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AN  
AIRBORNE GEOPHYSICAL SURVEY  
FOR ASSESSMENT WORK CREDIT  
ON THE  
MEUNIER CLAIMS  
FALLON TOWNSHIP, ONTARIO  
PORCUPINE MINING DIVISION

By  
R.P. BOWEN, P.E.

With technical descriptions of equipment  
and interpretation of results by

Z. IVORAK  
Vice-President  
DIGHEM LIMITED

1983

RECEIVED

JAN 17 1984

MINING DIVISION

FORCUTINE MINING DIVISION  
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A.M. P.M.  
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This is to certify that the submitted airborne geophysical survey performed in Fallon Township on the Meunier claims has been done in a professional manner.

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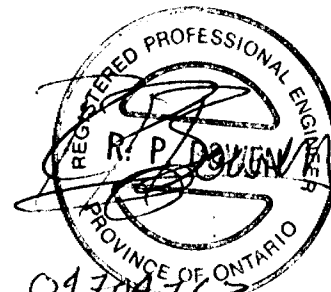
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R.P. Bowen, P.Eng.

JAN 1984

The list of the claims surveyed is this survey by Dighem of Toronto for Mr. David Meunier, License M-17157 in Fallon Township, Ontario follows this page.

MEUNIER CLAIMS IN FALLON TOWNSHIP

No.	Claim No.	Anniversary Date
1.	P. 653259	12 September 1982
2.	P. 653260	12 September 1982
3.	P. 653261	12 September 1982
4.	P. 653262	12 September 1982
5.	P. 641742	27 September 1982
6.	P. 641743	27 September 1982
7.	P. 653908	27 September 1982
8.	P. 653909	27 September 1982
9.	P. 641730	20 September 1982
10.	P. 641731	20 September 1982
11.	P. 641732	20 September 1982
12.	P. 641733	20 September 1982
13.	P. 641734	20 September 1982
14.	P. 661936	20 September 1982
15.	P. 654191	28 September 1982
16.	P. 654192	28 September 1982
17.	P. 654193	28 September 1982
18.	P. 654194	28 September 1982
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194.	P.	758819	17 May 1983
195.	P.	758820	17 May 1983
196.	P.	758851	17 May 1983



DIGHEM<sup>III</sup> SURVEY

OF THE

FALLON TOWNSHIP AREA, ONTARIO

FOR

DAVID J. MEUNIER

BY

DIGHEM LIMITED

RECEIVED  
JAN 17 1984  
MIN. OF NATURAL RESOURCES

TORONTO, ONTARIO  
DECEMBER 6, 1983

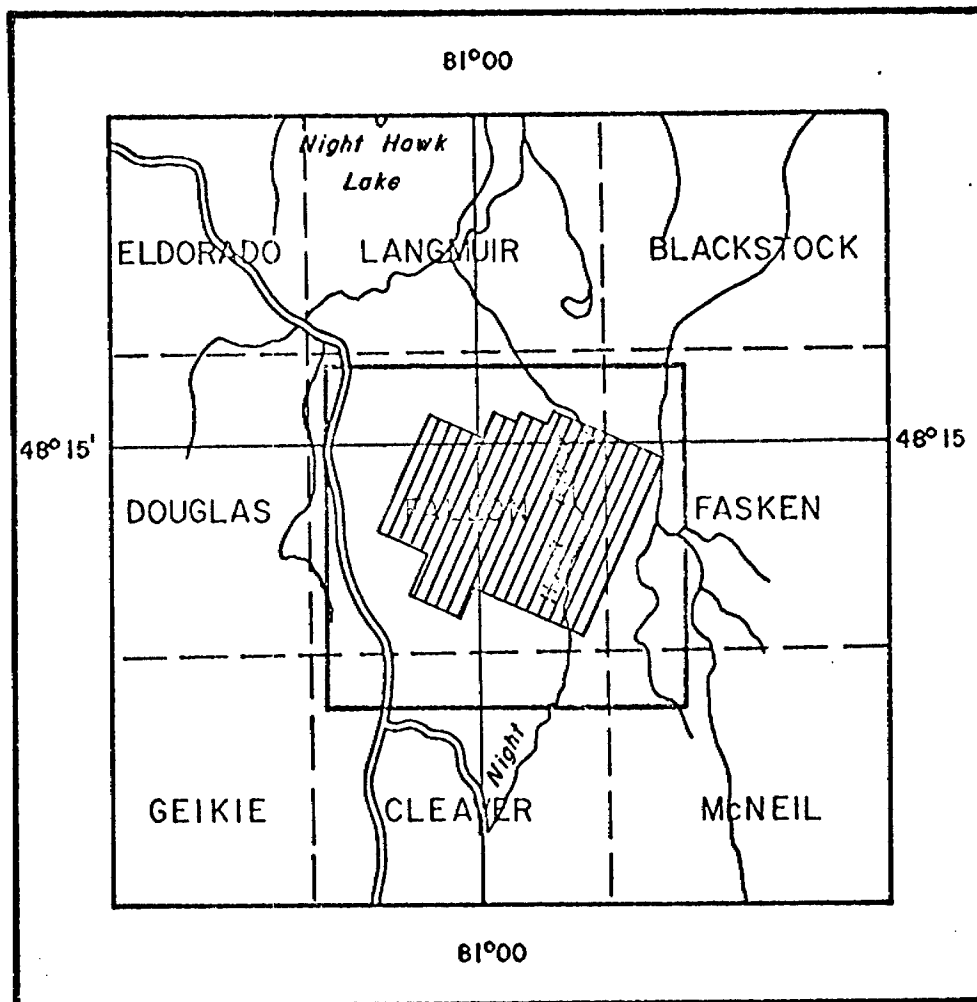
Z. DVORAK  
VICE-PRESIDENT

## SUMMARY AND RECOMMENDATIONS

A total of 249 km of electromagnetic/resistivity/magnetic/VLF survey was flown in October 1983, over a property held by David J. Meunier in the Fallon Township, Ontario.

The survey outlined several weak discrete bedrock conductors most of which were associated with areas of low resistivity. Most of these anomalies appear to warrant further investigation using appropriate surface exploration techniques. Areas of interest may be assigned priorities for follow-up work on the basis of supporting geological and/or geochemical information.

LOCATION MAP



Scale 1:250,000

FIGURE 1

THE SURVEY AREA

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### MAPS ACCOMPANYING THIS REPORT

### APPENDICES

- A. The Flight Record and Path Recovery
- B. EM Anomaly List

## INTRODUCTION

A DIGHEM<sup>III</sup> survey totalling 249 line-km was flown with a 200 m line-spacing for Mr. David J. Meunier, from October 25 to 29, 1983, in Fallon Township, Ontario (Figure 1).

The Astar CG-NSM turbine helicopter flew at an average airspeed of 131 km/h with an EM bird height of approximately 31 m. Ancillary equipment consisted of a Sonotek PMH 5010 magnetometer with its bird at an average height of 46 m, a Sperry radio altimeter, a Geocam sequence camera, an RMS GR 33 analog recorder, a Sonotek SDS 1200 digital data acquisition system, a DigiData 1640 9-track 800-bpi magnetic tape recorder, and a Herz Industries Totem-2A VLF-electromagnetometer with its sensor towed at an average height of 54 m. The VLF-EM receivers were tuned to NAA, Cutler, Me., which operates at 17.8 kHz, and to NLK, Seattle, Wa., which operates at 24.8 kHz. The analog equipment recorded four channels of EM data at approximately 900 Hz, two channels of EM data at approximately 7200 Hz, two ambient EM noise channels (for the coaxial and coplanar receivers), two channels of magnetics (coarse and fine count), a channel of radio altitude, and four channels of VLF-EM (two total fields and two quadratures of the vertical component). The digital equipment recorded the EM data with a sensitivity of 0.20 ppm at 900 Hz, and 0.40 ppm at

7200 Hz, the magnetic field to one nT (i.e., one gamma), and the VLF-EM field to 0.10 percent.

Appendix A provides details on the data channels, their respective sensitivities, and the flight path recovery procedure. Noise levels of less than 2 ppm are generally maintained for wind speeds up to 35 km/h. Higher winds may cause the system to be grounded because excessive bird swinging produces difficulties in flying the helicopter. The swinging results from the 5 m<sup>2</sup> of area which is presented by the bird to broadside gusts. The DIGHEM system nevertheless can be flown under wind conditions that seriously degrade other AEM systems.

It should be noted that the anomalies shown on the electromagnetic anomaly map are based on a near-vertical, half plane model. This model best reflects "discrete" bedrock conductors. Wide bedrock conductors or flat-lying conductive units, whether from surficial or bedrock sources, may give rise to very broad anomalous responses on the EM profiles. These may not appear on the electromagnetic anomaly map if they have a regional character rather than a locally anomalous character. These broad conductors, which more closely approximate a half space model, will be maximum coupled to the horizontal (coplanar) coil-pair and are clearly evident on the resistivity map. The resistivity

map, therefore, may be more valuable than the electromagnetic anomaly map, in areas where broad or flat-lying conductors are considered to be of importance.

In areas where magnetite causes the inphase components to become negative, the apparent conductance and depth of EM anomalies may be unreliable.

Areas, in which EM responses are evident only on the quadrature components, indicate zones of poor conductivity. Where these responses are coincident with strong magnetic anomalies, it is possible that the inphase component amplitudes have been suppressed by the effects of magnetite. Most of these poorly-conductive magnetic features give rise to resistivity anomalies which are only slightly below background. These weak features are evident on the resistivity map but may not be shown on the electromagnetic anomaly map. If it is expected that poorly-conductive sulphides may be associated with magnetite-rich units, some of these weakly anomalous features may be of interest.

SECTION I: SURVEY RESULTS

CONDUCTORS IN THE SURVEY AREA

The survey covered a single grid with 249 km of flying, the results of which are shown on one map sheet. Table I-1 summarizes the EM responses on this sheet with respect to conductance grade and interpretation.

The electromagnetic anomaly map shows the anomaly locations with the interpreted conductor shape, dip, conductance and depth being indicated by symbols. Direct magnetic correlation is also shown if it exists. The strike direction and length of the conductors are indicated when anomalies can be correlated from line to line. When studying the map sheets for follow-up planning, consult the anomaly listings appended to this report to ensure that none of the conductors are overlooked.

Resistivity of the geologic environment in the survey area varies over a broad range of values, from less than 200 ohm-m to in excess of 8,000 ohm-m, in an apparent agreement with topography. The low lying eastern half of the area displays low resistivities, whereas the high ground in the western half is characterized by resistivities



TABLE I-1

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CONDUCTOR GRADE	CONDUCTANCE RANGE	NUMBER OF RESPONSES
6	> 99 MHOS	0
5	50-99 MHOS	0
4	20-49 MHOS	0
3	10-19 MHOS	0
2	5- 9 MHOS	8
1	< 5 MHOS	281
X	INDETERMINATE	34
TOTAL		323

CONDUCTOR MODEL	MOST LIKELY SOURCE	NUMBER OF RESPONSES
B	DISCRETE BEDROCK CONDUCTOR	19
S	CONDUCTIVE COVER	175
H	ROCK UNIT OR THICK COVER	124
E	EDGE OF WIDE CONDUCTOR	3
L	CULTURE	2
TOTAL		323

(SEE EM MAP LEGEND FOR EXPLANATIONS)

generally higher than 1,000 ohm-m. This resistivity distribution is partly reflected by the VLF-EM patterns which suggest the presence of a number of northwesterly trends in the west half of the area, i.e., over the resistive ground. In comparison, the eastern, more conductive, half of the survey area contains only a small number of VLF-EM responses.

The division of the area into two distinct parts, so obvious from the resistivity and VLF-EM data, is only weakly apparent from the total magnetic field map. Much more pronounced is the presence of a highly magnetic unit (felsic intrusives?) in the north part of the grid. Also well defined is a 300 m to 500 m broad belt of high magnetic activity which extends approximately from 39E\* toward the north end of lines 24 and 251. In addition, the enhanced magnetic map shows the presence of numerous northwesterly striking trends throughout the south half of the area, which roughly correlate with the VLF-EM trends.

The majority of the EM anomalies reflect near-surface conductive features (e.g., overburden) and broad, conductive rock units. There are only a few grade 1 EM anomalies which appear to reflect discrete conductors of bedrock origin. They are discussed below.

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\* This denotes EM anomaly E on line 39.

Anomalies 1A, 1B

These grade 1 anomalies reflect weak conductors of possible bedrock origin. Anomaly 1A appears to be better defined than 1B. Note, that it is indicative of a conductor whose response is being masked by the presence of magnetite.

Anomalies 2B, 5B

Weak conductors of possible bedrock origin are indicated by these grade 1 anomalies. Similar to 1A, anomalies 2B and 5B are being masked by the presence of magnetite.

Anomaly 11D

This grade 1 anomaly is indicative of a very weak bedrock conductor.

Anomaly 12C

Although this grade 1 anomaly does not reflect a discrete bedrock conductor, it may be of some exploration interest. The anomaly is indicative of a weak conductive feature which appears

to occur as a buried, possibly flat lying, target. It should be investigated on the ground.

Anomalies 13A-15A,  
17B-19C

These anomalies define a weak conductive feature which parallels the resistivity contours. Conductor 13A-15A correlates with a weak VLF-EM anomaly, whereas 17B-19C occurs on the flank of enhanced magnetic anomalies. Both conductors may have bedrock origin.

Anomalies 17A, 18A, 21A

These anomalies occur along a common strike paralleling 13A-15A and 17B-19C. While 17A and 18A appear to reflect broad targets, 21A may be indicative of a discrete bedrock conductor.

Anomalies 17E, 18P, 19L,  
20H

These grade 1 anomalies are confined to the flanks of VLF-EM and enhanced magnetic localized trends. Anomaly 20H and possibly 19L may reflect discrete bedrock

conductors, whereas 17E and 18P are indicative of broader targets.

Anomaly 19J

The most attractive feature of this grade 1 anomaly is its magnetic association of 30nT. Note that 19J, which is of possible bedrock origin, occurs at the tip of a well defined localized enhanced magnetic anomaly.

Anomalies 23C, 24xA,  
27B, 27E

These anomalies reflect weak conductive features which may occur in the bedrock. Anomaly 27E is suspected as being due to aerodynamic noise.

Anomaly 30K

This grade 1 anomaly reflects a weak conductor of possible bedrock origin, which occurs on the flank of the previously mentioned north-south magnetic feature.

SECTION II: BACKGROUND INFORMATION

ELECTROMAGNETICS

DIGHEM electromagnetic responses fall into two general classes, discrete and broad. The discrete class consists of sharp, well-defined anomalies from discrete conductors such as sulfide lenses and steeply dipping sheets of graphite and sulfides. The broad class consists of wide anomalies from conductors having a large horizontal surface such as flatly dipping graphite or sulfide sheets, saline water-saturated sedimentary formations, conductive overburden and rock, and geothermal zones. A vertical conductive slab with a width of 200 m would straddle these two classes.

The vertical sheet (half plane) is the most common model used for the analysis of discrete conductors. All anomalies plotted on the electromagnetic map are analyzed according to this model. The following section entitled **Discrete conductor analysis** describes this model in detail, including the effect of using it on anomalies caused by broad conductors such as conductive overburden.

The conductive earth (half space) model is suitable for broad conductors. Resistivity contour maps result from the

use of this model. A later section entitled **Resistivity mapping** describes the method further, including the effect of using it on anomalies caused by discrete conductors such as sulfide bodies.

#### Geometric interpretation

The geophysical interpreter attempts to determine the geometric shape and dip of the conductor. This qualitative interpretation of anomalies is indicated on the map by means of interpretive symbols (see EM map legend). Figure II-1 shows typical DIGHEM anomaly shapes and the interpretive symbols for a variety of conductors. These classic curve shapes are used to guide the geometric interpretation.

#### Discrete conductor analysis

The EM anomalies appearing on the electromagnetic map are analyzed by computer to give the conductance (i.e., conductivity-thickness product) in mhos of a vertical sheet model. This is done regardless of the interpreted geometric shape of the conductor. This is not an unreasonable procedure, because the computed conductance increases as the electrical quality of the conductor increases, regardless of its true shape. DIGHEM anomalies are divided into six

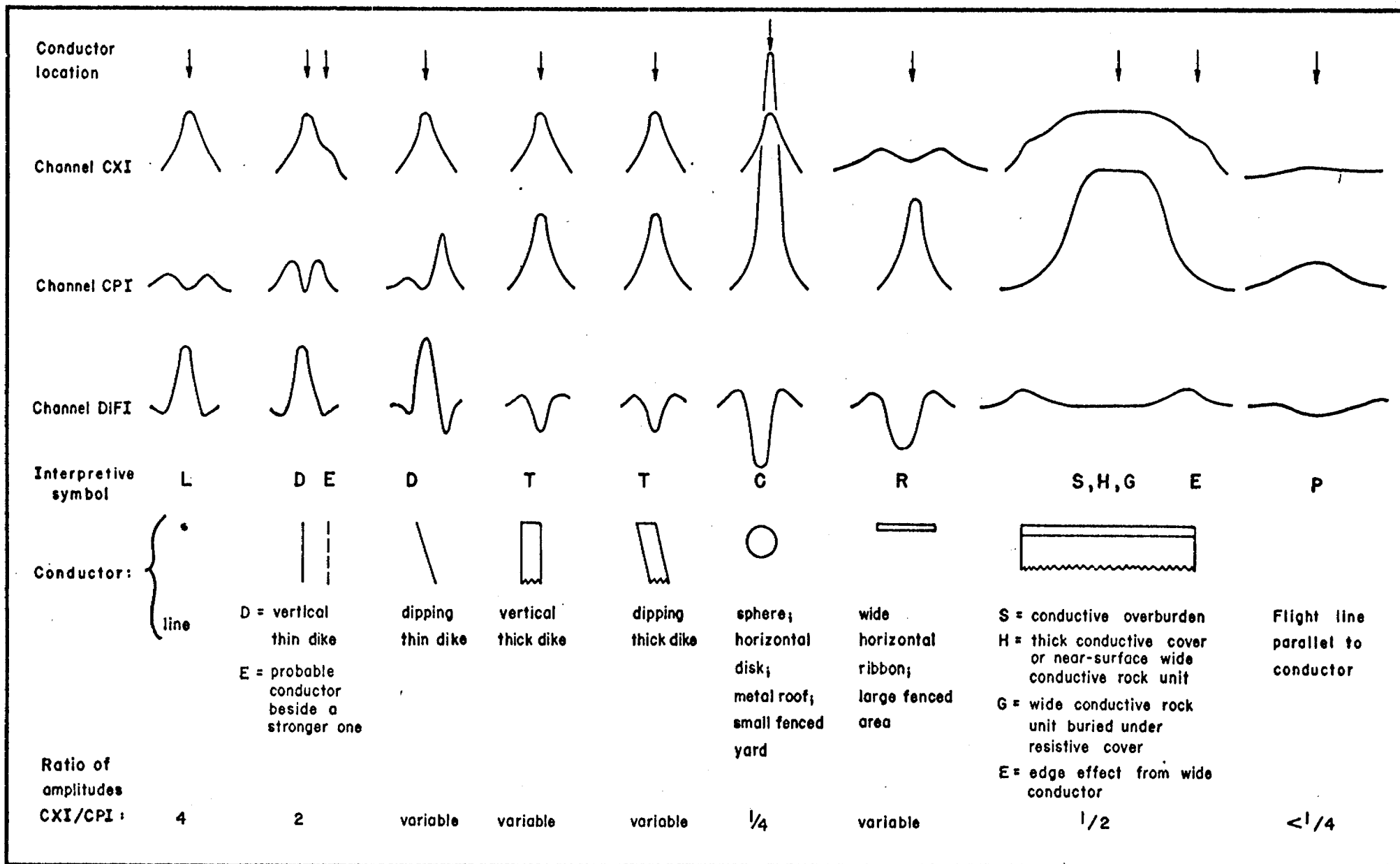


Figure II - 1

Typical DIGHEM anomaly shapes



grades of conductance, as shown in Table II-1. The conductance in mhos is the reciprocal of resistance in ohms.

Table II-1. EM Anomaly Grades

<u>Anomaly Grade</u>	<u>Mho Range</u>
6	> 99
5	50 - 99
4	20 - 49
3	10 - 19
2	5 - 9
1	< 5

The conductance value is a geological parameter because it is a characteristic of the conductor alone; it generally is independent of frequency, and of flying height or depth of burial apart from the averaging over a greater portion of the conductor as height increases.<sup>1</sup> Small anomalies from deeply buried strong conductors are not confused with small anomalies from shallow weak conductors because the former will have larger conductance values.

Conductive overburden generally produces broad EM responses which are not plotted on the EM maps. However, patchy conductive overburden in otherwise resistive areas

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<sup>1</sup> This statement is an approximation. DIGHEM, with its short coil separation, tends to yield larger and more accurate conductance values than airborne systems having a larger coil separation.

can yield discrete anomalies with a conductance grade (cf. Table II-1) of 1, or even of 2 for conducting clays which have resistivities as low as 50 ohm-m. In areas where ground resistivities can be below 10 ohm-m, anomalies caused by weathering variations and similar causes can have any conductance grade. The anomaly shapes from the multiple coils often allow such conductors to be recognized, and these are indicated by the letters S, H, G and sometimes E on the map (see EM legend).

For bedrock conductors, the higher anomaly grades indicate increasingly higher conductances. Examples: DIGHEM's New Inesco copper discovery (Noranda, Canada) yielded a grade 4 anomaly, as did the neighbouring copper-zinc Magusi River ore body; Mattabi (copper-zinc, Sturgeon Lake, Canada) and Whistle (nickel, Sudbury, Canada) gave grade 5; and DIGHEM's Montcalm nickel-copper discovery (Timmins, Canada) yielded a grade 6 anomaly. Graphite and sulfides can span all grades but, in any particular survey area, field work may show that the different grades indicate different types of conductors.

Strong conductors (i.e., grades 5 and 6) are characteristic of massive sulfides or graphite. Moderate conductors (grades 3 and 4) typically reflect sulfides of a less massive character or graphite, while weak bedrock conductors

(grades 1 and 2) can signify poorly connected graphite or heavily disseminated sulfides. Grade 1 conductors may not respond to ground EM equipment using frequencies less than 2000 Hz.

