GEOPHYSICAL REPORT

PIE-VMS PROJECT

WAWA CLAIMS PROPERTY

N.T.S. 105 G/01

FINLAYSON LAKE AREA, YUKON TERRITORY

61°10' 130°09'

Submitted by:

Larry Petrie
Sr. Project Geophysicist

October 25, 1996

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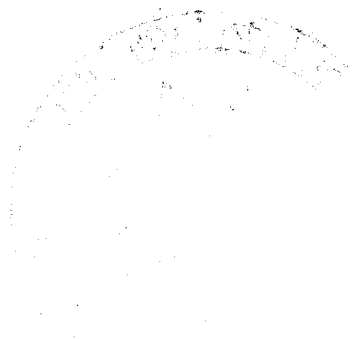


LIST OF MAPS

Summary

Line cutting followed by magnetic and HLEM surveys were completed on the Wawa Claims property in the Finlayson Lake Area, Yukon Territory. The geophysical survey was completed for Noranda Mining and Exploration Inc. by contracted personnel from Amerok Geosciences Ltd., Whitehorse, Yukon. The survey was completed in order to evaluate anomalous geochemical results obtained from previous work. The results of the geophysical information obtained from these surveys indicate a broad low relief magnetic signature that has no direct association with the interpreted geology. A weak conductive axis enhanced on a single line with a 200 meter coil separation appears to parallel stratigraphy but is not coincident with any magnetic response. Further surveying along adaject lines with either larger coil separation or a large in loop time domain survey may be necessary to enhance the characteristics of this respones. No other significant anomalous bodies were detected.

1.0 Introduction

During September 1996, the Wawa Claims property was surveyed by magnetic and HLEM techniques as ground follow-up over an historic geochemical anomaly to identify near surface conductive bodies and to delineate geologic units based on magnetic properties.

2.0 Location and Access

The property is located almost 60 km soutwest of Finlayson Lake, Yukon Territory (Figure 1). Access to the property is possible only by helicopter with field crews accessing the camp from Money Creekand and departing via the Campbell Highway. The crew was mobilized to the survey area by Frontier Helicopters.

3.0 Property Description

As of October 1, 1996, the Wawa Claims property are comprised of 12 mining claims totalling 252 Hectares (Figures 2 and 3). All claims were staked by C. M. Schultz under the authority of Noranda Mining and Exploration Inc. A complete summary of the claim information is summarized in Table 1.

Table 1. Claim information on the Wawa Claims property

CLAIM BLOCK	NAME	OWNER	HECTARES	RECORDING DATE
YB-56440	WAWA 1	NORANDA	21.0	10/14/94
YB-56449	WAWA 10	NORANDA	21.0	10/14/94
YB-56450	WAWA 11	NORANDA	21.0	10/14/94
YB-56451	WAWA 12	NORANDA	21.0	10/14/94
YB-56441	WAWA 2	NORANDA	21.0	10/14/94
YB-56442	WAWA 3	NORANDA	21.0	10/14/94
YB-56443	WAWA 4	NORANDA	21.0	10/14/94
YB-56444	WAWA 5	NORANDA	21.0	10/14/94
YB-56445	WAWA 6	NORANDA	21.0	10/14/94
YB-56446	WAWA 7	NORANDA	21.0	10/14/94
YB-56447	WAWA 8	NORANDA	21.0	10/14/94
YB-56448	WAWA 9	NORANDA	21.0	10/14/94

