GENEVA LAKE MINE PROPERTY
HESS TWP., SUDBURY MINING DIVISION
NORTHEASTERN ONTARIO
REPORT ON
TDEM
MAG – VLF SURVEY
SEPTEMBER 2003
RICHARD SUTCLIFFE

JVX Ltd.

REPORT

ON

TIME DOMAIN ELECTROMAGNETIC, MAGNETIC And VLF-EM SURVEYS

CONDUCTED ON THE

GENEVA LAKE MINE PROPERTY

HESS TOWNSHIP

SUDBURY MINING DIVISION

NE ONTARIO

NTS 41 I/13

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September 11, 2003

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1. INTRODUCTION

JVX Ltd. conducted Time-Domain Electromagnetic Surveys (hereafter TDEM), Magnetometer and VLF-EM surveys between September 5 and 7, 2003 on the Geneva Lake Mine property. This property is located in Hess Township in the Sudbury Mining Division and approximately 45 kilometres northwest of the city of Sudbury in northeastern Ontario, NTS 41 I/13.

The access road(locally known as the KVP road) for the property is located approximately 12 km north of Cartier on highway 144. The western limit of the property is located on the KVP road approximately 8 kilometres east of highway 144. The survey area is located in the central section of the claim group immediately east of the past producing Geneva Lake Mine. To access the survey area directly, a right turn is required at a fork in the KVP road 5.0 km from highway 144. This road is not maintained during winter months. The location map is shown in figure 1.

The Geneva Lake Mine Property consists of nine (9) unpatented claims totaling 34 units. The record holder of the claims is Richard H. Sutcliffe. Claim numbers are as follows:

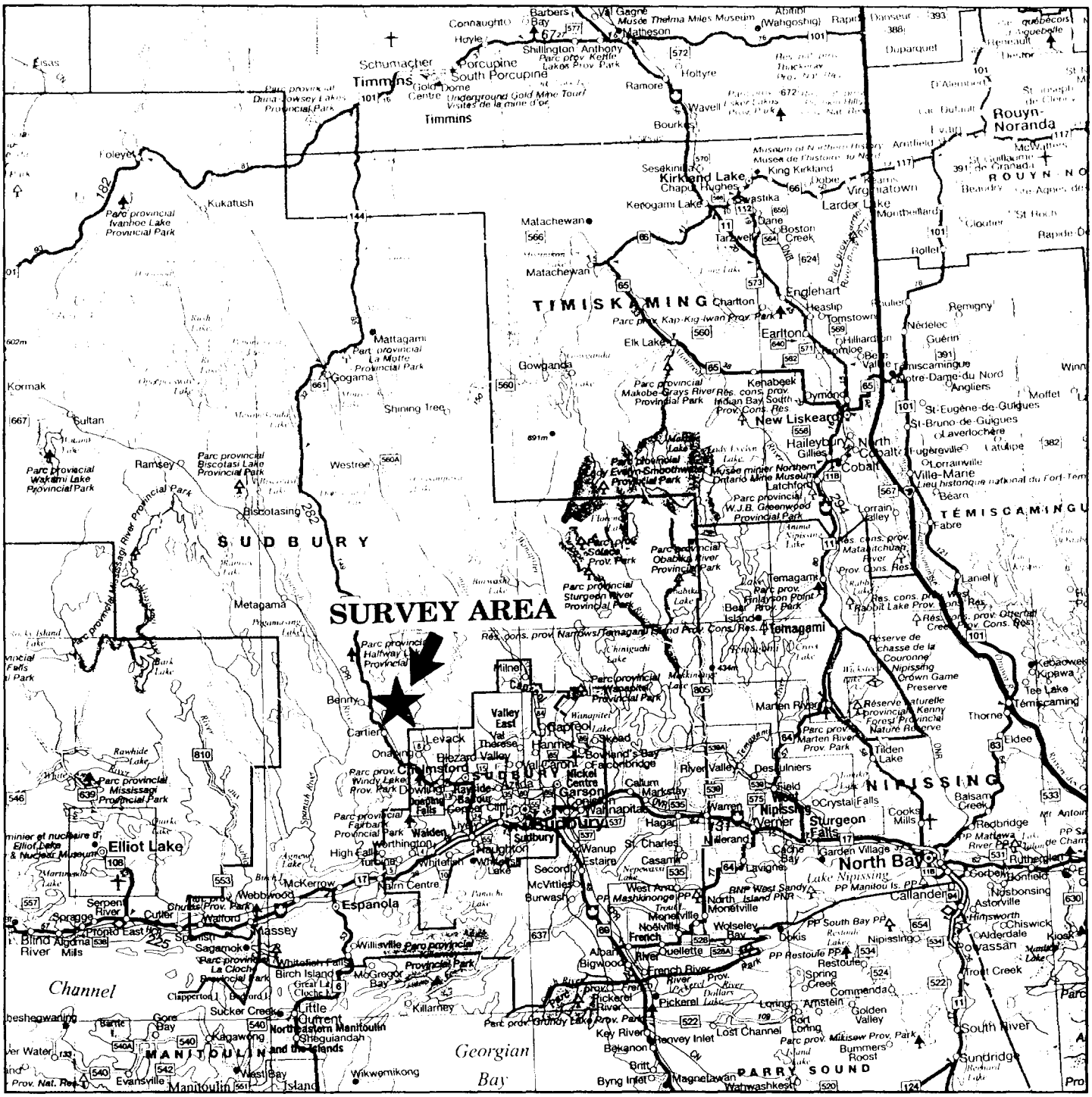
1241838	1241839	1241840	1241956	1241957
1241958	1242025	1242026	12412027	

In May 2002, a grid was established on the claims. Line spacing was 100 metres. The total length of the grid was 11.4 kilometres including a baseline and tie line. The baseline has an azimuth of 138°. The surveys were conducted over selected lines on the eastern portion of the grid east of the Geneva Lake Mine. The gird/claim map is shown in figure 2.

The purpose of the electromagnetic (TDEM and VLF-EM) surveys was to delineate the favourable horizon hosting the Geneva Lake deposit and to trace this horizon along strike to the east. The magnetic surveys have been completed to provide further definition of the stratigraphy and structural features.

2. PREVIOUS EXPLORATION And PROPERTY GEOLOGY

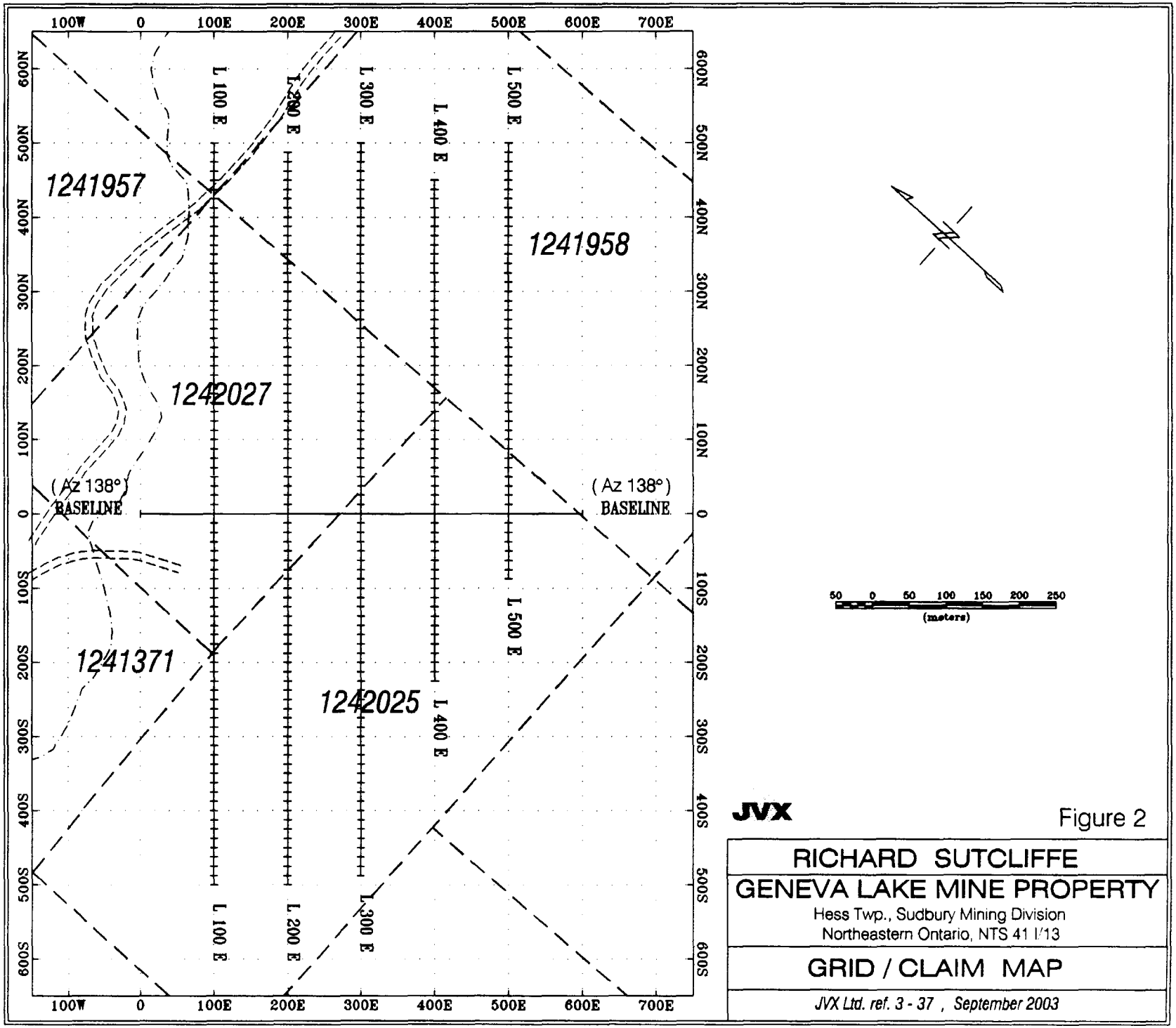
This section is from Sutcliffe and Tracanelli 2002[1]:



LOCATION MAP
RICHARD SUTCLIFFE
GENEVA LAKE MINE PROPERTY
Hess Twp., Sudbury Mining Division
Northeastern Ontario
NTS 41 I/13
GROUND GEOPHYSICAL SURVEY
Scale: 1 : 1,725,000

Survey by **JVX Ltd.**
September 2003

Figure 1


100W
0
100E
200E
300E
400E
500E
600E
700E
600N
500N
400N
300N
200N
100N
0
100S
200S
300S
400S
500S
600S
L 100 E
L 200 E
L 300 E
L 400 E
L 500 E
1241957
1241958
1242027
1241371
1242025
(Az 138°)
BASELINE
(Az 138°)
BASELINE
50 0 50 100 150 200 250
(meters)
JVX
Figure 2
RICHARD SUTCLIFFE
GENEVA LAKE MINE PROPERTY
Hess Twp., Sudbury Mining Division
Northeastern Ontario, NTS 41 I/13
GRID / CLAIM MAP
JVX Ltd. ref. 3 - 37 , September 2003

John Collins discovered a lead-zinc vein at what would later become the Geneva Lake Mine in the southeast corner of Lot 7, Con. 6 of Hess Township in October 1924. In 1925, the Collins-Babson Syndicate was formed and diamond drilling and trenching was carried out on the showings. In 1927 the property was optioned to Towagmac Exploration Co. Ltd. The company carried out 2000 feet of diamond drilling, sank a shaft to a depth of 250 feet and carried out 700 feet of lateral development on the 235 foot level.

In 1929, Lake Geneva Mining Co. Ltd. was incorporated with Towagmac Exploration Co. Ltd. retaining a controlling interest in the property. Development continued until 1930.

