REPORT ON AIRBORNE RADIOMETRIC SURVEY BANCROFT AREA ONTARIO

ON BEHALF OF
MR. ROBERT W. DRUDE

BY
SCINTREX SURVEYS LIMITED

SUMMARY

An airborne radiometric survey was carried out over an area near Bancroft, Ontario. A total of 144 line miles were surveyed at a nominal altitude of 200 feet with a nominal interline spacing of 1/16 mile.

The following geophysical parameters were measured during the survey: uranium, thorium, potassium and total gamma radiation; the total magnetic field.

The data were continuously recorded on analogue charts, as well as in digital form.

The survey was flown with a De Havilland DHC-3 single engined Otter, Canadian registration CF-IUZ, owned and operated by Scintrex Surveys Limited.

A "Radiometric Anomaly Map" was compiled and evaluated after the survey was completed. Several anomalous zones were detected. Recommendations are made for ground follow-up surveying.

REPORT ON AIRBORNE RADIOMETRIC SURVEY IN THE BANCROFT AREA, ONTARIO ON BEHALF OF MR. ROBERT W. DRUDE

1. INTRODUCTION

During the period August 31 - September 3, 1976, airborne radiometric and magnetometer surveys were carried out by Scintrex Surveys Limited on behalf of Mr. Robert W. Drude, in the Bancroft Area, Ontario. A total of 144 line miles were flown. Out of this amount, the specific mileage flown over the claims in Area 1, is 27.5 miles, and that over the claims in Area 2, is 7.3 miles.

On each flight, simultaneous measurements were made of gamma radiation count rates in four channels, and of the total magnetic field. The principal instrumentation consisted of a four channel gamma ray spectrometer, and a total field magnetometer. The data were recorded in analogue and in digital form.

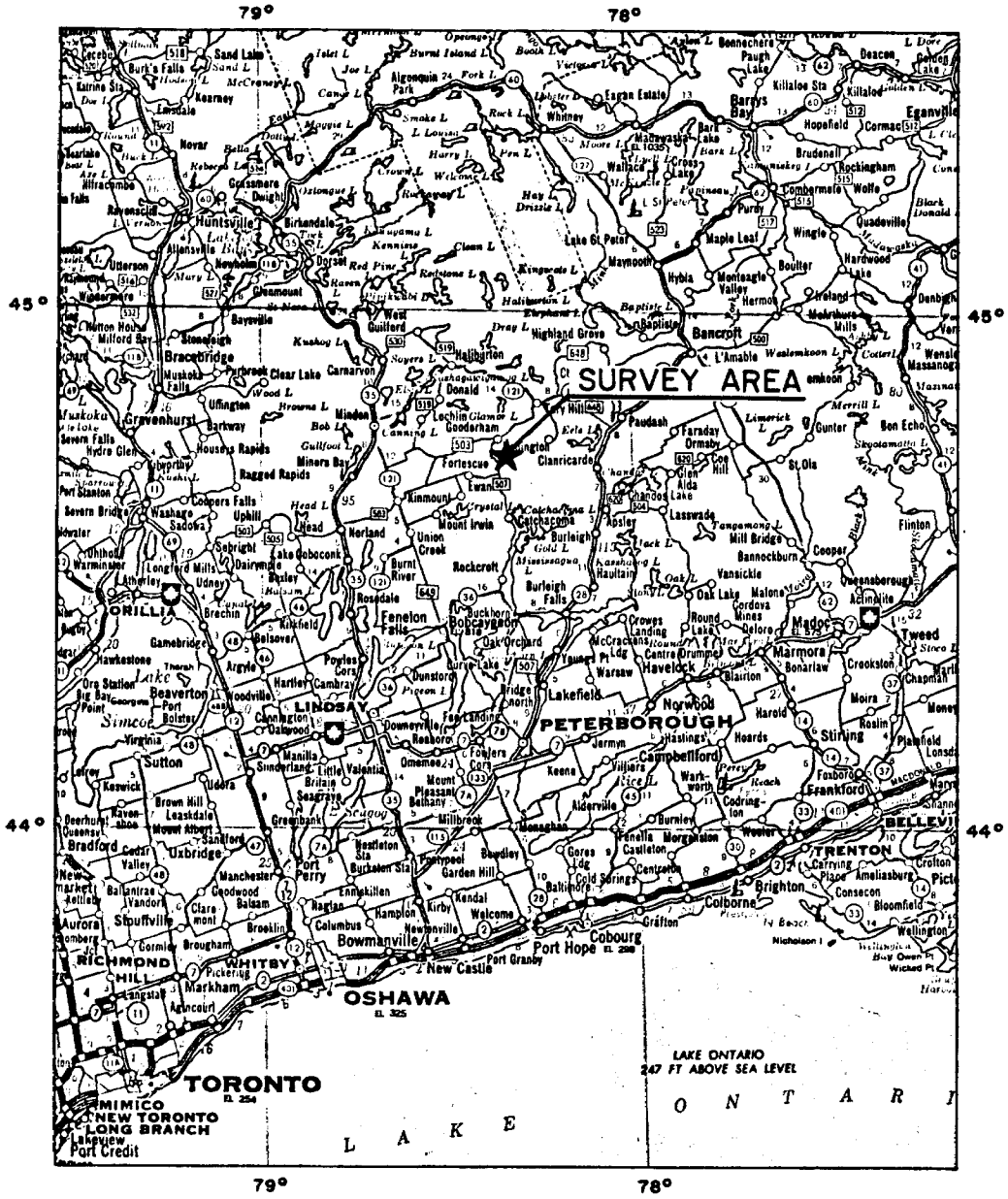
Ancillary equipment included an intervalometer, an accelerometer, a flight path camera and a radar altimeter. The survey aircraft was a De Havilland DHC-3 single engined Otter, Canadian registration CF-IUZ.