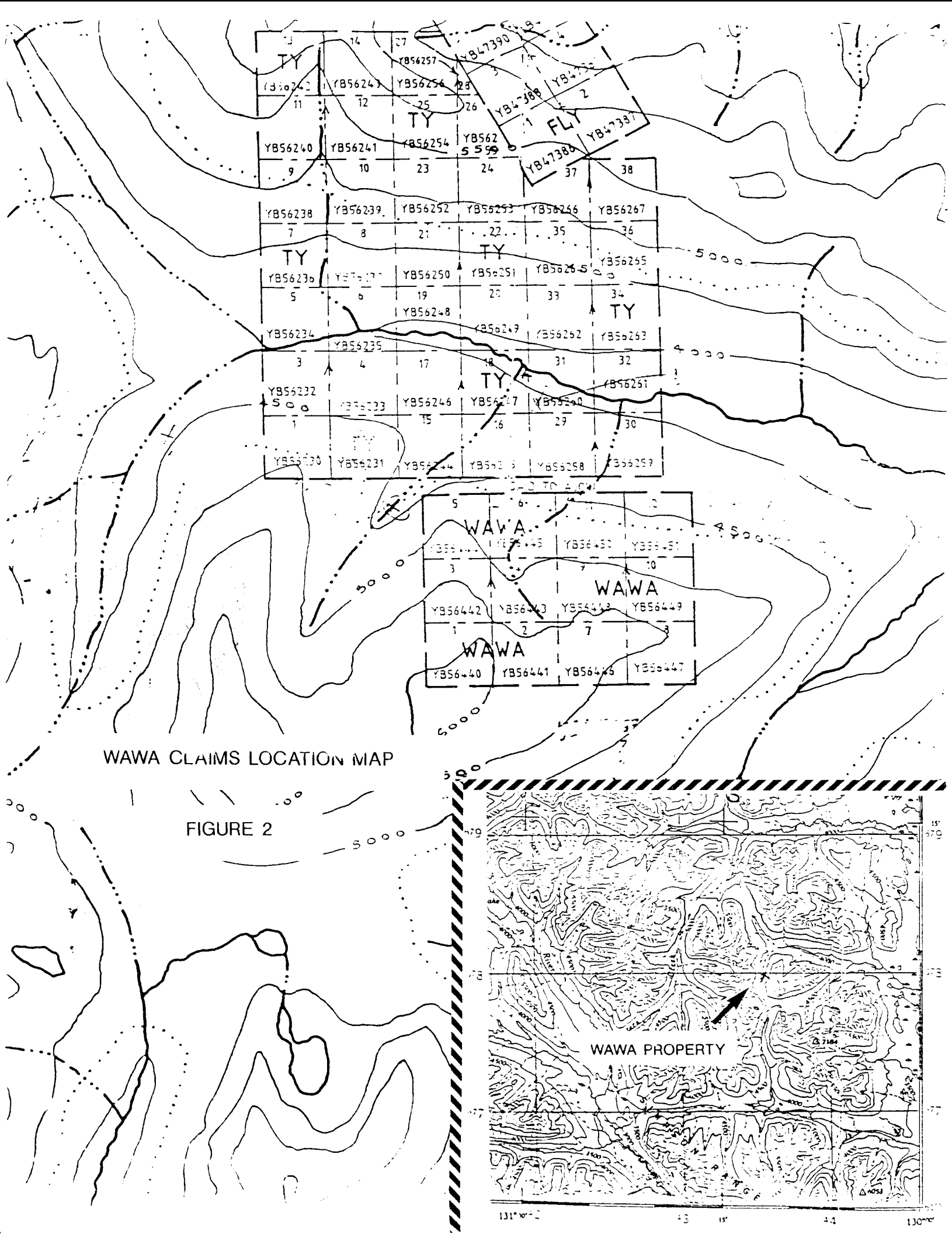
4.0 Geophysical Surveys

4.1 Instrumentation

Magnetic:

An OMNI Plus proton precession magnetometer was used throughout the survey. The instrument can be either a portable unit or base station system and is capable of taking both total


PIE PROPERTY
WAWA CLAIMS
LOCATION MAP
noranda
figure 1
YUKON
Whitehorse
PIE
Yellowknife
Granisle/
Bell Copper
Prince George
BRITISH
COLUMBIA
ALBERTA
Kamloops
Vancouver
Calgary
Victoria
CORDILLERAN SEDIMENTS
PALEOZOIC BASINS
FLATLYING PROTEROZOIC SEDIMENTS
GRANITE TERRAIN
GNEISSIC BELTS
GREENSTONE - GRANITE BELTS
0 50 150 250
KILOMETERS



WAWA CLAIMS LOCATION MAP

FIGURE 2

field and magnetic gradient measurements. The sensitivity of the magnetometer is 0.1 nT or Gammas but field readings are normally taken with an accuracy of +/- 5 nT. Readings are corrected for diurnal variations using an identical recording unit set up as a base station in a non-anomalous area. Base station readings are normally taken every 30 seconds unless large or rapid variations are anticipated, in which case readings are taken more frequently.

For this survey base station readings were taken at a 20 second interval and reduced to 10 second intervals during an active period of geomagnetic fluctuation. Survey readings were recorded at 12.5 meter intervals along the line.

HLEM:

An Apex Parametrics MaxMin I-10 horizontal loop electromagnetic unit was used. In-phase and quadrature readings are measured as a percentage of the primary transmitted field. The readings represent characteristics of the secondary induced field. They are recorded at a phase separation of 90 degrees to provide maximum information. The readings are normalised to the primary field using a cable which connects the transmitter to the receiver. Readings can be read to +/- 0.2 percent although they are usually only accurate to +/- 1 percent.

For this survey readings were taken at a 25 meter interval along the line. A coil separation of 150 meters was used over the entire grid with detailed readings recorded on a single line witrh a 100 meter and 200 meter coil separation. Data was recorded at four frequencies of 220, 880, 1760 and 3520 Hz. Coil orientation was correceted for station to station slope variations by setting the coils at the tilt angle indicated by the instrument. Subsequent corrections for short cables were preformed using the Apex Parametrics software MMCFIX1.

4.2 Statistics

The Wawa Claims grid is comprised of eleven survey lines at 150 and 200 meters line spacings. Grid surveying was preformed by Twin Mountain Enterprises between Sept. 10-26, 1996. The entire grid was surveyed using HLEM and magnetic techniques between Sepember 17-27, 1996 by contracted personnel D. Hall (Crew Chief) and J. Boyce under the supervision of M. Power of Amerok Geosciences Ltd., Whitehorse, Yukon. A total of 14.025 km of magnetic data and 14.525 km of HLEM data were collected over the entire survey area. Tie points between the grid and UTM data points were established using a Global Positioning System (GPS) unit by taking repeated readings over a 15 minute or greater period at three points (Table 2).

Table 2. GPS control points recorded on the grid.

Grid Location	UTM Easting	UTM Northing
BL 110+00N; L 113+00E	439185E	6780435N
BL 110+00N; L96+00E	437500E	6780287N
Post Cluster Wawa 9,10, 11, 12 (L109+00E; 108+55N)	438790E	6780258N

N.B. All points located in NAD 27, UTM Zone 9.

4.3 Interpretation

The magnetic data indicates an overall flat response across the property with less than 100 gammas of relief. An isolated magnetic high occurring near 105+00E; 105+00N appears to extend from the baseline as a broad low relief unit. No apparent association with regional starigraphy is observed in this trend. An equally apparent signature is also apparent in the northwest corner of the gridded area. A weak conductive axis enhanced on a single line with a 200 meter coil separation appears to parallel stratigraphy but is not coincident with any magnetic response. The anomalous body is weakly conductive and the poor response may be a result of incorrect topographic corrections. The response (L109+00E; 106+50N) is too poor to evaluate quantitatively but the nature of the signature does not reflect a broad flat lying body. The original dump data collected during the survey, not provided to Noranda at the time of writing, may provide a more accurate description of the anomaly by provideing information about the slope conditions in the area. Further surveying along adacjent lines with either larger coil separation or a large in loop time domain survey may be necessary to enhance the characteristics of this response.

5.0 Conclusions and Recommendations

The results of the geophysical information obtained from these surveys indicate a broad low relief magnetic signature that has no direct association with the interpreted geology. A weak conductive axis enhanced on a single line with a 200 meter coil separation appears to parallel stratigraphy but is not coincident with any magnetic response. Further surveying along adajject lines with either larger coil separation or a large in loop time domain survey may be necessary to enhance the characteristics of this respones. No other significant anomalous bodies were detected.