The following description of mine workings is from Card and Innes 1981. *"In 1937 the shaft was deepened to 120 meters and additional working levels were established at the 94.5 and 112.5 meter levels. In 1943 an inclined winze was sunk below the ore zone from the 94.5 meter level to a vertical depth of 192 meters and two more levels were established at 157.5 and 184.5 meters (Card and Innes 1981).*

The mine produced lead and zinc concentrates during the period 1941 to 1944.... During this period 80,588 tonnes of ore grading 3.34% lead and 9.21% zinc were mined to produce 10.4 million lbs of zinc, 3.6 million lbs of lead and silver valued at $28,416. When the mine closed in 1944, 150,000 tonnes of ore were left in the workings.

In 1949 the property was acquired by Bidgood Kirkland Gold Mines Limited who erected a 125 ton per day mill, dewatered and rehabilitated the underground workings, and carried out underground sampling and some 3,600 meters of diamond drilling. This work indicated reserves of some 114,000 tons of material grading 10% zinc, 3% lead and 90 cents per ton precious metals."

In 1972, Geneva Metals Inc. (Lake Geneva Mining Co. Ltd.) carried out a ground magnetic and electromagnetic survey on the mine property. The same year Tex-Sol Explorations Ltd. carried out an airborne geophysical survey over most of the Benny Greenstone Belt as part of the massive sulphide exploration effort. In 1973, Geneva

1. Sutcliffe, R.H., and Tracanelli H., 2002, Report on a Geological Survey on the Geneva Lake Mine Claim Group, Hess Township, Sudbury Mining Division, Claim Map – Plan G4062, NTS Map Sheet 41 I/12, 41 I/13.

Metals Inc. performed a ground EM-16 electromagnetic, magnetic and horizontal loop electromagnetic survey. Magnetic and VLF-EM anomalies that were detected were reportedly related to the contact zone of a northeast trending diabase dike.

In 1984, Noranda Exploration Company Limited performed an airborne geophysical survey over the Benny Greenstone belt. No significant magnetic or electromagnetic anomalies were detected over the Geneva Lake Mine. In 1987, Falconbridge Ltd. flew an airborne geophysical survey over the Benny Greenstone belt with similar results to the Noranda survey.

In 1991, The Ontario Geological Survey carried out an airborne electromagnetic and magnetic survey over the entire Benny Greenstone belt. The survey revealed a number of weak EM anomalies on the property. Weak conductors were detected at the Geneva Lake Mine. One corresponds with the area of the tailings and a second appears to correspond with the trend of mineralization north west of the shaft.

PROPERTY GEOLOGY

The Geneva Lake Mine property is located in the Archean Benny Greenstone Belt. The Benny Greenstone belt (Card and Innes 1981) is approximately 35 kilometer by 5 kilometer wide and is bounded by Archean granitoid rocks of the Ramsey-Algoma granitoid complex.

The Benny Greenstone belt is greenschist to amphibolite facies. A strong penetrative east striking fabric in the Archean rocks is approximately parallel to lithological contacts. Archean supracrustal rocks consist of calc-alkaline andesite, dacite, and rhyolite flows, pyroclastic tuffs and breccias, cherty metasediments, graphitic shales and turbidite which form the Geneva assemblage and tholeiitic basaltic flows with minor calc alkaline volcaniclastic and metasedimentary rocks forming the Bluewater assemblage (Card and Innes 1981; Jackson and Fyon, 1991). Significant stratabound mineralization such as the Geneva Lake Mine is associated with the top of the Geneva assemblage. Based on northward facing directions throughout the belt, Guthrie (1980) concludes that the Bluewater assemblage conformably overlies the Geneva assemblage.

Early Proterozoic Huronian metasedimentary rocks and Nipissing gabbroic rocks overlie and intrude the Archean rocks of the Benny Greenstone belt.

The grid is predominately underlain by Archean metavolcanic and metasedimentary rocks of the Benny Greenstone Belt and by Archean granitoid intrusions. Locally Early Proterozoic mafic rocks are metamorphosed to amphibolite facies and are strongly foliated.

Major units strike in an east-west direction across the area of the grid. All of the Archean rocks are characterized by a strong fabric that strikes approximately east-west and dips steeply to the south. In the area of the Geneva Lake mine the stratification in the metasedimentary sequence strikes northwest, whereas both east and west of the mine the stratification strikes east. The deposit is considered to occur on the southwest flank of a large antiformal drag fold (Card and Innes 1981). The deposit dips at 40 to 75° to the southwest (Card and Innes 1981).

3. SURVEY SPECIFICATION and PRODUCTION SUMMARY

The following tables contain the specifications and production summary for the TDEM surveys:

Transmitter	GEONICS TEM57 - MK2
Receiver	GEONICS PROTEM
Array Type	Fixed Loop - Moving Receiver
Transmitter Loop Size	~ 300 m x 300 m
Components Measured	X, Y & Z
Base Frequency	30 Hz
Station Spacing	25 & 50 m
Number of Lines Surveyed	5
Survey Coverage	1.425 km

Table 1: Specifications for the TDEM Surveys

Line	From Station	To Station	Distance (m)	No. of Readings
100E	175N	400S	575	16
200E	175N	300S	475	13
300E	175N	200S	375	11
Total			**1425**	**40**

Table 2: Production Summary for the TDEM Survey

The following tables contain the specifications and production summaries for the Magnetics and VLF-EM surveys:

Instrument	Scintrex ENVI MAG/VLF
Sensor Type	Proton Precession
VLF station	25.2 kHz (La Moure, ND)
Station Spacing	12.5 m
Number of Lines Surveyed	5
Survey Coverage	4.2375 km

Table 3: Survey Specifications for the Magnetics and VLF-EM Surveys

Line	From Station	To Station	Distance (m)	No. of Readings
100E	500N	500S	1000	81
200E	487.5N	500S	987.5	80
300E	500N	487.5S	987.5	80
400E	450N	225S	675	55
500E	500N	87.5S	587.5	48
Total			**4237.5**	**344**

Table 4: Production Summary for the Magnetics and VLF-EM Surveys

4. PERSONNEL

John Marsh (Senior Geophysical Technician):
Mr. Marsh operated the Protem Receiver for the TDEM surveys and was responsible for day-to-day field operations and overall data quality.

Alex Jelenic (Geophysicist):
Mr. Jelenic assisted Mr. Marsh with the TDEM surveys. He also processed and plotted the results of the TDEM, Magnetics and VLF-EM surveys.

Tim Charlebois (Geophysical Technician):
Mr. Charlebois performed the Magnetics/VLF-EM surveys. He also assisted Mr. Jelenics and Mr. Marsh with moving the TDEM field equipment in and out of the survey area

John Gilliatt (Senior Geophysicist):
Mr. Gilliatt prepared this report. Mr. Gilliatt assisted Mr. Jelenic in preparing the final maps for the report.

Ms.Dagmar Piska (Draftsperson):
Ms. Piska carried out the AUTOCAD drafting on the figures/plates and assembled this report.

Blaine Webster (President):
Mr. Webster provided overall supervision of the survey.

5. FIELD INSTRUMENTATION

JVX supplied the geophysical instruments specified in Appendix A.

5.1 TDEM

The time domain electromagnetics method measures transient fields in and over the earth. The **Geonics Protem** Digital Receiver was employed and measure Z, X and Y components simultaneously using the **Geonics 3D-3** 3-component coil. The integration time for each measurement was selected at 15 seconds.

A 3.5kW motor generator powered the **Geonics TEM57-MK2** transmitter. The transmitter can supply upwards of 30 amps through the transmitter loop of wire. The transmitter current waveform consists of a series of alternating bipolar current pulses with slow exponential turn-on and a rapid linear turn-off. The base frequency of operation is switch selectable. For this particular survey, the repetition rate (base frequency) of 30Hz was employed. .

5.2 MAGNETICS And VLF-EM

Scintrex ENVIMAG/VLF integrated geophysical system was used to measure the Total Magnetic Field and the vertical in-phase, quadrature components of the secondary magnetic field derived from a station located in La Moure, North Dakota (transmitting frequency 25.2 kHz). The Total VLF Field strength component was also recorded.

The ENVIMAG magnetometer uses a proton sensor providing an aboslute measuring accuracy of +/- 1 nT. The VLF sensor consists of three orthogonals coils (two horizontal and one vertical) mounted in a cylindrical housing. The coils consists of copper wire wound on a non-ferrous frame.

A **GEM systems GSM-19** base station was used to correct for diurnal variations in the geomagnetic field.

6. DATA PROCESSING

After being transferred to a field computer at the end of each survey day, the data were examined, corrected, and organized by the instrument operator. The corrected data was sent by e-mail to the Richmond Hill, Ontario head office.

The final digital data have been converted from the edited Geonics instrument dump files into Gesoft format *.xyz files for plotting.

6.1 TDEM

GEOSOFT software were used to prepare final plots of the TDEM profiles of the Z, X and Y components on a line-by-line basis. All 20 measured channels were normalized and divided into the following four groups for plotting purposes:

- Channels (1 to 5)
- Channels (6 to 10)
- Channels (11 to 15)
- Channels (16 to 20)

Within each set of channels a common vertical plotting scale was employed for all lines and components surveyed.

6.2 MAGNETICS And VLF-EM

GEOSOFT software was also used to generate the contour map of the Total Field Magnetics. This software was also used to plot the VLF-EM profiles (vertical in-phase and quadrature secondary field components and the Total VLF field strength).

7. DISCUSSION OF RESULTS

Profile maps of the TDEM and VLF-EM survey results as well as the contour map of the Total Field Magnetics have been plotted as outlined in section 6 above. The interpreted results were then transferred to a Compilation Map. The location of the TDEM survey loop (**Loop 1**) is shown on the Compilation Map. All the maps are included in Appendix B of this report.

A total of six (6) weak to moderate VLF conductors have been identified. Three closely-spaced conductors (**V-2**, **V-3** and **V-4**) are located on L1E immediately east of the Geneva Lake deposit. All three conductors coincide with a thin layer of tailings from the mine workings. These tailings do not extend to L2E. Both **V-2** and **V-4** extend eastward from L1E to L2E. **V-2** displays a strong correlation with a weak airborne EM conductor located at L1+25E/1+10N. **V-2** is shown to extend to the limit of the survey on L5E. However, the VLF responses on L3E and L4E could be related to the TDEM loop wire located near 2+00N. **V-4** appears to represent the strongest VLF conductor on the grid. The shape of the in-phase profile suggest the causative source dips shallowly to the southwest. This would be consistent with the dip of Geneva Lake deposit. **V-5** and **V-6** represent two weak closely spaced conductors located on L3E south of the baseline. **V-5** coincides with an apparent north-south striking fault (**F-1**). **V-6** is located along the northeast edge of the magnetic high zone **M-4**. Both conductors could indicate minor mineralization along a faulted contact.

The magnetics surveys have outlined five (5) magnetic high zones. The majority of the mag highs are located north of the baseline. Magnetic values within these zones are only moderately above background levels. Zone **M-4** located south of the baseline could represent olivine diabase, as it is known to outcrop on L3E south of the baseline.

Both north south an east-west striking faults have been interpreted from the magnetics surveys. These faults are poorly defined and should be compared with available airborne magnetic data for accuracy.

The TDEM surveys conducted on L1E, 2E and 3E did not detect any conductive features.

8. SUMMARY And RECOMMENDATIONS

TDEM, VLF-EM and Total Field Magnetics surveys have been completed over a section of the Geneva Lake Mine Property. The survey area is located east of the Geneva Lake deposit. No TDEM conductors were identified, however a total of six (6) VLF-EM conductors were interpreted from VLF-EM surveys. Three of the conductors are located in close proximity to the past producing Geneva Lake Mine.

All VLF-EM conductors should be prospected to determine the causative source. The targeted mineralization might contain a high concentration of sphalerite. Sphalerite is generally a poor conductor and therefore a detailed Time-Domain Spectral IP survey is recommended on L1E and L2E to outline the electrical properties of the favourable horizon hosting the Geneva Lake deposit. A small dipole spacing of 12.5 metres should be employed to define closely spaced anomalies for follow-up drilling. Favourable results could warrant extending the IP coverage.

If there are questions with regard to the survey or its interpretation please call the undersigned.

Respectfully submitted,

JVX Ltd.

