REPORT

on

AIRBORNE GEOPHYSICAL SURVEYS

DETOUR LAKE AREA

PORCUPINE MINING DIVISION

NORTHEASTERN ONTARIO

for

GETTY CANADIAN METALS, LIMITED

Toronto, Ontario
February, 1982

W.E. Brereton, P.Eng.,
MPH Consulting Limited.

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1.0 INTRODUCTION

This report contains our interpretation of the results of airborne magnetic and electomagnetic (INPUT) surveys flown in the Detour Lake area of northeastern Ontario during May of 1981 on behalf of Getty Canadian Metals, Limited as part of a gold exploration programme in the region. Interest in the area centres around the discovery in 1974 by Amoco Canada Petroleum Ltd., of what has become a major gold deposit near Detour Lake immediately to the north of the area described herein.

2.0 LOCATION AND ACCESS

The Detour area is centred approximately 110 kilometers northeast of Cochrane, Ontario, and 600 kilometers directly north of Toronto, Ontario.

Easiest summer access is by fixed-wing aircraft to Vandette Lake in the east portion of the property or by helicopter from local centers of service and supply such as Cochrane, Ontario or La Sarre, Quebec.

A winter road from La Sarre north to the Detour minesite passes immediately to the east of the survey area.

An all-weather road presently under construction from Cochrane to the Detour minesite will pass to the northwest of the property.

Appendix I shows a general property location map along with a more detailed map outlining the survey area.

3.0 PROPERTY

The airborne surveying covered a total of 189 unpatented mining claims in the Porcupine Mining Division. Appendix II contains a summary of the claim numbers along with the technical data statements.

4.0 AIRBORNE SURVEYS

4.1 General

The total survey involved 2001 kilometers (1243 miles) of airborne data collection and was flown by Questor Surveys Limited of Toronto. Approximately 151 km of surveying was carried out over the property described therein. The survey aircraft was a Britten-Norman Trislander, registration C-GNKW, based out of Timmins, Ontario.

4.2 Map Compilation

The base maps for compilation and flight path recovery were constructed from uncontrolled mosaics produced from photographs at a scale of 1:50,000. The final maps were reproduced at a scale of 1:10,000 on stable transparent film from which whiteprints can be made.

Flight path recovery was accomplished by comparison of a 35 mm film recovered by an in-flight camera with the mosaic in order to locate fiducial points. These points were approximately 1130 meters apart.

4.3 Survey Procedure

Terrain clearance was maintained as close to 122 meters as possible with the E.M. bird at approximately 46 meters above

the ground. A normal S-pattern flight path was used. An equipment operator logged flight details and monitored instruments. A line spacing of 200 meters was employed.

5.0 GEOLOGY AND MINERAL OCCURENCES

5.1 Summary

The Detour Project area is underlain by greenschist to amphibolite facies metavolcanic and metasedimentary rocks of Archean age in the north-central portion of the Abitibi Greenstone Belt. Later intrusives of granitic to dioritic composition truncate the metavolcanic and metasedimentary rocks. Diabase dykes, the youngest rocks in the region, cut all rock types. Pleistocene cover comprising clayey till, glaciolacustrine clay, sandy till and glaciofluvial eskers is variable in extent and may be up to 60 m or more in thickness although it generally averages 30 meters.

Regionally, the past-producing Normetal Cu-Zn (± Au, Ag) volcanogenic massive sulphide deposit is located within the next greenstone belt immediately to the south of the present project area. Selco's major "Mines Selbaie" Cu-Zn-Au-Ag deposit located 29 km to the east of Amoco's Detour deposit in Brouillan Township, Quebec, has recently been placed into production.

5.2 Survey Area Geology

The metasedimentary-metavolcanic rocks in the survey area generally strike in a northerly direction and dip steeply.

The disposition of units has been interpreted in large part from airborne geophysical data as outcrop is scarce.

The claim area, based on recent geological/geochemical work and results of previous drilling is underlain predominantly by basaltic tholeiites with minor felsic metavolcanics and interflow chemical metasediments. The latter types include oxide and sulphide iron formations, cherty sulphide $\pm$ graphitic iron formations etc. The iron formations are typically expressed as airborne electromagnetic/magnetic anomalies.

A prominent north-south aeromagnetic anomaly directly west of Vandette Lake, for example, is directly reflective of a mixed oxide-sulphide facies iron formation.

A major granite body occurs directly to the west of the claim group in the vicinity of Detour Lake.

Structurally, there appears to be at least two main fold directions. The prominent regional trend is east-west as exemplified by the east-west trending anticline north of Detour Lake. This fold plunges 35 to 45 degrees to the west. A local flexure or warp on the north limb contains the Detour deposit. The complimentary anticline to the south is inter-

preted to be in the vicinity of Dobson Lake. The intervening synclinal axis probably passes through the Vandette Lake-Nash Lake area.

The east-west folds have been re-folded about northeast-southwest axes, particularly in the vicinity of major granitic intrusions. The re-folding explains the predominant north-south strikes noted in the present project area (e.g. the iron formation west of Vandette Lake).

5.3 Exploration History and Previous Work

The area encompassing the present holdings has recently been mapped by G. Johns of the Ontaro Geological Survey from whose report many of the subsequent descriptions and comments are taken.

Mineral exploration activity has been recorded in the area since 1912 when gold was discovered on the Patten River. There has been sporadic exploration activity since 1925 following the discovery of a major copper-zinc deposit at Normetal, Quebec, with peak periods of exploration activity in the late 1950's, early 1960's and early 1970's. Most of this activity was directed towards the search for base metals, with a concentration of exploration efforts in the vicinity of Atkinson and Vandette Lakes.

Numerous massive pyrite-pyrrhotite diamond drill intersections have been recorded in the assessment files of the respective provincial governments. Many of these intersections were probably never assayed for gold. In addition, many ground electromagnetic conductors were never drill tested.

A major rush into the region followed the Amoco gold discovery in 1974 and extensive claim staking occurred in the Lower Detour-Detour-Sunday Lakes region. Extensive staking was also carried out in adjoining portions of Quebec.

Due to the usual problems of sparse outcrop in the clay belt of the Cochrane area, the main exploration approach to date has been airborne geophysics followed by ground geophysics and diamond drilling of EM conductors. Some companies in the area at present are employing overburden drilling as an exploration tool.

5.4 Detour Gold Deposit

5.4.1 Introduction

The following comments and descriptions are based largely on a paper delivered by A.C. Jackson of Amoco

at the 1980 CIM annual meeting in Toronto, the Dome Mines Ltd. 1980 annual report and G. John's Ontario Government report.

5.4.2 Geology and Mineralization

In the immediate vicinity of the deposit, the stratigraphic sequence, as known, consists of several hundred to several thousand feet of fine-grained arkosic and graphitic sediments with occasional interbedded basaltic to ultramafic flows and tuffs. This grades upward into a sequence of interbedded mafic tuffs and sediments approximately 310 m (1,000 feet) in thickness, with the mafic tuffs being predominant. This, in turn, is overlain by a distinctive variolitic basalt sequence which is up to 90 m (300 ft) thick. This basalt consists of 10% to 15% felsic clots set in a chloritic to amphibolitic groundmass. Within this unit there are several narrow (several cm thick) interbeds of pinkish coloured chert.

The variolitic sequence is overlain by a very well banded sequence of mafic tuffs up to 30 m (100 ft) thick. These are chloritic and biotitic and are characterized by alternating light-dark beds up to 2 cm in thickness.

The mafic tuffs are overlain by a series of ultramafic flows and tuffs which vary in thickness from 3 m to 90 m. In the thicker portions, these rocks appear quite massive, varying from finely crystalline talc-carbonate rocks to medium to coarsely crystalline tremolite-actinolite talc-carbonate units. The thinner parts of the unit are usually very well-banded and appear to be tuffs as they contain numerous relict fragments. These are also highly altered to talc-carbonate. Petrographically, the ultramafic is typically made up of 50% talc, 10-20% tremolite, 10-15% chlorite and 5% sulphides and magnetite.

