LOGISTICAL AND INTERPRETIVE REPORT

SPECTRAL INDUCED POLARIZATION SURVEYS

MCKENZIE OPTION,

WHITESIDES TWP., ONTARIO

LOGISTICAL AND INTERPRETIVE REPORT
SPECTRAL INDUCED POLARIZATION SURVEYS
MCKENZIE OPTION,
WHITESIDES TWP., ONTARIO

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JVX Ref: 9728
June 1997

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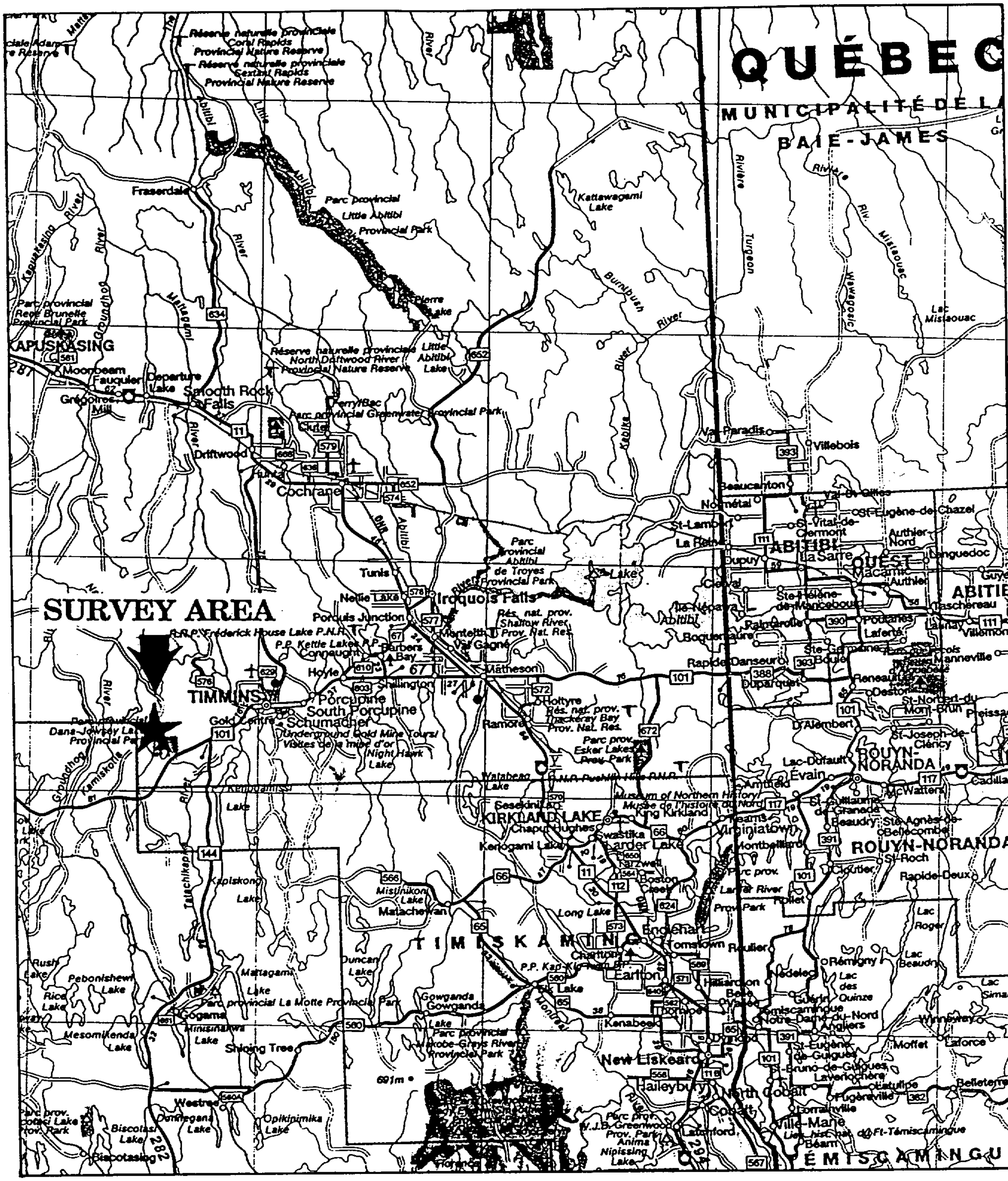
1. INTRODUCTION

A time-domain spectral induced polarization survey was conducted by **JVX Ltd**. for **Prospectors Alliance Corporation** April 08 to 13, 1997, over several claims comprising the McKenzie Option. The property is located southwest of Timmins, Ontario (Figure 1) in Whitesides Township (NTS 42A/5) on the following claims (Figure 2, Grid/Claim Map):

1159142
1159143
1159136
1159139
1159138
1159137
1193494
1158897
1158898

The purpose of this survey was to locate and prioritize areas that may contain economic gold mineralization. Several targets were selected for follow up. They should be further prioritized geologically and geochemically.

Magnetic data were obtained from the client.

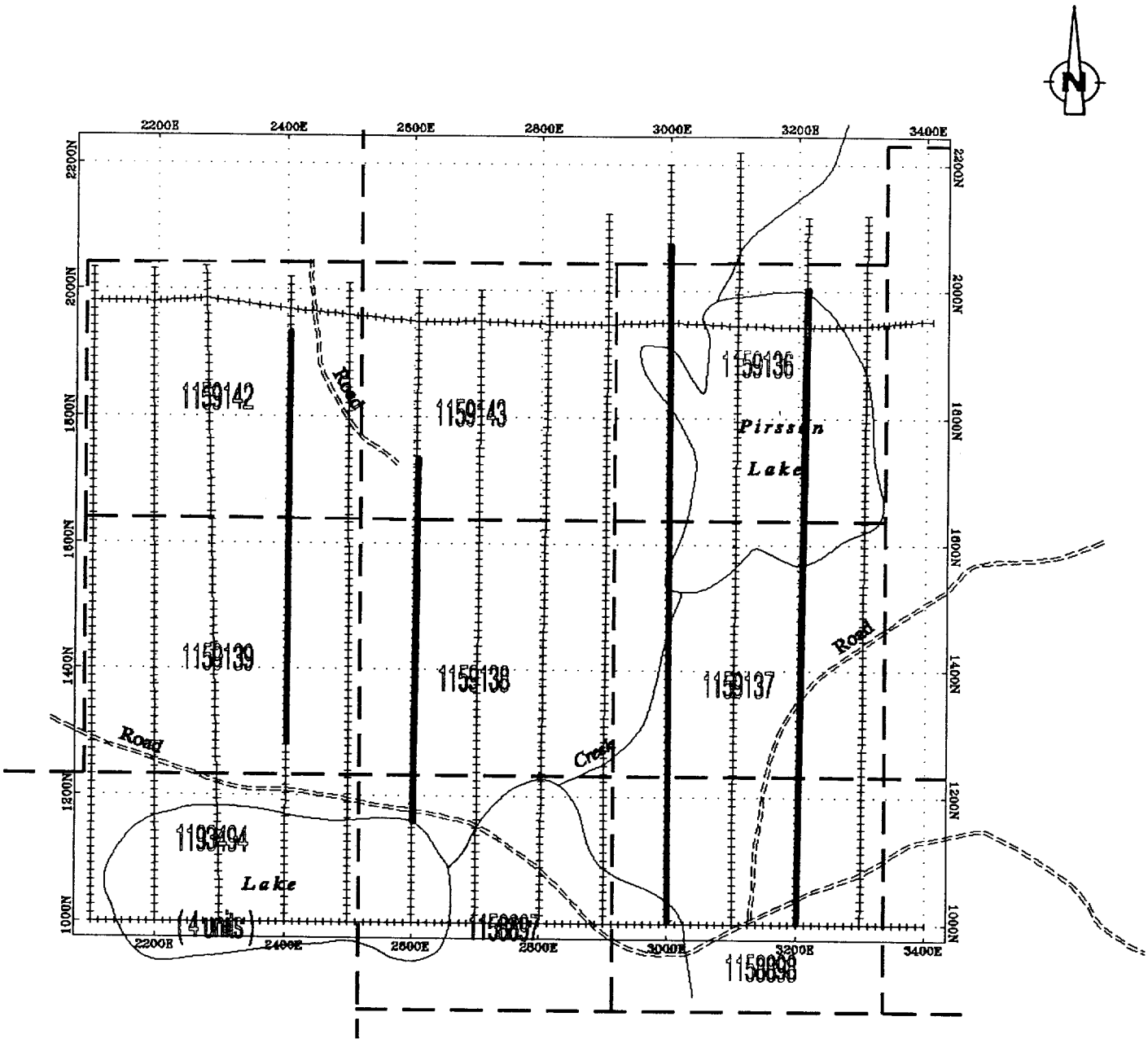


LOCATION MAP
PROSPECTORS ALLIANCE INC.
McKENZIE OPTION
Whitesides Twp., Ontario
N.T.S. 42 A/5

GROUND GEOPHYSICAL SURVEY

Scale : 1 : 1,725,000

Survey by **JVX Ltd.** **Figure 1**



GRID / CLAIM MAP
PROSPECTORS ALLIANCE INC.
McKENZIE OPTION
Whitesides Twp., Ontario
N.T.S. 42 A/5

GROUND GEOPHYSICAL SURVEY

Scale : 1 : 10,000

Survey by **JVX Ltd.**

Figure 2

2. SURVEY SPECIFICATIONS

Instrumentation and survey specifications for the McKenzie Option are outlined in the following table:

IP/RESISTIVITY SURVEY	
Transmitter	Scintrex TSQ3/3.0 kW and IPC-7/2.5kW
Receivers	Scintrex IPR-12
Array Type	Pole-Dipole
Transmit Cycle Time	2 sec
Receive Cycle Time	2 sec
Number of Potential Electrode Pairs	6
Electrode Spacing ("a" *spacing*)	25 m
Number of Lines Surveyed	4
Survey Coverage	3625 m

Table 1: Spectral IP/Resistivity Survey Parameters

Total coverage was 3625 metres of Spectral IP/Resistivity data with 141 stations surveyed. The following table lists the survey coverage in detail:

SPECTRAL IP/RESISTIVITY COVERAGE				
Line	**From Station**	**To Station**	**Distance (m)**	**No. of Readings**
2400E	1325N	2075N	750	27
2600E	1250N	1850N	600	25
3000E	1000N	2175N	1175	46
3200E	1000N	2100N	1100	43
Total			**3625**	**141**

Table 2: Spectral IP/Resistivity Production Summary

3. PERSONNEL

Graham Stone (Geophysical Technician)
Mr. Stone operated the IP receiver and was responsible for data quality.

Claudia Wilck (Geophysical Technician):
Ms. Wilck operated the transmitter systems, and was responsible for field data processing.

Three field assistants were also engaged by JVX for the IP/resistivity survey.

Aleksandra Savic (Geophysicist)
Ms. Savic interpreted the data, plotted the data, prepared this report and is responsible for data storage.

Joe Mihelcic (Geophysicist):
Mr. Mihelcic processed and plotted the data, and conducted preliminary interpretation.

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

Vaso Lymberis (Draftsperson):
Ms. Lymberis carried out the ACAD drafting on the individual pseudosections.

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

4. FIELD INSTRUMENTATION

JVX supplied the geophysical instruments described below. Additional information about the geophysical methods may be found in Appendix A.

IP Transmitter

The Scintrex TSQ3/3.0 kW and Scintrex IPC-7/2.5 kW transmitters were used. The transmitters generate square wave current output with a period of 8 seconds. A digital multimeter in series with the transmitter was used to measure the magnitude of the variable current output.