John Gilliatt
Senior Geophysicist

Blaine Webster
President

APPENDIX A

SCINTREX

ENVI GEOPHYSICAL SYSTEM

Total Field Operating Range
20,000 to 100,000 nT (gammas)

Total Field Absolute Accuracy:
±1 nT

Sensitivity:
0.1 nT at 2 second sampling rate

Tuning
Fully solid state. Manual or automatic keyboard selectable

Cycling (Reading) Rates
0.5, 1 or 2 second sensor, 1/2m (20 inch) staff extender and processor module

Gradiometer Option
Includes a second sensor, 1/2m (20 inch) staff extender and processor module

VLF Option
Includes a VLF sensor and harness assembly

'WALKMAG' Mode
0.5 seconds for walking surveys, variable rates for hilly terrain

Digital Display
LCD 'Super Twist', 240 x 64 dots graphics, 8 line x 40 characters alphanumerics

Display Heater
Thermostatically controlled, for cold weather operations

Keyboard Input
17 keys, dual function, membrane type

Notebook Function
32 characters, 5 user-defined MACRO's for quick entry

Standard Memory
Total Field Measurements: 28,000 readings
Gradiometer Measurements: 21,000 readings
Base Station Measurements: 151,000 readings
VLF Measurements: 4,500 readings for 3 frequencies

Expanded Memory
Total Field Measurements: 140,000 readings
Gradiometer Measurements: 109,000 readings
Base Station Measurements: 750,000 readings
VLF Measurements: 24,000 readings for 3 frequencies

Real-Time Clock
Records full date, hours, minutes and seconds with 1 second resolution, ±1 second stability over 24 hours

Digital Data Output
RS-232C interface, 600 to 57,600 Baud, 7 or 8 data bits, 1 start, 1 stop bit, no parity format. Selectable carriage return delay (0-999 ms) to accommodate slow peripherals. Handshaking is done by X-on/X-off. High speed Binary Dump

Analog Output
0-999 mV full scale output voltage with keyboard selectable range of 1, 10, 100, 1000 or 10,000 full scale

Power Supply
Rechargeable 'Camcorder' type, 2.3 Ah, Lead-acid battery
12 Volts at 0.65 Amp for magnetometer, 1.2 Amp for gradiometer
External 12 Volt input for base station operations
Optional external battery pouch for cold weather operations

Battery Charger
110 Volt-230 Volt, 50/60 Hz

Operating Temperature Range
Standard: -40° to 60°C

Dimensions & Weight

Console:	250mm x 152mm x 55mm 10" x 6" x 2.25" 2.45 kg (5.4 lbs) with rechargeable battery
T.F. sensor:	70mm x 175mm 2.75"d x 7" 1 kg (2.2 lbs) (sensor)
Gradiometer sensor and staff extender:	70mm x 675mm 2.75"d x 26.5" 1.15 kg (2.5 lbs) (sensor)
T.F. staff:	25mm x 2m 1"d x 76" .8 kg (1.75 lbs)
VLF sensor Head:	140mm x 130mm 5.5"d x 5.1" .9kg (2 lbs)
VLF Electronics Module:	280mm x 190mm x 75mm 11" x 7.5" x 3" 1.7kg (3.7 lbs)

SCINTREX

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GSM-19

Proton Magnetometer/VLF System

GSM-19 PROTON MAGNETOMETER/VLF

Proton Magnetometer/VLF System

Features:

- Omnidirectional Magnetometer with VLF.
- Remote control for observatory and airborne base station applications.
- Streamlined grid coordinate system with "end of line" quick change capability.
- 128kb basic memory, expandable to 2MB.
- Programmable RS-232 high-speed data transfer to 19.2kb.
- 50 and 60Hz filter, user selectable.
- Automatic tuning and base station synchronization.

General

The GSM-19 is a state-of-the-art magnetometer/VLF system that delivers quality data and the extensive capabilities required to perform a broad spectrum of applications. Whether the application calls for detailed ground surveys, or remotely controlled magnetic observatory measurements, you can count on the GSM-19 system to meet your goals.

The proton magnetometer can be equipped with gradiometer or VLF options, and is upgradable to an Overhauser Magnetometer.

Simultaneous Gradiometer

Many mining, environmental, and archaeological applications call for high-sensitivity gradiometer surveys. The GSM-19 meets these needs in several ways. For example, simultaneous measurement of the magnetic field at both sensors eliminates diurnal magnetic effects.

"Walking" Magnetometer/Gradiometer

The "Walking" option enables acquisition of nearly continuous data on survey lines. Data is recorded at discrete time intervals (up to 2 readings-per-second) as the instrument travels along the line.

Omnidirectional VLF

With the omnidirectional VLF option, up to three stations of VLF data can be acquired without orienting. Moreover, the operator can record both magnetic and VLF data with a single stroke on the keypad.

Remote Control Operation

When used during observatory, marine, and airborne base station applications, this option allows users to set parameters and initiate measurements from a computer terminal using standard RS-232 commands. A real-time transmission capability is provided to allow data quality monitoring while marine or vehicle borne surveys are in progress.

Automatic Tuning

Tuning is automatic in all modes of operation with initial preset. An override option is also provided for manual and remote modes. Tuning steps are 1,000 gammas wide.

Adaptability to High Gradients

In standard instruments, a gradient in the magnetic field across the sensor volume can shorten the decay time of the proton precession signal. However, the GSM-19 monitors the signal decay, and calculates the optimal time interval for measurement. Warning messages appear on the display when the measuring interval becomes too short.

Specifications

Performance

Resolution: 0.01nT

Relative Sensitivity: 0.2nT

Absolute Accuracy: 1nT

Range: 20,000 to 120,000nT

Gradient Tolerance: Over 7,000nT/m

Operating Temperature: -40°C to +60°C

Operating Modes

Manual: Coordinates, time, date and reading stored automatically at min. 3 second interval.

Base Station: Time, date and reading stored at 3 to 60 second intervals.

Mobile: Time, date and reading stored at coordinates of fiducial.

Remote Control: Optional remote control using RS-232 interface.

Input/Output: RS-232 or analog (optional) output using 6-pin weatherproof connector.

Storage Capacity

Manual Operation: 8,000 readings standard. 131,000 optional.

Base Station: 43,000 readings standard, 700,000 optional.

Gradiometer: 6,800 readings standard, 110,000 optional.

Dimensions and Weights

Dimensions: **Console:** 223 x 69 x 240mm. **Sensor:** 170 x 71mm diameter cylinder.

Weight: **Console:** 2.1kg. **Sensor** and Staff Assembly: 2.2kg

Standard Components

GSM-19 console, batteries, harness, charger, case, sensor with cable, connector, staff, and instruction manual.

Ordering Information

Description	Order Number
GSM-19 Proton Mag	**350-170-0039**
Gradiometer Option	**350-170-0042**
VLF Option	**350-170-0069**
Memory Upgrade, 128kb	**350-170-0063**
Analog Output	**350-170-0040**
Remote Option	**350-170-0043**

K) TECHNICAL SPECIFICATIONS

PROTEM DIGITAL RECEIVER

TECHNICAL SPECIFICATIONS

Measured Quantity		:	Time rate of decay of magnetic flux along 3 axes.
Sensors	1. (L.F.)	:	Air-cored coil of bandwidth 60 kHz; 100 cm diameter.
	2. (H.F.)	:	Air-cored coil of bandwidth 700 kHz; 61 cm diameter.
	3. (3D-3)	:	Three orthogonal component sensor; simultaneous operation.
	4. (3D-1)	:	Three orthogonal component sensor; sequential operation.
	5. (H.F.3D)	:	High frequency three orthogonal component sensor.
Time Channels		:	20 or 30 geometrically spaced time gates for each base frequency gives range from 6 μs to 800 ms.
Repetition Rate (Base Frequency)		:	0.3 Hz, 0.75 Hz, 3 Hz, 7.5 Hz, 30 Hz, 75 Hz or 285 Hz for countries using 60 Hz power line frequency. 0.25 Hz, 0.625 Hz, 2.5 Hz, 6.25 Hz, 25 Hz, 62.5 Hz or 237.5 Hz for countries using 50 Hz power line frequency.
Synchronization		:	(1) Reference cable. (2) High stability quartz crystal (optional).
Integration Time		:	0.25, 2, 4, 8, 15, 30, 60, 120, sec.
Calibration		:	Internal self calibration External Q coil calibration (optional).
Keyboards		:	Two 3 x 4 matrix sealed key pads with positive tactile feedback.
Gain		:	Manual control.
Dynamic Range		:	29 bits (175 dB).
Display Quantity		:	(1) Table of time rate of decay of magnetic flux (dB/dt) (2) Curve of rate of decay of magnetic flux (dB/dt) (3) Table of apparent resistivity (ρ_a) (4) Curve of apparent resistivity (ρ_a) (5) Profile of dB/dt (6) Real time noise monitor (7) Calibration curve (8) Data acquisition statistics (real time)

Storage	:	Solid state memory with capacity for 3300 data sets. Optional: 25 000 data sets
Display	:	8 lines x 40 characters (240 x 64 dot) graphic LCD.
Data Transfer	:	Standard RS-232 communication port.
Processor	:	CMOS 68HC000 8 MHz CPU
Receiver Battery	:	12 volts rechargeable battery for 8 hours continuous operation. 6 hours in XTAL mode.
Receiver Size	:	34 x 38 x 27 cm.
Receiver Weight	:	15 kg.
Operating Temperature	:	-40°C to +50°C.

Note: The PROTEM Digital Receiver can be used with all five Geonics transmitters - TEM47,TEM57, TEM37, TEM57-MK2 and TEM67.

GEONICS PROTEM EM SYSTEM
TEM67 TRANSMITTER
I. TEM57-MK2 TRANSMITTER

ELECTRICAL		
Current Waveform	:	Bipolar rectangular current with 50% duty cycle.
Repetition Rate	:	3 Hz, 7.5 Hz or 30 Hz (powerline frequency 60 Hz) 2.5 Hz, 6.25 Hz or 25 Hz (powerline frequency 50 Hz) Rates below 1 Hz available from PROTEM receiver through reference cable
Turn-Off Time	:	20 to 150 μs, depending on size, current and number of turns in transmitter loop
Transmitter Loop	:	Single turn: Any dimension; minimum resistance 0.7 ohms Up to 300 x 600 m, 8-turn; 5 x 5 or 10 x 10 m
Output Current	:	25 A maximum; (50 A pp).
Output Voltages	:	18 V to 60 V continuous control, with motor generator, up to 3,800 W with external battery supply
Power Supply	:	1,800 W, 110/220 V, 50/60 Hz single-phase motor-generator or, optionally multiple 12 V batteries (up to eight)
Synchronization Mode	:	Reference cable or optional quartz crystal
Transmitter Protection	:	Electronic and electromechanical protection against short circuit
ENVIRONMENTAL		
Operating Temperature	:	-35°C to +50°C
MECHANICAL		
Transmitter Size	:	43 x 25 x 25 cm
Transmitter Weight	:	15 kg
Motor Generator Size (EZ 1800XKIC)	:	51 x 43 x 41 cm
Motor Generator Weight (EZ 1800XKIC)	:	31 kg

II. TEM67 POWER MODULE

Output Voltage	:	18 VDC to 90 VDC continuous control
Maximum current	:	25 A maximum; (50 A pp)
Input Power	:	110/220 VAC, 50/60 Hz single phase 3,000 W
Protection	:	Electronic protection against short circuit

ENVIRONMENTAL

Operating temperature	:	-35°C to +50°C

MECHANICAL

Size	:	42 x 20 x 31 cm
Weight	:	12 kg

III. MOTOR GENERATOR EV 4500

Size	:	60 x 44 x 55 cm
Weight	:	70 kg
Output	:	120/240 VAC/60 Hz/4,500 W
Fuel tank capacity	:	18 litres
Operational capacity (full load)	:	8 hours