Several quartz-eye porphyry units occur in the central part of the ultramafic. These units are generally foliated and in some cases appear tuffaceous but their somewhat irregular nature and the often chloritic contacts suggest that they are dikes. Petrographically, the porphyry consists of 60-70% quartz and potash feldspar occurring as a fine-grained ground mass and also as larger phenocrysts. Foliated stringers of muscovite comprise up to 15% of the rock along with variable amounts of chlorite, biotite, and carbonate. Pyrrhotite with minor pyrite occurs as irregular masses and comprises up to 5% of the rock. Two other

units found within the ultramafics consist of coarsely crystalline gabbroic and pyroxenitic intrusives. The gabbro is non-magnetic and has been largely altered to tremolite and chlorite. The pyroxenite is highly magnetic and is characterized by large pseudomorphs of tremolite and magnetite after olivine or pyroxene. This unit forms a large mass on the eastern end of the main Detour ore zone and is indicated by a large magnetic high.

The ultramafic unit is overlain by a cherty tuff which is generally from 0.3 m to 3 m but usually less than 1.5 m thick. It is a creamy grey, very well laminated chert. The lower contact is usually marked by a 0.3 m to 0.6 m band of pyrrhotite with minor chalcopyrite. These sulphides usually contain rounded inclusions of quartz from 1 cm to 5 cm in diameter. The cherty tuff is overlain by several tens of to hundreds of metres of basaltic flows with occasional interbedded dacitic to andesitic flows and tuffs. The first 150 m to 200 m of the basalts are massive to moderately foliated, medium to coarsely crystalline rocks. They typically consist of 50-60% hornblende, 10% biotite, 5-15% plagioclase, 5% quartz, 3% chlorite, 2% carbonate, and 1-3% pyrrhotite.

Intrusive into the sequence, particularly east of the deposit, are several magnetic dioritic sills.

The "main zone" of gold mineralization is essentially an auriferous quartz fracture zone. It is centred on the cherty tuff unit and the immediately overlying basalts. Gold values extend beneath the cherty tuff into the underlying altered ultramafics.

The main quartz fracture zone has an indicated strike length of 210 m to 275 m (700 to 900 ft). It is somewhat arcuate in plan with strikes varying from east-west in the west to northeast-southwest in the east. The mineralized zone plunges 35 to 45 degrees to the west.

The main zone is generally 6 m to 12 m (20-40 ft) in width and consists of a system of quartz veins which contain 10-15% pyrrhotite, 0.5-1% chalcopyrite and 1-5% pyrite within the veins and as selvages. The zone is characterized by extensive biotite alteration of the basalts. The quartz veins are generally less than 15 cm in width and average 3 to 5 veins per 1.5 m through the zone. The gold occurs mainly as free grains within the quartz veins and sulphide selvages.

A small amount also occurs in gold-silver tellurides. Gold particles are usually 10 to 12 microns in size and are often adhered to sulphide grains. Other sulphides commonly encountered are marcasite and various bismuth and lead tellurides.

Several other zones of mineralization have been indicated but are less well-defined than the main zone. Four zones were indicated in the hanging wall basalts above the main zone and are referred to as the quartz-vein zones. The mineralization in these is similar to the main zone in that the gold is within quartz veins with associated pyrrhotites and chalcopyrite and biotite selvages. Most of these quartz-vein zones have been interpreted to occur in structures that parallel the main zone.

There are also several zones of mineralization indicated in the talc-carbonate rocks. In these zones the gold occurs as blebs and specks within the rock in close association with pyrrhotite and chalcopyrite. Quartz veins are occasionally present but are not essential for the presence of gold. These talc-carbonate zones occur along the plunging hinge line of the subsidiary warp containing the main zone.

5.4.3 Mining

Present reserves are quoted at 30 million tons averaging approximately 0.1 oz Au per ton.

Current plans call for production to start in the fall of 1983 at 2000 tons per day.

Initial production will be by open pit, stripping on which will commence in early 1982.

6.0 AIRBORNE GEOPHYSICAL SURVEYS

6.1 Equipment

Based on information supplied by Questor, the survey aircraft is equipped with a Mark VI INPUT airborne E.M. system and Sonotek 5010 Proton Magnetometer. Radar altimeters are used for vertical control. The outputs of these instruments together with fiducial timing marks are recorded by means of galvanometer type recorders using light sensitive paper. Thirty-five millimeter continuous strip cameras are used to record the actual flight path.

6.1.1 Barringer/Questor Mark IV Input System

In the Induced Pulse Transient (INPUT) system, currents are induced into the ground by means of a pulsed primary electromagnetic field which is generated in a transmitting loop around the aircraft. By using half sine wave current pulses and a loop of large turns-area, the high output power needed for deep penetration is achieved.

The induced current in a conductor produces a secondary electomagnetic field which is detected and measured after the termination of each primary pulse. Detection is accomplished by means of a receiving coil

towed behind the aircraft on four hundred feet of cable. The received signal is processed and recorded by equipment in the aircraft. Since the measurements are in the time domain rather than the frequency domain common to continuous wave systems, interference effects of the primary transmitted field are eliminated. The secondary field is in the form of a decaying voltage transient originating in time at the termination of the transmitted pulse. The amplitude of the transient is, of course, proportional to the amount of current induced into the conductor and, in turn, this current is proportional to the dimensions, the conductivity and the depth beneath the aircraft.

The rate of decay of the transient is inversely proportional to conductivity. By sampling the decay curve at six different time intervals, and recording the amplitude of each sample, an estimate of the relative conductivity can be obtained. By this means, it is possible to discriminate between the effects due to conductive near-surface materials such as swamps and lake bottom silts, and those due to genuine bedrock sources. The transients due to strong conductors such as sulphides exhibit long decay curves and are therefore commonly recorded on all six channels. Sheet-

like surface materials, on the other hand, have short decay curves and will normally only show a response in the first two or three channels.

The samples, or gates, are positioned at 310, 490, 760, 1120, 1570 and 2110 micro-seconds after the cessation of the pulse. The widths of the gates are 180, 180, 360, 540 and 540 micro-seconds respectively.

For homogenous conditions, the transient decay will be exponential and the time constant of decay is equal to the time difference at two successive sampling points divided by the log ratio of the amplitudes at these points.

6.1.2 Sonotek P.M.H. 5010 Proton Magnetometer

The magnetometers which measure the total magnetic field have a sensitivity of 1 gamma and a range from 20,000 gammas to 100,000 gammas.

Because of the high intensity field produced by the INPUT transmitter, the magnetometer results are recorded on a time-sharing basis. The magnetometer head is energized for 0.83 seconds while the precision frequency is being recorded and converted to

gammas. Thus a magnetic reading is taken every 1.13 seconds.

For this survey, a lag factor has been applied to the data. Magnetic data recorded on the analogue records at fiducial 10.00 for example would be plotted at fiducial 9.95 on the mosaics.

6.2 Data Presentation

The symbols used to designate the anomalies are shown in the legend on each map sheet, and the anomalies on each line are lettered in alphabetical order in the direction of flight. Their locations are plotted with reference to the fiducial numbers on the analog record.

A sample record is included to indicate the method used for correcting the position of the E.M. bird and to identify the parameters that are recorded.

6.3 General Interpretation

The INPUT system will respond to conductive overburden and near-surface horizontal conducting layers in addition to bedrock conductors. Differentiation is based on the rate of transient decay, magnetic correlation and the anomaly shape together with the conductor pattern and topography.

Power lines sometimes produce spurious anomalies but these can be identified by reference to the monitor channel.

Railroad and pipeline responses are recognized by studying the film strips.

Graphite or carbonaceous material exhibits a wide range of conductivity. When long conductors without magnetic correlation are located on or parallel to known faults or photographic linears, graphite is most likely the cause.

Contact zones can often be predicted when anomaly trends coincide with the lines of maximum gradient along a flanking magnetic anomaly. It is unfortunate that graphite can also occur as relatively short conductors and produce attractive looking anomalies. With no other information than the airborne results, these must be examined on the ground.

Serpentinized peridotites often produce anomalies with a character that is fairly easy to recognize. The conductivity which is probably caused in part by magnetite, is fairly low so that the anomalies often have fairly large response on channel # 1; they decay rapidly, and they have stong magneitc correlation. INPUT E.M. anomalies over massive magnetites show a relationship to the total Fe content. Below 25-30%,

very little or no response at all is obtained, but as the percentage increases the anomalies become quite strong with a characteristic rate of decay which is usually greater than that produced by massive sulphides.

