REPORT ON
INDUCED POLARIZATION SURVEY
DETOUR LAKE PROPERTY
FOR
MINETA RESOURCES LTD. AND
VENTEX ENERGY LTD.

RECEIVED
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April, 1984
Toronto, Ontario

D. Jones, P.Geoph.
MPH Consulting Limited
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUMMARY</td>
<td>1</td>
</tr>
<tr>
<td>1.0 INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>2.0 LOCATION AND ACCESS</td>
<td>2</td>
</tr>
<tr>
<td>3.0 INSTRUMENTATION AND SURVEY PROCEDURES</td>
<td>3</td>
</tr>
<tr>
<td>3.1 Instrumentation</td>
<td>3</td>
</tr>
<tr>
<td>3.2 Survey Procedures</td>
<td>5</td>
</tr>
<tr>
<td>4.0 PRESENTATION OF RESULTS</td>
<td>6</td>
</tr>
<tr>
<td>5.0 FIELD RESULTS AND INTERPRETATION</td>
<td>7</td>
</tr>
<tr>
<td>5.1 General Comments</td>
<td>7</td>
</tr>
<tr>
<td>CONCLUSIONS AND RECOMMENDATIONS</td>
<td>15</td>
</tr>
</tbody>
</table>

Certificate

Appendix I - Instrument Specifications

Appendix II - IP Pseudosections
<table>
<thead>
<tr>
<th>Fig.</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Location Map</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Principles of Time Domain IP</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>Plotting points for various IP arrays</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Map MV-1</th>
<th>IP Pseudosection</th>
<th>Line 21+00E</th>
<th>Appendix II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Map MV-2</td>
<td>IP Pseudosection</td>
<td>Line 22+00E</td>
<td>Appendix II</td>
</tr>
<tr>
<td>Map MV-3</td>
<td>IP Pseudosection</td>
<td>Line 23+00E</td>
<td>Appendix II</td>
</tr>
<tr>
<td>Map MV-4</td>
<td>IP Pseudosection</td>
<td>Line 21+00E</td>
<td>Appendix II</td>
</tr>
<tr>
<td>Map MV-5</td>
<td>IP Pseudosection</td>
<td>Line 22+00E</td>
<td>Appendix II</td>
</tr>
<tr>
<td>Map MV-6</td>
<td>IP Pseudosection</td>
<td>Line 9+00E</td>
<td>Appendix II</td>
</tr>
</tbody>
</table>
SUMMARY

During a seven day period in April 1984, MPH Consulting Limited of Toronto, Ontario conducted a programme of Induced Polarization surveying in the Detour Lake area of north-eastern Ontario on behalf of Mineta Resources Ltd. and Ventex Energy Ltd.

The programme of Induced Polarization surveying conducted in three separate areas is designed as follow up previous surveying which outlines certain targets. The purpose of the Induced Polarization survey is to test these targets and to determine the polarizability effect of the targets.

The surveying was conducted in the field under the direction of Mr. K. Morrison, B.Sc. Mr. D. Jones, P.Geoph. of MPH Consulting Limited holds overall responsibility for the programme.

The induced polarization surveying outlined three anomalous polarizable areas.

Each of the zones A, B and C are open both to the east and west with anomaly A striking off the property to the south-east.

Anomaly C is the largest amplitude target with chargeability values up to 0.7.

None of the chargeability zones show any strong resistivity responses although both anomalies A and C are coincident with relative resistivity lows.
Recommendations to further explore the property include compilation of the induced polarization data with all previous information and re-evaluation of the induced polarization response in light of the geological model for economic deposition in this area.

Following this work further recommendations can be made at that time.
1.0 INTRODUCTION

During the period April 1st to 7th 1984, MPH Consulting Limited conducted a programme of induced polarization on behalf of Mineta Resources Ltd. and Ventex Energy Ltd. on the latter's Detour Lake property in north-eastern Ontario.

The project consisted of a number of detailing surveys over previously defined magnetic anomalies. The induced polarization is conducted to outline and define any polarizable content of the targets.

The field survey was conducted under the direct supervision of Mr. K. Morrison, B.Sc. of MPH Consulting Limited.

This report describes the geophysical instrumentation field techniques employed, the interpretational procedures and the results derived from the field surveying. Additional exploration work is recommended to further explore the economic potential of this property.
2.0 LOCATION AND ACCESS

The property is located in the Sunday Lake area in the Porcupine Mining Division District of Cochrane (Figure 1).

The property is situated approximately 144 km northeast of Cochrane and approximately 128 km north of La Sarre in north-eastern Quebec. The survey area is also approximately 8 km east and 5 km south of the Detour Lake mine currently under production.

The property consists of 32 continuous unpatented mining claims numbered 609551 to 609576 inclusive and 609728 to 609733 inclusive.

Access to the property is via an all weather road from Cochrane to the Detour Lake mine site. From a ground pit north of the Detour Lake Mine site a 10 km skidoo trail runs to the Mineta/Ventura property.
3.0 INSTRUMENTATION AND SURVEY PROCEDURES

3.1 Instrumentation

The survey was conducted with a Huntec Mk IV 2.5 kw time domain system. Specifications of the Huntec Mk IV IP system are detailed in Appendix I.

In the time domain IP method a modified, square current waveform consisting of "on/off/on/off" cycles of equal duration is transmitted into the ground through a pair electrodes (current dipole). Primary voltage (Vp) and secondary voltage (Vs) generated in the ground are measured at another pair of electrodes (potential dipole). The primary voltage, measured during the "on" current cycles, is a function of the electrical resistivity of the ground. The secondary voltage, measured during "off" current cycles, is the IP effect and is a function of the amount of polarizeable minerals, such as metallic sulphides, graphite etc., in the ground.

The Huntec Mk IV system measures the IP effect on 10 equal width time intervals. The width of the time window (TI) and the length of the delay (Td) between the start of an "off" cycle and the beginning of the IP measurement are adjustable to suit the conditions of the survey. In this case, these adjustments were set at 100 msec. and 100 msec., respectively.
Two values are of interest in time domain Induced Polarization surveying:

a) the apparent resistivity of the ground;
b) the chargeability of polarizability of the ground.

The apparent resistivity values of the ground are not directly measured, but are obtained by calculations from observed data.

Mathematical formulae utilizing the secondary voltage value coupled with the current output from the transmitter at the same instant, and a geometrical constant dependent on the array type being used, yield the apparent resistivity value of the ground.

\[ \rho a = \frac{V_p \times n a F}{I} \]

where: \( \rho a \) = apparent resistivity in ohm-m  
\( V_p \) = primary voltage  
\( I \) = transmitted current  
\( a \) = electrode spacing in m  
\( F \) = geometrical factor depending on the electrode array used

The IP effect chargeability in msec is measured directly by the Huntec receiver.