IP Receiver

The Scintrex IPR-12 Time Domain Receiver was used. This unit samples the voltage decay curve as measured by the potential electrodes at ten points in time. Readings were repeated until they converged to within a tolerance level, and the data were stored in solid-state memory. The resulting chargeability response is a measurement of the potential decay of conductive particles during the transmitter turn-off times. The apparent resistivity is a measure of the ratio of the input voltage and the transmitter current times a factor. This so-called K-factor is an array geometric factor.

5. 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 results were plotted on the following printer:

- STAR NX-80 colour dot-matrix printer

These plots were used to monitor progress and data quality, and to make an initial interpretation. Thus survey parameters and design were altered when necessary.

The data were sent by courier to the head office of JVX in Richmond Hill, Ontario. They were processed and results were plotted on the following printers as was necessary:

- HEWLETT PACKARD DESIGNJET 750C 36 inch colour plotter
- HEWLETT PACKARD 5L Laser printer

The processing procedure is outlined below.

5.1 IP/RESISTIVITY

Step 1 was performed both in the field and in the head office. Steps 2, 3 and 4 were performed at the head office.

1) The GEOSOFT IP PROCESSING Package was used to generate colour pseudosections of chargeability and resistivity data as well as colour contour maps.

2) JVX software was also used to perform spectral analysis of the time-domain data. This step was crucial to maximizing the information that can be obtained from IP data. This software analyses the shape of the IP decay curve, giving information about:
(a) the grain size (indicated by the parameter *tau*)
(b) the magnitude of the chargeable source (indicated by *M-IP*).
(Please see Appendix A for more information about spectral analysis.)

3) Contoured plan maps of chargeability and resistivity data from one dipole (n=2) were produced using JVX in-house software and the GEOSOFT Mapping Package.

4) Additional drafting on the individual pseudosections maps was done. GEOSOFT CAD was used to annotate the individual pseudosections.

6. INTERPRETATION METHODOLOGY

JVX uses its many years of experience in geophysical interpretation to extract the most accurate information from the data. The procedures involved are simplified for the sake of clarity.

The IP and resistivity data are interpreted using the following procedure:

1) Chargeability anomalies are picked on the pseudosections and classified using the following scheme *as a guide* (Mx sample window = 680 ms to 1050 ms)

——— *Very Strong* (> 30 mV/V) and well defined

——— *Strong* (20 to 30 mV/V) and well defined

— — *Moderate* (10 to 20 mV/V) and well defined

– – – *Weak* (5 to 10 mV/V) and well defined

· · · · · · *Very Weak* (3 to 5 mV/V) and poorly defined

x x x x x *Extremely Weak* (<3 mV/V) and very poorly defined

The peak of the anomaly provides a qualitative indication of the depth to the top of the anomalous source and the location of the centre of the body. Where possible, the location and dipole number of the peak are written beside the anomaly bar.

2) The spectral characteristics of the anomalies are examined. The peak value of *M-IP* is noted, and *tau* is classified according to the following scheme:

L *Long* (> 10000 msec)

M *Medium* (1000 to 10000 msec)

S *Short* (< 1000 msec)

3) Resistivity anomalies are picked on the pseudosections and classified using the following scheme *as a guide*:

no symbol **VH(*n*)** *Very High* (> 25 000 ohm m) — highly silicified

no symbol **H(*n*)** *High* (> 10 000 ohm m) — probably silicified

no symbol **WH(*n*)** *Weak High* (< 10 000 ohm m) — relative increase compared to surrounding material

—— —— **SL(*n*)** *Strong Low* — strong decrease in resistivity

– – – **ML(*n*)** *Medium Low* — medium decrease in resistivity

· · · · · · **WL(*n*)** *Weak Low* — slight resistivity decrease relative to surrounding material

where *n* is the dipole number at which the anomaly peak is located.

4) The anomalies from steps 1 to 3 are marked on the Compilation map.

5) Resistivity anomalies on the Compilation map are joined into conductive and resistive zones.

6) Zones of high chargeability are interpreted based on spectral, resistivity, and geometric information.

7) The anomalies are rated according to JVX' s past experience. The following are some of the characteristics that may be indicative of economic mineralization:

• A moderate to high chargeability anomaly flanked by a narrow finger-shaped resistivity high.

• High *M-IP* values (> 300 mV/V), which are not associated with a resistivity low, indicating a large quantity of metallic sulphides.

• Low *tau* values (short time constant) which indicate that the chargeable source is disseminated and fine-grained. Gold mineralization is generally associated with fine-grained sulphides. However, in environments where the sulphides have been remobilized, gold mineralization may be associated with coarse-grained sulphides (long time constant).

• In particular, very high *M-IP* values (> 900 mV/V) with short *tau* are typically the most favourable spectral IP targets.

7. DISCUSSION

The interpretation of the geophysical data was compiled onto a single map, and is summarized in the sections following. The Compilation map and all data plots are included in Appendix B.

There are several IP chargeability zones identified on the Compilation map (Plate 3) as well as on the pseudosections (Plates 4 to 7).

Total Field Magnetic data were obtained from the client and presented in detail in the Logistical Report, JVX ref. no. 9805. Total Field Magnetic data show moderate changes within ±1000 nT. Six magnetic high areas, ***MH*** zones are outlined with the same intensity, higher than 58000 nT.

Five chargeability zones, with seven possible targets, are labeled on the Compilation map.

IP-1 Lines 2400E to 3200E, stations 1625N to 1725N (Weak to Very Weak)

IP-1, an eastwest running zone is located at the central part of the grid. It consists of shallow, very weak and weak anomalies on the west portion, and weak, deeper anomalies on the east. Two medium priority targets are located on this zone.

Target T3M L2600E, stat. 1625N, M-IP=164 mV/V and tau= 500 msec, medium priority
Target T4M L3000E, stat. 1675N, M-IP=121 mV/V and tau= 500 msec, medium priority

IP-1a L3200E, stations 1400N to 1575N (Strong to Weak)

IP-1a is a single-line, relatively wide 200 m zone, correlating with a magnetic high zone. It is located at the north side of a high resistivity zone.

Target T1H L3200E, stat. 1500N, M-IP=221 mV/V and tau=500 msec, high priority

IP-2 Lines 3000E to 3200E, stations 1250N to 1350N (Medium to Very Weak)

This eastwest trending zone is associated with a magnetic high zone ***MH-4*** at the west end. It is south and parallel to ***IP-1***, with high-to-moderate MIP and a medium-to-short time constant. This zone correlates with the highest resistivities in the area indicating probably silicified mineralization.

IP-3 Lines L3000E to 3200E, stations 1000N to 1200N (Moderate to Very Weak)

This is an approximately eastwest-trending, wide zone, located at the southwest end of the grid. The east end of this anomaly is associated with a magnetic high zone, and a high resistive, probably silicified zone. This IP zone consists of a moderate and weak anomaly at the east, with high-to-moderate true chargeabilities, and a short-to-medium spectral tau. The anomaly at L3200E changes in texture being fine-grained (short time

constant) at the north end, and medium-grained (medium time constant) at the south end. Two medium priority drill targets have been picked to test the east end of this IP zone.

Target T5M L3200E, station 1100N, M-IP=116 mV/V, tau=125msec, medium priority
Target T6M L3200E, station 1000N, M-IP=226 mV/V, tau=1000 msec, medium priority

IP-4 Line L3000E, station 2100N (Very Weak)

This single-line anomaly, associated with high resistivity is located at the west edge of magnetic high ***MH-3***; however, at the edge of the grid one low priority drill target should test this IP zone.

Target T7L L3000E, station 2100N, M-IP=108 mV/V, tau=31 msec, low priority

IP-5 Line L2400E, stations 1950N to 2000N (Very Strong)

One extremely strong chargeability anomaly at the north end of L2400E is worth further exploration. The anomaly limits must be further identified. This anomaly coincides with an iron formation. The spectral response of this anomaly shows a rather complex structure. On the south side, spectral features show very strong MIP and long-to-medium spectral tau, indicating coarse-to medium-grain mineralization. On the north side and very deep, (n=6), this anomaly is characterized by extremely strong true chargeabilities and short-to-medium spectral tau, indicating fine-grained mineralization. The north side of the anomaly is most likely the center of the same. Spectral IP features classify this anomaly as a high-priority gold target.

Target T2H L2400E, stat. 1975N, M-IP=439 mV/V and tau=2 sec, high priority

8. RECOMMENDATIONS

There are a total of five IP zones and seven prioritized targets with a different priority. However, successful drill intersections in any of these locations would improve the priority rating of adjacent zones.

The following table is a summary of IP anomalies and possible targets:

McKENZIE OPTION / WHITESIDES TWP / PAL							
Evaluation of Spectral IP/Resistivity data (geophysical criteria used for target priorities). JVX Reference # 9728							
Target	**IP Zone and Location**	**Res. Ohm m**	**Mx mV/V**	**M-IP mV/V**	**Tau msec**	**Dipole n**	**TARGET Priorities**
1	IP1a 3200/1500N	LOW	15	221	S	1	HIGH
2	IP5 2400E/1950N	H	36	439	M	1	HIGH
3	IP1 2600E/1650N	LOW	11	164	S	1	MED.
4	IP1 3000E/1675N	WH-LOW	7.3	121	S	4	MED.
5	IP3 3200E/1100N	H	6.3	116	S	5	MED.
6	IP3 3200E/1000N	H	14	226	M	1	MED.
7	IP6 3000E/2100N	H	4.6	108	S	1	LOW

Table 3: List of Targets and Their Priorities

Before any further evaluation of this grid additional geological evaluation of targets is recommended.

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

Respectfully submitted,

JVX Ltd.

Aleksandra Savic, M.Sc.
Geophysicist

Blaine Webster, B.Sc.
President

APPENDIX A

SCINTREX

IPR-12 Time Domain Induced Polarization/Resistivity Receiver

Brief Description

The IPR-12 Time Domain IP/Resistivity Receiver is principally used in exploration for precious and base metal mineral deposits. In addition, it is used in geoelectrical surveying for groundwater or geothermal resources, often to great depths. For these latter targets, the induced polarization measurements may be as useful as the high accuracy resistivity results since it often happens that geological materials have IP contrasts when resistivity differences are absent.

Due to its integrated, lightweight, microprocessor based design and its large, 16 line display screen, the IPR-12 is a remarkably powerful, yet easy to use instrument. A wide variety of alphanumeric and graphical information can be viewed by the operator during and after the taking of readings. Signals from up to eight potential dipoles can be measured simultaneously and recorded in solid-state memory along with automatically calculated parameters. Later, data can be output to a printer or a PC (direct or via modem) for processing into profiles and maps.

The IPR-12 is compatible with Scintrex IPC and TSQ Transmitters, or others which output square waves with equal on and off periods and polarity changes each half cycle. The IPR-12 measures the primary voltage (Vp), self potential (SP) and time domain induced polarization (Mi) characteristics of the received waveform. Resistivity, statistical and Cole-Cole parameters are calculated and recorded in memory with the measured data and time.

Scintrex has been active in induced polarization research, development, manufacturing, consulting and surveying for over thirty years. We offer a full range of instrumentation, accessories and training.

The IPR-12 Receiver measures spectral IP signals from eight dipoles simultaneously then records measured and calculated parameters in memory.

Benefits

Speed Up Surveys

The IPR-12 saves you time and money in carrying out field surveys. Its capacity to measure up to eight dipoles simultaneously is far more efficient than older receivers measuring a single dipole. This advantage is particularly valuable in drillhole logging where electrode movement time is minimal.