APPENDIX B

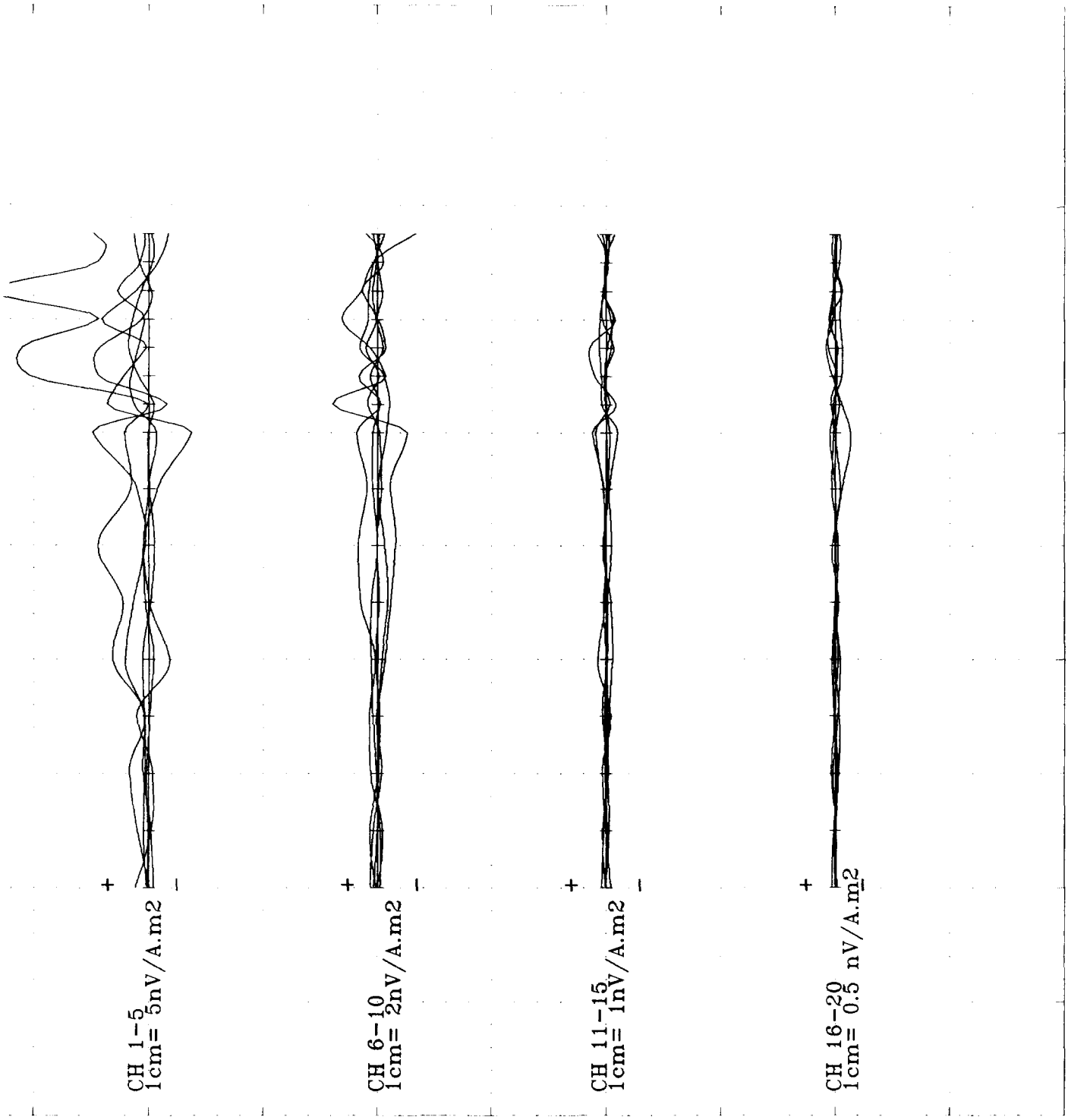


PLATE L1-1x

LOOP 1 (Line 100E)

RICHARD SUTCLIFFE
X Component

Base Frequency = 30 Hz
Scale 1 cm = 50 m

JVX Ltd. ref. 3-37, SEPT. 2003

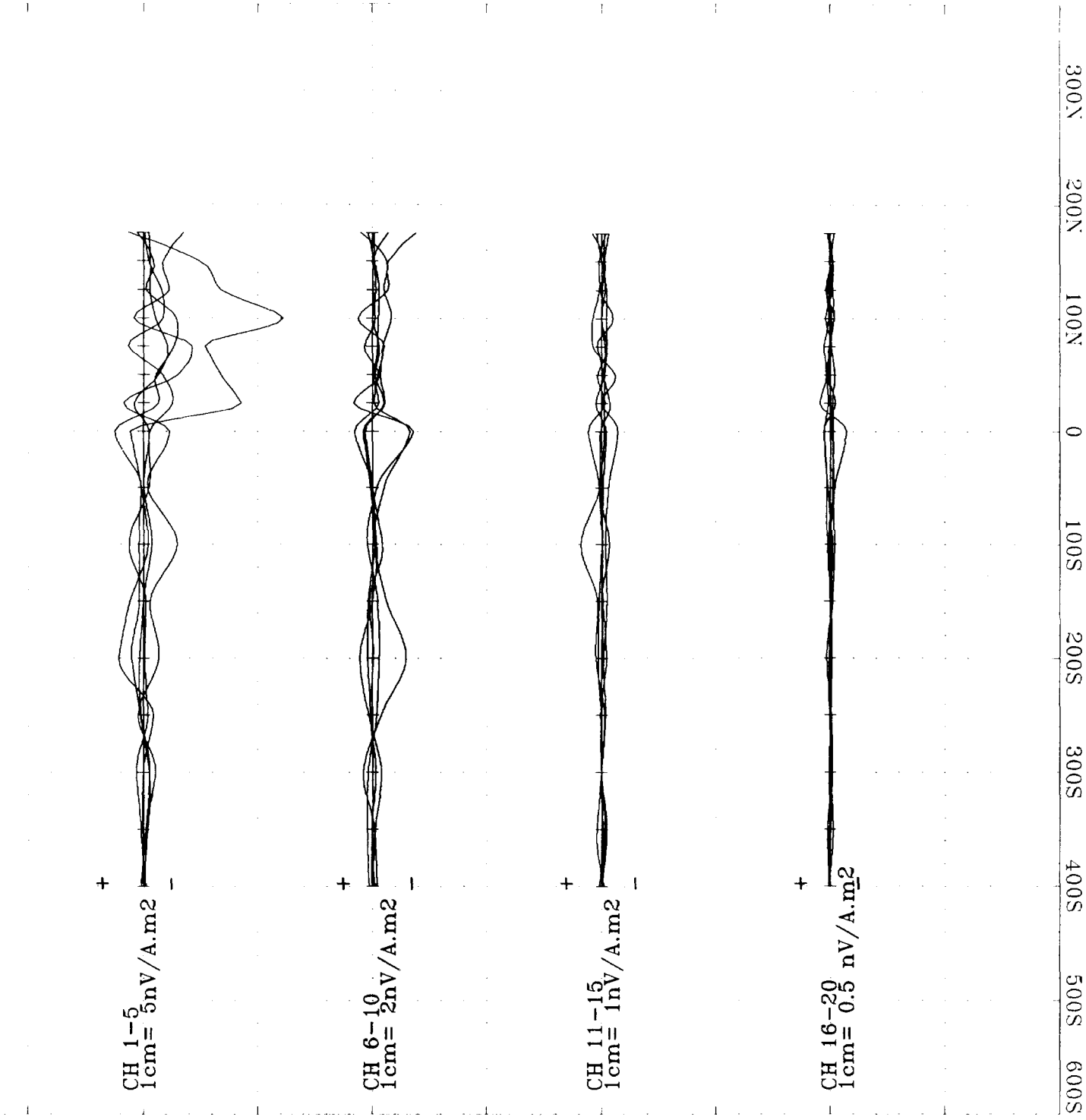


PLATE L1-1y

LOOP 1 (Line 100E)

RICHARD SUTCLIFFE
Y Component

Base Frequency = 30 Hz
Scale 1 cm = 50 m

JVX Ltd. ref. 3-37, SEPT. 2003

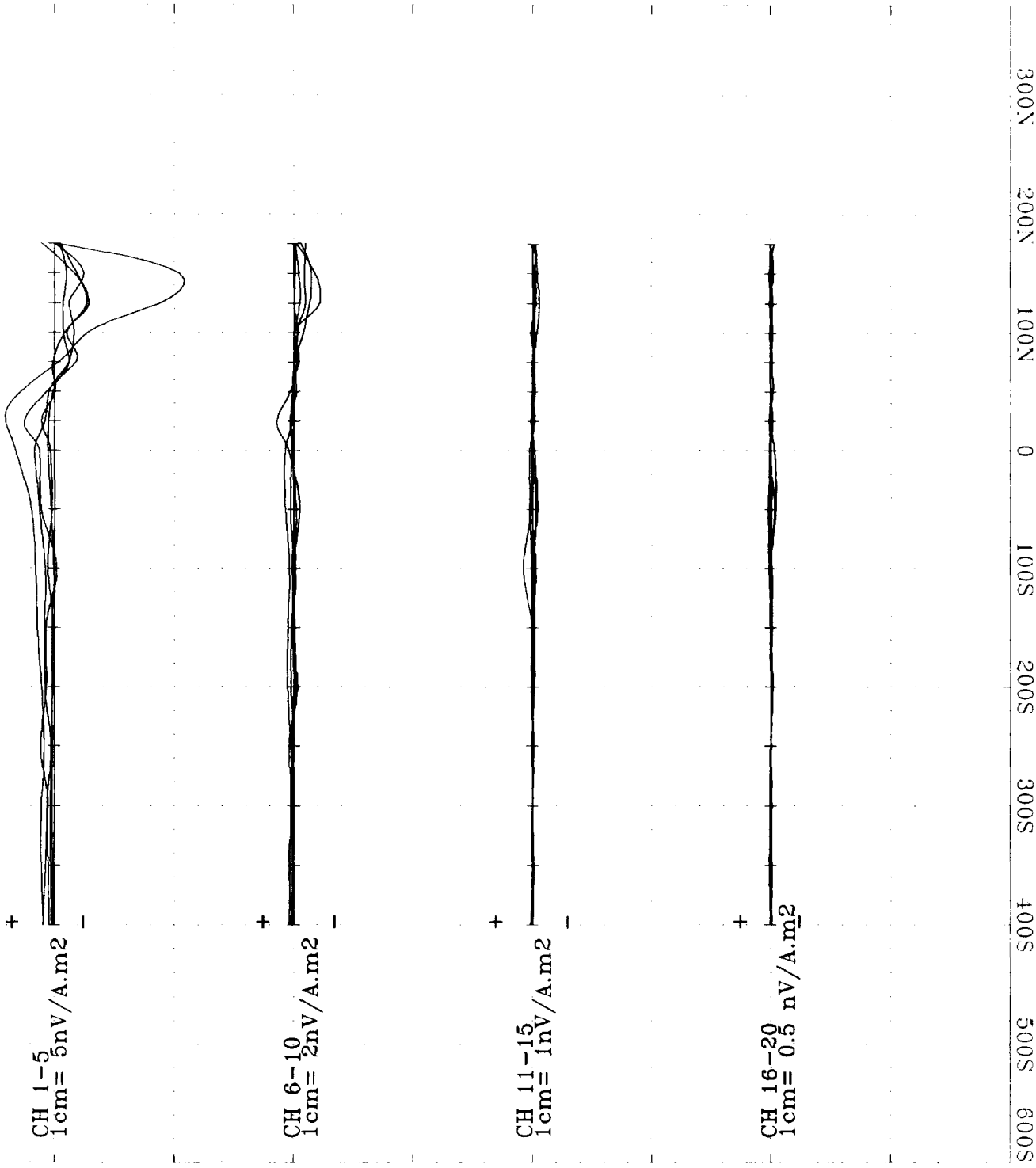


PLATE L1-1z

LOOP 1 (Line 100E)