Total chargeability for all 10 channels and alternate channels 1,3,5,7,9 were recorded. The 9th channel (M10) was selected for compilation.
The decay curve constructed from the ten chargeability observations is generally in the form of an exponential decay curve and can be split into two portions - a fast decay portion and a slow decay portion. The fast decay portion is generally due to inductive effects. Apparent chargeability by definition is the value of the slow decay rate at zero times.

This slow decay rate predominates at later times on the decay curve and for this reason only the M10 values have been used to construct the chargeability field maps for this project. The plotting point for both the chargeability and apparent resistivity values were generally taken as being at the midpoint of the survey array.

The basic principles of the Induced Polarization method are displayed in Figure 2.

3.2 Survey Procedures

The dipole-dipole electrode array was used for the survey. In this array the current and potential dipoles are maintained at a constant length-electrode spacing (a) and the distance between is expanded at integer increments of the electrode spacing - electrode separation (n). The electrode spacing and electrode separations of a = 50 m and n = 1-5 respectively were used.
Apparent Resistivity $\rho_a = \frac{V}{I} \cdot G$
where $G$ is a geometrical factor dependant on survey array.

Transmitter waveform
Signal "seen" at reciever

$T_{on} = 2$ secs.
$T_{off} = 2$ secs.

$M_t = \frac{\Delta V_t}{\Delta V}$

PRINCIPLE OF TIME DOMAIN I.P.
4.0 PRESENTATION OF RESULTS

The results of the survey, channel 5 chargeability (M6) and apparent resistivity (ρa) are presented in standard pseudosection format at a scale of 1"=100 ft. (Maps NE-1 to NE-8).

In the pseudosection plots, the data are plotted at the intersection of a 45° diagonals drawn from the centre of the dipoles for each value of the separation. Plotting in this manner builds up a vertical section of data points. The term pseudosection is used because the plotted depth does not necessarily represent the actual depth at which measurement was obtained. The actual depth of the measurement depends on the geo-electric properties of the ground (Figure 3).
Figure 3

PLOTTING POINTS FOR VARIOUS ARRAYS

DIPole DiPOLE ARRAY

POLE DiPOLE ARRAY
5.0 FIELD RESULTS AND INTERPRETATION

5.1 General Comments

The Induced Polarization survey conducted on the property was instigated as a follow up survey to a magnetic survey conducted in 1982. The Induced Polarization was to test for the presence of polarizable material i.e. sulphide material in the vicinity of the magnetic features. The location of the IP work was provided by representatives of Mineta Ventura.

In all, eight lines were tested in three separate locations within the property.

Area A Line 21+00E Map MV-1

The induced polarization survey in this area is designed to cover a semi-discrete magnetic high of approximately 100 nT.

The survey outlined an anomalous chargeability response of approximately 0.32 msec in a relatively uniform background of 0.05 msecs between 5+00 and 5+50S. The anomaly is not particularly well defined. However its amplitude contrast is such as to lend credence to both its location and definition. The shallowest portion of the anomaly is observed in the n=2 data; with the above background response in the n=1 data possibly being attributable to a mineralized halo above the zone.
Anomaly A is interpreted to be at a depth of approximately 35-40 meters with a steep northerly to vertical dip. This zone coincides with a magnetic high of approximately 100 nT.

The apparent resistivity data shows a fairly uniform section with the resistivity amplitudes observed indicating a bedrock response. The relatively uniform increase of the resistivity values with depth indicate a fairly thick overburden layer interpreted from the pseudosection to be 30-50 meters.

At 5+25S a relative resistivity low is observed to continue throughout the dipoles to the n=5 data. This anomalous zone displays a low relative only to lateral resistivity, and similar to the remainder of the pseudosection, displays a gradual increase in resistivity with depth.

This anomalous zone can be interpreted as either a distinct lithologic unit within the bedrock with an inherent lower resistivity or a zone with sufficient conductive material to lower its intrinsic resistivity. The amplitude of the associated chargeabilities indicates that probably a combination of the two hypothesis is correct. Polarizable material of approximately 5-8% is anticipated from this anomaly.

Area A  Line 22+00E  Map MV-2

This survey line details the eastern strike extension of the magnetic zone tested on line 21+00E. Although the magnetic data shows this magnetic signature pinching in line 22+00E the Induced Polarization data is virtually identical to that observed in line 21+00E.
Anomaly A is centered on line 22+00E at approximately 5+50S and is interpreted to be approximately 25 to 50 meters wide. The anomaly displays chargeability values of 0.35 msecs in a fairly homogenous background of 0.03 msecs. The form and shape of this anomaly is rather more regular than that observed in line 21+00E. Again the main position of the anomalous response is observed in the larger dipole separations with lower, albeit anomalous values, observed in the n=1 data. This indicates possible depth to the anomalous source as 35-40 meters. Interpreted dip from this section is extremely tenuous but is reported as steep south to vertical.

The apparent resistivity pseudosection is similar to that observed from line 21+00E with the section again interpreted to show a relatively thick 30-50 meters of overburden with the bedrock relatively uniform. The resistivity low centred at approximately 5+00S is interpreted to reflect a discrete bedrock lithology coincident with and containing chargeability anomaly A.

Area A  Line 23+00E    Map MV-3

This survey line covers the eastern extent of the designated magnetic target.

The induced polarization survey partially outlined anomaly A at approximately 6+00S. The southern edge of the anomaly was not outlined due to the proximity of the property boundary.
The anomalous amplitudes are lower than those observed previously and this could indicate either a lowering of polarizable content or an increase in depth to the causative source.

The apparent resistivity pseudosection is virtually identical to the previous line with a resistivity low associated with anomaly A.

Area B Line 21+00E Map MV-4

Induced polarization surveying in this area was designed to cover a magnetic anomaly of approximately 30 nT.

On line 21+00E a chargeability anomaly is located at 4+25N. The chargeability anomaly displays amplitudes of 0.4 msecs with a relatively uniform background of approximately 0.05 msecs.

The major proportion of the response is observed in data from the larger \( n \) separations. The style and type of response also appears to indicate a tabular source.

Interpretation from model studies indicate that depth to the source is approximately 40 meters. No indication of dip was interpreted from this body.

