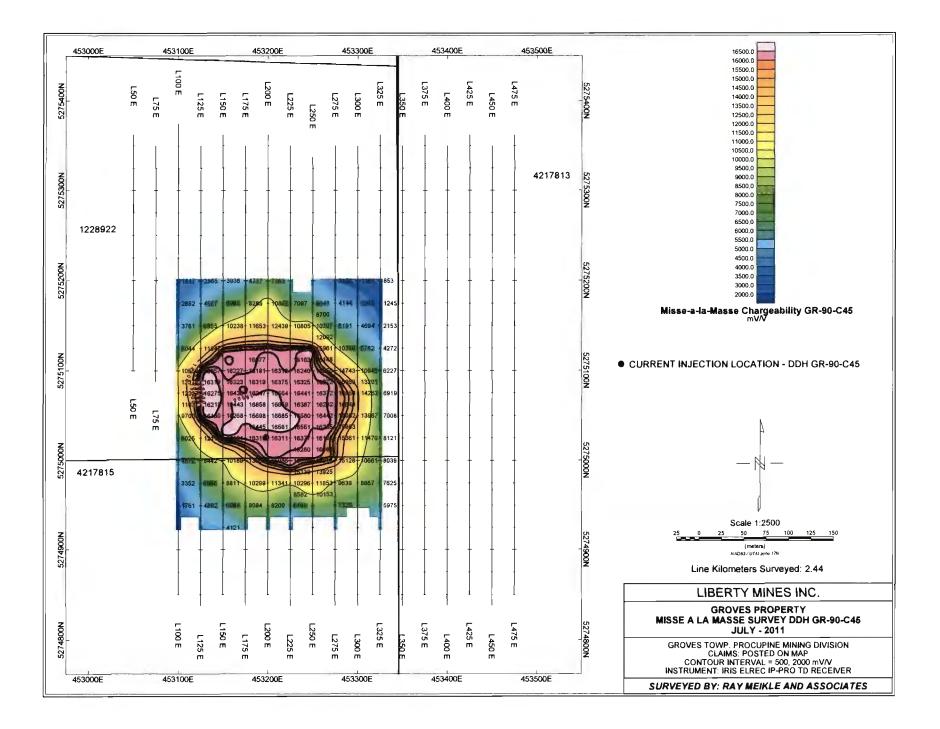
Time domain IP surveys involve measurement of the magnitude of the polarisation voltage (Vp) that results from the injection of pulsed current into the ground.

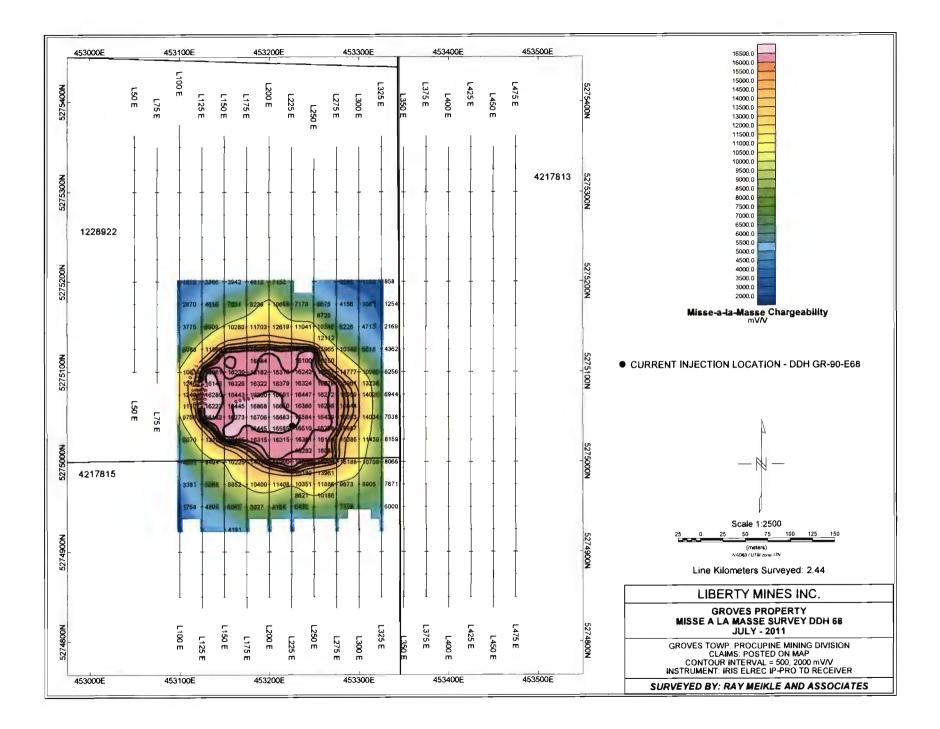
Two main mechanisms are known to be responsible for the IP effect although the exact causes are still poorly understood. The main mechanism in rocks containing metallic conductors is electrode polarisation (overvoltage effect). This results from the build up of charge on either side of conductive grains within the rock matrix as they block the flow of current. On removal of this current the ions responsible for the charge slowly diffuse back into the electrolyte (groundwater) and the potential difference across each grain slowly decays to zero. The second mechanism, membrane polarisation, results from a constriction of the flow of ions around narrow pore channels. It may also result from the excessive build up of positive ions around clay particles. This cloud of positive ions similarly blocks the passage of negative