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AN INTERPRETIVE AND LOGISTICAL REPORT ON PROSPECTING AND GROUND GEOPHYSICAL SURVEYS, CARRIED OUT ON THE NATAL CLAIMS, SHINNING TREE AREA, NATAL TWP., NORTHERN ONTARIO

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AN INTERPRETIVE AND LOGISTICAL REPORT
ON PROSPECTING AND GROUND GEOPHYSICAL SURVEYS,
CARRIED OUT ON THE NATAL CLAIMS
SHINNING TREE AREA, NATAL TWP.,
NORTHERN ONTARIO

On Behalf Of

STEVE BORTNICK

1. INTRODUCTION

A total of 41 days between July 18th to Sept 21th, 1992, was spent prospecting/rock sampling, establishing a grid and conducting Vertical Magnetics Field and VLF-EM surveys on the Natal Lake Property, Shinning Tree area, by Steve Bortnick as part of his Ontario Prospectors Assistance Program (OPAP).

The surveys yielded a total of 4.4 km coverage over grid A and lines L0 & L294, that follow up a suspected mineralized zones, and two survey lines that follow up airborne magnetic anomalies. A total of 23 samples were collected along the interpreted magnetic and VLF-EM trends and along other out crop of interest. Three samples, labelled 1-1, 1-2, and 1-3, observed to contain small traces of pyrite were assayed giving minor results.

The magnetic and VLF-EM surveys employed the Scintrex Fluxgate Magnetometer and the Geonics EM-16 systems. The sample interval was 12.5m with detailing over anomalies at 6.25m. Two VLF transmitters were employed; Cutler MA (frequency 24.0 kHz) and NSS Annapolis MN (frequency 21.4 kHz).

This report covers the geological and geophysical surveys conducted by Mr. Steve Bortnick. OGS geological and airborne magnetic survey maps were used by Mr. Bortnick to plan his prospecting and geophysical surveys. The ground surveys, in conjunction with the regional geological and geophysical data, is used as part of the interpretation.

This report describes the geophysical and geological survey procedures and includes the prospecting finds, in conjunction with regional data, as part of the interpretation of the results. Drafted presentations of the results are in the form of contour maps (where applicable), profiles/posted values with conductors indicated and labelled and compilation maps and figures. The rock sample locations are included on the compilation maps.
LOCATION MAP

STEVE BORTNICK PROJECT
NATAL LAKE PROPERTY
SHINNING TREE AREA, ONTARIO
GROUND GEOPHYSICAL SURVEY
Scale: 1:1,600,000
CLAIM / GRID MAP

STEVE BORTNICK PROJECT

NATAL LAKE PROPERTY
SHINNING TREE AREA, ONTARIO

GROUND GEOPHYSICAL SURVEY

Scale: 1 : 25,000 (approx.)

Figure 2
2. SURVEY ACCESS AND LOCATION

The Natal Lake Property consists of 37 unit claims (1185947, 1185773, 1185774, 1185775 and 1185776) located approximately 40 km north east of Shinning Tree via highway 560, northeastern Ontario. The location of the property with respect to nearby towns may be found in figure 1, at a scale of 1:1,600,000.

Access to the property is by gravel road. The location of the property showing road access can be found on the claim/grid map in figure 2, at a scale of 1:25,000.

3. PROSPECTING AND SURVEY GRID COVERAGE

The exploration work performed on the claim 1185776 acquired a total of nine days of prospecting by Mr. Bortnick. The prospecting was concentrated on the southeast half of the Natal claims (claim block 1185773) where there is easy access to the claims. Regional airborne and geology maps (figures 3 and 4) were used to coordinate Mr. Bortnick's efforts. Section three (3) of this report details the nature and content of the work and observations made during the performance of the prospecting work. Further interpretation is included as part of the discussion of this report (section 9). Mr. Bortnick's daily log also serves as a reference to the nature, content and observations made during the performance of his work (Appendix 3).

Grid 1 (Airborne mag. high M1, follow-up): The baseline of the grid was oriented nominally at 155 deg. with station separation of 12.5m. A total of 3.175 line kilometres of geophysical grid coverage was covered.

Two (2) days of prospecting on south east corner of claim 1185776 as part of a reconnaissance survey over circular magnetic high M1 (see figure 4 and plate 5).

One (1) day of reconnaissance flux gate magnetic survey to locate airborne magnetic high M1 and to determine the optimal strike of baseline to start grid 1.

Eleven (11) days of line cutting, chaining, and geophysical surveying with a Scintrex MF-2-100 Portable fluxgate magnetometer and Geonics EM-16 measuring the tangent of the tilt angle from VLF stations NSS Annaplois and NAA Cutler. A total of 3.175 km of mag and 2.075 km of VLF geophysical data was collected corrected for drift, where applicable, and plotted by hand during the evening and on bad weather days. The results were interpreted for further follow-up (see plate 2 & 3).

Two (2) days of geophysical follow-up and geological mapping. Sixteen rock samples labelled 1-1 to 1-16 were collected, and their positions recurred, along EM conductors and magnetic highs (see Tables 3 & 5 &
plates 2 & 5). Samples 1-1 to 1-3, along VLF-EM conductor V1 and magnetic high MG1-1, were sent to Swastika Laboratories for assay (see Table 6 & Appendix 2) as there was observed to be possible sulphide bearing mafic volcanics with bands of carbonate alteration (see further discussion in section 9).

Grid 2-L294 (Circular airborne magnetic High M2, ground follow-up): The line was oriented nominally at 245 deg. with station separation of 12.5m. A total of 0.500 line kilometres of geophysical grid coverage was completed.

One (1) day of prospecting on north east corner of claim 1185776 as part of a reconnaissance survey over circular magnetic high M2 (see figure 4 and plate 4). Reconnaissance flux gate magnetic was surveyed to locate airborne magnetic high M2 and to help determine the optimal strike of baseline to start grid 2.

Two and one half (2.5) days of line cutting and chaining. A total of 0.500 line kilometres were cut and chained and areas of outcrop were noted for further follow-up.

One (1) day of geophysical surveying with a Scintrex MF-2-100 Portable fluxgate magnetometer. A total of 0.500 line kilometres of mag data was collected corrected for drift and plotted by hand during the evening and on bad weather days. The results were interpreted for further follow-up (see plate 4).

One and one half (1.5) days of geophysical follow-up and geological mapping. Sample 2-2 was collected along the only magnetic high along the line at 225W where there was out-crop. Sample 2-2 is a mafic volcanic and may not be directly responsible for the magnetic high. The ground magnetic high MG2-1 may be the result of a NNW striking dyke mapped by the OGS. Sample 2-1 was collected on out crop along Natal Lake and displayed very small quartz veins (see Tables 3 & 7 and plates 4 & 5).

Grid 3-LO (Airborne mag. High trend M3, ground follow-up): The line was oriented nominally at 245 deg. with station separation of 12.5m. A total of 0.700 line kilometres of geophysical grid coverage was completed.

Two (2) days of prospecting on south west corner of claim 1185776, line cutting and chaining. A total of 0.700 line kilometres were cut and chained and areas of outcrop were noted for further follow-up.

One half (1.5) day of geophysical surveying with a Scintrex MF-2-100 Portable fluxgate magnetometer. A total of 0.700 line kilometres of mag data was collected corrected for drift and plotted by hand during the evening and on bad weather days. The results were interpreted for further follow-up.
One and one half (1.5) days of geophysical follow-up and geological mapping. Sample 3-1 to 3-5 were collected along the magnetic highs MG3-1 to MG3-3 and on areas of outcrop (see Table 3 & 8 and plate 4). The magnetic highs may be result of diabase dykes and/or magnetic highs associated with NNW faulting. The collected samples are mafic volcanic and may not be directly responsible for the magnetic high (see Table 3 & 8 and plates 4 & 5).

A detailed listing of the geophysical survey coverage may be found in Tables 1 & 2, the position of the grids on the claims may be found on figure 2 and plate 5, the sample descriptions and classification may be found in Tables 3, 5, 6, 7, 8, Appendix 4 and plate 5, and a detailed interpretation, correlating both the geophysical and geological data, of each grid, may be found in the discussion of results.