The apparent resistivity data outlined regularly increasing values with increasing \( n \) separation, with the values being up to 800 ohm meters, indicating adequate sampling of the bedrock. Overburden thickness is interpreted at 30-40 meters. No low resistivity anomaly appears to be associated with the anomalous chargeability zone. Anomaly B does however show coincidence with the magnetic anomaly.
Area B  Line 22+00E  Map MV-5

Line 22+00E was surveyed to map the extension of the anomalous zone previously mapped on line 21+00E.

The induced polarization survey has outlined a chargeability anomaly similar in character and amplitude to that observed from line 21+00E. The anomaly is centered at approximately 4+25S and is estimated, within the constraints of the dipole length used, to be not more than 25-50 meters wide. The persistence and character of the anomaly continues through to the n=5 data, indicating extension of the zone to depth. Detailed inspection of the data indicates the possibility of a second zone, but the resolution of the survey is not great enough to confirm this. Interpreted depth to the polarizable source is estimated at approximately 30 meters with a near vertical dip. The location of the anomalous response does not coincide with the magnetic body surveyed.

The apparent resistivity pseudosection shows slightly more vertical relief than that observed from line 21+00E but no distinct resistivity contacts are interpreted. Anomaly B is located in a broad zone of relative resistivity low, however, the n=5 data in the central portion of the zone displays a high. No geologic interpretations are possible at this point.

Area C  Line 9+00E  Map MV-6

Induced polarization surveys in this area are designed to cover two areas of magnetic lows.
The chargeability data from line 9+00E outlined a well defined anomalous zone located at approximately 5+50N. The anomalous response extends from depth to the near surface data, however, the decrease in amplitude of the shallow data indicates that the causitive source is located at a depth of approximately 30-40 meters.

The chargeability values observed in this pseudosection are among the largest observed on the property with values of up to 0.7 msecs recorded. The background values are similar to those observed in areas A and B, being fairly uniform at approximately 0.05 msecs.

The shape and character of the zone, particularly with respect to the increasing chargeability values with depth, is interpreted to represent a tabular near vertical body with a polarizable content of approximately 10-20%.

The anomaly is coincident with a magnetic gradient of approximately 250 nT.

The apparent resistivity data displays a well defined contrast at approximately 6+50N with the higher resistivities being to the north. This contrast is possibly reflecting a contact as presented in map MV-6. The central portion of the pseudosection covering anomaly C is outlined as a low apparent resistivity zone defined by a "pant leg" type feature. Unfortunately the resistivity contrast and the survey resolution is such that at this time the presence of the small central resistivity high within this low cannot be adequately explained. It is possible that the feature is due
to the geometric relationship observed in a classical vertical body response with a double dipole system. The second possibility is that the chargeability response is partly associated with a small resistivity high.

At this time the first hypothesis is believed to be the more probable.

Area C  Line 10+00E  Map MV-7

This survey line investigated the eastern extension of anomaly C observed from line 9+00E.

The chargeability anomaly presented in Map MV-7 is similar to that observed in Map MV-6 (line 9+00E). The anomaly is located at approximately 5+25N and is interpreted to show width of approximately 25 to 50 meters (note dipole length is 50 meters and resolution is thus constrained). The anomaly shape and character are interpreted to represent a near vertical (80°S) tabular body at a depth of 30-40 meters. The persistence and increase in chargeability values with increasing 'n' separation indicates good field depth extent with possibly increasing polarizable content.

The anomaly is coincident with a magnetic gradient as described above.

The resistivity pseudosection is similar to that observed on line 9+00E. An interpreted fault and/or contact is outlined at approximately 6+50N. The n=1 data from this section is generally lower than that observed from line 9+00E and is
interpreted to be caused by a higher conductivity in the overburden since the chargeability data does not support any increase of the overburden thickness.

Area C Line 11+00E Map MV-8

The survey conducted on line 11+00E tested the eastern extension of the anomaly located on line 10+00E.

The induced polarization survey located an anomalous feature at approximately 5+50N. The shape and character of the zone is very similar to those found on both lines 10+00 and 9+00E.

Interpretation of this response shows the possible polarizable source to be a vertical body up to 25 meters wide. The contouring of the polarizable response suggests a limited depth extent to the zone. However, the decrease in amplitudes at the n=5 data is not substantial and at this time is only pointed out as a possibly.

As per the previous section the background is fairly uniform and low (0.05 msec). The anomaly is again situated straddling a magnetic contact.

The apparent resistivity pseudosection is interpreted to display a fault and or contact at 6+75N. The change in the lateral values of the n=1 data suggest the presence of a low resistive layer between 6+00N and 4+00N with a thickness of up to 30 meters. This suggests that the resistivity contrast displayed at 6+25N is due to faulting with the northern portion of the line uplifted somewhat. Anomaly C is located in a broad resistivity low, however it is difficult to ascribe a relative portion of the response to any anomalous structure in the obvious presence of the overburden response.
CONCLUSIONS AND RECOMMENDATIONS

The induced polarization survey has successfully located and delineated three anomalous polarizable zones on the Mineta-Ventex property.

At this time, the three zones A, B and C are all open both to the east and west with anomaly A possibly striking off the property to the south-east.

None of the anomalies displayed any strong resistivity responses although both anomalies A and C are coincident with relatively low resistivity readings.

Anomaly C is the largest amplitude target located with chargeability values of up to 0.7 msecs.

Chargeability background in all areas is fairly uniform and relatively low at approximately 0.05 msecs. The apparent resistivity data displayed fairly uniform characteristics with, in most cases, the surface resistivities being in the order of 150-250 ohm-meters and with a thickness of 20-35 meters.

Recommendations to further explore the property should include correlating the induced polarization anomalies with data previously available from the property, particularly geologic and/or geochemical data, and to re-evaluate the geologic significance of the induced polarization responses in light of the geological model for economic deposition in the area.
Should the induced polarization responses be considered of economic significance, the remainder of the property should be surveyed.

Testing the significance of the induced polarization targets may require preliminary drilling to access the significance of the targets at hand. The following coordinates are recommended to test the polarizable zones.

<table>
<thead>
<tr>
<th>Anomaly</th>
<th>Collar Coordinates</th>
<th>Azimuth</th>
<th>Dip</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>22+00E 4+50S</td>
<td>grid S</td>
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<tr>
<td>B</td>
<td>21+00E 5+00N</td>
<td>grid S</td>
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</tr>
<tr>
<td>C</td>
<td>10+00E 6+00N</td>
<td>grid S</td>
<td>50</td>
<td>200 m</td>
</tr>
</tbody>
</table>

Respectfully submitted

MPH CONSULTING LIMITED

[Signature]

David Jones, P.Geoph.  
MPH Consulting Limited
CERTIFICATE

I David Jones of Toronto, Ontario hereby certify that:

1) I hold a Bachelor of Technology degree in Applied Physics from the University of Bradford, England, and a Master of Science degree in Applied Geophysics from McGill University in Montreal. I have practiced my profession in exploration continuously since graduation.