ions through pore spaces within the rock. On removal of the applied voltage the concentration of ions slowly returns to its original state resulting in the observed IP response. In TD-IP the current is usually applied in the form of a square waveform, with the polarisation voltage being measured over a series of short time intervals after each current cut-off, following a short delay of approximately 0.5s. These readings are integrated to give the area under the decay curve, which is used to define Vp. The integral voltage is divided by the observed steady voltage (the voltage due to the applied current plus the polarisation voltage) to give the apparent chargeability (Ma) measured in milliseconds or mV/V. For a given charging period and integration time the measured apparent chargeability provides qualitative information on the subsurface geology.

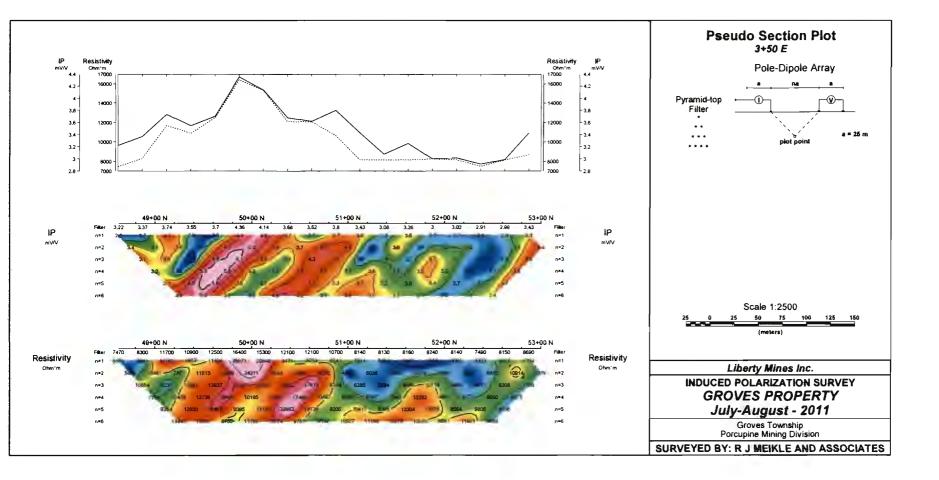
The polarisation voltage is measured using a pair of non-polarising electrodes similar to those used in spontaneous potential measurements and other IP techniques.

