MAGNETOMETER AND ELECTROMAGNETIC SURVEYS ON THE BERRY, HIGHWAY AND GOODIE CREEK GROUPS

PREPARED FOR

NAHANNI MINES LIMITED

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Toronto, Canada
October 14, 1983

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2.6093
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104 ELECTROMAGNETIC SURVEY 1777 Hz

GOODIE CREEK GROUP

201 MAGNETOMETER SURVEY
202 VLF-EM 16 SURVEY
203 ELECTROMAGNETIC SURVEY 444 Hz
204 ELECTROMAGNETIC SURVEY 1777 Hz

BERRY GROUP

301 MAGNETOMETER SURVEY
302 VLF-EM 16 SURVEY
303 ELECTROMAGNETIC SURVEY 444 Hz
304 ELECTROMAGNETIC SURVEY 1777 Hz
Magnetometer and electromagnetic surveys were carried out on behalf of Nahanni Mines Limited by Derry, Michener, Booth & Wahl (DMBW) on three claim groups in the Sioux Lookout area, designated as the Berry Group, Highway Group and Goodie Creek Group, during the period from August 25 through September 3, 1983, inclusive.

Table 1, on the following page, summarizes the results of the geophysical surveys.

It is recommended that the conductors listed in Table 2, Page (iii), be tested by diamond drilling.

Respectfully submitted,

DERRY, MICHENER, BOOTH & WAHL

D. G. Wahl, P.Eng.
Consulting Engineer

Toronto, Canada
October 14, 1983
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MAGNETOMETER AND ELECTROMAGNETIC SURVEYS

<table>
<thead>
<tr>
<th>Group</th>
<th>Conductor</th>
<th>Strike</th>
<th>Dip</th>
<th>Length</th>
<th>Width</th>
<th>Depth</th>
<th>Conductivity</th>
<th>Mag. Assoc.</th>
<th>Inferred Causative Body</th>
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<tr>
<td>Berry</td>
<td>BC-1</td>
<td>Easterly</td>
<td>near vertical</td>
<td>1.2 km</td>
<td>variable</td>
<td>up to 12 m</td>
<td>900 mhos @ 444 Hz</td>
<td>direct up to 5800 nT</td>
<td>Sulphides (pyrrhotite) Volcanoclastic metasediment Lapilli tuff</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>to 18 m</td>
<td>224 mhos @ 1777 Hz</td>
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<td></td>
</tr>
<tr>
<td>Highway</td>
<td>HG-1</td>
<td>Easterly</td>
<td>near vertical</td>
<td>300 m</td>
<td>variable</td>
<td>up to 27 m</td>
<td>90 mhos @ 444 Hz</td>
<td>flanks weak mag</td>
<td>Sulphides, graphite ? Clastic metasediment</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>to 30 m</td>
<td>74 mhos @ 1777 Hz</td>
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<td></td>
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<tr>
<td></td>
<td>HG-2A &amp; 2B</td>
<td>Easterly</td>
<td>near vertical</td>
<td>700 m</td>
<td>variable</td>
<td>up to 15 m</td>
<td>150 mhos @ 444 Hz</td>
<td>direct up to 1600 nT</td>
<td>Sulphides (pyrrhotite) Clastic metasediment</td>
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<td></td>
<td></td>
<td></td>
<td>to 24 m</td>
<td>25 mhos @ 1777 Hz</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goodie Creek</td>
<td>GCG-1</td>
<td>Easterly</td>
<td>near horizontal</td>
<td>400 m</td>
<td>narrow</td>
<td>indeterminate</td>
<td>low</td>
<td>no mag assoc.</td>
<td>overburden</td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td>GCG-2</td>
<td>Easterly</td>
<td>near vertical</td>
<td>700 m</td>
<td>20 m</td>
<td>variable</td>
<td>150 mhos @ 444 Hz</td>
<td>flanking mag assoc.</td>
<td>Sulphide facies Iron formation</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>to 10 m</td>
<td>to 27 m</td>
<td>17 mhos @ 1777 Hz</td>
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### Table 2

**PROPOSED DIAMOND DRILL HOLES**

<table>
<thead>
<tr>
<th>Group</th>
<th>Conductor</th>
<th>Drill Hole</th>
<th>Line</th>
<th>Station</th>
<th>Azimuth</th>
<th>Dip</th>
<th>Length</th>
<th>Overburden</th>
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<tbody>
<tr>
<td>Berry</td>
<td>BG-1</td>
<td>No. 1</td>
<td>1+00W</td>
<td>1+00N</td>
<td>Southeast along line</td>
<td>-60°</td>
<td>125 m</td>
<td>≈ 10 m</td>
</tr>
<tr>
<td>Highway</td>
<td>HG-1</td>
<td>No. 2</td>
<td>3+00W</td>
<td>3+35S</td>
<td>South along line</td>
<td>-60°</td>
<td>150 m</td>
<td>25 - 30 m</td>
</tr>
<tr>
<td></td>
<td>HG-2a &amp; 2b</td>
<td>No. 3</td>
<td>1+00W</td>
<td>0+50S</td>
<td>South along line</td>
<td>-60°</td>
<td>150 m</td>
<td>≈ 25 m</td>
</tr>
<tr>
<td>Goodie Creek</td>
<td>GCG-2</td>
<td>No. 4</td>
<td>3+00W</td>
<td>1+00N</td>
<td>South along line</td>
<td>-60°</td>
<td>150 m</td>
<td>18 - 27 m</td>
</tr>
</tbody>
</table>
1.0 INTRODUCTION

The following report details the results of the magnetometer and electromagnetic surveys carried out on behalf of Nahanni Mines Limited by Derry, Michener, Booth & Wahl (DMBW) on three claim blocks designated as the Berry Group, Highway Group and the Goodie Creek Group (Figure 1).