### TABLE 1

**MAG PRODUCTION SUMMARY**

(Grids 1, 2-1394 & 3-10)

<table>
<thead>
<tr>
<th>LINE</th>
<th>FROM</th>
<th>TO</th>
<th>LENGTH</th>
<th>No of Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>100S</td>
<td>50W</td>
<td>200E</td>
<td>250m</td>
<td>21</td>
</tr>
<tr>
<td>75S</td>
<td>25W</td>
<td>225E</td>
<td>250m</td>
<td>21</td>
</tr>
<tr>
<td>50S</td>
<td>25W</td>
<td>275E</td>
<td>300m</td>
<td>25</td>
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<td>25S</td>
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<td>275E</td>
<td>325m</td>
<td>30</td>
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<td>25W</td>
<td>325E</td>
<td>350m</td>
<td>31</td>
</tr>
<tr>
<td>25N</td>
<td>25W</td>
<td>300E</td>
<td>325m</td>
<td>33</td>
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<td>300m</td>
<td>25</td>
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<tr>
<td>75N</td>
<td>25W</td>
<td>300E</td>
<td>325m</td>
<td>27</td>
</tr>
<tr>
<td>100E</td>
<td>225S</td>
<td>575N</td>
<td>800m</td>
<td>65</td>
</tr>
</tbody>
</table>

Grid A Total: 3225m 278
Table 1 cont.

Grid 2-L294 & Grid 3-LO

<table>
<thead>
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<th>LINE</th>
<th>FROM</th>
<th>TO</th>
<th>LENGTH</th>
<th>No of Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>LO</td>
<td>50W</td>
<td>650E</td>
<td>700m</td>
<td>57</td>
</tr>
<tr>
<td>L294</td>
<td>500W</td>
<td>0</td>
<td>500m</td>
<td>41</td>
</tr>
</tbody>
</table>

Line LO & L294 Total : 1200m 98

Mag. Total : 4425m 376

TABLE 2

VLF-EM PRODUCTION SUMMARY

GRID 1
(Only Grid 1 was surveyed with VLF)

<table>
<thead>
<tr>
<th>LINE</th>
<th>FROM</th>
<th>TO</th>
<th>LENGTH</th>
<th>No of Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>50S</td>
<td>25W</td>
<td>275E</td>
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</tr>
<tr>
<td>0</td>
<td>25W</td>
<td>325E</td>
<td>375m</td>
<td>31</td>
</tr>
<tr>
<td>50N</td>
<td>0</td>
<td>300E</td>
<td>300m</td>
<td>25</td>
</tr>
<tr>
<td>100E</td>
<td>225S</td>
<td>575N</td>
<td>800m</td>
<td>65</td>
</tr>
</tbody>
</table>

Grid A Total : 1775m 146

VLF-EM Total : 1775m 146

There was no VLF-EM data collected for Grids 2-L294 & 3-LO
4. PERSONNEL

Mr. Steve Bortnick, Prospector and Geophysical Technician, operated the Scintrex Fluxgate magnetometer and Geonics EM-16, established a survey camp, cut the survey lines and other access paths to the survey areas. Mr. Bortnick set up the field camp, plotted the field data, prospected and collected rock samples, and was responsible for data quality and the day to day operation and direction of the survey.

Mr. Albert Vickers - Geophysicist, JVX Ltd. Mr. Vickers plotted the computer generated maps, interpreted the data and prepared the report from the Richmond Hill office.

Dr. Peter Fisher - Geologist, Dr. Fisher classified the rock samples and related them to a summary of the regional and property geology.

Mr. Blaine Webster - Geophysicist, JVX Ltd. Gave a detailed description of the rock samples and related them to the geophysical data and the regional and property geology.

5. INSTRUMENTATION

5.1 Magnetics/VLF

The Scintrex fluxgate magnetometer was used to read the vertical component of the magnetic field along the survey lines.

Changes in the ambient magnetic field with time were monitored by periodic repeat measurements at convenient traverse points. This data was used to correct the survey magnetic data for diurnal variations. Continuous readings of the geomagnetic field at a fixed station, to determine if a magnetic storm is present, was also monitored.

The Geonics EM-16 was employed to measure the VLF field components and the Scintrex fluxgate magnetometer was used to measure the magnetic field. The results were recorded as field notes. The data was plotted by hand in the field for quality control and preliminary interpretation for follow up ie. rock sampling.

The instrumentation is described in greater detail in the specification sheets appended to this report (Appendix 1).

5.2 Data Processing System

The VLF-EM and magnetic raw data was booked and plotted as profiles with posted values at the end of each survey day at a scale of 1:1250. Field plots were used for quality control and preliminary interpretation for follow up ie. rock sampling.
In the Richmond Hill office the VLF-EM profiles with posted values and rock sample location was inked on mylar. The magnetic data was manually digitized and then archived on floppy disk. The magnetic data was ink-plotted in plan contour and profiles with posted values formats on a Nicolet Zeta drum plotter interfaced to an IBM PC/386DX microcomputer.

6. SURVEY METHOD AND FIELD PROCEDURES

6.1 Survey Method and Procedures (Magnetic)

The magnetic method consists of measuring the magnetic field of the earth as influenced by rock formations having different magnetic properties and configurations. The measured field is the vector sum of induced and remnant magnetic effects. Thus, there are three factors, excluding geometric factors, which determine the magnetic field. These are the strength of the earth's magnetic field, the magnetic susceptibilities of the rocks present and their remnant magnetism.

The earth's magnetic field is similar in form to that of a bar magnet. The flux lines of the geomagnetic field are vertical at the north and south magnetic poles where the strength is approximately 60,000 nanoTesla (nT). In the equatorial region, the field is horizontal and its strength is approximately 30,000 nT.

The primary geomagnetic field is, for the purposes of normal mineral exploration surveys, constant in space and time. Magnetic field measurements may, however, vary considerably due to short term external magnetic influences. The magnitude of these variations is unpredictable. In the case of sudden magnetic storms, it may reach several hundred nT over a few minutes. It may be necessary, therefore, to take continuous readings of the geomagnetic field at a fixed station to determine if a magnetic storm is present before a magnetic survey is done. The field procedure with the fluxgate magnetometer requires periodic repeat measurements at convenient traverse points.

The intensity of magnetization induced in rocks by the geomagnetic field \( F \) is given by:

\[
I = kF
\]

where:

- \( I \) is the induced magnetization
- \( k \) is the volume magnetic susceptibility
- \( F \) is the strength of the geomagnetic field
For most materials, k is very much less than 1. If k is negative the body is said to be diamagnetic. Examples are quartz, marble, graphite and rock salt. If k is a small positive value, the body is said to be paramagnetic, examples of which are gneiss (k=0.002), pegmatite, dolomite and syenite. If k is a large positive value, the body is strongly magnetic and it is said to be ferromagnetic, for example, magnetite (k=0.3), ilmenite and pyrrhotite.

The susceptibilities of rocks are determined primarily by their magnetite content since this mineral is so strongly magnetic and so widely distributed in the various rock types (of considerable importance, as well, is the pyrrhotite content).

The remnant magnetization of rocks depends both on their composition and their previous history. Whereas the induced magnetization is nearly always parallel to the direction of the geomagnetic field, the natural remnant magnetization may bear no relation to the present direction and intensity of the earth's field. The remnant magnetization is related to the direction of the earth's field at the time the rocks were last magnetized. Movement of the body through folding etc. and the chemical history since the previous magnetization are additional factors which affect the magnitude and direction of the remnant magnetic vector.

Thus, the resultant magnetization M of a rock is given by:

\[ M = M_n + kF \]

where \( M_n \) is the natural remnant magnetization, and F is a vector which can be completely specified by its horizontal (H) and vertical (Z) components and by the declination (D) from true north. Similarly, \( M_n \) is specified when its magnitude and direction are known. Thus, considerable simplification results if \( M_n = 0 \), whereupon M merely reduces to kF. In the early days of magnetic prospecting, it was usually assumed that there was no remnant magnetization. However, it has now been established that both igneous and sedimentary rocks possess remnant magnetization, and that the phenomenon is a widespread one.

Since the distribution of magnetic minerals (magnetite, pyrrhotite) will, in general, vary with different rock types, the magnetic method is often used to aid in geologic mapping. In gold exploration, the magnetic survey is of particular importance because it will locate areas of structural complexity, carbonization, and silicification.

On the Natal property the magnetic measurements were taken at 25m and detailed 12.5m and 6.25m intervals.
6.2 Survey Method and Field Procedures (VLF)

The Very Low Frequency (VLF) Electromagnetic method measures variations in the components of the electromagnetic fields, set up by communication stations operating in the 15 to 25 kHz frequency range. These stations, located around the world, generate signals for the purposes of navigation and communication with submarines.

In far field, above uniform earth, the groundwave of the vertically polarized VLF radiowave has three field components:

1) a radial, horizontal electrical field,
2) a vertical electrical field, and
3) a tangential, horizontal magnetic field.

When these three fields meet conductive bodies in the ground, eddy currents are induced causing secondary fields to radiate outwards from these conductors.

The primary field from a VLF station can vary considerably. For the most part, the field fluctuates moderately during the course of the day due to changes in atmospheric conditions. Towards evening there is a large upward swing in the field strength, and at several points during the day, both partial and total drops in the field amplitude can be observed. The horizontal field data should always be considered with reservation as it is difficult to know whether changes are caused by conductors or by variations in the station's signal. There is usually no noticeable effect on the in-phase and out-phase measurements. The Geonics EM-16 does not measure the horizontal field, but very strong variations or unscheduled maintenance shut downs of the transmitter can interrupt the survey.