The built-in, solid-state memory records all information associated with a reading, dispensing with the need for any hand written notes. PC compatibility means rapid electronic transfer of data from the receiver to a computer for rapid data processing.

Taking a reading is simple and fast. Only a few keystrokes are virtually needed since the IPR-12 features automatic circuit resistance checks, SP buckout and gain setting.

High Quality Data

One of the most important features of the IPR-12 in permitting high quality data to be acquired, is the large display screen which allows the operator easy real time access to graphic and alphanumeric displays of instrument status and measured data. The IPR-12 ensures that the operator obtains accurate data from field work.

The number and relative widths of the IP decay curve windows have been carefully chosen to yield the transient information required for proper interpretation of spectral IP data. Timings are selectable to permit a very wide range of responses to be measured.

Specifications

Inputs
1 to 8 dipoles are measured simultaneously.

Input Impedance
16 Megohms

SP Bucking
±10 volt range. Automatic linear correction operating on a cycle by cycle basis.

Input Voltage (Vp) Range
50 µvolt to 14 volt

Chargeability (M) Range
0 to 300millivolt

Tau Range
1 millisecond to 1000 seconds

Reading Resolution of Vp, SP and M
Vp, 10 microvolt; SP, 1 millivolt; M, 0.01 millivolt/volt

Absolute Accuracy of Vp, SP and M
Better than 1%

Common Mode Rejection
At input more than 100db

Vp Integration Time
10% to 80% of the current on time.

IP Transient Program
Total measuring time keyboard selectable at 1, 2, 4, 8, 16 or 32 seconds. Normally 14 windows except that the first four are not measured on the 1 second timing, the first three are not measured on the 2 second timing and the first is not measured on the 4 second timing. (See diagram on page 2.) An additional transient slice of minimum 10 ms width, and 10ms steps, with delay of at least 40 ms is keyboard selectable.

Transmitter Timing
Equal on and off times with polarity change each half cycle. On/off times of 1, 2, 4, 8, 16 or 32 seconds. Timing accuracy of ±100 ppm or better is required.

External Circuit Test
All dipoles are measured individually in sequence, using a 10 Hz square wave. The range is 0 to 2 Mohm with 0.1kohm resolution. Circuit resistances are displayed and recorded.

Synchronization
Self synchronization on the signal received at a keyboard selectable dipole. Limited to avoid mistriggering.

Filtering
RF filter, 10 Hz 6 pole low pass filter, statistical noise spike removal.

Internal Test Generator
1200 mV of SP; 807 mV of Vp and 30.28 mV/V of M.

Analog Meter
For monitoring input signals; switchable to any dipole via keyboard.

Keyboard
17 key keypad with direct one key access to the most frequently used functions.

Display
16 lines by 42 characters, 128 x 256 dots, Backlit Liquid Crystal Display. Displays instrument status and data during and after reading. Alphanumeric and graphic displays.

Display Heater
Available for below -15°C operation.

Memory Capacity
Stores approximately 400 dipoles of information when 8 dipoles are measured simultaneously.

Real Time Clock
Data is recorded with year, month, day, hour, minute and second.

Digital Data Output
Formatted serial data output for printer and PC etc. Data output in 7 or 8 bit ASCII, one start, one stop bit, no parity format. Baud rate is keyboard selectable for standard rates between 300 baud and 51.6 kBaud. Selectable carriage return delay to accommodate slow peripherals. Handshaking is done by X-on/X-off.

Standard Rechargeable Batteries
Eight rechargeable Ni-Cad D cells. Supplied with a charger, suitable for 110/230V, 50 to 60 Hz, 10W. More than 20 hours service at +25°C, more than 8 hours at -30°C.

Ancillary Rechargeable Batteries
An additional eight rechargeable Ni-Cad D cells may be installed in the console along with the Standard Rechargeable Batteries. Used to power the Display Heater or as back up power. Supplied with a second charger. More than 6 hours service at -30°C.

Use of Non-Rechargeable Batteries
Can be powered by D size Alkaline batteries, but rechargeable batteries are recommended for longer life and lower cost over time.

Operating Temperature Range
-30°C to +50°C

Storage Temperature Range
-30°C to +50°C

Dimensions
Console: 355 x 270 x 165 mm
Charger: 120 x 95 x 55mm

Weights
Console: 5.8 kg
Standard or Ancillary Rechargeable Batteries: 1.3 kg
Charger: 1.1 kg

Transmitters available

IPC-9	200 W
TSQ-2E	750 W
TSQ-3	3 kW
TSQ-4	10 kW

SCINTREX

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In the U.S.A.

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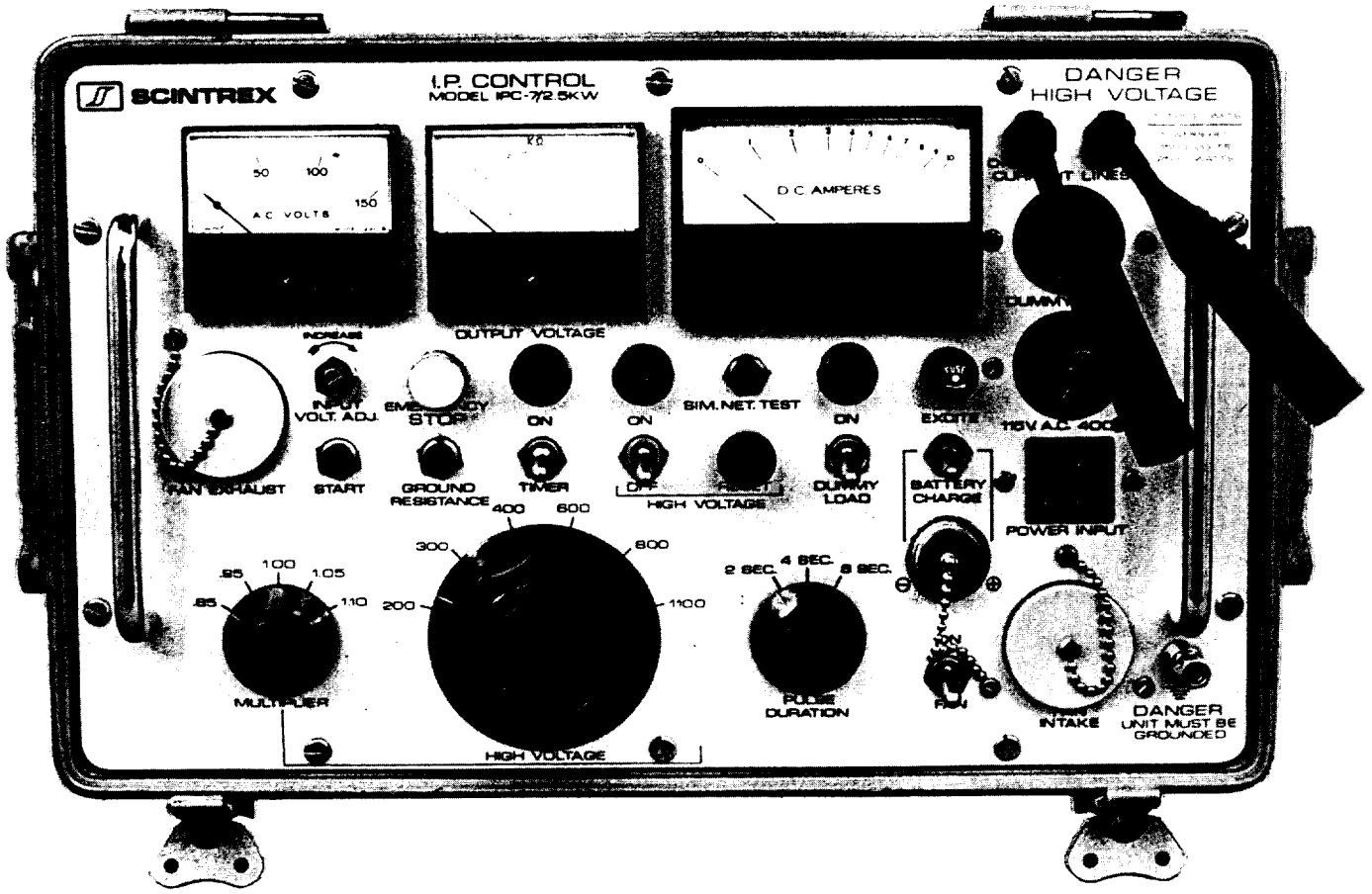
Unit # 202
Buffalo, N.Y.
U.S.A. 14207

Tel.: (716) 298-1219
Fax: (716) 298-1317

IPR-12/94

SCINTREX IPC-7/2.5kW Induced Polarization and Commutated DC Resistivity Transmitter System



Function

The IPC-7/2.5 kW is a medium power transmitter system designed for time domain induced polarization or commutated DC resistivity work. It is the standard power transmitting system used on most surveys under a wide variety of geophysical, topographical and climatic conditions.

The system consists of three modules: A Transmitter Console containing a transformer and electronics, a Motor Generator and a Dummy Load mounted in the Transmitter Console cover. The purpose of the Dummy Load is to accept the Motor Generator output during those parts of the cycle when current is not transmitted into the ground, in order to improve power output and prolong engine life.

The favourable power-weight ratio and compact design of this system make it portable and highly versatile for use with a wide variety of electrode arrays.

Features

Maximum motor generator output, 2.5 kW; maximum power output, 1.85 kW; maximum current output, 10 amperes; maximum voltage output, 1210 volts DC.

Removable circuit boards for ease in servicing.

Automatic on-off and polarity cycling with selectable cycling rates so that the optimum pulse time (frequency) can be selected for each survey.

The overload protection circuit protects the instrument from damage in case of an overload or short in the current dipole circuit.

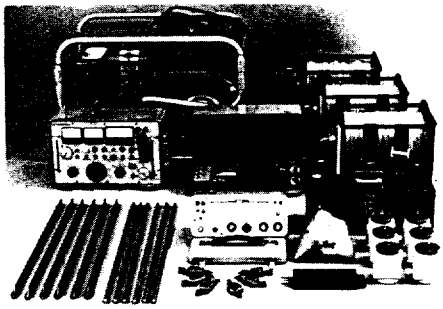
The open loop circuit protects workers by automatically cutting off the high voltage in case of a break in the current dipole circuit.

Both the primary and secondary of the transformer are switch selectable for power matching to the ground load. This ensures maximum power efficiency.

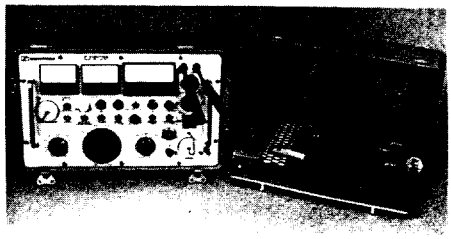
The built-in ohmmeter is used for checking the external circuit resistance to ensure that the current dipole circuit is grounded properly before the high voltage is turned on. This is a safety feature and also allows the operator to select the proper output voltage required to give an adequate current for a proper signal at the receiver.

The programmer is crystal controlled for the very high stability required for broadband (spectral) induced polarization measurements using the Scintrex IPR-11 Broadband Time Domain Receiver.

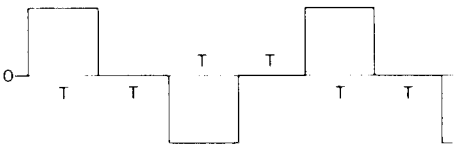
Technical Description of IPC-7/2.5 kW Transmitter System



Complete 2.5kW induced polarization system including motor-generator, reels with wire, tool kit, porous pots, simulator circuit, copper sulphate. IPR-8 receiver, dummy load, transmitter, electrodes and clips.