The magnetometer survey was carried out using a Scintrex MP-2 total field proton precession magnetometer. The total magnetic field intensity data was recorded at 25 m stations at an observed elevation of 2 m above ground level, with a sensitivity of ±1 nT. Diurnal fluctuations were monitored and all data was adjusted accordingly. The magnetic data is presented as corrected station values, above the local background of 59,000 nT, and as a contoured interpretation of these data.

The electromagnetic surveys were carried out using a Geonics, VLF, EM-16 and a Maxmin II horizontal loop survey unit in the maximum coupled mode. The VLF in-phase and quadrature response parameters were recorded with an accuracy of ±1%, at 25 m stations. The transmitting station used during the survey is located in Cutler, Maine and broadcasts at an assigned frequency of 17.8 Hz. All data was plotted as line profiles at a vertical scale of 1 cm to 10%. The in-phase and quadrature response parameters for the Maxmin II were recorded with an accuracy of ±1%, at 25 m stations on two frequencies 444 Hz and 1777 Hz, utilizing a 100 m Tx-Rx coil separation. All data was corrected for topography and plotted as line profiles at a vertical scale of 1 cm to 10%.
2.0 BERRY GROUP

2.1 INTRODUCTION

The Berry claim group is situated in the Whipper Lake area, Patricia Mining Division, District of Kenora and consists of the following twelve unpatented, contiguous mining claims (Figure 2).

Pa-590158*  Pa-590162*  Pa-590166
Pa-590159*  Pa-590163*  Pa-705961*
Pa-590160  Pa-590164*  Pa-705962*
Pa-590161*  Pa-590165  Pa-705963*

The recently completed ground geophysical surveys, however, only covered nine of the aforementioned claims so designated with an asterisk.

The property is readily accessible by car southwest from Sioux Lookout via Highway 72 to Highway 664, which is then followed westerly past the CNR station at Hudson, to a point approximately 3 km northeast of Goodie Lake, at which point the road crosses the southeast corner of the property on claim Pa-590160.
2.2 LINE CUTTING

The line cutting was carried out by Ken Bernier of Sioux Lookout during the period from August 15th through August 19th, 1983, inclusive. The survey grid, consisting of 9.675 km of line, was oriented such that the baseline trends S70°W with grid lines trending N20°W at 100 m intervals along the baseline. Twenty-five metre stations were established on all lines.

2.3 GEOPHYSICAL SURVEYS

The ground geophysical surveys were carried out during the period from August 25th through August 27th, inclusive, under the direct supervision of R.E. Routledge, M.Sc.

2.3.1 Magnetometer Survey

The magnetometer survey (Ref. Map 301) was able to further define the regional magnetic trends mapped on the property by the Geological Survey of Canada and published in Geophysical Paper 1147G.

The results of the magnetometer survey indicate the property to be underlain by a metavolcanic-metasedimentary sequence, which has been intruded by a younger granite.
The metavolcanic unit has been magnetically inferred to underlie the southern one-third and northeastern one-quarter of the survey area and is characterized by broad, uniform regions of moderate magnetic relief, up to 3,000 nT above local background. This unit has been interpreted to be an easterly striking, near-vertically dipping intermediate to mafic flow.

The metasedimentary unit has been magnetically inferred to underlie the central portion of the survey area and is characterized by a narrow lenticular magnetic anomaly up to 5,800 nT above local background. This unit has been interpreted to be either an easterly striking, near vertical dipping clastic sediment or a lean iron formation.

The remaining northwestern one-quarter of the survey area has been magnetically inferred to be underlain by a granitic intrusive and is characterized by a broad region of low uniform magnetic relief in the range of 300 to 800 nT above local background.

2.3.2 Geonics VLF Electromagnetic Survey

The VLF electromagnetic survey (Ref. Map 302) identified a major anomalous conductive zone, designated as BG-1, striking easterly across the central portion of the survey area. BG-1 exhibits strong uniform conductivity along the entire 1.2 km strike length and is characterized by a sharp, large amplitude in-phase cross-over, up to 120% (+60 to -60), over a horizontal distance of 100 m. Associated with this anomalous in-phase response is an equally anomalous reverse sense quadrature
response, of up to 60% (-30 to +30), over a horizontal distance of 200 m. BG-1 appears to be open along strike to the east and to the west.

Conductor BG-1 lies coincident with the magnetically inferred metasedimentary unit striking easterly across the central portion of the property.

2.3.3 Maxmin II Horizontal Loop Electromagnetic Survey

The Maxmin II horizontal loop electromagnetic survey (Ref. Maps 303 and 304) was able to further define the easterly striking anomaly BG-1 identified on the property as a result of the VLF electromagnetic survey.