2. SURVEY AREAS

The survey areas are located about 30 miles southwest of Bancroft, Ontario. For the general location, refer to Figure 1. The areas consist of two claim groups designated "Area 1" and "Area 2" as shown in Plates 1 and 2, scale 1" = 1000 feet. Area 1 includes claims EO 35870 to EO 35878, and EO 36893 to EO 36902. Area 2 includes claims EO 7692 to EO 7695, EO 7466 and EO 414460, and patented land in sections VIII-13, VIII-14, IX-12 to 1X-14, and X-11 to X-14 (Plate 2).

3. FLYING SPECIFICATIONS

The present survey was flown at 200 feet nominal terrain clearance, with a nominal interline spacing of 1/16 mile. The flight direction was N 70° E. The aircraft ground speed varied between 90 and 110 miles per hour.



LOCATION MAP

MR. R. W. DRUDE

BANCROFT AREA, ONTARIO

AIRBORNE GEOPHYSICAL SURVEY

Scale: 0 10 20 30 miles

76-T 1112

FIGURE 1

4. SURVEY EQUIPMENT

A brief description of the instrumentation used during the present survey is given below:

4.1 Geophysical Equipment

4.1.1 GSA-64 Gamma Ray Sensors -

The gamma ray detector system consisted of two Scintrex GSA-64 crystal assemblages operating in tandem. Each GSA-64 contains four 6" x 4" crystals giving a volume of 452 cu.in. The total combined sensor volume was thus 904 cu.in.

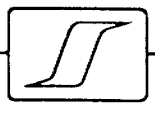
The Scintrex GS series of sensors use thallium activated sodium iodide crystals coupled to photomultiplier tubes. The crystals are attached to thermally insulated, magnetically shielded, shock mounted capsules, which are temperature controlled for spectrum stabilization and long term detector balance.

4.1.2 GAD-5 Gamma Ray Spectrometer

A Scintrex GAD-5 four-channel gamma spectrum analyzer was utilized on the present survey. It provides both analogue and digital data outputs. Each channel can be operated in either differential or integral mode. Threshold energy levels and, in the case of differential analysis, window widths, are individually adjustable for each channel.

The GAD-5 unit was set up to provide three channels of differential mode output with energy windows centred on thorium, uranium and potassium peaks, and a broad band integral mode channel operating with a low threshold energy. The analogue data output can be corrected for spectral interference and Compton scattering by a stripping procedure. Briefly, a fraction of the thorium count rate is subtracted from the simultaneous uranium channel count rate, and both thorium and uranium fractional contributions are subtracted from the potassium window count rate. The three differential channel analogue outputs therefore represent count rates characteristic solely of gamma activity from, individually, thorium, uranium and potassium (in equilibrium with their daughter products).

Appendix A gives details of the calibration procedures, window settings and stripping ratio adjustments. The GAD-5 digital outputs, recorded on magnetic tape, are unstripped, representing the raw count rates in each channel.



During the survey the sample period for each count rate measurement (0.5 sec.) was controlled by the digital recording system described in section 7 below.

4.1.3 Scintrex-Gulf MK III Fluxgate Magnetometer

The Scintrex-Gulf Mark III system is a fluxgate servo-oriented unit measuring the earth's total magnetic field intensity. The measuring fluxgate element is held perpendicular to the plane of a set of auxiliary elements, the whole assembly being supported by a gimbal system, free to rotate in any plane. The plane of the auxiliary elements is maintained in a null field orientation by two servo motors operating on the gimbal system. The measuring element is thus maintained in the direction of the total magnetic field.

The magnetometer console provides an analogue output proportional to the total magnetic field strength. This is digitized for tape recording by a module and gives 5 decimal digits output every ½ second.

4.2 Ancillary Equipment

4.2.1 Automax 35 mm Camera

An Automax 35 mm frame camera was installed in the aircraft. It was equipped with a fiducial number counter and a 28 mm wide angle lens, providing for 20 to 50% overlap between frames at an aircraft speed of 90 m.p.h. and altitude of 200 feet. Each frame exposure corresponds to one fiducial interval (i.e. 1 second).

4.2.2 Collins ALT 50 Altimeter

The Collins ALT 50 is a linear sweep radio altimeter which measures and displays the terrain clearance from 2000 feet to touchdown. It transmits a 4,300 MHz signal. A Bonzer VME unit was fitted as a back-up unit.

4.2.3 Accelerometer

Mounted in a wing tip, this unit measures vertical accelerations due to air turbulence. The measurements are recorded in analogue form only, calibrated in gals. Normal survey conditions give peak to peak deflections of 2 gals or less.

4.2.4 Scintrex IITC-2 Intervalometer-Intercom

The IITC-2 generates synchronization signals operating the fiducial counters and camera. It is itself controlled by timing pulses from the digital data recording system. The unit also provides an on-board communications system for the flight crew.

4.2.5 Honeywell Analogue Recorder

The Honeywell visicorder 1508B is a direct writing oscillograph capable of simultaneously recording up to 24 channels of data. It records on light-sensitive paper a continuous graph complete with gridlines, timing lines, trace indentification and trace number.

4.2.6 Incre Data MK II Digital Recording System

The Incre Data unit digitally records data gathered by the on-board survey equipment onto IBM compatible 7 track magnetic tape. The following data are recorded incrementally at ½ second intervals:

Fiducial number.
Time (Hours, Minutes, Seconds, Tenths of Seconds).
Magnetic field.
Radiometrics (Th, U, K, BB)
Altimeter.