2) I am a Professional Geophysicist registered with the Association of Engineers, Geologists and Geophysicists of Alberta.

3) I have based conclusions and recommendations contained in this report on knowledge of the area, my previous experience in geophysical surveying and interpretation and on the results of the field work conducted on the property under my supervision during March and April, 1984.

4) I hold no interest, directly or indirectly, in this property other than professional fees, nor do I expect to receive any interest in the property or in Mineta Resources Ltd. and Ventex Energy Ltd. or in any of its subsidiary companies.

Toronto, Canada
April, 1984
Appendix I
M-4
Induced
Polarization
Receiver

DESCRIPTION
The Huntec M-4 is a microprocessor based receiver for time and frequency domain IP and complex resistivity measurement. It is

Easy to operate. One switch starts a measurement, of up to 29 quantities simultaneously. The optional Cassette Datalogger records them all in seconds. Calibration, gain setting and SP buckout are all automatic.

Reliable. Using advanced digital signal processing techniques, the M-4 delivers consistently accurate data even in noisy, highly conductive areas. For mechanical reliability it is packaged in a rugged aluminum case for backpack or hand carrying.

Versatile. The operator may adjust delay and integration times, operating frequency and other measurement parameters, to adapt to a wide range of survey conditions and requirements. An independent reference channel facilitates drillhole and underground work, and guarantees transmitter-receiver synchronization in high-noise conditions.

Highly accurate. With a frequency bandwidth of 100 Hz and noise-cancelling digital signal stacking, the M-4 delivers very precise results. The details are summarized in a table overleaf.

Sensitive. The same features that make the M-4 accurate allow detection of very weak signals. The Huntec receiver requires lower transmitter power than any other, for a given set of operating conditions. Automatic correction for drifts in self-potential and gain allow long stacking times for significant signal-to-noise improvements.

Intelligent. Under the control of a powerful 16-bit microprocessor, the M-4 calibrates and tests itself between measurements. Coded error messages, flashed onto the display, inform the operator of any malfunction.

The M-4 Receiver is complemented by Huntec's new M-4 transmitters, which offer precisely timed constant-current output and both time and frequency domain waveforms, compatible with the receiver's accuracy and multi-mode measurement capabilities. The RL-2 Reference Isolator connects any IP transmitter to the receiver's reference channel. The GeoDataBase field computer reads, stores and processes data from M-4 cassettes.

Contact Huntec for more information on the benefits offered by the M-4 product line.

FEATURES
• Time and Frequency domain IP and Complex Resistivity operation
• Simultaneous Time domain and Complex Resistivity measurement
• Automatic calibration
• SP cancellation
• fault diagnosis
• filter tuning
• Independent reference channel for drillhole and underground work
• 33 quantities, displayable on large 3½ digit low-temperature liquid-crystal readout
• Analogue meter for source resistance measurement
• 10 ohms differential input resistance
• 8 hours continuous operation with replaceable, rechargeable nickel-cadmium battery pack (2 supplied)
• Optional Cassette Datalogger fits inside case, has read-after-write error checking. Up to 350 stations per tape.
• Conveniently packaged for backpacking or hand carrying
• 100 Hz bandwidth, fine time-resolution
• Advanced digital signal stacking
• Delivers reliable, accurate data in noisy, highly conductive areas.
SPECIFICATIONS

Inputs

Channel

Range: 5 x 10^-3 to 10 volts. Automatic ranging.
Overload indication
Resistance: Greater than 10 ohms differential
Bandwidth: 100 Hz
SP Cancellation: -5 to +5 volts (automatic)
Protection: Low-leakage diode clamps, gas discharge surge arresters, replaceable fuses.

Reference Channel

Level: 500 mV minimum, 10 volts peak maximum, overload indication
Resistance: 2 x 10^-3 ohms differential

Controls and Functions

Operating Controls

Keypad: 16 keys, calculator format, function associated with each key.
Reference Registers: Keypad may be used to store up to ten 3½ digit numeric values with floating decimal point, to represent station number, line number, operator, time, date, weather, transmitter current, etc. for recording on cassette.

Programming Controls

Sub-panel: All programming controls are on a covered sub-panel, not accessible during normal operation.
Thumbwheel Switches: Select delay time t\textsubscript{d} in milliseconds, chargeability window t\textsubscript{p} in milliseconds; operating frequency; PFE frequency ratio.

Displayable Quantities

Time domain: Primary voltage; self-potential; chargeability (total or each of 10 windows of equal width); phases of odd harmonics 3 to 15; amplitudes of odd harmonics 1 to 15; cycle count; repeating display of polarization potential and total chargeability.
Freq. domain: Primary amplitude; Percent Frequency Effect; self-potential; cycle count.
Complex Resistivity: Phases of odd harmonics 3 to 15; amplitudes of odd harmonics 1 to 15; fundamental phase (with ref. input); cycle count.
Any mode: Battery voltage, Frequency error.

Outputs

Displays

Digital Display: 3½ digit, low-temperature liquid crystal display. Indicates measurement results and diagnostic error messages.
Analogue Meter: Ohms scale for source resistance; also gives qualitative indication of signal-to-noise ratio.

Cassette Data Logger (Optional)

Description: Accommodated within M-4 chassis. If not acquired with receiver, may be retrofitted by user at any time. Two recording modes:
Partial: All sub-panel settings, measurement results, and contents of reference registers are recorded (2 seconds recording time).
Full: As in partial mode, but also recorded is one cycle of averaged signal waveform (28 seconds recording time). If external reference is used, one cycle of reference waveform is also recorded (60 seconds recording time). Extra memory and software available to average and store the reference waveform for advanced offline resistivity computation.

Format: ANSI/ECMA/ISO standard for saturation recording: 80 bytes/record, all data recorded in ASCII code.
Verification: Read-after-write data verification (automatic)

Mechanical

M-4 Receiver with battery pack: 45 cm x 33 cm x 14 cm, 10.0 kg
M-4 Receiver with battery pack and Cassette Data Logger: Dimensions as above, 11.0 kg
Battery pack: 33 cm x 11 cm x 4.5 cm, 3 kg

Environmental

Temperature: Operation: -20°C to +55°C
Storage: -40°C to +70°C
Humidity: Moisture-proof, operable in light drizzle.
Altitude: -1,525 m to +4,775 m
Shock/Vibration: Suitable for transport in bush vehicles.

