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REPORT ON A
COMBINED HELICOPTER BORNE
MAGNETIC, ELECTROMAGNETIC AND VLF
SURVEY
ARGYLE TOWNSHIP PROPERTY
LARDER LAKE MINING DIVISION
ONTARIO

RECEIVED
JUL 24 1991
MINING LANDS SECTION

FOR
JOUTEL RESOURCES LIMITED
BY
AERODAT LIMITED
JULY 12, 1991

J9127B

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Consulting Geophysicist

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1. INTRODUCTION

This report describes an airborne geophysical survey carried out on behalf of Joutel Resources Limited by Aerodat Limited. Equipment operated included a five frequency electromagnetic system, a high sensitivity cesium vapour magnetometer, a two frequency VLF-EM system, a video tracking camera and a radar altimeter. Electromagnetic, magnetic and altimeter data were recorded both in digital and analog form. Positioning data were recorded on VHS video tapes as well as being marked on the flight path mosaic by the operator while in flight.

The survey area, comprised of a block of ground in the Matachewan area, is located approximately 55 kilometres southeast of Timmins, Ontario. Two (2) flights, which were flown on May 15, 1991, were required to complete the survey. Flight lines were oriented at an Azimuth of 045-225 degrees and flown at a nominal line spacing of 100 metres. Coverage and data quality were considered to be well within the specifications described in the contract.

The survey objective is the detection and location of mineralized zones which can be directly or indirectly related to precious metal or base metal exploration targets. In reference to the electromagnetic data, the writer will pay particular attention to poorly defined EM responses which may reflect poorly mineralized conductors within gold bearing structural features. Weak conductors associated with sheared and altered metavolcanic and metasedimentary rock types are also considered primary targets for precious metals. In regards to base metal targets, short isolated or flanking conductors displaying good conductivity and having either magnetic correlation or no magnetic correlation, are all considered to be areas of extreme interest. Interpretation of the magnetic data should reveal cross-cutting or splay-type structures and it may also reveal stratigraphically controlled sheared or deformation zones. An analysis of the VLF-EM data will also be carried out, in order to locate structures, as well as any weakly conductive horizons that may lead to the location of primary precious metal targets.

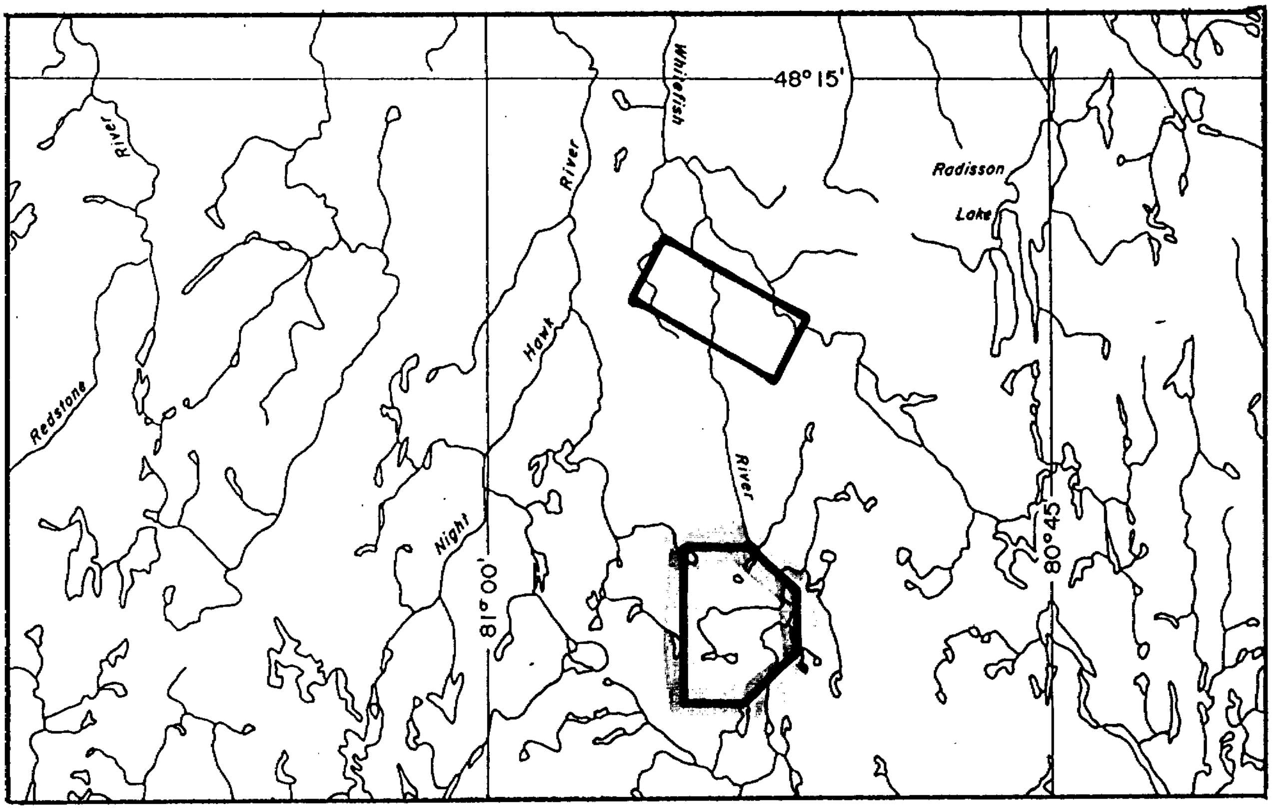
A total of 180 line kilometres of the recorded data were compiled in map form and are presented as part of this report according to specifications outlined by Joutel Resources Limited.

2. SURVEY AREA LOCATION

The survey area is depicted on the index map as shown. It is centred at Latitude 48 degrees 06 minutes north, Longitude 80 degrees 53 minutes west, approximately 55 kilometres southeast of Timmins, Ontario. The survey block is also located approximately 24 kilometres northwest of the village of Matachewan (N.T.S. Reference Map 42 A 2).

Means of access to the survey area can be made from Provincial Highway 566, which traverses across the southern boundary of Argyle Township. This road can be gained from Matachewan. From Highway 566, there are also what appear to be a number of lumber roads traversing throughout much of the region.

The terrain throughout much of the Argyle Property is characterized by gently rolling hills, with relief about 50 feet. For the most part, the elevation is approximately 1050 feet above sea level, with some areas being as high as 1100 feet A.S.L.



AIRBORNE GEOPHYSICAL SURVEY
on behalf of
JOUTEL RESOURCES LIMITED

ARGYLE TOWNSHIP, ONTARIO

BY

AERODAT LIMITED
J9127B

3. AIRCRAFT AND EQUIPMENT

3.1 Aircraft

An Aerospatiale A-Star 350D helicopter, (C-GIBU), owned and operated by Canadian Helicopters Limited, was used for the survey. Installation of the geophysical and ancillary equipment was carried out by Aerodat. The survey aircraft was flown at a mean terrain clearance of 60 metres.

3.2 Equipment

3.2.1 Electromagnetic System

The electromagnetic system was an Aerodat 5-frequency system. Two vertical coaxial coil pairs were operated at 935 Hz. and 4600 Hz. and three horizontal coplanar coil pairs were operated at 865 Hz., 4175 Hz. and 32 kHz. The transmitter-receiver separation was 7 metres. Inphase and quadrature signals were measured simultaneously for the 5 frequencies with a time constant of 0.1 seconds. The electromagnetic bird was towed 30 metres below the helicopter.

3.2.2 VLF-EM System

The VLF-EM System was a Herz Totem 2A. This instrument measures the total field and quadrature components of two selected transmitters, preferably oriented at right angles to one another. The sensor was towed in a bird 15 metres below the helicopter. The VLF transmitters monitored were NAA, Cutler, Maine broadcasting at 24.0 kHz for the Line Station and NLK, Seattle, Washington broadcasting at 24.8 kHz for the Orthogonal Station.

3.2.3 Magnetometer

The magnetometer employed was an Aerodat/Scintrex Model VIW-2321 H8 cesium, optically pumped magnetometer sensor. The sensitivity of this instrument was 0.1 nanoTeslas at a 0.2 second sampling rate. The sensor was towed in a bird 15 metres below the helicopter.

3.2.4 Magnetic Base Station

An IFG (GSM-8) proton precession magnetometer was operated at the base of operations near Matachewan to record diurnal variations of the earth's magnetic field. The clock of the base station was synchronized with that of the airborne system to facilitate later correlation.

3.2.5 Radar Altimeter

A King Air KRA-10 radar altimeter was used to record terrain clearance. The output from the instrument is a linear function of altitude for maximum accuracy.

3.2.6 Tracking Camera

An Aerodat colour video tracking camera was used to record flight path on VHS video tape. The camera was operated in continuous mode and the fiducial numbers and time marks for cross reference to the analog and digital data were encoded on the video tape.

3.2.7 Analog Recorder

An RMS dot-matrix recorder was used to display the data during the survey. In addition to manual and time fiducials, the following data were recorded:

Channel	Input	Scale
CXI1	935 Hz Coaxial Inphase	2.5 ppm/mm
CXQ1	935 Hz Coaxial Quadrature	2.5 ppm/mm
CXI2	4600 Hz Coaxial Inphase	2.5 ppm/mm
CXQ2	4600 Hz Coaxial Quadrature	2.5 ppm/mm
CPI1	865 Hz Coplanar Inphase	10 ppm/mm
CPQ1	865 Hz Coplanar Quadrature	10 ppm/mm
CPI2	4175 Hz Coplanar Inphase	10 ppm/mm
CPQ2	4175 Hz Coplanar Quadrature	10 ppm/mm
CPI3	32 kHz Coplanar Inphase	20 ppm/mm
CPQ3	32 kHz Coplanar Quadrature	20 ppm/mm
PWRL	Power Line	60 Hz
VLT	VLF-EM Total Field, Line	2.5%/mm
VLQ	VLF-EM Quadrature, Line	2.5%/mm
VOT	VLF-EM Total Field, Ortho	2.5%/mm
VOQ	VLF-EM Quadrature, Ortho	2.5%/mm

RALT	Radar Altimeter	10 ft/mm
MAGF	Magnetometer, fine	2.5 nT/mm
MAGC	Magnetometer, coarse	25 nT/mm

3.2.8 Digital Recorder

A DGR 33 data system recorded the survey on magnetic tape. Information recorded was as follows:

Equipment	Recording Interval
EM System	0.1 seconds
VLF-EM	0.2 seconds
Magnetometer	0.2 seconds
Altimeter	0.2 seconds

3.2.9 Global Positioning System

A Trimble (Pathfinder) Global Positioning System (GPS) was used for both navigation and flight path recovery. Navigational satellites were interrogated by the GPS antennae and the navigational computer calculated the position of the helicopter in either UTM co-ordinates or Latitude and Longitudes. The navigational computer used was a Picodas PNAV 2001 display unit and Processor, which also displays to the pilot and navigator the flight path of the helicopter. The positional data were recorded on magnetic tape for subsequent flight path determination.

4. DATA PRESENTATION

4.1 Base Map

A photomosaic base map at a scale of 1:10,000 was prepared from a semi-controlled photo laydown and has been presented on a screened mylar Cronaflex base map.

4.2 Flight Path Map

The flight path was derived from the Global Positioning System. The flight lines have the time and the navigator's manual fiducials for cross reference to both analog and digital data.

The manual fiducials are shown as a small circle and labelled by fiducial number. The 24 hour clock time is shown as a small square, plotted every 30 seconds. Small tick marks are plotted every 2 seconds. Larger tick marks are plotted every 10 seconds. The line and flight numbers are given at the start and end of each survey line.

The flight path map is merged with the base map by matching UTM coordinates from the base maps and the flight path record. The match is confirmed by checking the position of prominent topographic features as recorded by manual fiducial marks or as seen on the flight path video record.

4.3 Airborne Electromagnetic Survey Interpretation Map

The electromagnetic data were recorded digitally at a sample rate of 10 per second with a time constant of 0.1 seconds. A two stage digital filtering process was carried out to reject major sferic events and to reduce system noise.

Local sferic activity can produce sharp, large amplitude events that cannot be removed by conventional filtering procedures. Smoothing or stacking will reduce their amplitude but leave a broader residual response that can be confused with geological phenomena. To avoid this possibility, a computer algorithm searches out and rejects the major sferic events.

The signal to noise ratio was further enhanced by the application of a low pass digital filter. It has zero phase shift which prevents any lag or peak displacement from occurring, and it suppresses only variations with a wavelength less than about 0.25 seconds. This low effective time constant permits maximum profile shape resolution.