The unit contains a digital clock controlled by a 10 MHz crystal oscillator. This is used to synchronize data recording, fiducial intervals, camera exposure and radiometric counting periods.

The Incre Data unit accepts both analogue and digitally coded data, converting the analogue data (Altimeter) into digital form before recording.

4.3 Survey Aircraft

The survey aircraft was a De Havilland DHC-3 Otter owned and operated by Scintrex Survey Limited. It is a low-speed, high performance single engined STOL-type aircraft-gross weight 8000 lbs.

5. SURVEY CREW

5.1 Field Crew

Operator - Sandy McRorie - Operation and maintenance of the equipment.

Navigator - Al Staines - Responsible for directing the pilot during the survey along previously chosen flight lines, and flight path recovery.

Pilot - Doug Campbell.

5.2 Toronto Based Personnel

Geophysicists - Zbynek Dvorak, Ph.D. and Michael Lewis, M.Sc., P. Eng. - Responsible for quality control, processing, and evaluation of data.

6. FIELD PROCEDURES

6.1 Survey Flight and Ground Procedures:

The main sequence of events occurring during a normal survey flight are listed below:

1. Switch-on for warm-up of spectrometer.
2. Ground calibration of spectrometer.
3. Take off.
4. Air calibration.
5. Survey lines.
6. Air calibration.
7. Land.
8. Ground calibration of spectrometer.
9. Data quality check.
10. Film development.
11. Flight path recovery.
12. Anomaly picking from analogue chart.
13. Plotting of anomaly map.

6.2 Calibrations

Table I below lists the procedures for ground calibration.

TABLE I
GROUND CALIBRATION

Instrument	Operation	Purpose
Spectrometer (see Appendix A for full calibration procedures)	Uranium and Thorium samples are placed separately in a fixed location near the crystals	Allows scaling, drift, and sensitivity calculations

Table II below lists procedures for air calibration.

TABLE II
AIR CALIBRATION

Instrument	Electrical Simulation	Purpose
Accelerometer	Acceleration of 2 gals	Scaling analogue traces
Altimeter	50 foot mark	To determine zero position
	Two deflections corresponding to a difference in elevation of 100 feet	Scaling analogue traces
Magnetometer	1. Zero level and full deflection	Scaling analogue traces
	2. Balance check	Check face movement in fluxgate elements

6.3 Navigation and Flight Path Recovery

6.3.1 During each survey flight the course of the aircraft was directed by the navigator. He identified features on the ground using a photomosaic of the survey area on which proposed flight lines had been marked. He marked appropriate fiducial numbers on the photomosaic as the aircraft passed over recognizable features. For the present survey, the photomosaics were at a scale of 1"=2000'.

6.3.2 A flight log was maintained by the operator during each survey flight. The fiducial numbers at the beginning and end of each line were recorded.

6.3.3 The flight path film was developed after each flight and used in conjunction with the navigator's mosaic and the flight logs to recover the actual flight path for each survey line. Recognizable features on the film were marked on a recovery mosaic, similar to the navigator's mosaic. The corresponding fiducial number was marked at each picked point. The survey lines were reconstructed by joining picked points, assuming straight flight between each point.

6.4 Day-to-day Operations

Operations on the present survey were carried out between 31 August and 3 September, 1976. They were conducted out of facilities at Buttonville Airport, north of Toronto.

7. DATA RECORDING

Data was recorded simultaneously in analogue form on linagraph direct print chart paper, and in digital form, on seven track magnetic tape. The system was synchronized throughout by the intervalometer and by the Incre Data unit. Fiducial numbers were printed on the analogue chart and 35mm film and recorded on the magnetic tape. Small shifts in the records exist between the geophysical data and corresponding fiducial numbers. This is because of signal delays due to time constants and sampling periods. (1.5 fiducial for radiometrics, 0.5 fiducial for the magnetometer).