IPC-7 / 2.5kW transmitter console with lid and dummy load



Time Domain Waveform

Transmitter Console	
Maximum Output Power	1.85 kW maximum, defined as VI when current is on, into a resistive load
Output Current	10 amperes maximum
Output Voltage	Switch selectable up to 1210 volts DC
Automatic Cycle Timing	T:T:T:T; on:off:on:off
Automatic Polarity Change	Each 2T
Pulse Durations	Standard: T = 2,4 or 8 seconds, switch selectable Optional: T = 1,2,4 or 8 seconds, switch selectable Optional: T = 8,16,32 or 64 seconds, switch selectable
Voltage Meter	1500 volts full scale logarithmic
Current Meter	Standard: 10.0 A full scale logarithmic Optional: 0.3, 1.0, 3.0 or 10.0 A full scale linear, switch selectable
Period Time Stability	Crystal controlled to better than .01%
Operating Temperature Range	-30°C to +55°C
Overload Protection	Automatic shut-off at output current above 10.0 A
Open Loop Protection	Automatic shut-off at current below 100 mA
Undervoltage Protection	Automatic shut-off at output voltage less than 95 V
Dimensions	280 mm x 460 mm x 310 mm
Weight	30 kg
Shipping Weight	41 kg includes reusable wooden crate
Motor Generator	
Maximum Output Power	2.5 kVA, single phase
Output Voltage	110 V AC
Output Frequency	400 Hz
Motor	4 stroke, 8 HP Briggs & Stratton
Weight	59 kg
Shipping Weight	90 kg includes reusable wooden crate

SCINTREX

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Telex: 06-964570

Geophysical and Geochemical
Instrumentation and Services

SCINTREX TSQ-3 3000 W

Time and Frequency Domain IP and Resistivity Transmitter

Function

The TSQ-3 is a multi-frequency, square wave transmitter suitable for induced polarization and resistivity measurements in either the time or frequency domain. The unit is powered by a separate motor-generator.

The favourable power/weight ratio and compact design of this system make it portable and highly versatile for use with a wide variety of electrode arrays. The medium range power rating is sufficient for use under most geophysical conditions.

The TSQ-3 has been designed primarily for use with the Scintrex Time Domain and Frequency Domain Receivers, for combined induced polarization and resistivity measurements, although it is compatible with most standard time domain and frequency domain receivers. It is also compatible with the Scintrex Commutated DC Resistivity Receivers for resistivity surveying. The TSQ-3 may also be used as a very low frequency electromagnetic transmitter.

Basically the transmitter functions as follows. The motor turns the generator (alternator) which produces 800 Hz, three phase, 230 V AC. This energy is transformed upwards according to a front panel voltage setting by a large transformer housed in the TSQ-3. The resulting AC is then rectified in a rectifier bridge. Commutator switches then control the DC voltage output according to the waveform and frequency selected. Excellent output current stability is ensured by a unique, highly efficient technique based on control of the phase angle of the three phase input power.

Features

Current outputs up to 10 amperes, voltage outputs up to 1500 volts, maximum power 3000 VA.

Solid state design for both power switching and electronic timing control circuits.

Circuit boards are removable for easy servicing.

Switch selectable wave forms: square wave continuous for frequency domain and square wave interrupted with automatic polarity change for time domain.

Switch selectable frequencies and pulse times.

Overload, underload and thermal protection for maximum safety.

Digital readout of output current.

Programmer is crystal controlled for very high stability.

Low loss, solid state output current regulation over broad range of load and input voltage variations.

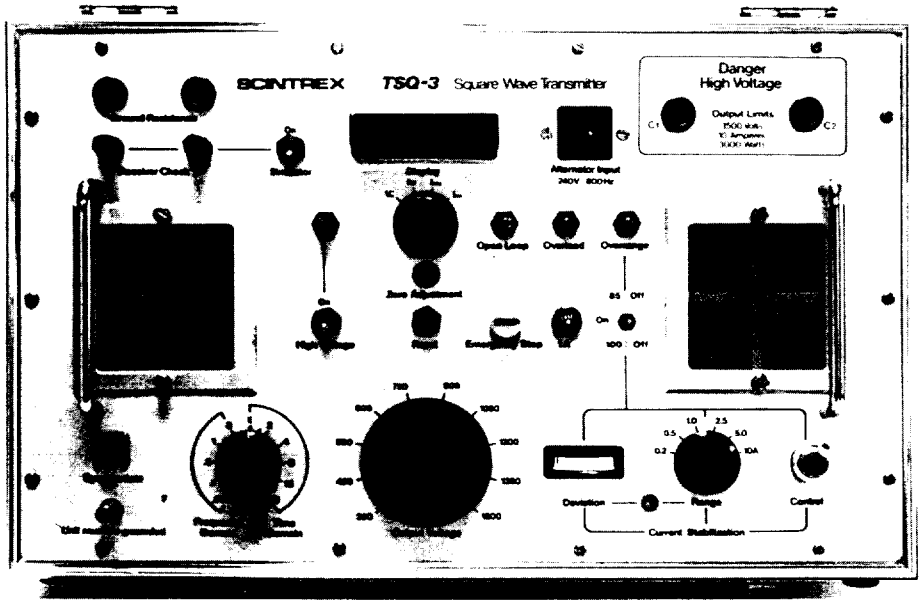
Rectifier circuit is protected against transients.

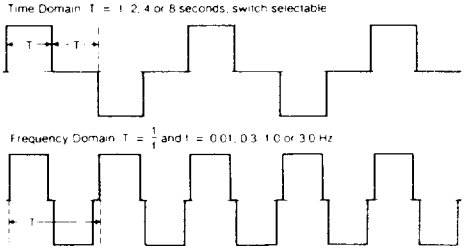
Excellent power/weight ratio and efficiency.

Designed for field portability; motor-generator is installed on a convenient frame and is easily man-portable. The transmitter is housed in an aluminum case.

The motor-generator consists of a reliable Briggs and Stratton four stroke engine coupled to a brushless permanent magnet alternator.

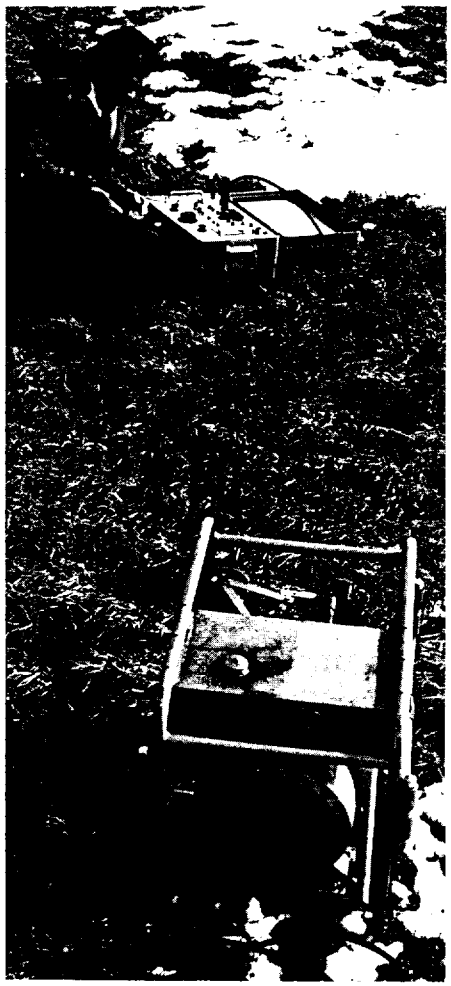
New motor-generator design eliminates need for time domain dummy load.





Waveforms output by the TSQ-3

Technical Description of TSQ-3/3000W Time and Frequency Domain IP and Resistivity Transmitter



TSQ-3 transmitter with portable motor generator unit

Transmitter Console	
Output Power	3000 VA maximum
Output Voltages	300, 400, 500, 600, 750, 900, 1050, 1200, 1350 and 1500 volts, switch selectable
Output Current	10 amperes maximum
Output Current Stability	Automatically controlled to within ±0.1% for up to 50% external load variation or up to ±10% input voltage variation
Digital Display	Light emitting diodes permit display up to 1999 with variable decimal point; switch selectable to read input voltage, output current, external circuit resistance. Dual current range, switch selectable
Absolute Accuracy	± 3% of full range
Current Reading Resolution	10 mA on coarse range (0-10A) 1 mA on fine range (0-2A)
Frequency Domain Waveform	Square wave, continuous with approximately 6% off time at polarity change
Frequency Domain Frequencies	Standard: 0.033, 0.1, 0.3, 1.0 and 3.0 Hz, switch selectable Optional: any number of frequencies in range 0 to 5 Hz.
Time Domain Cycle Timing	t:t:t:t,on:off:on:off;automatic
Time Domain Polarity Change	each 2t; automatic
Time Domain Pulse Durations	Standard: t = 1, 2, 4, 8, 16 or 32 seconds Optional: any other timings
Period Time Stability	Crystal controlled to better than .01%. An optional high stability clock provides stabilization to better than 1 ppm over -20/ + 50° C.
Efficiency	.78
Operating Temperature Range	-30° C to + 50° C
Overload Protection	Automatic shut-off at 3300 VA
Underload Protection	Automatic shut-off at current below 100 mA
Thermal Protection	Automatic shut-off at internal temperature of + 85° C
Dimensions	350 mm x 530 mm x 320 mm
Weight	25.0 kg.
Power Source	
Type	Motor flexibly coupled to alternator and installed on a frame with carrying handles.
Motor	Briggs and Stratton, four stroke, 8 H.P.
Alternator	Permanent magnet type, 800 Hz, three phase 230 V AC.
Output Power	3500 VA maximum
Dimensions	520 mm x 715 mm x 560 mm
Weight	72.5 kg.
Total System	
Shipping Weight	150 kg includes transmitter console, motor generator, connecting cables and re-usable wooden crates.

SCINTREX

222 Snidercroft Road
Concord Ontario Canada
L4K 1B5

Telephone: (416) 669-2280
Telex: 06-964570
FAX: (416) 669-5132
Cable: Geoscint Toronto

Geophysical and Geochemical Instrumentation and Services

APPENDIX B

Ontario

Ministry of Northern Development and Mines

Declaration of Assessment Work Performed on Mining Land

Mining Act, Subsection 65(2) and 66(3), R.S.O. 1990

Transaction Number (office use): W9860.00124

Assessment Files Research Imaging

42A05NW2003 2.18170 WHITESIDES 900

of subsections 65(2) and 66(3) of the Mining Act. Under section 8 of the lo review the assessment work and correspond with the mining land holder. ig Recorder, Ministry of Northern Development and Mines, 6th Floor,

Instructions: - For work performed on Crown Lands before **recording** a claim, use form 0240.
- Please type or print in ink.

1. Recorded holder(s) (Attach a list if necessary)

Name: John Peter Huot	Client Number: 146892
Address: Box 106, 36 Maple Street S.	Telephone Number: (705) 267-6464
Timmins On P4N 7H9	Fax Number: 264-3260
Name	Client Number
Address	Telephone Number
	Fax Number

2. Type of work performed: Check (✓) and report on only ONE of the following groups for this declaration.

☒ Geotechnical: prospecting, surveys, assays and work under section 18 (regs) ☐ Physical: drilling, stripping, trenching and associated assays ☐ Rehabilitation

Work Type: Induced Polarization (Spectral) Survey	Office Use
	Commodity
	Total $ Value of Work Claimed: $ 7101
Dates Work Performed: From 08 (Day) 04 (Month) 1997 (Year) To 13 (Day) 04 (Month) 1997 (Year)	NTS Reference
Global Positioning System Data (if available) — Township/Area: Whitesides	Mining Division: Sudbury
M or G-Plan Number: G-3230	Resident Geologist District: Timmins

Please remember to: - obtain a work permit from the Ministry of Natural Resources as required;
- provide proper notice to surface rights holders before starting work;
- complete and attach a Statement of Costs, form 0212;
- provide a map showing contiguous mining lands that are linked for assigning work;
- include two copies of your technical report.