Following the filtering process, a base level correction was made. The correction applied is a linear function of time that ensures the corrected amplitude of the various inphase and quadrature components is zero when no conductive or permeable source is present. The filtered and levelled data were used in the interpretation of the electromagnetics. An interpretation map was prepared showing peak locations of anomalies and conductivity thickness ranges along with the Inphase amplitudes (computed from the 4600 Hz coaxial responses). The data are presented on a screened copy of the Cronaflex photomosaic base map.

4.4 Magnetic Total Field Contours

The aeromagnetic data were corrected for diurnal variations by adjustment with the digitally recorded base station magnetic values. The corrected profile data were interpolated onto a regular grid at a 25 metre true scale interval using an Akima spline technique. The grid provided the basis for threading the presented contours at a 2 nanoTesla interval.

The contoured aeromagnetic data have been presented on a Cronaflex copy of the photomosaic base map.

4.5 Vertical Magnetic Gradient Contours

The vertical magnetic gradient was calculated from the gridded total field magnetic data. Contoured at a 0.1 nT/m interval, based on a 25 metre grid, the gradient data were presented on a Cronaflex copy of the photomosaic base map.

4.6 Apparent Resistivity Contours

The electromagnetic information was processed to yield a map of the apparent resistivity of the ground.

The approach taken in computing apparent resistivity was to assume a model of 200 metre thick conductive layer (i.e., effectively a half space) over a resistive bedrock. The computer then generated, from nomograms for this model, the resistivity that would be consistent with the bird elevation and recorded amplitude for the 4600 Hz coaxial frequency of EM data. The apparent resistivity profile data were interpolated onto a regular grid at a 25 metres true scale interval using a cubic spline technique.

The contoured apparent resistivity data were presented on a screened Cronaflex copy of the photomosaic base map with the flight lines.

4.7 VLF-EM Total Field Contours

The VLF electromagnetic data derived from Cutler, Maine was processed to produce a total field contour map on a 25 metre grid with a 1% contour interval. The VLF data for the Line Station is presented on a screened copy of the Cronaflex photomosaic base map.

5. INTERPRETATION

5.1 Geology

Most of the underlying rock types have been designated as being the equivalent to the Blake River Group. These Archean rocks within the survey area consist mainly of calcalkalic basalt and andesite, along with massive, pillowed and fragmental lava with some magnesium-rich tholeiitic lava as well. There are also known to exist within these Blake River Group sequences, calcalkalic dacite and rhyolite flows, breccia and tuff.

Towards the northern portion of the survey area are believed to be ultramafic rocks, consisting of gabbro and diorite.

A few north-south to northwest-southeast Matachewan type diabase dikes traverse through the survey block as well.

Structurally, the writer is not aware of any fault zones within the survey area. There is however, a major splay-type fault that cuts across the northeast survey boundary, coinciding with the Whitefish River. This fault is believed to be an off-shoot from the Montreal River Fault.

With respect to any mineralization within the survey area, or previous exploration work carried out, the writer did not have access to any of this information in order to assist with the geophysical interpretation. The potential in this area is for both base and precious metals. The closest known past producer to this survey area is the former Ashley Gold Mining Corp. Ltd. gold producer. It's located approximately 10 kilometres to the south of the survey area, just outside Bannockburn Township.

5.2 Magnetics

The most obvious magnetic feature within this survey area is the large expanse of relatively low magnetic background throughout most of the region. This would be the area that has previously been described as being associated with the calcalkalic basalt and andesite. Differentiating between these rock types and magnesium-rich tholeiitic lavas based on the magnetics, would seem to be rather difficult.

The north-south to north-northwest trending magnetic features are interpreted as being associated with the Matachewan type diabase dikes. These dikes will be much more obvious with the calculated magnetic vertical gradient presentation. Any change in magnetic intensities along the dikes could be related to the depths of these intrusives.

It is believed that a large ultramafic sill is responsible for the high intensity magnetic feature located towards the northern survey boundary. A mapped gabbro sill is seen just to the northeast of the survey area, suggesting the presence of the one immediately to the north of the survey block. The Matachewan diabase dikes have in turn, intruded the ultramafic sill.

5.3 Vertical Gradient Magnetics

The areas of high intensity magnetics have been broken up into unique trends as a result of the computation of the vertical gradient. These areas are particularly related to the Matachewan type diabase dikes. It is also interesting to note that the central north-south dike has apparently been offset by the north-northwest trending dike, indicating that the latter dike is the younger. Towards the northwest corner of the survey block, note the northwest trending magnetic feature. Is this another diabase dike?

The Blake River metavolcanics are basically showing a rather low intensity magnetic background. The magnetics in these areas are generally indicating strike directions which will be helpful in any follow-up.

A few fault zones have been indicated on the Interpretation Map by the writer. Most are either cross-cutting faults or splay-type faults. Any fault structures in close proximity to the ultramafic sill towards the north, will be of interest for their possible precious metal mineralogical controls.

5.4 Electromagnetics

The electromagnetic data was first checked by a line-by-line examination of the anomaly records. Record quality was good and any instrument noise was well within the specifications of the contract. Any subtle noise that did exist was removed by an appropriate de-spiking filter. Geologic noise, in the form of surficial conductivity, is present on the high coplanar coil, the mid coplanar frequency coil and to a lesser degree on the high frequency coaxial coil. These areas tend to be associated with lake bottom sediments, river bottom silts and swamps.

Anomalies were picked off the analog traces of the low and high frequency coaxial responses and then validated on the coplanar profile data. The data were then edited and re-plotted on a copy of the profile map. This procedure ensured that every anomalous response spotted on the analog data was plotted on the final map and allowed for the rejection - or inclusion if warranted - of obvious surficial conductors. Each conductor or group of conductors was evaluated on the basis of magnetic (and lithologic, where applicable) correlations apparent from the analog data and man-made or surficial features not obvious on the analog charts.

RESULTS

The results of this airborne survey clearly show an extremely resistive overlying overburden cover, as well as underlying basement rocks. Much more apparent is the moderate to highly conductive lake bottom sediments that are scattered throughout the survey block. This is most noticeable within Tomfox Lake and East Night Hawk Lake.

A phenomenon which is obvious over these types of environments is the so-called "edge effect". This is where there are wide, flat-lying, sheet-like conductors that are displaying

EM signatures at the edges, that give the appearance of widely spaced vertical or near vertical bedrock conductors. These phenomena most often exhibit two widely spaced, positive coaxial responses with one positive coplanar response in between. The writer may have outlined one such zone on the Interpretation Map. However, there may be occasions where fault zones along the edge of grabens may give rise to a little stronger EM response. If the EM responses are sharp enough, there is a very good chance that mineralization may be the cause.

There were no electromagnetic responses intercepted within this survey block, including Zone A1, that one could clearly associate with a bedrock source. It does not seem that the nature of the overlying conductive materials would inhibit the detection of any weak bedrock conductor either. In reference to both the lower coaxial and coplanar frequencies, if any deep seated conductors do exist here, they have not been picked up with either frequency.

A great deal more work will have to be carried out within the survey block before a full understanding of the geological and structural implications are known. The nature of the sulphides within any base metal target or fracture filled horizon may be such that the airborne system will not detect them. Any alteration processes that may have taken place within the survey area are probably varied and complex and it is not within the realm of this report to discuss its relationship with mineralization any further.

5.5 Apparent Resistivity

This data presentation did not extract any new information from that of the 5 frequency EM profile presentation. As a result of a 200 metre model being used in the calculation of the apparent resistivity data set, it is clear that any near vertical conductor that may exist in this area, would not be resolved with this presentation, even though some of the so-called "edge effects" may be due to mineralized fault structures.

It will be noted that most lakes have been outlined with this presentation and tend to exhibit apparent resistivities in the order of 1000 ohm-metres. Swamps will generally be in the range of 2500-3000 ohm-metres. Because the apparent resistivity background of the underlying rock types are typically over 4000 ohm-metres, this would tend to suggest that, if any bedrock conductors did exist within the survey area, the airborne 5 frequency EM system probably would have detected them. This may be another reason to believe that there are insufficient amounts of sulphides within the survey block.

With the exception of the conductive lake bottom sediments and swamps that exist within the survey block, some of the other anomalous features should be investigated further. It is suggested that northwest-southeast trending features be investigated, especially those that exist towards the northern portion of the survey boundary. There is also a region within the central portion of the block that should be assessed further as well.

With the assistance of more detailed geological information, this data set may or may not be of any further help in interpreting zones of interest.

5.6 VLF-EM Total Field

There is little, if any, semblance of correlation with the magnetic data, suggesting a probable absence of any relationship with the basement rocks. Depending on what the geological implications are within the survey area, some of the more subtle VLF responses may warrant a further look. This would be particularly true towards the north, in close proximity to the ultramafic sill, as well as the dikes.

In comparing the VLF data with the apparent resistivity data presentation, it will be seen that there is reasonable correlation. Based on this comparison, this would tend to suggest that the VLF-EM system has responded to the conductive lake bottom sediments, as well as to the swamps. In fact, the correlation is quite good. There are some discrepancies however, and these may be the areas that are bedrock related. However, it is felt that the apparent resistivity more accurately outlines the conductive surficial materials compared with the VLF data.

The writer is not sure of the thickness of the overlying Pleistocene materials, but there is a good chance that the VLF is not penetrating through to the basement. It seems that the depth of penetration capabilities of the VLF-EM system is 100 feet at the best of times.

It is suggested that with the assistance of all available geology, that coincident VLF anomalies with magnetic features be looked at. These signatures may be reflecting disseminated pyrrhotite, that was unable to be picked up with the 5 frequency EM system. Structures in close proximity to the ultramafic sill will be of interest as well.

5.7 Conclusion and Recommendations

On the basis of the results of this airborne survey, ground follow-up is suggested for a few areas as indicated by the writer in Section 5.5 of this report. It is felt that each of these targets would be of primary interest for their base metal potential. However, this is also an area that has geological implications to having precious metal potential as well, as noted towards the northwest corner of Bannockburn Township.

There were no 5 frequency EM responses intercepted that one could associate with bedrock sources. However, the apparent resistivity data presentation may be of interest in a couple of areas for their possible relationship with bedrock sources, one being located near the contact with the ultramafic sill.

Structural information should be obtained through a more comprehensive evaluation of the magnetic data and possibly, to a lesser degree, through an overview of the VLF data. Cross-cutting and splay type faults are evident within some portions of the survey block. These are extremely important with respect to any precious metal mineralogical controls and a such, the development of these structural events through interpreting the magnetic data will be strongly advised. The development of any possible deformation zones will be important, particularly near the contact with the ultramafic sill.

Prospecting and soil geochemical surveying could be carried out in the vicinity of Zone A1, as well as in the region of a few of the apparent resistivity features.

Because of the absence of any strong electromagnetic responses in this area, it is felt that an induced polarization (IP) survey would be more conducive to the type of mineralogical environment that may be found as a result of following up on some of these anomalous features.

In summary, only one, very weak conductor has been outlined on the Interpretation Map by the writer. However, this is certainly not a priority target. Apparent resistivity trends in the vicinity of the large ultramafic sill may be associated with a metamorphosed aureole. As such, these should be looked at further. Fault structures in this same region should also be important targets. At this point, the writer is not familiar with the importance, if any, or the implications of the diabase dikes with respect to mineralization controls.

It is a matter of using all resources, including the various geophysical data presentations, previous drill hole and geological information, that may lead to an interesting on-going exploration program.

Respectfully submitted,

R.J. de Carle

Robert J. de Carle
Consulting Geophysicist
for
AERODAT LIMITED
July 12, 1991

J9127B

APPENDIX I

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APPENDIX II

PERSONNEL

FIELD

Flown	May 15, 1991
Pilots	Greg Charbonneau
Operators	Scott Wessler

OFFICE

Processing	Tom Furuya George McDonald
Report	R.J. de Carle

APPENDIX III

CERTIFICATE OF QUALIFICATIONS

I, ROBERT J. DE CARLE, certify that: -

1. I hold a B. A. Sc. in Applied Geophysics with a minor in geology from Michigan Technological University, having graduated in 1970.
2. I reside at 28 Westview Crescent in the town of Palgrave, Ontario.
3. I have been continuously engaged in both professional and managerial roles in the minerals industry in Canada and abroad for the past twenty years.
4. I have been an active member of the Society of Exploration Geophysicists since 1967 and hold memberships on other professional societies involved in the minerals extraction and exploration industry.
5. The accompanying report was prepared from information published by government agencies, materials supplied by Joutel Resources Limited and from a review of the proprietary airborne geophysical survey flown by Aerodat Limited for Joutel Resources Limited. I have not personally visited the property.
6. I have no interest, direct or indirect, in the property described nor do I hold securities in Joutel Resources Limited.