Linagraph Chart Record

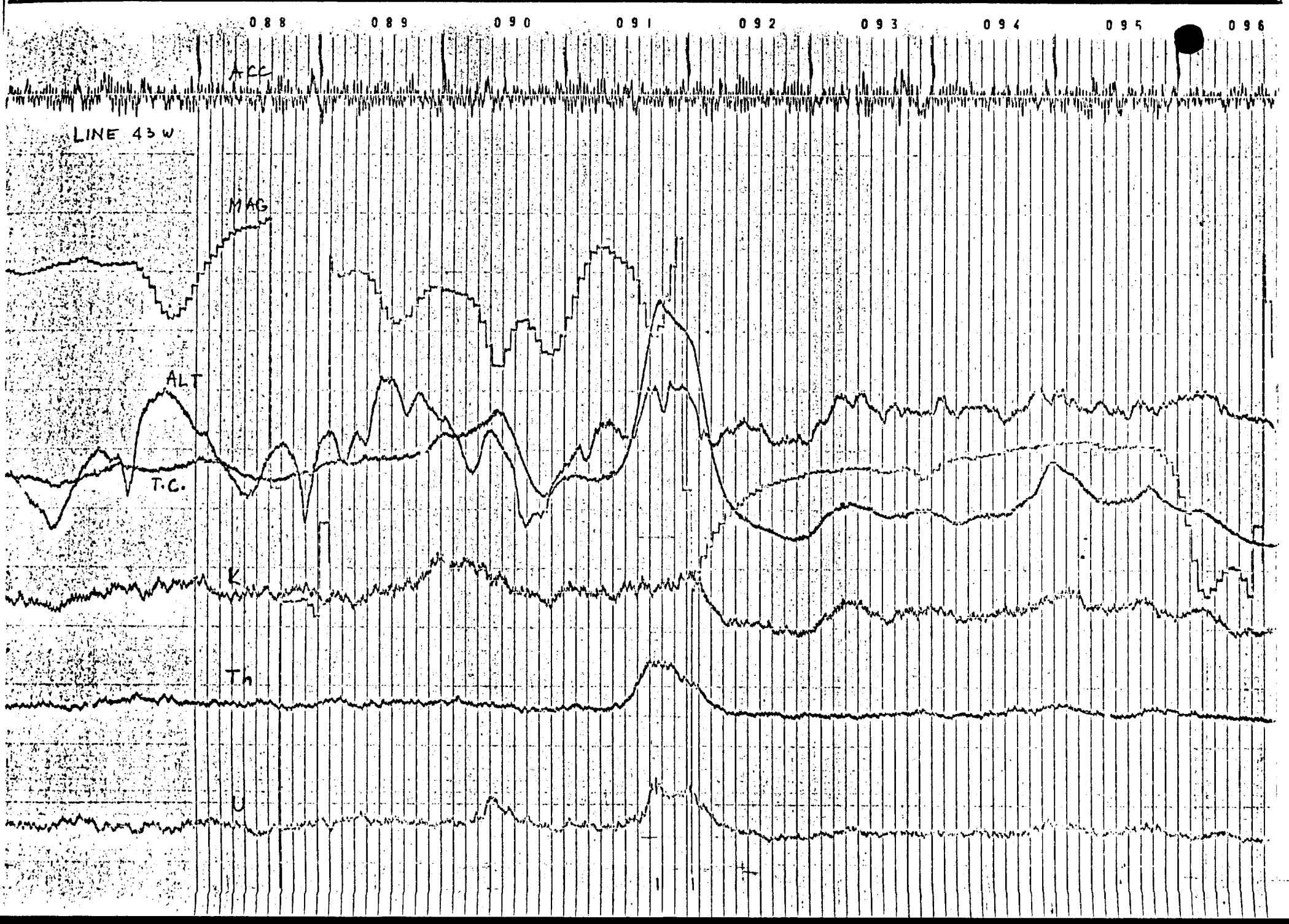
Figure 2 is an example of an analogue record. Each trace was identified by hand labelling and, automatically, every 8.7 inches, by a 1/20 inch interruption which corresponds to the printing of the trace number at the bottom of the chart record.

The beginning and end of a flight were labelled with flight number, date, line number and magnetic tape number. The ground and air calibrations were also identified.

The chart recorder display, consisting of 7 traces, is tabulated below (Table III). The parameters recorded are listed together with their corresponding trace numbers and nominal vertical scales. The chart paper is gridded horizontally and vertically every 1/10th of an inch, with heavy lines every inch. The chart speed was one tenth of an inch per second, so that each vertical line corresponds to a fiducial interval. At normal survey speeds each fiducial corresponds to a distance of approximately 160 feet on the ground. After each heavy vertical line (at 1 inch or 10 fiducial intervals) the chart recorder prints a 3 digit number at the top of the chart indicating the first 3 digits of the current 4 digit fiducial number.

TABLE III
ANALOGUE CHART TRACE IDENTIFICATION

Parameter	Trace Number	Vertical Nominal Scale	Vertical Positive Direction
Accelerometer	1	6G/in	downwards
Magnetometer	5	300 gamma/in	"
Altimeter	9	130 feet/in	"
Thorium Total count	12	300 cps/in	upwards
Radiometrics	13	3000 cps/in	"
Potassium	14	300 cps/in	"
Uranium	15	300 cps/in	"


088
089
090
091
092
093
094
095
096
ACC
LINE 43 W
MAG
ALT
T.C.
K
Th
U

8. PRESENTATION OF DATA

The data collected during the survey are presented as follows:

8.1 Radiometric Anomaly Map

The "Radiometric Anomaly Map" is a copy of the photomosaic made to a horizontal scale 1"= 1000 ft. It shows radiometric anomalies which are classified into three categories:

Full diamond - Category 1 - Anomaly well defined, medium to high amplitude and good U/Th and U/K ratios.

Half-full diamond - Category 2 - Anomaly well defined but medium to small amplitude and poor U/Th and U/K ratios.

Open diamond - Category 3 - Anomaly poorly defined.

At each anomaly locale, the altimeter and radiometric traces were studied to eliminate spurious responses due to topographic, geologic and atmospheric noise.

8.2 Analogue Charts

Analogue charts, labelled and edited for each flight, as described in section 7.

8.3 Film, flight logs, and all materials utilized on the survey.

9. DISCUSSION OF RESULTS

The discussion of results is based entirely on the geophysical data. No detailed geological information was made available to the authors.

The data discussed below are presented in the form of "Radiometric Anomaly Maps", scale 1" = 1000 feet, one for each survey area. These maps contain recovered flight lines and radiometric anomalies drawn over a copy of photomosaic of the areas with indicated claim boundaries.The U/Th, U/K ratios are presented using count rate readings.
The accuracy of given values is better than $\pm\sqrt{r}$, where "r" is a particular reading.

9.1 Area 1 - Plate 1

The average background readings on all channels within this southern area are low and do not show much variation (about 30 cps U; 28 cps Th; 140 cps K; 2435 cps BB.) There are three anomalous zones of interest:-

9.1.1 Zone S-1

Zone S-1 extends from fiducial 2140, line 29 (Anomaly A), to fiducial 2662-2666, line 12 (Anomalies A and B). The best anomaly within this zone is A on line 26, fiducial 2347 where the uranium channel reading is 117 cps, and the

U/Th and U/K ratios are 3.9 and 2.6 respectively. This anomaly is associated with a magnetic high of about 570 gammas. The aircraft altitude was186 feet.