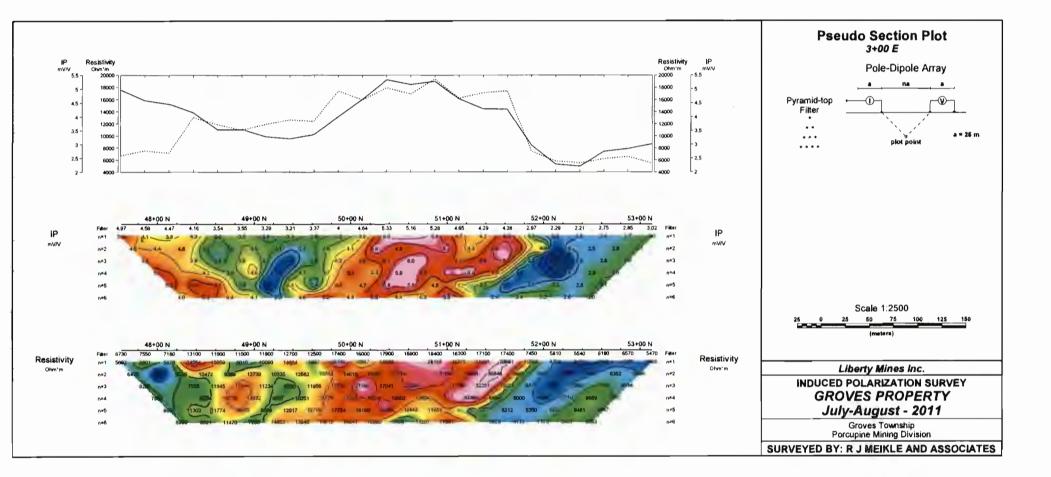


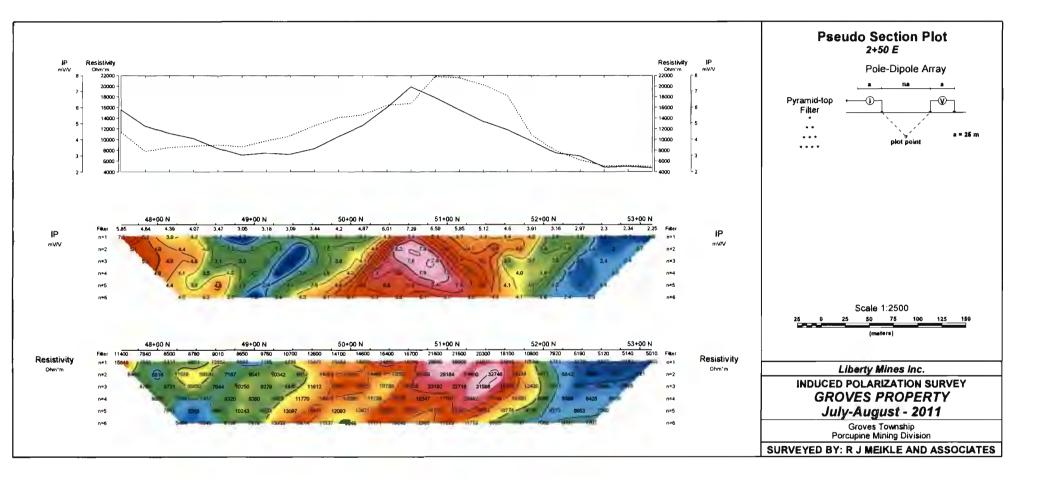
453000E	453100E	453200E	453300E	453400E 453500E	
5275400N	L125E L100E L75E L50E	nm mö	L325 E L300 E L275 E	L475 E L475 E L425 E L425 E L375 E L375 E L350 E	\$275400N
N00005- 12289222	SG008 SG123 SG056 SS120 SG130 SG155 SG241 SG200 SG135 SG154 SG377 SG424 SG250 SG154 SG391 SG264 SG455 SG397 SG391 SG385 SG154 SG397 SG471 S7180 SG465 SG639 SG392 SG570 SG563 SG639 SG288 SG544 SG651 SG721 SG495 SG598 SG624 SG621	S6243 S5517 56355 55517 56355 56361 56356 56361 56351 56361 56351 56361 56351 56361 56361 56361 56361 56361 5637 57269 5638 5639 5639 5639 5639 5639 5639 5639 5639 5639 5639 5639 5639 5639 5649 5649 5649 5649 5649 5649 5649 5649 5156 5649 5156 5649 5156 5649	577a3 56/20 577a5 56/36 56/55 57785 56/38 56/40 57785 56/38 56/40 57306 56/37 50/06 57306 56/37 55849 56/42 56/30 56849 56/24 55974 55978	S5433 55185 56144 55071 56057 56059 56437 56060 56080 56119 56067 55033	\$275300N
5275200N	56150 56001 5675% 560465 56058 56524 5657 56645 36304 5667 56653 56653 36322 5657 56653 56663 56333 56645 56564 56460 56373 56475 5648 56564 56373 55464 56468 56567 56343 56466 56468 56567 56345 56464 56567 56764 56345 56464 56749 56749 56345 56464 56749 56749 56335 56464 56749 56794 56335 56464 56749 56794 56335 56464 56794 56894 56336 56894 56819 56894	57.40 5622 55800 55800 57460 59884 56436 56755 58819 7732 56874 56925 55857 57060 57433 56740 57424 58812 58816 57075 56736 57154 58715 55676 55676 50714 58912 57185 