The presence of sphalerite or gangue can result in ore deposits having weak to moderate conductances. As an example, the three million ton lead-zinc deposit of Restigouche Mining Corporation near Bathurst, Canada, yielded a well defined grade 1 conductor. The 10 percent by volume of sphalerite occurs as a coating around the fine grained massive pyrite, thereby inhibiting electrical conduction.

Faults, fractures and shear zones may produce anomalies which typically have low conductances (e.g., grades 1 and 2). Conductive rock formations can yield anomalies of any conductance grade. The conductive materials in such rock formations can be salt water, weathered products such as clays, original depositional clays, and carbonaceous material.

On the electromagnetic map, a letter identifier and an interpretive symbol are plotted beside the EM grade symbol. The horizontal rows of dots, under the interpretive symbol, indicate the anomaly amplitude on the flight record. The

vertical column of dots, under the anomaly letter, gives the estimated depth. In areas where anomalies are crowded, the letter identifiers, interpretive symbols and dots may be obliterated. The EM grade symbols, however, will always be discernible, and the obliterated information can be obtained from the anomaly listing appended to this report.

The purpose of indicating the anomaly amplitude by dots is to provide an estimate of the reliability of the conductance calculation. Thus, a conductance value obtained from a large ppm anomaly (3 or 4 dots) will tend to be accurate whereas one obtained from a small ppm anomaly (no dots) could be quite inaccurate. The absence of amplitude dots indicates that the anomaly from the coaxial coil-pair is 5 ppm or less on both the inphase and quadrature channels. Such small anomalies could reflect a weak conductor at the surface or a stronger conductor at depth. The conductance grade and depth estimate illustrates which of these possibilities fits the recorded data best.

Flight line deviations occasionally yield cases where two anomalies, having similar conductance values but dramatically different depth estimates, occur close together on the same conductor. Such examples illustrate the reliability of the conductance measurement while showing that the depth estimate can be unreliable. There are a

number of factors which can produce an error in the depth estimate, including the averaging of topographic variations by the altimeter, overlying conductive overburden, and the location and attitude of the conductor relative to the flight line. Conductor location and attitude can provide an erroneous depth estimate because the stronger part of the conductor may be deeper or to one side of the flight line, or because it has a shallow dip. A heavy tree cover can also produce errors in depth estimates. This is because the depth estimate is computed as the distance of bird from conductor, minus the altimeter reading. The altimeter can lock onto the top of a dense forest canopy. This situation yields an erroneously large depth estimate but does not affect the conductance estimate.

Dip symbols are used to indicate the direction of dip of conductors. These symbols are used only when the anomaly shapes are unambiguous, which usually requires a fairly resistive environment.

A further interpretation is presented on the EM map by means of the line-to-line correlation of anomalies, which is based on a comparison of anomaly shapes on adjacent lines. This provides conductor axes which may define the geological structure over portions of the survey area. The absence of

conductor axes in an area implies that anomalies could not be correlated from line to line with reasonable confidence.

DIGHEM electromagnetic maps are designed to provide a correct impression of conductor quality by means of the conductance grade symbols. The symbols can stand alone with geology when planning a follow-up program. The actual conductance values are printed in the attached anomaly list for those who wish quantitative data. The anomaly ppm and depth are indicated by inconspicuous dots which should not distract from the conductor patterns, while being helpful to those who wish this information. The map provides an interpretation of conductors in terms of length, strike and dip, geometric shape, conductance, depth, and thickness (see below). The accuracy is comparable to an interpretation from a high quality ground EM survey having the same line spacing.

The attached EM anomaly list provides a tabulation of anomalies in ppm, conductance, and depth for the vertical sheet model. The EM anomaly list also shows the conductance and depth for a thin horizontal sheet (whole plane) model, but only the vertical sheet parameters appear on the EM map. The horizontal sheet model is suitable for a flatly dipping thin bedrock conductor such as a sulfide sheet having a thickness less than 10 m. The list also shows the

resistivity and depth for a conductive earth (half space) model, which is suitable for thicker slabs such as thick conductive overburden. In the EM anomaly list, a depth value of zero for the conductive earth model, in an area of thick cover, warns that the anomaly may be caused by conductive overburden.

Since discrete bodies normally are the targets of EM surveys, local base (or zero) levels are used to compute local anomaly amplitudes. This contrasts with the use of true zero levels which are used to compute true EM amplitudes. Local anomaly amplitudes are shown in the EM anomaly list and these are used to compute the vertical sheet parameters of conductance and depth. Not shown in the EM anomaly list are the true amplitudes which are used to compute the horizontal sheet and conductive earth parameters.

#### X-type electromagnetic responses

DIGHEM maps contain x-type EM responses in addition to EM anomalies. An x-type response is below the noise threshold of 3 ppm, and reflects one of the following: a weak conductor near the surface, a strong conductor at depth (e.g., 100 to 120 m below surface) or to one side of the flight line, or aerodynamic noise. Those responses that

have the appearance of valid bedrock anomalies on the flight profiles are indicated by appropriate interpretive symbols (see EM map legend). The others probably do not warrant further investigation unless their locations are of considerable geological interest.

The thickness parameter

DIGHEM can provide an indication of the thickness of a steeply dipping conductor. The amplitude of the coplanar anomaly (e.g., CPI) increases relative to the coaxial anomaly (e.g., CXI) as the apparent thickness increases, i.e., the thickness in the horizontal plane. (The thickness is equal to the conductor width if the conductor dips at 90 degrees and strikes at right angles to the flight line.) This report refers to a conductor as thin when the thickness is likely to be less than 3 m, and thick when in excess of 10 m. Thin conductors are indicated on the EM map by the interpretive symbol "D", and thick conductors by "T". For base metal exploration in steeply dipping geology, thick conductors can be high priority targets because many massive sulfide ore bodies are thick, whereas non-economic bedrock conductors are often thin. The system cannot sense the thickness when the strike of the conductor is subparallel to the flight line, when the conductor has a shallow dip, when



the anomaly amplitudes are small, or when the resistivity of the environment is below 100 ohm-m.

### Resistivity mapping

Areas of widespread conductivity are commonly encountered during surveys. In such areas, anomalies can be generated by decreases of only 5 m in survey altitude as well as by increases in conductivity. The typical flight record in conductive areas is characterized by inphase and quadrature channels which are continuously active. Local EM peaks reflect either increases in conductivity of the earth or decreases in survey altitude. For such conductive areas, apparent resistivity profiles and contour maps are necessary for the correct interpretation of the airborne data. The advantage of the resistivity parameter is that anomalies caused by altitude changes are virtually eliminated, so the resistivity data reflect only those anomalies caused by conductivity changes. The resistivity analysis also helps the interpreter to differentiate between conductive trends in the bedrock and those patterns typical of conductive overburden. For example, discrete conductors will generally appear as narrow lows on the contour map and broad conductors (e.g., overburden) will appear as wide lows.

The resistivity profile (see table in Appendix A) and the resistivity contour map present the apparent resistivity using the so-called pseudo-layer (or buried) half space model defined in Fraser (1978)<sup>2</sup>. This model consists of a resistive layer overlying a conductive half space. The depth channel (see Appendix A) gives the apparent depth below surface of the conductive material. The apparent depth is simply the apparent thickness of the overlying resistive layer. The apparent depth (or thickness) parameter will be positive when the upper layer is more resistive than the underlying material, in which case the apparent depth may be quite close to the true depth.

The apparent depth will be negative when the upper layer is more conductive than the underlying material, and will be zero when a homogeneous half space exists. The apparent depth parameter must be interpreted cautiously because it will contain any errors which may exist in the measured altitude of the EM bird (e.g., as caused by a dense tree cover). The inputs to the resistivity algorithm are the inphase and quadrature components of the coplanar coil-pair. The outputs are the apparent resistivity of the

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<sup>2</sup> Resistivity mapping with an airborne multicoil electromagnetic system: *Geophysics*, v. 43, p. 144-172.

conductive half space (the source) and the sensor-source distance. The flying height is not an input variable, and the output resistivity and sensor-source distance are independent of the flying height. The apparent depth, discussed above, is simply the sensor-source distance minus the measured altitude or flying height. Consequently, errors in the measured altitude will affect the apparent depth parameter but not the apparent resistivity parameter.

The apparent depth parameter is a useful indicator of simple layering in areas lacking a heavy tree cover. The DIGHEM system has been flown for purposes of permafrost mapping, where positive apparent depths were used as a measure of permafrost thickness. However, little quantitative use has been made of negative apparent depths because the absolute value of the negative depth is not a measure of the thickness of the conductive upper layer and, therefore, is not meaningful physically. Qualitatively, a negative apparent depth estimate usually shows that the EM anomaly is caused by conductive overburden. Consequently, the apparent depth channel can be of significant help in distinguishing between overburden and bedrock conductors.

The resistivity map often yields more useful information on conductivity distributions than the EM map. In

comparing the EM and resistivity maps, keep in mind the following:

(a) The resistivity map portrays the absolute value of the earth's resistivity.

(Resistivity =  $1/\text{conductivity}$ .)

(b) The EM map portrays anomalies in the earth's resistivity. An anomaly by definition is a change from the norm and so the EM map displays anomalies, (i) over narrow, conductive bodies and (ii) over the boundary zone between two wide formations of differing conductivity.

The resistivity map might be likened to a total field map and the EM map to a horizontal gradient in the direction of flight<sup>3</sup>. Because gradient maps are usually more sensitive than total field maps, the EM map therefore is to be preferred in resistive areas. However, in conductive areas, the absolute character of the resistivity map usually causes it to be more useful than the EM map.

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<sup>3</sup> The gradient analogy is only valid with regard to the identification of anomalous locations.

Interpretation in conductive environments

Environments having background resistivities below 30 ohm-m cause all airborne EM systems to yield very large responses from the conductive ground. This usually prohibits the recognition of discrete bedrock conductors. The processing of DIGHEM data, however, produces six channels which contribute significantly to the recognition of bedrock conductors. These are the inphase and quadrature difference channels (DIFI and DIFQ), and the resistivity and depth channels (RES and DP) for each coplanar frequency; see table in Appendix A.

The EM difference channels (DIFI and DIFQ) eliminate up to 99% of the response of conductive ground, leaving responses from bedrock conductors, cultural features (e.g., telephone lines, fences, etc.) and edge effects. An edge effect arises when the conductivity of the ground suddenly changes, and this is a source of geologic noise. While edge effects yield anomalies on the EM difference channels, they do not produce resistivity anomalies. Consequently, the resistivity channel aids in eliminating anomalies due to edge effects. On the other hand, resistivity anomalies will coincide with the most highly conductive sections of conductive ground, and this is another source of geologic

noise. The recognition of a bedrock conductor in a conductive environment therefore is based on the anomalous responses of the two difference channels (DIFI and DIFQ) and the two resistivity channels (RES). The most favourable situation is where anomalies coincide on all four channels.

The DP channels, which give the apparent depth to the conductive material, also help to determine whether a conductive response arises from surficial material or from a conductive zone in the bedrock. When these channels ride above the zero level on the electrostatic chart paper (i.e., depth is negative), it implies that the EM and resistivity profiles are responding primarily to a conductive upper layer, i.e., conductive overburden. If both DP channels are below the zero level, it indicates that a resistive upper layer exists, and this usually implies the existence of a bedrock conductor. If the low frequency DP channel is below the zero level and the high frequency DP is above, this suggests that a bedrock conductor occurs beneath conductive cover.

Channels REC1, REC2, REC3 and REC4 are the anomaly recognition functions. They are used to trigger the conductance channel CDT which identifies discrete conductors. In highly conductive environments, channel REC2

is deactivated because it is subject to corruption by highly conductive earth signals. Similarly, in moderately conductive environments, REC4 is deactivated. Some of the automatically selected anomalies (channel CDT) are discarded by the geophysicist. The automatic selection algorithm is intentionally oversensitive to assure that no meaningful responses are missed. The interpreter then classifies the anomalies according to their source and eliminates those that are not substantiated by the data, such as those arising from geologic or aerodynamic noise.

#### Reduction of geologic noise

Geologic noise refers to unwanted geophysical responses. For purposes of airborne EM surveying, geologic noise refers to EM responses caused by conductive overburden and magnetic permeability. It was mentioned above that the EM difference channels (i.e., channel DIFI for inphase and DIFQ for quadrature) tend to eliminate the response of conductive overburden. This marked a unique development in airborne EM technology, as DIGHEM is the only EM system which yields channels having an exceptionally high degree of immunity to conductive overburden.

Magnetite produces a form of geological noise on the inphase channels of all EM systems. Rocks containing less than 1% magnetite can yield negative inphase anomalies caused by magnetic permeability. When magnetite is widely distributed throughout a survey area, the inphase EM channels may continuously rise and fall reflecting variations in the magnetite percentage, flying height, and overburden thickness. This can lead to difficulties in recognizing deeply buried bedrock conductors, particularly if conductive overburden also exists. However, the response of broadly distributed magnetite generally vanishes on the inphase difference channel DIFI. This feature can be a significant aid in the recognition of conductors which occur in rocks containing accessory magnetite.

#### EM magnetite mapping

The information content of DIGHEM data consists of a combination of conductive eddy current response and magnetic permeability response. The secondary field resulting from conductive eddy current flow is frequency-dependent and consists of both inphase and quadrature components, which are positive in sign. On the other hand, the secondary field resulting from magnetic permeability is independent of frequency and consists of only an inphase component which



is negative in sign. When magnetic permeability manifests itself by decreasing the measured amount of positive inphase, its presence may be difficult to recognize. However, when it manifests itself by yielding a negative inphase anomaly (e.g., in the absence of eddy current flow), its presence is assured. In this latter case, the negative component can be used to estimate the percent magnetite content.

A magnetite mapping technique was developed for the coplanar coil-pair of DIGHEM. The technique yields channel "FEO" (see Appendix A) which displays apparent weight percent magnetite according to a homogeneous half space model.<sup>4</sup> The method can be complementary to magnetometer mapping in certain cases. Compared to magnetometry, it is far less sensitive but is more able to resolve closely spaced magnetite zones, as well as providing an estimate of the amount of magnetite in the rock. The method is sensitive to 1/4% magnetite by weight when the EM sensor is at a height of 30 m above a magnetitic half space. It can individually resolve steeply dipping narrow magnetite-rich bands which are separated by 60 m. Unlike magnetometry, the EM magnetite method is unaffected by remanent magnetism or magnetic latitude.

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<sup>4</sup> Refer to Fraser, 1981, Magnetite mapping with a multi-coil airborne electromagnetic system: Geophysics, v. 46, p. 1579-1594.

The EM magnetite mapping technique provides estimates of magnetite content which are usually correct within a factor of 2 when the magnetite is fairly uniformly distributed. EM magnetite maps can be generated when magnetic permeability is evident as indicated by anomalies in the magnetite channel FEO.

Like magnetometry, the EM magnetite method maps only bedrock features, provided that the overburden is characterized by a general lack of magnetite. This contrasts with resistivity mapping which portrays the combined effect of bedrock and overburden.

#### Recognition of culture

Cultural responses include all EM anomalies caused by man-made metallic objects. Such anomalies may be caused by inductive coupling or current gathering. The concern of the interpreter is to recognize when an EM response is due to culture. Points of consideration used by the interpreter, when coaxial and coplanar coil-pairs are operated at a common frequency, are as follows:

1. Channels CXS and CPS (see Appendix A) measure 50 and 60 Hz radiation. An anomaly on these channels shows

that the conductor is radiating cultural power. Such an indication is normally a guarantee that the conductor is cultural. However, care must be taken to ensure that the conductor is not a geologic body which strikes across a power line, carrying leakage currents.

2. A flight which crosses a line (e.g., fence, telephone line, etc.) yields a center-peaked coaxial anomaly and an m-shaped coplanar anomaly.<sup>5</sup> When the flight crosses the cultural line at a high angle of intersection, the amplitude ratio of coaxial/coplanar (e.g., CXI/CPI) is 4. Such an EM anomaly can only be caused by a line. The geologic body which yields anomalies most closely resembling a line is the vertically dipping thin dike. Such a body, however, yields an amplitude ratio of 2 rather than 4. Consequently, an m-shaped coplanar anomaly with a CXI/CPI amplitude ratio of 4 is virtually a guarantee that the source is a cultural line.
  
3. A flight which crosses a sphere or horizontal disk yields center-peaked coaxial and coplanar anomalies with a CXI/CPI amplitude ratio (i.e., coaxial/coplanar) of 1/4. In the absence of geologic bodies of this geometry, the most likely conductor is a metal roof or

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5 See Figure II-1 presented earlier.

small fenced yard.<sup>4</sup> Anomalies of this type are virtually certain to be cultural if they occur in an area of culture.

4. A flight which crosses a horizontal rectangular body or wide ribbon yields an m-shaped coaxial anomaly and a center-peaked coplanar anomaly. In the absence of geologic bodies of this geometry, the most likely conductor is a large fenced area.<sup>4</sup> Anomalies of this type are virtually certain to be cultural if they occur in an area of culture.
  
5. EM anomalies which coincide with culture, as seen on the camera film, are usually caused by culture. However, care is taken with such coincidences because a geologic conductor could occur beneath a fence, for example. In this example, the fence would be expected to yield an m-shaped coplanar anomaly as in case #2 above. If, instead, a center-peaked coplanar anomaly occurred, there would be concern that a thick geologic conductor coincided with the cultural line.

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<sup>4</sup> It is a characteristic of EM that geometrically identical anomalies are obtained from: (1) a planar conductor, and (2) a wire which forms a loop having dimensions identical to the perimeter of the equivalent planar conductor.

6. The above description of anomaly shapes is valid when the culture is not conductively coupled to the environment. In this case, the anomalies arise from inductive coupling to the EM transmitter. However, when the environment is quite conductive (e.g., less than 100 ohm-m at 900 Hz), the cultural conductor may be conductively coupled to the environment. In this latter case, the anomaly shapes tend to be governed by current gathering. Current gathering can completely distort the anomaly shapes, thereby complicating the identification of cultural anomalies. In such circumstances, the interpreter can only rely on the radiation channels CXS and CPS, and on the camera film.

#### MAGNETICS

The existence of a magnetic correlation with an EM anomaly is indicated directly on the EM map. An EM anomaly with magnetic correlation has a greater likelihood of being produced by sulfides than one that is non-magnetic. However, sulfide ore bodies may be non-magnetic (e.g., the Kidd Creek deposit near Timmins, Canada) as well as magnetic (e.g., the Mattabi deposit near Sturgeon Lake, Canada).

The magnetometer data are digitally recorded in the aircraft to an accuracy of one nT (i.e., one gamma). The digital tape is processed by computer to yield a total field magnetic contour map. When warranted, the magnetic data also may be treated mathematically to enhance the magnetic response of the near-surface geology, and an enhanced magnetic contour map is then produced. The response of the enhancement operator in the frequency domain is illustrated in Figure II-2. This figure shows that the passband components of the airborne data are amplified 20 times by the enhancement operator. This means, for example, that a 100 nT anomaly on the enhanced map reflects a 5 nT anomaly for the passband components of the airborne data.

The enhanced map, which bears a resemblance to a downward continuation map, is produced by the digital bandpass filtering of the total field data. The enhancement is equivalent to continuing the field downward to a level (above the source) which is 1/20th of the actual sensor-source distance.

Because the enhanced magnetic map bears a resemblance to a ground magnetic map, it simplifies the recognition of trends in the rock strata and the interpretation of

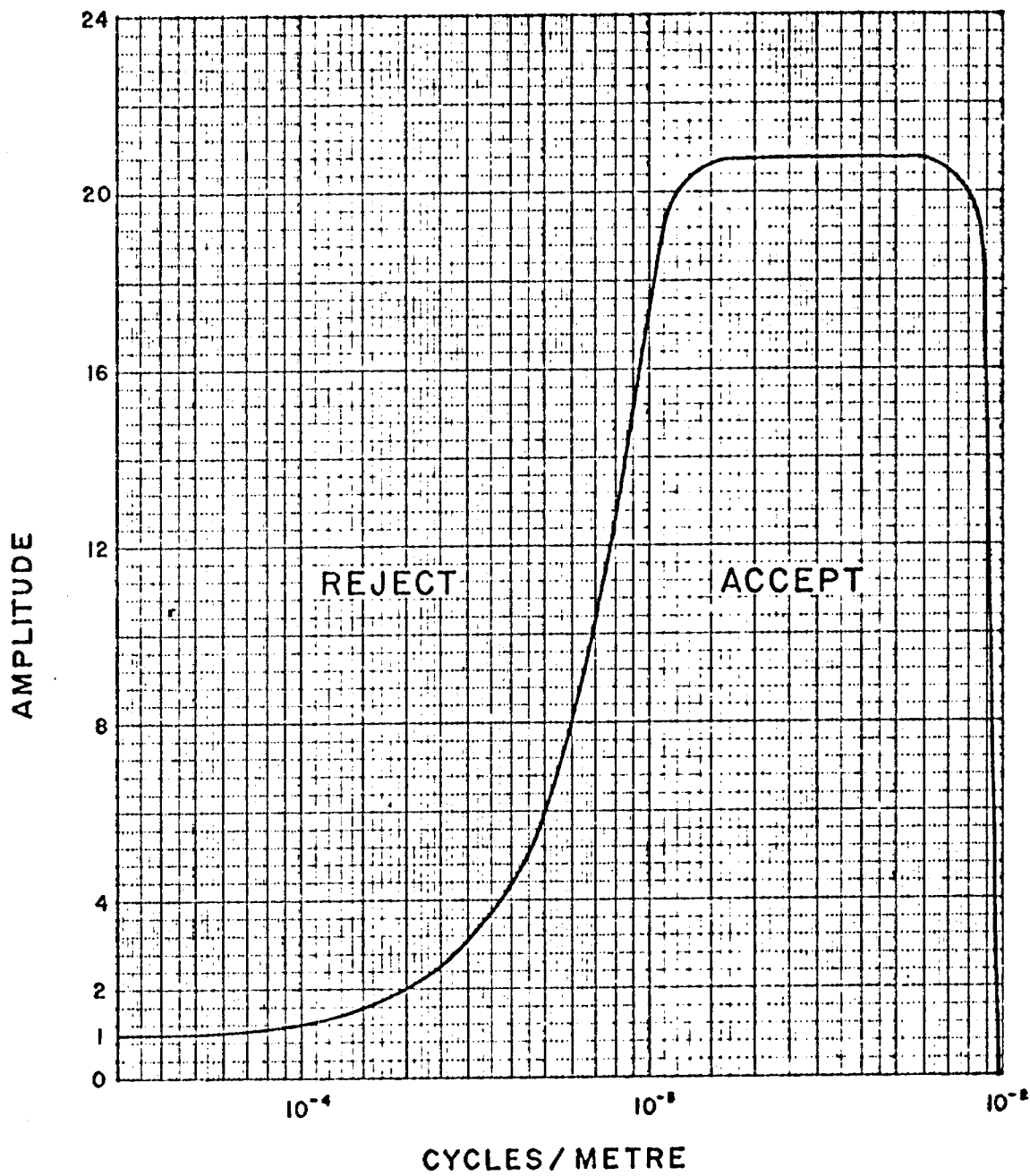


Figure II-2 Frequency response of magnetic enhancement operator.

geological structure. It defines the near-surface local geology while de-emphasizing deep-seated regional features. It primarily has application when the magnetic rock units are steeply dipping and the earth's field dips in excess of 60 degrees.