3. Person or companies who prepared the technical report (Attach a list if necessary)

Name: Aleksandar Savic M.Sc. JVX Limited	Telephone Number: (905) 731-0972
Address: 60 West Wilmot Street Richmond Hill On	Fax Number: 731-9312
Name	Telephone Number
Address	Fax Number
Name	Telephone Number
Address	Fax Number

RECEIVED
FEB 17 1998
8:00
GEOSCIENCE ASSESSMENT OFFICE

4. Certification by Recorded Holder or Agent

I, Peter J Vamos (Print Name), do hereby certify that I have personal knowledge of the facts set forth in this Declaration of Assessment Work having caused the work to be performed or witnessed the same during or after its completion and, to the best of my knowledge, the annexed report is true.

Signature of Recorded Holder or Agent: Peter		Date: 12 Feb 98
Agent's Address: 19 Berry Hill Av. Waterdown On	Telephone Number: (905) 689-6276	Fax Number: (905) 690-2175

Deemed May 18/98

0241 (02/96)

5. **Work to be recorded and distributed.** Work can only be assigned to claims that are contiguous (adjoining) to the mining land where work was performed, at the time work was performed. A map showing the contiguous area must accompany this form.

W9860.00121 FINAL REVISION

Mining Claim Number. Or if work was done on other eligible mining land, show in this column the location number indicated on the claim map.		Number of Claim Units. For other mining land, list hectares.	Value of work performed on this claim or other mining land.	Value of work applied to this claim.	Value of work assigned to other mining claims.	Bank. Value of work to be distributed at a future date.
eg	TB 7827	16 ha	$28, 825	N/A	$24,000	$2,825
eg	1234567	12	0	$24,000	0	0
eg	1234568	2	$ 8, 892	$ 4,000	0	$4,892
1	1159142	1	975			975
2	1159143	1	273			273
3	1159136	1	1326			1326
4	1159137	1	1482			1482
5	1159138	1	975			975
6	1159139	1	900			900
7	1158997	1	195			195
PV 8	1158998	1	975			975
9						
10						
11						
12						
13						
14						
15						
		Column Totals	7,101			7,101

RECEIVED
FEB 17 1998
GEOSCIENCE ASSESSMENT OFFICE

I, Peter Vamos (Print Full Name), do hereby certify that the above work credits are eligible under subsection 7 (1) of the Assessment Work Regulation 6/96 for assignment to contiguous claims or for application to the claim where the work was done.

Signature of Recorded Holder or Agent Authorized in Writing	Date
Peter Vamos	12 Feb 98

6. **Instructions for cutting back credits that are not approved.**

Some of the credits claimed in this declaration may be cut back. Please check (✓) in the boxes below to show how you wish to prioritize the deletion of credits:

- ☐ 1. Credits are to be cut back from the Bank first, followed by option 2 or 3 or 4 as indicated.
- ☐ 2. Credits are to be cut back starting with the claims listed last, working backwards; or
- ☐ 3. Credits are to be cut back equally over all claims listed in this declaration; or
- ☐ 4. Credits are to be cut back as prioritized on the attached appendix or as follows (describe):

RECEIVED
FEB 20 1998
GEOSCIENCE ASSESSMENT OFFICE

Note: If you have not indicated how your credits are to be deleted, credits will be cut back from the Bank first, followed by option number 2 if necessary.

For Office Use Only

Received Stamp	Deemed Approved Date	Date Notification Sent
	Date Approved	Total Value of Credit Approved
	Approved for Recording by Mining Recorder (Signature)	

0241 (02/96)

FEB-21-98 03:27 AM PETERVAMOS 7052645955 P.02

Note: If you have not indicated how your credits are to be deleted, credits will be cut back from the Bank first, followed by option number 2 if necessary.

For Office Use Only

Received Stamp | Deemed Approved Date | Date Notification Sent | Date Approved | Total Value of Credit Approved | Approved for Recording by Mining Recorder (Signature)

0241 (02/96)

Ontario Ministry of Northern Development and Mines

Statement of Costs for Assessment Credit

Transaction Number (office use): W9860.00121

Personal information collected on this form is obtained under the authority of subsection 6(1) of the Assessment Work Regulation 6/96. Under section 8 of the Mining Act, the information is a public record. This information will be used to review the assessment work and correspond with the mining land holder. Questions about this collection should be directed to the Chief Mining Recorder, Ministry of Northern Development and Mines, 6th Floor, 933 Ramsey Lake Road, Sudbury, Ontario, P3E 6B5.

Work Type	Units of Work Depending on the type of work, list the number of hours/days worked, metres of drilling, kilometres of grid line, number of samples, etc.	Cost Per Unit of work	Total Cost
Induced Potential Survey	3,250m	$ 1.950	$ 6338
Report			766
Associated Costs (e.g. supplies, mobilization and demobilization).			
Transportation Costs			
N/A			
Food and Lodging Costs			
N/A			
		Total Value of Assessment Work	$ 7,104

Calculations of Filing Discounts:

1. Work filed within two years of performance is claimed at 100% of the above Total Value of Assessment Work.
2. If work is filed after two years and up to five years after performance, it can only be claimed at 50% of the Total Value of Assessment Work. If this situation applies to your claims, use the calculation below:

TOTAL VALUE OF ASSESSMENT WORK × 0.50 = Total $ value of worked claimed.

Note:
- Work older than 5 years is not eligible for credit.
- A recorded holder may be required to verify expenditures claimed in this statement of costs within 45 days of a request for verification and/or correction/clarification. If verification and/or correction/clarification is not made, the Minister may reject all or part of the assessment work submitted.

RECEIVED
FEB 17 1998
3:09
GEOSCIENCE ASSESSMENT OFFICE

Certification verifying costs:

I, Peter J. Vamos (please print full name), do hereby certify, that the amounts shown are as accurate as may reasonably be determined and the costs were incurred while conducting assessment work on the lands indicated on the accompanying Declaration of Work form as Agent (recorded holder, agent, or state company position with signing authority) I am authorized to make this certification.

Signature	Date
Peter J. Vamos	12 Feb 98

0212 (02/96)

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

Telephone: (888) 415-9846
Fax: (705) 670-5881

May 8, 1998

JOHN PETER HUOT
36 MAPLE STREET, SOUTH
TIMMINS, ONTARIO
P4N-7H9

Dear Sir or Madam:

Submission Number: 2.18170

Subject: Transaction Number(s):		**Status**
	W9860.00121	Deemed Approval

We have reviewed your Assessment Work submission with the above noted Transaction Number(s). The attached summary page(s) indicate the results of the review. WE RECOMMEND YOU READ THIS SUMMARY FOR THE DETAILS PERTAINING TO YOUR ASSESSMENT WORK.

If the status for a transaction is a 45 Day Notice, the summary will outline the reasons for the notice, and any steps you can take to remedy deficiencies. The 90-day deemed approval provision, subsection 6(7) of the Assessment Work Regulation, will no longer be in effect for assessment work which has received a 45 Day Notice.

Please note any revisions must be submitted in DUPLICATE to the Geoscience Assessment Office, by the response date on the summary.

If you have any questions regarding this correspondence, please contact Steve Beneteau by e-mail at benetest@epo.gov.on.ca or by telephone at (705) 670-5855.

Yours sincerely,

ORIGINAL SIGNED BY
Blair Kite
Supervisor, Geoscience Assessment Office
Mining Lands Section

Correspondence ID: 12233
Copy for: Assessment Library

Work Report Assessment Results

Submission Number: 2.18170

Date Correspondence Sent: May 08, 1998 **Assessor:** Steve Beneteau

Transaction Number	First Claim Number	Township(s) / Area(s)	Status	Approval Date
W9860.00121	1159142	WHITESIDES	Deemed Approval	April 29, 1998

Section:
14 Geophysical IP

Correspondence to:

Resident Geologist
South Porcupine, ON

Assessment Files Library
Sudbury, ON

Recorded Holder(s) and/or Agent(s):

Peter J. Vamos
WATERDOWN, ON

JOHN PETER HUOT
TIMMINS, ONTARIO

Correspondence ID: 12233

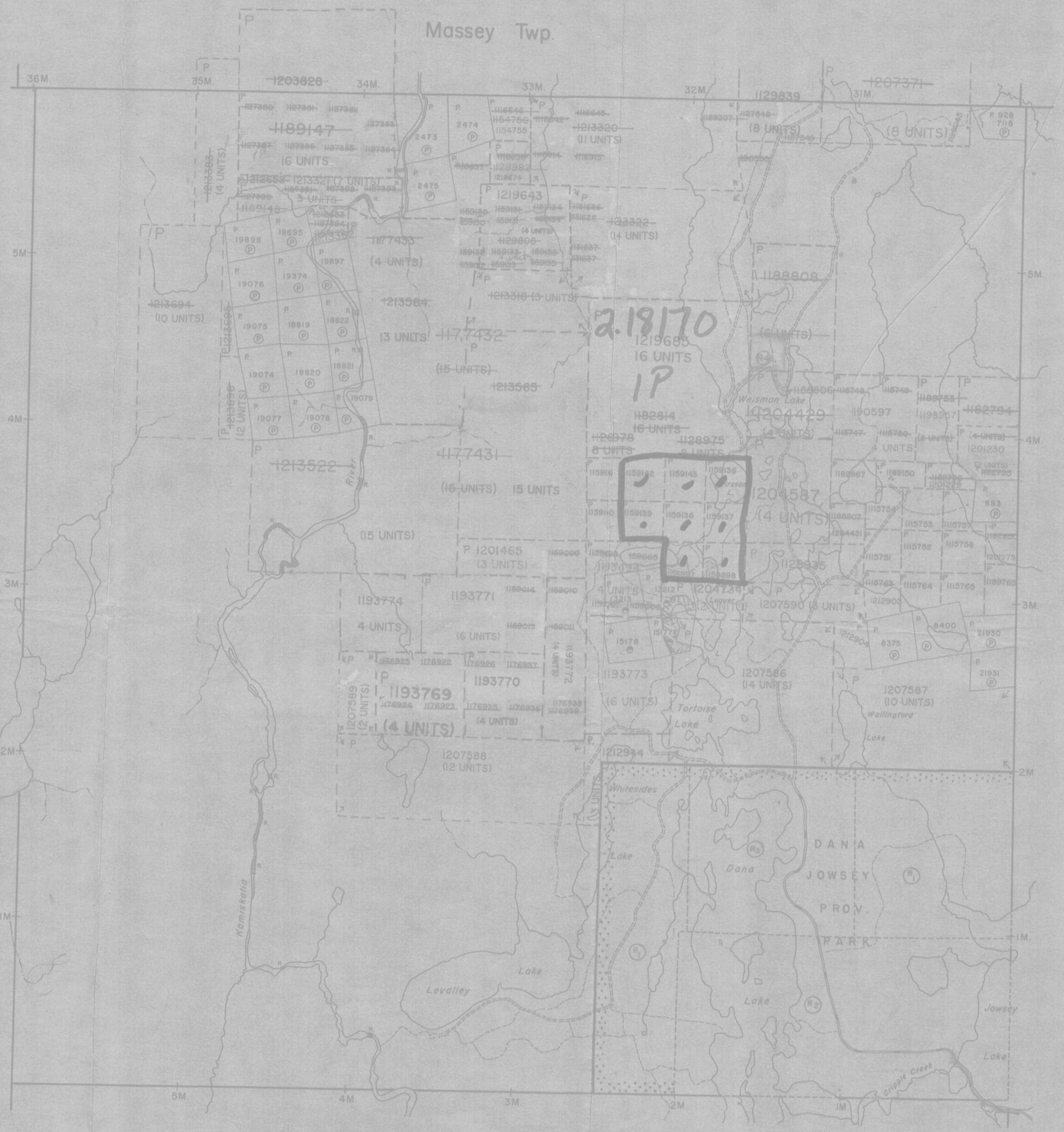
REFERENCES

AREAS WITHDRAWN FROM DISPOSITION

M.R.O. – MINING RIGHTS ONLY
S.R.O. – SURFACE RIGHTS ONLY
M.+S. – MINING AND SURFACE RIGHTS

Description	Order No.	Date	Disposition	File
ANA AND JOWSEY LAKES PARK RES.			S.R.O.	171506
C. 36/80	W.66/83		M.R.O.	
C. 43/70		FEB. 3/66	M. & S.R.	171506
C. 43/70		28/1/71	M. & S.R.	171506