If the primary field strength is constant, changes in the amplitude of the horizontal magnetic field mainly reflect variations in the conductivity of the earth. Normally there will be no vertical magnetic field. However, near a conductor, a vertical field will be observed. The relative amplitudes of the in-phase and quadrature components may be used to interpret the conductivity-thickness characteristics of the conductor.

The survey employed the transmitted primary signal from, NAA Cutler Maine, USA (24.0kHz) for lines striking NS and NSS Annapolis Maryland, USA (21.4kHz) for lines striking EW. Measurements of in-phase and out-phase VLF components were taken along line at 25m and detail at 12.5m intervals over areas of interest.
6.3 Prospecting/Rock Sampling

OGS regional geology and airborne magnetic maps were used to plan the prospecting and geophysics. Outcrop indicated on the regional geology map was first investigated for any mineralization/sulfides. Magnetic high trends from the airborne maps were followed-up with survey lines. Figure 2 shows the survey lines and areas prospected in relation to the claims. Figures 3 & 4 are from geology and regional airborne maps that were used to coordinate Mr. Bortnick's prospecting. The daily log and job production report of the Natal Lake Project (claims 1185776) summarizes Mr. Bortnick's work and can be found in appendix 3.

The survey grids were set up on airborne magnetic high trends and/or where sulfides were discovered from prospecting. Rock samples were collected along the cut and chained survey grids. The samples were collected, labelled, their position noted on the grid maps, and bagged. Three samples were interpreted to contain minor sulphides along a VLF-EM conductor and magnetic vertical gradient high were assayed. The samples 1-1 at LO sta. 143E, 1-2 at L25S sta. 140E, 1-3 at L35S sta. 138E, were assayed for Au, Ag, Cu, Ni, Pb, and Zn. The three selected samples were assayed at Swastika Laboratories of Swastika, Ontario. The assay results are discussed in section 9, include in tables 5 & 6, compilation maps 2 & 5, and appendix 2 (Certificate of Assay).

7. GEOLOGY

7.1 Regional Geology

The study area is situated in the west part of the Abitibi Sub-province which is part of the Superior Province of the Canadian Shield. The rocks underlying the claim area are Archean in age. They consist almost exclusively of volcanics, minor sediments and of associated, subvolcanic mafic and ultramafic intrusives. This sequence is synclinally folded and later intruded by felsic, monzonitic massifs. The rocks have been metamorphosed in the upper greenschist facies. The volcanics consist of some ultramafics (komatiitic flows), predominant mafic flows with fragmentals and minor volcanosediments and clastic and chemical sediments.

The volcanics are made up of a lower group of mafic flows of tholeiitic affinity and an upper, largely fragmental group of intermediate – felsic volcanic rocks of calc-alkali, minor alkali affinity. The meta-volcanics and sediments have been folded into an arcuate, doubly plunging synclinorium onto which numerous secondary syn- and anticlines are superimposed. Numerous faults cut the area, the most common direction is northwest.

7.2 Geology of the Property

The property which straddles the boundary between Natal and McMurchy Townships is underlain by a synclinally folded volcanic assemblage of mostly
SIMPLIFIED GEOLOGY OF S. BORTNICK PROPERTY

Natal / McMurchy Twps.

Scale: 1 : 50,000

Legend

1 Mafic Volcanics
2 Intermediate Volcanics
T Tuff
3 Felsic Volcanics

(Geology from OGS Preliminary Map P. 2313, 1980)

Figure 3
PROPERTY MAP

STEVE BORTNICK PROJECT

NATAL LAKE PROPERTY

SHINNING TREE AREA, ONTARIO

AIRBORNE MAGNETICS

Scale: 1:20,000

Figure 4
intermediate and felsic with minor mafic volcanics. The synclinal axis trends NW and plunges to the NW.

Intermediate and minor mafic volcanics occur in the N, felsic and intermediate volcanic in the south of the property.

The facies in the intermediate volcanics consists of mostly lavas with some intercalated tuffaceous units. Their chemistry was determined as both subalkalic and alkalic. Mafic volcanic are mostly flows. Felsic volcanics dominate in the south of the claim group around Houston Lake. They are subalkalic, aphanitic flows intercalated with some intermediate lavas.

The trend of the lithologic units within the property is generally E-W to WNW- ESE and they make up the southern limb of a NW plunging syncline. A number of prominent NNW trending faults cut through the claims, notably the Jess Lake Fault that cuts through claim 1185774.

Two small Cu occurrences are known south of this claim group and are indicated on figure 2.

7.2.1 Rock Samples

The samples collected were classified as mafic to intermediate volcanics. Three of the samples collected from the interpreted VLF-EM conductor V-1 (see compilation maps 2 and 5) were assayed. The three assayed samples 1-1 at L0 sta. 143E, 1-2 at L25S sta. 140E, 1-3 at L35S sta. 138E, displayed minor amounts of sulphides (Appendices 2), but the assays revealed only background results. The assay results are discussed in section 9, include in tables 5 & 6, compilation maps 2 & 5, and appendix 2 (Certificate of Assay).

Table 3 is a list of the labelled samples signifying which samples were assayed and their locations. Also included in table 3 is a summary of the rock type classification and geophysical association.

A more detailed description of the rock types encountered on the claim 1185776 is included in section 9.2 (Table 5) of this report and also on the compilation map (Plate 5). The compilation maps and section 9 (Discussion of Results) both correlate the geophysical, geological, and geochemical observations and relate the analysis to known or speculated causes.
### TABLE 3

**SAMPLE NO., LOCATION**

*Grid 1, Grid 1assayed, IMV samplesassayed, Grid 1 sampled for Au, Ag, Cu, Ni, Pb & Zn.*

<table>
<thead>
<tr>
<th>SAMPLE NO.</th>
<th>LINE STATION</th>
<th>ROCK TYPE</th>
<th>MAG. nT</th>
<th>VLF X-over</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1</td>
<td>0 143E</td>
<td>IMV</td>
<td>1728</td>
<td>weak V1 conductor</td>
</tr>
<tr>
<td>1-2</td>
<td>25S 140E</td>
<td></td>
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<td>interp. V1 conductor</td>
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<td>1-3</td>
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<td>2000</td>
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<td>920</td>
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<tr>
<td>1-10</td>
<td>76N 163E</td>
<td></td>
<td>2290</td>
<td></td>
</tr>
<tr>
<td>1-11</td>
<td>75N 160E</td>
<td></td>
<td>2290</td>
<td></td>
</tr>
<tr>
<td>1-12</td>
<td>50N 50E</td>
<td></td>
<td>2470</td>
<td>interp. V2 conductor</td>
</tr>
<tr>
<td>1-13</td>
<td>25N 37E</td>
<td></td>
<td>3200</td>
<td></td>
</tr>
<tr>
<td>1-14</td>
<td>50S 137E</td>
<td></td>
<td>920</td>
<td></td>
</tr>
<tr>
<td>1-15</td>
<td>100S 135E</td>
<td></td>
<td>3400</td>
<td></td>
</tr>
<tr>
<td>1-16</td>
<td>100S 139E</td>
<td></td>
<td>3400</td>
<td></td>
</tr>
</tbody>
</table>

**IMV (intermediate mafic volcanics)**

<table>
<thead>
<tr>
<th>Total Samples Grid 1 :</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Assayed Grid 1 :</td>
<td>3</td>
</tr>
</tbody>
</table>

Samples 1-1, 1-2 and 1-3 were assayed for Au, Ag, Cu, Ni, Pb & Zn.

(See Table 6 and Certificate of Assay)
TABLE 3  
cont.

<table>
<thead>
<tr>
<th>SAMPLE NO.</th>
<th>LINE STATION</th>
<th>ROCK TYPE</th>
<th>MAG. nT</th>
<th>VLF X-over</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Grid 2-L294

| 2-1        | 294 500W IMV | -180      | no VLF surveyed |
| 2-2        | 294 275W    | 3500      | no VLF surveyed |

Total Samples Line L0 : 2
No Assay

Grid 3-LO

| 3-1        | 0 45E IMV   | 2000      | no VLF surveyed |
| 3-2        | 0 225E      | -80       | no VLF surveyed |
| 3-3        | 0 285E      | 416       | no VLF surveyed |
| 3-4        | 0 425E      | 50        | no VLF surveyed |
| 3-5        | 0 540E      | 1197      | no VLF surveyed |

Total Samples Line L294 : 5
No Assay

The assay results are discussed in section 9, include in tables 5 & 6, compilation maps 2 & 5, and appendix 2 (Certificate of Assay).