Signed,

R.J. de Carle

Robert J. de Carle
Consulting Geophysicist
for
AERODAT LIMITED

Palgrave, Ontario
July 12, 1991

APPENDIX IV

GENERAL INTERPRETIVE CONSIDERATIONS

Electromagnetic

The Aerodat four frequency system utilizes two different transmitter-receiver coil geometries. The traditional coaxial coil configuration is operated at two widely separated frequencies. The horizontal coplanar coil configuration is similarly operated at two different frequencies where one pair is approximately aligned with one of the coaxial frequencies.

The electromagnetic response measured by the helicopter system is a function of the "electrical" and "geometrical" properties of the conductor. The "electrical" property of a conductor is determined largely by its electrical conductivity, magnetic susceptibility and its size and shape; the "geometrical" property of the response is largely a function of the conductor's shape and orientation with respect to the measuring transmitter and receiver.

Electrical Considerations

For a given conductive body the measure of its conductivity or conductance is closely related to the measured phase shift between the received and transmitted electromagnetic field. A small phase shift indicates a relatively high conductance, a large phase shift lower conductance. A small phase shift results in a large inphase to quadrature ratio and a large phase shift a low ratio. This relationship is shown quantitatively for a non-magnetic vertical half-plane model on the accompanying phasor diagram. Other physical models will show the same trend but different quantitative relationships.

The phasor diagram for the vertical half-plane model, as presented, is for the coaxial coil configuration with the amplitudes in parts per million (ppm) of the primary field as measured at the response peak over the conductor. To assist the interpretation of the survey results the computer is used to identify the apparent conductance and depth at selected anomalies. The results of this calculation are presented in table form in Appendix IV and the conductance and inphase amplitude are presented in symbolized form on the map presentation.

The conductance and depth values as presented are correct only as far as the model approximates the real geological situation. The actual geological source may be of limited length, have significant dip, may be strongly magnetic, its conductivity and thickness may vary with depth and/or strike and adjacent bodies and overburden may have modified the response. In general the conductance estimate is less affected by these limitations than is the depth estimate, but both should be considered as relative rather than absolute guides to the anomaly's properties.

Conductance in mhos is the reciprocal of resistance in ohms and in the case of narrow slab-like bodies is the product of electrical conductivity and thickness.

Most overburden will have an indicated conductance of less than 2 mhos; however, more conductive clays may have an apparent conductance of say 2 to 4 mhos. Also in the low conductance range will be electrolytic conductors in faults and shears.

The higher ranges of conductance, greater than 4 mhos, indicate that a significant fraction of the electrical conduction is electronic rather than electrolytic in nature. Materials that conduct electronically are limited to certain metallic sulphides and to graphite. High conductance anomalies, roughly 10 mhos or greater, are generally limited to sulphide or graphite bearing rocks.

Sulphide minerals, with the exception of such ore minerals as sphalerite, cinnabar and stibnite, are good conductors; sulphides may occur in a disseminated manner that inhibits electrical conduction through the rock mass. In this case the apparent conductance can seriously underrate the quality of the conductor in geological terms. In a similar sense the relatively non-conducting sulphide minerals noted above may be present in significant consideration in association with minor conductive sulphides, and the electromagnetic response only relate to the minor associated mineralization. Indicated conductance is also of little direct significance for the identification of gold mineralization. Although gold is highly conductive, it would not be expected to exist in sufficient quantity to create a recognizable anomaly, but minor accessory sulphide mineralization could provide a useful indirect indication.

In summary, the estimated conductance of a conductor can provide a relatively positive identification of significant sulphide or graphite mineralization; however, a moderate to low conductance value does not rule out the possibility of significant economic mineralization.

Geometrical Considerations

Geometrical information about the geologic conductor can often be interpreted from the profile shape of the anomaly. The change in shape is primarily related to the change in inductive coupling among the transmitter, the target, and the receiver.

In the case of a thin, steeply dipping, sheet-like conductor, the coaxial coil pair will yield a near symmetric peak over the conductor. On the other hand, the coplanar coil pair will pass through a null couple relationship and yield a minimum over the conductor, flanked by positive side lobes. As the dip of the conductor decreased from vertical, the coaxial anomaly shape changes only slightly, but in the case of the coplanar coil pair the side lobe on the down dip side strengthens relative to that on the up dip side.

As the thickness of the conductor increases, induced current flow across the thickness of the conductor becomes relatively significant and complete null coupling with the coplanar coils is no longer possible. As a result, the apparent minimum of the coplanar response over the conductor diminishes with increasing thickness, and in the limiting case of a fully 3 dimensional body or a horizontal layer or half-space, the minimum disappears completely.

A horizontal conducting layer such as overburden will produce a response in the coaxial and coplanar coils that is a function of altitude (and conductivity if not uniform). The profile shape will be similar in both coil configurations with an amplitude ratio (coplanar:coaxial) of about 4:1*.

In the case of a spherical conductor, the induced currents are confined to the volume of the sphere, but not relatively restricted to any arbitrary plane as in the case of a sheet-like form. The response of the coplanar coil pair directly over the sphere may be up to 8* times greater than that of the coaxial pair.

In summary, a steeply dipping, sheet-like conductor will display a decrease in the coplanar response coincident with the peak of the coaxial response. The relative strength of this coplanar null is related inversely to the thickness of the conductor; a pronounced null indicates a relatively thin conductor. The dip of such a conductor can be inferred from the relative amplitudes of the side-lobes.

Massive conductors that could be approximated by a conducting sphere will display a simple single peak profile form on both coaxial and coplanar coils, with a ratio between the coplanar to coaxial response amplitudes as high as 8*.

Overburden anomalies often produce broad poorly defined anomaly profiles. In most cases, the response of the coplanar coils closely follows that of the coaxial coils with a relative amplitude ration of 4*.

Occasionally, if the edge of an overburden zone is sharply defined with some significant depth extent, an edge effect will occur in the coaxial coils. In the case of a horizontal conductive ring or ribbon, the coaxial response will consist of two peaks, one over each edge; whereas the coplanar coil will yield a single peak.

* It should be noted at this point that Aerodat's definition of the measured ppm unit is related to the primary field sensed in the receiving coil without normalization to the maximum coupled (coaxial configuration). If such normalization were applied to the Aerodat units, the amplitude of the coplanar coil pair would be halved.

Magnetics

The Total Field Magnetic Map shows contours of the total magnetic field, uncorrected for regional variation. Whether an EM anomaly with a magnetic correlation is more likely to be caused by a sulphide deposit than one without depends on the type of mineralization. An apparent coincidence between an EM and a magnetic anomaly may be caused by a conductor which is also magnetic, or by a conductor which lies in close proximity to a magnetic body. The majority of conductors which are also magnetic are sulphides containing pyrrhotite and/or magnetite. Conductive and magnetic bodies in close association can be, and often are, graphite and magnetite. It is often very difficult to distinguish between these cases. If the conductor is also magnetic, it will usually produce an EM anomaly whose general pattern resembles that of the magnetics. Depending on the magnetic permeability of the conducting body, the amplitude of the inphase EM anomaly will be weakened, and if the conductivity is also weak, the inphase EM anomaly may even be reversed in sign.

VLF Electromagnetics

The VLF-EM method employs the radiation from powerful military radio transmitters as the primary signals. The magnetic field associated with the primary field is elliptically polarized in the vicinity of electrical conductors. The Herz Totem uses three coils in the X, Y, Z configuration to measure the total field and vertical quadrature component of the polarization ellipse.

The relatively high frequency of VLF (15-25) kHz provides high response factors for bodies of low conductance. Relatively "disconnected" sulphide ores have been found to produce measurable VLF signals. For the same reason, poor conductors such as sheared contacts, breccia zones, narrow faults, alteration zones and porous flow tops normally produce VLF anomalies. The method can therefore be used effectively for geological mapping. The only relative disadvantage of the method lies in its sensitivity to conductive overburden. In conductive ground to depth of exploration is severely limited.

The effect of strike direction is important in the sense of the relation of the conductor axis relative to the energizing electromagnetic field. A conductor aligned along a radius drawn from a transmitting station will be in a maximum coupled orientation and thereby produce a stronger response than a similar conductor at a different strike angle. Theoretically, it would be possible for a conductor, oriented tangentially to the transmitter to produce no signal. The most obvious effect of the strike angle consideration is that conductors favourably oriented with respect to the transmitter location and also near perpendicular to the flight direction are most clearly rendered and usually dominate the map presentation.

The total field response is an indicator of the existence and position of a conductivity anomaly.

The response will be a maximum over the conductor, without any special filtering, and strongly favour the upper edge of the conductor even in the case of a relatively shallow dip.

The vertical quadrature component over steeply dipping sheet-like conductor will be a cross-over type response with the cross-over closely associated with the upper edge of the conductor.

The response is a cross-over type due to the fact that it is the vertical rather than total field quadrature component that is measured. The response shape is due largely to geometrical rather than conductivity considerations and the distance between the maximum and minimum on either side of the cross-over is related to target depth. For a given target geometry, the larger this distance the greater the depth.

The amplitude of the quadrature response, as opposed to shape is function of target conductance and depth as well as the conductivity of the overburden and host rock. As the primary field travels down to the conductor through conductive material it is both attenuated and phase shifted in a negative sense. The secondary field produced by this altered field at the target also has an associated phase shift. This phase shift is positive and is larger for relatively poor conductors. This secondary field is attenuated and phase shifted in a negative sense during return travel to the surface. The net effect of these 3 phase shifts determine the phase of the secondary field sensed at the receiver.

A relatively poor conductor in resistive ground will yield a net positive phase shift. A relatively good conductor in more conductive ground will yield a net negative phase shift. A combination is possible whereby the net phase shift is zero and the response is purely in-phase with no quadrature component.

A net positive phase shift combined with the geometrical cross-over shape will lead to a positive quadrature response on the side of approach and a negative on the side of departure. A net negative phase shift would produce the reverse. A further sign reversal occurs with a 180 degree change in instrument orientation as occurs on reciprocal line headings. During digital processing of the quadrature data for map presentation this is corrected for by normalizing the sign to one of the flight line headings.

APPENDIX V

ANOMALY LIST

JOUTEL RESOURCES LIMITED - ARGYLE PROPERTY

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
5	30330	A	0	0.1	5.5	0.0	11	-11

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.

ML

Ministry of Northern Development and Mines
Ontario

WORK

DOCUMENT No.
W9180 • 00228

Instructions
- Please type June 28
- Refer to Section 77, the Mining Act for assessment work requirements and maximum credits allowed per survey type.

Mining Act
Report of Work
(Geophysical, Geological and Geoch

42A02SW0050 2.14245 ARGYLE

900

2.14245

Type of Survey(s): Airborne EM VLF Mag

Recorded Holder(s): Joutel Resources ~~Ltd.~~ Limited

Address: Box 183, Kirkland Lake, Ontario P2N 3H7

Telephone No.: (705) 567-3261

Survey Company: Aerodat Limited

Name and Address of Author (of Geo-Technical Report): D. Pitcher-Aerodat Limited

Date of Survey (from & to): 15 05 91 | 15 05 91 (Day Mo. Yr. | Day Mo. Yr.)

Credits Requested per Each Claim in Columns at right

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

Total miles flown over claim(s). 14.0

Date: 27/05/91

Recorded Holder or Agent (Signature)

Mining Claims Traversed (List in numerical sequence)

Mining Claim		Mining Claim		Mining Claim	
Prefix	Number	Prefix	Number	Prefix	Number
L	1132396				
	1132397				
	1132398				
	1132399				
	1168974				
	1168975				
	1168976				
	1168977				
	1168978				
	1168979				
	1168980				
	1168981				

RECEIVED
JUN 19 1991
MINING LANDS SECTION

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

Certification Verifying Report of Work

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

Name and Address of Person Certifying: W. J. McGuinty Box 193, Kirkland Lake, Ontario P2N 3H7

Telephone No: (705) 567-3261

Date: 27/05/91

Certified By (Signature)

Received Stamp

JUN 28 PM 1 14

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Mining Recorder
960	May 28/91	for J. B
	Date Approved as Recorded	Provincial Manager, Mining Lands
	Oct 7/91	Ron C Gashinski

1362 (89/06)

Ministry of Northern Development and Mines
Ontario

DOCUMENT No.
W9180·00025 ~~WORK~~

~~June 28~~ July 27

Instructions
- Please type or print.
- Refer to Section 77, the Mining Act for assessment work requirements and maximum credits allowed per survey type.
- If number of mining claims traversed exceeds space on this form, attach a list.
- Technical Reports and maps in duplicate should be submitted to Mining Lands Section, Mineral Development and Lands Branch.