6.0 Statement of Qualifications

I, L. M. Petrie, hereby certify that:

1. I am a practising geophysicist with Noranda Mining and Exploration Inc., in Thunder Bay, Ontario and reside at 960 Alloy Dr., Thunder Bay, Ontario, P7B 6A4.

2. I am a graduate of The Univerity of Toronto with a Master of Science Degree, in the Department of Geology.

3. I am a Canadian Citizen.

4. I have practised my profession for seven years.

5. I do not have , nor do I expect to receive, directly or indirectly any interest in the properties of Noranda Mining and Exploration Inc.

Respectfully Submitted,

NORANDA MINING AND EXPLORATION INC.

Thunder Bay, Ontario
October 25, 1996

L. M. Petrie
Sr. Project Geophysicist
Western Canada Region

STATEMANT OF EXPEDITURES (October, 1996)

1. Linecutting	$10,715.85
2. Magnetometer/Electromagnetic Survey	$18,935.78
Total:	$29651.63

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GPS Control Points:

BL 11000N; L11300E = 439185E/6780435N
BL 11000N; L9600E = 437500E/6780287N
Post Cluster (Wawa 9,10,11,12)
L 10900E; 10855N = 438790E/6780258N

FIGURE 3

Scale 1:50000
50 0 50 100 150 200
(metres)

WAWA CLAIMS

BASE MAP

PROJECT : PIE-VMS NUMBER : 810
BASELINE AZIMUTH : 085 deg

DATE : October 1996 NTS : 105 G/01
SURVEY BY : Amerok Geosciences
FILE : m810waw

noranda
Mining and Exploration Inc.

#1

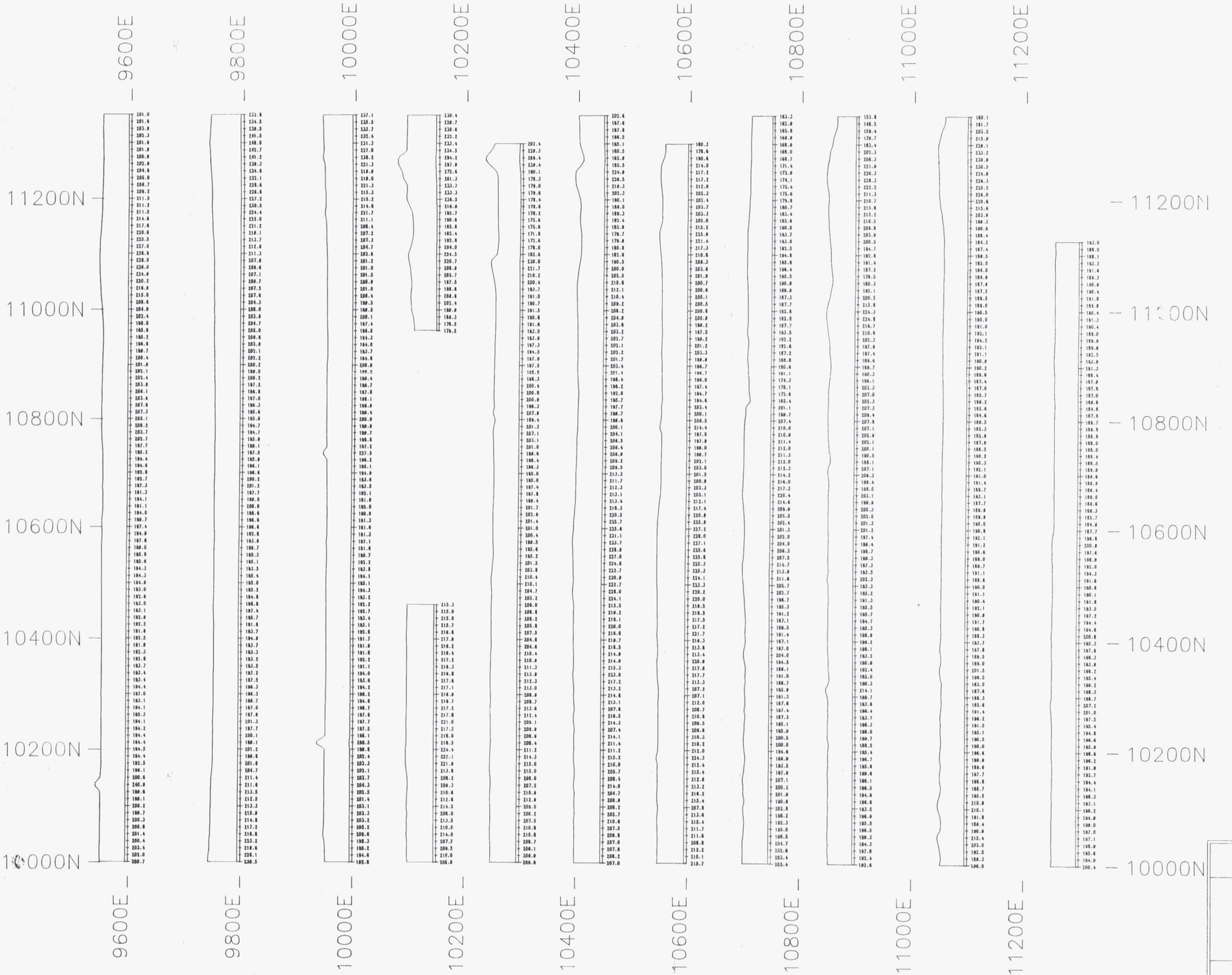

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FIGURE 4

Instrument : OMNI PLUS
Profile Scale 200nT/cm
Reduced Profile Scale 2000nT/cm
Profile Base Value 0
Datum : 57800

Scale 1:5000
50 0 50 100 150 200
(metres)