5876 55676 50715 55756 57185 5827 56346 50710 56434 57748 56242 56319 50710 56434 56748 56428 56191 50816 56788 5627 56449 66148	10305 56007 56174 56784 56005 55625 56604 56167 55959 56643 56167 55959 57635 57328 55561 57635 57509 55683 57743 57712 57165 57611 57266 57268 57486 57855 57183	56330 56010 59023 56116 56023 56023 56151 56023 56146 56186 56080 56024 56033 55642 55011 56135 56035 56049 56043 55646 56012 56034 56049 56049 56043 55646 56017 56039 56037 56039 56037 56656 55667 56033 56047 56076 56049 56072 56570 56655 56049 56047 56049 56072 56012 56023 -1000 56570 56654 56005 55045 56072 5614 50072 5614 55707 56417 56056 56006 56049 5615 5015 557017 57118 55956 55070 5609 55890 55890	C 2752
5275100N	50193 50470 50712 50703 50404 50505 50224 50600 50220 2022 5022 5070 50704 -50225 5028 50014 5000 50920 50014 50014 50920 50014 50010 50920 50010 50000 50920 50000 50000	56:94 56:74 56:40 56:43 56:52 90700 90741 55:56 90296 54:56 50715 56:779 56:94 55:46 50404 55:56 56:37 56:19 56:16 50404 55:56 56:39 56:30 57:56 56:29 56:52 56:51 56:33 57:56 56:29 56:31 57:56 56:29 56:55 56:56 56:33 57:56 56:29 56:31 57:56 56:29 56:55 56:56 56:32 56:55 56:32 57:56 56:29 56:32 56:35 56:	56512 56823 65780 56621 57245 66094 60562 58617 55949 55894 65685 56953 58916 55595 56976 55655 58702 55928 59849 55936	50407 50580 55993 15074 54050 55993 55516 54525 54113 54000 56003 55973 56163 54054 51128 56984 55323 70 56164 54526 56207 55037 70 70 56165 55020 56207 55023 70 70 56165 5747 5626 56207 5502 70 70 56165 5747 56933 5697 5502 70 70 70 70 56155 5742 56933 57214 55944 5776 5502 70 70	2017 2017