VLF-EM

VLF-EM anomalies are not EM anomalies in the conventional sense. EM anomalies primarily reflect eddy currents flowing in conductors which have been energized inductively by the primary field. In contrast, VLF-EM anomalies primarily reflect current gathering, which is a non-inductive phenomenon. The primary field sets up currents which flow weakly in rock and overburden, and these tend to collect in low resistivity zones. Such zones may be due to massive sulfides, shears, river valleys and even unconformities.

The Herz Industries Ltd Totem VLF-electromagnetometer measures the total field and vertical quadrature components. Both these components are digitally recorded in the aircraft with a sensitivity of 0.1 percent. The total field yields peaks over VLF-EM current concentrations



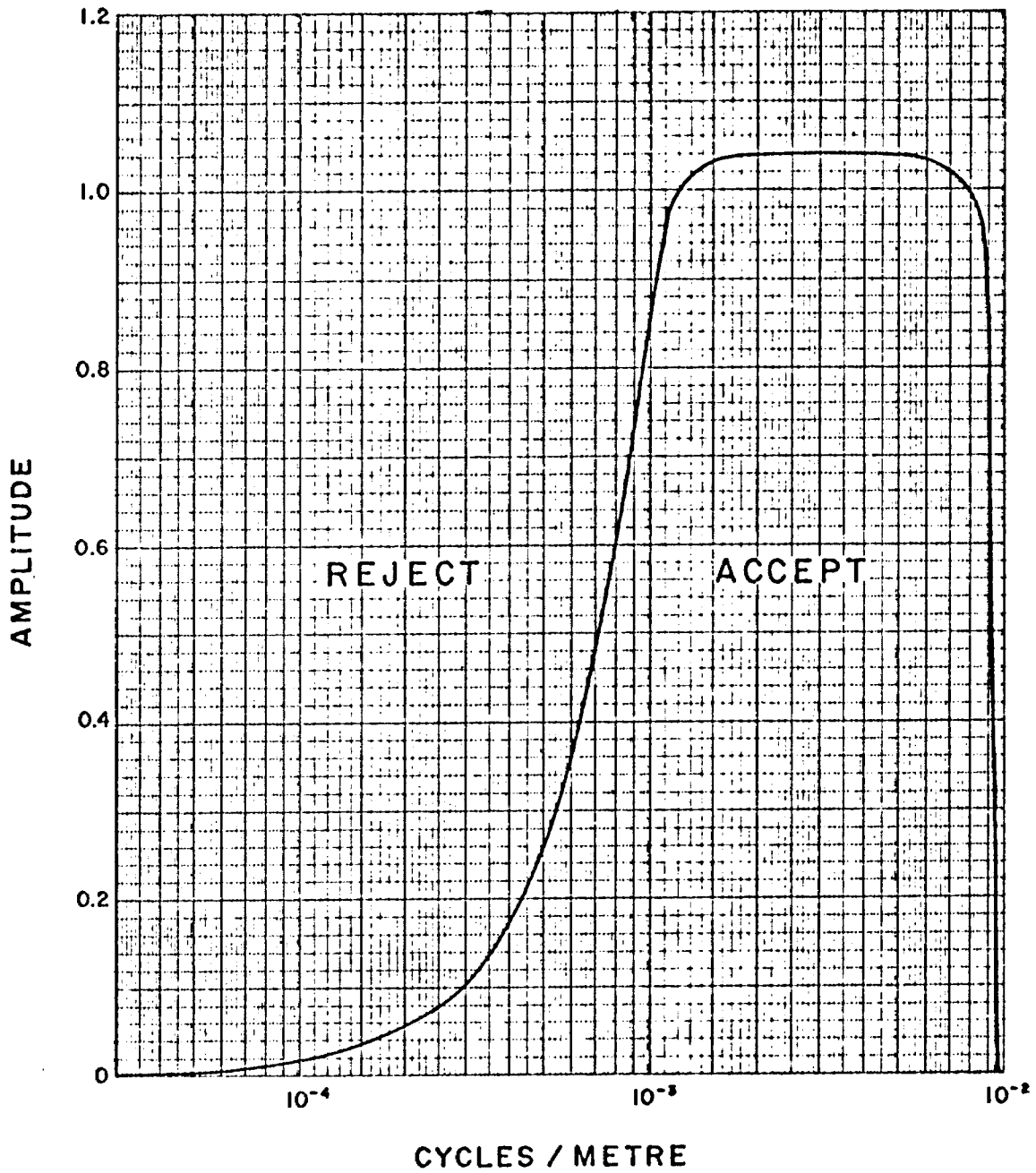


Figure II-3 Frequency response of VLF-EM operator.

whereas the quadrature component tends to yield crossovers. Both appear as traces on the profile records. The total field data also are filtered digitally and displayed on a contour map, to facilitate the recognition of trends in the rock strata and the interpretation of geologic structure.

The response of the VLF-EM total field filter operator in the frequency domain (Figure II-3) is basically similar to that used to produce the enhanced magnetic map (Figure II-2). The two filters are identical along the abscissa but different along the ordinant. The VLF-EM filter removes long wavelengths such as those which reflect regional and wave transmission variations. The filter sharpens short wavelength responses such as those which reflect local geological variations. The filtered total field VLF-EM contour map is produced with a contour interval of one percent.

MAPS ACCOMPANYING THIS REPORT

Five map sheets accompany this report:

Electromagnetic Anomalies	1 map sheet
Resistivity	1 map sheet
Magnetics	1 map sheet
Enhanced Magnetics	1 map sheet
Filtered Total VLF-EM Field	1 map sheet

Respectfully submitted,  
DIGHEM LIMITED



Z. Dvorak  
Vice-President

## A P P E N D I X A

### THE FLIGHT RECORD AND PATH RECOVERY

Both analog and digital flight records were produced. The analog profiles were recorded on chart paper in the aircraft during the survey. The digital profiles were generated later by computer and plotted on electrostatic chart paper at a scale of 1:10,000. The digital profiles are listed in Table A-1.

In Table A-1, the log resistivity scale of 0.03 decade/mm means that the resistivity changes by an order of magnitude in 33 mm. The resistivities at 0, 33, 67, 100 and 133 mm up from the bottom of the digital flight record are respectively 1, 10, 100, 1,000 and 10,000 ohm-m.

The fiducial marks on the flight records represent points on the ground which were recovered from camera film. Continuous photographic coverage allowed accurate photo-path recovery locations for the fiducials, which were then plotted on the geophysical maps to provide the track of the aircraft.

The fiducial locations on both the flight records and flight path maps were examined by a computer for unusual helicopter speed changes. Such speed changes may denote

an error in flight path recovery. The resulting flight path locations therefore reflect a more stringent checking than is provided by standard flight path recovery techniques.

Table A-1. The Digital Profiles

Channel Name (Freq)	Observed parameters	Scale units/mm
MAG	magnetics	10 nT
ALT	bird height	3 m
CXI ( 900 Hz)	vertical coaxial coil-pair inphase	1 ppm
CXQ ( 900 Hz)	vertical coaxial coil-pair quadrature	1 ppm
CXS ( 900 Hz)	ambient noise monitor (coaxial receiver)	1 ppm
CPI ( 900 Hz)	horizontal coplanar coil-pair inphase	1 ppm
CPQ ( 900 Hz)	horizontal coplanar coil-pair quadrature	1 ppm
CPS ( 900 Hz)	ambient noise monitor (coplanar receiver)	1 ppm
CPI (7200 Hz)	horizontal coplanar coil-pair inphase	1 ppm
CPQ (7200 Hz)	horizontal coplanar coil-pair quadrature	1 ppm
VLFT	VLF-EM total field (primary station)	1 %
VLFQ	VLF-EM vertical quadrature (primary station)	1 %
VT2	VLF-EM total field (secondary station)	1 %
VQ2	VLF-EM vertical quadrature (secondary station)	1 %
<u>Computed Parameters</u>		
DIFI ( 900 Hz)	difference function inphase from CXI and CPI	1 ppm
DIFQ ( 900 Hz)	difference function quadrature from CXQ and CPQ	1 ppm
REC1	first anomaly recognition function	1 ppm
REC2	second anomaly recognition function	1 ppm
REC3	third anomaly recognition function	1 ppm
REC4	fourth anomaly recognition function	1 ppm
CDT	conductance	1 grade
RES ( 900 Hz)	log resistivity	.03 decade
RES (7200 Hz)	log resistivity	.03 decade
DP ( 900 Hz)	apparent depth	3 m
DP (7200 Hz)	apparent depth	3 m
FEO% ( 900 Hz)	apparent weight percent magnetite	0.25%

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A P P E N D I X B

EM ANOMALY LIST

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		COAXIAL 900 HZ		COPLANAR 900 HZ		COPLANAR 7200 HZ		VERTICAL DIKE		HORIZONTAL SHEET		CONDUCTIVE EARTH	
ANOMALY/ FID/INTERP		REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	COND MHOS	DEPTH* M	COND MHOS	DEPTH M	RESIS OHM-M	DEPTH M
-----		.											
LINE	1	(FLIGHT	1)	.									
A	430 B?	0	9	3	6	6	62	1	0	1	93	966	0
B	432 B?	0	0	3	5	3	57	2	57	2	209	41	167
C	438 S	0	7	1	11	18	34	1	0	1	46	741	0
D	442 S	0	9	0	14	31	36	1	9	1	17	268	0
-----		.											
LINE	2	(FLIGHT	1)	.									
A	493 S	0	5	0	8	5	57	1	0	1	1	1925	0
B	481 B?	0	8	0	14	22	105	1	0	1	26	618	0
C	464 S	0	11	0	28	42	185	1	0	1	7	419	0
D	459 S	0	10	0	20	21	140	1	0	1	8	308	0
-----		.											
LINE	3	(FLIGHT	1)	.									
A	600 S	0	6	0	11	10	73	1	0	1	3	979	0
B	632 S	0	8	0	14	19	100	1	0	1	8	725	0
D	640 S?	2	13	1	23	8	165	1	0	1	20	555	0
E	645 S?	8	6	0	10	5	72	5	28	1	75	856	0
F	655 S	0	8	0	15	40	97	1	0	1	8	382	0
-----		.											
LINE	4	(FLIGHT	1)	.									
A	716 S	0	12	0	23	20	163	1	0	1	10	673	0
B	710 S?	0	3	0	8	6	63	1	19	1	63	792	0
D	692 S	0	5	0	13	17	88	1	0	1	15	494	0
E	688 H	2	2	0	6	12	38	1	2	1	20	376	0
F	676 S	0	19	0	37	79	221	1	0	1	14	136	0
-----		.											
LINE	5	(FLIGHT	1)	.									
A	811 S	0	6	0	13	18	93	1	0	1	10	739	0
B	827 B?	2	2	0	14	8	94	1	6	1	29	683	0
C	830 S	0	13	0	25	54	161	1	0	1	7	290	0
D	840 S	2	21	0	36	112	215	1	0	1	1	379	0
E	845 S	0	6	0	20	56	110	1	0	1	17	156	0
-----		.											
LINE	6	(FLIGHT	1)	.									
A	949 S	0	3	1	8	14	54	1	0	1	10	927	0
B	945 S	1	4	1	7	13	59	1	0	1	11	737	0
C	893 S	1	10	0	19	31	142	1	0	1	9	475	0
D	879 S	5	13	0	35	81	218	1	0	1	11	199	0
E	873 S	0	9	0	19	40	73	1	0	1	17	514	0
F	859 S	0	19	0	33	82	194	1	0	1	7	464	0
G	855 S	0	16	0	31	53	210	1	0	1	9	209	0
-----		.											
LINE	7	(FLIGHT	1)	.									
A	1041 H	0	3	0	7	10	51	1	0	1	72	890	0

. \* ESTIMATED DEPTH MAY BE UNRELIABLE BECAUSE THE STRONGER PART .  
 . OF THE CONDUCTOR MAY BE DEEPER OR TO ONE SIDE OF THE FLIGHT .  
 . LINE, OR BECAUSE OF A SHALLOW DIP OR OVERBURDEN EFFECTS. .

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		COAXIAL 900 HZ		COPLANAR 900 HZ		COPLANAR 7200 HZ		VERTICAL DIKE	COND MHOS	DEPTH* M	HORIZONTAL SHEET	COND MHOS	DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	DEPTH M
ANOMALY/ FID/INTERP		REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM								
LINE	7	(FLIGHT 1)													
B	1043 S	0	3	0	7	9	51	1	0		1	13	1243	0	
C	1055 S	2	11	0	23	26	148	1	1		1	27	571	0	
D	1063 H	13	9	0	15	41	97	6	18		1	33	695	0	
LINE	8	(FLIGHT 1)													
A	1095 S	0	2	0	3	0	35	1	4		1	12	3352	0	
C	1079 H	0	11	0	21	28	136	1	0		1	20	455	0	
LINE	9	(FLIGHT 1)													
B	1230 S	0	3	0	7	11	47	1	0		1	16	986	0	
C	1242 S	0	5	0	13	34	79	1	0		1	22	273	3	
LINE	10	(FLIGHT 1)													
A	1271 H	0	6	0	13	29	69	1	0		1	14	275	0	
B	1268 H	0	5	0	15	34	93	1	0		1	23	272	4	
C	1260 S	774	3	0	6	9	40	1	0		1	19	382	0	
LINE	11	(FLIGHT 1)													
A	1410 S	0	7	0	12	24	84	1	0		1	8	468	0	
B	1437 S	0	7	0	10	13	81	1	0		1	7	859	0	
C	1485 S	0	8	0	18	53	90	1	0		1	17	162	0	
D	1492 B	0	7	0	8	28	54	1	0		1	10	547	0	
E	1501 S	0	2	1	7	37	19	4	11		1	23	94	6	
F	1510 S	0	4	0	9	35	30	2	0		1	11	110	0	
LINE	12	(FLIGHT 1)													
A	1723 S	0	2	0	3	4	32	1	0		1	5	2592	0	
B	1713 S	0	2	0	8	5	50	1	0		1	5	2115	0	
C	1682 H	0	3	0	5	12	36	1	7		1	34	596	8	
D	1669 S	0	9	0	17	59	89	1	0		1	12	135	0	
E	1664 S	0	8	0	14	53	78	1	0		1	9	138	0	
F	1652 S	0	15	0	28	90	139	1	0		1	12	110	0	
LINE	13	(FLIGHT 2)													
A	533 B?	0	2	0	6	9	27	1	4		1	37	767	8	
B	611 H	1	1	0	2	7	19	1	0		1	31	736	1	
C	622 H	0	9	1	17	51	103	1	2		1	25	172	7	
D	630 H	1	5	2	10	41	60	1	10		1	28	116	12	
E	638 H	0	7	0	12	35	60	1	4		1	19	203	1	
F	641 H	1	8	0	20	45	96	1	0		1	24	410	2	
LINE	14	(FLIGHT 2)													
A	759 B?	0	2	1	1	9	23	1	0		1	40	598	8	

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ANOMALY/ FID/INTERP	COAXIAL 900 HZ		COPLANAR 900 HZ		COPLANAR 7200 HZ		VERTICAL DIKE	COND MHOS	DEPTH* M	HORIZONTAL SHEET		CONDUCTIVE EARTH	
	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM				COND MHOS	DEPTH M	RESIS OHM-M	DEPTH M
LINE 14	(FLIGHT 2)												
B 678 S	1	6	2	10	36	57	1	0	1	17	213	0	
C 666 S	1	10	2	23	93	71	3	0	1	17	78	3	
LINE 15	(FLIGHT 2)												
A 783 B?	0	3	0	4	12	39	1	1	1	41	504	14	
B 864 H?	0	4	0	12	34	57	1	8	1	33	371	10	
C 870 S	1	7	0	12	38	91	1	0	1	13	238	0	
D 888 S	0	11	0	13	52	118	1	0	1	10	118	0	
E 900 S	1	9	0	15	66	82	2	0	1	11	72	0	
F 902 S	0	12	0	30	89	99	2	0	1	21	74	7	
G 907 H	0	9	0	18	56	122	1	0	1	22	167	4	
LINE 16	(FLIGHT 2)												
A 1109 S?	0	2	0	6	27	36	1	0	1	32	220	8	
B 1027 S	1	7	0	17	49	94	1	0	1	17	187	0	
C 1004 S	0	3	0	9	14	60	1	0	1	16	668	0	
D 998 S	0	17	0	42	149	58	8	0	1	13	71	0	
E 996 S	0	8	0	18	73	73	2	0	1	15	67	1	
LINE 17	(FLIGHT 2)												
A 1131 H	0	4	2	10	29	46	1	6	1	33	177	13	
B 1137 B?	1	5	0	11	28	45	1	9	1	38	234	16	
C 1218 S	1	8	2	37	61	180	1	0	1	14	103	0	
D 1249 S	1	11	1	26	67	149	1	0	1	10	199	0	
E 1254 H	2	12	2	27	101	128	2	0	1	28	78	14	
LINE 18	(FLIGHT 2)												
A 1395 H	0	3	3	4	23	40	1	2	1	44	352	17	
B 1393 L?	0	2	4	9	16	52	1	20	1	108	154	60	
C 1388 B?	0	5	0	9	23	44	1	13	1	35	249	15	
D 1382 H	0	10	0	17	50	98	1	0	1	26	215	7	
E 1373 H	0	2	1	2	17	10	2	22	1	32	384	6	
F 1370 H	0	1	1	1	13	6	3	27	1	37	271	12	
H 1354 S	0	3	0	6	11	53	1	0	1	9	955	0	
I 1341 S	0	2	1	3	6	30	1	0	1	16	1305	0	
J 1313 S	1	16	3	32	91	77	3	2	1	13	68	0	
K 1304 H	1	5	2	12	40	52	1	12	1	30	102	14	
L 1295 H	1	3	1	4	18	17	1	24	1	32	221	11	
M 1292 H	1	3	1	13	44	77	1	4	1	30	341	8	
P 1274 H?	1	17	3	33	112	172	1	0	1	30	92	15	
Q 1270 S	1	6	1	13	49	56	2	0	1	30	61	15	

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		COAXIAL 900 HZ	COPLANAR 900 HZ	COPLANAR 7200 HZ	VERTICAL DIKE	HORIZONTAL SHEET	CONDUCTIVE EARTH						
ANOMALY/ FID/INTERP		REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	COND MHOS	DEPTH* M	COND MHOS	DEPTH M	RESIS OHM-M	DEPTH M		
-----													
LINE	19	(FLIGHT	2)										
A	1411 S	1	6	1	12	23	78	1	0	1	19	371	0
B	1416 S	0	2	1	4	9	42	1	2	1	78	724	4
C	1422 B?	0	3	0	4	12	30	1	6	1	35	517	9
D	1436 H	1	4	1	8	22	42	1	4	1	31	250	9
E	1449 S	0	6	0	12	30	88	1	0	1	14	411	0
F	1460 S	0	4	0	7	11	57	1	0	1	12	1015	0
G	1473 S	1	9	0	21	57	124	1	0	1	21	219	1
H	1478 S	0	5	0	11	37	61	1	0	1	19	164	1
I	1493 S	1	9	1	18	58	84	1	0	1	13	70	0
J	1506 B?	0	5	1	10	31	54	1	6	1	28	169	10
K	1514 H	0	5	0	11	28	42	1	11	1	29	220	9
L	1535 E?	4	14	1	30	98	136	1	0	1	29	605	0
-----													
LINE	20	(FLIGHT	2)										
A	1671 H	0	4	0	4	13	40	1	0	1	28	428	4
B	1652 H	0	4	0	11	37	66	1	4	1	28	186	9
C	1643 S	1	5	0	11	25	68	1	0	1	19	254	0
D	1642 S	1	7	1	20	45	133	1	0	1	11	248	0
F	1591 H	1	4	1	6	39	32	2	16	1	29	126	12
G	1552 H	2	5	6	31	134	133	2	6	1	30	65	16
H	1550 B?	3	5	6	26	27	79	3	8	1	19	203	0
-----													
LINE	21	(FLIGHT	2)										
A	1681 B?	0	8	1	17	39	89	1	0	1	21	234	0
B	1705 H?	1	13	1	28	81	155	1	0	1	22	173	5
C	1715 S	1	17	0	40	121	225	1	0	1	9	112	0
D	1744 S	1	12	0	44	129	239	1	0	1	9	112	0
E	1750 S	0	16	0	26	80	150	1	0	1	9	90	0
F	1753 S	1	16	1	45	134	227	1	0	1	10	93	0
G	1796 H	1	5	0	11	37	63	1	1	1	16	185	0
H	1818 H	1	12	2	43	158	198	1	0	1	8	363	0
I	1820 S	1	4	5	43	150	198	2	0	1	18	50	5
J	1832 H	3	12	5	21	64	82	1	4	1	28	43	16
K	1836 H	3	12	7	27	104	100	2	0	1	30	49	15
-----													
LINE	22	(FLIGHT	2)										
A	1977 H	0	6	0	15	18	108	1	0	1	19	275	0
B	1971 H	0	5	1	10	27	66	1	2	1	23	230	4
C	1966 H	1	9	0	26	80	113	1	0	1	16	112	1
D	1961 S	1	18	1	34	104	93	3	0	1	9	73	0
E	1927 S	1	6	2	35	134	196	2	0	1	12	79	0