Mining Act

Report of Work
(Geophysical, Geological and Geochemical Surveys)

Type of Survey(s): Airborne EM VLF Mag
Mining Division: Larder Lake
Township or Area: ARGYLE
Recorded Holder(s): Fred Kiernicki
Prospector's Licence No.: K19582
Address: Box 193 Kirkland Lake, Ontario P2N 3H7
Telephone No.: (705) 567-3261
Survey Company: Aerodat Limited

2.14245

Name and Address of Author (of Geo-Technical Report): D. Pitcher-Aerodat Limited
Date of Survey (from & to): 15 05 91 | 15 05 91 (Day Mo. Yr.)

Credits Requested per Each Claim in Columns at right

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

Total miles flown over claim(s). 21.0

Date: 27/05/91
Recorded Holder or Agent (Signature): Fred Kiernicki

Mining Claims Traversed (List in numerical sequence)

Mining Claim		Mining Claim		Mining Claim	
Prefix	Number	Prefix	Number	Prefix	Number
L	1132355	L	1168313		
	1132356		1168314		
	1132357		1168315		
	1132358		1168316		
	1168040		1168317		
	1168041				
	1168042				
	1169083				
	1169084				
	1169085				
	1169086				
	1169087				
	1169088				
	1169089				
	1169090				

RECEIVED
JUN 24 1991
MINING LANDS SECTION

Total number of mining claims covered by this report of work. 20

Certification Verifying Report of Work

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

Name and Address of Person Certifying: W. J. McGuinty Box 193
Kirkland Lake, Ontario P2N 3H7
Telephone No.: (705) 567-3261
Date: 27/05/91
Certified By (Signature):

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Mining Recorder
1600	May 28 /91	
	Date Approved as Recorded	Provincial Manager, Mining Lands
	Oct 7/91	

Received Stamp

VED
91 MAY 28 PM 1 14
DIVISION
LAR LAKE

1362 (89/06)

Ministry of
Northern Development
and Mines
Ontario

Geophysical-Geological-Geochemical Technical Data Statement

File ____________

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.

2.14245

Type of Survey(s) Combined Helicopter Borne MAGNETIC, ~~Electromagnetic and VLF~~

Township or Area Argyle

Claim Holder(s) Fred Kiernicki/Joutel Resources Limited

Survey Company Aerodat Ltd., 3883 Nashua Drive, Mississauga, Ontario L4V 1R3

Author of Report R. J. de Carle / D. Pitcher

Address of Author ~~3883 Nashua Drive, Mississauga, Ont.~~

Covering Dates of Survey May 15, 1991
(linecutting to office)

Total Miles of Line Cut ____________

SPECIAL PROVISIONS CREDITS REQUESTED

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

ENTER 20 days for each additional survey using same grid.

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

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

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

DATE: July 23 /91 SIGNATURE: W J McGinty
Author of Report or Agent

Res. Geol. ____________ Qualifications ____________

Previous Surveys

File No.	Type	Date	Claim Holder

RECEIVED
JUL 24 1991
MINING LANDS [illegible]

OFFICE USE ONLY

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
L	1132355
	1132356
	1132357
	1132358
	1132396
	1132397
	1132398
	1132399
	1168040
	1168041
	1168042
	1168313
	1168314
	1168315
	1168316
	1168317
	1168974
	1168975
	1168976
	1168977
	1168978
	1168979

TOTAL CLAIMS con't per attach

If space insufficient, attach list

837 (85/12)

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 ______

1168980

1168981

1169083

1169084

1169085

1169086

1169087

1169088

1169089

1169090

Total number claims 32

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) Comb. Helicopter Borne Magnetic, Electromagnetic & VLF

Instrument(s) Aerodat 5-frequency system, Herz Totem 2A, Aerodat/Scintrex Model VIW-2321 H8 cesium, optically pumped magnetometer sensor

(specify for each type of survey)

Accuracy ______

(specify for each type of survey)

Aircraft used Aerospatiale A-Star 350D Helicopter

Sensor altitude EM (30m) 98.4' - VLF-EM (45m) 147.6' - MAG (45m) 147.6'

Navigation and flight path recovery method Trimble (Pathfinder) Global Positioning System

Aircraft altitude (60m) 196.80 Line Spacing (100m) 328.1'

Miles flown over total area (180km) 111.8mi Over claims only (70.5 km) 43.8 mi

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 ______

______

______

______

______

______

______

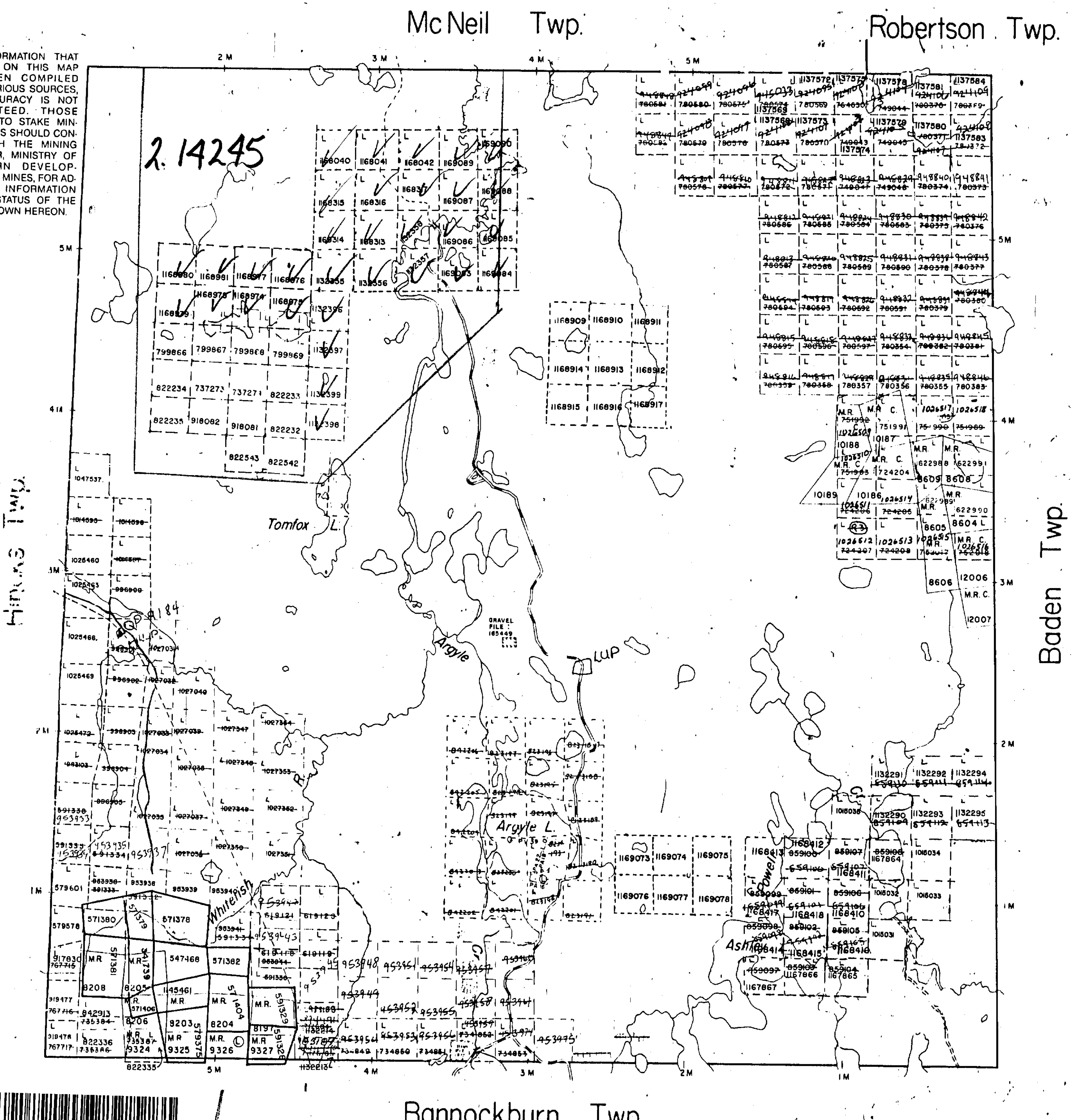
______

______

______

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

2.14245



THE TOWNSHIP OF

ARGYLE

DISTRICT OF TIMISKAMING

LARDER LAKE MINING DIVISION

SCALE: 1-INCH=40 CHAINS

LEGEND

PATENTED LAND
CROWN LAND SALE
LEASES
LOCATED LAND
LICENSE OF OCCUPATION
MINING RIGHTS ONLY
SURFACE RIGHTS ONLY
ROADS
IMPROVED ROADS
KING'S HIGHWAYS
RAILWAYS
POWER LINES
MARSH OR MUSKEG
MINES
CANCELLED

NOTES

400' Surface rights reservatio[illegible] rivers.

WITHDRAWALS AND REOPENINGS

Ⓡ₁ Surface and Mining Rights Withdrawn from Staking, section 36/80 order No. W. 8/86
O-12/88L OPENS W-8/86.

Ⓡ₂ Surface and Mining Rights Withdrawn from Staking, section 36/80 order No. W. 18/86

Ⓡ₃ Surface and Mining Rights Withdrawn from Staking, section 36/80 order No. W. 101/86