Commercial sulphide ore bodies are rare, and those that respond to airborne survey methods usually have medium to high conductivity. Limited lateral dimensions are to be expected and many have magnetic correlation caused by magnetite or pyrrhotite. Provided that the ore bodies do not occur within formational conductive zones as mentioned above, the anomalies caused by them will usually be recognized on an E.M. map as priority targets.

6.4 Results and Interpretation

6.4.1 INPUT Survey

Survey results are presented on Map 1 at the rear of this report.

The airborne electromagnetic survey located several major INPUT conductive zones. Trends in general are north-south shifting towards a predominently east-west trend in the east portion of the claim area.

The INPUT conductors have been designated A1-A4, B and C for purposes of discussion.

The INPUT axis in the northwest portion of the block (conductor A1) shows strong, generally 6-channel responses over its central portion with large conductivity thickness products (to 77 siemens). A northwest dip is indicated. The northernmost 75% of the conductor crosscuts but appears generally unrelated to a large ovoid magnetic high. The southwesternmost portion, immediately above an inferred fault truncation has a direct magnetic correlation of up to 150 gammas.

A hole drilled in 1959 in the central portion of the conductor by the Kesagami Syndicate intersected sulphide-oxide iron formation flanked by a graphitic metasedimentary zone. Conductor A1 is therefore interpreted to be due to additional amounts of this material.

Our interpretation indicates that conductor A2, immediately to the east, is the continuation of A1 around the nose of an anticline, the axis of which trends

north-northwest through the small lake at the north edge of the claims. To the south, zones A3 and A4 represent additional axes within the same general trend. Trends become uncertain towards the south edge of the property and individual axes have not been interpreted.

There is an interpreteted major fault disruption of the 'A' conductive zone in the southwest portion of the property.

The 'A' INPUT anomalies have similar characteristics, namely strong (generally 6-channel) responses, moderate to high conductivity thickness and direct to flanking magnetic correlations of up to several thousand gammas (particularily A2, A3). Large channel 2 amplitudes attest to relatively shallow depths of burial. Disposition of INPUT intercepts indicates a west dip for A1 and east dips for A2, A3 and A4 in accord with the interpretation of an anticlinal fold.

Previous drilling southwest, west and northwest of Vandette Lake by Conwest and others and recent geological mapping indicate that the INPUT conductivity is

related to units of mixed sulphide-oxide facies iron formation within predominantly mafic metavolcanics. These units consist of variable magnetite and chert along with pyrrhotite and pyrite with traces of chalcopyrite and sphalerite. Individual interflow units may be up to 25 feet or more in thickness although are often less than 10 feet. These are at least 5 stratigraphically discrete units within an 800 meter stratigraphic section.

INPUT Conductor 'B' is a major composite conductor which crosses the entire property. Strikes in the south are north-south swinging to east-west in the region directly east of Vandette Lake. At least one and up to three discrete axes are present. Dips are generally to the east although one dip, at the south end of Vandette Lake, is to the northwest. Responses are generally in the three to six-channel range. Areas of high conductivity-thickness are located to the southwest of Vandette Lake and a local area to the east around claim 585852. There are no notable direct magnetic correlations although relatively weak, flanking correlations are present particularly along the conductor southwest of Vandette Lake.

Previous drilling immediately southwest of Vandette Lake by Amoco and others indicates that the main cause of conductivity here is graphitic metasediments along with minor sulphides. It is probable that this conductor marks a major regional graphitic unit.

INPUT trend 'C' is an incompletely-defined feature in the extreme southeast portion of the property. The conductor is indicated to strike northwest and dip southwest. A substantial (919 gamma) magnetic anomaly is very nearly coincident with the EM intercept near the middle of claim 585909. The cause of the anomaly is uncertain although the magnetic correlation may indicate a sulphide source.

There are other weak scattered responses in the claim area as in the southwest (claim 585865) and extreme north (claims 585164, 165). The cause of these anomalies is uncertain.

6.4.2 Magnetic Survey

The most prominent magnetic feature is the intense, north-trending fault-disrupted linear high in the west portion of the property reflecting magnetite-pyrrhotite iron formation.

Very steep gradients indicate a shallow depth to source. The iron formation is known to outcrop in at least two areas west of Vandette Lake. Disposition of isomagnetic contours in the southernmost sector of the anomaly indicates a steep east dip in support of EM-indicated dips.

The anomaly has a maximum magnetic relief of approximately 2000 gammas above local background.

The iron formation is interpreted to have been disrupted by east-west and north-south faults in several places to produce the presently observed disjointed pattern.

The contribution of iron formation to the large ovoid high in the northwest corner is uncertain. The form of this anomaly is distinctly different from that over outcropping iron formation to the south. It is suggestive of a more deeply buried mafic plug.

This type of magnetic signature may be consistent, however, with the interpretation that this area represents a north-plunging anticlinal fold closure in iron formation.

INPUT conductive trend 'B' has a flanking to direct, discontinuous magnetic correlation over most of its length. The magnetic anomaly appears as an elongated zone consisting of a series of discrete "eyeball" highs. Anomaly amplitudes are generally 75 to 180 gammas. The anomalies are interpreted to represent pyrrhotitic zones within the graphite-sulphide iron formation conductive trend.

The other major magnetic anomaly is in the vicinity of INPUT conductor C. This magnetic feature is incompletely defined although it is suggested that the causative source may be a sulphide-oxide iron formation analagous (equivalent?) to that to the northwest.

Weak INPUT intercepts on claim 585865 in the southwest portion of the property occur on the east flank of a local elliptical magnetic high. The magnetic anomlay is probably representative of a magnetic-bearing mafic body, possibly intrusive, which may enhance the economic attractiveness of the INPUT anomaly. Likewise a very short, weak INPUT conductor in the northeast portion of the property (claim 585307) is coincident with a very local, circular magnetic high of 60 gammas.

There are no other magnetic features on the property which appear to have any immediate economic significance.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Airborne geophysical surveys (INPUT, magnetics) have been completed on a 189 claim property in the Detour Lake area of northeastern Ontario on behalf of Getty Canadian Metals, Limited.

The surveys were successful in locating three main zones of anomalous electromagnetic-magnetic responses with several less prominent features. The major EM $\pm$ magnetic anomalies are due to sulphide-oxide and sulphide-graphite iron formations. Minor amounts of copper and zinc are indicated by previous drilling.

It does not appear that these zones have been fully tested by previous operators. These iron formations are considered to be prime gold exploration targets considering the universal association of these rocks with gold deposits.

It is recommended that a comprehensive review of all previous work be undertaken to, in conjunction with the airborne surveys, select areas for detailed ground follow-up.

Respectfully submitted,

W.E. Brereton, P.Eng.

Toronto, Ontario,
February, 1982

CERTIFICATE

I, W.E. Brereton of Toronto, Ontario, hereby certify that:

1) I hold an Honours Bachelor of Science degree in Geology and Physics from Queen's University at Kingston and a Master of Science (Applied) degree in Mineral Exploration from McGill University in Montreal.

2) I am a Professional Engineer registered with the Association of Professional Engineers of the Province of Ontario.

3) I have practised my profession as a mining explorationist since 1967.

4) I have based conclusions and recommendations contained in this report on my experience and knowledge of the area and on geophysical results provided by Questor Surveys Ltd.