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		COAXIAL		COPLANAR		COPLANAR		VERTICAL	HORIZONTAL		CONDUCTIVE		
		900 HZ		900 HZ		7200 HZ		DIKE	SHEET		EARTH		
ANOMALY/ FID/INTERP		REAL	QUAD	REAL	QUAD	REAL	QUAD	COND	DEPTH*	COND	DEPTH	RESIS	DEPTH
		PPM	PPM	PPM	PPM	PPM	PPM	MHOS	M	MHOS	M	OHM-M	M
LINE	22	(FLIGHT 2)											
F	1898 H	0	5	0	12	42	67	1	0	1	15	122	0
G	1853 S	3	29	4	50	175	207	1	0	1	0	275	0
LINE	23	(FLIGHT 2)											
A	2004 S	1	16	1	29	84	61	3	7	1	16	114	1
B	2010 S	0	23	0	43	131	180	2	0	1	10	71	0
C	2017 B?	0	4	0	11	32	34	1	20	1	37	229	17
D	2044 S	1	21	1	40	160	127	3	0	1	12	63	0
E	2048 S	0	14	0	40	116	232	1	0	1	11	239	0
F	2058 S	0	11	0	20	62	123	1	0	1	10	359	0
G	2063 H	1	7	1	17	47	99	1	0	1	21	127	5
H	2074 H	0	7	1	14	41	66	1	1	1	20	141	3
I	2106 H	1	9	4	22	104	86	3	4	1	29	56	16
J	2121 S	2	10	2	7	28	36	1	0	1	10	582	0
K	2126 S	0	8	0	11	39	58	1	0	1	20	90	2
LINE	24	(FLIGHT 2)											
A	2257 S	0	3	0	5	13	28	1	0	1	6	396	0
B	2248 S	0	9	0	15	33	81	1	0	1	8	221	0
D	2218 S	0	7	0	20	72	76	2	0	1	8	172	0
E	2196 S	0	4	0	11	14	59	1	0	1	0	457	0
F	2188 H	0	6	0	9	57	21	6	9	1	12	161	0
G	2141 H	1	8	1	15	58	62	2	5	1	21	105	5
H	2136 S	1	8	0	20	72	75	2	0	1	10	202	0
LINE	251	(FLIGHT 2)											
A	2586 S	0	5	1	9	40	12	8	0	1	22	127	3
B	2577 S	0	3	1	9	30	48	1	0	1	11	160	0
C	2569 S	1	9	1	14	31	86	1	0	1	15	275	0
D	2561 S	1	14	0	20	71	106	1	0	1	12	113	0
E	2539 S	1	2	1	12	49	58	1	0	1	12	251	0
F	2533 S	0	5	2	10	42	34	2	0	1	10	106	0
G	2527 H	0	4	0	6	39	25	3	10	1	27	85	11
LINE	26	(FLIGHT 3)											
A	619 S	1	2	1	5	21	20	1	0	1	24	119	1
B	629 H	2	10	2	17	58	92	1	0	1	21	125	4
C	654 H	0	12	0	17	37	111	1	0	1	23	304	3
D	665 S	0	4	0	11	24	72	1	0	1	11	388	0
E	678 S	0	6	0	15	58	80	1	0	1	10	241	0
F	692 H	0	6	0	12	44	45	2	7	1	28	78	13

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		COAXIAL		COPLANAR		COPLANAR		VERTICAL		HORIZONTAL		CONDUCTIVE					
		900 HZ		900 HZ		7200 HZ		DIKE		SHEET		EARTH					
ANOMALY/ FID/INTERP		REAL	QUAD	REAL	QUAD	REAL	QUAD	COND	DEPTH*	COND	DEPTH	RESIS	DEPTH				
		PPM	PPM	PPM	PPM	PPM	PPM	MHOS	M	MHOS	M	OHM-M	M				
-----																	
LINE	26	(FLIGHT		3)													
G	704 H	1	4	0	9	40	24	3	9	1	28	51	14				
H	719 H	0	3	0	12	37	49	1	0	1	31	45	17				
I	723 H	0	6	0	16	54	63	2	1	1	31	50	17				
J	741 H	0	5	0	10	24	55	1	0	1	34	112	16				
K	743 H	0	6	0	10	49	74	1	0	1	31	89	14				
-----																	
LINE	27	(FLIGHT		3)													
A	867 S	0	6	1	13	35	85	1	0	1	0	318	0				
B	863 B?	1	13	0	16	48	95	1	0	1	22	586	0				
C	849 S	1	5	0	8	21	67	1	0	1	0	708	0				
D	842 H	0	8	0	7	16	53	1	0	1	3	625	0				
E	837 B?	0	0	2	5	7	30	1	13	1	168	440	55				
F	813 S	0	7	0	21	75	60	3	0	1	5	131	0				
G	809 S	1	17	1	31	115	136	2	0	1	5	103	0				
H	800 S	0	4	0	8	24	39	1	5	1	11	279	0				
I	792 H	2	7	5	15	57	22	6	13	1	20	68	6				
J	772 H	1	6	2	12	43	34	2	11	1	21	214	2				
K	765 S	0	2	0	4	18	25	1	0	1	0	311	0				
L	761 S	1	5	0	3	7	8	1	0	1	28	741	0				
M	757 H	1	10	0	18	50	98	1	0	1	15	181	0				
-----																	
LINE	28	(FLIGHT		3)													
A	883 S	1	12	1	25	76	117	1	0	1	7	104	0				
B	890 S	1	5	1	18	55	63	2	3	1	12	113	0				
C	894 S	1	4	1	16	53	64	1	0	1	6	116	0				
D	897 S	0	10	1	18	58	89	1	0	1	4	117	0				
E	910 H?	0	7	1	8	38	129	1	0	1	13	160	0				
F	926 S	0	6	0	12	47	62	1	0	1	1	266	0				
H	951 H	2	7	2	33	125	163	2	0	1	16	84	2				
I	990 S	2	10	1	20	77	73	2	0	1	3	116	0				
J	996 H	0	10	1	21	75	115	1	0	1	17	140	1				
-----																	
LINE	29	(FLIGHT		3)													
A	1119 H	2	18	2	26	105	134	2	1	1	21	49	9				
C	1091 S	0	14	0	27	60	83	1	2	1	10	129	0				
D	1084 S	0	18	0	34	100	200	1	0	1	9	91	0				
E	1074 H	1	15	0	43	129	226	1	0	1	16	60	3				
F	1072 H	0	15	0	27	77	136	1	0	1	18	63	5				
G	1062 H	1	22	1	35	118	192	1	0	1	20	57	8				
H	1045 H	4	13	4	33	125	72	2	0	1	15	185	0				
I	1026 H	1	7	1	18	64	53	2	10	1	27	73	12				

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		COAXIAL 900 HZ		COPLANAR 900 HZ		COPLANAR 7200 HZ		VERTICAL DIKE		HORIZONTAL SHEET		CONDUCTIVE EARTH	
ANOMALY/ FID/INTERP		REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	COND MHOS	DEPTH* M	COND MHOS	DEPTH M	RESIS OHM-M	DEPTH M
LINE 29 (FLIGHT 3)													
J 1019 S	1	9	2	19	67	84		2	0	1	7	65	0
K 1014 H	0	11	1	23	64	115		1	6	1	27	62	14
LINE 30 (FLIGHT 3)													
A 1445 S	0	4	0	2	10	11		1	13	1	30	208	7
B 1439 H	0	5	0	17	54	110		1	0	1	26	121	8
C 1427 H?	2	14	2	24	76	74		2	5	1	21	53	9
D 1414 S	0	11	0	13	61	50		2	6	1	10	101	0
E 1406 S	0	4	0	12	42	28		3	10	1	8	338	0
F 1399 H	0	21	0	37	108	212		1	0	1	8	159	0
H 1375 S	1	11	2	21	60	127		1	0	1	22	93	8
I 1371 H	1	6	4	13	69	67		2	10	1	26	70	13
J 1366 H	2	10	6	23	77	73		2	6	1	23	40	11
K 1361 B?	3	21	5	42	138	147		1	0	1	2	166	0
L 1342 H	1	8	1	18	85	74		2	6	1	25	92	10
M 1334 H	0	7	0	9	30	53		1	0	1	26	142	8
N 1329 H	1	5	1	13	56	39		3	8	1	29	80	14
LINE 31 (FLIGHT 3)													
A 1134 S	1551	7	3	18	58	58		2	0	1	17	100	1
B 1142 H	0	9	0	20	40	110		1	0	1	21	177	4
C 1147 H	0	17	2	30	81	170		1	0	1	15	101	1
D 1153 H	2	9	1	20	67	78		2	8	1	26	73	12
E 1165 H	1	14	3	30	94	128		2	0	1	16	77	3
F 1174 H	0	9	2	20	55	105		1	1	1	19	95	5
G 1180 H	0	3	2	12	45	28		3	13	1	19	97	4
H 1230 S	2	21	2	37	123	191		1	0	1	9	58	0
I 1239 H	0	11	0	24	75	146		1	0	1	25	155	8
J 1245 S	1	11	0	20	65	24		1	0	1	10	571	0
LINE 32 (FLIGHT 3)													
B 1542 S	2	28	1	52	118	204		1	0	1	9	42	0
C 1559 S	1	27	1	46	149	202		1	0	1	0	302	0
D 1573 S	1	11	3	30	92	145		1	0	1	8	36	0
E 1576 S	1	6	2	26	98	104		2	0	1	6	36	0
LINE 33 (FLIGHT 3)													
A 1709 S	0	15	0	34	86	161		1	0	1	16	76	2
B 1681 S	2	13	1	21	82	71		2	0	1	14	40	3
D 1609 S	1	6	0	23	91	48		5	2	1	19	50	7
F 1603 H	1	13	4	31	95	110		2	6	1	25	39	13

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190 FALLON

		COAXIAL 900 HZ		COPLANAR 900 HZ		COPLANAR 7200 HZ		VERTICAL DIKE	HORIZONTAL SHEET	CONDUCTIVE EARTH			
ANOMALY/ FID/INTERP		REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	COND MHOS	DEPTH* M	COND MHOS	DEPTH M	RESIS OHM-M	DEPTH M
-----													
LINE	341	(FLIGHT 3)											
A	1941 S	0	3	0	5	23	20	2	0	1	19	330	0
B	1932 H	0	9	0	14	67	76	2	0	1	24	74	10
C	1891 H	2	12	2	21	76	58	3	3	1	25	45	12
D	1857 S	2	17	2	31	94	110	2	0	1	12	44	0
E	1848 S	2	10	3	23	90	84	2	0	1	17	68	4
F	1834 S	2	9	2	22	59	36	3	0	1	14	51	1
G	1830 L?	5	16	3	17	52	78	2	0	1	0	227	0
H	1814 H	2	12	2	22	77	96	2	0	1	21	48	8
-----													
LINE	35	(FLIGHT 3)											
A	1957 H	2	20	4	41	78	89	1	0	1	5	338	0
B	1961 H	1	4	4	10	31	38	1	13	1	12	316	0
C	1964 H	1	9	0	18	59	72	2	4	1	11	274	0
D	1970 S	0	1	1	4	12	19	1	7	1	0	939	0
E	1974 S	0	2	0	2	11	13	1	24	1	1	745	0
F	1978 S	0	3	0	7	21	35	1	5	1	3	457	0
G	1985 H	1	8	1	13	45	46	1	2	1	19	260	0
H	1989 S	1	6	1	12	42	42	2	2	1	3	387	0
I	1996 S	1	3	2	5	18	43	1	0	1	0	869	0
J	2002 S	1	5	2	11	37	60	1	0	1	0	349	0
K	2009 S	1	6	1	11	38	57	1	0	1	0	255	0
L	2023 S	0	1	1	2	11	15	1	11	1	0	481	0
M	2031 H?	0	11	1	20	70	85	2	3	1	14	172	0
N	2041 S	1	14	3	27	78	111	1	0	1	7	161	0
O	2072 S	1	16	1	29	90	126	1	0	1	2	142	0
P	2078 S	1	15	4	8	26	25	1	10	1	4	359	0
Q	2081 S	0	15	3	34	47	25	4	7	1	0	799	0
S	2086 S	0	2	0	13	0	21	1	0	1	0	1783	0
-----													
LINE	36	(FLIGHT 3)											
A	2212 S	0	7	0	14	44	71	1	0	1	11	98	0
B	2101 H	0	16	0	31	86	141	1	2	1	23	43	11
C	2098 S	1	39	0	68	204	321	1	0	1	0	241	0
D	2093 H	1	7	5	14	41	39	2	3	1	35	39	21
-----													
LINE	37	(FLIGHT 3)											
A	2245 S	3	10	4	38	142	138	3	0	1	22	68	8
B	2259 H	1	6	3	21	75	80	2	0	1	29	52	15
C	2262 H	1	6	4	19	61	46	3	0	1	32	50	18
D	2267 H	8	11	3	40	149	86	3	4	1	15	316	0
F	2276 S	0	15	1	30	82	117	1	0	1	12	76	0

\* ESTIMATED DEPTH MAY BE UNRELIABLE BECAUSE THE STRONGER PART OF THE CONDUCTOR MAY BE DEEPER OR TO ONE SIDE OF THE FLIGHT LINE, OR BECAUSE OF A SHALLOW DIP OR OVERBURDEN EFFECTS.

190 FALLON

	COAXIAL 900 HZ	COPLANAR 900 HZ	COPLANAR 7200 HZ	VERTICAL DIKE	HORIZONTAL SHEET	CONDUCTIVE EARTH						
ANOMALY/ FID/INTERP	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	COND MHOS	DEPTH* M	COND MHOS	DEPTH M	RESIS OHM-M	DEPTH M
LINE 37 (FLIGHT 3)												
G 2286 S	1	12	0	16	53	83	1	0	1	27	678	0
H 2292 H	1	8	1	13	39	57	1	13	1	37	109	21
I 2296 S	2	13	1	19	77	75	2	0	1	13	60	0
J 2304 S	1	4	1	9	33	20	3	6	1	13	105	0
K 2317 H	2	8	3	20	68	44	3	9	1	24	45	12
L 2332 S	2	20	2	36	125	154	2	0	1	21	43	9
LINE 38 (FLIGHT 3)												
A 2450 S	0	5	0	12	47	55	1	0	1	11	363	0
B 2443 H	0	4	0	9	23	61	1	0	1	14	620	0
C 2438 H	0	10	0	18	47	40	2	10	1	19	156	2
D 2421 H	1	10	0	18	66	104	1	0	1	13	181	0
E 2408 H	1	15	0	21	73	113	1	0	1	31	675	0
F 2404 H	1	7	1	6	35	37	1	10	1	36	116	19
G 2399 S	1	4	0	6	22	33	1	3	1	27	197	6
H 2385 H	1	7	1	22	65	94	1	2	1	32	146	14
I 2380 H	2	6	4	11	51	17	7	20	1	32	53	18
J 2370 S	0	20	0	36	98	203	1	0	1	14	49	3
K 2352 S	2	15	2	32	102	108	2	0	1	14	41	3
LINE 39 (FLIGHT 3)												
A 2512 S	0	6	0	17	53	83	1	0	1	9	344	0
C 2525 S	3	10	2	16	49	100	1	0	1	28	673	0
E 2544 H	0	4	1	7	25	43	1	3	1	25	221	4
F 2551 H	0	3	0	6	13	35	1	4	1	30	360	7
G 2561 H	0	3	0	5	3	28	1	0	1	39	421	13
H 2583 H	2	5	1	13	43	27	3	11	1	26	75	11
J 2603 S	1	11	2	19	63	65	2	0	1	13	41	1
K 2612 S	1	10	1	26	78	80	2	0	1	15	49	1

\* ESTIMATED DEPTH MAY BE UNRELIABLE BECAUSE THE STRONGER PART OF THE CONDUCTOR MAY BE DEEPER OR TO ONE SIDE OF THE FLIGHT LINE, OR BECAUSE OF A SHALLOW DIP OR OVERBURDEN EFFECTS.



42A07SW0107 2.6274 FALLON

900

1984 05 28

Your File: 416/83  
Our File: 2.6274

Mr. Bruce Hanley  
Mining Recorder  
Ministry of Natural Resources  
60 Wilson Avenue  
Timmins, Ontario  
P4N 2S7

Dear Sir:

RE: Notice of Intent dated May 3, 1984 -  
Airborne Geophysical (Electromagnetic,  
Magnetometer, VLF & Resistivity) Survey  
submitted on Mining Claims P 641730 et  
al in the Township of Fallon

The assessment work credits as listed with the  
above mentioned Notice of Intent, have been approved  
as of the above date.

Please inform the recorded holder of these mining  
claims and so indicate on your records.

Yours sincerely,

S.E. Yundt  
Director  
Land Management Branch

Whitney Block, Room 6643  
Queen's Park  
Toronto, Ontario  
M7A 1W3  
Phone: (416) 965-69

D. Kinvig:sc

cc: Mr. David Meunier  
403 Dome Street  
P.O. Box 1624  
South Porcupine, Ontario



**Technical Assessment  
Work Credits**

File  
2.6274

Date  
1984 05 03

Mining Recorder's Report of  
Work No. 415, 416,

417, 418, 419.

Recorded Holder  
**DAVID MEUNIER**

Township or Area  
**FALLON**

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
<b>Geophysical</b> Electromagnetic _____ 16 _____ days Magnetometer _____ 16 _____ days <del>Resistivity</del> VLF _____ 16 _____ days Induced polarization _____ days Other _____ days Section 77 (19) See "Mining Claims Assessed" column <b>Geological</b> _____ days <b>Geochemical</b> _____ days  Man days <input type="checkbox"/> Airborne <input checked="" type="checkbox"/> Special provision <input type="checkbox"/> Ground <input type="checkbox"/>  <input type="checkbox"/> Credits have been reduced because of partial coverage of claims. <input type="checkbox"/> Credits have been reduced because of corrections to work dates and figures of applicant.	<p>See attached list</p>

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

No credits have been allowed for the following mining claims

not sufficiently covered by the survey                       Insufficient technical data filed

No credit can be given for the Resistivity Survey, as it is a direct calculated derivative of the Airborne Electromagnetic Survey.

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical — 80; Geological — 40; Geochemical — 40; Section 77 (19)—60:

MEUNIER CLAIMS IN FALLON TOWNSHIP

No.	Claim No.	Anniversary Date
1.	P. 653259	12 September 1982
2.	P. 653260	12 September 1982
3.	P. 653261	12 September 1982
4.	P. 653262	12 September 1982
5.	P. 641742	27 September 1982
6.	P. 641743	27 September 1982
7.	P. 653908	27 September 1982
8.	P. 653909	27 September 1982
9.	P. 641730	20 September 1982
10.	P. 641731	20 September 1982
11.	P. 641732	20 September 1982
12.	P. 641733	20 September 1982
13.	P. 641734	20 September 1982
14.	P. 661936	20 September 1982
15.	P. 654191	28 September 1982
16.	P. 654192	28 September 1982
17.	P. 654193	28 September 1982
18.	P. 654194	28 September 1982
19.	P. 654195	28 September 1982
20.	P. 654196	28 September 1982
21.	P. 654197	28 September 1982
22.	P. 654198	28 September 1982
23.	P. 663809	25 October 1982
24.	P. 663810	25 October 1982
25.	P. 663811	25 October 1982
26.	P. 663812	25 October 1982
27.	P. 663813	25 October 1982
28.	P. 663814	25 October 1982
29.	P. 663815	25 October 1982
30.	P. 663816	25 October 1982
31.	P. 663817	25 October 1982
32.	P. 663818	25 October 1982
33.	P. 683355	25 October 1982
34.	P. 663295	25 October 1982
35.	P. 663907	12 November 1982
36.	P. 663908	12 November 1982
37.	P. 663909	12 November 1982
38.	P. 663910	12 November 1982
39.	P. 663911	12 November 1982
40.	P. 663912	12 November 1982
41.	P. 663913	12 November 1982
42.	P. 663914	12 November 1982
43.	P. 663915	12 November 1982
44.	P. 663916	12 November 1982
45.	P. 683356	26 November 1982
46.	P. 683357	26 November 1982
47.	P. 683358	26 November 1982
48.	P. 683359	26 November 1982
49.	P. 683360	26 November 1982
50.	P. 683361	26 November 1982
51.	P. 683362	26 November 1982
52.	P. 758257	13 May 1983
53.	P. 758258	13 May 1983

54.	P.	758259	13	May	1983
55.	P.	758260	13	May	1983
56.	P.	758261	13	May	1983
57.	P.	758262	13	May	1983
58.	P.	758263	13	May	1983
59.	P.	758264	13	May	1983
60.	P.	758265	13	May	1983
61.	P.	758266	13	May	1983
62.	P.	758267	13	May	1983
63.	P.	758268	13	May	1983
64.	P.	758269	13	May	1983
65.	P.	758270	13	May	1983
66.	P.	758271	13	May	1983
67.	P.	758272	13	May	1983
68.	P.	758273	13	May	1983
69.	P.	758274	13	May	1983
70.	P.	758275	13	May	1983
71.	P.	758276	13	May	1983
72.	P.	758402	17	May	1983
73.	P.	758403	17	May	1983
74.	P.	758404	17	May	1983
75.	P.	758405	17	May	1983
76.	P.	758406	17	May	1983
77.	P.	758407	17	May	1983
78.	P.	758408	17	May	1983
79.	P.	758409	17	May	1983
80.	P.	758410	17	May	1983
81.	P.	758411	17	May	1983
82.	P.	758412	17	May	1983
83.	P.	758413	17	May	1983
84.	P.	758414	17	May	1983
85.	P.	758415	17	May	1983
86.	P.	758416	17	May	1983
87.	P.	758417	17	May	1983
88.	P.	758418	17	May	1983
89.	P.	758419	17	May	1983
90.	P.	758420	17	May	1983
91.	P.	758421	17	May	1983
92.	P.	758422	17	May	1983
93.	P.	758423	17	May	1983
94.	P.	758424	17	May	1983
95.	P.	758425	17	May	1983
96.	P.	758426	17	May	1983
97.	P.	758427	17	May	1983
98.	P.	758428	17	May	1983
99.	P.	758429	17	May	1983
100.	P.	758430	17	May	1983
101.	P.	758431	17	May	1983
102.	P.	758432	17	May	1983
103.	P.	758433	17	May	1983
104.	P.	758434	17	May	1983
105.	P.	758435	17	May	1983
106.	P.	758436	17	May	1983
107.	P.	758437	17	May	1983
108.	P.	758438	17	May	1983
109.	P.	758439	17	May	1983
110.	P.	758440	17	May	1983
111.	P.	749821	14	September	1983
112.	P.	749822	14	September	1983
113.	P.	749823	14	September	1983