Ⓡ3 AND PART ⓇI REOPENED FOR STAKING UNDER ORDER 0-90/87 NR

O-L23-90 NR OPENS PART OF W18/86, NOV 21/90

DATE OF ISSUE
JUN 26 1991
LARDER LAKE MINING RECORDER'S OFFICE

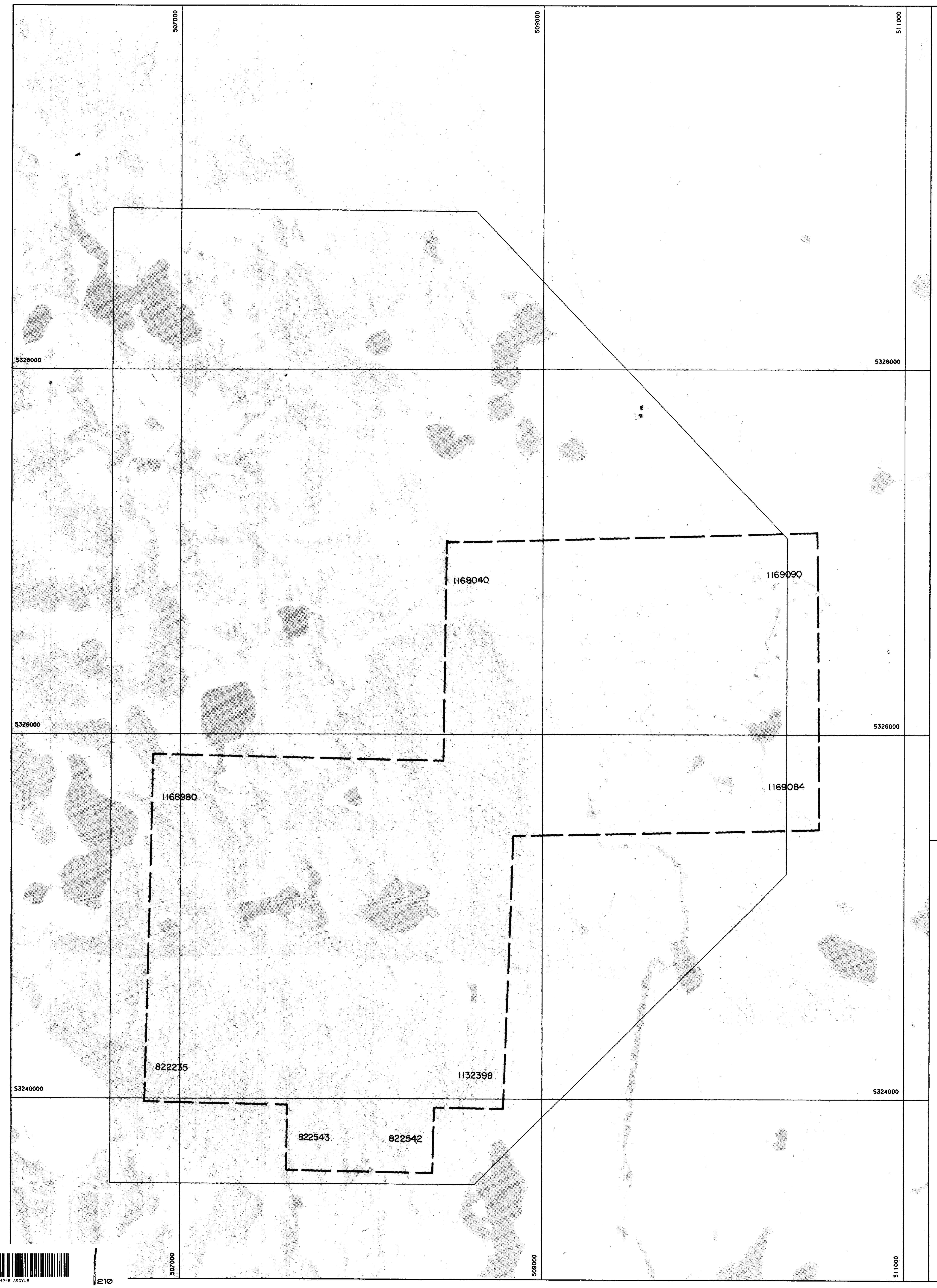
4

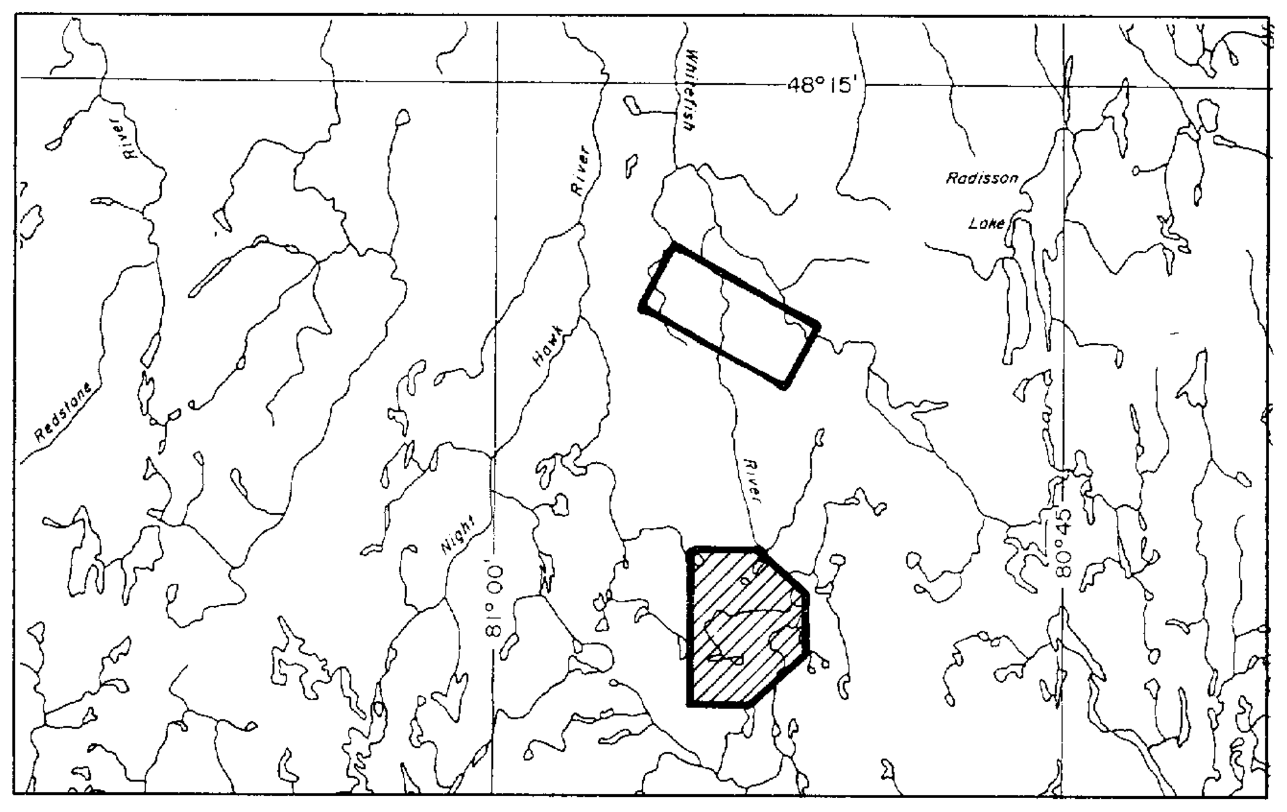
PLAN NO.- M-203 # 5

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

42A02SW0050 2.14245 ARGYLE

200





JOUTEL RESOURCES LIMITED

BASE MAP

2.14245

ARGYLE PROPERTY

ONTARIO

SCALE 1:10,000

0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

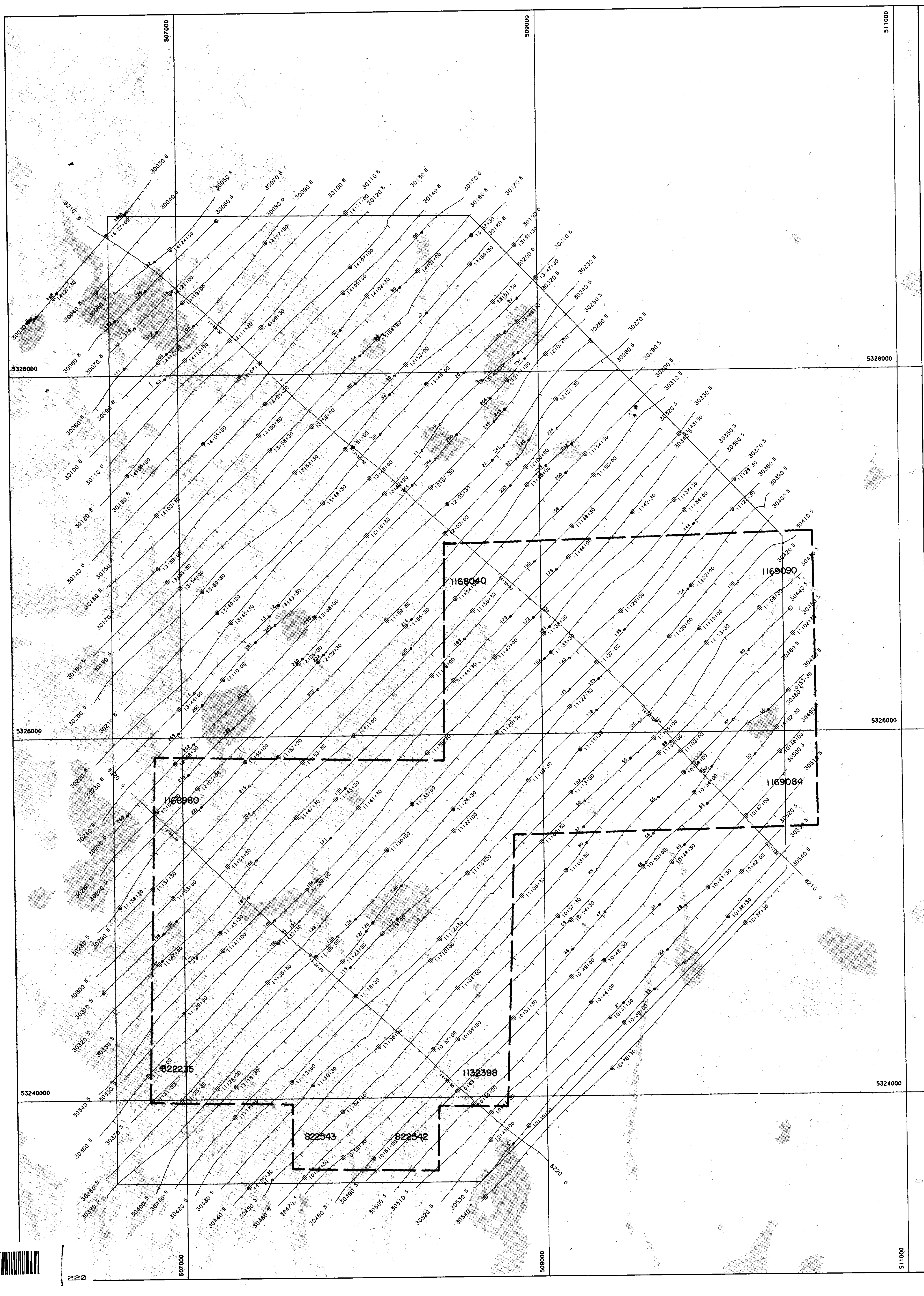
AERODAT LIMITED

DATE: MAY 1991

NTS No: 42 A

MAP No: 1 J9127- 1

210



N

Flight Path

Navigation and recovery using a Global Positioning (GPS) navigation system.

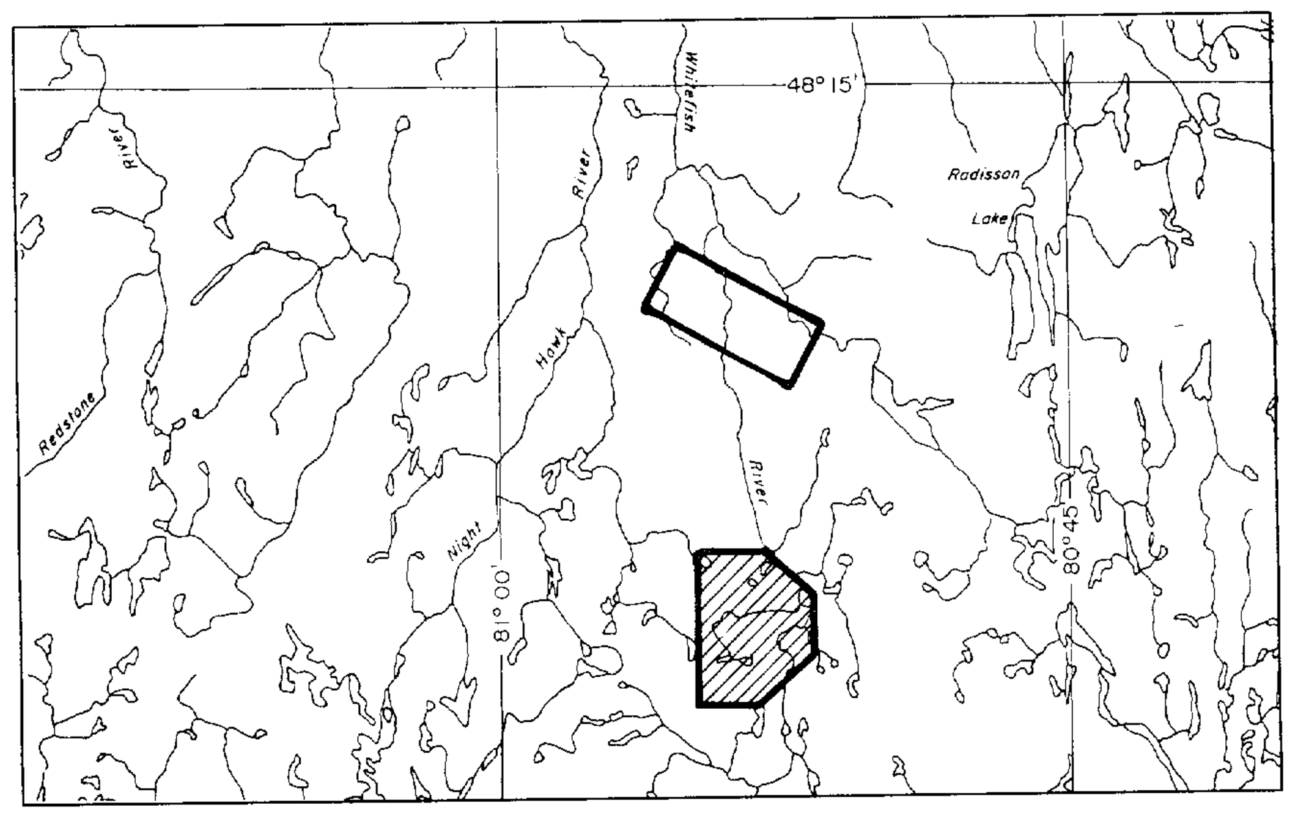
Average terrain clearance 60m
Average line spacing 100m

EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◕	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30

EM Anomaly A, 4600 Hz inphase amplitude 7 ppm. Conductivity thickness 1-2 mhos (see code).