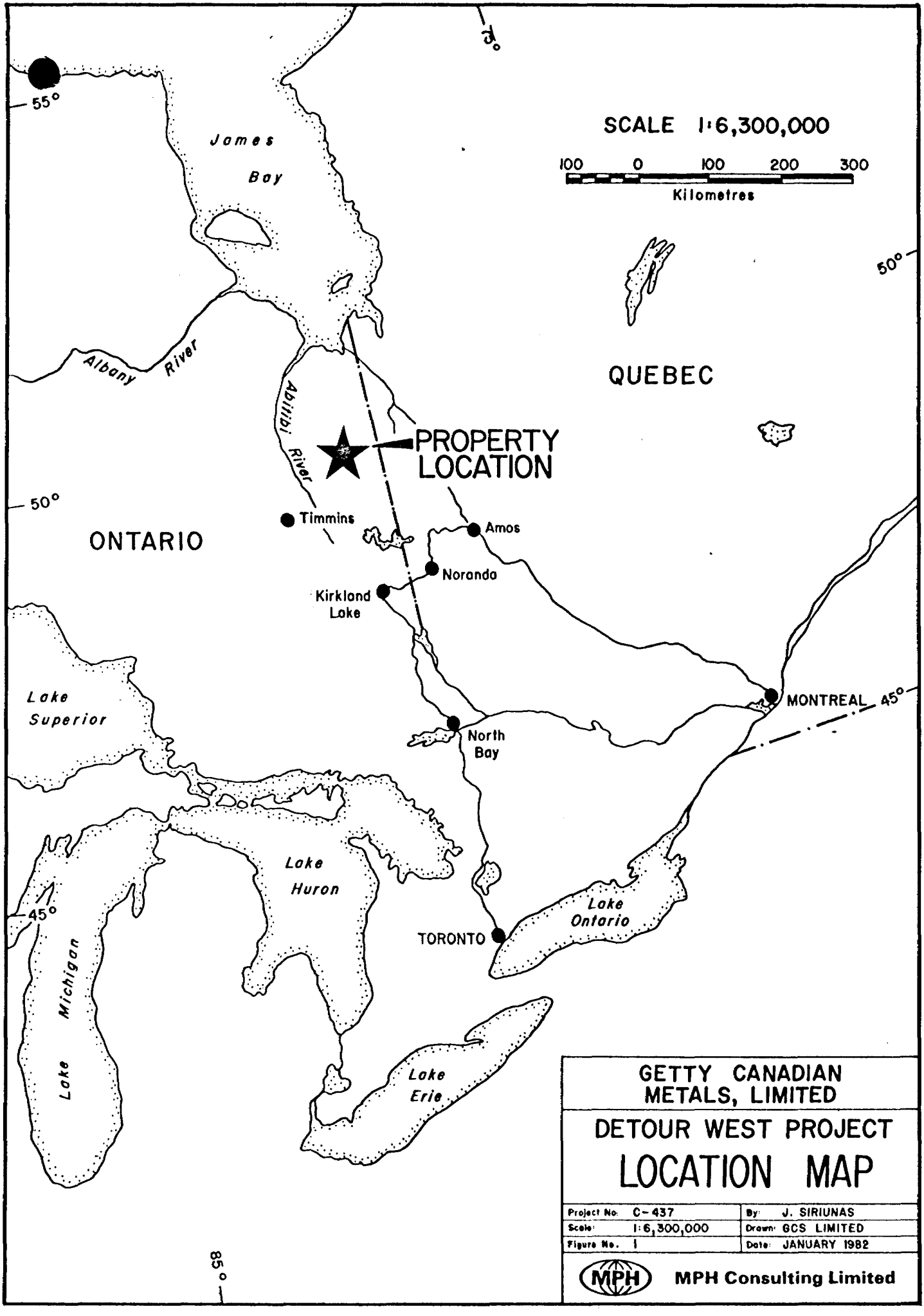
5) I hold no interest, directly or indirectly, in this project other than professional fees, nor do I expect to receive any interest in the project or in Getty Mines, Limited, or any of its subsidiary or associated companies.

Toronto, Ontario
March, 1982

W.E. Brereton, P.Eng.

APPENDIX I

Property Location Map



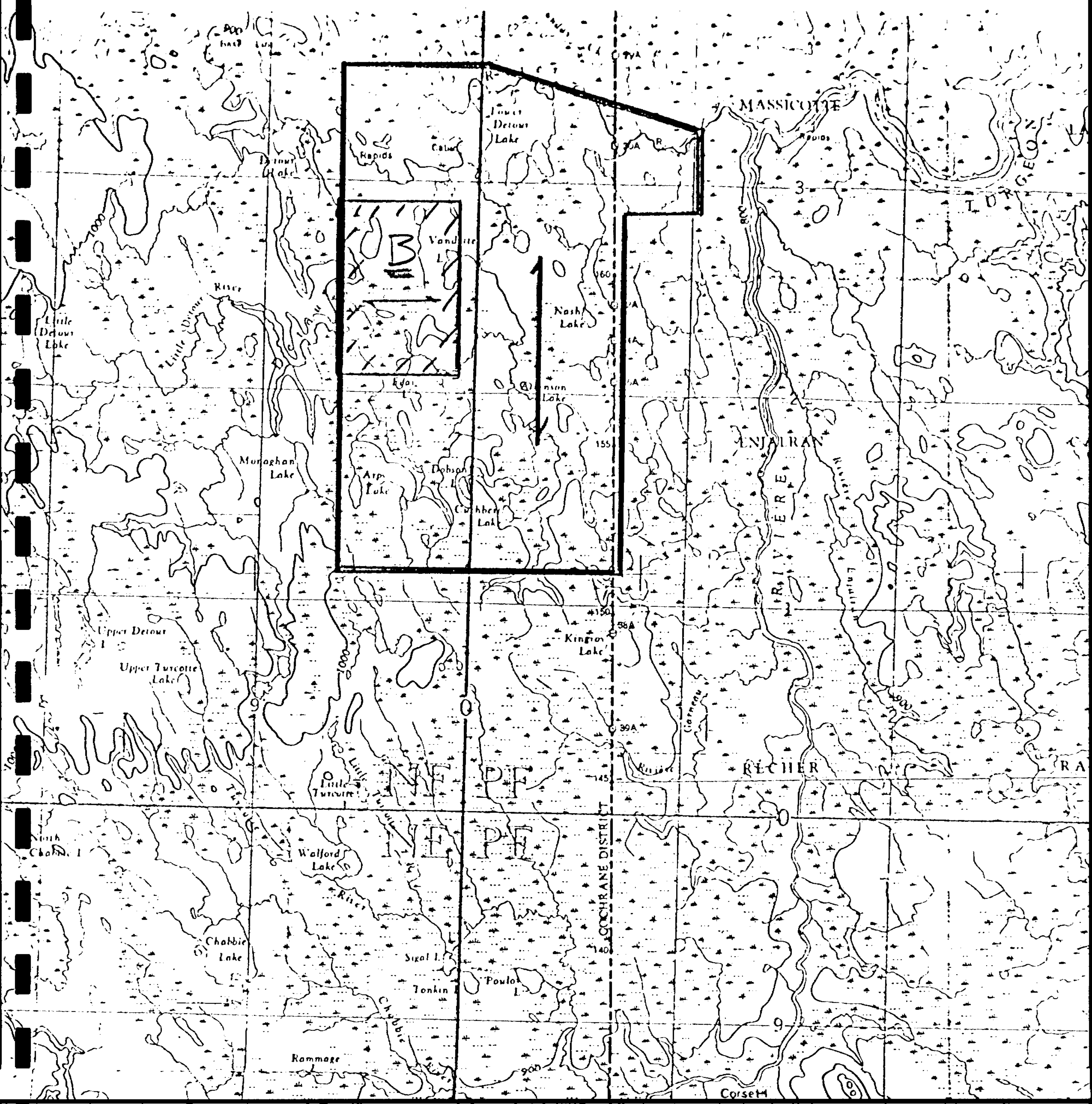
GETTY CANADIAN METALS, LIMITED

DETOUR WEST PROJECT

LOCATION MAP

Project No:	C-437	By:	J. SIRIUNAS
Scale:	1:6,300,000	Drawn:	GCS LIMITED
Figure No.	1	Date:	JANUARY 1982

MPH Consulting Limited



B
1
MASSICOTTE
Lower Detour Lake
Detour Lake
Rapids
Vandette L.
Nash Lake
Little Detour River
Little Detour Lake
Monaghan Lake
Arp Lake
Dobson L.
Cuthbert Lake
Upper Detour L.
Upper Turcotte Lake
Little Turcotte
Walford Lake
River
Chabbie Lake
Sigal L.
Tonkin L.
Poulot L.
Rammage
COCHRANE DISTRICT
ENJALRAN
RIVIERE
RECHER
Corsett

APPENDIX II

Summary of Claim Numbers

Technical Data Statements

Ontario

Ministry of Natural Resources

File _____

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

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

Type of Survey(s) Airborne Electromagnetics

Township or Area Lower Detour Lake

Claim Holder(s) Getty Canadian Metals Limited

Survey Company Questor Surveys Ltd.