OUTPUT ACCURACY AND SENSITIVITY

<table>
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<th>milliradians</th>
<th>volts</th>
<th>volts</th>
<th>volts</th>
<th>seconds</th>
<th>%</th>
</tr>
</thead>
<tbody>
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<td>2 milliradians</td>
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<td>± 1%</td>
<td>± 1%</td>
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<td>0.1% (3) full scale</td>
</tr>
<tr>
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<td>10^-4 volts</td>
<td>10^-4 volts</td>
<td>10^-4 volts</td>
<td>10^-1 seconds</td>
<td>0.001% full scale</td>
</tr>
</tbody>
</table>

1) Frequency domain mode: at harmonic frequencies up to 15 Hz, increases to not more than 5 milliradians at 80 Hz.

2) Time domain mode: at harmonic frequencies up to 7.5 Hz, increases to not more than 5 milliradians at 30 Hz.

3) Full scale defined as 100% PFE.

Cassette Data: recorded in ASCII, 9 digits with decimal point fixed for four decimal digits.

Display Data: 3½ digits, floating decimal point

Resolution of averaged waveform limited by A/D converter to one part or 4096 x (square root of cycle count).

Resolution of reference waveform (not averaged) limited by available memory to one part in 256. Additional memory and averaging software available as option.

CHARGEABILITY WINDOWS
DESCRIPTION
The HUNTEC M-4 2.5 kW Induced Polarization transmitter is designed for time domain, frequency domain (PFE) and complex resistivity applications. The unit converts primary 400 Hz ac power from an engine-alternator set to a regulated dc output current, set by the operator. Current regulation eliminates output waveform distortion due to electrode polarization effects. It is achieved in the transmitter by varying the alternator field currents. The transmitter is equipped with dummy loads to smooth out generator load variations.

FEATURES
- Solid-state switching for long life and precise timing.
- Open circuit during the "off" time ensures no counter current flow.
- Resistance measurement for load matching.
- Precision crystal controlled timing.
- Failsafe operation protects against short-circuit and overvoltage.
- Automatic regulation of output current eliminates errors due to changing polarization potential and load resistance.

SPECIFICATIONS
Mark-4 2.5 kW Transmitter

A) Power input: 96 — 144 V line to line 3 phase 400 Hz (from Huntec generator set)
B) Output: Voltage: 150 — 2200 V dc in 8 steps
   Current: 0.2 — 7 A regulated**
C) Current regulation: Less than ±0.1% change for ±10% load change
D) Output frequency: 0.0625 Hz to 1 Hz (time domain, complex resistivity)
   0.0625 Hz to 4 Hz (frequency domain) selectable from front panel
   An additional range of frequencies between 0.78 and 5.0 Hz is available and can be selected by an internal switch.

E) Frequency accuracy: ±50 ppm -30°C to +60°C
F) Output duty cycle: \( T_{on}/(T_{on}+T_{off}) \)
   0.5 to 0.9375 in increments of 0.0625
   0.9375 (complex resistivity)
   0.75 (frequency domain)

G) Output current meter: Two ranges: 0-5 A and 0-10 A
H) Ground resistance meter: Two ranges: 0-10 kΩ and 0-100 kΩ
I) Input voltage meter: 0-150 V
J) Dummy load: Two levels: 500 W and 1.75 kW
K) Temperature range: -34°C to +50°C
L) Size: 53 cm x 43 cm x 29 cm
M) Weight: 26 kg

**Smaller currents are obtainable, but outside the current regulation range the transmitter voltage is regulated, not the current.
SPECIFICATIONS

M-4 2.5 kW Engine Driven Alternator

Output: 120 V ac 400 Hz 3.5 kVA maximum
Engine: 6 kW air cooled, single cylinder four cycle piston engine with manual start
Fuel: Regular grade gasoline, tank capacity 3.8 L to give 4 h duration
Alternator: Delta connected heavy duty automobile type, belt driven, air cooled
Construction: Tubular protective carrying frame with resiliently mounted engine and alternator
Size: 51 cm x 48 cm x 76 cm
Weight (dry): 61 kg
Appendix II
## Ministry of Natural Resources

**Ontario**

### Report of Work

(geophysical, geological, geochemical, and expenditures)

#### Type of Survey(s)

<table>
<thead>
<tr>
<th>Claim Holder(s)</th>
<th>INGAMAR EXPLORATIONS LIMITED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>CEDAR HILL, CONNAUGHT, ONTARIO PON 1AO</td>
</tr>
<tr>
<td>Survey Company</td>
<td>MPH CONSULTING LTD.</td>
</tr>
<tr>
<td>Date of Survey</td>
<td>06/04/84</td>
</tr>
<tr>
<td>Total Miles of line Cut</td>
<td>40</td>
</tr>
<tr>
<td>Date Approved as Recorded</td>
<td>FEB 1/85</td>
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</tbody>
</table>

### Special Provisions

- **For first survey:** Enter 40 days. (This includes line cutting)
- **For each additional survey:** Enter 20 days (not each)

### Mining Claims Traversed

<table>
<thead>
<tr>
<th>Mining Claim Traversed</th>
<th>Prefix</th>
<th>Number</th>
<th>Days Cr.</th>
</tr>
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<td>609572</td>
<td>609573</td>
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</tr>
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</table>

### Expenditures (Excludes power, stripping)

**Calculation of Expenditure Days Credits**

<table>
<thead>
<tr>
<th>Total Expenditures</th>
<th>+</th>
<th>15</th>
<th>=</th>
</tr>
</thead>
</table>

### Certification Verifying Report of Work

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

**Name and Postal Address of Person Certifying**

[Signature]

**Date Approved as Recorded**

[Signature]

**Branch Director**

[Signature]
**Induced Polarization Surveys**

**Claim Holder(s):** INGAMAR EXPLORATIONS LIMITED

**Address:** CEDAR HILL, CONNAUGHT, ONTARIO PON 1AO

**Survey Company:** MPH CONSULTING LTD.

**Prospector's Licence No.:** T-836

**Date of Survey:**
- **Start Date:** 01/04/84
- **End Date:** 04/04/84

**Total Miles of Line Cut:** 32

**Name and Address of Author:** DAVID JONES - 120 Adelaide St. W., Toronto, Ontario

**Credits Requested Per Each Claim in Columns at Right:**

### Special Provisions

- **Geophysical**
  - Electromagnetic
  - Magnetometer
  - Radiometric
  - Other

- **Geological**
- **Geochemical**

### Man Days

**Complete reverse side and enter total(s) here**

**Expenditures (Excludes Power Stripping):**

- **Type of Work Performed:**
  - Performed on Claim(s):