JOUTEL RESOURCES LIMITED

FLIGHT PATH

2.14245

ARGYLE PROPERTY

ONTARIO

SCALE 1:10,000

0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

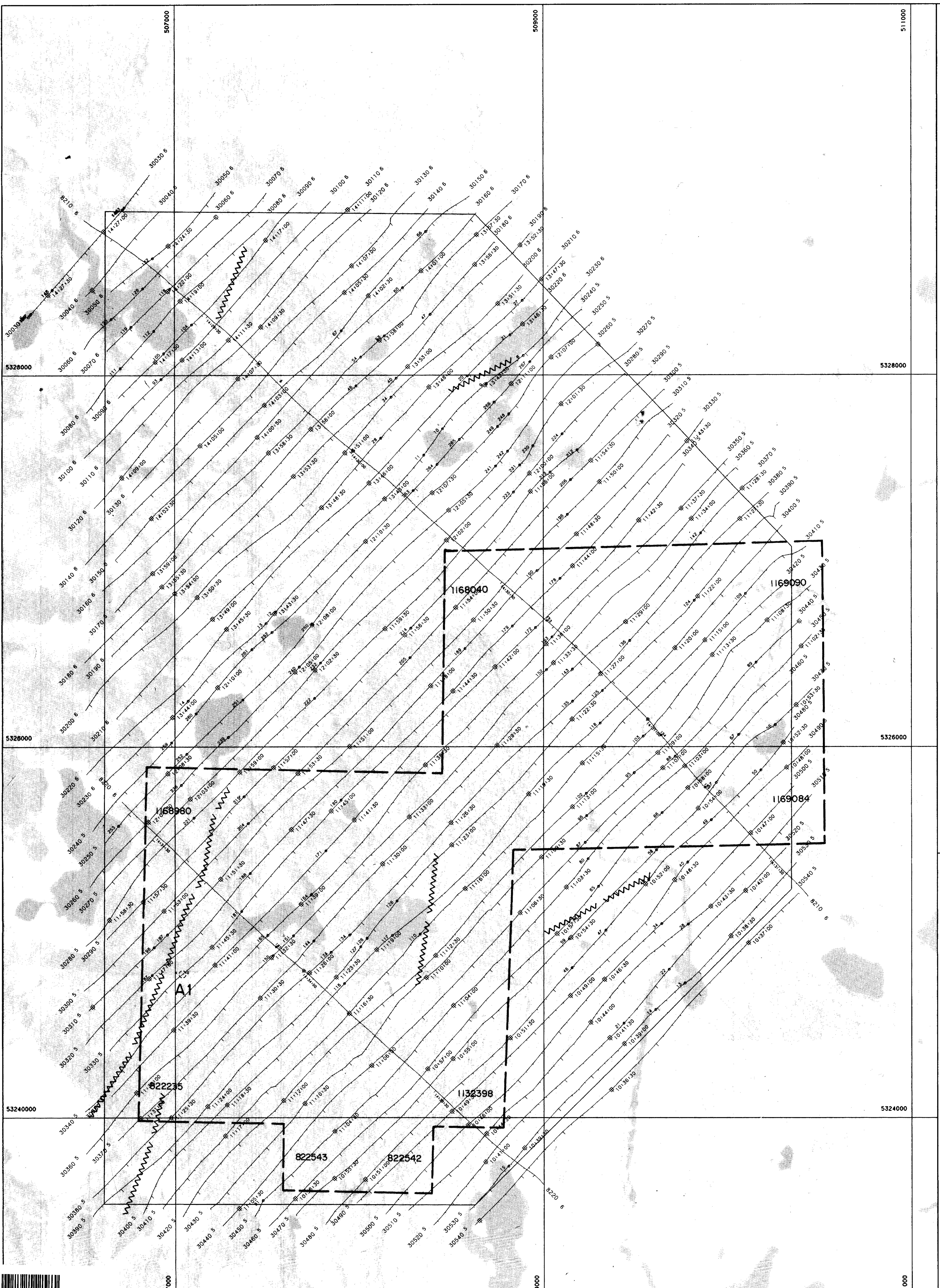
AERODAT LIMITED

DATE: MAY 1991

NTS No: 42 A

MAP No: 2 J9127- 1

220



Flight Path

Navigation and recovery using a Global Positioning (GPS) navigation system.

Average terrain clearance 60m
Average line spacing 100m

EM Anomalies

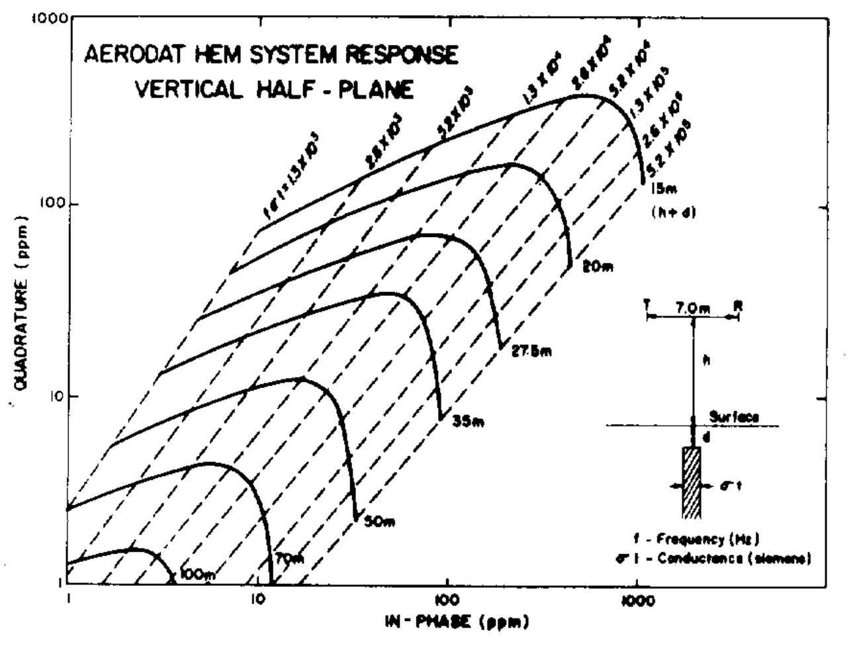
Conductivity Thickness (mhos)

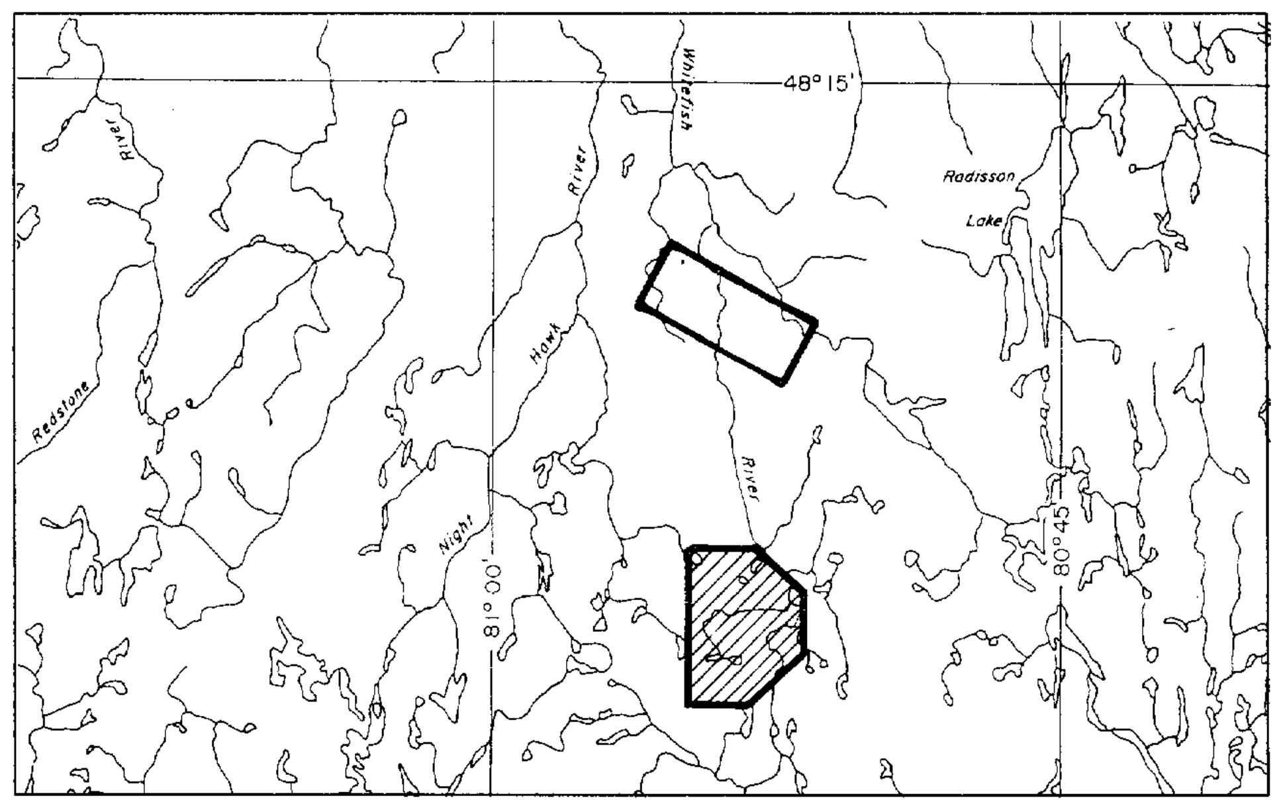
◌	0 - 1
○	1 - 2
⊖	2 - 4
◕	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30

EM Anomaly A, 4600 Hz
inphase amplitude 7 ppm.
Conductivity thickness
1-2 mhos (see code).

INTERPRETATION LEGEND

─○─	Interpreted bedrock conductor axis
∿∿∿∿	Fault





JOUTEL RESOURCES LIMITED

INTERPRETATION

2.14245

ARGYLE PROPERTY

ONTARIO

SCALE 1:10,000

0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

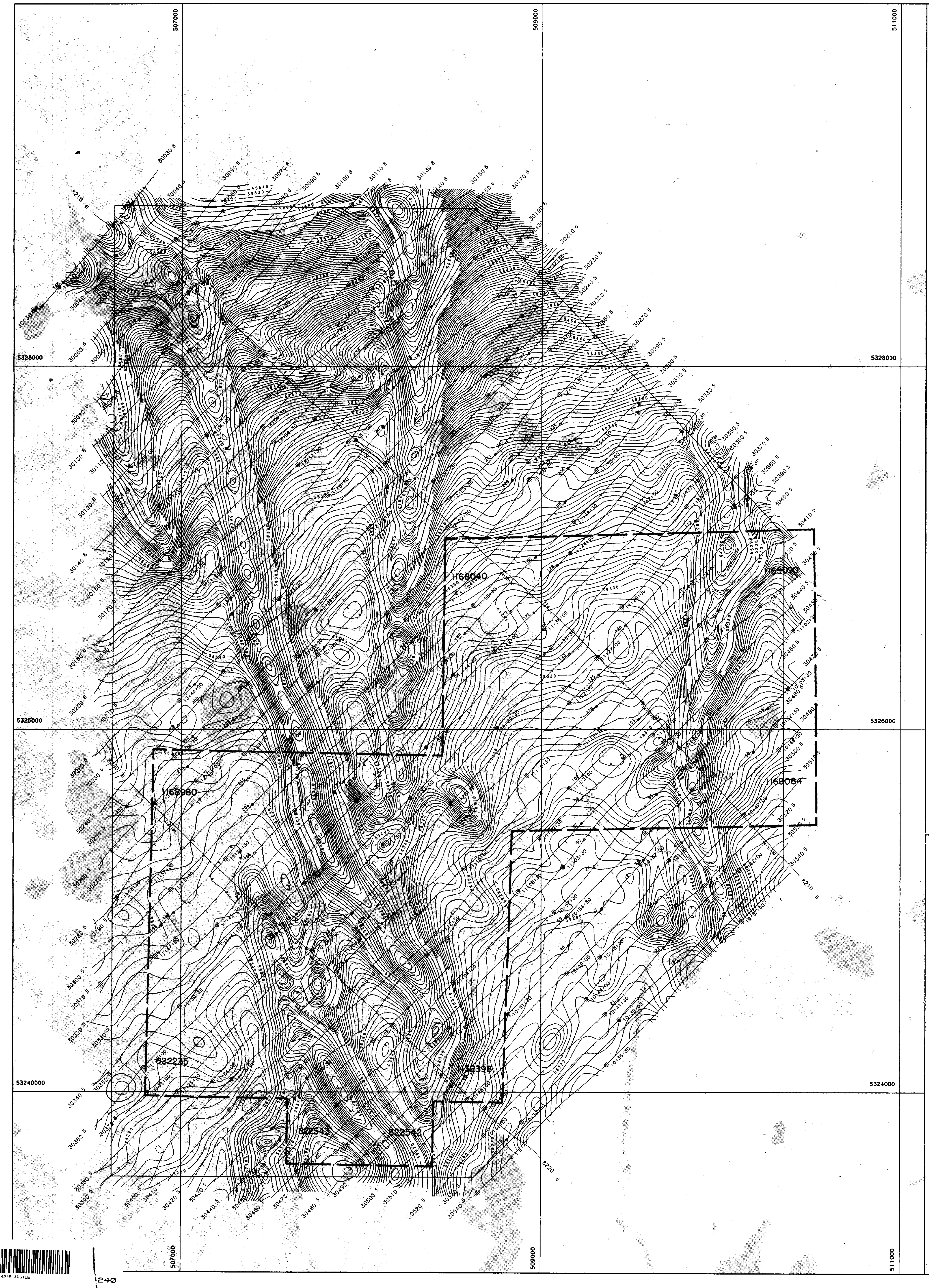
AERODAT LIMITED

DATE: MAY 1991

NTS No: 42 A

MAP No: 3 J9127- 1

42A02SW0050 2.14245 ARGYLE



Flight Path

Navigation and recovery using a Global Positioning (GPS) navigation system.