WAWA CLAIMS

MAGNETIC SURVEY
Total

PROJECT : PIE-VMS NUMBER : 810
BASELINE AZIMUTH : 085 deg

DATE : Sept, 1996 NTS : 105 G/01
SURVEY BY : Amerok
FILE : m810pie

noranda Mining and Exploration Inc. #2

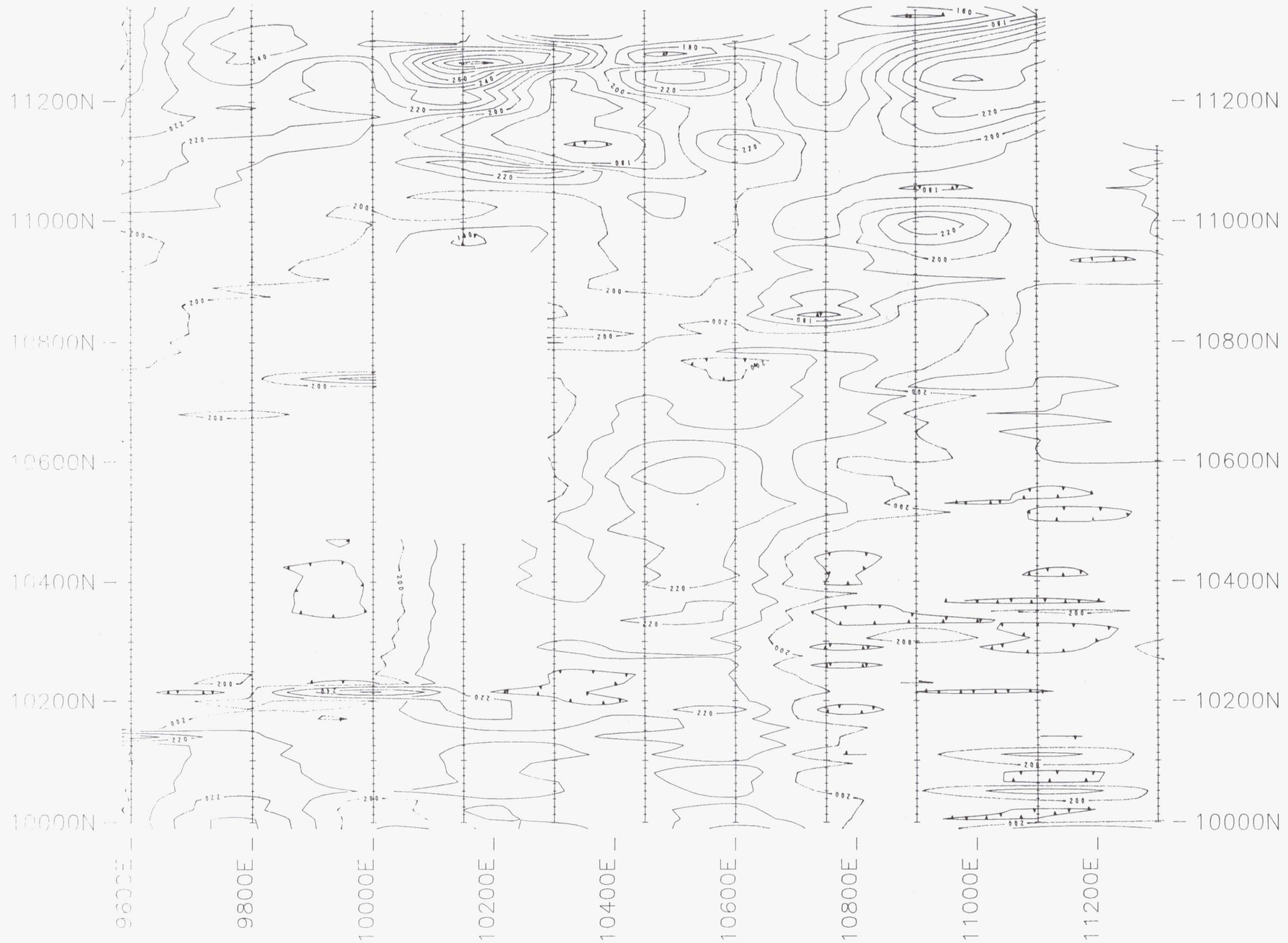

FIGURE 5

Instrument : OMNI PLUS
Contour Interval : 10 nT
Datum : 57800

Scale 1:5000
50 0 50 100 150 200
(metres)