RICHARD SUTCLIFFE
Z Component

Base Frequency = 30 Hz
Scale 1 cm = 50 m

JVX Ltd. ref. 3-37, SEPT. 2003

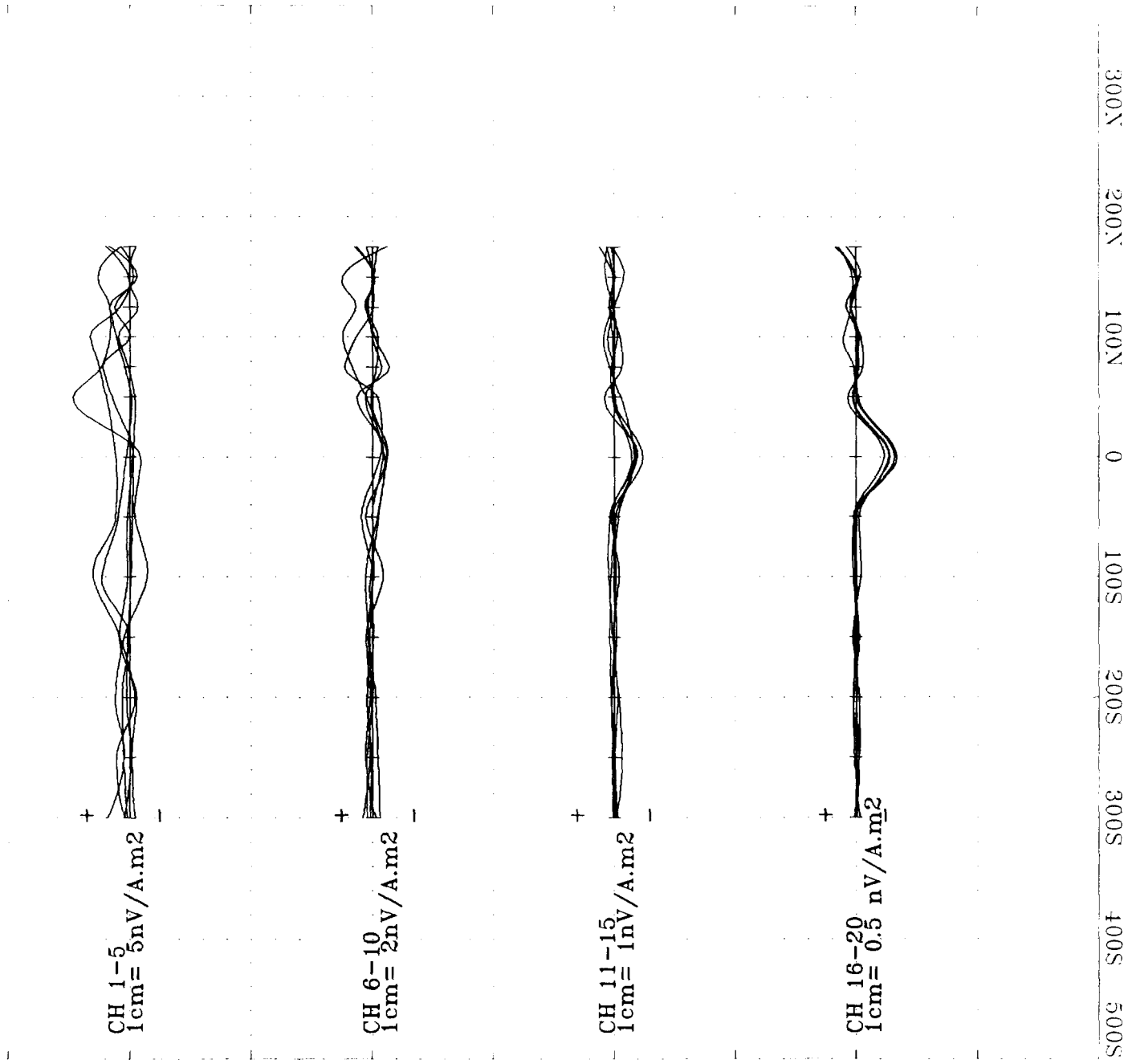


PLATE L1-2x

LOOP 1 (Line 200E)

RICHARD SUTCLIFFE
X Component

Base Frequency = 30 Hz
Scale 1 cm = 50 m

JVX Ltd. ref. 3-37, SEPT. 2003

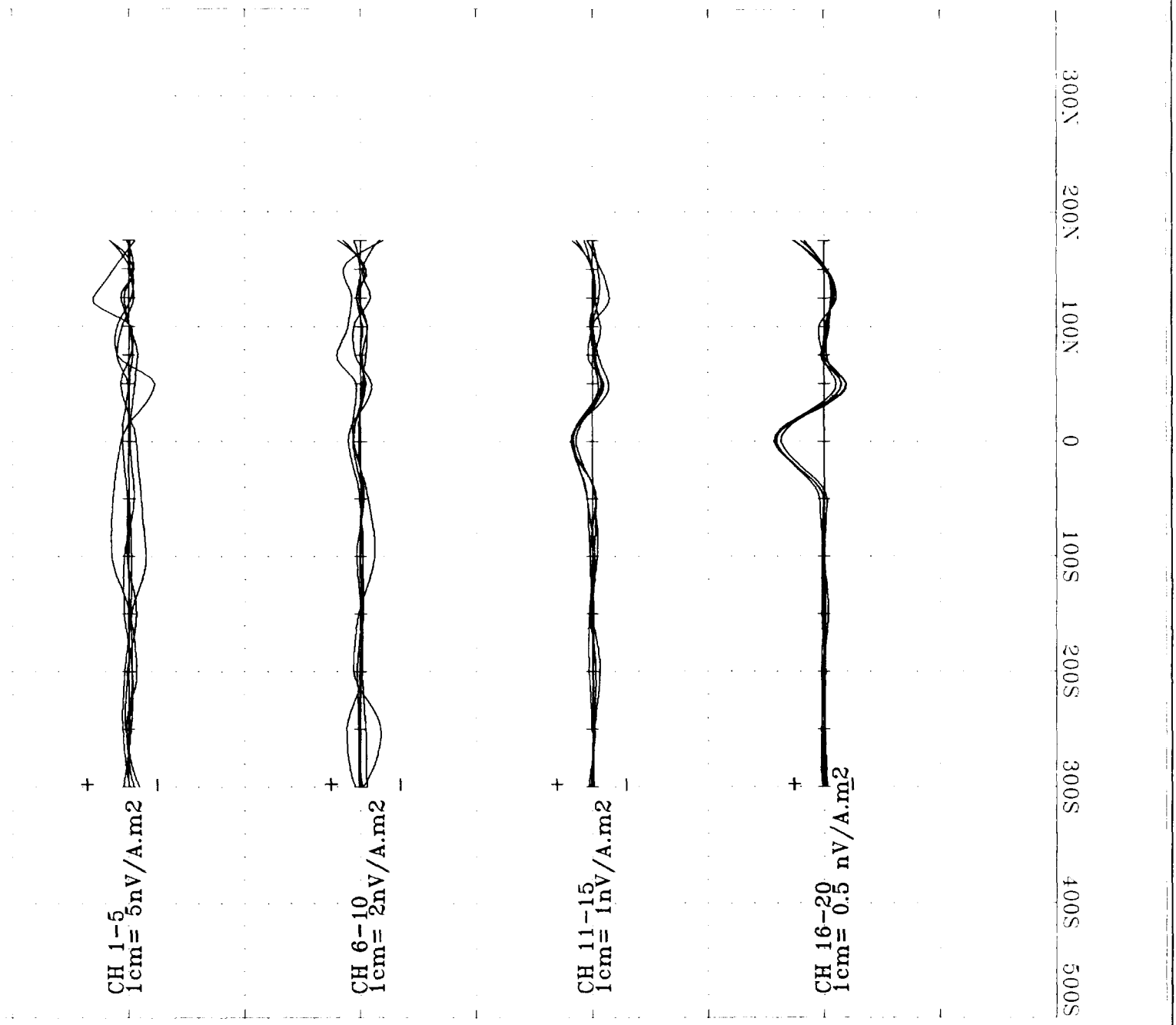


PLATE L1-2y

LOOP 1 (Line 200E)

RICHARD SUTCLIFFE
Y Component

Base Frequency = 30 Hz
Scale 1 cm = 50 m

JVX Ltd. ref. 3-37, SEPT. 2003

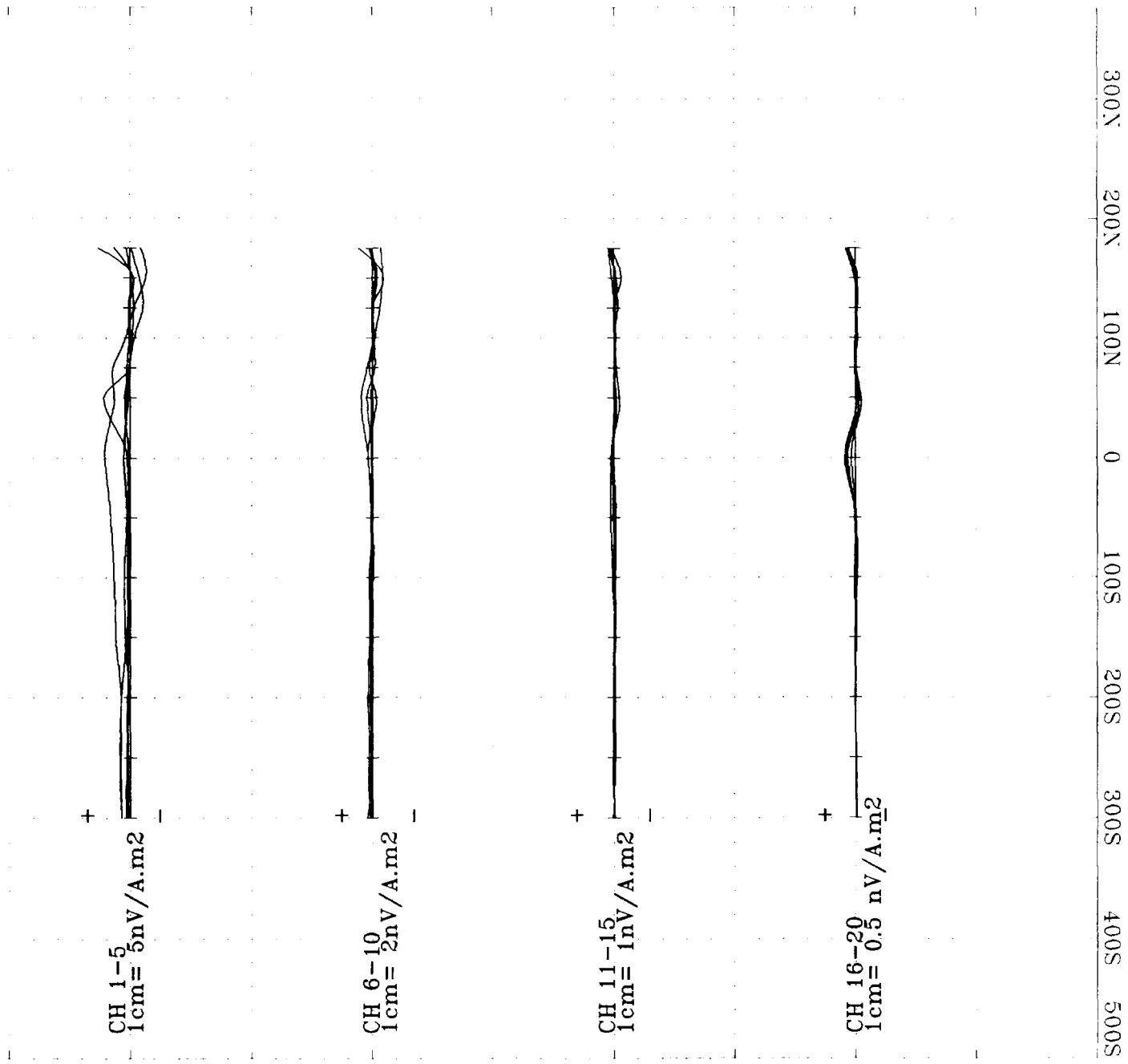


PLATE L1-2z

LOOP 1 (Line 200E)