Average terrain clearance 60m
Average line spacing 100m

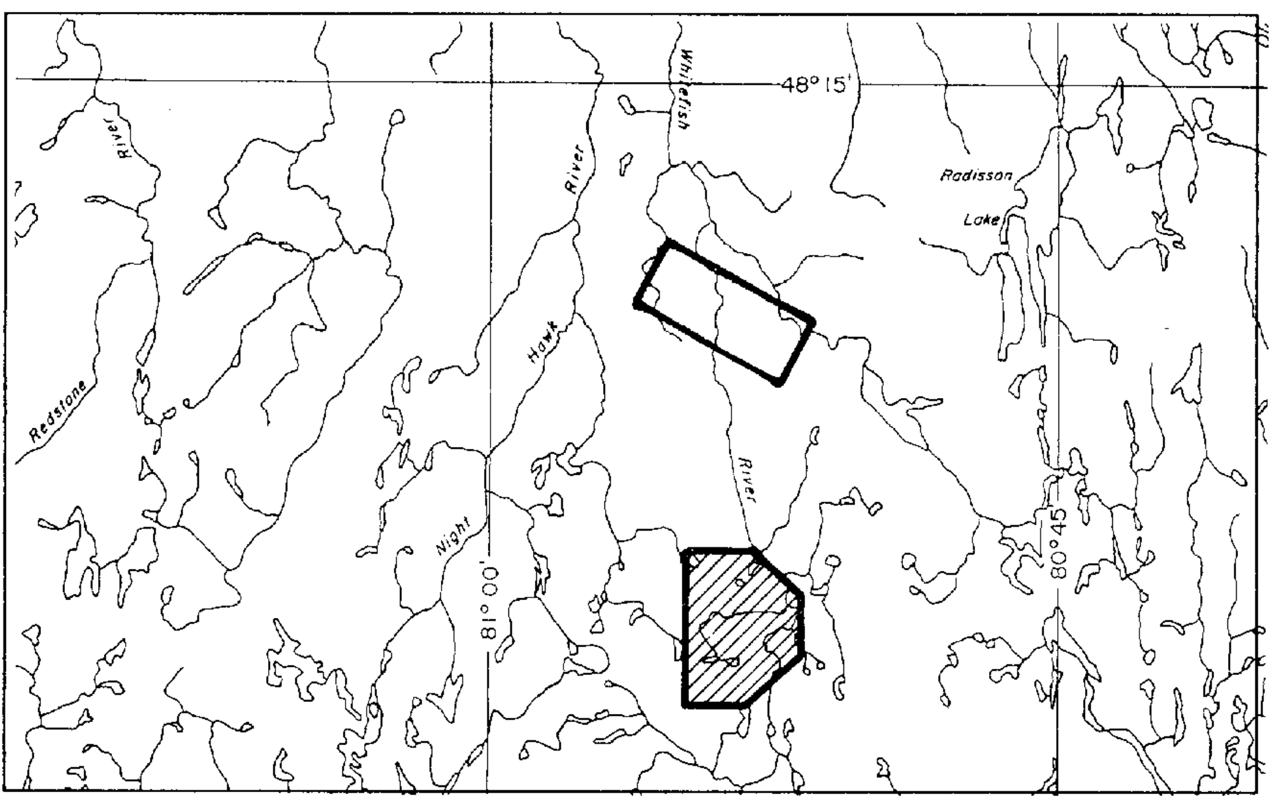
Magnetics

Total Field Magnetic Intensity Contours in nT.

Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below
2 nT
10 nT
50 nT
250 nT
1000 nT



JOUTEL RESOURCES LIMITED

TOTAL FIELD MAGNETIC CONTOURS

2.14245

ARGYLE PROPERTY

ONTARIO

SCALE 1:10,000
0 330 660 1320 2640 Feet
0 100 200 500 1000 Metres

AERODAT LIMITED

DATE: MAY 1991
NTS No: 42 A
MAP No: 4 J9127- 1

Flight Path

Navigation and recovery using a Global Positioning (GPS) navigation system.

Average terrain clearance 60m
Average line spacing 100m

Vertical Gradient

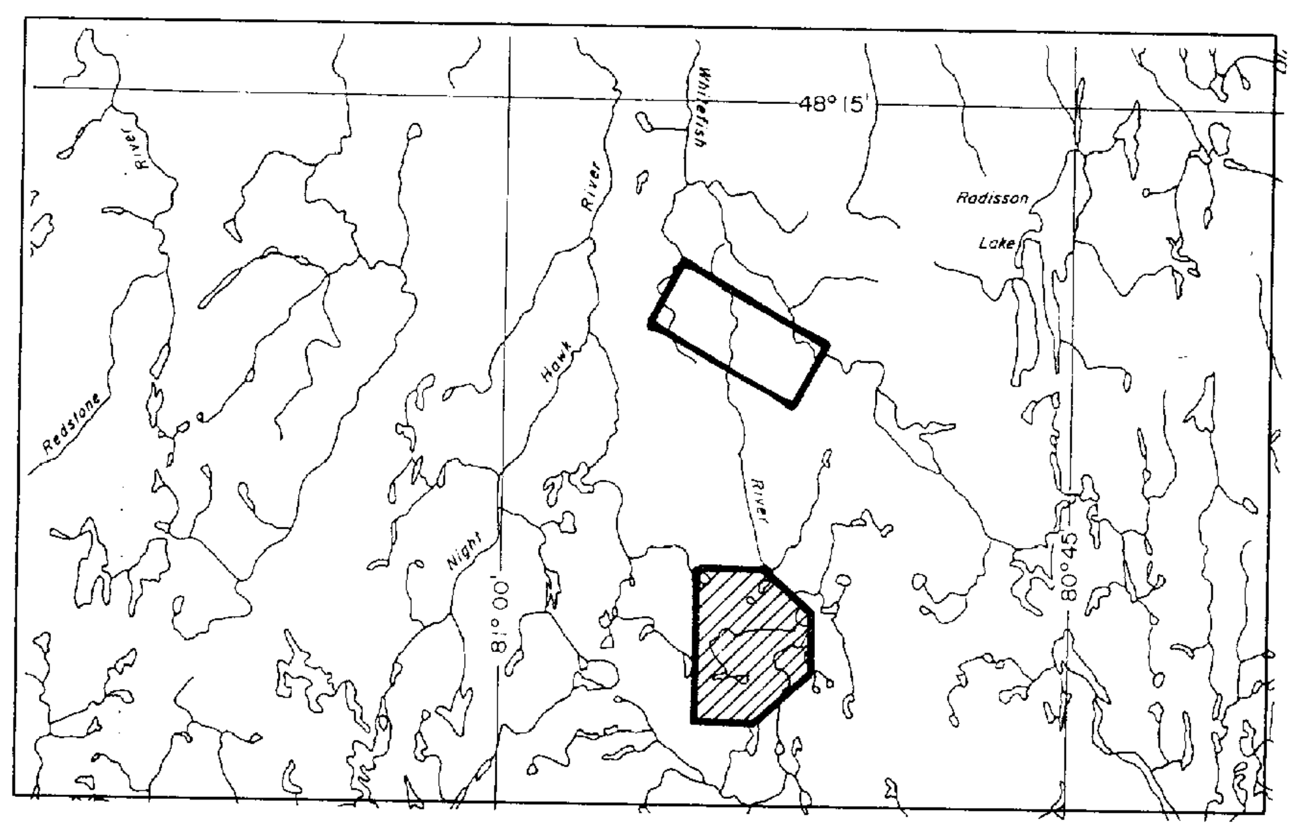
Vertical Magnetic Gradient calculated from the total field magnetic intensity in nT/m.

Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

0.10 nT
0.50 nT
2.50 nT
10.0 nT
50.0 nT



JOUTEL RESOURCES LIMITED

CALCULATED VERTICAL MAGNETIC GRADIENT

2.14245

ARGYLE PROPERTY

ONTARIO

SCALE 1:10,000

0 330 660 1320 2640 Feet

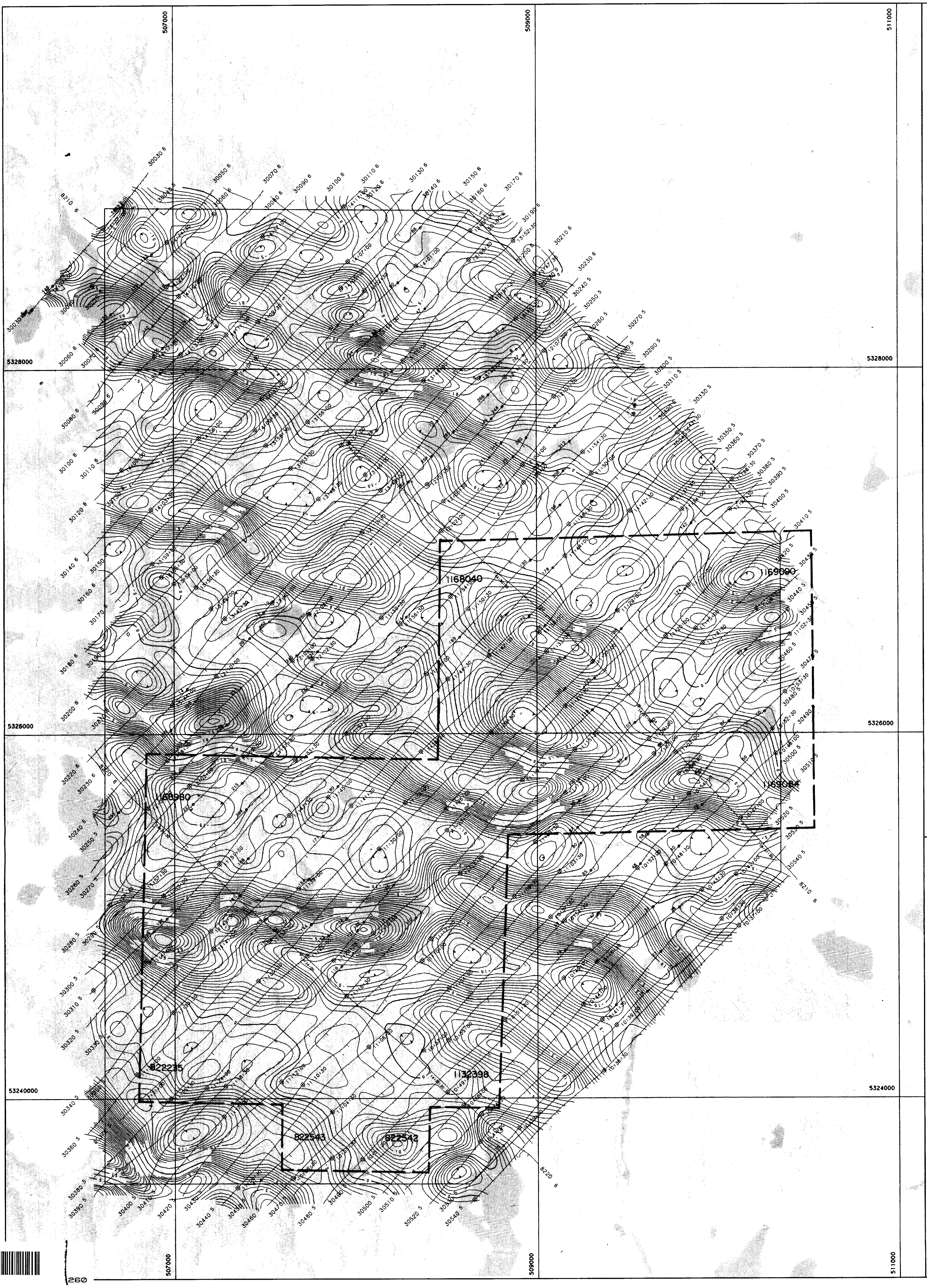
0 100 200 500 1000 Metres

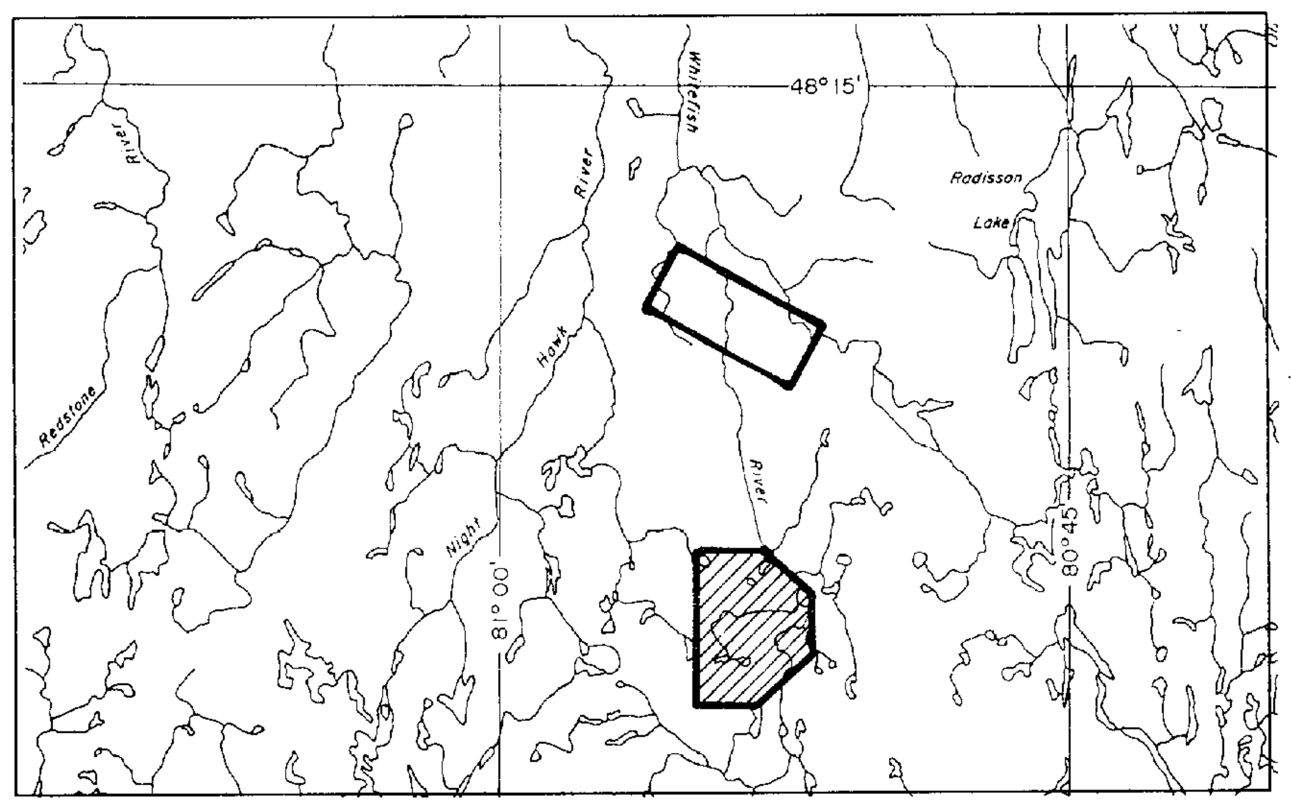
AERODAT LIMITED

DATE: MAY 1991
NTS No: 42 A
MAP No: 5 J9127- 1

42A02SW0050 2.14245 ARGYLE

250





Flight Path

Navigation and recovery using a Global Positioning (GPS) navigation system.

Average terrain clearance 60m
Average line spacing 100m

VLF-EM

VLF-EM Total Field Intensity in percent.

Station: NAA
Cutler, Maine
24.0 kHz

Sensor elevation 45m

Map contours are multiples of those listed below

----	1 %
----	5 %
----	25 %
----	100 %

JOUTEL RESOURCES LIMITED

VLF-EM TOTAL FIELD CONTOURS (LINE CHANNEL)

2.14245

ARGYLE PROPERTY

ONTARIO

SCALE 1:10,000

0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

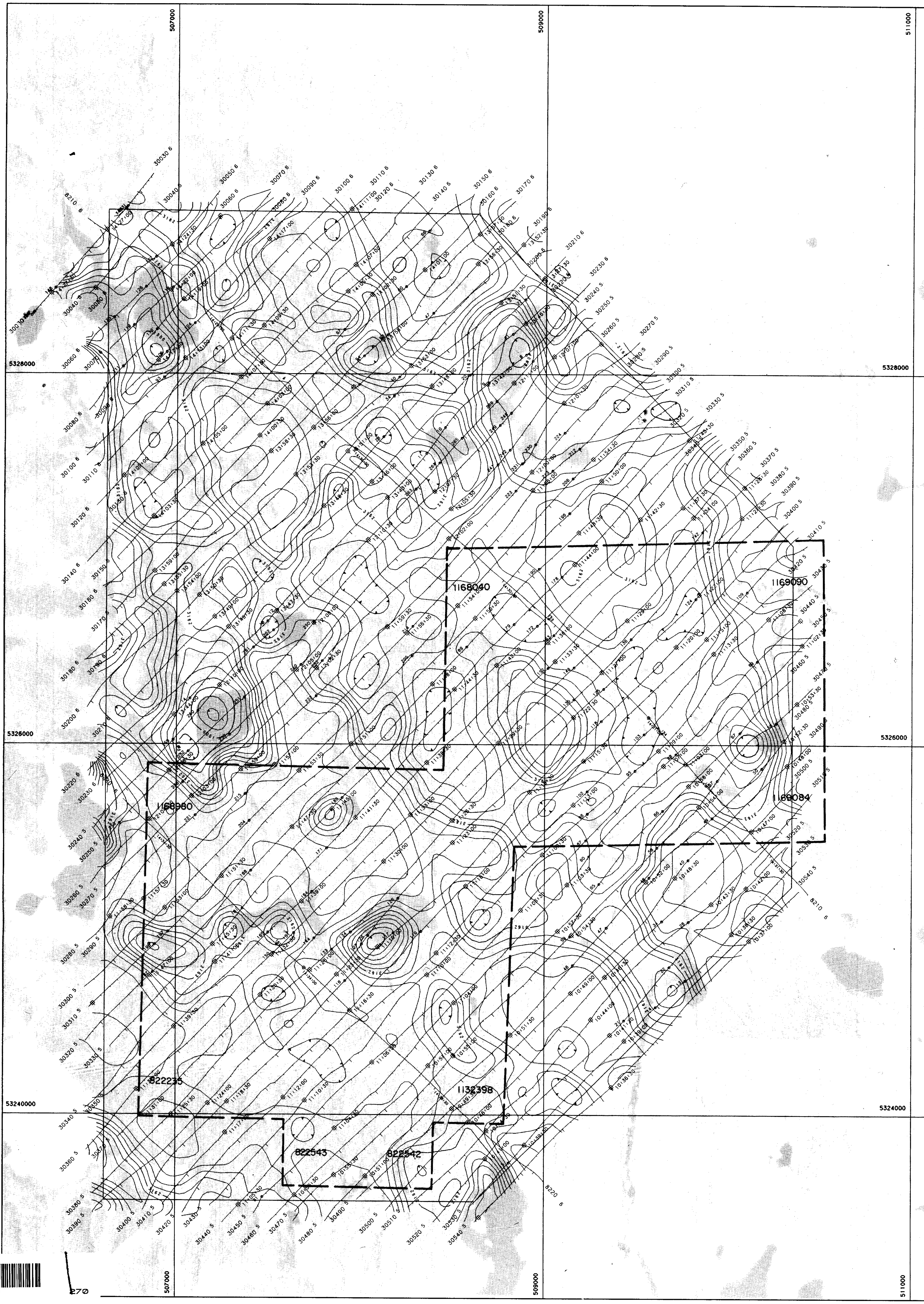
AERODAT LIMITED

DATE: MAY 1991

NTS No: 42 A

MAP No: 6 J9127- 1

260



Flight Path

Navigation and recovery using a Global Positioning (GPS) navigation system.

Average terrain clearance 60m.
Average line spacing 100m

Apparent Resistivity

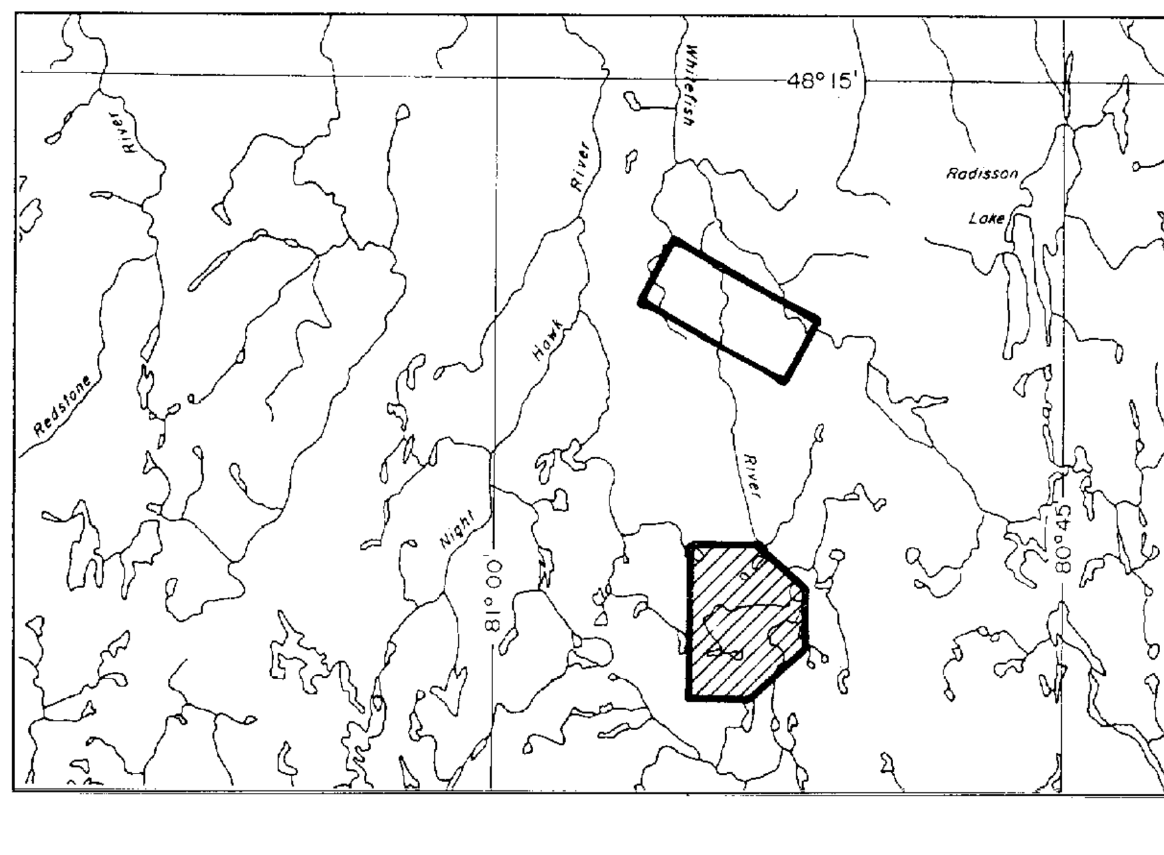
Calculated from 4600 Hz coaxial EM response assuming a 200 m conductive layer.

Contouring in ohm*m at logarithmic intervals.

Sensor elevation 30m

Map contours are multiples of those listed below

- 0.1 log(ohm*m)
- 0.5 log(ohm*m)
- 1.0 log(ohm*m)
- 5.00 log(ohm*m)



JOUTEL RESOURCES LIMITED

APPARENT RESISTIVITY CONTOURS (4600 Hz)

2.14245

ARGYLE PROPERTY

ONTARIO

SCALE 1:10,000

0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

AERODAT LIMITED

DATE: MAY 1991
NTS No: 42 A
MAP No: 7 J9127- 1

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