9.1.2 Zone S-2

S-2 lies between fiducial 2892, line 19 (Zone A) and fiducial 3033, line 17 (Zone A). The uranium readings are small. The best anomaly is A, line 17, with U/Th, U/K ratios of 1.4 and 0.8, respectively.

9.1.3 Zone S-3

Zone S-3, extends from fiducial 3458, line 11 (Zone A), through to fiducial 3599, Line 9 (Zone A). The uranium counts, as well as the U/Th and U/K ratios, within this zone are small.

Two other anomalous zones (Anomaly A, line 10, and anomalies A, line 25 and B, line 26) seem to be of minor significance. They are not discussed here.

9.2 Area 2 - Plate 2

The western and central portions of this area have low backgrounds in all four radiometric channels (About 28 cps U; 17 cps Th; 95 cps K; 1735 cps BB). There is very little variation of gamma counts therein. In contrast, the eastern part of the area shows much higher activity. Here an anomalous zone, designated N -11 strikes approximately north-south. It extends from fiducial 615, line 54 (Zone C) to fiducial 1946, line 31 (Zone B), and probably extends beyond the limits of the present survey in the northern and southern directions.

The anomaly trends west at both the northern and southern ends of the zone. This trend may extend beyond the boundary of the present survey on the north-western edge; to the south-west the zone terminates around fiducial 1886, line 32 (Zone A).

There are three well developed anomalies within Zone N-1. The most promising is Zone B on line 33, fiducial 1787, which shows 591 cps in the uranium channel, and U/Th, U/K ratios 2.0 and 2.6, respectively (Figure 3.) It is associated with a magnetic high of 470 gammas. The aircraft altitude over this anomaly was 180 feet.

The second anomaly of interest is Zone B, line 51, fiducial 182, with 172 cps reading in the uranium channel, and U/Th, U/K ratios 2.1 and 2.8, respectively. The magnetic high coinciding with this anomaly is 195 gammas. The aircraft altitude was 186 feet.


177
178
179
180
181
182
183

The final anomaly of major interest is B, line 55, fiducial 526. Here the uranium channel reading is 213 cps, and the U/Th, U/K ratios are 1.8 and 1.9 respectively. This anomaly has no magnetic coincidence. The aircraft altitude was 171 feet.

10. CONCLUSIONS AND RECOMMENDATIONS.

The present radiometric survey resulted in the detection of three anomalous zones in Area 1 and one zone in Area 2. Zones S-1 to S-3 (in Area 1) are randomly distributed and do not seem to be associated with a particular source system. On the other hand, Zone N-1 extends across all of survey area 2 and appears to be associated with one system of sources.

It is recommended that ground follow-up be focussed on the four zones discussed above and at the following specific anomaly locations in the following order of importance:

Anomaly B	Line 33	Fiducial 1787
Anomaly B	Line 55	Fiducial 526
Anomaly B	Line 51	Fiducial 182
Anomaly A	Line 26	Fiducial 2347

Drilling and additional follow-up would be predicated on the results of the preliminary ground investigations.

Respectfully submitted,

SCINTREX SURVEYS LIMITED

Qualifications: Ph.D. received

Zbynek Dvorak, Ph. D.
Geophysicist.

M. LEWIS

Michael Lewis, M. Sc., P. Eng.,
Geophysicist.
Qualifications: 63.2558

ZD:mb

APPENDIX A

This appendix describes the calibration and operating procedures for the spectrometer systems.

1. SPECTROMETER SYSTEM

1.1 Detector Balancing

1.1.1 Allow the detector temperature to stabilize at the chosen temperature (approx. time: 3 - 5 hours).

1.1.2 Turn the system on and allow 15 minutes for warm-up.

1.1.3 With the TS1 sample under the centre of the crystal tub, set the window widths (ΔE) of channels 1, 2 and 3 at 1.0 and the threshold levels (E) of channel 1 at 8.4, of channel 2 at 8.6 and of channel 3 at 8.8.
Connect the console to each detector separately and adjust the high voltage of each so that the digital readings of channels 1 and 3 are equal and the digital reading of channel 2 is higher than the other two channels.

1.1.4 Connect all of the detectors to the console and record the readings of the three channels.

1.2 Stripping Set-Up:

1.2.1 With all of the detectors connected to the console allow the system to warm-up for 15 minutes.

1.2.2 Observe the analogue traces on a recorder while placing Thorium sample (TS-1) near the detectors.

1.2.3 Adjust stripping pot, S_1 (Th/U) so that the sample has no effect on the Uranium trace.

1.2.4 Adjust stripping pot, S_3 (Th/K) so that the sample has no effect on the Potassium trace.

1.2.5 Place a Uranium sample (US-1) near the detector and adjust Stripping pot, S_2 (U/K) so that the sample has no effect on the Potassium trace.

1.3 Daily Checks

1.3.1 Allow 15 minutes warm-up time after turning on the system.

1.3.2 Set the window width (ΔE) of channels 1, 2 and 3 at 1.0 and the threshold levels (E) of channel 1 at 8.4, of channel 2 at 8.6 and of channel 3 at 8.8.

1.3.3 Adjust the Fine Gain control of the console (if necessary) so that the readings of channels 1 and 3 are equal and channel 2 is higher than the other two channels.

1.3.4 Record the digital readings of the three channels and compare them with the figures obtained during the last detector balancing.

1.3.5 If the channel 2 reading is more than 10% less than the detector balancing reading the detectors should be re-balanced.