MINING AND SURFACE RIGHTS WITHDRAWN FROM PROSPECTING, STAKING OUT, SALE OR LEASE UNDER SECTION 35 OF THE MINING ACT, R.S.O. 1990 ORDER NO. W-P 49/94 1IER DATED 94-MAY-02



THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

LEGEND

HIGHWAY AND ROUTE No.
OTHER ROADS
TRAILS
SURVEYED LINES:
TOWNSHIPS, BASE LINES, ETC.
LOTS, MINING CLAIMS, PARCELS, ETC.
UNSURVEYED LINES:
LOT LINES
PARCEL BOUNDARY
MINING CLAIMS ETC.
RAILWAY AND RIGHT OF WAY
UTILITY LINES
NON-PERENNIAL STREAM
FLOODING OR FLOODING RIGHTS
SUBDIVISION OR COMPOSITE PLAN
RESERVATIONS
ORIGINAL SHORELINE
MARSH OR MUSKEG
MINES
TRAVERSE MONUMENT

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	P or
" SURFACE RIGHTS ONLY	
" MINING RIGHTS ONLY	
LEASE, SURFACE & MINING RIGHTS	
" SURFACE RIGHTS ONLY	
" MINING RIGHTS ONLY	
LICENCE OF OCCUPATION	
ORDER IN COUNCIL	OC
RESERVATION	R
CANCELLED	
SAND & GRAVEL	P

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 380, SEC. 63, SUBSEC 1.

SCALE: 1 INCH = 40 CHAINS

FEET 0 1000 2000 4000 6000 8000
METRES 0 200 1000 (1 KM) 2000 (2 KM)

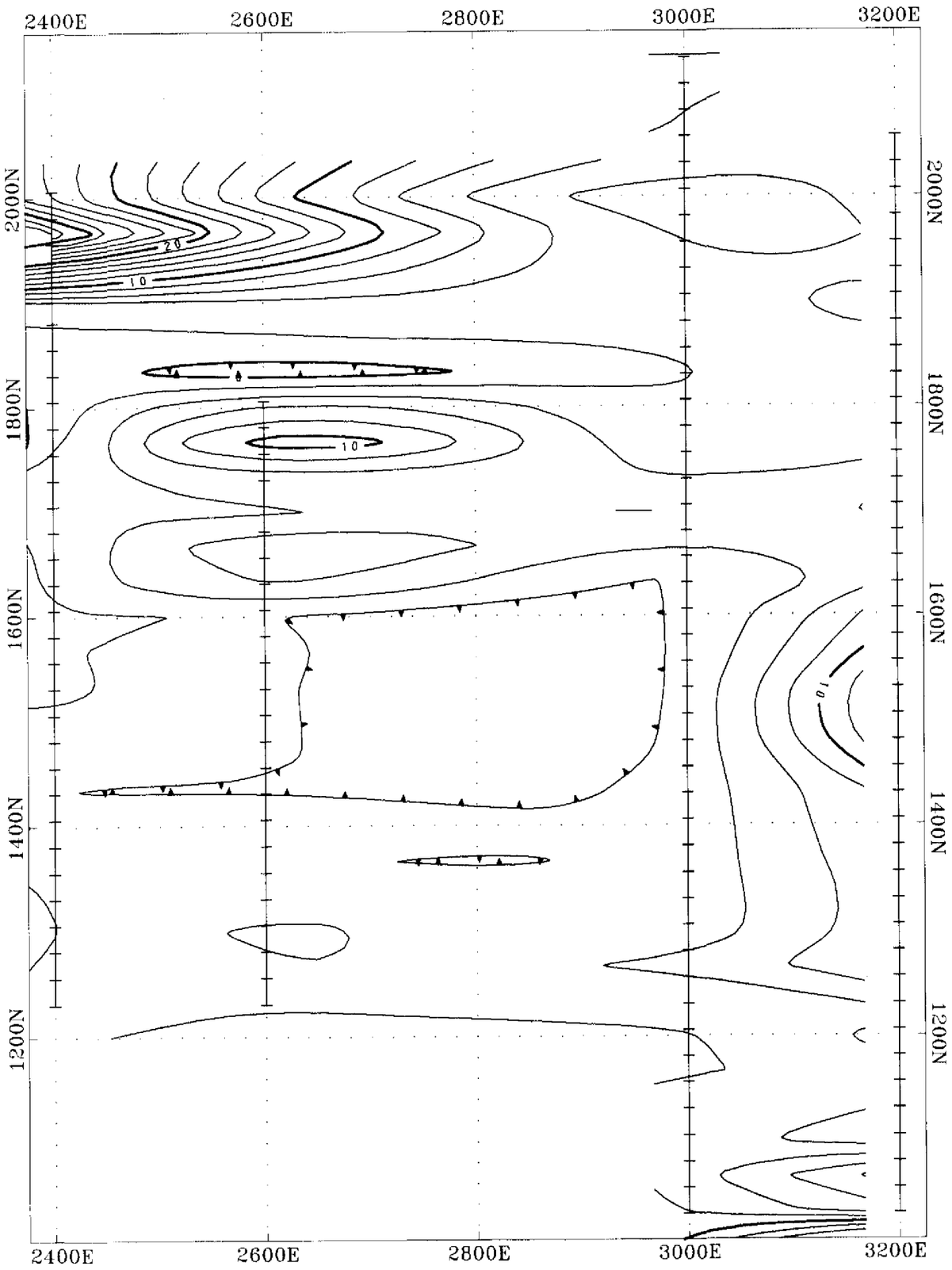
DATE OF ISSUE
MAY 15 1998
PROVINCIAL RECORDING OFFICE - SUDBURY

WHITESIDES

M.N.R. ADMINISTRATIVE DISTRICT
TIMMINS
MINING DIVISION
PORCUPINE
LAND TITLES / REGISTRY DIVISION
COCHRANE

Ministry of Natural Resources — Land Management Branch
Ontario

Date FEBRUARY 1985
ACTIVATED JUNE 30, 1992 BY D.C.
Number G-3230



Scale 1:5000

100 0 100 200

(metres)

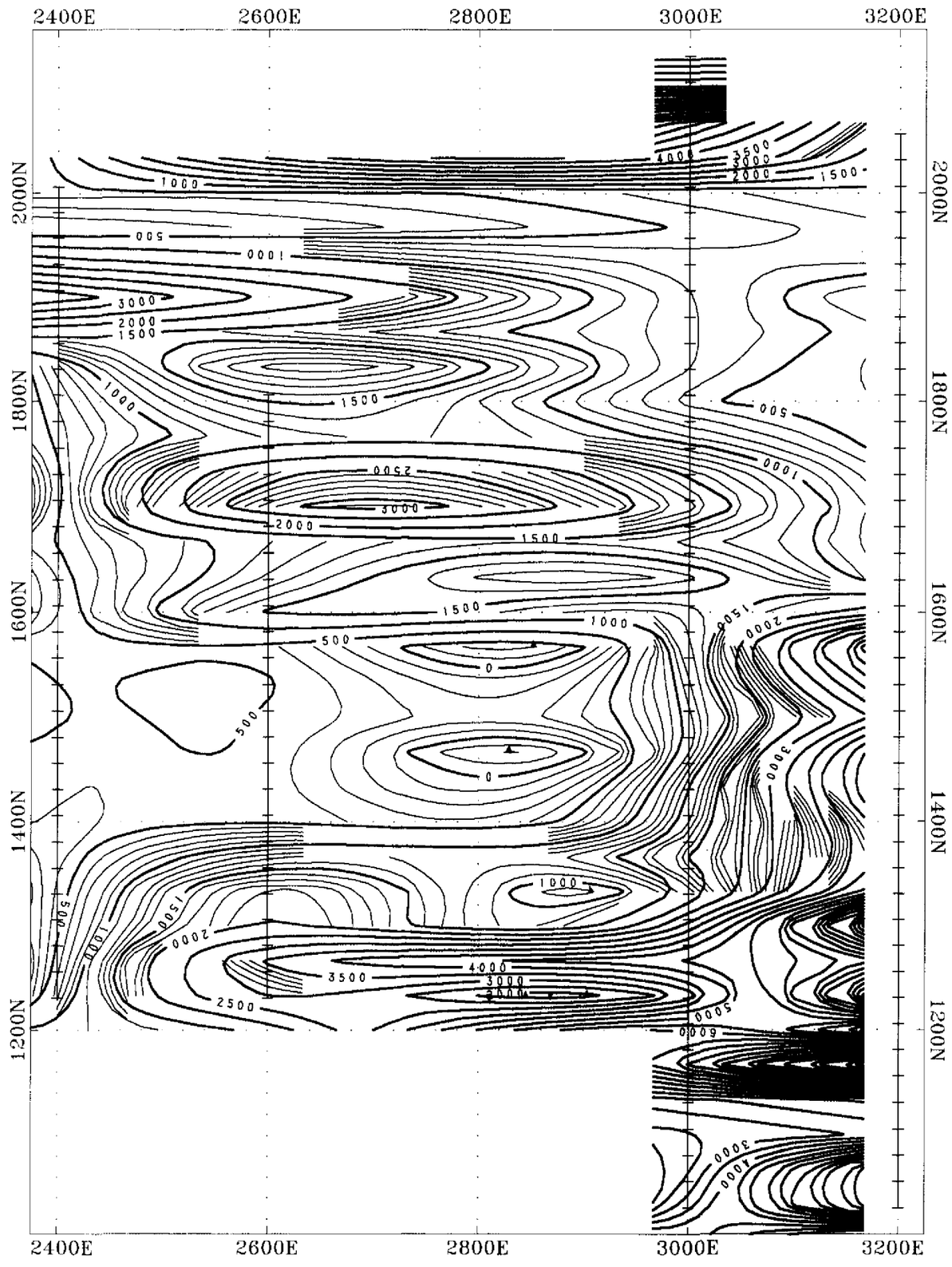
Plate 1

PROSPECTORS ALLIANCE CORP.