The electromagnetic response parameters indicate that conductor BG-1 is a near vertical conductor sheet, up to 18 m wide, exhibiting a conductivity thickness of up to 224 mhos at 1777 Hz and 900 mhos at 444 Hz. This four-fold increase in the conductivity, with a decrease in frequency, indicates that BG-1 is an excellent bedrock conductor. The response parameters also suggest that the conductor appears to weaken to the east. Depth to top calculations indicate that from 12 to 48 m of glacial till lie atop the conductor.

As was the case with the VLF data the horizontal loop defined the conductor lying coincident with the magnetically inferred metasedimentary unit.
2.4 CONCLUSIONS

Conductor BG-1 is an excellent near-surface, easterly trending conductor exhibiting a near vertical dip.

The causative body of conductor BG-1 is thought to be a highly conductive volcanoclastic metasediment or lapilli tuff containing a high percentage of sulphides (mainly pyrrhotite) with minor amounts of graphite.

2.5 RECOMMENDATIONS

It is recommended that anomaly BG-1 be tested by diamond drilling.

Figure 3 presents the location of the proposed diamond drill hole and illustrates the geophysically inferred orientation of the causative body.
TOTAL FIELD
PROTON MAGNETOMETER
(background 59,000 nT)

MAXMIN II
HORIZONTAL LOOP
1777 Hz.

MAXMIN II
HORIZONTAL LOOP
444 Hz.

PROPOSED
DIAMOND DRILL HOLE
BERRY GROUP
1:2500

FIGURE 3
3.0 HIGHWAY GROUP

3.1 INTRODUCTION

The Highway Group is situated in Drayton Township, Patricia Mining Division, District of Kenora and consists of the following four unpatented, contiguous mining claims (Figure 4).

Pa-590156  Pa-646329
Pa-590157  Pa-646330

The property is conveniently accessible by car southwest from Sioux Lookout via highway 72, to highway 664, which is then followed westerly for a distance of 1.2 km, at which point the highway crosses the northern half of the property.

3.2 LINE CUTTING

The line cutting was carried out by Ken Bernier of Sioux Lookout during the period from August 20 through August 23, 1983, inclusive. The survey grid, consisting of 6.325 line km, was oriented east-west with grid lines trending north-south at 100 m intervals along the baseline. Twenty-five metre stations were established on all lines.
CLAIM LOCATION SKETCH

2 Inches to 1 mile

Scale: 1" = 1/4 mi
3.3 GEOPHYSICAL SURVEYS

The ground geophysical surveys were carried out during the period from August 28 through August 29, 1983, inclusive, under the direct supervision of R. E. Routledge, M.Sc.

3.3.1 Magnetometer Survey

The magnetometer survey (Ref. Map 101) was able to further define the regional magnetic trends mapped on the property by the Geological Survey of Canada and published in Geophysical Papers 1138G and 1147G.

The results of the magnetometer survey indicate the property to be underlain by a metasedimentary sequence consisting predominately of clastic metasediments interbedded with arkose.

The clastic metasediments have been magnetically inferred to occupy the southern half and northern quarter of the survey area and are characterized by somewhat erratic magnetic relief in the range of 1,000 nT to 3,000 nT above local background.

The magnetically inferred arkosic unit occupies a 150 m wide zone, interbedded with the clastic metasediments, lying parallel to and immediately north of the baseline and is characterized by a region of moderately low uniform magnetic relief in the range of 900 to 1,000 nT above local background.
3.3.2 Geonics VLF Electromagnetic Survey

The VLF electromagnetic survey (Ref. Map 102) identified two anomalous conductive zones, designated as HG-1 and HG-2a and 2b, on the property.

Conductor HG-1 is located in the southwest corner of the property on claim Pa-590157 and is identified by a very weak, low angle, in-phase response accompanied by much more diagnostic reverse sense quadrature response. The poor in-phase response could be an indication of varved clay in the underlying glacial tuff.

Conductors HG-2a and 2b are centrally located within the survey area and will be discussed together because it is felt that they are part of the same easterly trending anomalous conductive horizon. Both conductors exhibit moderately strong conductivity along the entire 700 m composite strike length. The zone is characterized by a moderate in-phase response accompanied by a much more diagnostic reverse sense quadrature response. As was the case with HG-1, the in-phase response for HG-2a and 2b is thought to be distorted, to some extent, by the presence of varved clays in the glacial till. Both conductors are open along strike to the east and west.

3.3.3 Maxmin II Horizontal Loop Electromagnetic Survey

The Maxmin II horizontal loop electromagnetic survey (Ref. Maps 103 and 104) was able to further define the VLF anomalies identified on the property.
The electromagnetic response parameters indicate that conductor HG-1 is a near-vertical, possibly southerly dipping conductive sheet, up to 10 m wide and exhibits a conductivity thickness of up to 74 mhos at 1777 Hz and 90 mhos at 444 Hz. The most significant increase in the conductivity with a decrease in frequency indicates that HG-1 is a valid bedrock conductor. The response parameters also suggest that the conductor weakens to the east and strengthens to the west. HG-1 is open along strike to the west. Depth to top calculations indicate that from 27 to 30 m of glacial till, with varved clay interbeds, lie atop the conductor.