1.3.6 Place the Thorium and Uranium samples near the detector and adjust the stripping pots as necessary to eliminate any reaction in the Uranium and Potassium traces.

1.3.7 Before the survey, adjust the controls as indicated in Table I below.

TABLE I

Channel Number	Desig-nation	Level and Width	Control Setting	Calibrated Gamma Energy in MeV	Comments
4	BB	E	1.00	0.300	Threshold Level
3	K	E	4.60	1.38	Threshold Level
		ΔE	3.00	0.180	Window Width
		E+ΔE	5.20	1.56	Upper Level
2	U	E	5.55	1.66	Threshold Level
		ΔE	4.00	0.240	Window Width
		E+ΔE	6.35	1.90	Upper Level
1	Th	E	8.25	2.48	Threshold Level
		ΔE	5.50	0.330	Window Width
		E+ΔE	9.35	2.81	Upper Level

Ontario

File 2.2258

900

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) AIRBORNE GEOPHYSICAL

Township or Area CAVENDISH

Claim Holder(s) ROBERT W. DRUDE

Survey Company SCINTREX SURVEYS LTD.

Author of Report DR. ZBYNEK OVORAK & MICHAEL M. LEWIS

Address of Author C/o SCINTREX SURVEYS LTD

Covering Dates of Survey AUG. 31 – SEPT. 3, 1976
(linecutting to office)

Total Miles of Line Cut _____

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
--Electromagnetic	
--Magnetometer	
--Radiometric	
--Other	
Geological	
Geochemical	

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

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: 27 MAY 1977 SIGNATURE: Roger Gable
Author of Report or Agent

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

PLATE #1
(prefix) (number)

E.O. 35870
E.O. 35875
E.O. 35876
E.O. 35877
E.O. 35878
E.O. 35879

E.O. 36895
E.O. 36896
E.O. 36897
E.O. 36898
E.O. 36899
E.O. 36900
E.O. 36901
E.O. 36902

TOTAL CLAIMS 14

If space insufficient, attach list

OFFICE USE ONLY

SELF POTENTIAL

Instrument _____ Range _____

Survey Method _____

_____

Corrections made _____

_____

RADIOMETRIC

Instrument _____

Values measured _____

Energy windows (levels) _____

Height of instrument _____ Background Count _____

Size of detector _____

Overburden _____

(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey _____

Instrument _____

Accuracy _____

Parameters measured _____

_____

Additional information (for understanding results) _____

_____

_____

AIRBORNE SURVEYS

Type of survey(s) MAGNETOMETER & RADIOMETRIC GAD 5 SPEC.

Instrument(s) SCINTREX-GULF MK III FLUXGATE MAGNETOMETER & SCINTREX

(specify for each type of survey)

Accuracy ONE GAMMA ON MAGNETOMETER, ABSOLUTE FOR SPECTROMETER

(specify for each type of survey)

Aircraft used SINGLE ENGINE DE HAVILLAND OTTER

Sensor altitude 200 FT.

Navigation and flight path recovery method VISUAL NAVIGATION FROM PHOTOS, 35 M.M. TRACKING CAMERA FOR PATH RECOVERY

Aircraft altitude 200 FT. Line Spacing 330 FT.

Miles flown over total area 65 MILES Over claims only 29 MILES

29 x 40 = 1160 ÷ 14 = 82 days

Ontario

Ministry of Natural Resources

File 2.2058

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) AIRBORNE GEOPHYSICAL

Township or Area CAVENDISH

Claim Holder(s) ROBERT W. DRUDE

Survey Company SCINTREX SURVEYS LTD.

Author of Report DR. ZBYNEK DVORAK & MICHAEL M. LEWIS

Address of Author c/o SCINTREX SURVEYS LTD.

Covering Dates of Survey AUG. 31 – SEPT 3, 1976
(linecutting to office)

Total Miles of Line Cut

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
--Electromagnetic	
–Magnetometer	
–Radiometric	
–Other	
Geological	
Geochemical	

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

Magnetometer 40 Electromagnetic NIL Radiometric 40
(enter days per claim)

DATE: 27 May 1977 SIGNATURE: Roger Laflèche
Author of Report or Agent

Res. Geol. L.D. Qualifications Mag. Phys. file

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

PLAT #2
(prefix) (number)

E. O. 414460

If space insufficient, attach list

TOTAL CLAIMS ONE

OFFICE USE ONLY

SELF POTENTIAL

Instrument _____ Range _____

Survey Method _____

_____

Corrections made _____

_____

RADIOMETRIC

Instrument _____

Values measured _____

Energy windows (levels) _____

Height of instrument _____ Background Count _____

Size of detector _____

Overburden _____

(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey _____

Instrument _____

Accuracy _____

Parameters measured _____

_____

Additional information (for understanding results) _____

_____

_____

AIRBORNE SURVEYS

Type of survey(s) MAGNETOMETER & RADIOMETRIC

Instrument(s) SCINTREX-GULF MK III FLUXGATE MAGNETOMETER & SCINTREX GAD-5 SPEC.

(specify for each type of survey)

Accuracy ONE GAMMA ON MAGNETOMETER, ABSOLUTE FOR SPECTROMETER

(specify for each type of survey)

Aircraft used SINGLE ENGINE DE HAVILLAND OTTER

Sensor altitude 200 FT.