Author of Report W.E. Brereton

Address of Author 141 Adelaide St.W.,Ste.706,Toronto

Covering Dates of Survey May 1-7/81, February, 1982
(linecutting to office)

Total Miles of Line Cut _____

SPECIAL PROVISIONS CREDITS REQUESTED

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

ENTER 20 days for each additional survey using same grid.

DAYS per claim

Geophysical
--Electromagnetic _____
–Magnetometer _____
–Radiometric _____
–Other _____
Geological _____
Geochemical _____

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

Magnetometer _____ Electromagnetic 20 Radiometric _____
(enter days per claim)

DATE: March 3/82 SIGNATURE: _____
Author of Report or Agent

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

(prefix) (number)

as follows

If space insufficient, attach list

TOTAL CLAIMS 189

Ontario

Ministry of Natural Resources

File _____

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

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

Type of Survey(s) Airborne Magnetics

Township or Area Lower Detour Lake

Claim Holder(s) Getty Canadian Metals Limited

Survey Company Questor Surveys Ltd.

Author of Report W.E. Brereton

Address of Author 141 Adelaide St.W.Ste. 706,Toronto

Covering Dates of Survey May 1-7/81, February, 1982
(linecutting to office)

Total Miles of Line Cut _____

SPECIAL PROVISIONS CREDITS REQUESTED

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

ENTER 20 days for each additional survey using same grid.

DAYS per claim

Geophysical
–Electromagnetic _____
–Magnetometer _____
–Radiometric _____
–Other _____
Geological _____
Geochemical _____

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

Magnetometer 20 Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: March 3/82 SIGNATURE: W.E. Brereton
Author of Report or Agent

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

(prefix) (number)

as follows

If space insufficient, attach list

TOTAL CLAIMS 189

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) Airborne Magnetics

Instrument(s) Sonotek 5010 proton magnetometer
(specify for each type of survey)

Accuracy 1 gamma
(specify for each type of survey)

Aircraft used Britten-Norman Trislander

Sensor altitude 122 m

Navigation and flight path recovery method Visual navigation; inflight 35 mm film strips relative to previously prepared 1:10000 photo mosaics.

Aircraft altitude 122 m Line Spacing 200 m

Miles flown over total area 1243 Over claims only 91

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) Airborne Electromagnetics (INPUT)

Instrument(s) Barringer Mark 6 INPUT
(specify for each type of survey)

Accuracy _____
(specify for each type of survey)

Aircraft used Britten-Norman Trislander

Sensor altitude 122 m

Navigation and flight path recovery method Visual navigation; inflight 35 mm film strips relative to previously prepared 1:10000 photo mosaics

Aircraft altitude 122 m Line Spacing 200 m

Miles flown over total area 1243 Over claims only 91

List of Claims

P	585130	P	585558
P	585131	P	585559
P	585132	P	585560
P	585133	P	585561
P	585134	P	585562
P	585135	P	585563
P	585136	P	585564
P	585137	P	585565
P	585160	P	585566
P	585161	P	585567
P	585162	P	585568
P	585163	P	585569
P	585164	P	585570
P	585165	P	585571
P	585166	P	585572
P	585167	P	585573
P	585168	P	585574
P	585169	P	585575
P	585170	P	585576
P	585171	P	585577
P	585172	P	585578
P	585173	P	585579
P	585289	P	585580
P	585290	P	585581
P	585291	P	585568
P	585292	P	585769
P	585293	P	585770
P	585294	P	585771
P	585295	P	585772
P	585296	P	585773
P	585297	P	585774
P	585298	P	585775
P	585299	P	585776
P	585300	P	585749
P	585301	P	585850
P	585302	P	585851
P	585303	P	585852
P	585304	P	585853
P	585305	P	585854
P	585306	P	585855
P	585307	P	585856
P	585308	P	585819
P	585552	P	585820
P	585553	P	585821
P	585554	P	585822
P	585555	P	585823
P	585556	P	585824
P	585557	P	585825

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P 586343
P 586344
P 586349
P 586350
P 586351
P 586352

TOTAL CLAIMS - 189

1983 01 12 2.4613

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

Dear Sir:

RE: Airborne Geophysical (Electromagnetic) Survey on Mining Claims P 585130 et al in the Areas of Lower Detour Lake and Atkinson Lake

---

The Airborne Geophysical (Electromagnetic) Survey assessment work credits as shown on the attached statement have been approved as of the above date.

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

Yours very truly,

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6450
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: 416/965-1380

A. Barr:sc

cc: Getty Canadian Metals Limited
Toronto, Ontario

cc: W.E. Brereton
MPH Consulting Limited
Toronto, Ontario

cc: Resident Geologist
Timmins, Ontario

Ministry of Natural Resources
Ontario

Technical Assessment
Work Credits

File
2.4613

Recorded Holder
GETTY CANADIAN METALS LIMITED

Township or Area
LOWER DETOUR LAKE & ATKINSON LAKE AREA

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical Electromagnetic 20 days Magnetometer 20 days Radiometric ____ days Induced polarization ____ days Section 86 (18) ____ days Geological ____ days Geochemical ____ days Man days ☐ Airborne ☒ Special provision ☐ Ground ☐ ☐ Credits have been reduced because of partial coverage of claims. ☐ Credits have been reduced because of corrections to work dates and figures of applicant.	P 585130 to 37 inclusive 585160 to 73 inclusive 585289 to 308 inclusive 585552 to 81 inclusive 585768 to 76 1 inclusive 585849 to 56 inclusive 585819 to 48 inclusive 585759 to 67 inclusive 585857 to 900 inclusive 595908-09 595918-19 595928 586355 to 60 inclusive 586343-44 586349 to 52 inclusive

Special credits under section 86 (15a) 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

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 86(18)-60:

828

Ministry of Natural Resources
Ontario

Geotechnical Report Approval

File 2.4613

Mining Lands Comments

To: Geophysics Mr Barlow.

Comments

☒ Approved ☐ Wish to see again with corrections | Date Oct 30/82 | Signature

To: Geology - Expenditures

Comments

☐ Approved ☐ Wish to see again with corrections | Date | Signature

To: Geochemistry

Comments

LD

☐ Approved ☐ Wish to see again with corrections | Date | Signature

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

1982 03 12 2.4613

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) Survey submitted under Special Provisions (credit for Performance and Coverage) on mining claims P 585130 et al in the Areas of Lower Detour Lake and Atkinson Lake.

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

Yours very truly,

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6450
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: 416/965-1316

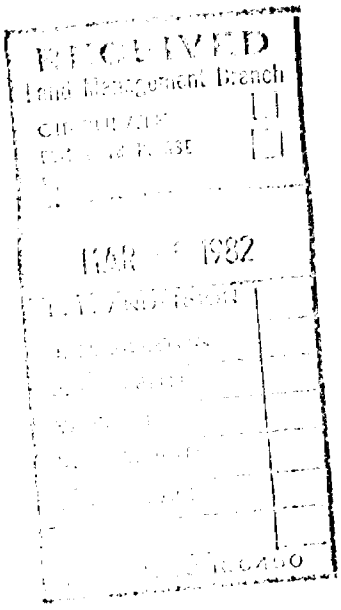
J. Skura/amc

cc: Getty Canadian Metals Limited
Toronto, Ontario

cc: W.E. Brereton, MPH Consulting Ltd.
Toronto, Ontario

MPH Consulting Limited

Suite 706, 141 Adelaide St. W.
Toronto, Canada M5H 3L5
(416) 363-6375
(416) 363-4002
Telex 06-219626



March 8, 1982

Mr. E.F. Anderson,
Land Management Branch,
Whitney Block, Room 6450
Queen's Park,
Toronto, Ontario
M7A 1W3

Sir:

Please find enclosed two copies of our report on airborne geophysical surveys in Detour Lake area, Northeastern Ontario, on behalf of Getty Canadian Metals Ltd.

Yours very truly,

MPH CONSULTING LIMITED

W.E. Brereton, P.Eng.
Vice President.

WEB/kv
encl.