WAWA CLAIMS

MAGNETIC SURVEY
Total

PROJECT : PIE-VMS NUMBER : 810
BASELINE AZIMUTH : 085 deg

DATE : Sept, 1996 NTS : 105 G/01
SURVEY BY : Amerok
FILE : m810pie

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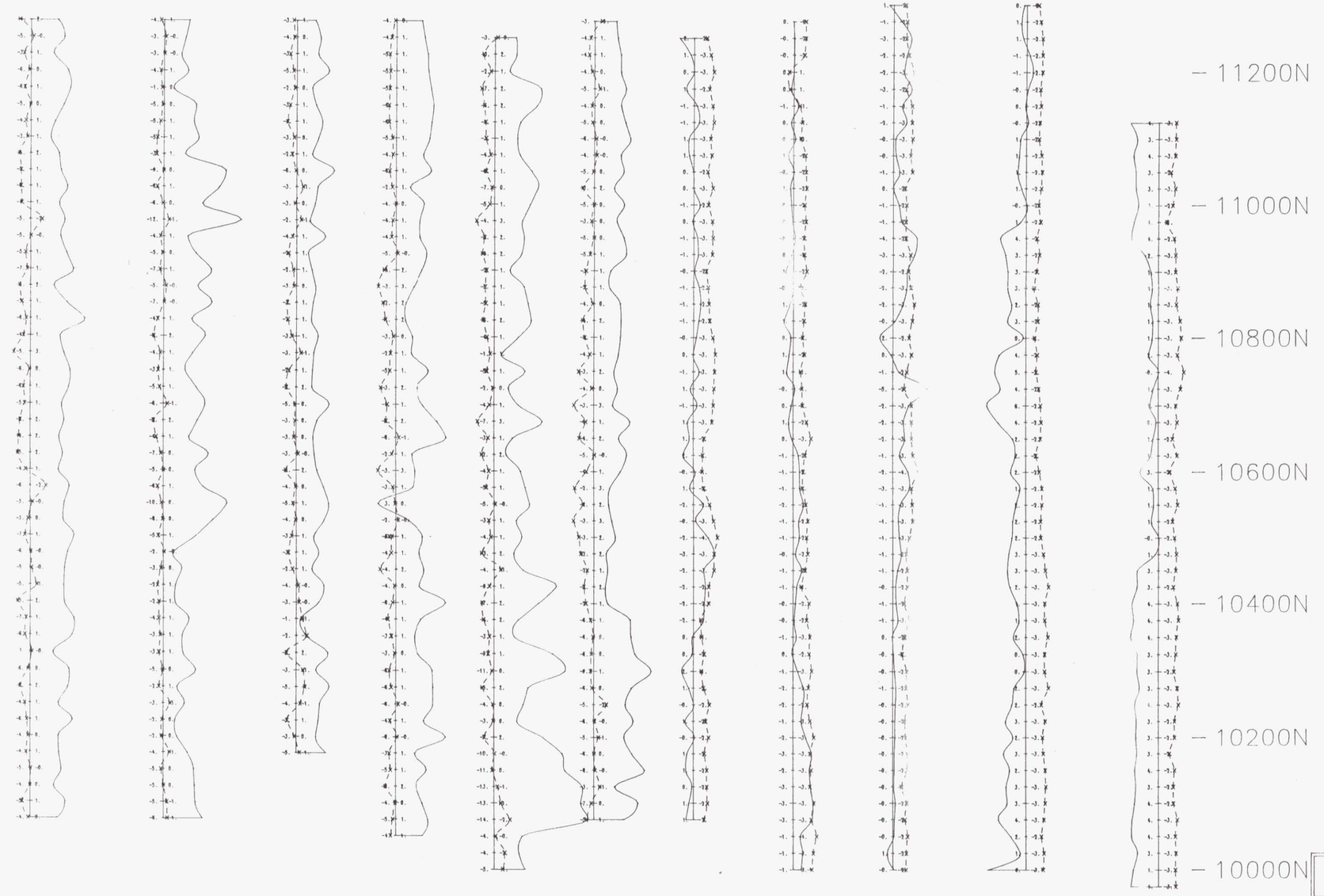
Mining and Exploration Inc.

#3

9600E
9800E
10000E
10200E
10400E
10600E
10800E
11000E
11200E

11200N
11000N
10800N
10600N
10400N
10200N
10000N



9600E
9800E
10000E
10200E
10400E
10600E
10800E
11000E
11200E

093563

FIGURE 6

Instrument : Apex MMC I-10
Profile Scale : 5%/cm
In-phase (left) : ——
Quadrature (right) : - - - -
Coil Spacing : 150

Scale 1:5000
50 0 50 100 150 200
(metres)

WAWA CLAIMS

HLEM SURVEY
220Hz

PROJECT : Pie-VMS NUMBER : 810
BASELINE AZIMUTH : 085 deg

DATE : October 1996 NTS : 105 G/01
SURVEY BY : Amerok Geosciences
FILE : h810pie

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Mining and Exploration Inc.