Navigation and flight path recovery method VISUAL NAVIGATION FROM PHOTOS

35 M.M. TRACKING CAMERA FOR PATH RECOVERY

Aircraft altitude 200 FT. Line Spacing 330 FT

Miles flown over total area 79 MILES Over claims only ONE MILE

(ONE CLAIM E.O. 114460)

40 × 40 = 1 = 40 sq

Glamorgan Twp. (M-95)

Galway Twp. (M-94)

Anstruther Twp. (M-45)

Harvey Twp. (M-101)

Burleigh Twp. (M-62)

THE TOWNSHIP OF 2.2258

CAVENDISH

COUNTY OF PETERBOROUGH

EASTERN ONTARIO MINING DIVISION

SCALE: 1 INCH = 40 CHAINS

LEGEND

PATENTED LAND	(P)
CROWN LAND SALE	C.S.
LEASE	(L)
LOCATED LAND	Loc.
LICENSE OF OCCUPATION	L.O.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
ROADS	
IMPROVED ROADS	
KING'S HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	
CANCELLED	C.

NOTES

This Map Is Not To Be Used - FOR SURVEY PURPOSES -

400' Surface Rights Reservation along the shores of all lakes and rivers

For status of summer resort locations & islands please contact Ministry of Natural Resources

Original shoreline shown thus:

F.R.I. shoreline shown thus:

Patents Map shoreline shown thus:

Area shown thus reserved for proposed Provincial Park, withdrawn from staking Sec 34(d) of Mining Act. File 160708

Mining claims staked in this Tp. subject to Sec. 118 of Mining Act.

SAND & GRAVEL

- (G1) Gravel File. 154616
- (G2) Gravel " 21547
- (G3) M.N.R. Gravel Pit 76 File 21538
- (G4) Gravel File 40832
- (G5) Gravel " "
- (G6) Gravel " 73125
- (G7) Gravel " "
- (G8) M.N.R Gravel Pit No. 138 File. 152744
- (G9) Gravel File 104960

Areas withdrawn from staking under Section 43 of the Mining Act (R.S.O. 1970).

Order No.	File	Date	Disposition
(43) W.67/74	7598 v.4	19/12/74	S.R. & M.R.

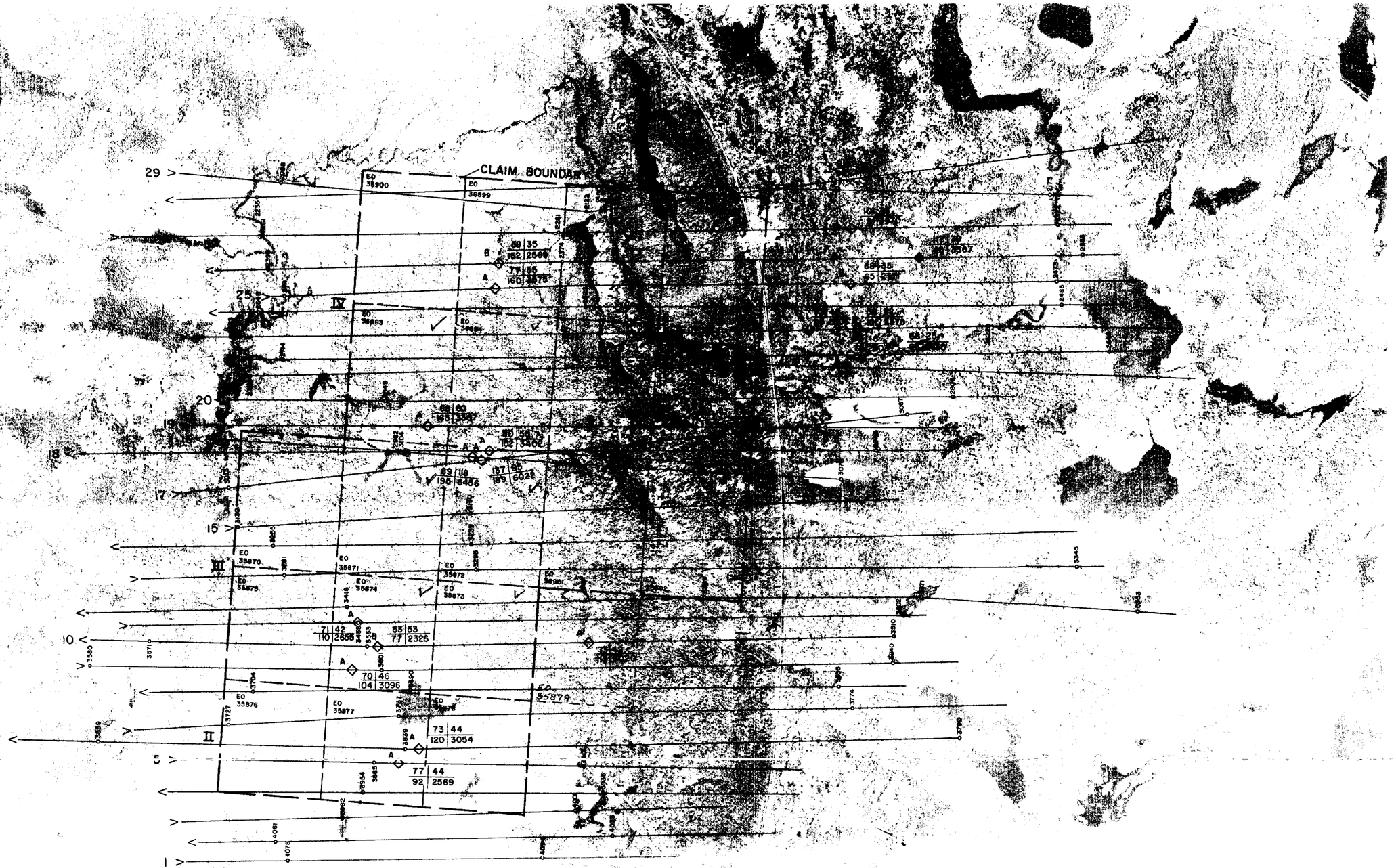
DATE OF ISSUE
DEC - 6 1976
SURVEYS AND MAPPING BRANCH