McKenzie Option
Whitestdes Twp., Ontario
NTS 42 A/5

Chargeability (n=2) Plan Map

JVX ref no. 9805-ipmc



Scale 1:5000

100 0 100 200

(metres)

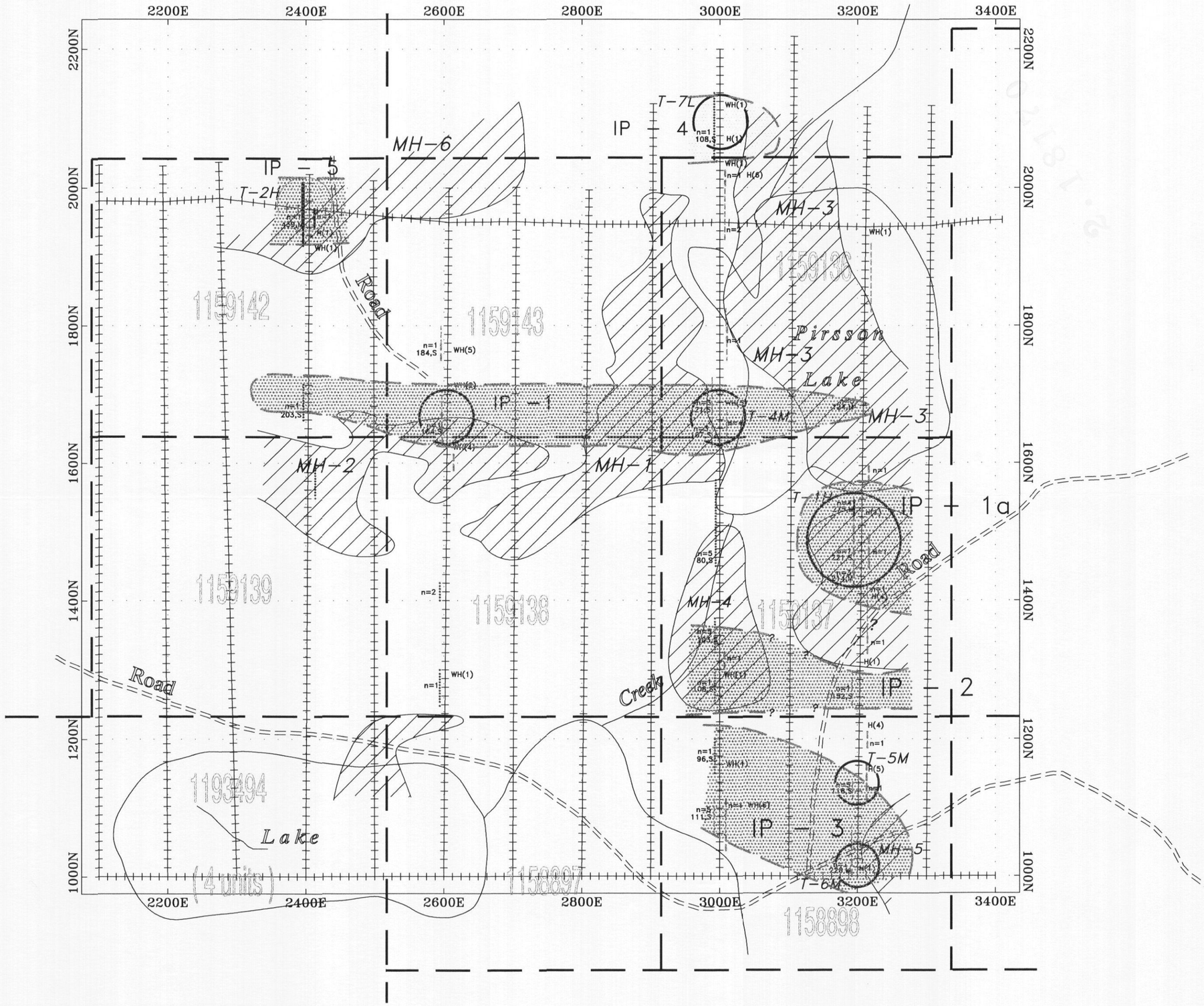
Plate 2

PROSPECTORS ALLIANCE CORP.

McKenzie Option
Whitestdes Twp., Ontario
NTS 42 A/5

Resistivity (n=2) Plan Map

JVX ref no. 9805-ipmc



Legend

- IP-4 — Chargeability Zone
- MH-3 — Magnetic High Zone
- T-7L — Exploration Target
  H–High priority
  M–Medium priority
  L–Low priority

Resistivity & Chargeability Anomalies

- Very Strong
- Strong
- Medium
- Weak
- Very Weak

Scale 1:5000

100 0 100 200 300 (metres)

Plate 3

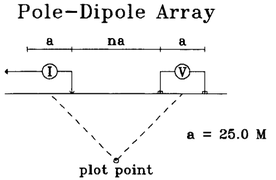
PROSPECTORS ALLIANCE CORP.

McKenzie Option
WHITESIDES TWP., ONTARIO
NTS 42 A/5

COMPILATION MAP

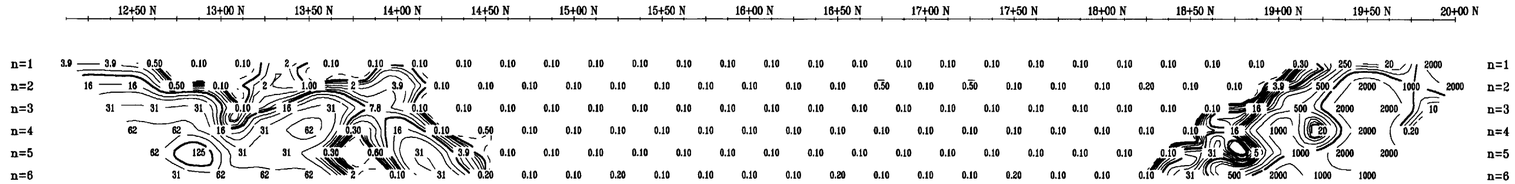
JVX Ltd. ref. no. 9805

Line 2400 E



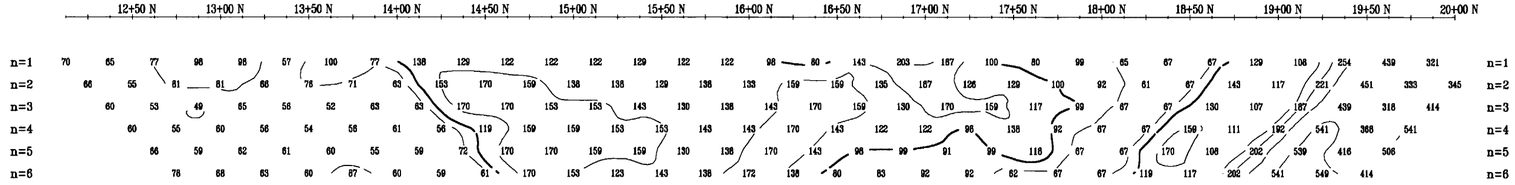
2.18170

Spectral Tau (msec)



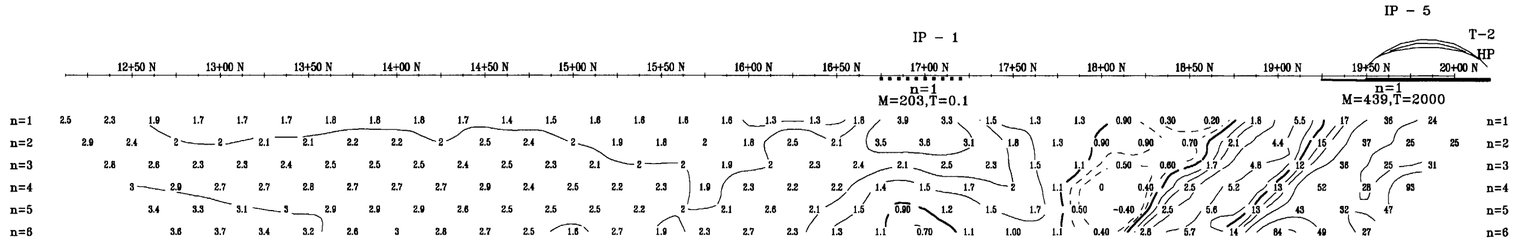
Spectral Tau (msec)

Spectral MIP (mV/V)



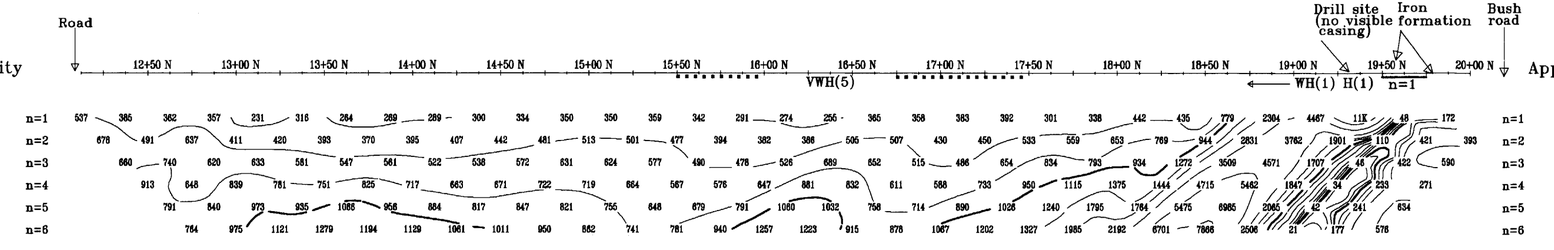
Spectral MIP (mV/V)

Mx Chargeability (mV/V, 690-1050 ms)



Mx Chargeability (mV/V, 690-1050 ms)

Apparent Resisitivity (ohm-m)



Apparent Resisitivity (ohm-m)

Resistivity and Chargeability Anomalies

- Very strong
- Strong
- Medium
- Weak
- Very weak
- xxxx xxxx Extremely weak

Scale 1:2500

25 0 25 50 75 100 125 150 (metres)

Plate 4

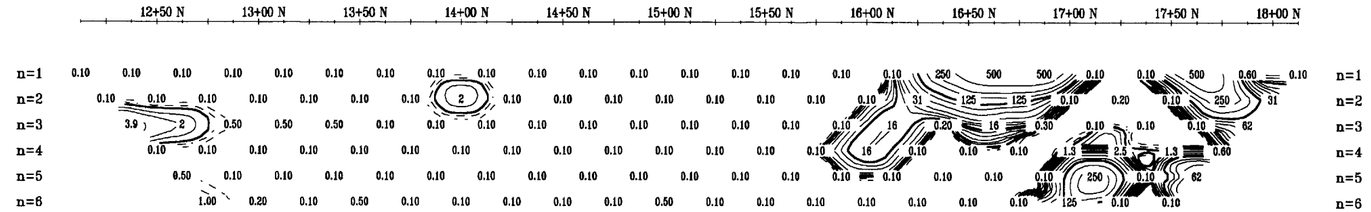
PROSPECTORS ALLIANCE CORP.