pl #4

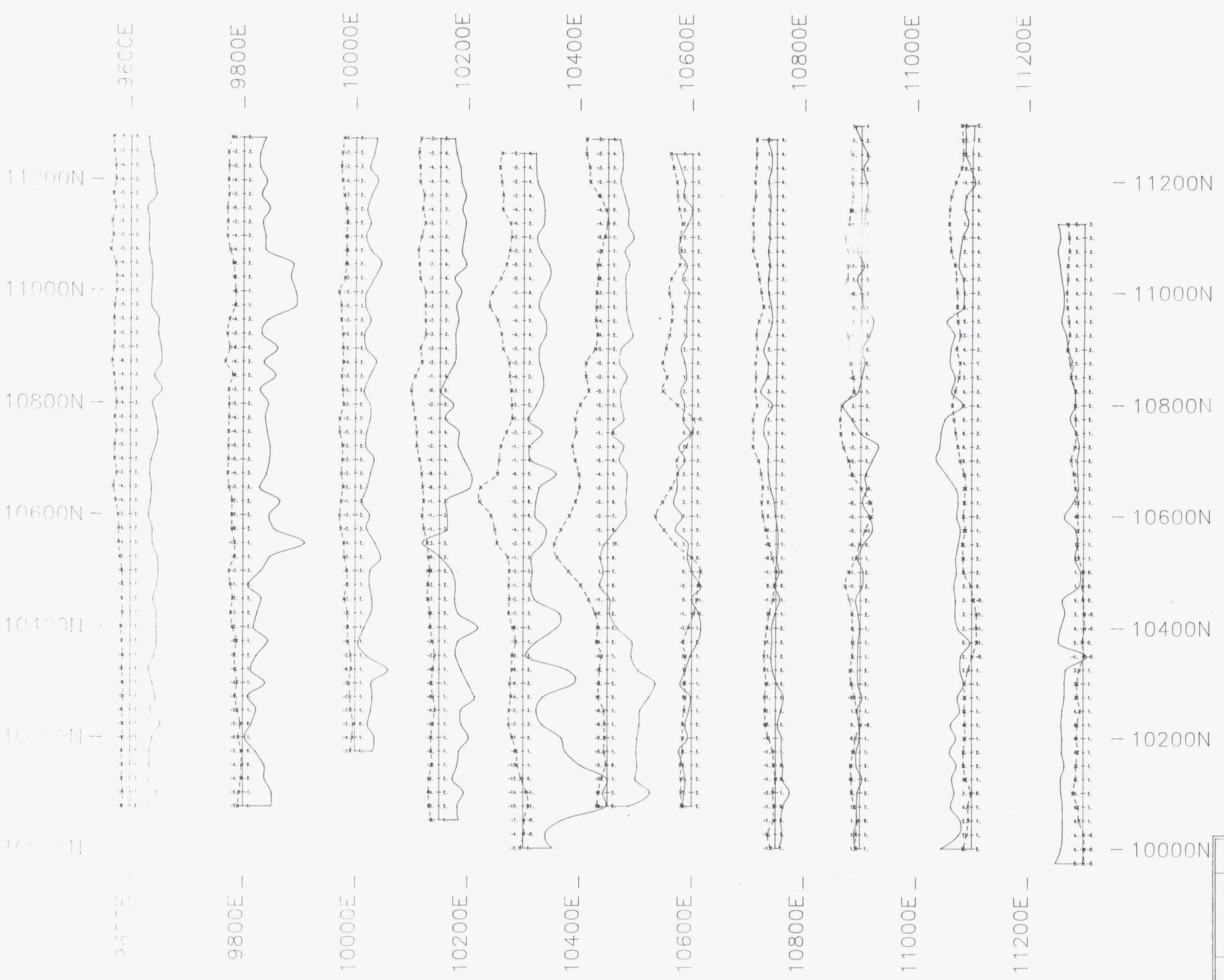

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FIGURE 7

Instrument : Apex MMC I-10
Profile Scale : 5%/cm
In-phase (left) : ——
Quadrature (right) : - - - -
Coil Spacing : 150

Scale 1:5000
50 0 50 100 150 200
(metres)

WAWA CLAIMS

HLEM SURVEY
880Hz

PROJECT : Pie-VMS NUMBER : 810
BASELINE AZIMUTH : 085 deg

DATE : October 1996 NTS : 105 G/01
SURVEY BY : Amerok Geosciences
FILE : h810pie

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pl #5

9600E
9800E
10000E
10200E
10400E
10600E
10800E
11000E
11200E

11200N
11000N
10800N
10600N
10400N
10200N
10000N

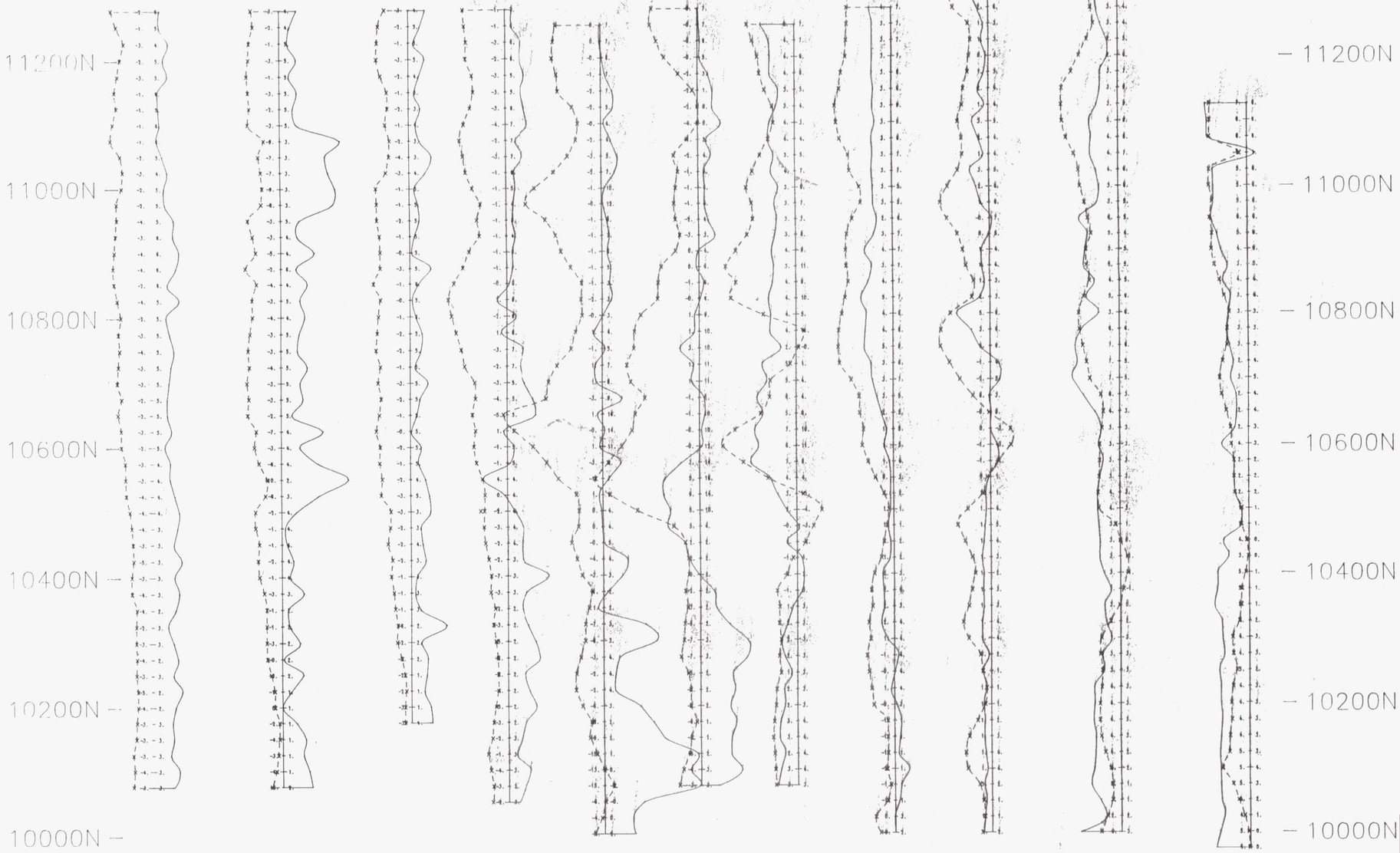

FIGURE 8

Instrument : Apex MMC I-10
Profile Scale : 5%/cm
In-phase (left) : ——
Quadrature (right) : - - - -
Coil Spacing : 150

Scale 1:5000
50 0 50 100 150 200
(metres)