Ontario

RECEIVED

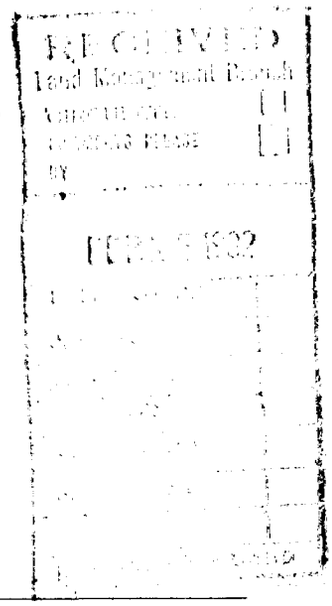
FEB 25 1982

MINING LANDS SECTION

P-585136

Ministry of Natural Resources

Notification of recording of assessment work credits



Lands Administration Branch
Mining Lands Section
Ministry of Natural Resources
Room 1617, Whitney Block
Queen's Park, Toronto
M7A 1W3

Date of recording of work: FEBRUARY 16, 1982

Recorded holder: GETTY CANADIAN METALS LIMITED

Address: 130 Adelaide Street West, Suite 1100
Toronto, Ontario M5H 3P5

Township or Area: LOWER DETOUR LAKE AREA & ATKINSON LAKE AREA M-2622

Type of survey and number of Assessment days credit per claim	Mining claims
Geophysical Airborne Electromagnetic 20 days Magnetometer 20 days Radiometric ____ days Induced polarization ____ days Section 77 (19) ____ days Geological ____ days Geochemical ____ days Man days ☐ Airborne ☒ Special provision ☒ Ground ☐	(See attached list)

Notice to recorded holder:

☒ Survey reports and maps in duplicate be submitted to the Lands Administration Branch, Toronto within 60 days from the date of recording of this work.

☐ Reports and maps are being forwarded to the Lands Administration Branch with this letter.

Regional Mining Recorder / Mining recorder

c.c. Getty Canadian Metals Limited

List of Claims

P	585130	20 days
P	585131	20
P	585132	20
P	585133	20
P	585134	20
P	585135	20
P	585136	20
P	585137	20
P	585160	20
P	585161	20
P	585162	20
P	585163	20
P	585164	20
P	585165	20
P	585166	20
P	585167	20
P	585168	20
P	585169	20
P	585170	20
P	585171	20
P	585172	20
P	585173	20
P	585289	20
P	585290	20
P	585291	20
P	585292	20
P	585293	20
P	585294	20
P	585295	20
P	585296	20
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P	585298	20
P	585299	20
P	585300	20
P	585301	20
P	585302	20
P	585303	20
P	585304	20
P	585305	20
P	585306	20
P	585307	20
P	585308	20
P	585552	20
P	585553	20
P	585554	20
P	585555	20
P	585556	20
P	585557	20
P	585558	20 days
P	585559	20
P	585560	20
P	585561	20
P	585562	20
P	585563	20
P	585564	20
P	585565	20
P	585566	20
P	585567	20
P	585568	20
P	585569	20
P	585570	20
P	585571	20
P	585572	20
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P	585581	20
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P	585771	20
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P	585773	20
P	585774	20
P	585775	20
P	585776	20
P	585849	20
P	585850	20
P	585851	20
P	585852	20
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P	585854	20
P	585855	20
P	585856	20
P	585819	20
P	585820	20
P	585821	20
P	585822	20
P	585823	20
P	585824	20
P	585825	20

P	585825	20 days
P	585826	20
P	585827	20
P	585828	20
P	585829	20
P	585830	20
P	585831	20
P	585832	20
P	585833	20
P	585834	20
P	585835	20
P	585836	20
P	585837	20
P	585838	20
P	585839	20
P	585840	20
P	585841	20
P	585842	20
P	585843	20
P	585844	20
P	585845	20
P	585846	20
P	585847	20
P	585848	20
P	585759	20
P	585760	20
P	585761	20
P	585762	20
P	585763	20
P	585764	20
P	585765	20
P	585766	20
P	585767	20
P	585857	20
P	585858	20
P	585859	20
P	585860	20
P	585861	20
P	585862	20
P	585863	20
P	585864	20
P	585865	20
P	585866	20
P	585867	20
P	585868	20
P	585869	20
P	585870	20
P	585871	20
P	585872	20
P	585873	20
P	585874	20 days
P	585875	20
P	585876	20
P	585877	20
P	585878	20
P	585879	20
P	585880	20
P	585881	20
P	585882	20
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P	585897	20
P	585898	20
P	585899	20
P	585900	20
P	595908	20
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P	585918	20
P	585919	20
P	585928	20
P	586355	20
P	586356	20
P	586357	20
P	586358	20
P	586359	20
P	586360	20
P	586343	20
P	586344	20
P	586349	20
P	586350	20
P	586351	20
P	586352	20

TOTAL CLAIMS - 189

P. 585130

Ministry of Natural Resources
Ontario

39

LOWER Detour LAKE AREA M-2603
ATKINSON LAKE AREA M-2622

A separate form is required for each type of work to be recorded.

THE MINING ACT REPORT OF WORK

To the Recorder of Porcupine Mining Division

I, Getty Canadian Metals, Limited T-890
name of Recorded Holder Prospector's Licence

130 Adelaide Street, West, Suite 1100, Toronto, Ontario, M5H 3P5
Post Office Address

do hereby report the performance of ~~7560~~ 3780 days of ~~airborne geophysics~~ (MEM) Geophysical (E.M.)
Type of work

not before reported to be applied on the following contiguous claims

Claim No.	Days	Claim No.	Days	Claim No.	Days
.....	.....	.....	.....	.....	.....
as attached	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....

All the work was performed on Mining Claim (s) as attached
(In the case of geological and/or geophysical survey (s) where more than 18 claims are involved attach a schedule)

READ CAREFULLY: THE FOLLOWING INFORMATION IS REQUIRED BY THE MINING RECORDER.

For Manual Work, Stripping or Opening up of Mines, Sinking Shafts or Other Actual Mining Operations – Names and addresses of the men who performed the work and the dates and hours of their employment.
For Diamond and other Core Drilling - Footage, No. and angle of holes and diameter of core. Name and address of owner or operator of drill. Dates when drilling was done. Signed core log and sketch in duplicate.
For Compressed Air or Other Power Driven or Mechanical Equipment
Type of drill or equipment. Names and addresses of men engaged in operating equipment and the dates and hours of their employment.
For Power Stripping - Type of equipment. Name and address of owner or operator. Amount expended. Dates on which work was done. Proof of actual cost must be submitted within 30 days of recording.
With each of the above types of work sketches are required to show the location and extent of the work in relation to the nearest claim post. In the case of diamond or other core drilling the sketch must be submitted in duplicate.
For Geophysical, Geological, Geochemical Surveys and Expenditure Credits - the name of author of report. Covering dates of survey (linecutting & office). Type of instrument used. Total amount of expenditure. Technical reports, maps, expenditure breakdown, receipts must be filed in duplicate with the Minister within 60 days of recording.
For Land Survey - the name and address of Ontario Land surveyor.

The Required Information is as Follows: (Attach a list if this space is insufficient)

Author: W.E. Brereton
Survey Dates: May, 1981 - Feb., 1982
Instruments: Mark 6 INPUT and Sonotek 5010 proton magnetometer
Expenditure: $1,500.00

RECORDED
FEB 16 1982
Receipt No.

Date February 10, 1982

W.E. Brereton
Signature of Recorded Holder or Agent

The Mining Act
Certificate Verifying Report of Work

I, W.E. Brereton

70[redacted]141 Adelaide Street, West, Toronto, Canada, M5H 3L5
(Post Office Address)

hereby certify:

1. 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.
2. That the annexed report is true.