114.	P. 749824	14 September 1982
115.	P. 749825	14 September 1982
116.	P. 749826	14 September 1982
117.	P. 749827	14 September 1982
118.	P. 749828	14 September 1982
119.	P. 749829	14 September 1982
120.	P. 749830	14 September 1982
121.	P. 750016	14 September 1982
122.	P. 750017	14 September 1982
123.	P. 750018	14 September 1982
124.	P. 750019	14 September 1982
125.	P. 750020	14 September 1982
126.	P. 752187	14 September 1982
127.	P. 752188	14 September 1982
128.	P. 663467	26 November 1982
129.	P. 663468	26 November 1982
130.	P. 663469	26 November 1982
131.	P. 663470	26 November 1982
132.	P. 663471	26 November 1982
133.	P. 663472	26 November 1982
134.	P. 663473	26 November 1982
135.	P. 663474	26 November 1982

136.	P.	725197	28	June	1983
137.	P.	725198	28	June	1983
138.	P.	725199	28	June	1983
139.	P.	725200	28	June	1983
140.	P.	725202	28	June	1983
141.	P.	725203	28	June	1983
142.	P.	725204	28	June	1983
143.	P.	725205	28	June	1983
144.	P.	725206	28	June	1983
145.	P.	725207	28	June	1983
146.	P.	725208	28	June	1983
147.	P.	725209	28	June	1983
148.	P.	725210	28	June	1983
149.	P.	725211	28	June	1983
150.	P.	725212	28	June	1983
151.	P.	725213	28	June	1983
152.	P.	725214	28	June	1983
153.	P.	725215	28	June	1983
154.	P.	725216	28	June	1983
155.	P.	725217	28	June	1983
156.	P.	725218	28	June	1983
157.	P.	725219	28	June	1983
158.	P.	725220	28	June	1983
159.	P.	725221	28	June	1983
160.	P.	725222	28	June	1983
161.	P.	725223	28	June	1983
162.	P.	725224	28	June	1983
163.	P.	725225	28	June	1983
164.	P.	725226	28	June	1983
165.	P.	725227	28	June	1983
166.	P.	725228	28	June	1983
167.	P.	725229	28	June	1983
168.	P.	725240	28	June	1983
169.	P.	725241	28	June	1983
170.	P.	725242	28	June	1983
171.	P.	725243	28	June	1983
172.	P.	725244	28	June	1983
173.	P.	725245	28	June	1983
174.	P.	725246	28	June	1983
175.	P.	725247	28	June	1983
176.	P.	725248	28	June	1983
177.	P.	725249	28	June	1983
178.	P.	725250	28	June	1983
179.	P.	725251	28	June	1983
180.	P.	725252	28	June	1983
181.	P.	725253	28	June	1983
182.	P.	725254	28	June	1983
183.	P.	725255	28	June	1983
184.	P.	725256	28	June	1983
185.	P.	714952	17	May	1983
186.	P.	714956	28	June	1983
187.	P.	714957	28	June	1983
188.	P.	764414	17	May	1983
189.	P.	764415	17	May	1983
190.	P.	764416	17	May	1983
191.	P.	764417	17	May	1983
192.	P.	758817	17	May	1983
193.	P.	758818	17	May	1983
194.	P.	758819	17	May	1983
195.	P.	758820	17	May	1983
196.	P.	758851	17	May	1983

MAY 24, 84

1984 05 03

Your File: 416/83  
Our File: 2.6274

Mr. Bruce W. Hanley  
Mining Recorder  
Ministry of Natural Resources  
60 Wilson Avenue  
Timmins, Ontario  
P8N 2S7

Dear Sir:

RE: Airborne Geophysical (Electromagnetic,  
Magnetometer, V.L.F. & Resistivity) Survey  
submitted on Mining Claims P641730 et al  
in the Township of Fallon.

Please disregard the approval for assessment work credits for the above mentioned survey. It was approved on April 3, 1984 in error. No credits may be allowed for the Resistivity Survey when credits have been requested for the Electromagnetic survey, as an airborne Resistivity survey is a direct calculated derivative of an airborne Electromagnetic survey.

Enclosed is a Notice of Intent. I sincerely apologise for any inconvenience this error may have caused.  
Yours sincerely,

S.E. Yundt  
Director  
Land Management Branch

Whitney Block, Room 6643  
Queen's Park  
Toronto, Ontario  
M7A 1W3  
Phone: (416)965-6918

D. Kinvig:sc

cc: Mr. David Meunier  
403 Dome Street  
P.O. Box 1624  
South Porcupine, Ontario



Ministry of  
Natural  
Resources

Your file: 416/83

1984 05 03

Our file: 2.6274

Mr. Bruce W. Hanley  
Mining Recorder  
Ministry of Natural Resources  
60 Wilson Avenue  
Timmins, Ontario  
P4N 2S7

Dear Sir:

Enclosed are two copies of a Notice of Intent with statements listing a reduced rate of assessment work credits to be allowed for a technical survey. Please forward one copy to the recorded holder of the claims and retain the other. In approximately fifteen days from the above date, a final letter of approval of these credits will be sent to you. On receipt of the approval letter, you may then change the work entries on the claim record sheets.

For further information, if required, please contact Mr. F.W. Matthews at 416/965-6918.

Yours very truly,

A handwritten signature in cursive script, appearing to read "S.E. Yundt".

S.E. Yundt  
Director  
Land Management Branch

Whitney Block, Room 6643  
Queen's Park  
Toronto, Ontario  
M7A 1W3  
Phone: 416/965-1316

*JK* D. Kinvig:sc  
Encls.

cc: Mr. David Meunier  
403 Dome Street  
P.O. Box 1624  
South Porcupine, Ontario

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



Ministry of  
Natural  
Resources

Ontario

Notice of Intent  
for Technical Reports

1984 05 03

Your File: 416/83

Our File : 2.6274

An examination of your survey report indicates that the requirements of The Ontario Mining Act have not been fully met to warrant maximum assessment work credits. This notice is merely a warning that you will not be allowed the number of assessment work days credits that you expected and also that in approximately 15 days from the above date, the mining recorder will be authorized to change the entries on his record sheets to agree with the enclosed statement. Please note that until such time as the recorder actually changes the entry on the record sheet, the status of the claim remains unchanged.

If you are of the opinion that these changes by the mining recorder will jeopardize your claims, you may during the next fifteen days apply to the Mining and Lands Commissioner for an extension of time. Abstracts should be sent with your application.

If the reduced rate of credits does not jeopardize the status of the claims then you need not seek relief from the Mining and Lands Commissioner and this Notice of Intent may be disregarded.

If your survey was submitted and assessed under the "Special Provision-Performance and Coverage" method and you are of the opinion that a re-appraisal under the "Man-days" method would result in the approval of a greater number of days credit per claim, you may, within the said fifteen day period, submit assessment work breakdowns listing the employees names, addresses and the dates and hours they worked. The new work breakdowns should be submitted direct to the Land Management Branch, Toronto. The report will be re-assessed and a new statement of credits based on actual days worked will be issued.



2.6274

Instructions: - Please type or print.  
- If number of mining claims traversed exceeds space on this form, attach a list.  
Note: - Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.  
- Do not use shaded areas below.

416/83  
Replacing WRH  
The Mining Act 329

Revised

Type of Survey(s): **Airborne magnetic, VLF EM Resistivity, electromagnetic** Township or Area: **Fallon**

Claim Holder(s): **David J. Munner** Prospector's Licence No.: **M-17157**

Address: **403 Dome St. P.O. 1624, South Porcupine, ON P0N1H0**

Survey Company: **Dishem** Date of Survey (from & to): **25 10 83 to 29 10 83** Total Miles of line Cut: \_\_\_\_\_

Name and Address of Author (of Geo-Technical report): **Z. Dvorak, Suite 7010, First Canadian Place Toronto, ON**

Credits Requested per Each Claim in Columns at right

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic	
	- Magnetometer	
For each additional survey: using the same grid:	- Radiometric	
Enter 20 days (for each)	- Other	
	Geological	
	Geochemical	

Man Days	Geophysical	Days per Claim
Complete reverse side and enter total(s) here	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	

Airborne Credits	Geophysical	Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	16
	VLF EM	16
	Magnetometer	16
	Resistivity	16
	Radiometric	16

RECEIVED  
FEB 3 1984  
MINING LANDS

Mining Claims Traversed (List in numerical sequence)

Mining Claim		Expend. Days Cr.	Mining Claim		Expend. Days Cr.
Prefix	Number		Prefix	Number	
P.	663010		P.	641734	✓
	663011			661936	✓
	663012			749821	
	663013			749822	
	663014			749823	
	663015			749824	
	663016			749825	
	663017			749826	
	663018			749827	
	663355			749828	
	663295			749829	
	663467			749830	
	663468			750016	
	663468			750017	
	663470			750018	
	663471	✓		750019	
	663472	✓		750020	
	663473	✓		752187	
	663474	✓		752188	
	641730	✓		725232	
	641731	✓		725233	
	641732	✓		725234	
	641733	✓		725235	

64 days Total Claim

600 Mining Claims

Expenditures (excludes power stripping)

Type of Work Performed: **RECORDED**

Performed on Claim(s): **NOV 14 1983**

Receipt No. \_\_\_\_\_

Calculation of Expenditure Days Credits

Total Expenditures \$ \_\_\_\_\_ ÷ 15 = Total Days Credits \_\_\_\_\_

Instructions: Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Date: **13 Jan 84** Recorded Holder or Agent (Signature): **[Signature]**

For Office Use Only

Total Days Cr. Recorded: **2,944** Date Recorded: **Nov 14/83** Mining Order: **[Signature]**

Date Approved as Recorded: **84.1.13** Mining Order: **[Signature]**

Total number of mining claims covered by this report of work: **46**

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying: **R. F. Bowen**

Date Certified: **13 Jan 84** Certified by (Signature): **[Signature]**



**Report of Work**  
(Geophysical, Geological,  
Geochemical and Expenditures)

Instructions: - Please type or print.  
- If number of mining claims traversed exceeds space on this form, attach a list.  
Note: - Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.  
- Do not use shaded areas below.

# 418  
*Replacing W.R.*  
The Mining Act # 330

*Revised*

Type of Survey(s) **Airborne magnetic, VLF EM, Resistivity, Electromagnetic** Township or Area **Fallon**

Claim Holder(s) **David J. Meunier** Prospector's Licence No. **M-17157**

Address **403 Dome St., P.O. Box 1624, South Porcupine, ON P0N 1H0**

Survey Company **Digheem** Date of Survey (from & to) **25 10 83 29 10 83** Total Miles of line Cut

Name and Address of Author (of Geo-Technical report) **Z. Drorak Suite 7010, First Canadian Place, Toronto, ON**

Credits Requested per Each Claim in Columns at right

Mining Claims Traversed (List in numerical sequence)

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic	
	- Magnetometer	
For each additional survey: using the same grid: Enter 20 days (for each)	- Radiometric	
	- Other	
	Geological	
	Geochemical	
Man Days	Geophysical	Days per Claim
Complete reverse side and enter total(s) here	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	
Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	16
	VLF EM	16
	Magnetometer	16
	Resistivity	16
	Radiometric	16

Mining Claim			Mining Claim		
Prefix	Number	Expend. Days Cr.	Prefix	Number	Expend. Days Cr.
P.	654191		P.	683361	
	654192			683362	
	654193			758257	
	654194			758258	
	654195			758259	
	654196			758260	
	654197			758261	
	654198			758262	
	663907			758263	
	663908			758264	
	663909			758265	
	663910			758266	
	663911			758267	
	663912			758268	
	663913			758269	
	663914			758270	
	663915			758271	
	663916			758272	
	683356			758273	
	683357			758274	
	683358			758275	
	683359			758276	
	683360			663009	

**RECEIVED**  
**FEB 10 1984**  
**MINING LANDS**

*16 days total per claim*

*See index attached*

Total number of mining claims covered by this report of work. **46**

Expenditures (excludes power stripping)

Type of Work Performed **RECORDED**

Performed on Claim(s) **NOV 14 1983**

Calculation of Expenditure Days Credits

Total Expenditures \$  ÷ **15** = Total Days Credits

Instructions  
Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

For Office Use Only

Total Days Cr. Recorded **2944** Date Recorded **Nov 14 1983** Mining Recorder **[Signature]**

Date Approved as Recorded **8/1/84** Mining Director **[Signature]**

Date **13 Jan 84** Recorded Holder or Agent (Signature) **[Signature]**

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying **R.P. Bowen**

**P.O. Box 5010 PMS, South Porcupine, ON**

Date Certified **13 Jan 84** Certified by (Signature) **[Signature]**



**Report of Work**  
(Geophysical, Geological,  
Geochemical and Expenditures)

Instructions: - Please type or print.  
- If number of mining claims traversed exceeds space on this form, attach a list.  
Note: - Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.  
Do not use shaded areas below.

#419/83  
Replacing  
The Mining Act W.R.# 331

Type of Survey(s) Airborne magnetic, VLF EM, Resistivity, Electromagnetic Township or Area Fallon

Claim Holder(s) David J. Mennier Prospector's Licence No. M-17157

Address 403 403 St. P.O. Box 1624, South Porcupine ON P0N 1K0

Survey Company Digheem Date of Survey (12pm & up) 25 10 83 Total Miles of line Cut

Name and Address of Author (of Geo-Technical report) Z. Dvorak, Suite 7010, First Canadian Place, Toronto, ON

Credits Requested per Each Claim in Columns at right

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
For each additional survey: using the same grid: Enter 20 days (for each)	Geological	
	Geochemical	
	Geophysical	
	Days per Claim	
Man Days Complete reverse side and enter total(s) here	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
Airborne Credits Note: Special provisions credits do not apply to Airborne Surveys.	Geological	
	Geochemical	
	Electromagnetic	16
	VLF EM	16
Magnetometer	16	
Resistivity	16	
Radiometric	16	

Mining Claims Traversed (List in numerical sequence)

Mining Claim		Expend. Days Cr.	Mining Claim		Expend. Days Cr.
Prefix	Number		Prefix	Number	
P.	758 440				
	653908				
	653909				
	653259				
	653260				
	653261				
	653262				
	641742				
	<del>714743</del>				
	714 952 ✓				
	714 956				
	714957				

RECORDED  
FEB 3 1984

MINING LANDS SECTION

Total number of mining claims covered by this report of work. **12**

Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s) REC-100-100

NOV 14 1983

Calculation of Expenditure Days Credits

Total Expenditure 15 + 15 = 30 Total Days Credits

Instructions  
Total Days' Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

For Office Use Only

Total Days Cr. Recorded 168 Date Recorded Nov 14 1983 Mining Recorder [Signature]

Date Approved 11/13/83 Recording Recorder [Signature]

Date 13 Jan 84 Recorder, Holder or Agent (Signature) [Signature]

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying R.J. Bowen

P.O. Box 5010 PMS, South Porcupine ON P0N 1K0

Date Certified 13 Jan 84 Certified by (Signature) [Signature]



**Report of Work**  
(Geophysical, Geological,  
Geochemical and Expenditures)

Instructions: - Please type or print.  
- If number of mining claims traversed exceeds space on this form, attach a list.  
Note: - Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.  
- Do not use shaded areas below.

# 415/83

Replaces WR # 332/83  
The Mining Act

Revised 2.6274

Type of Survey(s) Airborne magnetic, VLFEM, Resistivity, electromagnetic Township or Area Fallon

Claim Holder(s) David J. Munier Prospector's Licence No. M-17157

Address 403 Dome St, P.O. Box 1624 South Porcupine, ON

Survey Company Digheem Date of Survey (from & to) 25 10 83 to 20 10 83 Total Miles of line Cut

Name and Address of Author (of Geo-Technical report) E. Dvorak, Suite 7010, First Canadian Place, Toronto, ON

Credits Requested per Each Claim in Columns at right

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic	
	- Magnetometer	
For each additional survey: using the same grid: Enter 20 days (for each)	- Radiometric	
	- Other	
	Geological	
	Geochemical	
Man Days	Geophysical	Days per Claim
Complete reverse side and enter total(s) here	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	
Airborne Credits	Geophysical	Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	- Electromagnetic	15
	- VLFEM	16
	- Magnetometer	16
	- Resistivity	16
	- Radiometric	16

Mining Claims Traversed (List in numerical sequence)

Mining Claim		Expend. Days Cr.	Mining Claim		Expend. Days Cr.
Prefix	Number		Prefix	Number	
P.	758818		P.	758417	
	758819			758418	
	758820			758419	
	758821			758420	
	764414			758421	
	764415			758422	
	764416			758423	
	764417			758424	
	758402			758425	
	758403			758426	
	758404			758427	
	758405			758428	
	758406			758429	
	758407			758430	
	758408			758431	
	758409			758432	
	758410			758433	
	758411			758434	
	758412			758435	
	758413			758436	
	758414			758437	
	758415			758438	
	758416			758439	

Expenditures (excludes power stripping)

Type of Work Performed **RECORDED**

Performed on Claim(s) **NOV 14 1983**

Calculation of Expenditures: Days Credits

Total Expenditures \$  ÷ 15 =  Total Days Credits

Instructions: Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Date 13 Jan 84 Recorder, Holder or Agent (Signature) [Signature]

For Office Use Only

Total Days Cr. Recorded 2,944 Date Recorded Nov 14 1983 Mining Recorder [Signature]

Date Approved [Signature] Date of Approval [Signature]

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying R.P. Bowen

P.O. Box 5010, PMS, South Porcupine ON Date Certified 15 Jan 84 Certified by (Signature) [Signature]



**Report of Work**  
(Geophysical, Geological,  
Geochemical and Expenditures)

Instructions: - Please type or print.  
- If number of mining claims traversed exceeds space on this form, attach a list.  
Note: - Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.  
Do not use shaded areas below.

# 417/83  
Replacing  
The Mining Act WR# 337/83

Revised

Type of Survey(s) Airborne magnetic, VLF EM, resistivity, electromagnetic Township or Area Fallon  
 Claim Holder(s) David J. Mennier Prospector's Licence No. M-17157  
 Address 403 Dome St., P.O. Box 1624, South Porcupine, ON P0N1H0  
 Survey Company Dishem Date of Survey (from to) 25 10 83 29 10 83 Total Miles of line Cut \_\_\_\_\_  
 Name and Address of Author (of Geo-Technical report) Z. Dvorak, Suite 7010, First Canadian Place, Toronto, ON

Credits Requested per Each Claim in Columns at right

Mining Claims Traversed (List in numerical sequence)

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic	
	- Magnetometer	
For each additional survey: using the same grid: Enter 20 days (for each)	- Radiometric	
	- Other	
	Geological	
	Geochemical	

Man Days	Geophysical	Days per Claim
Complete reverse side and enter total(s) here	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	

Airborne Credits	Electromagnetic	Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	VLF EM	16
	Magnetometer	16
	Resistivity	16

Mining Claim		Expend. Days Cr.	Mining Claim		Expend. Days Cr.
Prefix	Number		Prefix	Number	
P.	725236		P.	725199	
	725237			725200	
	725238			725202	
	725239			725203	
	725240			725204	
	725241			725205	
	725242			725206	
	725243			725207	
	725244			725208	
	725245			725209	
	725246			725210	
	725247			725211	
	725248			725212	
	725249			725213	
	725250			725214	
	725251			725215	
	725252			725216	
	725253			725217	
	725254			725218	
	725255			725219	
	725256			725220	
	725197			725221	
	725198			758817	

RECEIVED  
FEB 3 1984  
MINING LANDS SECTION

63 days  
Total  
claim

See page 2  
attached

Total number of mining claims covered by this report of work. **46**

Expenditures (excludes power stripping)

Type of Work Performed NOV 14 1983

Performed on Claim(s) \_\_\_\_\_  
Receipt No. \_\_\_\_\_

Calculation of Expenditure Days Credits

Total Expenditures \$ \_\_\_\_\_ ÷ 15 = Total Days Credits \_\_\_\_\_

Instructions  
Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

For Office Use Only

Total Days Cr. Recorded 2,944 Date Recorded Nov 14/83 Mining Record [Signature]

Date approved by recorder [Signature]

Date 13 Jan 84 Reported Holder or Agent (Signature) [Signature]

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying R.P. Bowen

P.O. Box 5010 PM S, South Porcupine, ON P0N1H0 Date Certified 13 Jan 84 Certifying (Signature) [Signature]



Mining Lands Comments

~~maps require claim numbers~~

To: Geophysics Mr. R. Barlow.

Comments

Approved  Wish to see again with corrections Date 13/2/84 Signature

To: Geology - Expenditures

Comments

Approved  Wish to see again with corrections Date Signature

To: Geochemistry

Comments

L.D.

Approved  Wish to see again with corrections Date Signature

To: Mining Lands Section, Room 6462, Whitney Block. (Tel: 5-1380)

1984 01 19

Your File: 329, 330, 331,  
332, 333.