WAWA CLAIMS

HLEM SURVEY
1760Hz

PROJECT : Pie-VMS NUMBER : 810
BASELINE AZIMUTH : 085 deg

DATE : October 1996 NTS : 105 G/01
SURVEY BY : Amerok Geosciences
FILE : h810pie

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pp #6

9600E
9800E
10000E
10200E
10400E
10600E
10800E
11000E
11200E

11200N
11000N
10800N
10600N
10400N
10200N
10000N

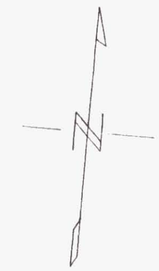

FIGURE 9

Instrument : Apex MMC I-10
Profile Scale : 5%/cm
In-phase (left) : ——
Quadrature (right) : - - - -
Coil Spacing : 150

Scale 1:5000
50 0 50 100 150 200
(metres)

WAWA CLAIMS

HLEM SURVEY
3520Hz

PROJECT : Pie-VMS NUMBER : 810
BASELINE AZIMUTH : 085 deg

DATE : October 1996 NTS : 105 G/01
SURVEY BY : Amerok Geosciences
FILE : h810pie

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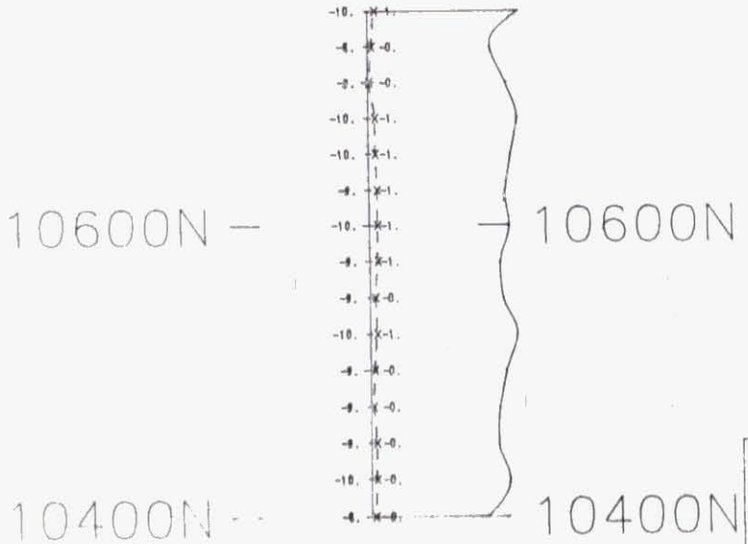
#1

FIGURE 10



Instrument : Apex MMC I-10
Profile Scale : 5%/cm
In-phase (left) : ——
Quadrature (right) : - - - - -
Coil Spacing : 100

Scale 1:5000

100 0 100 200
(metres)

WAWA CLAIMS

HLEM SURVEY

220Hz

PROJECT : PIE-VMS NUMBER : 810
BASELINE AZIMUTH : 085 deg

DATE : October 1996 NTS : 105 G/01
SURVEY BY : Amerok Geosciences
FILE : h810100

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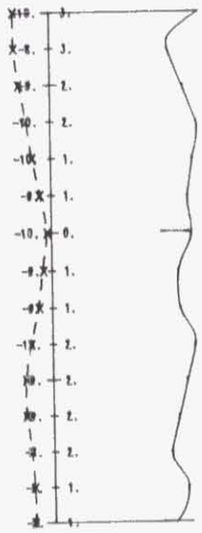
Mining and Exploration Inc.

FIGURE 11



10600N

10400N

Instrument : Apex MMC I-10
Profile Scale : 5%/cm
In-phase (left) : ———
Quadrature (right) : - - - -
Coil Spacing : 100

Scale 1:5000

100 0 100 200
(metres)

WAWA CLAIMS

HLEM SURVEY

880Hz

PROJECT : PIE-VMS NUMBER : 810
BASELINE AZIMUTH : 085 deg

DATE : October 1996 NTS : 105 G/01
SURVEY BY : Amerok Geosciences
FILE : h810100

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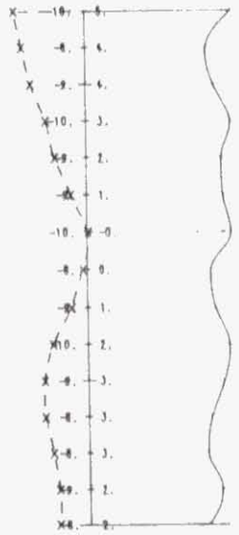
FIGURE 12



10600N

10600N

10400N

10400N

Instrument : Apex MMC I-10
Profile Scale : 5%/cm
In-phase (left) : ———
Quadrature (right) : - - - - -
Coil Spacing : 100

Scale 1:5000

100 0 100 200
(metres)

WAWA CLAIMS

HLEM SURVEY
1760Hz

PROJECT : PIE-VMS NUMBER : 810
BASELINE AZIMUTH : 085 deg

DATE : October 1996 NTS : 105 G/01
SURVEY BY : Amerok Geosciences
FILE : h810100

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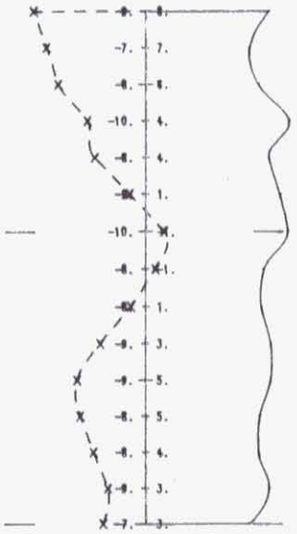
FIGURE 13



10600N — 10600N

10400N — 10400N

Instrument : Apex MMC I-10
Profile Scale : 5%/cm
In-phase (left) : ———
Quadrature (right) : - - - -
Coil Spacing : 100

Scale 1:5000

100 0 100 200
(metres)

WAWA CLAIMS

HLEM SURVEY

3520Hz

PROJECT : PIE-VMS NUMBER : 810
BASELINE AZIMUTH : 085 deg

DATE : October 1996 NTS : 105 G/01
SURVEY BY : Amerok Geosciences
FILE : h810100

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10800N — — 10800N

10600N — — 10600N

10400N — — 10400N

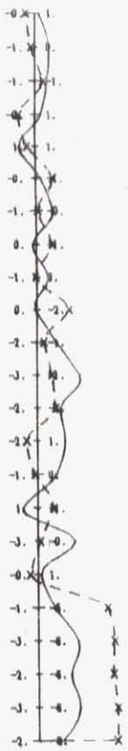

FIGURE 14

Instrument : Apex MMC I-10
Profile Scale : 5%/cm
In-phase (left) : ———
Quadrature (right) : - - - -
Coil Spacing : 200