PORCUPINE
RECEIVED
FEB 15 1982
AM 7 8 9 10 11 12 1 2 3 4 5 6 PM

Dated Feb. 10, 1982 19

W.E. Brereton
Signature

THE PENALTY FOR MAKING A FALSE STATEMENT IN THIS REPORT AND/OR CERTIFICATE IS $500. OR SIX MONTHS IMPRISONMENT OR BOTH

List of Claims

P	585130	20 days
P	585131	20
P	585132	20
P	585133	20
P	585134	20
P	585135	20
P	585136	20
P	585137	20
P	585160	20
P	585161	20
P	585162	20
P	585163	20
P	585164	20
P	585165	20
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P	585167	20
P	585168	20
P	585169	20
P	585170	20
P	585171	20
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P	585289	20
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P	585308	20
P	585552	20
P	585553	20
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P	585556	20
P	585557	20
P	585558	20 days
P	585559	20
P	585560	20
P	585561	20
P	585562	20
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P	585774	20
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P	585776	20
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P	585856	20
P	585819	20
P	585820	20
P	585821	20
P	585822	20
P	585823	20
P	585824	20
P	585825	20

P	~~585825~~	~~20~~ days
P	585826	20
P	585827	20
P	585828	20
P	585829	20
P	585830	20
P	585831	20
P	585832	20
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P	585874	20 days
P	585875	20
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P	586358	20
P	586359	20
P	586360	20
P	586343	20
P	586344	20
P	586349	20
P	586350	20
P	586351	20
P	586352	20

TOTAL CLAIMS - 189

LOWER DETOUR LAKE - M.2603

LITTLE DETOUR LAKE - M.2667

KINGROY LAKE - M.2659

79°45' 79°30' 49°52'30" 49°45'

44' 43' 42' 41' 40' 39' 38' 37' 36' 35' 34' 33' 32' 31'

52' 51' 50' 49' 48' 47' 46'

159 M. 158 M. 157 M. 156 M. 155 M. 154 M. 153 M. 152 M.

Vonderise Lake

Little Detour River

Detour River

Nash Lake

Monaghan Lake

Apex Lake

Dobson Lake

Cuthbert Lake

Fear Lake

Atkinson Lake

PROVINCE OF QUEBEC ONTARIO

24613

200

32E13NE0081 2.4613 ATKINSON LAKE

497793

AREA OF

ATKINSON LAKE

DISTRICT OF COCHRANE

PORCUPINE MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

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

NOTES

400' surface rights reservation along the shores of all lakes and rivers.

DATE OF ISSUE
DEC - 9 1982
Ministry of Natural Resources
TORONTO

NATIONAL TOPOGRAPHIC SERIES 32 E 13

PLAN NO. – M. 2622

ONTARIO
MINISTRY OF NATURAL RE
SURVEYS AND

SUNDAY LAKE M-3003

HOPPER LAKE M-2601

ATKINSON LAKE M-2622

PROVINCE OF QUEBEC

PROVINCE OF ONTARIO

Lower Detour Lake

Detour Lake

Sunday Creek

Sunday River

Survey Line

Charles Taylor

79°45'

79°30'

50°00'

49°52'30"

AREA OF LOWER DETOUR LAKE

DISTRICT OF COCHRANE

PORCUPINE MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

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

NOTES

400' Surface rights reservation around all lakes and rivers

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

Sheet No.	File	Date	Disposition
(P) NR.W.1/81	18811	15/11/81	S.R.O.