N00052 4217815	m 57 55688 56422 57032 57233 55307 - 57781 55514 55559 -55735 5665 56273 5645 56250 - 5575 56250 5615	50046 6633 50298 50338 56475 56494 56999 56969 60338 56507 56110 56969 56237 56179 56277 56278 56237 56179 56278 56178 56237 56276 56278 56278 56230 56124 56235 56124 56120 6612 8629 56124 56120 6614 8629 56124 56120 6614 8629 56124 56120 66147 8629 56124 56120 66147 8629 56124	558.95 57056 56130 5584 58557 56038 55764 56052 55853 56011 56216 55750 56580 56051 55895 57150 55896 52035 56126 56898 52035 56126 56898 50235 56126 56457 57051	56834 57335 66726 57217 55845 55854 59756 57029 56810 59334 59812 53702 56222 56914 57000 96712 95044 59085 55826 55782 57482 57783 56149 5752 55826 55973 57148 57783 56149 55565 55752 55772 55826 55974 57626 57712 57752 57752 557752 557752 55567 557752 55567 55567 55567 55567 55567 55567 55567 55567 55567 55567 55567 55567 55567 55567 55567 55567 55567 55613 56713 56717 56624 56217	575000 — H
5274900N	5011 5011 50235 50206 50246 50206 50205 50208 50405 50208 50405 50207 50207 50207 50207 50207	Autor Autor Autor Autor 56270 5677 55677 56787 56787 56274 5677 5577 56787 56787 56275 56275 56175 56184 56147 56276 56175 56186 56175 56196 56270 56175 56175 56176 56196 56270 56176 56175 56195 56195 56270 56217 56217 56175 56186 56195 56229 56217 56217 56186 56186 56188 56229 56214 56147 56182 56188 56188 56229 56217 56112 56176 56188	56133 