Conductor HG-1 appears to lie on the southern flank of a weak, 25-30 nT, magnetic anomaly.

The electromagnetic response parameters indicate that conductors HG-2a and 2b are both part of the same easterly trending zone, up to 35 m wide exhibit a conductivity thickness on line 1+00W of up to 25 mhos at 1777 Hz and 150 mhos at 444 Hz.

This increase in conductivity with a decrease in frequency indicates that HG-2a and 2b are excellent bedrock conductors. The response parameters also suggest that this conductive zone appears to weaken along strike in both directions. Depth to top calculations indicate that from 15 to 24 m of glacial till lie atop the zone.

Conductors HG-2a and 2b were found to be directly associated with a region of above background magnetic relief in the range of 1200-1600 nT.
3.4 CONCLUSIONS

Conductor HG-1 is a good, easterly trending, bedrock conductor lying with a clastic metasedimentary unit exhibiting a near-vertical to southerly dip.

Conductors HG-2a and 2b are both part of the same anomalous, easterly trending, conductive zone inferred to lie within a magnetically definable bed within the clastic metasediments, at or near the contact with the arkosic unit. The causative body of conductors HG-2a and 2b is thought to be sulphide mineralization associated with the stratigraphic unit within the clastic metasediments.

3.5 RECOMMENDATIONS

It is recommended that three claims be staked adjacent to Pa-590157 to cover the possible western continuation of conductors HG-1 and HG-2a.

It is also recommended that anomaly HG-1 and anomalous zone HG-2a and 2b be tested by diamond drilling.

Figures 5 and 6 present the locations of the proposed diamond drill holes and illustrate the geophysically inferred orientation of the causative bodies.
TOTAL FIELD
PROTON MAGNETOMETER
(Background 52,000 nT)

MAXMIN II
HORIZONTAL LOOP
1777 Hz

MAXMIN II
HORIZONTAL LOOP
444 Hz

No. 3

Line 1H00 W
Station 0150S

Overburden ≈ 25 m

150 m

PROPOSED DIAMOND DRILL HOLE
HIGHWAY GROUP

1:2500

FIGURE 5
TOTAL FIELD
PROTON MAGNETOMETER
(background 59,000 nT)

MAXMIN II
HORIZONTAL LOOP
1777 Hz.

MAXMIN II
HORIZONTAL LOOP
444 Hz.

Line 3 00 W
Station 3 +35 S

No. 2

Overburden
≈ 25 to 30 m

PROPOSED
DIAMOND DRILL HOLE
HIGHWAY GROUP

FIGURE 6

[Diagram showing magnetic field measurements and proposed drill site location.]
4.0 GOODIE CREEK GROUP

4.1 INTRODUCTION

The Goodie Creek claim group is situated in Lamond Township, Patricia Mining Division, District of Kenora and consists of the following six unpatented, contiguous mining claims (Figure 7).

Pa-590160    Pa-590169    Pa-590171
Pa-590167    Pa-590170    Pa-590172

The property is readily accessible by truck southwest from Sioux Lookout, via Highway 72 to Highway 664, which is then followed westerly to Goodie Creek, a distance of approximately 30 km; at which point an old bush road trends southeasterly to the H.E.P.C. transmission line which crosses the northwest corner of the property.

4.2 LINE CUTTING

The line cutting was carried out by Ken Bernier of Sioux Lookout during the period from August 24 through August 30, 1983, inclusive. The survey grid, consisting of 5.425 line km, was oriented east-west with grid lines trending north-south at 100 m intervals along the baseline. Twenty-five metre stations were established on all lines.
CLAIM LOCATION SKETCH
2 Inches to 1 mile 1" = 1/2 mi

Figure 7
4.3 GEOPHYSICAL SURVEYS

The ground geophysical surveys were carried out during the period from August 30 through September 3, 1983, inclusive, under the direct supervision of R. E. Routledge, M.Sc.

4.3.1 Magnetometer Survey

The magnetometer survey (Ref. Map 201) was able to further define the regional magnetic trends mapped on the property by the Geological Survey of Canada and published in Geophysical Paper 1157G.

The results of the magnetometer survey indicate the property to be underlain by metavolcanic-metasedimentary sequence.

The metavolcanic unit has been magnetically inferred to underlie almost 80% of the survey area and is characterized by broad uniform regions of low to moderate magnetic relief, in the range of 900 to 1,450 nT above local background. This unit has been interpreted to be an easterly striking, near-vertically dipping intermediate to mafic flow.

The metasedimentary unit has been magnetically inferred to occupy the remaining 20% of the survey area, being confined to a band of approximately 100 m wide, striking easterly across the northern half of the survey area, and is characterized by a narrow lenticular magnetic anomaly of up to 4,647 nT above local background. This unit has been interpreted as a near-vertically dipping iron formation.
4.3.2 Geonics VLF Electromagnetic Survey

The VLF electromagnetic survey (Ref. Map 202) identified two anomalous conductive zones, designated as GCG-1 and GCG-2 on the property.

Conductor GCG-1 is located in the southwest corner of the property and is identified by a moderate, low angle, in-phase response accompanied by a very weak much less definitive similar sense quadrature response. The moderate, low angle, in-phase response coupled with the weak similar sense quadrature response suggests that GCG-1 is a poor conductor.