8. DATA PROCESSING AND PRESENTATION

8.1 Data Processing

The VLF-EM and magnetic raw data was booked and plotted as profiles at the end of each survey day at scale 1:1250. The field plots, with posted values, served as a quality control and an assessment of the work to plan the next days survey. They were also used to aid rock sampling, where VLF-EM cross-overs were followed up by taking rock samples.

After diurnal correction were applied to the total field magnetic data. The magnetic data was manually digitized on diskette in ASCII character format to utilize the Geopak contour package.

After the completion of the survey, contoured plan maps, profiles with posted values of the total field magnetic data and profile plots of the VLF data were computer generated and hand drafted on mylar at the Richmond Hill office at a scale of 1:1250 (1cm = 12.5m). The 23 rock samples and their locations were plotted on the compilation maps and can also be found listed on table 3.

A listing of the final presentation product can be found in table 4.
8.2 Plan Maps Plate Index (Table 4)

The maps included all geophysical surveys with posted values, the prospecting finds, and regional data as part of the interpretation of the results. As mentioned above, drafted presentations of the results are in the form of contour maps (where applicable) and profiles/posted values with conductors indicated and labelled on compilation maps and figures. The rock samples, and the three assayed samples, locations are also included on the compilation maps 2 and 5, and tables 3 and 5.

**TABLE 4**

GRID 1, GRID 2-L294 & GRID 3-LO

- **Plate 1:** Grid 1 Magnetics Contours (crosslines only)
  Scale 1:1250

- **Plate 2:** Grid 1 Compilation Map
  Magnetics Profiles/Posted Values
  Crosslines and Baseline 100E
  Scale 1:1250

- **Plate 3:** Grid 1 VLF-EM Profiles - Crosslines & Baseline 100E
  (NSS Annapolis 21.4 kHz & NAA Cutler 24.0kHz,100E)
  Scale 1:1250

- **Plate 4:** Grid 2-L294 & Grid 3-LO Compilation Map
  Magnetics Profiles/Posted Values with Sample Locations, LO & L294
  Scale 1:1250

- **Plate 5:** Grid 1, Grid 2-L294 & Grid 3-LO Compilation Map
  Airborne Magnetics, Survey Grids and Sample Locations.
  Scale 1:2500.
9.0 DISCUSSION OF RESULTS

The exploration work performed on the claim 1185776 acquired a total of nine days of prospecting by Mr. Bortnick. The prospecting was concentrated on the southeast half of the Natal claims (claim block 1185773) where there is easy access to the claims. Regional airborne and geology maps (figures 3 and 4) were used to coordinate Mr. Bortnick's efforts. A detail section of the nature and content of the work and the observations made during the performance of the prospecting work is included in the introduction as part of the discussion (section 9.1).

9.1 Grid 1

Grid 1 (Circular Airborne Magnetic High M1): The baseline of the grid was oriented nominally at 155 deg. with station separation of 12.5m.

Geophysical Interpretation:

The N-NW survey line of grid 1 maps the airborne magnetic high M1 as a 1000 nT vertical magnetic high MG1-1 with two (2) larger magnetic highs (> 1500 nT) labelled MG1-1a, at grid centre striking NS and MG1-1b at the west end of the grid. Both of these magnetic highs are weak VLF conductors labelled V-1 and V-2 (see plate 2).

Magnetic high MG1-1 corresponds to the airborne magnetic high M1 with its south boundary interpreted at L0 and extending north beyond L75N. Possible extension beyond L75N is most likely but cannot be confirmed without further cross lines. The baseline shows the magnetic high extending beyond L75N but this magnetic high is on strike with MG1-1b and may be the result of the relatively narrow magnetic high MG1-1b.

MG1-1b is interpreted to extend north from L0 to inflection at L37N as indicated on the baseline. This inflection may be interpreted as a geological contact between the less magnetic mafic volcanics to the north and the more magnetic intermediate volcanics to the south. No outcrop was observed on the northern half of the line to confirm this but further mag cross lines is recommended as follow-up. The inflection of this magnetic high is interpreted at L37N and may be the contact between the intermediate volcanics and mafic volcanics, as indicated on the compilation map (plate 2).

Geological Interpretation:

Prospecting the south end of this line revealed a small NS striking carbonate alteration with minor quartz veining (sample description table 6), possibly sulphide bearing zone noted on the compilation map (plate 2). The zone is coincides with MG1-1a and V-1 at approximately 5m wide and 60m long from L50S station 137E to L25N station 140E. The detailed VLF and mag geophysical grid delineated the extent of this zone and other parallel magnetic and EM conductors striking NS (MG1-1b and V-2).
This NS trend contradicts the trend of the lithologic units within the property, as generally E-W to WNW-ESE, that make up the southern limb of a NW plunging syncline. NS faulting and/or secondary folding may explain this NS geophysical strike. This NS strike may be the result of secondary folding within the lithological units with the limbs striking NS. Layers within these limbs may contain sulfides. Secondary folding may explain the folding in the anomalies. The NS strike may also be the result of the faulting that is associated with a number of prominent NW trending faults that cut through the claims, notably the Jess Lake Fault.

All of the sixteen rock samples taken from grid 1 are classified as mafic to intermediate volcanics (Tables 3 & 6). Three of the samples taken along the magnetic and EM conductor displayed traces of pyrite. These three samples were assayed and revealed only background results (Table 5 and Appendix 2).

**TABLE 5**

*Geochemical Results GRID 1*

(Refer to Appendix 2 for Assay Certificate)

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Au oz/ton</th>
<th>Ag oz/ton</th>
<th>Cu %</th>
<th>Ni %</th>
<th>Pb %</th>
<th>Zn %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1</td>
<td>Nil</td>
<td>.01</td>
<td>.02</td>
<td>.005</td>
<td>.005</td>
<td>.01</td>
</tr>
<tr>
<td>1-2</td>
<td>Nil</td>
<td>.01</td>
<td>.02</td>
<td>.005</td>
<td>.005</td>
<td>.01</td>
</tr>
<tr>
<td>1-3</td>
<td>Nil</td>
<td>.01</td>
<td>.01</td>
<td>.005</td>
<td>.005</td>
<td>.01</td>
</tr>
</tbody>
</table>

**Grid 1 Recommendations:**

Further north and south extension of the grid to continue following magnetic and conductive features MG1-la & b and VI & V2. Quartz veining in samples 1-6 and 1-7 display some carbonate alteration that cut the known strike that may give significant IP/Resistivity responses. The spectral derived from the IP may give responses significant to variations in grain size favourable for gold.

**TABLE 6**

*GRID 1 SAMPLE DESCRIPTIONS*

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Grid No.</th>
<th>Co-ord.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1</td>
<td>00</td>
<td>143E</td>
<td>dark green, sheared mafic volcanic with some pyrite and possible Fuchsite</td>
</tr>
<tr>
<td>1-2</td>
<td>25S</td>
<td>140E</td>
<td>dark green, fresh, gabbro cont.</td>
</tr>
<tr>
<td>Sample No.</td>
<td>Grid Co-ord.</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>1-3</td>
<td>35S / 137E</td>
<td>dark green, sheared-breciated mafic volcanic with carbonatization and pyrite. The sample has limonite on surface.</td>
<td></td>
</tr>
<tr>
<td>1-4</td>
<td>25S / 140E</td>
<td>dark green, fresh, gabbro</td>
<td></td>
</tr>
<tr>
<td>1-5</td>
<td>25S / 140E</td>
<td>dark green, fresh, gabbro</td>
<td></td>
</tr>
<tr>
<td>1-6</td>
<td>75N / 126E</td>
<td>Mafic volcanic, dark grn basalt, fine grained. 2 to 3 mm bands of carbonate alteration with minor quartz. Some limonite on surface samples.</td>
<td></td>
</tr>
<tr>
<td>1-7</td>
<td>75N / 133E</td>
<td>As with sample 1-6 without carbonate.</td>
<td></td>
</tr>
<tr>
<td>1-8</td>
<td>75N / 138E</td>
<td>As with 2. Fresh sample Coarse grained mafic volcanic</td>
<td></td>
</tr>
<tr>
<td>1-9,10,11</td>
<td>75N / 60E to 65E</td>
<td>Fresh mafic, fine grained volcanic dark green basalt</td>
<td></td>
</tr>
<tr>
<td>1-12</td>
<td>50N / 50E</td>
<td>as with 1-9.</td>
<td></td>
</tr>
<tr>
<td>1-13</td>
<td>25N / 42E</td>
<td>Intermediate fine grained grey volcanic may be a tuff; some small quartz crystals</td>
<td></td>
</tr>
<tr>
<td>1-14</td>
<td>25N / 132E</td>
<td>as with 1-9</td>
<td></td>
</tr>
<tr>
<td>1-15</td>
<td>100S/140E</td>
<td>1.) very dark green sample with light green glassy mineral throughout the sample, possibly olivine. Some pyrite (very minor. The rock may be a komatiite. 2.) Some samples are mafic volcanics with carbonate. Some samples have small quartz crystals.</td>
<td></td>
</tr>
<tr>
<td>1-16</td>
<td>100S/137E</td>
<td>mafic volcanic, coarse grained some very minor pyrite. Sample may be a gabbro or coarse grained basalt.</td>
<td></td>
</tr>
</tbody>
</table>
9.2 Grid 2

Grid 2—L294 (Airborne mag. high follow-up M2): The line was oriented nominally at 294 deg. with station separation of 12.5m.