PLAN NO. - M-72

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

31D16SW9000 2.2258 CAVENDISH

200



LEGEND

CONTROL LINE NUMBER AND DIRECTION — (20)

CONTROL POINT — 2488

MEAN FLIGHT LINE SPACING — 330 FEET

MEAN FLIGHT ALTITUDE — 200 FEET

ANOMALY PEAK LOCATION AND EXTENT

ANOMALOUS AMPLITUDES ABOVE BACKGROUND

(T) — TOTAL MAGNETIC ANOMALY IN COUNTS PER SECOND

(U) — THORIUM ANOMALY IN COUNTS PER SECOND

(K) — POTASSIUM ANOMALY IN COUNTS PER SECOND

(BB) — BROADBAND ANOMALY IN COUNTS PER SECOND

PLATE I

AREA I

MR. R. W. DRUDE

CAVENDISH TWP., BANCROFT AREA, ONTARIO

AIRBORNE GEOPHYSICAL SURVEY

SCINTREX GAD-2 SPECTROMETER

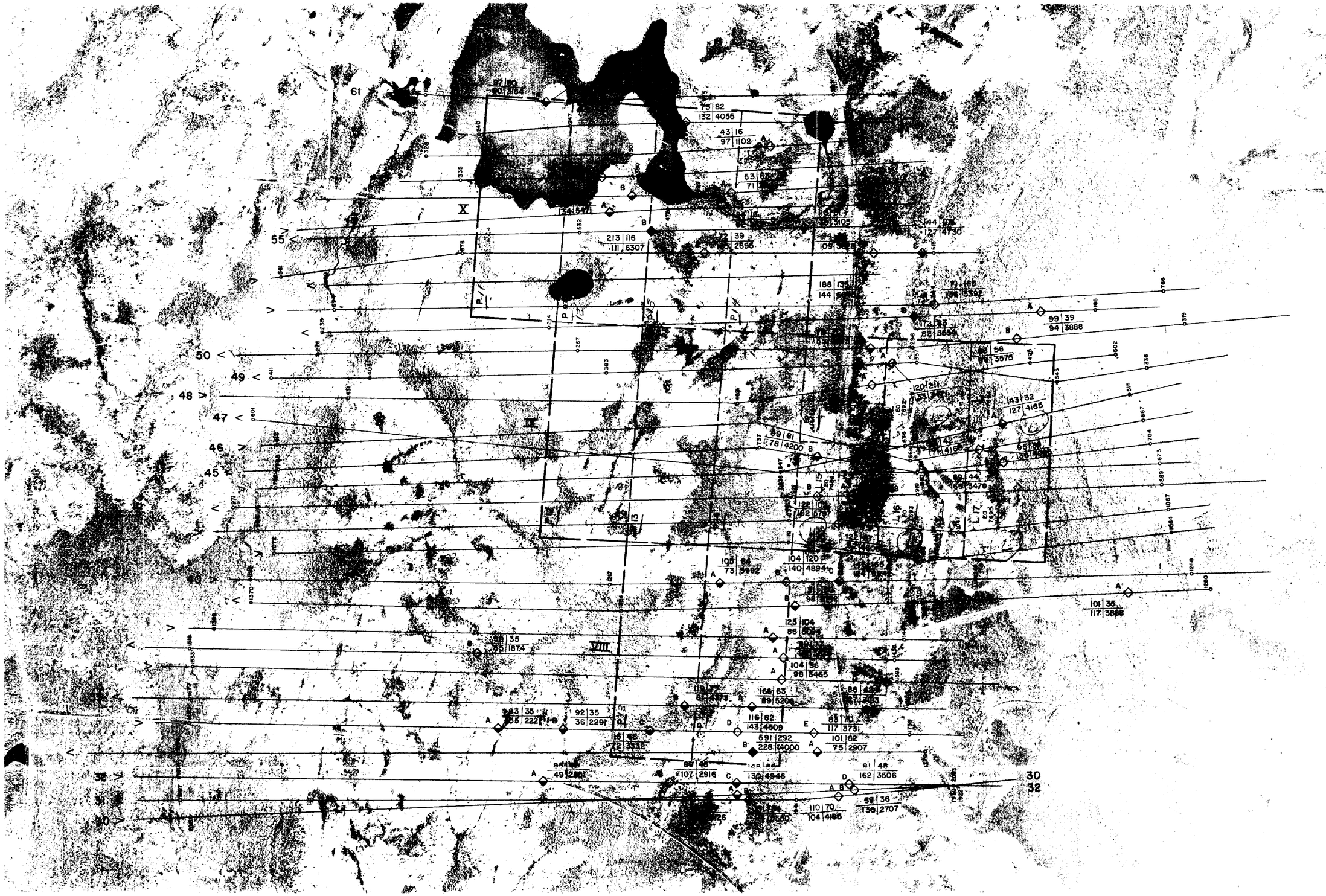
SCINTREX ADAM MARK III FLUXGATE MAGNETOMETER

SCALE 1" = 1000 feet

FLOWN FOR

SCINTREX SURVEYS LIMITED

Richard J. Drude



LEGEND

PLATE 2

AREA 2

MR. R. W. DRUDE

CAVENDISH TWP., BANCROFT AREA, ONTARIO

AIRBORNE GEOPHYSICAL SURVEY

SCINTREX GAD-5 SPECTROMETER

SCINTREX GULF MARK III FLUXGATE MAGNETOMETER

SCALE 1" = 1000 feet

SCINTREX SURVEYS LIMITED