Conductor GCG-2 is located in the north central portion of the survey area lying approximately parallel to, and 50 to 100 m north of the baseline and is characterized by an erratic, low angle, in-phase response accompanied by a moderately strong reverse sense quadrature response. The erratic, low angle, in-phase response coupled with the moderately strong, reserve sense, quadrature response, suggests that GCG-2 is a good conductor associated with a region of high magnetic gradients. Conductor GCG-2 was found to lie along the southern flank of a major magnetic anomaly inferred to be an easterly trending iron formation.

4.3.3 Maxmin II Horizontal Loop Electromagnetic Survey

The Maxmin II horizontal loop electromagnetic survey (Ref. Maps 203 and 204) was able to further define the VLF anomalies identified on the property.
The electromagnetic response parameters indicate that conductor GCG-1 is a very weak conductor up to 25 m wide and exhibits little if any in-phase response and only a very weak quadrature response. The response parameters suggest that conductor GCG-1 is a very poor conductor and could reflect conductive overburden or an extremely deep conductor.

The electromagnetic response parameters indicate that conductor GCG-2 is a near-vertical conductive sheet of indeterminate width and exhibits a conductivity thickness of up to 37 mhos at 1777 Hz and 150 mhos at 444 Hz. This four-fold increase in the conductivity with a decrease in frequency indicates that GCG-2 is an excellent, near-surface bedrock conductor. The response parameters also suggest that the conductivity is variable along its 700 m strike length. Sixty-cycle interference from the power transmission lines, located north of the conductor, has distorted the northern shoulder resulting in the somewhat inferred dip and width extent of the conductor. Depth to top calculations indicate that from 10 to 27 m of overburden lie atop the conductor.

As defined by the VLF survey conductor GCG-2 lies along the southern flank of an easterly trending magnetic anomaly.
4.4 CONCLUSIONS

Conductor GCG-2 is a poor conductor and is probably a reflection of conductive overburden.

Conductor GCG-2 is an excellent near-surface, vertically dipping conductor lying on the southern flank of a strong regional magnetic anomaly interpreted to be an iron formation. Conductor GCG-2 could possibly be the sulphide facies of this iron formation.

4.5 RECOMMENDATIONS

It is recommended that conductor GCG-2 be tested by diamond drilling.

Figure 8 presents the location of the proposed diamond drill hole and illustrates the geophysically inferred orientation of the causative body.
TOTAL FIELD
PROTON MAGNETOMETER
(background 59,000 nT)

MAXMIN II
HORIZONTAL LOOP
1777 Hz.

Line 3+00W
Station 1'00N

PROPOSED
DIAMOND DRILL HOLE
GOODIE CREEK GROUP
1:2500
**TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT**

*FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT*

TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

**Type of Survey(s)** Magnetometer-Electromagnetic (VLF & Maxmin)

**Township or Area** Whipper Lake-Drayton-Lamond

**Claim Holder(s)** Nahanni Mines Ltd.

**Survey Company** Derry, Michener, Booth & Wahl

**Author of Report** D. G. Wahl, P. Eng.

**Address of Author** Suite 1107-330 Bay St., Toronto

**Covering Dates of Survey** Aug. 15/83 to Oct. 14/83

**Total Miles of Line Cut** 21,425 km

<table>
<thead>
<tr>
<th>SPECIAL PROVISIONS</th>
<th>DAYS per claim</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geophysical</td>
<td></td>
</tr>
<tr>
<td>- Electromagnetic</td>
<td>40</td>
</tr>
<tr>
<td>- Magnetometer</td>
<td>20</td>
</tr>
<tr>
<td>- Radiometric</td>
<td></td>
</tr>
<tr>
<td>- Other (Maxmin II)</td>
<td>20</td>
</tr>
</tbody>
</table>

**AIRBORNE CREDITS** (Special provision credits do not apply to airborne surveys)

- Magnetometer
- Electromagnetic
- Radiometric

**DATE:** Oct. 14/83  **SIGNATURE:** [Signature]

**Res. Geol.** Qualifications 63.2859

**Previous Surveys**

<table>
<thead>
<tr>
<th>File No.</th>
<th>Type</th>
<th>Date</th>
<th>Claim Holder</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL CLAIMS:** 19
### GEOPHYSICAL TECHNICAL DATA

#### GROUND SURVEYS — If more than one survey, specify data for each type of survey

<table>
<thead>
<tr>
<th>Number of Stations</th>
<th>857 each Mag-VLF-Maxmin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station interval</td>
<td>25 m</td>
</tr>
<tr>
<td>Profile scale</td>
<td>cm to 10% for both VLF and Maxmin</td>
</tr>
<tr>
<td>Contour interval</td>
<td>200 nT &amp; 1000 nT as required for structural definition</td>
</tr>
</tbody>
</table>

#### MAGNETIC

- **Instrument**: Scintrex MP-2 Total Field Proton Precession Magnetometer
- **Accuracy**: Scale constant $\pm 1$ nT
- **Diurnal correction method**: Closed loop - time extrapolation
- **Base Station check-in interval (hours)**: Half hour
- **Base Station location and value**: All Baseline - Grid line intercepts have been established as base stations