**Calculation of Expenditure Days Credits**

- **Total Expenditures**
- **Total Days Credits:**

**Instructions:**
- Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

**Date Approved as Recorded:**

**Certification Verifying Report of Work:**

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

**Name and Postal Address of Person Certifying:**

**Branch Director:**

**Date:** February 1/85

**Recorded:**

**Receipt No.:** 9

**For Office Use Only:**

- **Total Days Cr.**
- **Date Recorded:**
- **Min. Certifier:**
- **Date Approved as Recorded:**
- **Branch Director:**
Man Days are based on eight (8) hour Technical or Line-cutting days. Technical days include work performed by consultants, draftsmen, etc.

### Type of Survey

#### INDUCED POLARIZATION

<table>
<thead>
<tr>
<th>Technical Days</th>
<th>Technical Days Credits</th>
<th>Line-cutting Days</th>
<th>Total Credits</th>
<th>No. of Claims</th>
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<tbody>
<tr>
<td>35</td>
<td></td>
<td></td>
<td>245</td>
<td>32</td>
<td>7.66</td>
</tr>
</tbody>
</table>

### Writing Report:
David Jones  
120 Adelaide St. W.  
TORONTO, Ont.  
April 12,13,14 - 3 days

### Drafting:
Keith Morrison  
120 Adelaide St. W.  
TORONTO, Ont.  
April 12,13,14 - 3 days

### I.P. Survey:
Keith Morrison  
120 Adelaide St. W.  
TORONTO, Ont.  
April 1,2,3,4,5,6,7 - 7 days

Gordon Shields  
120 Adelaide St. W.  
TORONTO, Ont.  
April 1,2,3,4,5,6,7 - 7 days

Randal Rae  
120 Adelaide St. W.  
TORONTO, Ont.  
April 1,2,3,4,5,6,7 - 7 days

Benoit Boudreault  
Chicoutimi, Que.  
April 1,2,3,4,5,6,7 - 7 days

### Typing Report & Assembling:
Susan Walker  
120 Adelaide St. W.  
TORONTO, Ont.  
April 16 - 1 day

35 days
### Type of Survey

**INDUCED POLARIZATION SURVEYS**

### Claim Holder(s)

INCHAM EXPLOREATIONS LIMITED

### Address

CEDAR HILL

### Survey Company

MPH CONSULTING LTD

### Date of Survey (from to)

1 Jul 84 to 7 Jul 84

### Total Miles of line Cut

2.8

### Special Provisions

**For first survey:**

- Enter 40 days. (This includes line cutting)

**For each additional survey:**

- Using the same grid: Enter 20 days (for each)

### Man Days

**Complete reverse side and enter total(s) here**

### Geophysical and Expenditures

#### Geophysical

- Electromagnetic
- Magnetometer
- Radiometric
- Other

#### Geological

- Geophysical
- Geochemical

#### Geochronological

- Electromagnetic
- Magnetometer
- Radiometric
- Other

#### Total Miles of line Cut

2.8

### Airborne Credits

#### Electromagnetic

- Days per Claim

#### Magnetometer

- Days per Claim

#### Radiometric

- Days per Claim

### Expenditures

Type of Work Performed

<table>
<thead>
<tr>
<th>Perform the on Claim(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PORCUPINE MINING DIVISION</td>
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</tbody>
</table>

### Calculation of Expenditure Credits

**Total Expenditure**

10

**Total Days Credits**

15

### Instructions

Total Days Credits are apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

### Date Approved as Recorded

June 7, 1984

### Certified by

MAURICE HIBBARD

### Date Certified

June 13, 1984

### Certification

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

Name and Postal Address of Person Certifying

MAURICE HIBBARD

CEDAR HILL, ONTARIO, P.O. BOX 140

Date Certified: June 13, 1984

Certification (Signature):

Stanley
Mining Lands Section

Control Sheet

File No 2688

TYPE OF SURVEY

GEOPHYSICAL

GEODETICAL

GEOCHEMICAL

EXPENDITURE

MINING LANDS COMMENTS:

[Signature]

Ld Lrd.

Date

Signature of Assessor

3. Hured

Return to P.P.O.
Mining Recorder  
Ministry of Natural Resources  
60 Wilson Avenue  
Timmins, Ontario  
P4N 2S7  

Dear Sir:  

RE: Notice of Intent dated March 29, 1985  
Geophysical (Induced Polarization) Survey  
on Mining Claims P 609551, et al in  
the Lower Detour Lake Area  

The assessment work credits, as listed with the  
above-mentioned Notice of Intent, have been approved  
as of the above date.  

Please inform the recorded holder of these mining  
claims and so indicate on your records.  

Yours sincerely,  

S.E. Yundt  
Director  
Land Management Branch  

Whitney Block, Room 6643  
Queen's Park  
Toronto, Ontario  
M7A 1W3  
Phone:(416)965-4888  

D. Kinig:mc  

cc: Ingamar Explorations Limited  
Cedar Hill  
Connaught, Ontario  
PON 1A0  

cc: Mr. G.H. Ferguson  
Mining & Lands Commissioner  
Toronto, Ontario  

Encl.
An examination of your survey report indicates that the requirements of The Ontario Mining Act have not been fully met to warrant maximum assessment work credits. This notice is merely a warning that you will not be allowed the number of assessment work days credits that you expected and also that in approximately 15 days from the above date, the mining recorder will be authorized to change the entries on his record sheets to agree with the enclosed statement. Please note that until such time as the recorder actually changes the entry on the record sheet, the status of the claim remains unchanged.

If you are of the opinion that these changes by the mining recorder will jeopardize your claims, you may during the next fifteen days apply to the Mining and Lands Commissioner for an extension of time. Abstracts should be sent with your application.

If the reduced rate of credits does not jeopardize the status of the claims then you need not seek relief from the Mining and Lands Commissioner and this Notice of Intent may be disregarded.