Our File : 2.6274

Mining Recorder  
Ministry of Natural Resources  
60 Wilson Avenue  
Timmins, Ontario  
P4N 2S7

Dear Sir:

We have received reports and maps for an Airborne Geophysical (Electromagnetic & Magnetometer) Survey submitted on Mining Claims P 663010 et al in the Township of Fallon.

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

Yours very truly,

J.R. Morton  
Acting Director  
Land Management Branch

Whitney Block, Room 6643  
Queen's Park  
Toronto, Ontario  
M7A 1W3

A. Barr:sc

cc: David J. Heunier  
403 Dome Street  
P.O. Box 1624  
South Porcupine, Ontario  
P0N 1H0

cc: R.P. Bowen  
P.O. Box 5010  
South Porcupine, Ontario  
P0N 1H0

Initial sheet

Jan. 26/84 M. Anderson

Assessed

Approved Reports of Work  
sent out

Notice of Intent filed

Approval after Notice of Intent  
sent out

Duplicate sent to Resident  
Geologist

Duplicate sent to A.F.R.O.

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**GEOPHYSICAL TECHNICAL DATA**

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

Number of Stations \_\_\_\_\_ Number of Readings \_\_\_\_\_  
Station interval \_\_\_\_\_ Line spacing \_\_\_\_\_  
Profile scale \_\_\_\_\_  
Contour interval \_\_\_\_\_

MAGNETIC

Instrument \_\_\_\_\_  
Accuracy - Scale constant \_\_\_\_\_  
Diurnal correction method \_\_\_\_\_  
Base Station check-in interval (hours) \_\_\_\_\_  
Base Station location and value \_\_\_\_\_  
\_\_\_\_\_

ELECTROMAGNETIC

Instrument \_\_\_\_\_  
Coil configuration \_\_\_\_\_  
Coil separation \_\_\_\_\_  
Accuracy \_\_\_\_\_  
Method:  Fixed transmitter  Shoot back  In line  Parallel line  
Frequency \_\_\_\_\_  
(specify V.L.F. station)  
Parameters measured \_\_\_\_\_

GRAVITY

Instrument \_\_\_\_\_  
Scale constant \_\_\_\_\_  
Corrections made \_\_\_\_\_  
\_\_\_\_\_  
Base station value and location \_\_\_\_\_  
\_\_\_\_\_  
Elevation accuracy \_\_\_\_\_

INDUCED POLARIZATION  
RESISTIVITY

Instrument \_\_\_\_\_  
Method  Time Domain  Frequency Domain  
Parameters - On time \_\_\_\_\_ Frequency \_\_\_\_\_  
- Off time \_\_\_\_\_ Range \_\_\_\_\_  
- Delay time \_\_\_\_\_  
- Integration time \_\_\_\_\_  
Power \_\_\_\_\_  
Electrode array \_\_\_\_\_  
Electrode spacing \_\_\_\_\_  
Type of electrode \_\_\_\_\_

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) Diphen III electromagnetic, magnetic, resistivity & VLF EM

Instrument(s) Sonotek PEM 5010 magnetometer; Totem-2A VLF EM RCVR; GR-33 analog

Accuracy EM: 0.2 ppm at 900 Hz & 0.4 ppm at 7200 Hz; Mag: 1 gamma; VLF EM: 0.2%

(specify for each type of survey)

Aircraft used Astar CG-NSM turbine helicopter

Sensor altitude EM: 31m; Mag: 46m; VLF EM: 54m

Navigation and flight path recovery method Sperry radio altimeter, Geocam sequence camera

analog and digital profiles

Aircraft altitude 60m Line Spacing 200m

Miles flown over total area 155 Over claims only 79

GEOCHEMICAL SURVEY - PROCEDURE RECORD

Numbers of claims from which samples taken \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Total Number of Samples \_\_\_\_\_

Type of Sample \_\_\_\_\_  
(Nature of Material)

Average Sample Weight \_\_\_\_\_

Method of Collection \_\_\_\_\_  
\_\_\_\_\_

Soil Horizon Sampled \_\_\_\_\_

Horizon Development \_\_\_\_\_

Sample Depth \_\_\_\_\_

Terrain \_\_\_\_\_  
\_\_\_\_\_

Drainage Development \_\_\_\_\_

Estimated Range of Overburden Thickness \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SAMPLE PREPARATION

(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

General \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

ANALYTICAL METHODS

Values expressed in: per cent   
p. p. m.   
p. p. b.

Cu, Pb, Zn, Ni, Co, Ag, Mo, As, (circle)

Others \_\_\_\_\_

Field Analysis (\_\_\_\_\_ tests)

Extraction Method \_\_\_\_\_

Analytical Method \_\_\_\_\_

Reagents Used \_\_\_\_\_

Field Laboratory Analysis

No. (\_\_\_\_\_ tests)

Extraction Method \_\_\_\_\_

Analytical Method \_\_\_\_\_

Reagents Used \_\_\_\_\_

Commercial Laboratory (\_\_\_\_\_ tests)

Name of Laboratory \_\_\_\_\_

Extraction Method \_\_\_\_\_

Analytical Method \_\_\_\_\_

Reagents Used \_\_\_\_\_

General \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**RECEIVED**  
 PORCUPINE MINING DIVISION  
 JAN 13 1984  
 P.M.  
 7:8:9:10:11:12:1:2:3:4:5:6

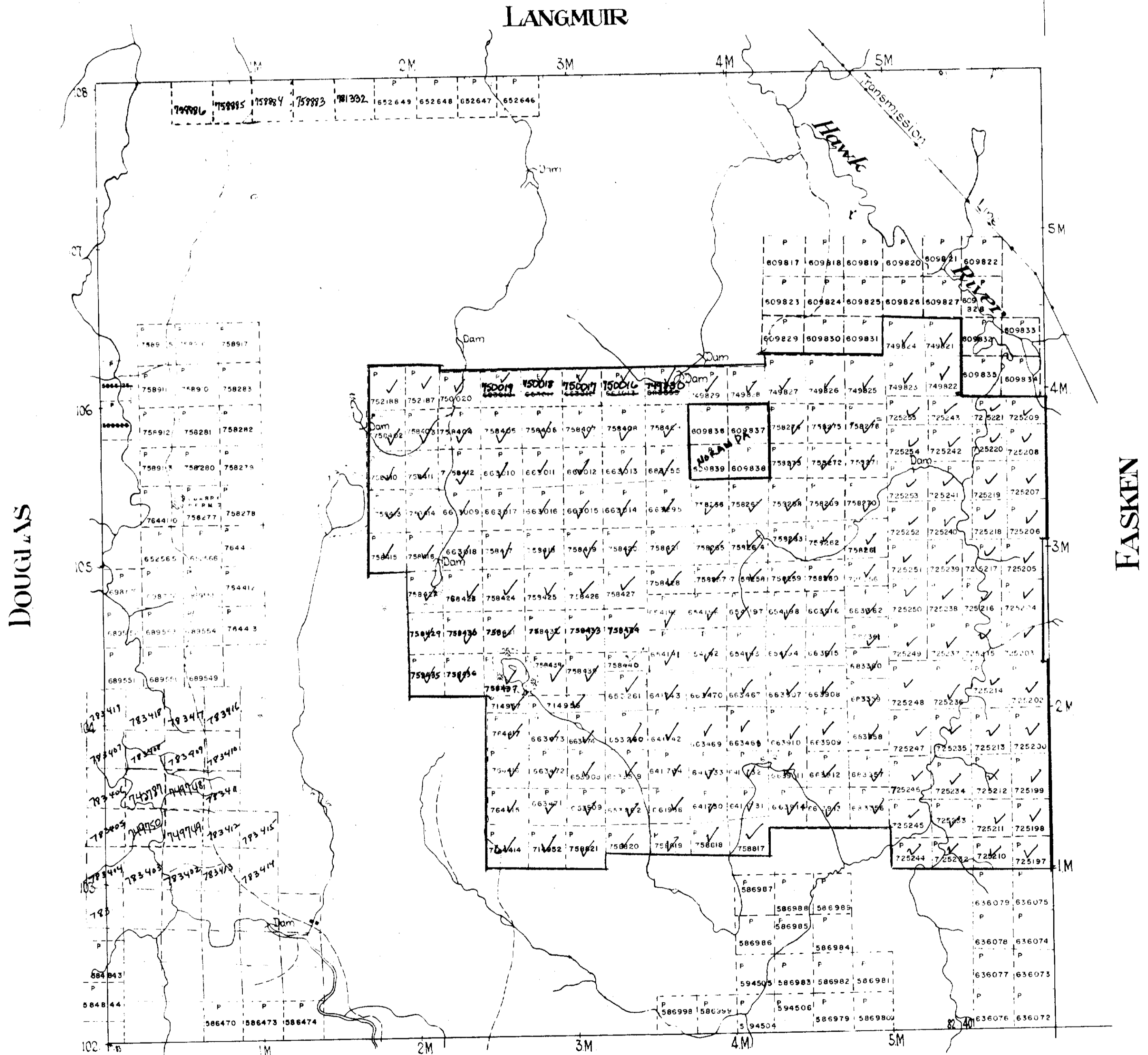
ONTARIO  
**MINISTRY OF NATURAL RESOURCES**  
 SURVEYS AND MAPPING BRANCH

# FALLON

PORCUPINE MINING DIVISION  
 DISTRICT OF TIMISKAMING

**M.278**  
 ONTARIO  
**MINISTRY OF NATURAL RESOURCES**  
 SURVEYS AND MAPPING BRANCH

Scale - 40 Chains - 1 Inch 26274



DOUGLAS

FASKEN

**LEGEND**

- |                       |      |
|-----------------------|------|
| CANCELLED             | ⊙    |
| PATENTED LAND         | ⊙    |
| CROWN LAND SALE       | C.S. |
| LEASES                | ⊙    |
| LOCATED LAND          | LUC  |
| LICENSE OF OCCUPATION | L.O. |
| MINING RIGHTS ONLY    | MRO  |
| SURFACE RIGHTS ONLY   | SRO  |

**CLEAVER**

400' Surface rights reservation around all lakes & rivers.

MEUNIER CLAIMS



ONTARIO  
MINISTRY OF NATURAL RESOURCES  
SURVEYS AND MAPPING BRANCH

M278

# FALLON

MINISTRY OF NATURAL RESOURCES  
SURVEYS AND MAPPING BRANCH

RESOURCES

PORCUPINE MINING DIVISION  
DISTRICT OF TIMISKAMING

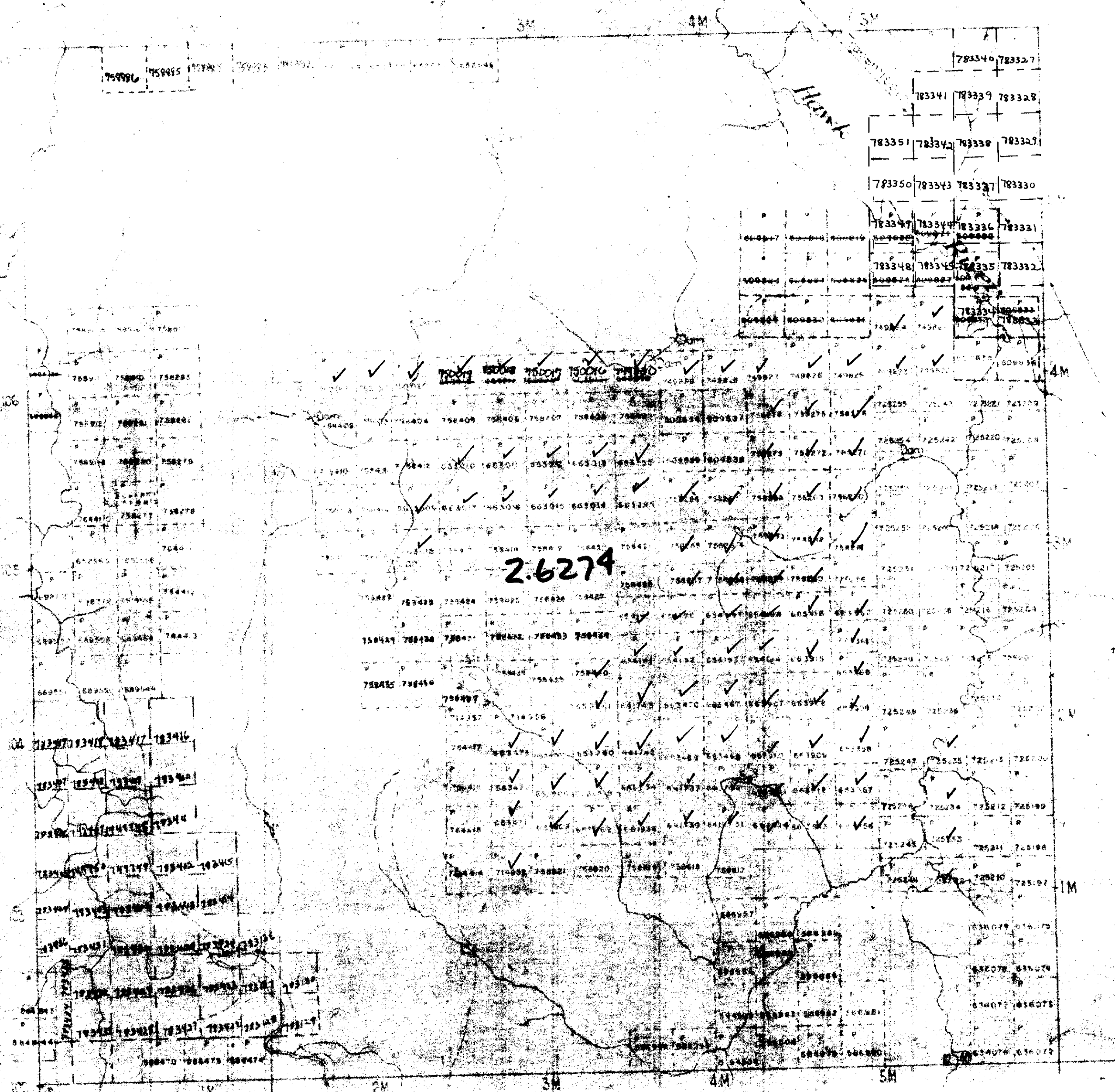
Scale - 40 Chains - 1 inch

LANGMUIR

20/10/84

DOUGLAS

PASKIN



### LEGEND

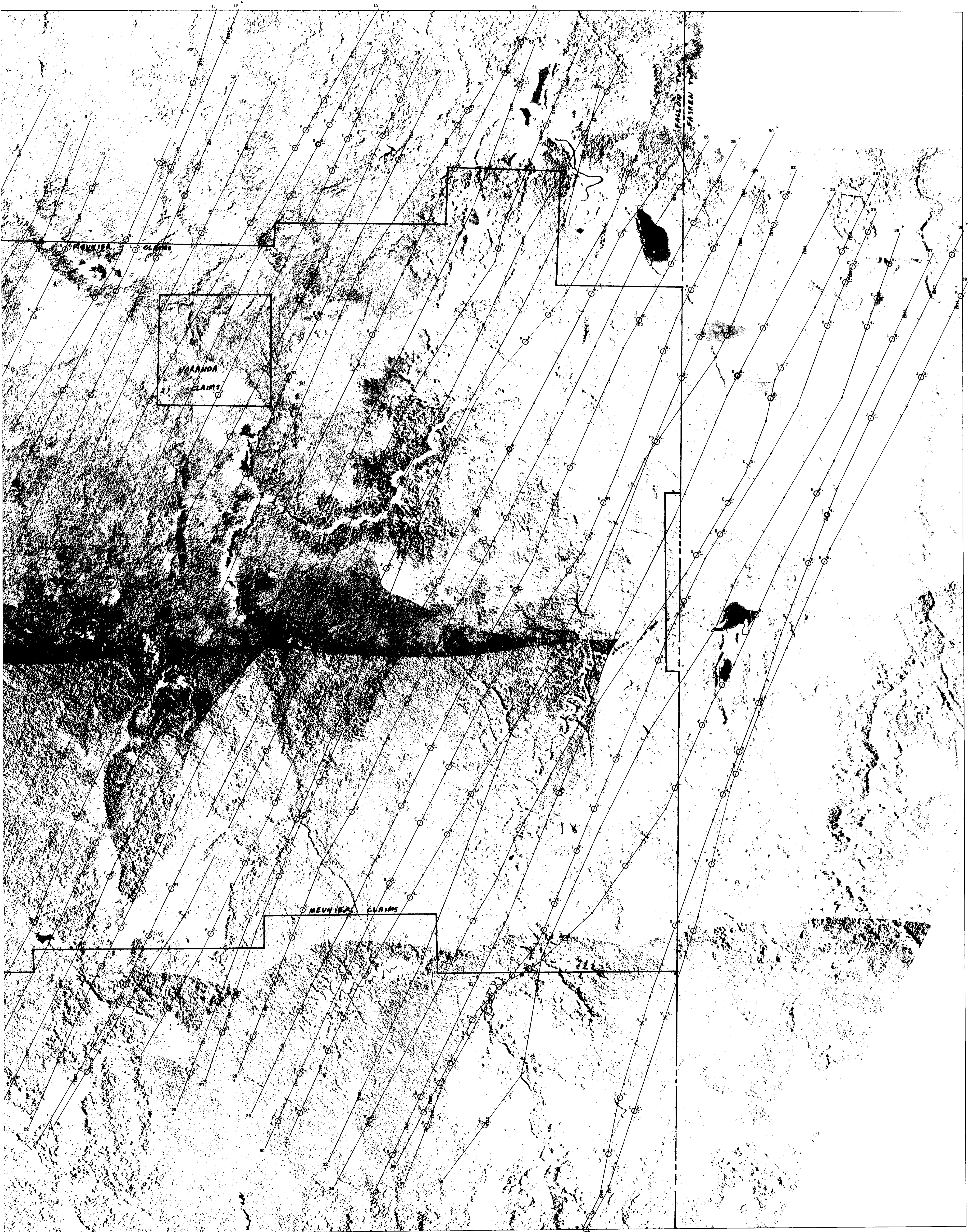
- |                       |        |
|-----------------------|--------|
| CANCELLED             | C      |
| PATENTED LAND         | ⊙      |
| CROWN LAND SALE       | C.S.   |
| LEASAS                | ⊕      |
| LOCATED LAND          | L.V.C. |
| LICENSE OF OCCUPATION | L.O.   |
| MINING RIGHTS OWNER   | M.Y.O. |
| SURFACE RIGHTS ONLY   | S.O.   |

CLEAVER

400 Surface rights reservation around all lakes & rivers.

January 20, 1984

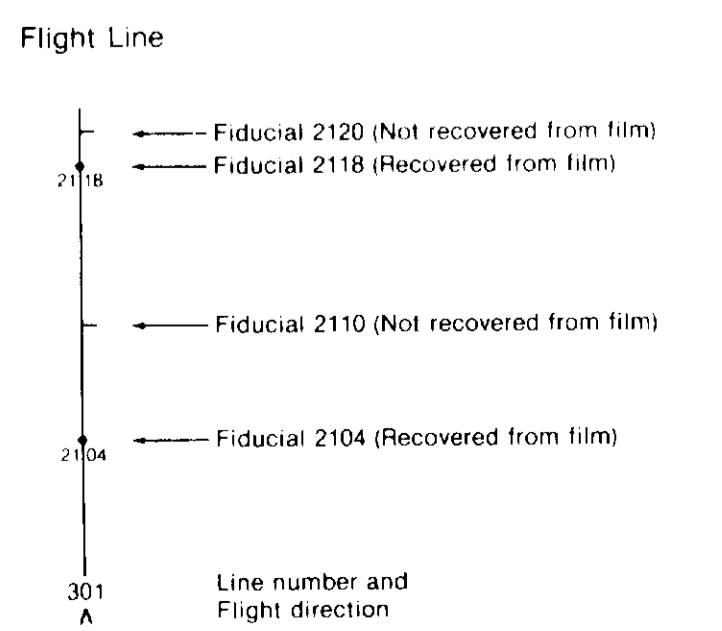




# DIGHEM<sup>III</sup> SURVEY

FALLOON TWP. ONTARIO  
ELECTROMAGNETIC ANOMALIES  
FOR  
DAVID J. MEUNIER

Scale 1:10,000  
1 Kilometres  
1.2 Miles



ANOMALY GRADE	EM GRADE	CONDUCTANCE RANGE (MICRO)	SYMBOL	INTERPRETIVE SYMBOL	INTERPRETIVE SYMBOL
6	> 99		●	A	Conductor ("model")
5	50-99		●	B	Bedrock conductor
4	20-49		●	S	Conductive cover ("horizontal thin sheet")
3	10-19		●	H	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
2	5-9		○	E	Edge of broad conductor ("edge of half space")
1	5		○	L	Culture, e.g. power line, building, fence
-	Indeterminate		○		

DIGHEM anomalies are divided into six grades of conductivity: thickness product. This product in micro is a measure of conductance.