#### ELECTROMAGNETIC

- **Instrument**: Geonics VLF EM-16
- **Coil configuration**: Coplanar
- **Coil separation**: Maxmin Tx-Rx 100 m
- **Accuracy**: In-phase & quadrature $\pm 1\%$
- **Method**: Fixed transmitter (VLF) ♦ Shoot back ♠ In line (Maxmin) ♠ Parallel line
- **Frequency**:
  - Cutler Main: 17.8 kHz
  - Maxmin II: 444 Hz & 1777 Hz
- **Parameters measured**: In-phase and quadrature

#### GRAVITY

- **Instrument**: —
- **Scale constant**: —
- **Corrections made**: —
- **Base station value and location**: —
- **Elevation accuracy**: —

#### RESISTIVITY

- **Instrument**: —
- **Method**: ♦ Time Domain ♠ Frequency Domain
- **Parameters**:
  - On time
  - Off time
  - Delay time
  - Integration time
- **Frequency**: —
- **Range**: —
- **Power**: —
- **Electrode array**: —
- **Electrode spacing**: —
- **Type of electrode**: —
**The Mining Act**

**Form F.M.**

**Type of Survey:** Magnetometer - Electromagnetic (VLF and MaxMin)

**Claim Holder(s):** Nahanni Mines Limited

**Date:** October 14/83

**Expenditures:**

- Geophysical
  - Electromagnetic
  - Magnetometer
  - Radiometric
  - Other
  - MaxMin
  - Geochemical

- Electromagnetic

- Geotechnical

**Lamond Township M-228**

**Mining Claim Traversed (List in numerical sequence):**

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Number</th>
<th>Mining Claim</th>
<th>Expended Days Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pa.</td>
<td>590167</td>
<td></td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>590167</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>590168</td>
<td></td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>590169</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>590170</td>
<td></td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>590171</td>
<td></td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>590172</td>
<td></td>
<td>60</td>
</tr>
</tbody>
</table>

**Note:** Special provisions credits do not apply to Airborne Surveys.

**Name and Address of Person Certifying: D.G. Wahl, P.Eng., Suite 2302, 401 Bay Street, Toronto, Ontario, M5H 2Y4**

**Certification:**

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.

**Date:** Oct. 14, 1983
## Report of Work

### (Geophysical, Geological, Geochemical and Expenditures)

#### The Mining Act

<table>
<thead>
<tr>
<th>Township of Area</th>
<th>Dreyton Twp. No. 2223</th>
</tr>
</thead>
</table>

**Claim Holder:** Nahanni Mines Limited

**Address:** Suite 1107, 330 Bay Street, Toronto, Ontario M5H 2S8

**Survey Company:** Derry, Michener, Booth & Wahl

**Date of Survey:** (from & to) 05 Oct 70, 14 Oct 72

**Event:** Total Miles of line cut 6.325 km

**Name and Address of Author (or Geo-technical report):**

**D.G. Wahl, P.Eng., Suite 2302, 401 Bay Street, Toronto, Ontario M5H 2Y4**

**Credits Requested per Each Claim in Columns at right:**

### Geophysical

<table>
<thead>
<tr>
<th>Geophysical</th>
<th>Days per Claim</th>
<th>Mining Claim Prefix</th>
<th>Number</th>
<th>Expd. Days Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electromagnetic</td>
<td>40</td>
<td>Pa</td>
<td>500156</td>
<td>80</td>
</tr>
<tr>
<td>Magnetometer</td>
<td>40</td>
<td>Pa</td>
<td>500157</td>
<td>80</td>
</tr>
<tr>
<td>Radiometric</td>
<td>40</td>
<td>Pa</td>
<td>646329</td>
<td>80</td>
</tr>
<tr>
<td>Other MaxMin</td>
<td>40</td>
<td>Pa</td>
<td>646330</td>
<td>80</td>
</tr>
</tbody>
</table>

### Geological

<table>
<thead>
<tr>
<th>Days per Claim</th>
<th>Mining Claim Prefix</th>
<th>Number</th>
<th>Expd. Days Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geophysical</td>
<td>Electromagnetic</td>
<td>40</td>
<td>Pa</td>
</tr>
<tr>
<td>Magnetometer</td>
<td>40</td>
<td>Pa</td>
<td>500157</td>
</tr>
<tr>
<td>Radiometric</td>
<td>40</td>
<td>Pa</td>
<td>646329</td>
</tr>
<tr>
<td>Other</td>
<td>40</td>
<td>Pa</td>
<td>646330</td>
</tr>
</tbody>
</table>

### Geochemical

<table>
<thead>
<tr>
<th>Days per Claim</th>
<th>Mining Claim Prefix</th>
<th>Number</th>
<th>Expd. Days Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geophysical</td>
<td>Electromagnetic</td>
<td>40</td>
<td>Pa</td>
</tr>
<tr>
<td>Magnetometer</td>
<td>40</td>
<td>Pa</td>
<td>500157</td>
</tr>
<tr>
<td>Radiometric</td>
<td>40</td>
<td>Pa</td>
<td>646329</td>
</tr>
<tr>
<td>Other</td>
<td>40</td>
<td>Pa</td>
<td>646330</td>
</tr>
</tbody>
</table>