If your survey was submitted and assessed under the "Special Provision-Performance and Coverage" method and you are of the opinion that a re-appraisal under the "Man-days" method would result in the approval of a greater number of days credit per claim, you may, within the said fifteen day period, submit assessment work breakdowns listing the employees names, addresses and the dates and hours they worked. The new work breakdowns should be submitted direct to the Land Management Branch, Toronto. The report will be re-assessed and a new statement of credits based on actual days worked will be issued.
February 1, 1985

Ministry of Natural Resources
Land Management Branch
Whitney Block, Room 6643
Queen's Park
TORONTO, ONTARIO
W7A 1W3

ATTENTION: S.E. YUNDT, DIRECTOR

Dear Madam:

Re: your File 2,6888
Geophysical (induced Polarization) Survey submitted on Mining Claims P-609551 et al in the Area of Lower Detour

Please find enclosed a copy of a "report of work" on the above property. The maps for this property is on file in your office.

Also enclosed is a copy of your letter of November 21, 1984 regarding our original work report.

Sincerely,
INGAMAR EXPLORATIONS LIMITED

Irma Hibbard, Vice-President

Encl(2)

IH/ab

Our file: Mineta/Ventura
November 21, 1984

Ingamar Explorations Ltd
Cedar Hill
Connaught, Ontario
PON 1AO

Dear Sirs:

RE: Geophysical (Induced Polarization) Survey
submitted on Mining Claims P 609551 et al
in the Area of Lower Detour Lake

With reference to your letter of November 8, 1984
the mining recorder has already been instructed
to cancel the work credits as directed in our letter
of November 1, 1984.

If these claims are still in good standing, you may
file a new report of work with the mining recorder
for this survey. The survey will then be reassessed
and credits allowed as warranted.

For further information, please contact Mr. Ray Pichette
at (416)965-4888.

Yours sincerely,

S.E. Yundt
Director
Land Management Branch
Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3
Phone:(416)965-4888

cc: Mining Recorder
Timmins, Ontario
Ingamar Explorations Ltd
Cedar Hill
Connaught, Ontario
PON 1AO

Dear Sirs:

RE: Geophysical (Induced Polarization) Survey submitted on Mining Claims P 609551 et al in the Area of Lower Detour Lake

With reference to your letter of November 8, 1984 the mining recorder has already been instructed to cancel the work credits as directed in our letter of November 1, 1984.

If these claims are still in good standing, you may file a new report of work with the mining recorder for this survey. The survey will then be reassessed and credits allowed as warranted.

For further information, please contact Mr. Ray Pichette at (416)965-4888.

Yours sincerely,

S.E. Yundt
Director
Land Management Branch
Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3
Phone:(416)965-4888

S. Hurst:mc

cc: Mining Recorder
Timmins, Ontario
Mrs. S. Hurst  
Ministry of Natural Resources  
Land Management Branch  
Whitney Block, Room 6643  
Queen's Park  
TORONTO, Ontario  
P4N 257  

Dear Mrs. Hurst,  

Re: Mining Claims P-606551 et al  

Please find enclosed the maps requested on the above property. I have enclosed a copy of my letter of October 31, 1984 and you will note that I inadvertently replied regarding the wrong claims.  

Thank you.  

Sincerely,  

INGAMAR EXPLORATIONS LIMITED  

Irma Hibbard, Vice-President  
Encl.  
2 maps  
2 letters
S.E. Yundt

Director

Land Management Branch

Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: (416) 965-4888

S. Hurst:mc

cc: Ingamar Explorations Limited
Cedar Hill
Connaught, Ontario
PON 1A0

cc: MPH Consulting Limited
Suite 2406
120 Adelaide Street West
Toronto, Ontario
M5H 1T1
October 31, 1984

INCOMAR EXPLORATIONS LIMITED

Land Management Branch
Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1S5

SPECIAL ATTENTION: MRS. S. HURST

SUBJECT: 31 claim group, P576951 et al

Dear Mrs. Hurst,

As discussed in our telephone conversation today, we will be forwarding the required maps on the above property in a couple of weeks when they have been redrawn.

Thank you,

Sincerely,

INCOMAR EXPLORATIONS LIMITED

Ira Ribbard, Vice President

IH/ab
Dear Sir:

Ingamar Explorations Ltd recorded 12 days Induced Polarization assessment work credits on each Mining Claims P 576951 to 956 inclusive, P 584097 to 411 inclusive on June 13, 1984.

Additional information has been requested from the claim holder and not submitted.

You are hereby authorized to delete the work credits recorded on June 13, 1984 from each of the claim record sheets. Please inform the recorded holder accordingly.

Yours sincerely,

S.E. Yundt
Director
Land Management Branch

Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3
Phone:(416)965-4888

S. Hurst:mc

cc: Ingamar Explorations Limited
Cedar Hill
Connaught, Ontario
PON 1AO
Dear Sir:

Ingamar Exploration Ltd recorded 8 days Induced Polarization assessment work credits on each of Mining Claims P 609551 to 576 inclusive; P 609728 to 733 inclusive on June 13, 1984.

Additional information has been requested from the claim holder and not submitted.

You are hereby authorized to delete the work credits recorded on June 13, 1984 from each of the claim record sheets. Please inform the recorded holder accordingly.

Yours sincerely,

S.E. Yundt
Director
Land Management Branch
Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: (416) 965-4888

S. Hurst:mc

cc: Ingamar Explorations Limited
Cedar Hill
Connaught, Ontario
P0N 1A0

cc: MPH Consulting Limited
Suite 2406
120 Adelaide Street West
Toronto, Ontario
M5H 1T1
Resident Geologist  
Ministry of Natural Resources  
60 Wilson Avenue  
Timmins, Ontario  
P4N 3W2  

Dear Sir:  

RE: Geophysical (Induced Polarization) Survey submitted on Mining Claims P 609551 et al in the Lower Detour Lake Area  

Further to my letter of June 29, 1984 which acknowledged receipt of the above-mentioned survey, the enclosed file has not been assessed as all necessary information was not submitted.

Yours sincerely,

S.E. Yundt  
Director  
Land Management Branch  

Whitney Block, Room 6643  
Queen's Park  
Toronto, Ontario  
M7A 1W3  
Phone:(416)965-4888  

S. Hurst:mc  

cc: Mining Recorder  
Timmins, Ontario  

Encl.
October 1, 1984

REGISTERED

Ingamar Exploration Limited
Cedar Hill
Connaught, Ontario
PON 1A0

Dear Sirs?

RE: Geophysical (Induced Polarization) Survey
submitted on Mining Claims P 609551 et al
in the Lower Detour Lake.

Enclosed is a copy of our letter dated August 8, 1984
requesting additional information for the above-mentioned
survey.

Unless you can provide the required data by October 15, 1984
the mining recorder will be directed to cancel the work
credits recorded on June 13, 1984.