Depth is greater than:  
 15 m  
 30 m  
 45 m  
 60 m

Inphase and Quadrature of Coaxial Coil is greater than:  
 5 ppm  
 10 ppm  
 15 ppm  
 20 ppm

arcs indicate the conductor has a thickness = 10 m  
 dip direction  
 magnetic correlation in nT (gammas)  
 conductor axis  
 flight line

JOB 190	DATE DEC / 83	DRAWN BY [Signature]	CHECKED BY [Signature]
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26077

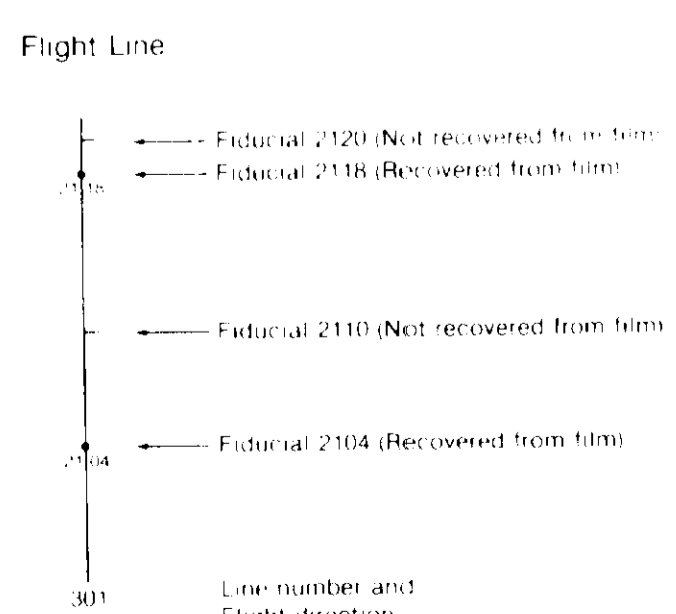


# DIGHEM<sup>III</sup> SURVEY

FALLON TWP. ONTARIO  
RESISTIVITY  
FOR  
DAVID J. MEUNIER

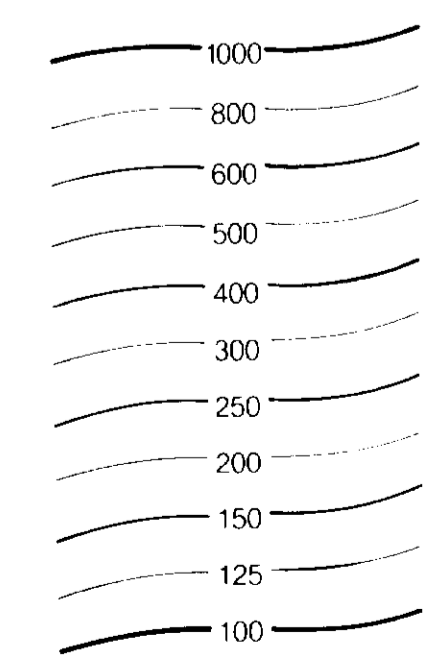


Scale 1:10,000  
1 2 0 1 2 Kilometres  
1 4 0 1 4 1 2 Miles



### LEGEND

Contours in ohm — m  
at ten intervals per decade



Note  
The numbers face in the direction of increasing value.

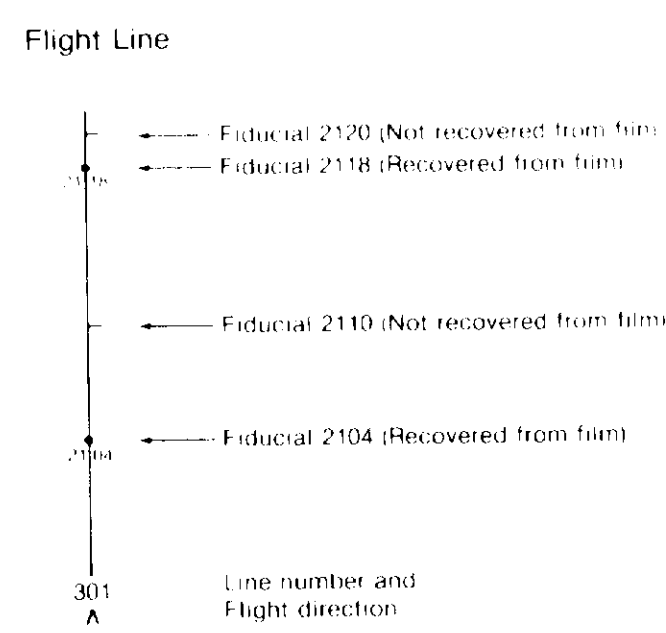
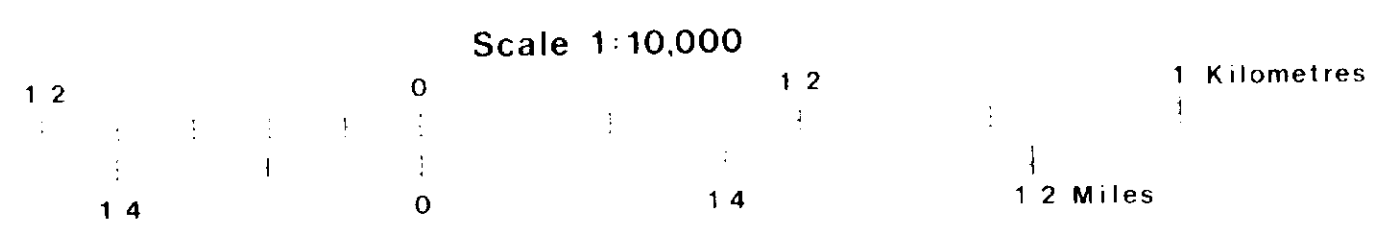
JOB 190	DATE DEC./83	DRAWN BY PA	CHECKED BY 2.2
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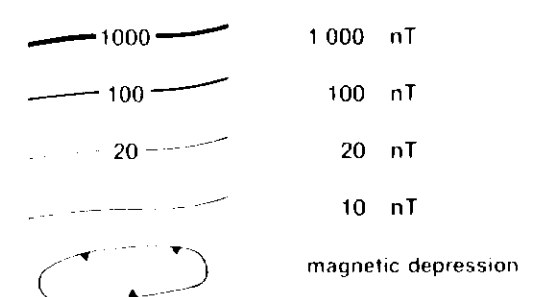


# DIGHEM<sup>III</sup> SURVEY

FALLON TWP. ONTARIO  
 TOTAL FIELD MAGNETICS  
 FOR  
 DAVID J. MEUNIER



ISOMAGNETIC LINES  
 (total field)



Magnetic Inclination within the survey area: 76°

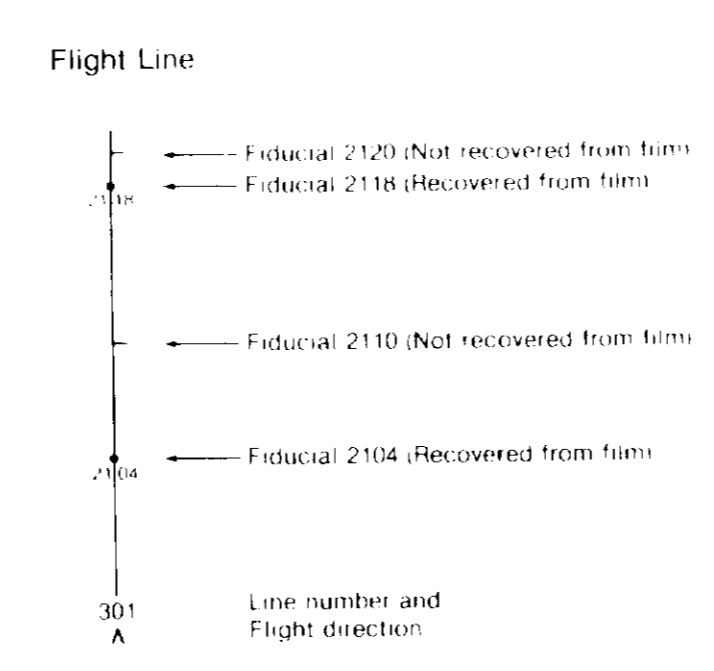
JOB 190	DATE DEC./83	DRAWN BY JM	CHECKED BY Z.D.
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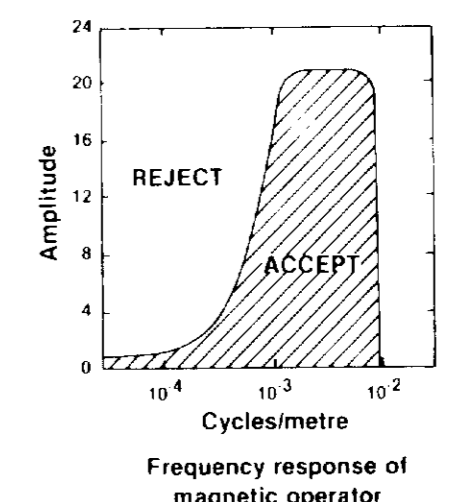
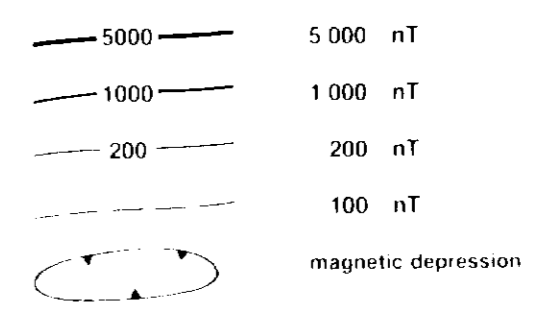
# DIGHEM<sup>III</sup> SURVEY

FALLON TWP. ONTARIO  
 ENHANCED MAGNETICS  
 FOR  
 DAVID J. MEUNIER

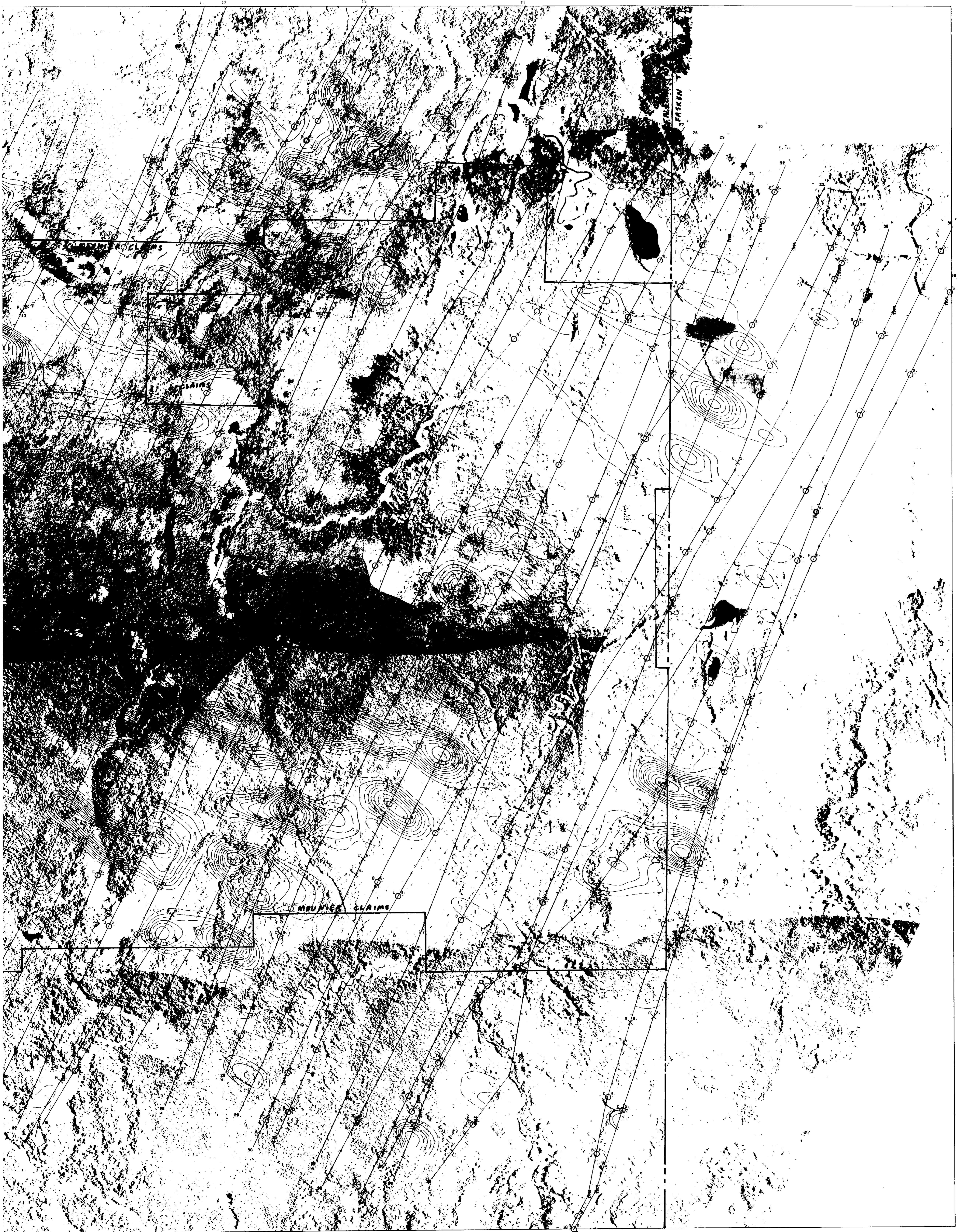
Scale 1:10,000  
 1 Kilometres  
 1.2 0 1.2  
 1.4 0 1.4 1.2 Miles



### ISOMAGNETIC LINES (enhanced field)



JOB 190	DATE DEC./83	DRAWN BY [Signature]	CHECKED BY Z.D.
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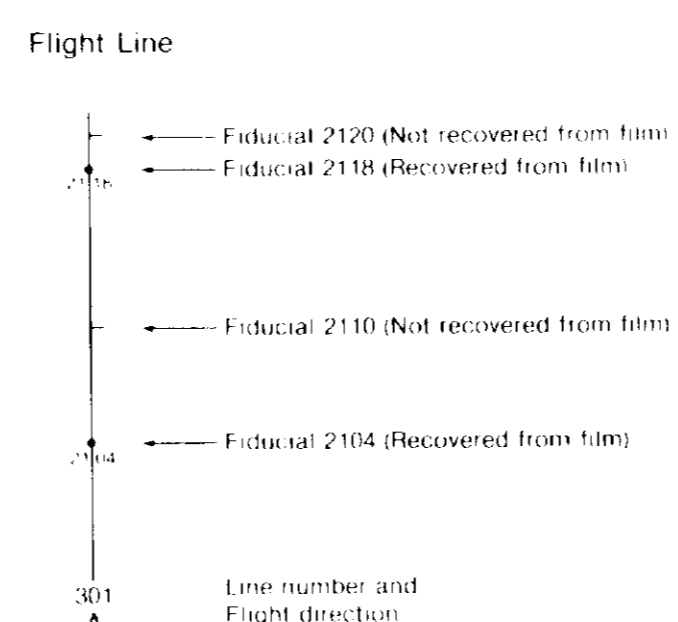
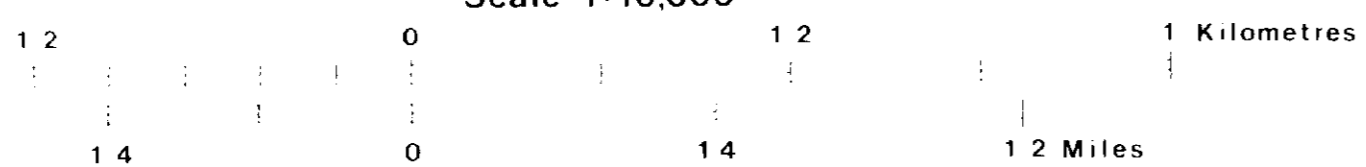


# DIGHEM<sup>III</sup> SURVEY

FALLON TWP. ONTARIO  
 FILTERED TOTAL VLF EM FIELD  
 FOR  
 DAVID J. MEUNIER



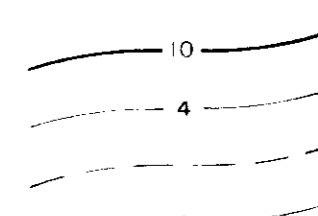
Scale 1:10,000



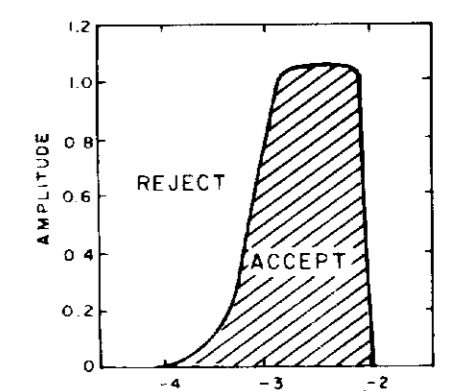
Tx NAA CUTLER, MAINE  
 f = 17.8 kHz

### LEGEND

Contours in percent

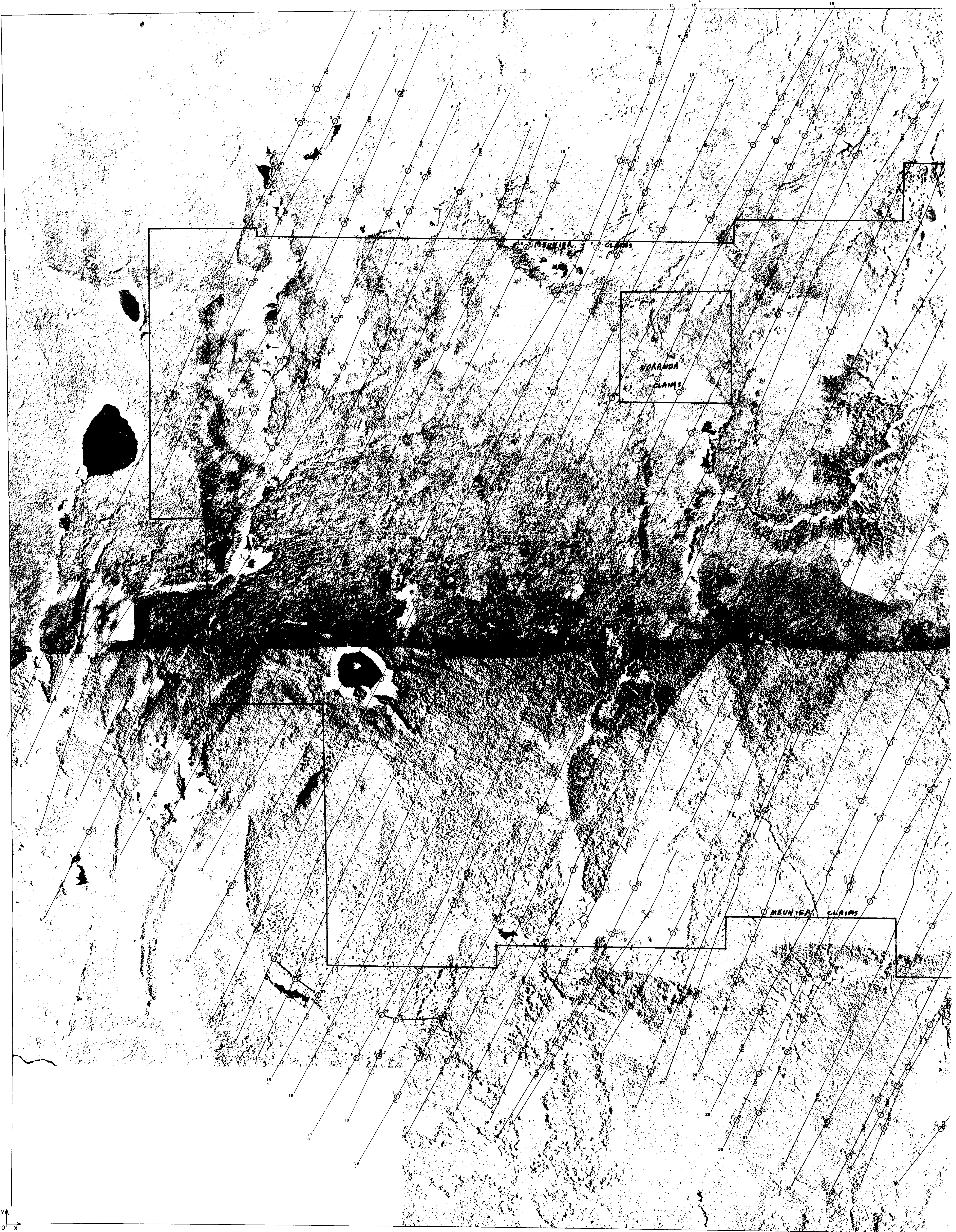


The numbers face in the direction of increasing value



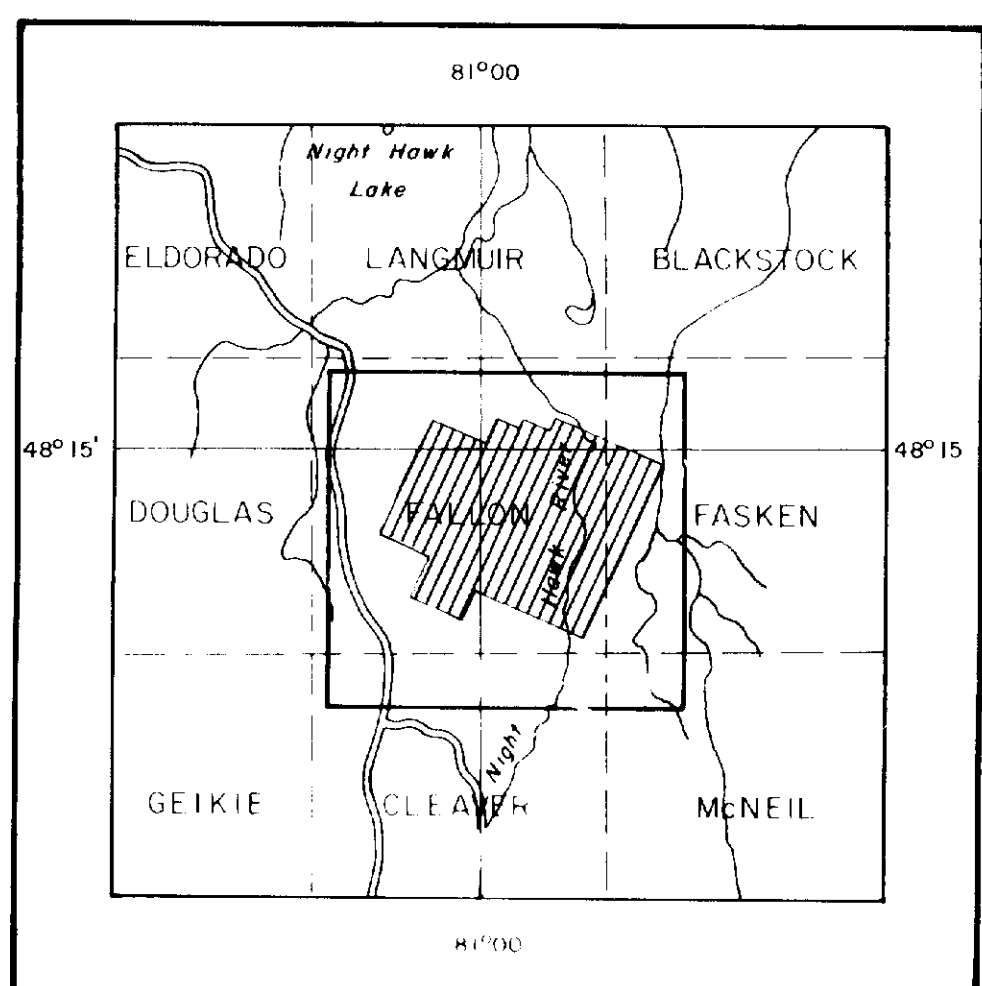
Frequency response of VLF-EM filter

JOB 190	DATE DEC./83	DRAWN BY JM	CHECKED BY [Signature]
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Y  
0  
X