RICHARD SUTCLIFFE
Z Component

Base Frequency = 30 Hz
Scale 1 cm = 50 m

JVX Ltd. ref. 3-37, SEPT. 2003

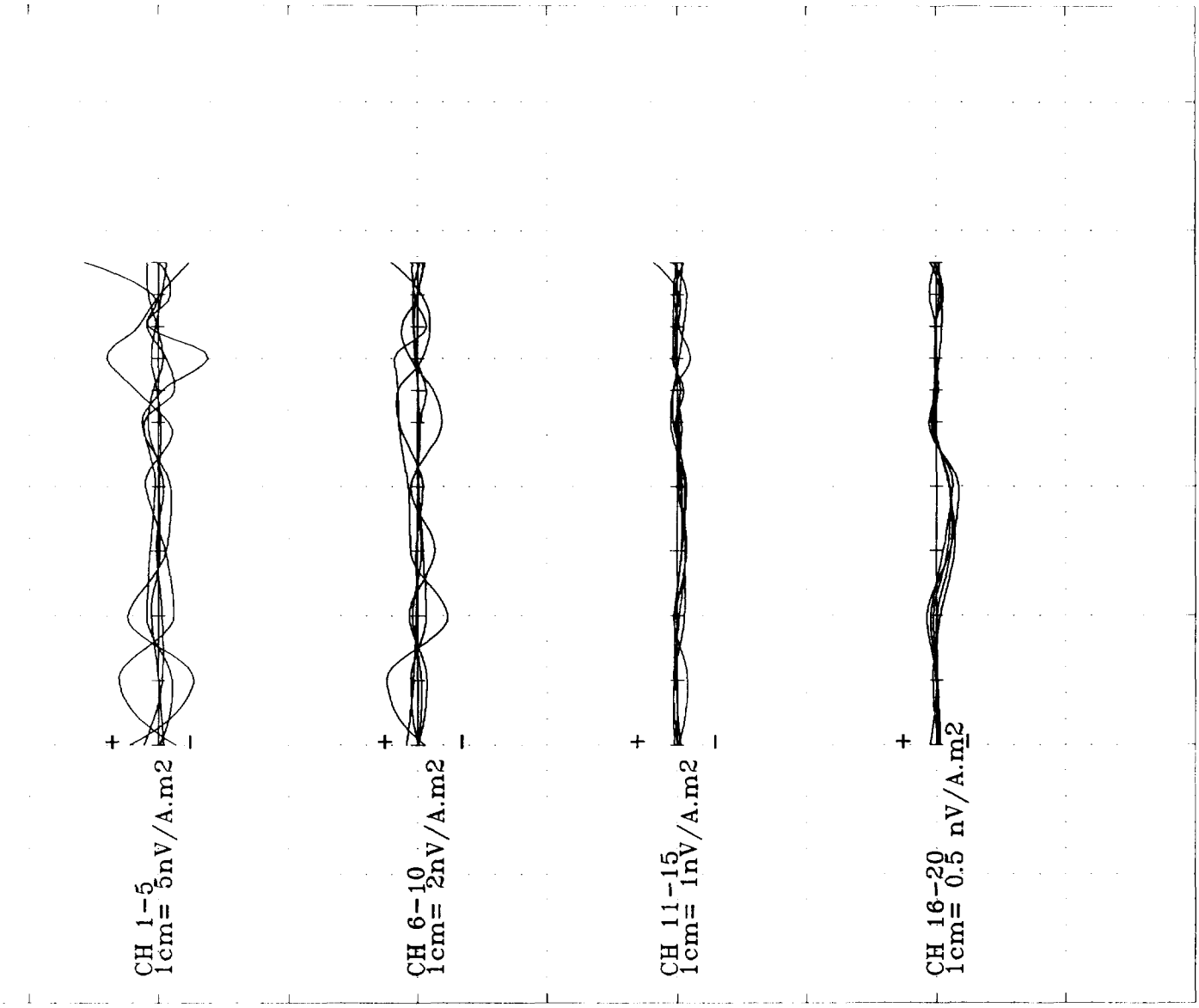


PLATE L1-3x

LOOP 1 (Line 300E)

RICHARD SUTCLIFFE
X Component

Base Frequency = 30 Hz
Scale 1 cm = 50 m

JVX Ltd. ref. 3-37, SEPT. 2003

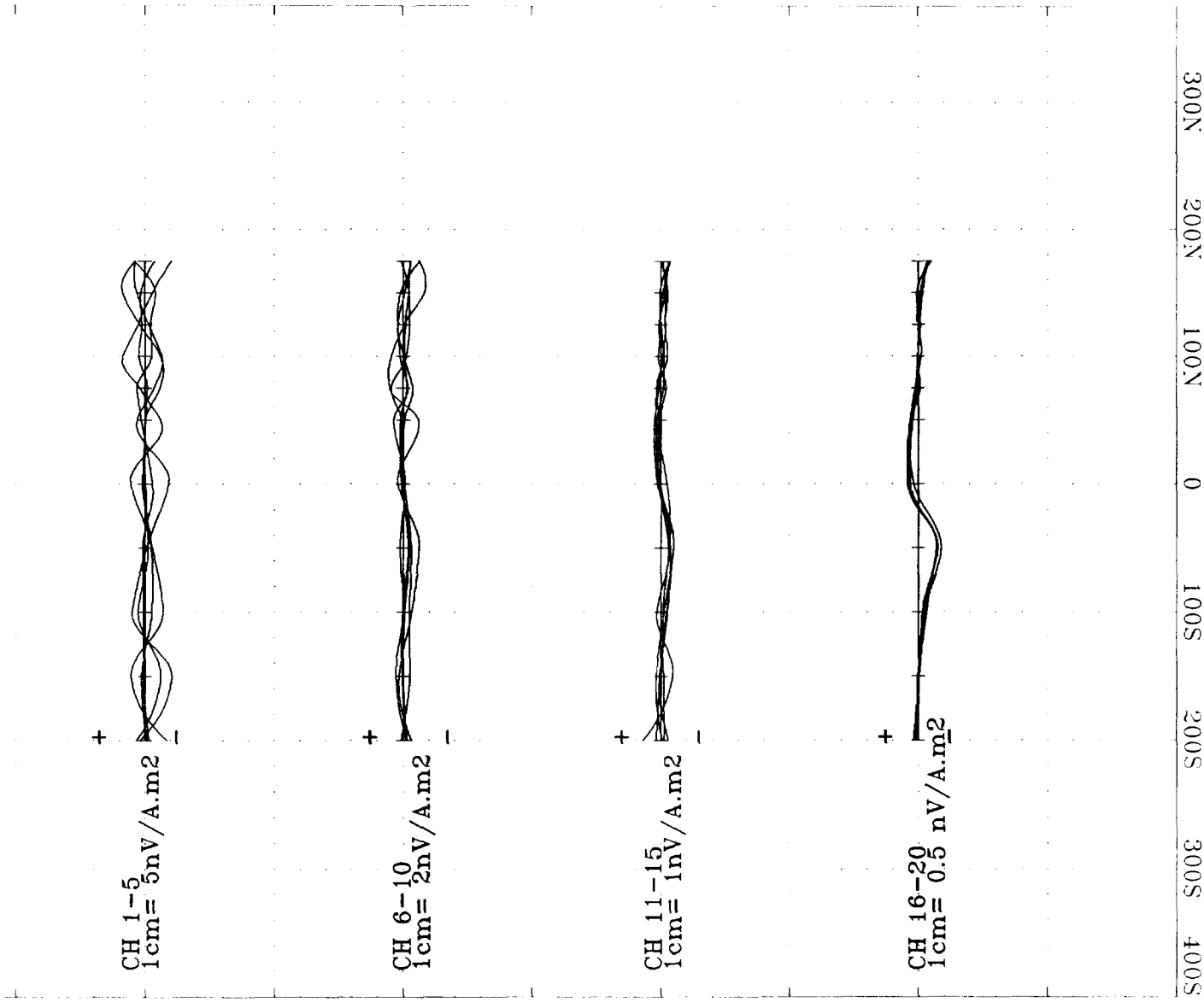


PLATE L1-3y

LOOP 1 (Line 300E)

RICHARD SUTCLIFFE
Y Component

Base Frequency = 30 Hz
Scale 1 cm = 50 m

JVX Ltd. ref. 3-37, SEPT. 2003

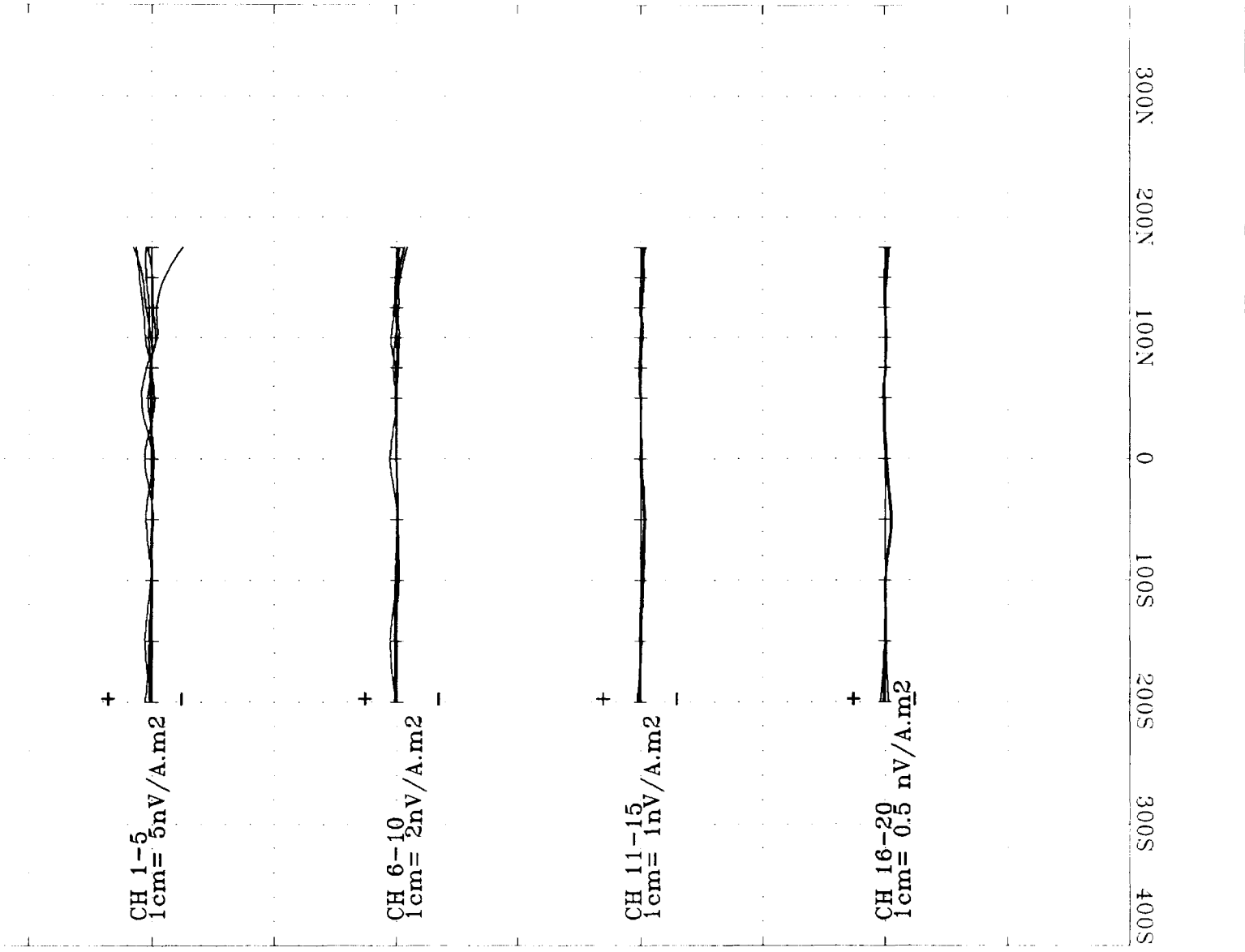


PLATE L1-3z

LOOP 1 (Line 300E)