### Expenditures (excludes power stripping)

<table>
<thead>
<tr>
<th>For first survey</th>
<th>Geophysical</th>
<th>Days per Claim</th>
<th>Mining Claim Prefix</th>
<th>Number</th>
<th>Expd. Days Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter 40 days. This (includes line cutting)</td>
<td>Electromagnetic</td>
<td>40</td>
<td>Pa</td>
<td>500156</td>
<td>80</td>
</tr>
<tr>
<td>For each additional survey: using the same grid</td>
<td>Magnetometer</td>
<td>40</td>
<td>Pa</td>
<td>500157</td>
<td>80</td>
</tr>
<tr>
<td>Enter 20 days (for each)</td>
<td>Radiometric</td>
<td>40</td>
<td>Pa</td>
<td>646329</td>
<td>80</td>
</tr>
<tr>
<td>Other MaxMin</td>
<td>40</td>
<td>Pa</td>
<td>646330</td>
<td>80</td>
<td></td>
</tr>
</tbody>
</table>

### Mining Claims Traversed (List in numerical sequence)

<table>
<thead>
<tr>
<th>Claim(s)</th>
<th>Expd. Days Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pa</td>
<td>500156</td>
</tr>
<tr>
<td>Pa</td>
<td>500157</td>
</tr>
<tr>
<td>Pa</td>
<td>646329</td>
</tr>
<tr>
<td>Pa</td>
<td>646330</td>
</tr>
</tbody>
</table>

---

**Total number of mining claims covered by this report of work:**

**For Office Use Only**

**Received:** OCT 28, 1983

**MINING LANDS SECTION**

**PATRICIA MINING DIV.**

**Received:** OCT 20, 1983

**A.N.:** 1671011722117241

**Total number of mining claims covered by this report of work:**

**For Office Use Only**

**Received:** OCT 20, 1983

**PA. 590156**

**Date Approved:**

**Branch Office:***

**For Office Use Only**

**Received:** OCT 20, 1983

**PA. 590156**

**Date Approved:**

**Branch Office:**

---

**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:

D.G. Wahl, P.Eng., Derry, Michener, Booth & Wahl, Suite 2302, 401 Bay Street, Toronto, Ontario, M5H 2Y4

**Date Certified:**

Oct. 14, 1983

**Certified by (Signature):**
**Mining Claim Traversed (List in numerical sequence)**

<table>
<thead>
<tr>
<th>Mining Claim</th>
<th>Prefix</th>
<th>Number</th>
<th>Expend. Days Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>590158</td>
<td>Pa</td>
<td>80</td>
<td></td>
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<tr>
<td>590159</td>
<td>590161</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>590162</td>
<td>590163</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>590164</td>
<td>705961</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>705962</td>
<td>705963</td>
<td>80</td>
<td></td>
</tr>
</tbody>
</table>

**Expenditures (excludes power stripping)**

- **Type of Work Performed**
- **Performed on Claim(s)**
- **Preparation of Report**

**Certification**

**Notarizing**

**For Office Use Only**

**Date Approved & Recorded**

**Total Days Recorded**

**Date Certified**

**Certificate of Deposit**

---

Note: Special provisions credits do not apply to Airborne Surveys.
Mining Lands Comments

report not signed

report not signed

To: Geophysics

Mr. R. Badwe

Comments

Approved □ Wish to see again with corrections

Date 13/54 
Signatures

To: Geology - Expenditures

Comments

Approved □ Wish to see again with corrections

Date 
Signature

To: Geochemistry

Comments

L.D.

Approved □ Wish to see again with corrections

Date 
Signature

To: Mining Lands Section, Room 6462, Whitney Block. (Tel: 6-1380)

1-32-311-32
<table>
<thead>
<tr>
<th>Type of survey and number of assessment days credit per claim</th>
<th>Mining Claims Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geophysical</td>
<td>PA 590157 to 59 inclusive</td>
</tr>
<tr>
<td>Electromagnetic</td>
<td>590161 to 64 inclusive</td>
</tr>
<tr>
<td>Radiometric</td>
<td>646330</td>
</tr>
<tr>
<td>Induced polarization</td>
<td>705961 - 62</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

Section 77 (16) See "Mining Claims Assessed" column.

Geological: days

Geochemical: MAX MIN 20 days

Man days ☐ Airborne ☐

Special provision ☒ Ground ☒

☐ Credits have been reduced because of partial coverage of claims.

☐ Credits have been reduced because of corrections to work dates and figures of applicant.

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

15 DAYS MAX MIN 10 DAYS MAX MIN

PA 590167 PA 590156
590170 to 72 inclusive 590168 - 69
646329 705963

No credits have been allowed for the following mining claims:

☐ Not sufficiently covered by the survey ☐ Insufficient technical data filed

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical — 80; Geological — 40; Geochemical — 40; Section 77(16) — 60; 171.
### Technical Assessment

**Work Credits**

<table>
<thead>
<tr>
<th>Recorded Holder</th>
<th>NAHANNI MINES LIMITED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Township or Area</td>
<td>DRAYTON, LAMOND &amp; WHIPPER LAKE AREA</td>
</tr>
</tbody>
</table>

#### Type of survey and number of Assessment days credit per claim

<table>
<thead>
<tr>
<th>Type of Survey</th>
<th>VLF</th>
<th>40 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electromagnetic</td>
<td></td>
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<tr>
<td>Magnetometer</td>
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<td></td>
</tr>
<tr>
<td>Radonetic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Induced Polarization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

**Geophysical**

- Man days ☐
- Airborne ☐
- Special provision ☒
- Ground ☒

☐ Credits have been reduced because of partial coverage of claims.