Interpretation:

The E–SE survey line of grid 2 maps the airborne magnetic high M2 as a 2000 nT vertical magnetic high MG2-1 with two (2) larger magnetic highs (> 3000 nT) (see plate 4). No VLF was surveyed on Grid 2.

Magnetic high MG2-1 may be the result of a known diabase dyke striking NNW situated between Natal Lake and West Montreal River. There was no outcrop along the line, to confirm this. The magnetic background west of MG2-1 is approximately 500 nT higher than to the east and may be the result of a change in rock type from mafics to intermediate volcanics. The two samples taken (see table 8), at the two known places of outcrop along line L294, are mafic volcanics. Sample 2-2 was taken along the edge of the outcrop on the side of mag high MG2-1 but does not explain the mag high.

Grid 2 Recommendations:

Further EW lines to the north and south to continue following magnetic high MG2-1 and confirm if the response is the result of a diabase dyke. VLF should also be done to find any and conductive features that may coincide with the magnetic anomalies, as with grid 1.

### TABLE 7

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Grid Co-ord.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1</td>
<td>294/498W</td>
<td>Mafic volcanic with small porphyry Some very fine quartz veins.</td>
</tr>
<tr>
<td>2-2</td>
<td>294/225W</td>
<td>Mafic volcanic; Some pink feldspar altn. Dark green, fine grained; Some quartz.</td>
</tr>
</tbody>
</table>
9.3 Grid 3

Grid 3-LO (Interpreted airborne trend follow-up): The line was oriented nominally at 245 deg. with station separation of 12.5m.

Interpretation:

The E-NE survey line of grid 3 maps the airborne magnetic high trend M3 as a 1000 nT vertical magnetic high MG3, with two (2) larger magnetic highs ( > 1900 nT ) MG3-1 and MG3-2 (see plate 4). No VLF was surveyed on Grid 3.

Magnetic high MG3 may be the result of a fault striking NNW and somewhat parallel to the Jess lake fault to the west. The magnetic background west of MG2-3 is approximately 600 nT higher than to the east and may be the result of a change in rock type from mafics to intermediate volcanics. The five samples taken (see table 9) along the survey line L0, are classified as mafic volcanics. Sample 3-1 contains minor pyrite that may explain the large magnetic response of MG3-1, greater than 2000 nT. MG3-2 averages approximately 1000 nT and may be the result of possible magnetic mineralization associated with shearing and minor carbonate alteration of sample 3-3. MG3-3 corresponds to a gabbro outcrop that gives an above background magnetic high.

Grid 3 Recommendations:

Further EW lines to the north and south to continue following the magnetic highs. VLF should also be done to find any and conductive features that may coincide with the magnetic anomalies, as with grid 1.

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Grid Co-ord.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-1</td>
<td>00/537E</td>
<td>Gabbro; Dark green, coarse grained; minor pyrite.</td>
</tr>
<tr>
<td>3-2</td>
<td>00/425E</td>
<td>Coarse grained; dark green matrix with coarse gr. feldspars</td>
</tr>
<tr>
<td>3-3</td>
<td>00/287E</td>
<td>Very dark green mafic volcanic sheared, minor carbonate alteration</td>
</tr>
<tr>
<td>3-4</td>
<td>00/46E</td>
<td>Fine grained gabbro</td>
</tr>
<tr>
<td>3-5</td>
<td>00/46E</td>
<td>Fine grained gabbro</td>
</tr>
</tbody>
</table>
A detailed listing of the geophysical survey coverage may be found in Tables 1 & 2, the position of the grids on the claims may be found on figure 2 and plate 5, and a detailed interpretation, correlating both the geophysical and geological data, of each grid, may be found in the discussion of results. Line grids L0 and L294 follow-up airborne magnetic high trends. Samples taken along these lines are classified as mafic to intermediate volcanics.

10.0 SUMMARY AND RECOMMENDATIONS

From July 18th to Sept 21th, 1992, a total of 41 days were spent prospecting/rock sampling, establishing a grid and conducting Vertical Magnetics Field and VLF-EM surveys on the Natal Lake Property, Shinning Tree area, by Steve Bortnick as part of his Ontario Prospectors Assistance Program.

The surveys yielded a total of 4,4 km coverage over grid 1 and lines L0 & L294, that follow up a suspected mineralized zones, and two survey lines that follow up airborne magnetic anomalies. Forty one days were spent prospecting, line cutting, and collecting geophysical data. A total of 4,4 line-kilometres were cut and surveyed and 23 samples were collected along the interpreted magnetic and VLF-EM trends and along other out crop of interest. Three samples containing small traces of pyrite and were assayed giving minor results.

The interpretation is based on the prospecting results taken in conjunction with the regional geophysical and geological data. Grid 1 delineated the airborne magnetic high with NS striking magnetic and EM conductors. Faulting and/or secondary folding may explain why this NS strike is perpendicular to the known geology. IP/Resistivity is recommended over the anomalies. The magnetic low of the N-NW baseline extension is interpreted as the contact between the mafic and intermediate volcanics. No outcrop was observed to confirm this. Line grids L0 and L294 follow-up airborne magnetic high trends and the samples are classified as mafic to intermediate volcanics.

Further prospecting to cover the NE of the claims is recommended. Further follow-up of the airborne magnetic trends with reconnaissance lines contributed to the evaluation of the sulphide bearing outcrop and should be continued. IP/Resistivity is also recommended on grid 1.

Drafted presentations of the results are in the form of contour maps (where applicable) and profiles/posted values with conductors indicated and labelled and compilation map and figures. The rock sample locations are included on all maps.
If there are any questions with regard to the survey or the reporting please do not hesitate to contact the undersigned.

Respectfully submitted,
on behalf of
Steve Bortnick,

[Signature]

Albert Vickers, B.Sc.
Geophysicist
APPENDIX 1

Instrument Specification Sheets
<table>
<thead>
<tr>
<th><strong>EM16 SPECIFICATIONS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MEASURED QUANTITY</strong></td>
</tr>
</tbody>
</table>
| **SENSITIVITY**          | In-phase : ±150%  
Quad-phase : ± 40% |
| **RESOLUTION**           | ±1% |
| **OUTPUT**               | Nulling by audio tone. In-phase indication from mechanical inclinometer and quad-phase from a graduated dial. |
| **OPERATING FREQUENCY**  | 15-25 kHz VLF Radio Band. Station selection done by means of plug-in units. |
| **OPERATOR CONTROLS**    | On/Off switch, battery test push button, station selector switch, audio volume control, quadrature dial, inclinometer. |
| **POWER SUPPLY**         | 6 disposable 'AA' cells. |
| **DIMENSIONS**           | 42 x 14 x 9cm |
| **WEIGHT**               | Instrument: 1.6 kg  
Shipping : 4.5 kg |
Function

The MF-2-100 is the latest in a successful line of portable analogue reading fluxgate magnetometers by Scintrex.

Hand-held measurements can be made with an accuracy of a few gammas while precision of one gamma is possible using a portable, lightweight tripod.

The internal sensor provides vertical component measurements for normal field surveys while a remote sensor is available as an accessory for horizontal or other component measurements, or for study of the magnetic properties of rocks.