RICHARD SUTCLIFFE
Z Component

Base Frequency = 30 Hz
Scale 1 cm = 50 m

JVX Ltd. ref. 3-37, SEPT. 2003

Work Report Summary

Transaction No: W0370.01460 **Status:** APPROVED
Recording Date: 2003-SEP-15 **Work Done from:** 2003-SEP-05
Approval Date: 2003-NOV-18 **to:** 2003-SEP-07

Client(s):

225603 SUTCLIFFE, RICHARD HARRY

Survey Type(s):

EM MAG VLF

Work Report Details:

Claim#	Perform	Perform Approve	Applied	Applied Approve	Assign	Assign Approve	Reserve	Reserve Approve	Due Date
S 1241838	$0	$0	$800	$800	$0	0	$0	$0	2004-NOV-30
S 1241957	$0	$0	$1,600	$1,600	$0	0	$0	$0	2004-JUN-15
S 1241958	$2,574	$2,574	$800	$800	$1,774	1,774	$0	$0	2004-JUN-15
S 1242025	$2,574	$2,574	$800	$800	$1,774	1,774	$0	$0	2004-JUN-15
S 1242026	$0	$0	$2,400	$2,400	$0	0	$0	$0	2004-JUN-15
S 1242027	$1,287	$1,287	$0	$0	$1,252	1,252	$35	$35	2005-JUN-15
	$6,435	$6,435	$6,400	$6,400	$4,800	$4,800	$35	$35	

External Credits: $0

Reserve:

$35 Reserve of Work Report#: W0370.01460

$35 Total Remaining

Status of claim is based on information currently on record.

41I13SE2010 2.26297 HESS

900

Ministry of
Northern Development
and Mines

Ministère du
Développement du Nord
et des Mines

Ontario

GEOSCIENCE ASSESSMENT OFFICE
933 RAMSEY LAKE ROAD, 6th FLOOR
SUDBURY, ONTARIO
P3E 6B5

Tel: (888) 415-9845
Fax:(877) 670-1555

Date: 2003-NOV-18

RICHARD HARRY SUTCLIFFE
100 BROAD LEAF CRESCENT
ANCASTER, ONTARIO
L9G 3R8 CANADA

Submission Number: 2.26297
Transaction Number(s): W0370.01460

Dear Sir or Madam

Subject: Approval of Assessment Work

We have approved your Assessment Work Submission with the above noted Transaction Number(s). The attached Work Report Summary indicates the results of the approval.

At the discretion of the Ministry, the assessment work performed on the mining lands noted in this work report may be subject to inspection and/or investigation at any time.

If you have any question regarding this correspondence, please contact STEVEN BENETEAU by email at steve.beneteau@ndm.gov.on.ca or by phone at (705) 670-5855.

Yours Sincerely,

Ron C Gashinski.

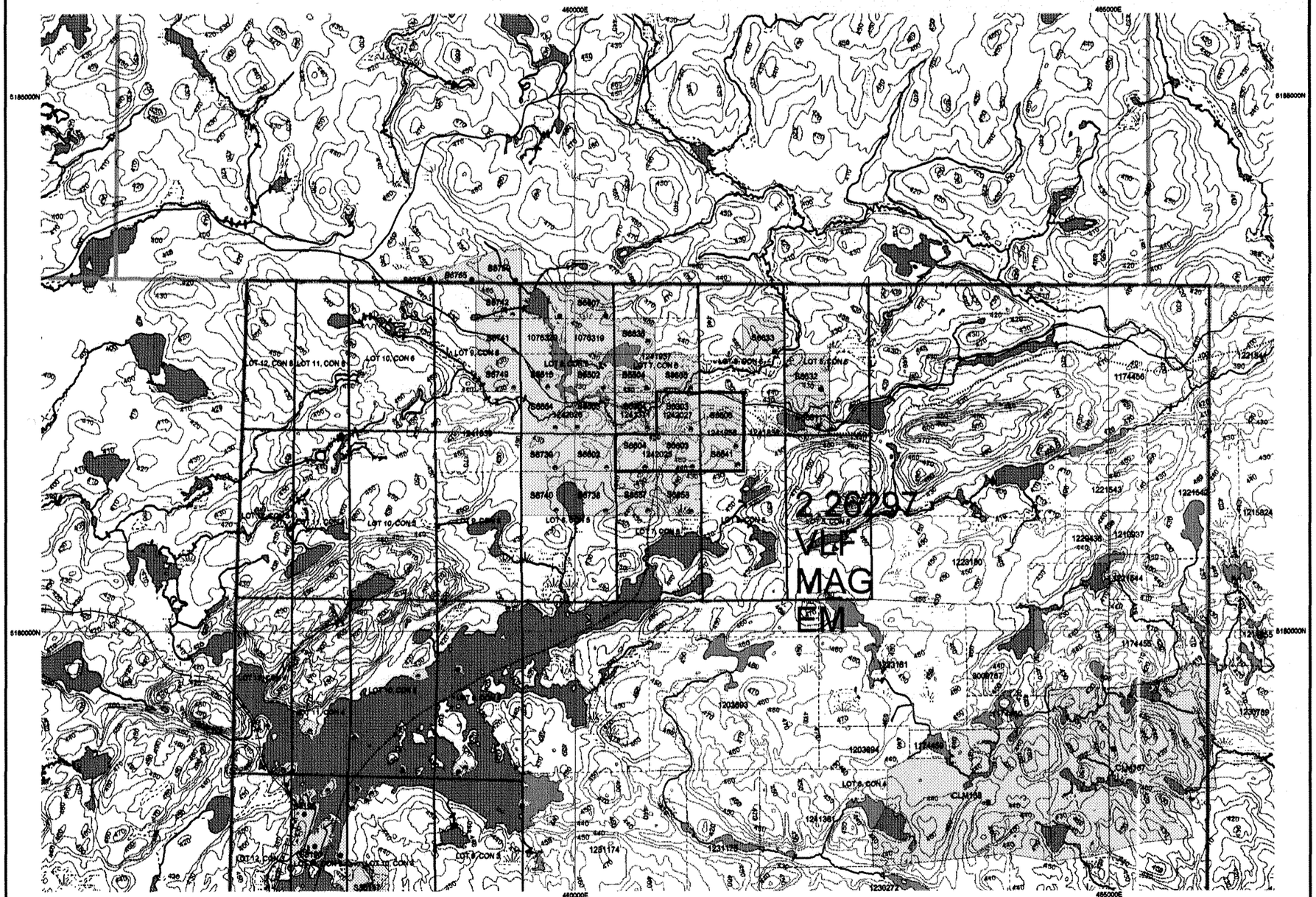
Ron C. Gashinski
Senior Manager, Mining Lands Section

Cc: Resident Geologist

Richard Harry Sutcliffe
(Claim Holder)

Assessment File Library

Richard Harry Sutcliffe
(Assessment Office)



UTM Zone 17
5000m grid

ONTARIO CANADA

MINISTRY OF NORTHERN DEVELOPMENT AND MINES
PROVINCIAL MINING RECORDER'S OFFICE

Mining Land Tenure Map

Date / Time of Issue: Tue Nov 18 13:06:08 EST 2003

TOWNSHIP / AREA
HESS

PLAN
G-4062

ADMINISTRATIVE DISTRICTS / DIVISIONS

Mining Division	Sudbury
Land Titles/Registry Division	SUDBURY
Ministry of Natural Resources District	SUDBURY

TOPOGRAPHIC

- Administrative Boundaries
- Township
- Concession, Lot
- Provincial Park
- Indian Reserve
- Cliff, Pit & Pile
- Contour
- Mine Shafts
- Mine Headframe
- Railway
- Road
- Trail
- Natural Gas Pipeline
- Utilities
- Tower

Land Tenure

Freehold Patent
- Surface And Mining Rights
- Surface Rights Only
- Mining Rights Only

Leasehold Patent
- Surface And Mining Rights
- Surface Rights Only
- Mining Rights Only

Licence of Occupation
- Uses Not Specified
- Surface And Mining Rights
- Surface Rights Only
- Mining Rights Only
- Land Use Permit
- Order in Council (Not open for staking)
- Water Power Lease Agreement
- Mining Claim
- Filed Only Mining Claims

LAND TENURE WITHDRAWALS

- 1234 — Areas Withdrawn from Disposition

Mining Acts Withdrawal Types
- Wsm — Surface And Mining Rights Withdrawn
- Wrs — Surface Rights Only Withdrawn
- Wrm — Mining Rights Only Withdrawn

Order in Council Withdrawal Types
- W*sm — Surface And Mining Rights Withdrawn
- W*s — Surface Rights Only Withdrawn
- W*m — Mining Rights Only Withdrawn

No — IMPORTANT NOTICES

Scale 1:40000
760m 0m 2.1km

LAND TENURE WITHDRAWAL DESCRIPTIONS

Identifier	Type	Date	Description
W-LL-C322	Wsm	Jan 30, 2002	<a href=" http://www.mndm.gov.on.ca/MNDM/MINES/LANDS/liveg/glks/2002orde

Those wishing to stake mining claims should consult with the Provincial Mining Recorders' Office of the Ministry of Northern Development and Mines for additional information on the status of the lands shown hereon. This map is not intended for navigational, survey, or land title determination purposes as the information shown on this map is compiled from various sources. Completeness and accuracy are not guaranteed. Additional information may also be obtained through the local Land Titles or Registry Office, or the Ministry of Natural Resources.

The information shown is derived from digital data available in the Provincial Mining Recorders' Office at the time of downloading from the Ministry of Northern Development and Mines web site.