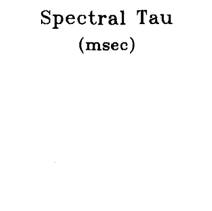
INDUCED POLARIZATION SURVEY
McKenzie Option
Whitesides Twp., Ontario, NTS 42 A/5

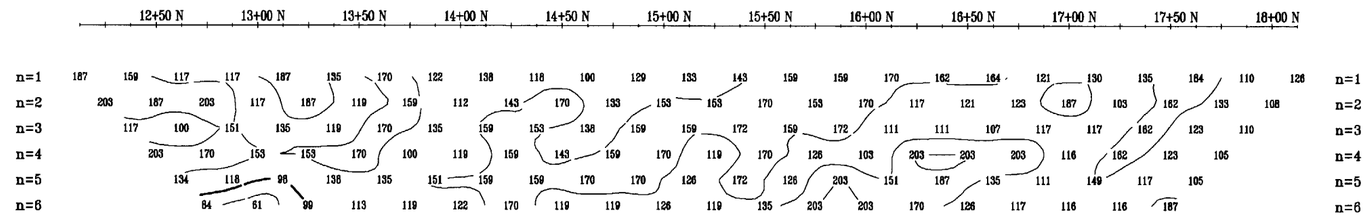
Date: 97/08/12
Scintrex IPR-11 Rx, IPC-7 Tx (2 sec)

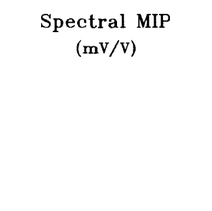
JVX Ltd. ref. no. 9753

Line 2600 E

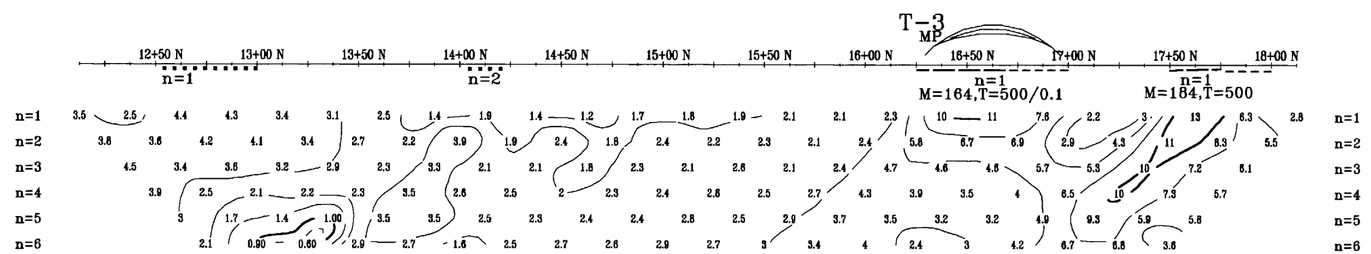


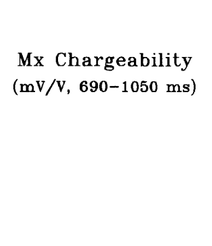


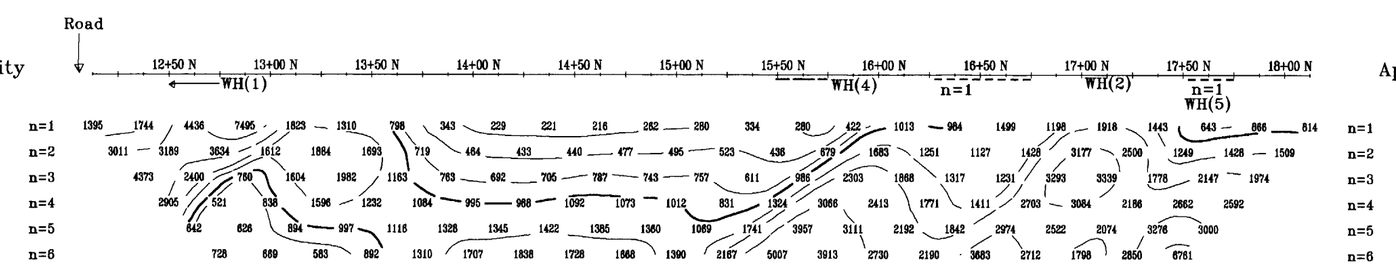


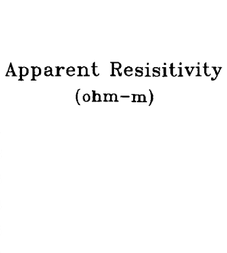


IP -1

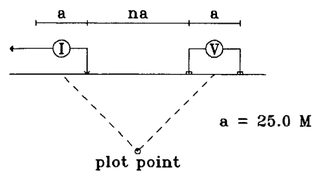








Pole-Dipole Array



Resistivity and Chargeability Anomalies

- Very strong
- Strong
- Medium
- Weak
- Very weak
- xxxx xxxx Extremely weak

Scale 1:2500

25 0 25 50 75 100 125 150

(metres)

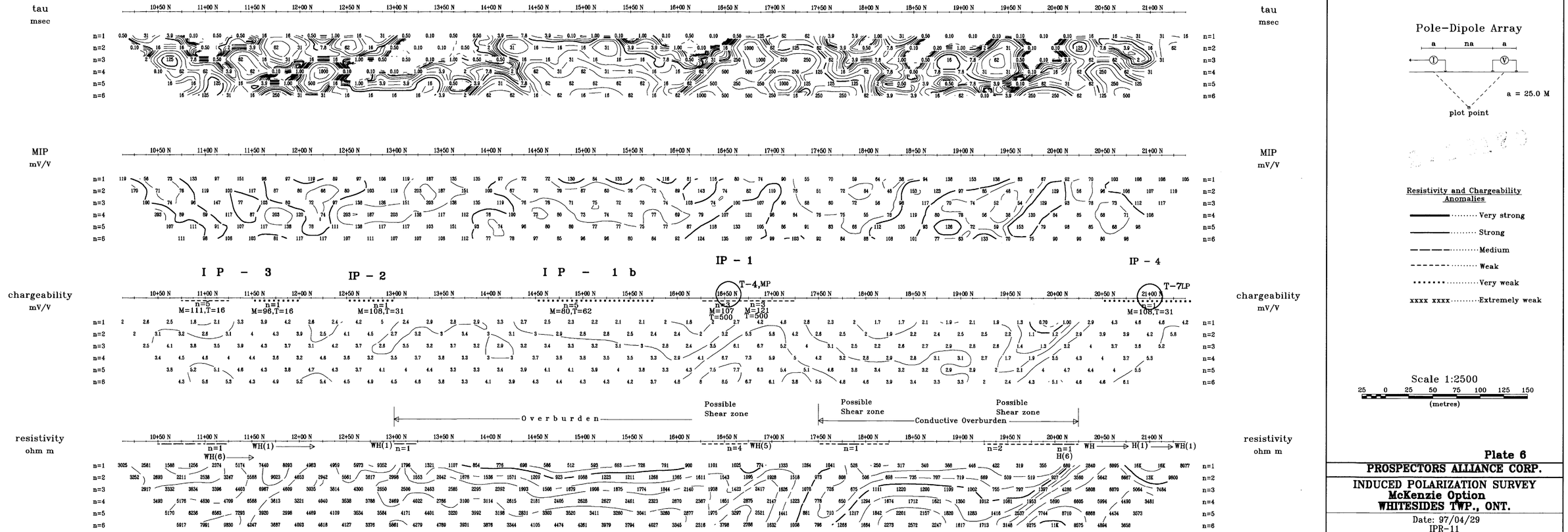
Plate 5

PROSPECTORS ALLIANCE CORP.

INDUCED POLARIZATION SURVEY
McKenzie Option
Whitesides Twp., Ontario, NTS 42 A/5

Date: 97/08/12
Scintrex IPR-11 Rx, IPC-7 Tx (2 sec)

JVX Ltd. ref. no. 9753



Line 3000 E

Pole-Dipole Array

Resistivity and Chargeability Anomalies

- Very strong
- Strong
- Medium
- Weak
- Very weak
- xxxx xxxx Extremely weak

Scale 1:2500

25 0 25 50 75 100 125 150

(metres)

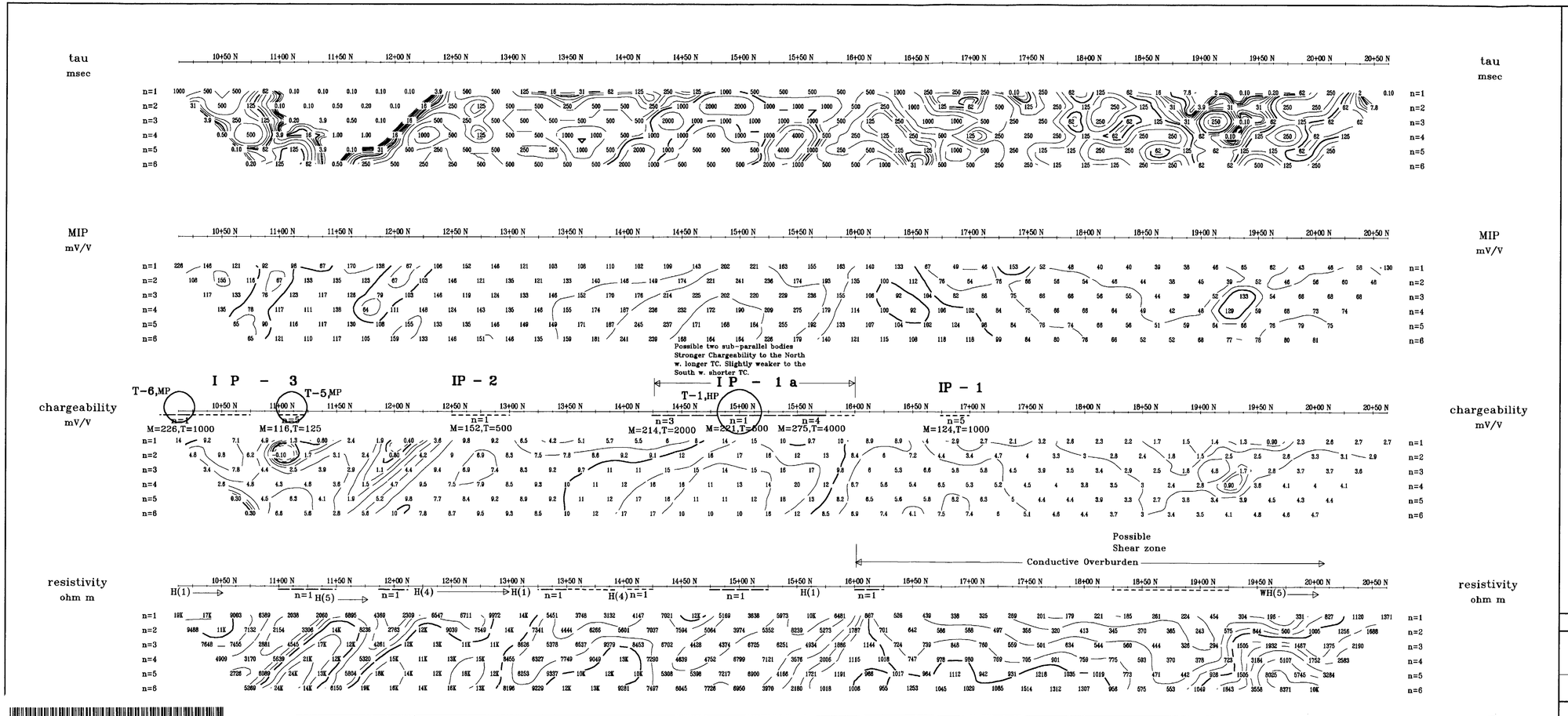
Plate 6

PROSPECTORS ALLIANCE CORP.

INDUCED POLARIZATION SURVEY
McKenzie Option
WHITESIDES TWP., ONT.

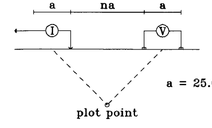
Date: 97/04/29
IPR-11

JVX Ltd. ref. no. 9728



Line 3200 E

Pole-Dipole Array



Resistivity and Chargeability Anomalies

- Very strong
- Strong
- Medium
- Weak
- Very weak
- xxxx xxxx Extremely weak

Scale 1:2500

25 0 25 50 75 100 125 150
(metres)

Plate 7

PROSPECTORS ALLIANCE CORP.

INDUCED POLARIZATION SURVEY
McKenzie Option
WHITESIDES TWP., ONT.

Date: 97/04/29
IPR-11

JVX Ltd. ref. no. 9728