Features

- Compact, internal sensor package permits rapid field surveys
- Rugged and lightweight for portable field use
- Self leveling and orientation insensitive sensor measures vertical component of magnetic field
- High sensitivity in all field strengths
- Low power requirements permit long life of standard dry cell or optional rechargeable batteries
- Will measure accurately anywhere, even in the presence of steep magnetic gradients

Direct analogue readout can be recorded on any analogue recorder for base station use

Can be used for measurements of magnetic susceptibility and remanence by bringing samples near to sensor

State-of-the-art solid state circuitry ensures very low temperature drift

Easily operated in low magnetic fields such as near the equator

Rugged, all metal case for long life

Over 200,000 gamma range

Proven high standard of reliability
APPENDIX 2

Geochemical Assay Results
Certificate of Assay
**Technical Description of the MF-2-100 Portable Fluxgate Magnetometer**

<table>
<thead>
<tr>
<th>Technical Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Meter Ranges</strong></td>
<td>From 100 gammas to 100,000 gammas full scale in seven switch selectable steps, reversible in polarity</td>
</tr>
<tr>
<td><strong>Measuring Range</strong></td>
<td>-100,000 to +100,000 gammas relative to a given zero field level</td>
</tr>
<tr>
<td><strong>Latitude Bucking</strong></td>
<td>Range is 100,000 gammas in 9 steps of 10,000 gammas plus fine control of 0 to 10,000 gammas by ten turn potentiometer. Northern Hemisphere -20,000 to +80,000 gammas absolute. Southern Hemisphere -20,000 to +80,000 gammas absolute.</td>
</tr>
<tr>
<td><strong>Operating Temperature Range</strong></td>
<td>-40° to +50°C</td>
</tr>
<tr>
<td><strong>Resolution</strong></td>
<td>±0.5% of full scale on all meter ranges</td>
</tr>
<tr>
<td><strong>Perming</strong></td>
<td>Less than 1 gamma/oersted</td>
</tr>
<tr>
<td><strong>Noise Level</strong></td>
<td>Less than 1 gamma peak to peak from DC to 3 Hz</td>
</tr>
<tr>
<td><strong>Temperature Coefficient</strong></td>
<td>Less than 1 gamma/°C</td>
</tr>
<tr>
<td><strong>Electrical Response</strong></td>
<td>3 dB down from DC to 3 Hz on most sensitive range</td>
</tr>
<tr>
<td><strong>Recording Output</strong></td>
<td>For high impedance recorder. 100 mV for full scale meter deflection.</td>
</tr>
<tr>
<td><strong>Batteries</strong></td>
<td>Standard: Remote battery pack containing 16 &quot;C&quot; cells and with a 1 meter cable, designed to be carried on a belt. Optional: Internal rechargeable batteries. Three 6 volt, lamp-hour Centralab GC 6101 sealed lead acid cells. 8 hour recharge time.</td>
</tr>
<tr>
<td><strong>Battery Test</strong></td>
<td>Readable on meter</td>
</tr>
<tr>
<td><strong>Battery Charger</strong></td>
<td>110V to 220V AC, 50/60 Hz or 24 to 28V DC supply. Automatic charge rate and cutoff preset for Centralab GC 6101 batteries.</td>
</tr>
<tr>
<td><strong>Power Consumption</strong></td>
<td>60 milliamperes. GC 6101 batteries rated for 16 hours continuous use. 30 hours of operation with Leclanche type C cells.</td>
</tr>
<tr>
<td><strong>Tripod</strong></td>
<td>Aluminum. Single shaft with 3 collapsible legs and swivel head which screws easily into base of magnetometer</td>
</tr>
<tr>
<td><strong>Optional Remote Sensor</strong></td>
<td>Sensor assembly is installed in a small tube on an 8 meter cable. Internal sensor is automatically eliminated when remote sensor is connected to console</td>
</tr>
<tr>
<td><strong>Weights &amp; Dimensions</strong></td>
<td>Standard console 1.7 kg 160 x 70 x 255 mm  Standard battery pack 1.2 kg 36 x 140 x 259 mm  Console with rechargeable batteries 2.5 kg 160 x 70 x 255 mm  Battery charger 1.1 kg 155 x 65 x 65 mm  Tripod 1.9 kg, approx. 1 m high</td>
</tr>
<tr>
<td><strong>Standard Accessories</strong></td>
<td>Battery pack and cable, batteries, carrying case, carrying strap, manual</td>
</tr>
<tr>
<td><strong>Shipping Weight</strong></td>
<td>Approximately 9.5 kg</td>
</tr>
</tbody>
</table>
APPENDIX 2

Geochemical Assay Results
Certificate of Assay
Company: J.S. BORTNICK
Project: Copy 1. 44 BAYLOR CRES, GEORGETOWN
Attn: 2. HOLD RESULTS

We hereby certify the following Assay of 3 ROCK samples submitted AUG-21-92 by.

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Au oz/ton</th>
<th>Ag oz/ton</th>
<th>Cu %</th>
<th>Ni %</th>
<th>Pb %</th>
<th>Zn %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1</td>
<td>Ni1</td>
<td>0.01</td>
<td>0.02</td>
<td>0.005</td>
<td>0.005</td>
<td>0.01</td>
</tr>
<tr>
<td>1-2</td>
<td>Ni1</td>
<td>0.01</td>
<td>0.02</td>
<td>0.005</td>
<td>0.005</td>
<td>0.01</td>
</tr>
<tr>
<td>1-3</td>
<td>Ni1</td>
<td>0.01</td>
<td>0.01</td>
<td>0.005</td>
<td>0.005</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Certified by [Signature]

P.O. Box 10, Swastika, Ontario P0K 1T0
Telephone (705) 642-3244 FAX (705) 642-3300
APPENDIX 3

Daily Log / Job Production Report
<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Activity Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 18</td>
<td>Day 1</td>
<td>Mobilized Toronto to Gowganda.</td>
</tr>
<tr>
<td>July 19</td>
<td>Day 2</td>
<td>On to the project area looked for a campsite. Settled on a spot at the S.E. corner of Barite Lake. Got the floor down and tent up by dark.</td>
</tr>
<tr>
<td>July 20</td>
<td>Day 3</td>
<td>Completed the installation; beds, stove, tables and the fly on, and tied down.</td>
</tr>
<tr>
<td>July 21</td>
<td>Day 4</td>
<td>Service trip for food and fuel.</td>
</tr>
<tr>
<td>July 22</td>
<td>Day 5</td>
<td>Scouted the local logging roads, trails and portages.</td>
</tr>
<tr>
<td>July 23</td>
<td>Day 6</td>
<td>Cut a canoe portage to the Montreal River from the end of road that stops just N. of Barite Lake. Some 350 m.</td>
</tr>
<tr>
<td>July 24</td>
<td>Day 7</td>
<td>Widened the portage a bit and cut around the bees nests, then cleaned out some dead fall on the Elbow Rapids portage.</td>
</tr>
<tr>
<td>July 25</td>
<td>Day 8</td>
<td>Prospecting the cut over area west of Barite Lake and south to the swamp on claim block #1185773.</td>
</tr>
<tr>
<td>July 26</td>
<td>Day 9</td>
<td>Rain, no dry wood near the camp. Had to locate and cut some dry wood and dry out some of my gear. Did some camp chores.</td>
</tr>
</tbody>
</table>
July 28  Day 11  Prospecting lower end of claim block 1185776 and over to the Montreal River to the west.

July 29  Day 12  Prospecting. Water very low, waded across at the Elbow Rapids south along the shore and west along the claim line.

July 30  Day 13  Service trip food and fuel.

July 31  Day 14  Repairing roof leaks on trailer.

Aug. 1   Day 15  Reconnaissance mag and Line cutting. Set Line 100 East at river to cross mag low and high between Barite Lake and river. Cut some 300 meters, 4 p.m. rain.

Aug. 2   Day 16  Line cutting. Cut some 500m to complete Line 100 East.

Aug. 3   Day 17  Did some reccy to locate centre of mag high to turn off the Base Line O, cut some 350 meters.

Aug. 4   Day 18  Chained L100 East for 800m and Base Line 0 for 350m. Turned off Line 50 North and cut some 150m.

Aug. 5   Day 19  Read VLF on Line 100 East and on Base Line 0 for some 1150m. Some of the data looks odd so I reread a portion of each line, instrument repeated very well so data is legitimate.

Aug. 6   Day 20  Cut rest of Line 50 North and cut Line 50 South for some 400 m.

Aug. 7   Day 21  Chained both Lines 50 North and 50 South to 12.5m spacing and read them with VLF......
<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Activity Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug. 8</td>
<td>Day 22</td>
<td>Rain showers. Did some sampling on the grid. There is a small draw some 25 to 50m east of Line 100 East cutting across the grid lines. Some fine grained pyrite along the eastern edge of the draw.</td>
</tr>
<tr>
<td>Aug. 9</td>
<td>Day 23</td>
<td>Read mag on 50 North, 50 South and 300m on Line 100 East. Mag drifted by over 400 gammas, so I cut Line. Turned off and cut Line 75 North for some 300m.</td>
</tr>
<tr>
<td>Aug. 10</td>
<td>Day 24</td>
<td>Read mag on 100 East 50 North and 50 South for 1750m @ 12.5m + some 6.25m fill-in. Slow going with a Fluxgate Mag.</td>
</tr>
<tr>
<td>Aug. 11</td>
<td>Day 25</td>
<td>Line cutting. Turned off Line 25 North and 25 South. Cut some 600m no chaining.</td>
</tr>
<tr>
<td>Aug. 12</td>
<td></td>
<td>(Inclusive) on another project.</td>
</tr>
<tr>
<td>Aug. 27</td>
<td>Day 26</td>
<td>Reinstalled in camp. Chained lines 75 North, 25 North and 25 South for 975m.</td>
</tr>
<tr>
<td>Aug. 28</td>
<td>Day 27</td>
<td>Line cutting lines 75 South and 100 South for 500m.</td>
</tr>
<tr>
<td>Aug. 29</td>
<td>Day 28</td>
<td>Chained Line 75 South and 100 South and read mag on 75 North, 25 North, 25 South, 75 South and 100 South for 1475m.</td>
</tr>
<tr>
<td>Aug. 30</td>
<td>Day 29</td>
<td>Did some sampling of various parts of the grid mostly in the vicinity of the VLF on the cross lines.</td>
</tr>
<tr>
<td>Aug. 31</td>
<td>Day 30</td>
<td>Service trip food and fuel. Picked up the assay results. Very poor.</td>
</tr>
</tbody>
</table>
Sept. 1 to 10 (Inclusive) on another project.