Scale 1:5000

100 0 100 200
(metres)

Wawa Claims

HLEM SURVEY
220Hz

PROJECT : PIE-VMS NUMBER : 810
BASELINE AZIMUTH : 085 deg

DATE : Sept. 1996 NTS : 105 G/01
SURVEY BY : Amerok Geosciences
FILE : h810200

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10800N — — 10800N

10600N — — 10600N

10400N — — 10400N

FIGURE 15

Scale : 5:
In-phase (left) : ——
Quadrature (right) : - - - -
Coil Spacing : 200

Scale 1:5000

100 0 100 200

(metres)

Wawa Claims

HLEM SURVEY

880Hz

PROJECT : PIE-VMS NUMBER : 810

BASELINE AZIMUTH : 085 deg

DATE : Sept. 1996 NTS : 105 G/01

SURVEY BY : Amerok Geosciences

FILE : h810200

noranda

Mining and Exploration Inc.

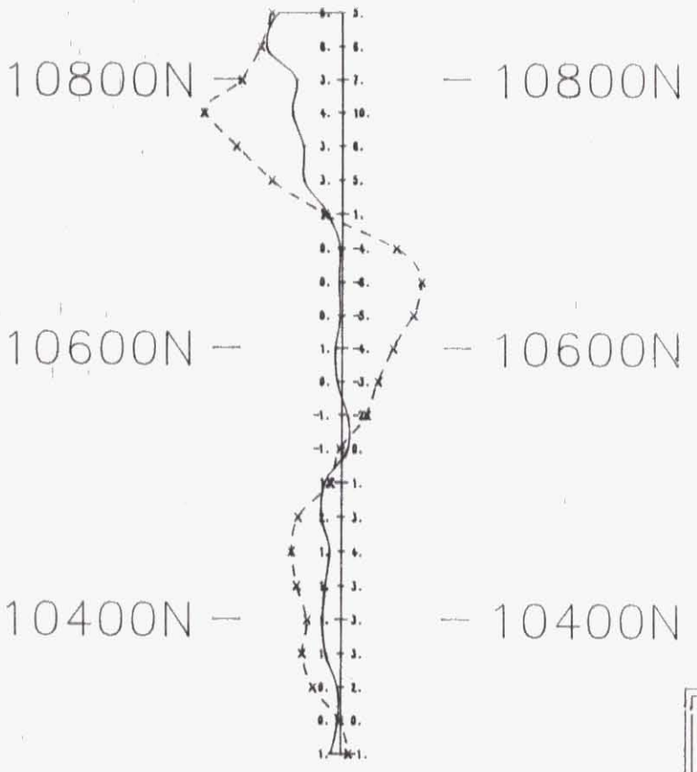

FIGURE 16

Instrument : Apex MMC I-10
Profile Scale : 5%/cm
In-phase (left) : ———
Quadrature (right) : - - - -
Coil Spacing : 200

Scale 1:5000

100 0 100 200
(metres)

Wawa Claims

HLEM SURVEY

1760Hz

PROJECT : PIE-VMS NUMBER : 810
BASELINE AZIMUTH : 085 deg

DATE : Sept. 1996 NTS : 105 G/01
SURVEY BY : Amerok Geosciences
FILE : h810200

noranda
Mining and Exploration Inc.

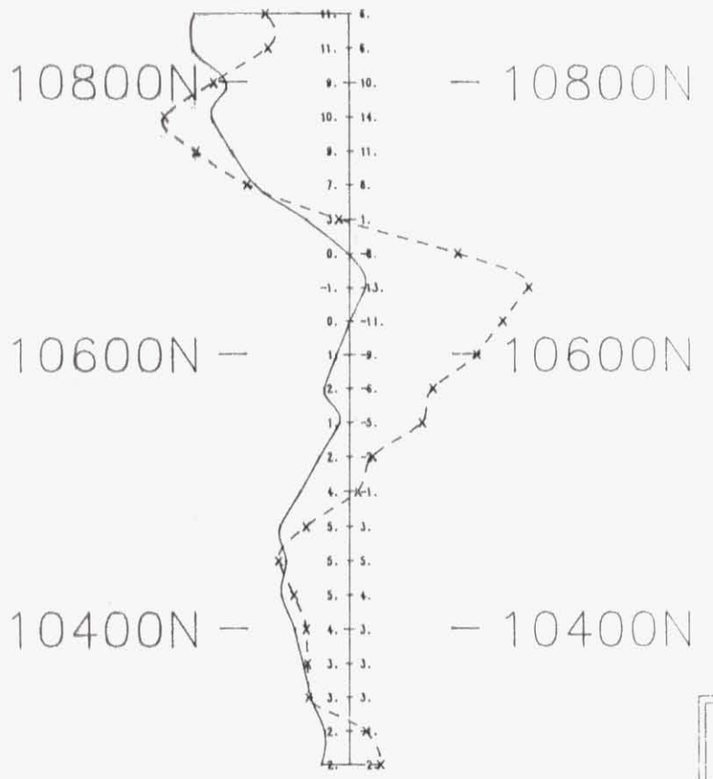

FIGURE 17

Instrument : Apex MMC 1-10
Profile Scale : 5%/cm
In-phase (left) :
Quadrature (right) :
Coil Spacing : 200

Scale 1:5000

100 0 100 200
(metres)

Wawa Claims

HLEM SURVEY
3520Hz

PROJECT : PIE-VMS NUMBER : 810
BASELINE AZIMUTH : 085 deg

DATE : Sept. 1996 NTS : 105 G/01
SURVEY BY : Amerok Geosciences
FILE : h810200

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Mining and Exploration Inc.