DATE OF ISSUE
DEC - 9 1982
Ministry of Natural Resources
TORONTO

NATIONAL TOPOGRAPHIC SERIES 32E13

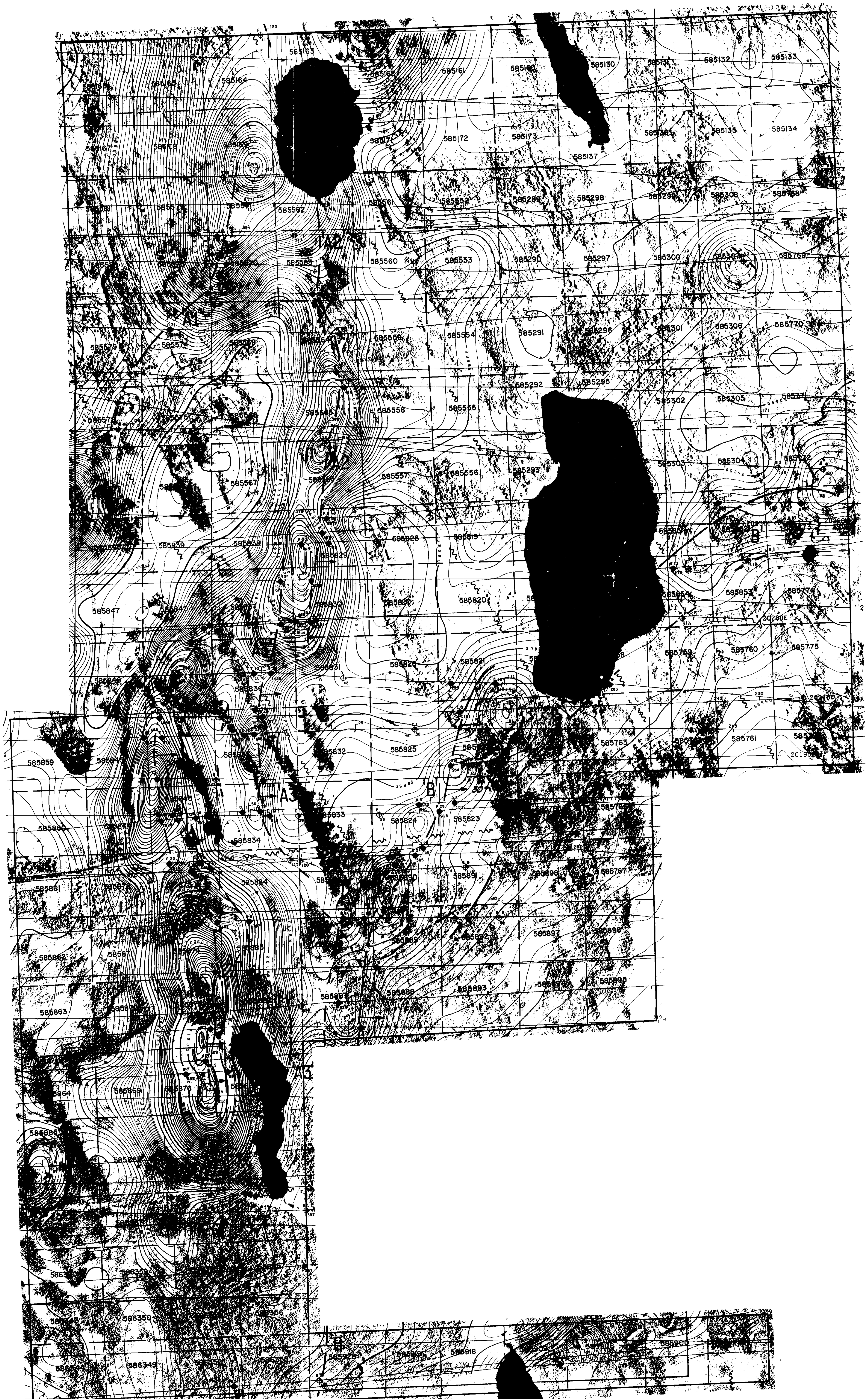
PLAN NO.-M.2603

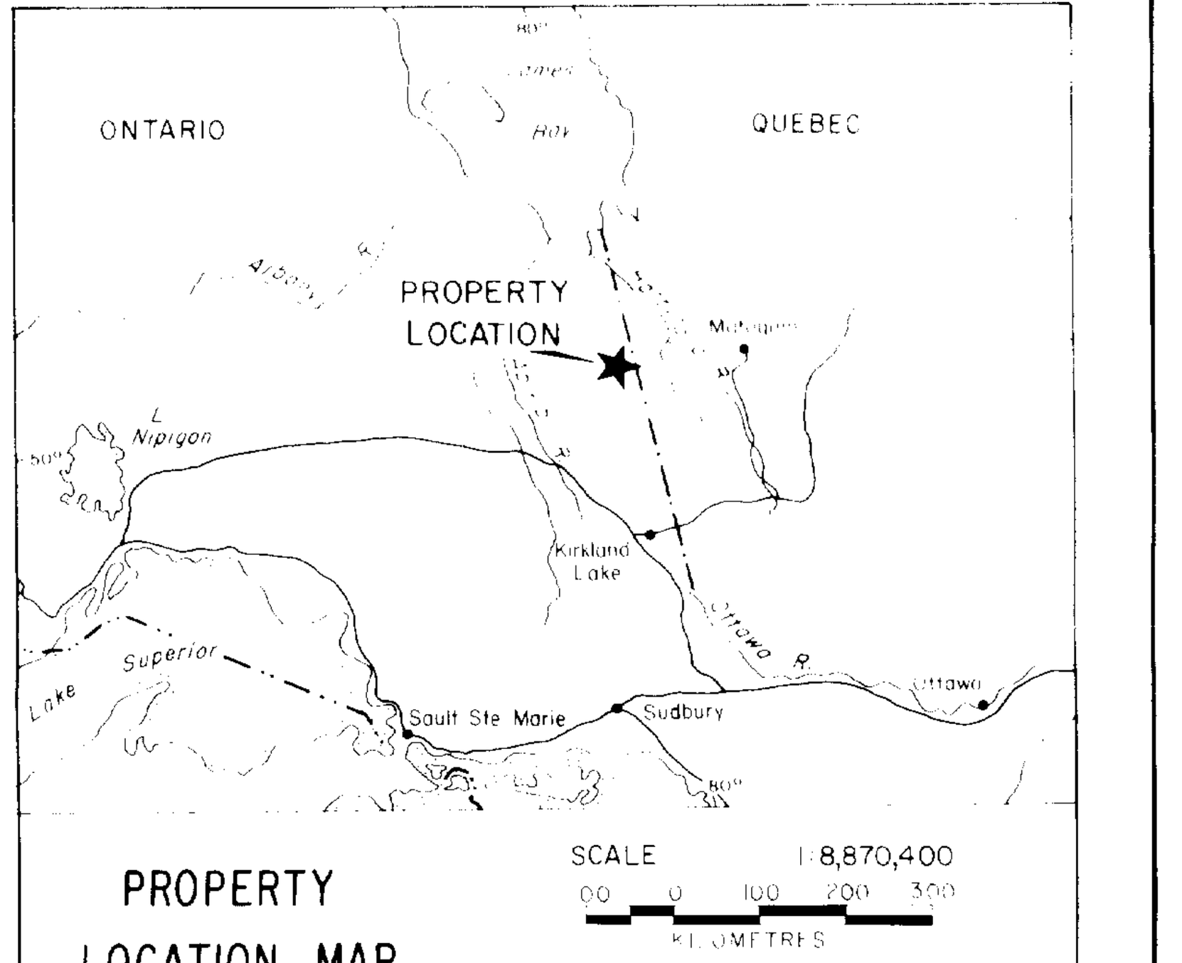
ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

2.4613

498793

32E13NE0881 2.4613 ATKINSON LAKE





PROPERTY LOCATION MAP

LEGEND

10 GAMMA CONTOUR LINE

50 GAMMA CONTOUR LINE

100 GAMMA CONTOUR LINE

(1 GAMMA = 1 NANOTESLA IN SI UNITS)

MAGNETIC DEPRESSION

'A3' EM ANOMALY AXIS

6 CHANNEL ANOMALY

5 CHANNEL ANOMALY

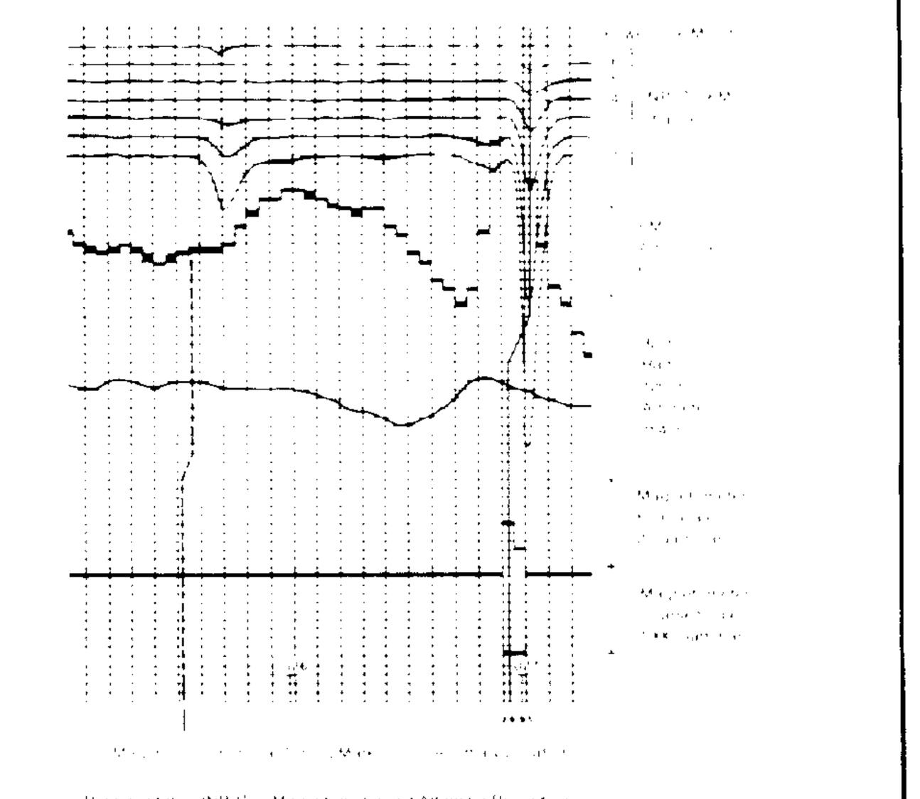
4 CHANNEL ANOMALY

3 CHANNEL ANOMALY

2 CHANNEL ANOMALY

1 CHANNEL ANOMALY

MAGNETIC CORRELATION

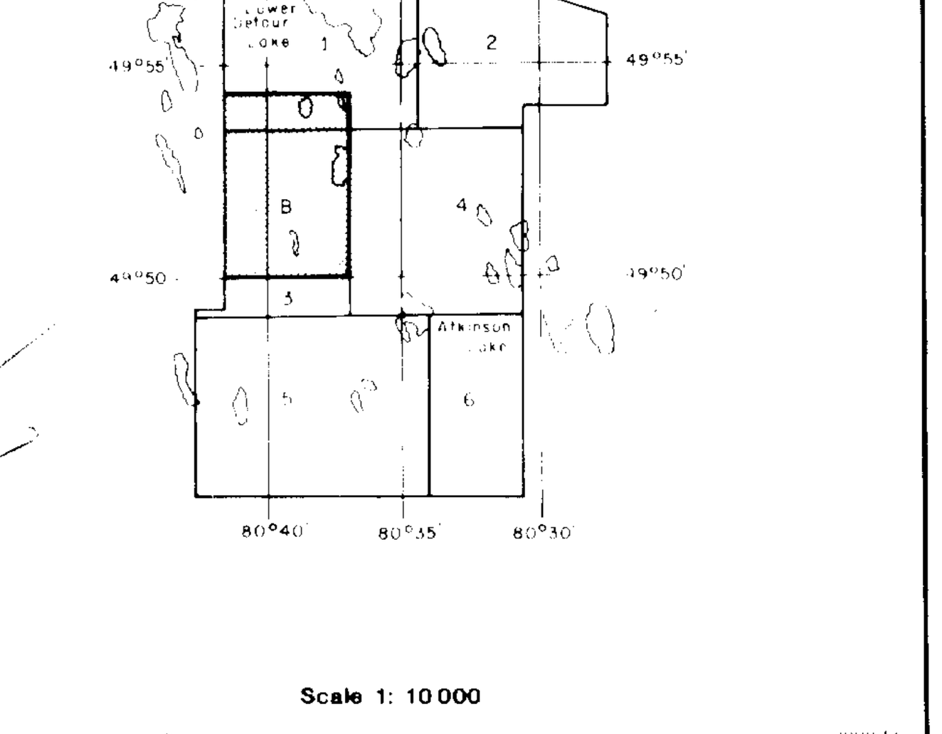


DESCRIPTIVE NOTES

The aircraft is equipped with the Barringer Questor Mark VI INPUT* airborne E.M. System and the Sonotek PMH 5010 Proton Precession Magnetometer and Sonotek SDS 1200 Series Data Acquisition System. The INPUT* system will respond to conductive overburden and near surface horizontal conducting layers in addition to bedrock conductors. Discrimination of conductors is based on the rate of transient decay, magnetic correlation and the anomaly shape together with the conductor pattern and topography.

* Registered Trade Mark of Barringer Research Limited

INTERPRETATION REFERENCES



Scale 1: 10 000

AIRBORNE MK VI INPUT* SURVEY

MPH Consulting Limited

DETOUR WEST

Provinces of ONTARIO/QUÉBEC

FILE NO.	SHEET NO.	DATE	DRAWN BY
23021	1 of 1 BLK. B	MAY '81	Dataplotting Services Inc

Questor Surveys Limited
Mississauga, Ontario Canada