LOCATION MAP



Scale 1:250,000



**DIGHEM<sup>III</sup> SURVEY**  
**FALLON TWP. ONTARIO**  
**ELECTROMAGNETIC ANOMALIES**  
**FOR**  
**DAVID J. MEUNIER**

Scale 1:10,000  
 1.2 0 1.2 1 Kilometres  
 1.4 0 1.4 1.2 Miles

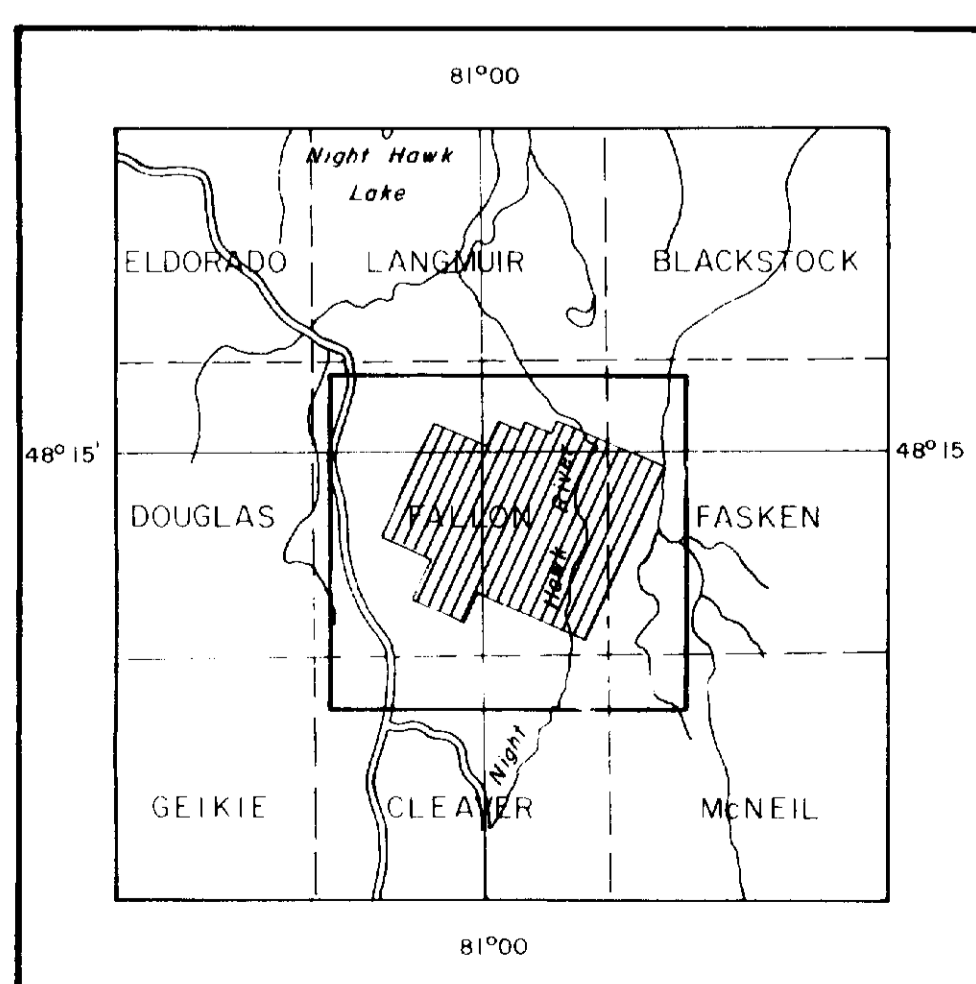
26074



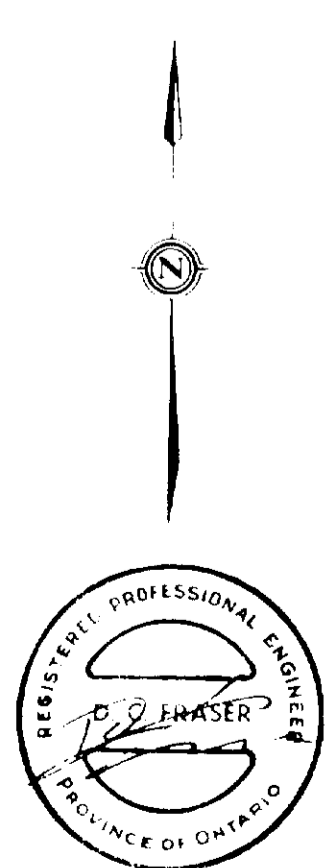


Y  
0  
X

LOCATION MAP



Scale 1:250,000



# DIGHEM<sup>III</sup> SURVEY

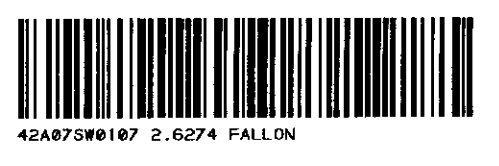
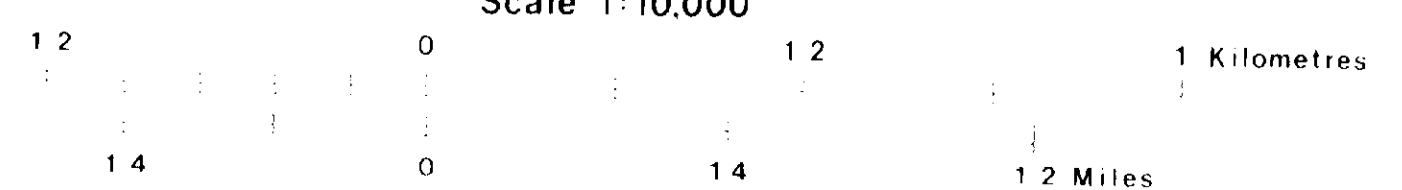
FALLON TWP. ONTARIO

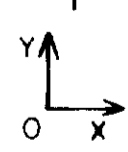
RESISTIVITY

FOR

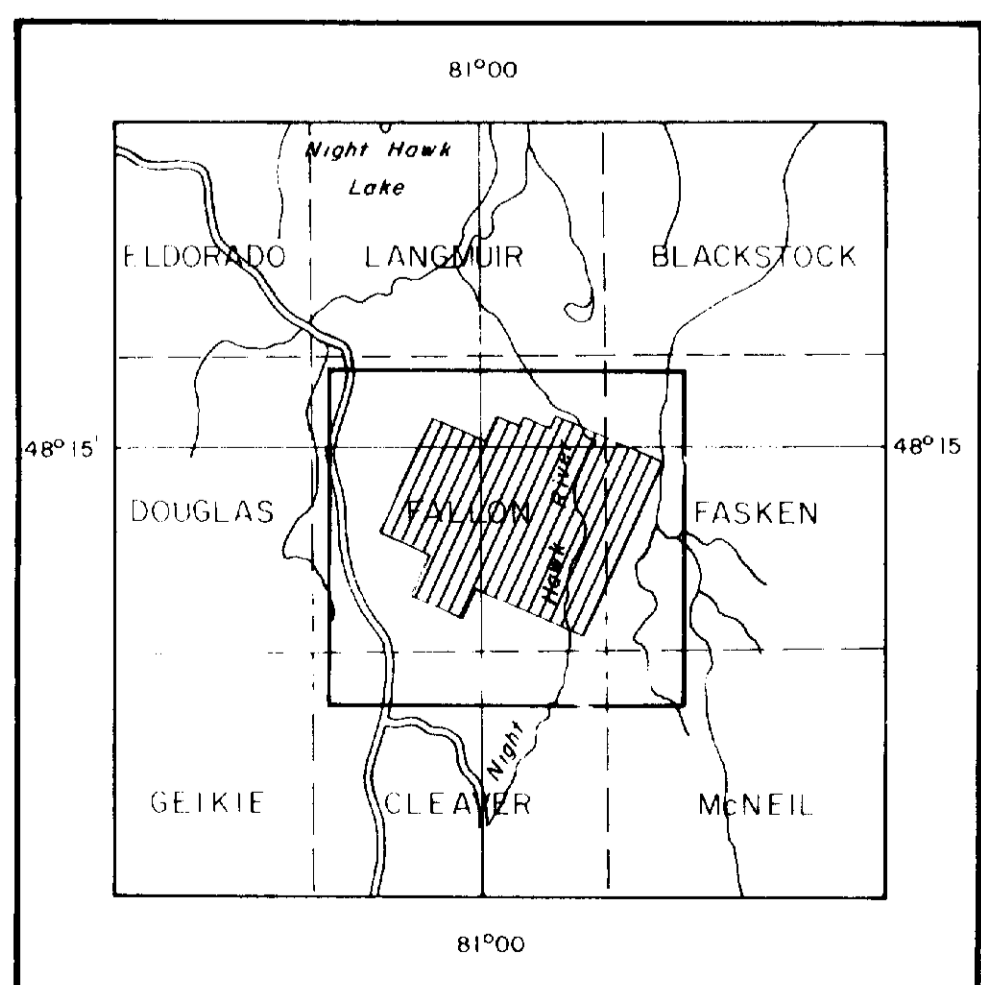
DAVID J. MEUNIER

Scale 1:10,000





LOCATION MAP



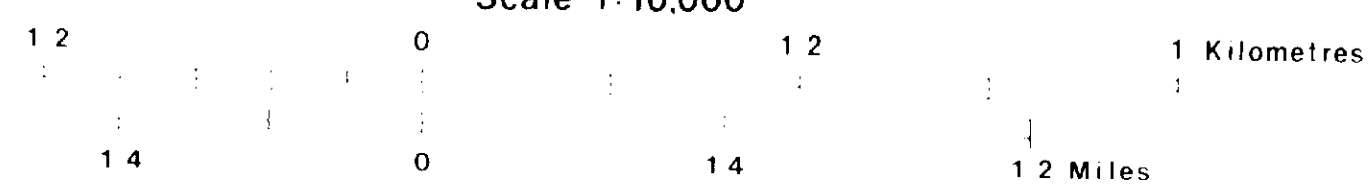
Scale 1:250,000

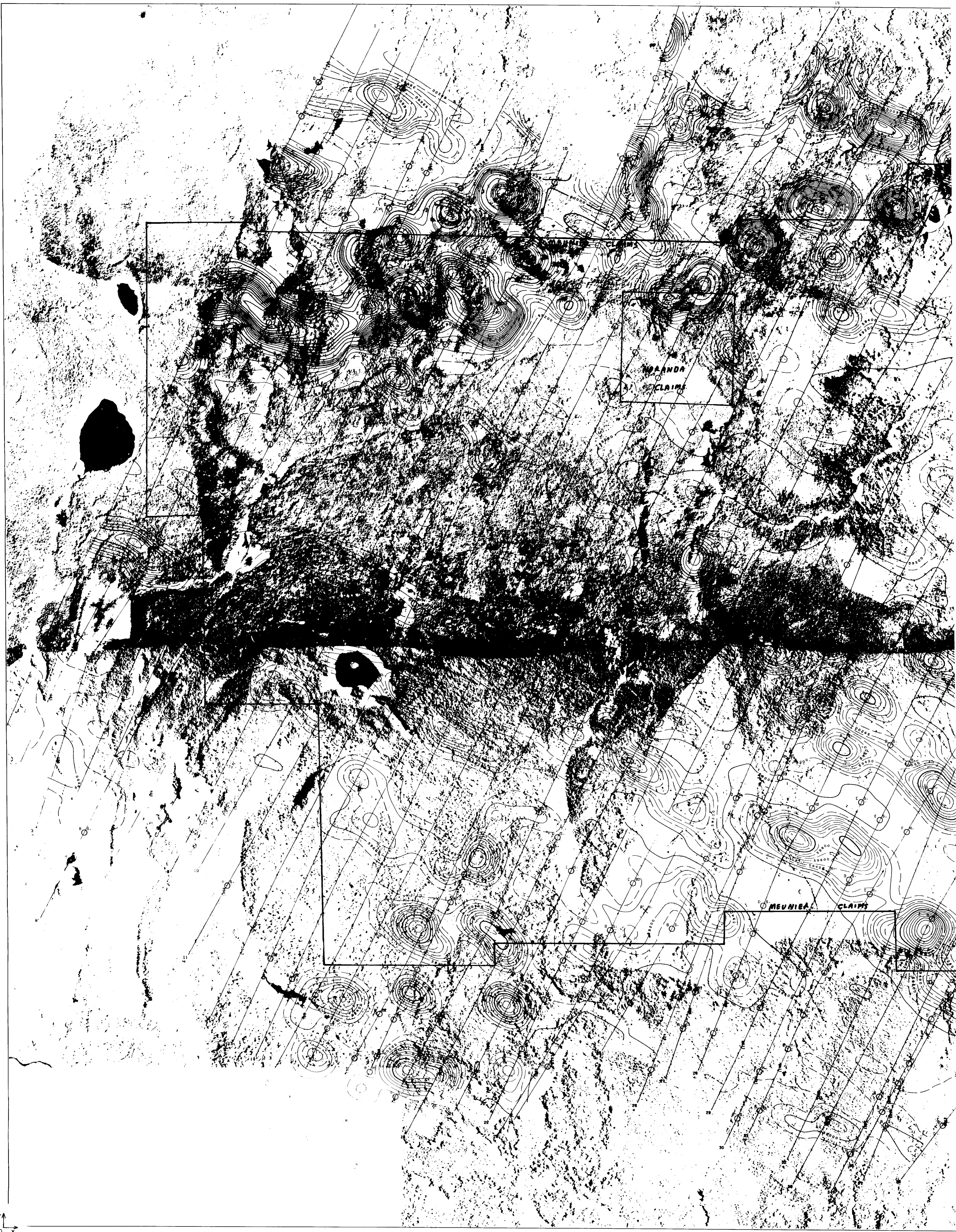


# DIGHEM<sup>III</sup> SURVEY

FALLON TWP. ONTARIO  
 TOTAL FIELD MAGNETICS  
 FOR  
 DAVID J. MEUNIER

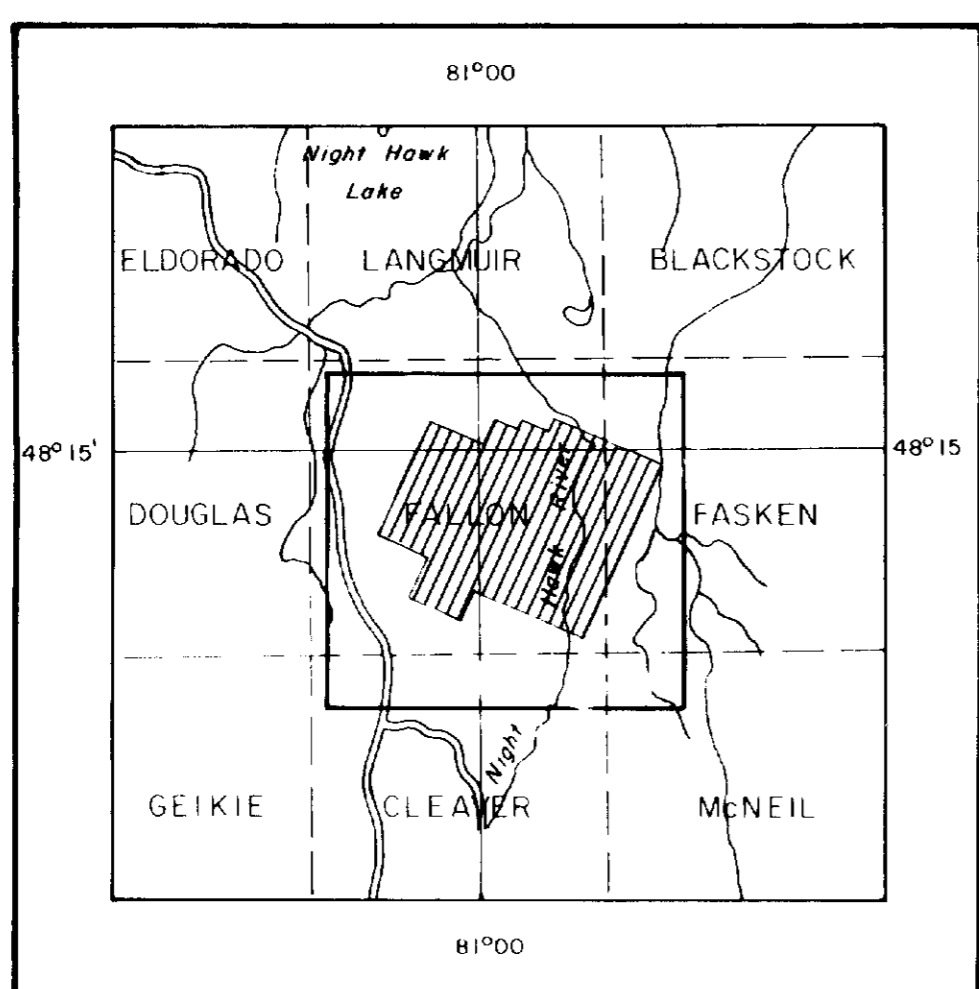
Scale 1:10,000





Y  
0  
X

LOCATION MAP



Scale 1: 250,000



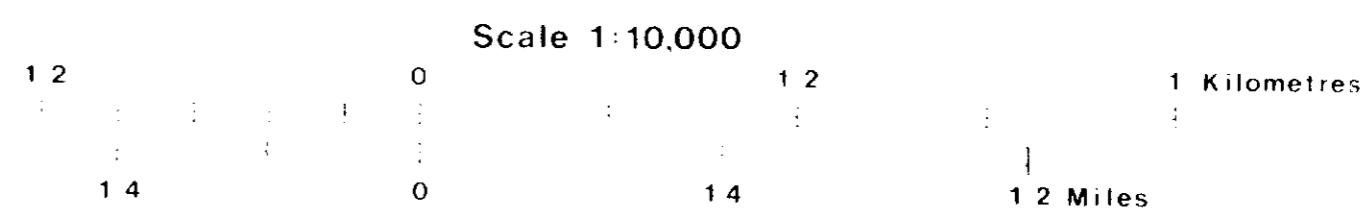
# DIGHEM<sup>III</sup> SURVEY

FALLON TWP. ONTARIO

ENHANCED MAGNETICS

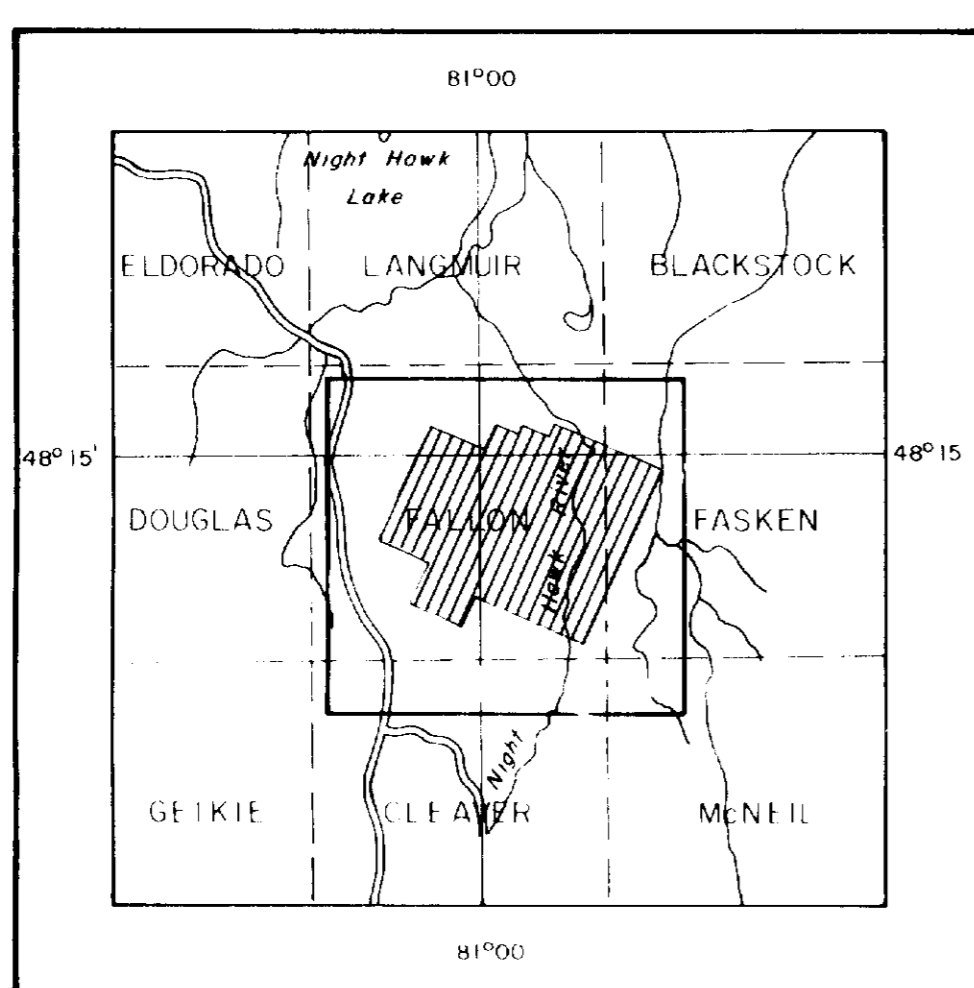
FOR

DAVID J. MEUNIER





LOCATION MAP



Scale 1:250,000



# DIGHEM<sup>III</sup> SURVEY

FALLON TWP. ONTARIO  
 FILTERED TOTAL VLF EM FIELD  
 FOR  
 DAVID J. MEUNIER

Scale 1:10,000