56611 56776 56130 57277 55580 66163 56392 5632 56163 56207 56521 56138 56244 56469 56050 55574 56469 56108 56244 56469 56050 55574 56449 56050 55574 56449	55762 55720 56726 56766 57869 57309 56517 55765 56219 56840 58344 58543 56517 55604 56813 56711 57309 56517 55604 56813 56711 57309 56517 55604 56813 56711 57309 56516 568707 55142 56612 56706 56326 56773 55151 56454 56539 55448 55335 55170 55170 56432 56398 56398	Scale 1:2500 25 0 25 50 75 100 125 150 (meters) NACIES / L7/4 zone 170 Line Kilometers Surveyed: 8.78
5274800N	56215 56215 56233 56233 56233 56233	54272 56183 56186 56172 56180 56220 56221 55185 56184 56183 56279 56184 56183	56056 55707 56285 56072 56261 56088 56075 56105 56086 56075 56105 56086	56256 57377 56655 55720 56460 55397 56246 56247 56134 59730 56134 55606 56223 56626 57562 56223 57662 57662 5625 57662 57662 5767 475 475 475 475 5667 475 475 475 475 475 475 475 475 475 47	LIBERTY MINES INC. GROVES PROPERTY TOTAL FIELD MAGNETIC SURVEY - POSTED DATA JULY 30, 2011 GROVES TWP PORCUPINE MINING DIVISION
453000E	453100E		453300E	8 11 8 11 8 11 m m m m 453400E 453500E	CLAIMS: POSTED ON MAP CLAIMS: POSTED ON MAP MAGNETIC REFERENCE FIELD: 57,000 nT. INSTRUMENT: GEM SYSTEMS GSM-19 MAGNETOMETER SURVEYED BY: RAY MEIKLE AND ASSOCIATES

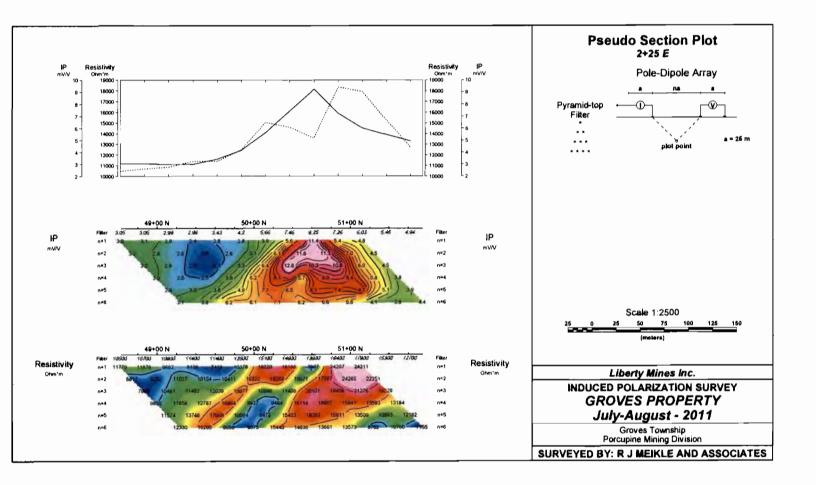


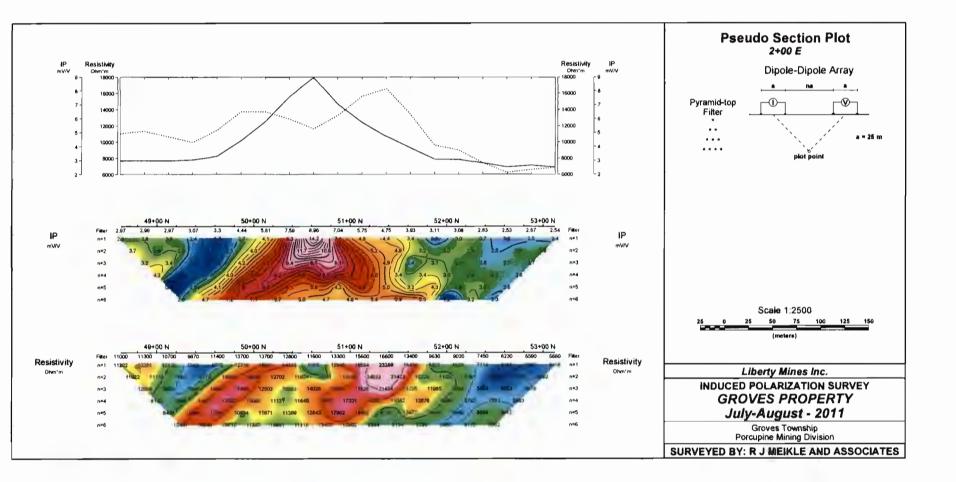


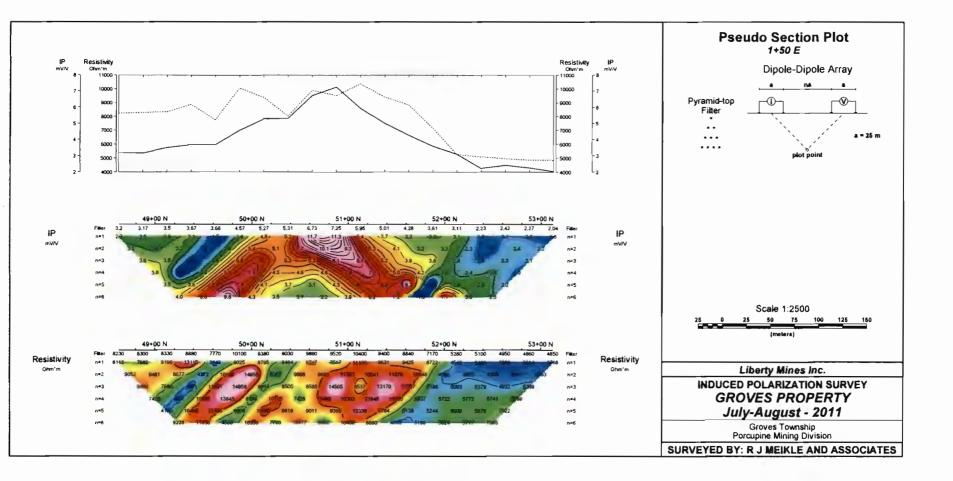


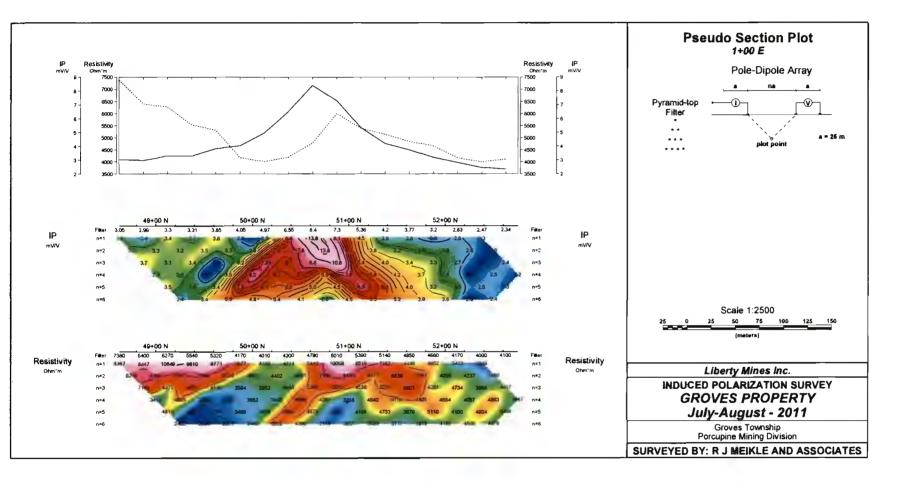


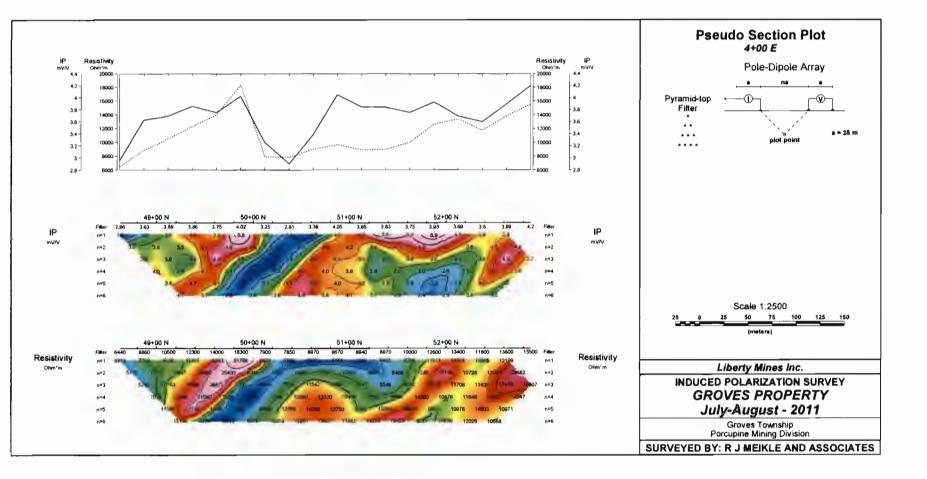