☐ Credits have been reduced because of corrections to work dates and figures of applicant.

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

- **30 DAYS VLF AND 15 DAYS MAGNETOMETER**
  - PA 590156
  - PA 590167
  - PA 590169 to 72 inclusive

- **20 DAYS VLF AND 10 DAYS MAGNETOMETER**
  - PA 590168

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

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical — 60; Geological — 40; Geochemical — 40; Section 77 (16) — 60.

---

*Note: The document contains additional technical details not fully transcribed due to the nature of the text.*
<table>
<thead>
<tr>
<th>L.E.</th>
<th>H.E.</th>
<th>Initial</th>
<th>L.E.</th>
<th>H.E.</th>
<th>Initial</th>
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</thead>
<tbody>
<tr>
<td>57</td>
<td>V</td>
<td>V</td>
<td>68</td>
<td>1/2</td>
<td>V</td>
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<tr>
<td>58</td>
<td>V</td>
<td>V</td>
<td>69</td>
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<td>V</td>
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<td>V</td>
<td>70</td>
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<td>V</td>
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<td>V</td>
</tr>
<tr>
<td>62</td>
<td>V</td>
<td>V</td>
<td>646329</td>
<td>1/4</td>
<td>V</td>
</tr>
<tr>
<td>63</td>
<td>V</td>
<td>V</td>
<td>646330</td>
<td>1/4</td>
<td>V</td>
</tr>
<tr>
<td>590164</td>
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<td>V</td>
<td>705961</td>
<td>1/4</td>
<td>V</td>
</tr>
<tr>
<td>62</td>
<td>V</td>
<td>V</td>
<td>705763</td>
<td>1/4</td>
<td>V</td>
</tr>
</tbody>
</table>
We have received reports and maps for a Geophysical (Electromagnetic and Magnetometer and V.L.F.) survey submitted under Special Provisions (credit for Performance and Coverage) on mining claims PA 590156 et al in the Townships of Drayton and Lamond and the Area of Whipper Lake.

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

Yours very truly,

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1H3
Phone: (416)965-1380

A: Laramie
M. Wahl
cc: Mines Limited
Suite 1107
330 Bay Street
Toronto, Ontario
M5H 2S8

cc: D.G. Wahl P. Eng.
Suite 2302
401 Bay Street
Toronto, Ontario
M5H 2Y4
1984 03 29

Your File: 83-114,115,116
Our File: 2.6093

Mr. Albert Hanson
Mining Recorder
Ministry of Natural Resources
P.O. Box 669
Sioux Lookout, Ontario
POV 2TO

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. F.W. Matthews at 416/965-6918.

Yours very truly,

S.E. Yundt
Director
Land Management Branch
Whitney Block, Room 6643
Queen’s Park
Toronto, Ontario
M7A 1W3
Phone: 416/965-1316
D. Kinzig:mc

Encls.

cc: Nehanni Mines Limited
    Suite 1107
    330 Bay Street
    Toronto, Ontario
    M5H 2S8

cc: Mr. G.H. Ferguson
    Mining & Lands Commissioner
    845
    Toronto, Ontario
Notice of Intent
for Technical Reports

1984 03 29
2.6093/83-114.115,116

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 Lands Management Branch, Toronto. The report will be re-assessed and a new statement of credits based on actual days worked will be issued.
Dear Mr. Albert Hanson,

Mining Recorder
Ministry of Natural Resources
P.O. Box 669
Sioux Lookout, Ontario
P0V 2T0

Geophysical (Electromagnetic & Magnetometer and V.L.P.) Survey on Mining Claims PA 590156 et al in the Townships of Drayton and Lamond and the area of Whipper Lake.

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) 965-6918

D. Kinzig:

cc: Nahanni Mines Limited
Suite 1107
330 Bay Street
Toronto, Ontario
M5H 2S8

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

cc: Resident Geologist
Sioux Lookout, Ontario
FOR ADDITIONAL INFORMATION

SEE MAPS:

52K/01SW-0034  # 1-12
In Phase Quadrature

52K81SWM34 WHIPPH LAKE

230

NAHANNI MINES LTD.

BERRY GROUP

SURVEY BY

C. B.

DRAWN BY:

J. B.

VLF - EM 16 SURVEY

NAA CUTLER, MAINE 17.8 Hz

________ -26093

DERRY, MICHENER, BOOTH & WAHL

APPROVED BV

D. G. W-

N.T.S.

DATE

AUG. 1983

DWG. No

302

LEGEND

S. SCALE

0 100 200 300 400 METRES

EXCELLENT

CONDUCTOR

POOR

NAHANNI MINES LTD.

BERRY GROUP

VLF - EM 16 SURVEY

NAR CUTLER, MAINE 17.8 Hz

26093

DERRY, MICHENER, BOOTH & WAHL

302