Sept. 11 Day 31 Line cutting. Line 0 West of Elbow Rapids. Cut some 500m.

Sept. 12 Day 32 Completed line 0 chained it for 692m. Turned off Base Line and cut some 300m.

Sept. 13 Day 33 Completed Base Line out to Natal Lake some 600m.

Sept. 14 Day 34 Chained Base Line for 897m. at Natal Lake then read the mag on Line 0 for 700m.

Sept. 15 Day 35 Rain. Tried cutting Line 294 but too wet to be cutting alone. Cut 100m.

Sept. 16 Day 36 Some light showers. Cut rest of Line 294 and chained it for 498m.

Sept. 17 Day 37 Read mag on Line 294 and did some sampling.


Sept. 19 Day 39 Back to same area. Did a loop to the west over to the portage and back and a small loop north of the Line. There is nothing of interest so its time to pack it in.

Sept. 20 Day 40 Portaged the canoe and motor back to camp. Picked up rest of samples on grid 1 and started packing.

Sept. 21 Day 41 De mob, took down camp, loaded gear and left just as the rain started.
APPENDIX 4

Sample Descriptions
### Sample Descriptions

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Grid No.</th>
<th>Grid Co-ord.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1</td>
<td>1</td>
<td>00 / 143E</td>
<td>dark green, sheared mafic volcanic with some pyrite and possible Fuchsite</td>
</tr>
<tr>
<td>1-2</td>
<td>1</td>
<td>25S / 140E</td>
<td>dark green, fresh, gabbro</td>
</tr>
<tr>
<td>1-3</td>
<td>1</td>
<td>35S / 137E</td>
<td>dark green, sheared- brecciated mafic volcanic with carbonatization and pyrite. The sample has limonite on surface.</td>
</tr>
<tr>
<td>1-4</td>
<td>1</td>
<td>25S / 140E</td>
<td>dark green, fresh, gabbro</td>
</tr>
<tr>
<td>1-5</td>
<td>1</td>
<td>25S / 140E</td>
<td>dark green, fresh, gabbro</td>
</tr>
<tr>
<td>1-6</td>
<td>1</td>
<td>75N / 126E</td>
<td>Mafic volcanic, dark grn basalt, fine grained. 2 to 3 mm bands of carbonate alteration with minor quartz. Some limonite on surface samples.</td>
</tr>
<tr>
<td>1-7</td>
<td>1</td>
<td>75N / 133E</td>
<td>As with sample 1 without carbonate.</td>
</tr>
<tr>
<td>1-8</td>
<td>1</td>
<td>75N / 138E</td>
<td>As with 2. Fresh sample Coarse grained mafic volcanic</td>
</tr>
<tr>
<td>1-9,10,11</td>
<td>1</td>
<td>75N / 60E</td>
<td>Fresh mafic, fine grained volcanic to 65E. dark green basalt</td>
</tr>
<tr>
<td>1-12</td>
<td>1</td>
<td>50N / 50E</td>
<td>as with 1-9.</td>
</tr>
<tr>
<td>1-13</td>
<td>1</td>
<td>25N / 42E</td>
<td>Intermediate fine grained grey volcanic may be a tuff; some small quartz crystals</td>
</tr>
<tr>
<td>1-14</td>
<td>1</td>
<td>25N / 132E</td>
<td>as with 1-9</td>
</tr>
<tr>
<td>1-15</td>
<td>1</td>
<td>100S/140E</td>
<td>1.) very dark green sample with light green glassy mineral throughout the sample, possibly olivine. Some pyrite (very minor. The rock may be a komatiite.</td>
</tr>
</tbody>
</table>
2. Some samples are mafic volcanics with carbonate. Some samples have small quartz crystals.

### SAMPLE DESCRIPTIONS

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Grid No.</th>
<th>Grid Co-ord.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-16</td>
<td>1</td>
<td>100S/137E</td>
<td>mafic volcanic, coarse grained; some minor pyrite. Sample may be a gabbro or coarse grained basalt.</td>
</tr>
<tr>
<td>2-1</td>
<td>2</td>
<td>294/498W</td>
<td>Mafic volcanic with small porphyry veins. Some very fine quartz veins.</td>
</tr>
<tr>
<td>2-2</td>
<td>2</td>
<td>294/225W</td>
<td>Mafic volcanic; some pink feldspar alternate. Dark green, fine grained; Some quartz.</td>
</tr>
<tr>
<td>3-1</td>
<td>3</td>
<td>00/537E</td>
<td>Gabbro; Dark green, coarse grained; very minor pyrite.</td>
</tr>
<tr>
<td>3-2</td>
<td>3</td>
<td>00/425E</td>
<td>Coarse grained; dark green matrix with coarse gr. feldspars</td>
</tr>
<tr>
<td>3-3</td>
<td>3</td>
<td>00/287E</td>
<td>Very dark green mafic volcanic sheared, minor carbonate alteration</td>
</tr>
<tr>
<td>3-4</td>
<td>3</td>
<td>00/46E</td>
<td>Fine grained gabbro</td>
</tr>
<tr>
<td>3-5</td>
<td>3</td>
<td>00/46E</td>
<td>Fine grained gabbro</td>
</tr>
</tbody>
</table>
APPENDIX 5

References
REFERENCES

Carter, M. W.
1977: Geology of MacMurchy and Tyrrell Townships, districts of Sudbury and Temiskaming; Ontario Division of Mines, Geoscience Report 152, 69 pages, accompanied by Map 2365, Scale 1 inch to 12 mile.

Carter, M. W.
Geology of Natal and Knight, districts of Sudbury and Temiskaming; Ontario Division of Mines, Geoscience Report 225, accompanied by Map 2465, Scale 1 inch to 12 mile.

Carter, M. W.

Northern Miner Press
February 7, 1994: KRL-SEG venture hits gold on Decker, p. 3.

ODM - GSC
1970: Shining Tree Sheet, Sudbury and Temiskaming Districts, Ontario; Aeromagnetic Series Map 285 G (Revised), Scale 1 inch to 1 mile.

O.G.S.
1990: Ontario geological Survey 1990; Airbourne Electromagnetic and Total Intensity Magnetic Survey; Shining Tree Area; Ontario Geological Survey, Maps 81420, 81421, 81427, and 81428, scale 1:20 000.

O.G.S. - Gupta, V.K.

Scintrex - Webster, B. & Johnson, I. M.
GRID 1, GRID 2-L294 & GRID 3-LO

Plate 1: Grid 1 Magnetics Contours
(crosslines only)
Scale 1:1250

Plate 2: Grid 1 Compilation Map
Magnetics Profiles/Posted Values
Crosslines and Baseline 100E
Scale 1:1250

Plate 3: Grid 1 VLF-EM Profiles
Crosslines & Baseline 100E
(NSS Annapolis 21.4 kHz & NAA
Cutler 24.0kHz, 100E)
Scale 1:1250

Plate 4: Grid 2-L294 & Grid 3-LO
Compilation Map
Magnetics Profiles/Posted Values
with Sample
Locations, LO & L294
Scale 1:1250

Plate 5: Grid 1, Grid 2-L294 & Grid 3-LO
Compilation Map
Airborne Magnetics, Survet Grids and
Sample Locations.
Scale 1:2500.
Dear Sir/Madam:

Subject: APPROVAL OF ASSESSMENT WORK CREDITS ON MINING CLAIM
L.1185776 IN NATAL TOWNSHIP

The deficiencies in the original submission have been rectified.

The assessment work credits have been approved under Section 18(9), DATA, of the Mining Act Regulations. Because groceries and fuel fall under the food and lodging and transportation categories they are indirect costs. The file has been approved at a dollar value of $9,602.00 (8002 \times 1200).

Refer to the attached Assessment Work Credit Form for credit distribution.

The approval date is March 23, 1994.