Claim Number	UNITS	\$ req/yr	TWP	Recorded	Due Date
1228922	1	800	GROVES	1997-Sep-18	2011-Nov-18
4214921	16	12800	GROVES	2007-Sep-19	2011-Nov-19
4217799	16	12800	GROVES	2007-Sep-19	2011-Nov-19
4217800	16	12800	GROVES	2007-Sep-19	2011-Nov-19
4217801	16	12800	GROVES	2007-Sep-06	2011-Nov-19
4217802	16	12800	GROVES	2007-Sep-06	2011-Nov-19
4217803	16	12800	GROVES	2007-Sep-06	2011-Nov-19
4217804	16	12800	GROVES	2007-Sep-06	2011-Nov-19
4217809	16	12800	GROVES	2007-Sep-06	2011-Nov-19
4217810	16	12800	GROVES	2007-Sep-06	2011-Nov-19
4217811	16	12800	BRUNSWICK	2007-Sep-19	2011-Nov-19
4217812	16	12800	BRUNSWICK	2007-Sep-19	2011-Nov-19
4217813	10	8000	GROVES	2007-Sep-19	2011-Nov-19
4217814	2	1600	GROVES	2007-Sep-19	2011-Nov-19
4217815	3	2400	GROVES	2007-Sep-19	2011-Nov-19
4217816	16	12800	GROVES	2007-Sep-19	2011-Nov-19
4217817	16	12800	GROVES	2007-Sep-06	2011-Nov-19
4217818	16	12800	GROVES	2007-Sep-19	2011-Nov-19
4217819	16	12800	TOGO	2007-Sep-19	2011-Nov-19
4217820	16	12800	TOGO	2007-Sep-19	2011-Nov-19
4217821	16	12800	TOGO	2007-Sep-19	2011-Nov-19
4217822	16	12800	TOGO	2007-Sep-19	2011-Nov-19
4217823	16	12800	BRUNSWICK	2007-Sep-19	2011-Nov-19
4217824	16	12800	BRUNSWICK	2007-Sep-19	2011-Nov-19
4217825	16	12800	BRUNSWICK	2007-Sep-19	2011-Nov-19
4217826	16	12800	GROVES	2007-Sep-06	2011-Nov-19
4217827	16	12800	GROVES	2007-Sep-06	2011-Nov-19
4217828	16	12800	GROVES	2007-Sep-06	2011-Nov-19
Claim Blocks 28			·	· · · · · ·	
Claim Units	400				

Liberty Mines Inc. - Groves Property

Liberty Mines Inc. - Groves Property