For further information, please contact Mrs. S. Hurst
at (416)965-4888.

Yours sincerely,

S.E. Yundt
Director
Land Management Branch

Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1N3
(416)965-4888

S. Hurst:sc

Encl:

cc: Mining Recorder
Timmins, Ontario

cc: MPH Consulting Limited
Suite 2406
August 8, 1984

Ingamar Explorations Limited
Cedar Hill
Connaught, Ontario
PON 1A0

Attention: M. Hibbard

Dear Sir:

RE: Geophysical (Induced Polarization) Survey submitted on Mining Claims P 609551 et al in the Lower Detour Lake Area

To complete your submission for assessment, a plan map, in duplicate, showing claim lines, numbers, and location of survey traverses is required. Please forward the information to this office quoting file 2.6888.

For further information, please contact Mr. Ray Pichette at (416)965-4888.

Yours sincerely,

S.E. Yundt
Director
Land Management Branch
Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: (416)965-4888

D. Isherwood:mc

cc: David Jones
c/o MPH Consulting Ltd
Suite 2406
120 Adelaide Street West
Toronto, Ontario
M5H 1T1

cc: Mining Recorder
Timmins, Ontario
Mr. Bruce Hanley  
Mining Recorder  
Ministry of Natural Resources  
60 Wilson Avenue  
Timmins, Ontario  
P4N 2S7  

Dear Sir:  

We have received reports and maps for a Geophysical (Induced Polarization) Survey submitted on Mining Claims P 609551 et al in the Area of Lower Detour Lake.  

This material will be examined and assessed and a statement of assessment work credits will be issued.  

We do not have a copy of the report of work which is normally filed with you prior to the submission of this technical data. Please forward a copy as soon as possible.  

Yours sincerely,  

S.E. Yundt  
Director  
Land Management Branch  

Whitney Block, Room 6643  
Queen's Park  
Toronto, Ontario  
M7A 1W3  
Phone: (416) 965-1380  

A. Barr:sc  

cc: Ingamar Explorations Ltd  
Cedar Hill  
Connaught, Ontario  
P0N 1A0
**Technical Assessment**

**Work Credits**

```
Date Mining Recorder's Report of Work No. 39/85  
1985 03 29

Recorded Holder
INGAMAR EXPLORATIONS LIMITED

Township or Area
LOWER DETOUR LAKE AREA

<table>
<thead>
<tr>
<th>Type of survey and number of Assessment days credit per claim</th>
<th>Mining Claims Assessed</th>
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</thead>
<tbody>
<tr>
<td>Geophysical</td>
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<tr>
<td>Electromagnetic</td>
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<td>Magnetometer</td>
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<td>Radiometric</td>
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<tr>
<td>Induced polarization</td>
<td>49 days</td>
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<td>Other</td>
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</table>

Section 77 (19) See "Mining Claims Assessed" column

<table>
<thead>
<tr>
<th>Geological</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Geochemical</td>
<td></td>
</tr>
</tbody>
</table>

Man days ☐ Airborne ☐
Special provision ☐ Ground ☑

- Credit have been reduced because of partial coverage of claims.
- Credit have been reduced because of corrections to work dates and figures of applicant.

Special credits under section 77 (16) for the following mining claims

No credits have been allowed for the following mining claims

- ☑ not sufficiently covered by the survey
- ☐ Insufficient technical data filed

P 609551
609554
609556 to 65 inclusive
609567 to 76 inclusive
609728 to 31 inclusive
609733

Credits have been reduced because of partial coverage of claims.
Credits have been reduced because of corrections to work dates and figures of applicant.

Edited: The credits have been reduced if necessary in order that the total number of approved assessment days recorded on the application forms is consistent with the work performed on the claims.

```

---

**Notes:**

- The credits have been reduced if necessary in order that the total number of approved assessment days recorded on the application forms is consistent with the work performed on the claims.

April 15/85

1985 03 29

Ministry of Natural Resources

1985 03 29 Your File: 39/85
Our File: 2.6888

Mining Recorder
Ministry of Natural Resources
60 Wilson Avenue
Timmins, Ontario
P4N 2S7

Dear Sir:

Enclosed are two copies of a Notice of Intent with statements listing a reduced rate of assessment work credits to be allowed for a technical survey. Please forward one copy to the recorded holder of the claims and retain the other. In approximately fifteen days from the above date, a final letter of approval of these credits will be sent to you. On receipt of the approval letter, you may then change the work entries on the claim record sheets.

For further information, if required, please contact Mr. R.J. Pichette at 416/965-4888.

Yours sincerely,

S.E. Yundt
Director
Land Management Branch

Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3

D. Kinvig:mc

Encls.

cc: Ingamar Explorations Limited
    Cedar Hill
    Connaught, Ontario
    PON 1AO

cc: Mr. G.H. Ferguson
    Mining & Lands Commissioner
    Toronto, Ontario
### Assessment Work Breakdown

Man Days are based on eight (8) hour Technical or Line-cutting days. Technical days include work performed by consultants, draftsmen, etc.

<table>
<thead>
<tr>
<th>Type of Survey</th>
<th>Technical Days</th>
<th>Technical Days Credits</th>
<th>Line-cutting Days</th>
<th>Total Credits</th>
<th>No. of Credits</th>
<th>Days per Claim</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INDUCED POLARIZATION</strong></td>
<td>35 X 7</td>
<td>245</td>
<td></td>
<td>+</td>
<td>32</td>
<td>7.66</td>
</tr>
</tbody>
</table>

Writing Report:  
David Jones  
120 Adelaide St. W.  
TORONTO, Ont.  
April 12, 13, 14 - 3 days

Drafting:  
Keith Morrison  
120 Adelaide St. W.  
TORONTO, Ont.  
April 12, 13, 14 - 3 days

I.P. Survey:  
Keith Morrison  
120 Adelaide St. W.  
TORONTO, Ont.  
April 1, 2, 3, 4, 5, 6, 7 - 7 days

Gordon Shields  
120 Adelaide St. W.  
TORONTO, Ont.  
April 1, 2, 3, 4, 5, 6, 7 - 7 days

Randal Rae  
120 Adelaide St. W.  
TORONTO, Ont.  
April 1, 2, 3, 4, 5, 6, 7 - 7 days

Benoit Boudreault  
Chicoutimi, Que.  
April 12, 13, 14 - 3 days

Typing Report & Assembling  
Susan Walker  
120 Adelaide St. W.  
TORONTO, Ont.  
April 16 - 1 day

| Days per Claim | 35 days |