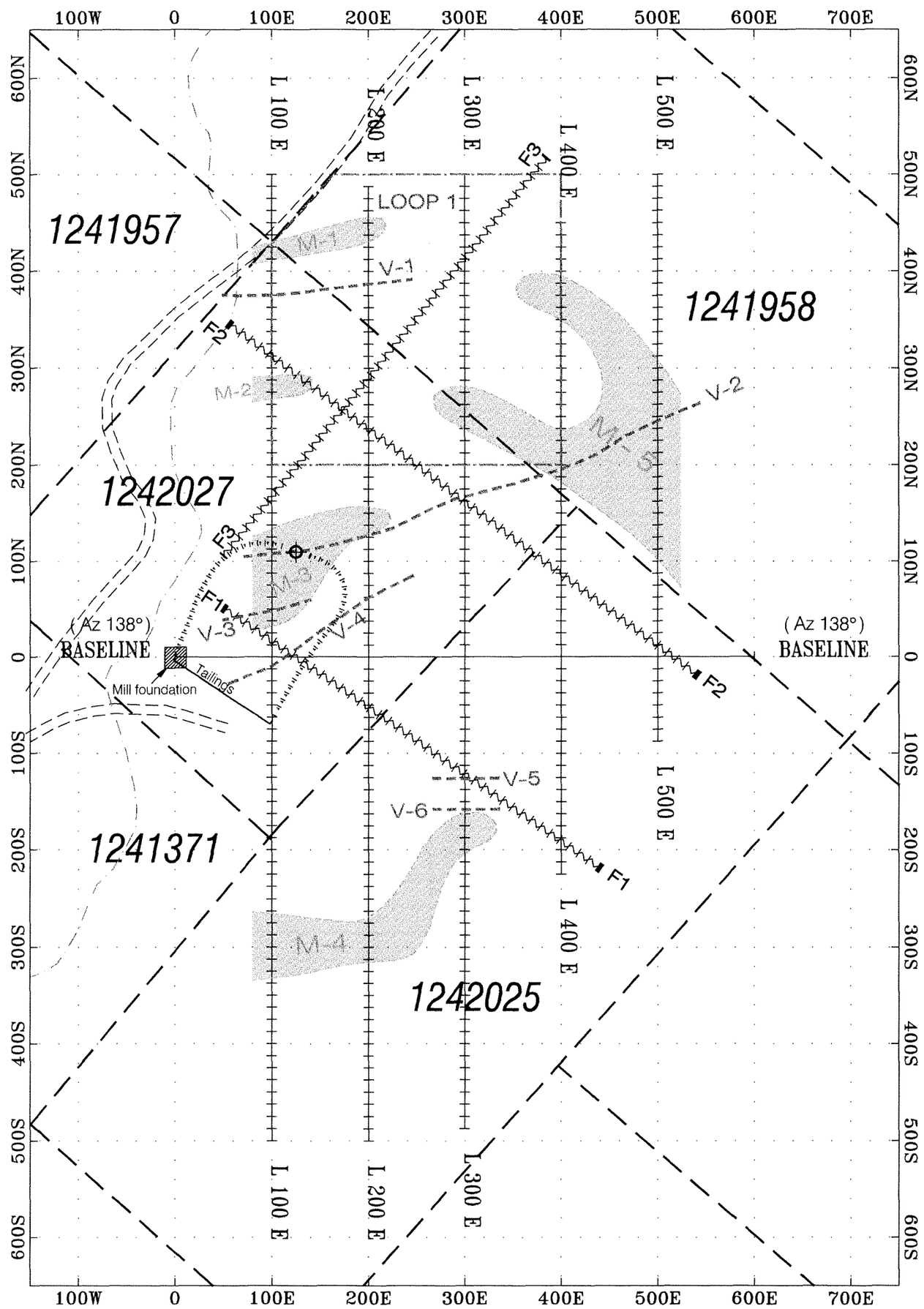
General Information and Limitations

Contact Information:
Provincial Mining Recorders' Office
Willet Green Miller Centre 933 Ramsey Lake Road
Sudbury ON P3E 6B5
Home Page: www.mndm.gov.on.ca/MNDM/MINES/LANDS/mismnpge.htm

Toll Free
Tel: 1 (888) 415-9845 ext 5776
Fax: 1 (877) 670-1444

Map Datum: NAD 83
Projection: UTM (6 degree)
Topographic Data Source: Land Information Ontario
Mining Land Tenure Source: Provincial Mining Recorders' Office

This map may not show unregistered land tenure and interests in land including certain patents, leases, easements, right of ways, flooding rights, licences, or other forms of disposition of rights and interest from the Crown. Also certain land tenure and land uses that restrict or prohibit free entry to stake mining claims may not be illustrated.



LEGEND

V-5 — VLF-EM Conductor

M-1 — Magnetic High Zone

F-1 — Interpreted Fault

Airborne EM Anomaly
(Aerdat EM Survey; OGS map 81542, 1991)

Scale 1:5000

50 0 50 100 150 200 250
(meters)

2.26297

PLATE 1

RICHARD SUTCLIFFE

GENEVA LAKE MINE PROPERTY

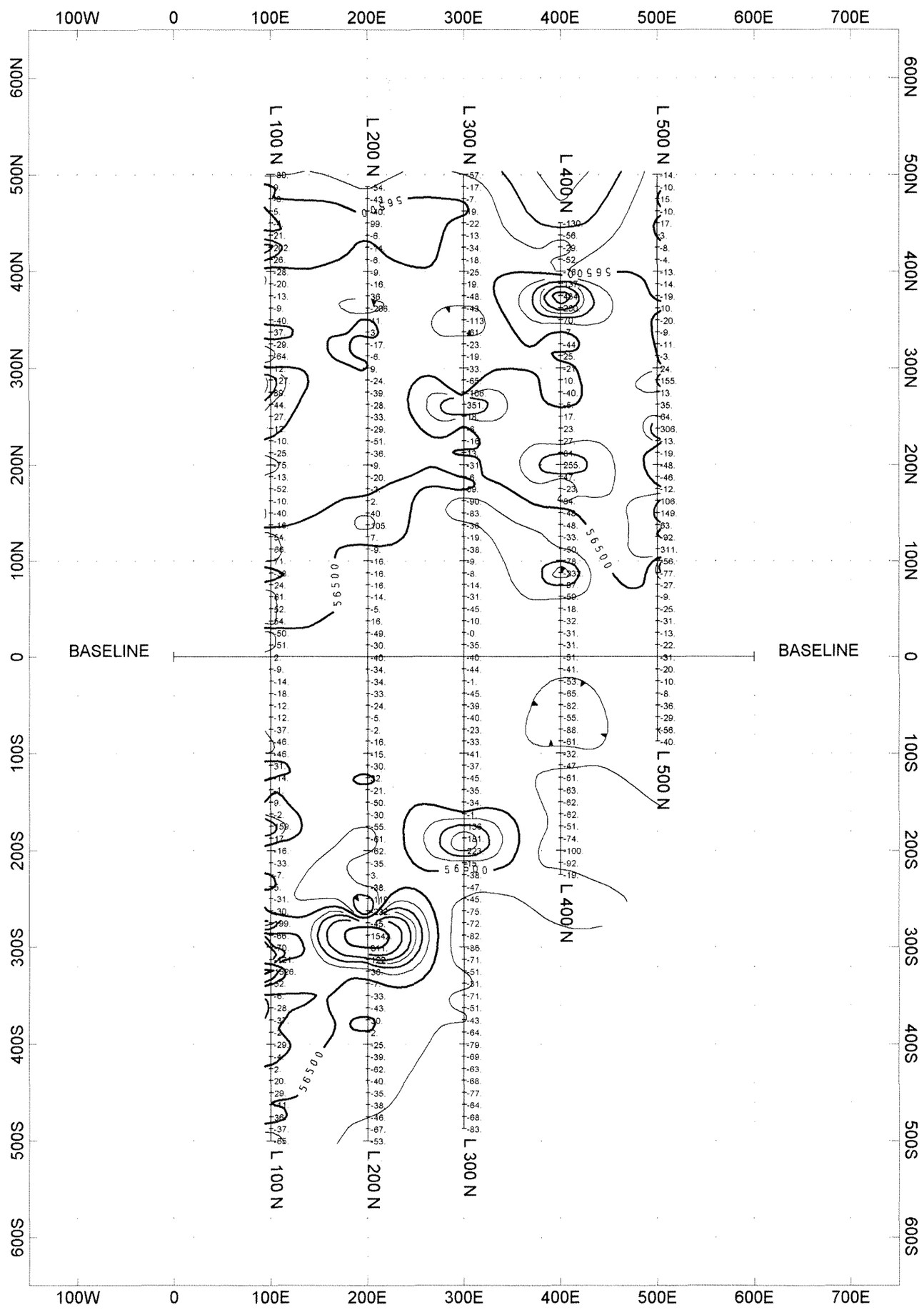
Hess Twp., Sudbury Mining Division
Northeastern Ontario, NTS 41 I/13

COMPILATION MAP

Surveyed by JVX Ltd. ref. 3 - 37 , September 2003

JVX

41I13SE2010 2.26297 HESS



Scale 1:5000

50 0 50 100 150 200 250

(meters)

2.26297

PLATE 2

RICHARD SUTCLIFFE

TOTAL FIELD MAGNETOMETER SURVEY

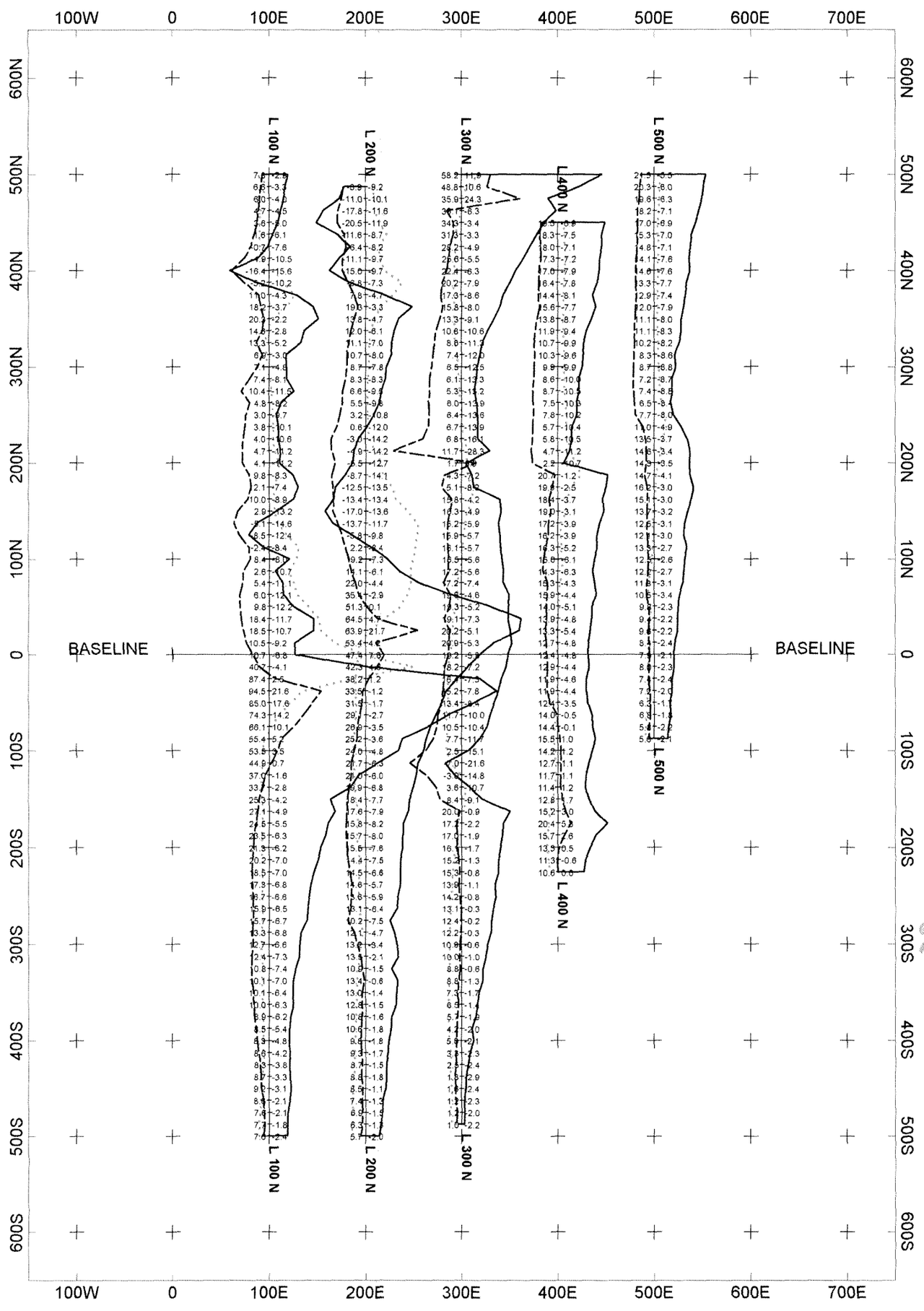
Geneva Lake Mine Property
Hess Township, Sudbury Mining Division
Northeastern Ontario, NTS 41 I/13

TOTAL FIELD MAGNETIC CONTOURS

Contours: 50 , 100 , 500 & 1000 nT
Base Value: 56500 nT

Inst: Scintrex ENVIMAG

Surveyed by JVX Ltd, ref. 3-37, Sept 2003



2.26297

Scale 1:5000

50 0 50 100 150 200 250

(meters)

PLATE 3

RICHARD SUTCLIFFE

VLF-EM SURVEY

Geneva Lake Mine Property
Hess Township, Sudbury Mining Division
Northeastern Ontario, NTS 41 I/13

VLF-EM Profiles (25.2 kHz)

In-Phase: Black Solid Profile, Scale: 1cm = 20%
In-Phase: Posted to the left
Quadrature: Black Dashed line, Scale: 1cm = 20%
Quadrature: Posted to the right
Total Field: Red Dotted line, Scale: 1cm = 20 nA/m

Instrument: Scintrex EnviMAG/VLF

Surveyed by JVX Ltd, ref. 3-37, Sept 2003

41I13SE2010 2.26297 HESS