.../2
March 23, 1994
Mining Recorder

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

Yours sincerely,

Ron C. Gashinski
Senior Manager, Mining Lands Section
Mining and Land Management Branch
Mines and Minerals Division

cc: Resident Geologist
Cobalt, Ontario

Assessment Files Library
Toronto, Ontario
# ASSESSMENT WORK CREDIT FORM

**FILE NUMBER:** 2.15216  
**DATE:** March 23, 1994  
**RECORDER'S REPORT NUMBER:** W9380.00287

**RECORDED HOLDER:** Ray Garvey  
**CLIENT NUMBER:** 135126  
**TOWNSHIP:** NATAL TOWNSHIP

<table>
<thead>
<tr>
<th>CLAIM</th>
<th>VALUE OF WORK DONE ON THIS CLAIM</th>
<th>VALUE APPLIED TO THIS CLAIM</th>
<th>VALUE ASSIGNED FROM THIS CLAIM</th>
</tr>
</thead>
<tbody>
<tr>
<td>L.1185776</td>
<td>9602</td>
<td>9602</td>
<td>9602</td>
</tr>
<tr>
<td></td>
<td>9602</td>
<td>9602</td>
<td>9602</td>
</tr>
</tbody>
</table>
Report of Work Conducted
After Recording Claim
Mining Act

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used for correspondence. Questions about this collection should be directed to the Provincial Manager, Mining Lands, Ministry of Northern Development and Mines, Fourth Floor, 189 Cedar Street, Sudbury, Ontario, P3E 6A5, telephone (705) 675-7254.

Instructions:
- Please type or print and submit in duplicate.
- Refer to the Mining Act and Regulations for requirements of filing assessment work or consult the Mining Recorder.
- A separate copy of this form must be completed for each Work Group.
- Technical reports and maps must accompany this form in duplicate.
- A sketch, showing the claims the work is assigned to, must accompany this form.

<table>
<thead>
<tr>
<th>Recorded Holder(n)</th>
<th>Client No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAY GARVEY</td>
<td>135126</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Address</th>
<th>Telephone No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-16 THE LINKS RD, WILLOWDALE, ONT.</td>
<td>(416) 223-2052</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mining Division</th>
<th>Township/Plt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LADDER LAKE</td>
<td>NATAL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>M.O. Plan No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M885</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dates Work Performed</th>
</tr>
</thead>
<tbody>
<tr>
<td>From: JULY 18TH '92</td>
</tr>
<tr>
<td>To: SEPT 21ST '92</td>
</tr>
</tbody>
</table>

Total Assessment Work Claimed on the Attached Statement of Costs
$12,205.00

Note: The Minister may reject or deny assessment work credit all or part of the assessment work submitted if the recorded holder cannot verify expenditures claimed in the statement of costs within 30 days of a request for verification.

Persons and Survey Company Who Performed the Work (Give Name and Address of Author of Report)

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEVE BORNTWICK</td>
<td>60 WEST WILLOWSTREET, THORNILL, ONT.</td>
</tr>
<tr>
<td>ALBERT VICKERS</td>
<td>94 CASTLEGARDEN PL, OTTAWA, ONT.</td>
</tr>
</tbody>
</table>

Certification of Beneficial Interest * See Note No. 1 on reverse side

I certify that at the time the work was performed, the claim covered in this work report were recorded in the current holder's name or held under a beneficial interest by the current recorded holder.

Certification of Work Report

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

For Office Use Only

<table>
<thead>
<tr>
<th>Total Value Cr. Recorded</th>
<th>Date Recorded</th>
</tr>
</thead>
<tbody>
<tr>
<td>$12,205</td>
<td></td>
</tr>
<tr>
<td>Deemed Approval Date</td>
<td></td>
</tr>
<tr>
<td>Date Approved</td>
<td></td>
</tr>
<tr>
<td>Date Notice for Amendments Sent</td>
<td></td>
</tr>
</tbody>
</table>
Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to prioritize the deletion of credits. Please mark (*) one of the following:

1. Credits are to be cut back starting with the claim listed last, working backwards.
2. Credits are to be cut back equally over all claims contained in this report of work.
3. Credits are to be cut back as prioritized on the attached appendix.

In the event that you have not specified your choice of priority, option one will be implemented.

Note 1: Examples of beneficial interest are unrecorded transfers, option agreements, memorandum of agreements, etc., with respect to the mining claims.

Note 2: If work has been performed on patented or leased land, please complete the following:

<table>
<thead>
<tr>
<th>Year</th>
<th>Work Done</th>
<th>Work Earned</th>
<th>Total Work Earned</th>
<th>Total Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>19205-00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19205-00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I certify that the recorded holder had a beneficial interest in the patented land at the time the work was performed.

Signature: [Signature]

Date: Nov 9, 1987
### Direct Costs/Coûts directs

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Amount</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wages</td>
<td>Labour</td>
<td>$38,000</td>
<td>6,650.0</td>
</tr>
<tr>
<td></td>
<td>Field Supervision</td>
<td>$1,750.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Direct Costs</td>
<td>$10,750.0</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The recorded holder will be required to verify expenditures claimed in the statement of costs within 30 days of a request for verification. If verification is not made, the Minister may reject for assessment work all or part of the assessment work submitted.

### Indirect Costs/Coûts indirects

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Amount</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Transportation</td>
<td>$1,750.0</td>
<td>750.00</td>
</tr>
<tr>
<td></td>
<td>Food and Lodging</td>
<td>$600.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Indirect Costs</td>
<td>$3,099.50</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** When claiming Rehabilitation work Indirect costs are not allowable as assessment work.

### Remises pour dépôt

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

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

   \[
   \text{Valeur totale du crédit d'évaluation} \times 0.50 = \text{Remise dûe}
   \]

### Attestation de l'état des coûts

J'atteste par la présente :

- que les montants indiqués sont le plus exact possible et que ces dépenses ont été engagées pour effectuer les travaux d'évaluation sur les terrains indiqués dans la formule de rapport de travail ci-joint.

- qu'à titre de , je suis autorisé (titulaire et/ou représentant, posté dans la compagnie)

À faire cette attestation:

**Signature**

(Date)

---

**Statement of Costs for Assessment Credit**

États des coûts aux fins du crédit d'évaluation

Mining Act/Loi sur les mines


NOTES

400 Surface rights reservation along the shores of all lakes and rivers.

(2) a) Township closed to staking effective May 27, 1978. Section 36(1) of the Mining Act.

b) Surface and Mining Rights on all Crown Land in this Township relinquished, staking only, subject to existing Section 36(1) of the Mining Act. Order WRO 77/78 effective October 21, 1982 at 11:00 pm.

c) Part of year WRO 99/78 RE-OPENED by order 99-01-10 effective April 9, 1999 at 11:00 am E.D.T.

(3) Surface and Mining Rights relinquished from staking section 91 of the Mining Act effective June 23, 1982. Order WRO 46-72 effective on April 3, 1999 at 11:00 am E.D.T.

THE INFORMATION THAT APPEARS ON THIS MAP IS NOT INTENDED TO BE COMPLETE OR ACCURATE, FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING ACT AND REGULATIONS OF THE NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREIN.

NATIONAL PARK

TOWNSHIP

DISTRICT

SUDBURY

MINING DIVISION

LARDER LAKE

MINISTRY OF NATURAL RESOURCES

Surveys and Mapping Branch

DATE OF ISSUE

ARCHIVED ON MARCH 25,92

COPY OF THIS M-PLAN

M.885

DRAFT PLANS

DEPARTMENT OF FOREST AND MINERAL DEVELOPMENT

1-9250f

ONTARIO

STATE OF THE PARTIES TO THE ACTION.
STEVE BORTNICK PROJECT
NATAL LAKE PROPERTY
SHINNING TREE AREA, ONTARIO

MAGNETIC CONTOURS
CONTOUR INTERVALS: 100, 1000 & 2500 nT
BASE LEVEL: 0 nT
SCINTREX MAG FLUXGATE 100

SCALE 1:1250

SUREY BY
J.S. BORTNICK CO. LTD.
SEPTEMBER, 1992

GRID 1
PLATE 1
Magnetic Low
(Mafic Volcanics)

Magnetic High
(Intermediate Volcanics)

Magnetic contact

LEGEND

Very weak VLF-EM
Weak VLF-EM
Strong VLF-EM
EM conductor
Weak high
Weak very high

Note: Samples 1-1, 1-2, 1-3 were assayed.

Interpreted Sulphide zone
UJZ

O

UJ

CO

m

O

o

L. 100 E

.. 100 E

550 N

SOON

450 N

Quadrature

LEGEND

In Phase

Quadrature

Note: VLF station MSS Annapolis, 21 kHz - L.100 E

VLF station NAA Cutler, 24 kHz - L.100 E

SCALE 1:1250

SURVEY BY STEVE BORTNICK CO. LTD. AUGUST, 1992