REPORT ON
COMBINED HELICOPTER-BORNE
MAGNETIC, ELECTROMAGNETIC AND VLF-EM
SURVEY OF THE LINGMAN LAKE PROPERTY
KENORA MINING DISTRICT (PATRICIA PORTION), ONTARIO

FOR
TWIN GOLD MINES LTD.
BY
AERODAT LIMITED
June 4, 1990

J9026

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(Scale; 1:10,000)

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1. INTRODUCTION

This report describes an airborne geophysical survey carried out on behalf of Twin Gold Mines Ltd. ("Twin Gold") of Toronto, Ontario, by Aerodat Limited under a contract dated March 1, 1990.

Equipment operated included a four frequency electromagnetic system, a high sensitivity cesium vapour magnetometer, a two frequency VLF-EM system, a power line monitor, a video tracking camera, an altimeter, and an electronic positioning system. Electromagnetic, magnetic, and altimeter data were recorded both in digital and analog form. Positioning data were stored in digital form, encoded on the VHS format video tape, and recorded at regular intervals in UTM co-ordinates (or their equivalent) on the analog trace. Visual checks of position were also recorded on the flight path navigation map by the operator during the flight.

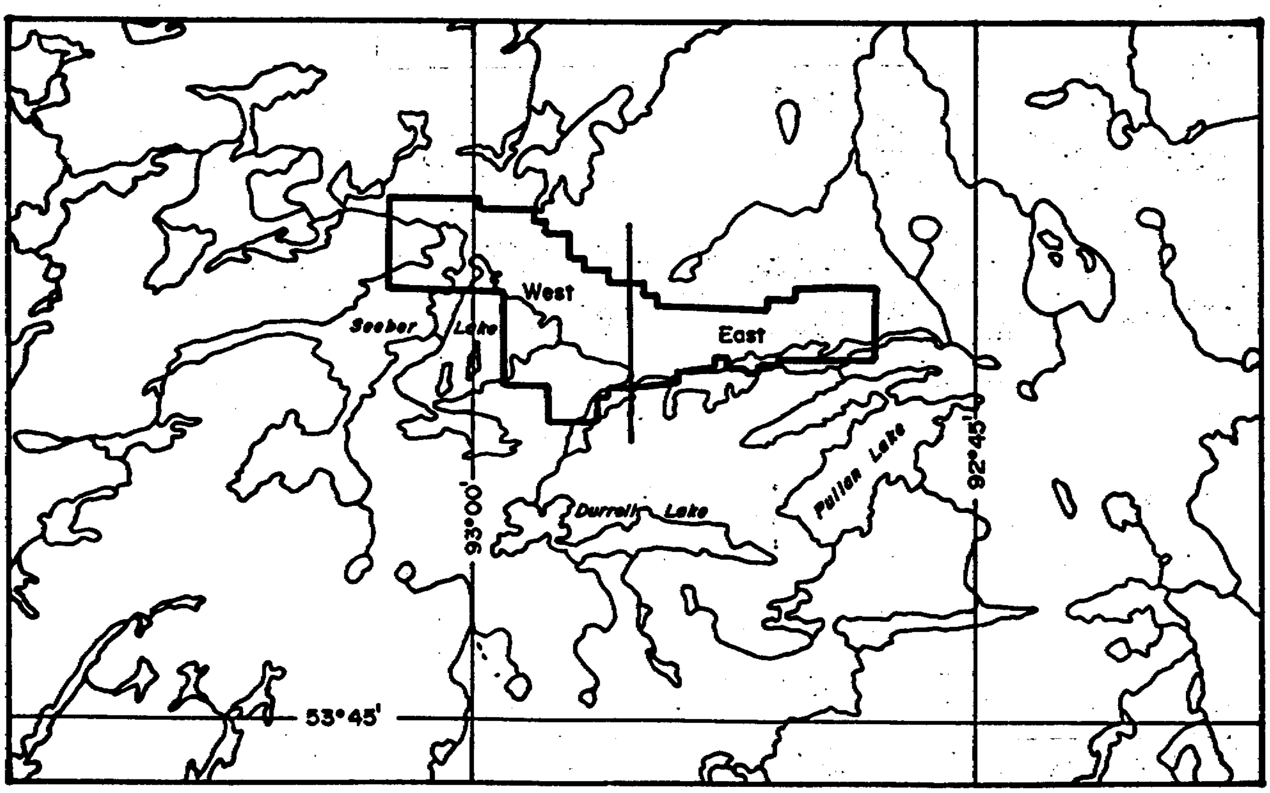
This airborne survey, over a block of claims held by Twin Gold and located about 235 kilometres north of Red Lake, in northwestern Ontario, was flown on April 22 and 23, 1990. Five flights were required to complete the survey with flight lines oriented at azimuths of 000-180 degrees and flown at a nominal spacing of 100 metres. Coverage and data quality were generally considered to be well within the specifications described in the contract with Twin Gold.

The purpose of the survey was to record electromagnetic, magnetic and VLF-EM data in order to continue the exploration for possible additional gold mineralization in the area of the Lingman Lake mine. Approximately 550 line kilometres of the recorded data, including tie lines, were compiled in map form and are presented as part of this report according to specifications outlined by Twin Gold.

2. SURVEY AREA LOCATION

The survey area is depicted on the index map shown. The area is centred at Latitude 53 degrees 52 minutes north, Longitude 92 degrees 56 minutes west (NTS Series #53 F/15 & #53 F/15, Scale 1:50,000), and is located about 235 kilometres due north-northeast of Red Lake in Northwestern Ontario, about 15 kilometres east of the Manitoba boundary.

The survey block covers relatively flat ground along and between the north shores of Lingman and Seeber Lakes. The region is one of scrub black spruce with about 25 per cent lake cover. Access is limited to float or ski equipped aircraft out of Red Lake, but a winter tractor road (out of Trout Lake in Manitoba?) was at one time used for the old Lingman Lake mine.



3. AIRCRAFT AND EQUIPMENT

3.1 Aircraft

Aerospatiale A-Star 350D helicopter, (CG-DUF), owned and operated by Canadian Helicopters Corp., 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

The electromagnetic system was an Aerodat 4-frequency system. Two vertical coaxial coil pairs were operated at 935 Hz and 4,600 Hz and two horizontal coplanar coil pairs at 4,175 Hz and 32 kHz. The transmitter-receiver separation was 7 metres. Inphase and quadrature signals were measured simultaneously for the 4 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 measured 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 12 metres below the helicopter. The transmitters monitored were NAA, Cutler, Maine broadcasting at 24.0 kHz for the "Line" station and NSS, Annapolis, Maryland broadcasting at 21.4 kHz for the "Ortho" station, depending on availability and suitability of transmission.

3.2.3 Magnetometer

The magnetometer employed was a 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 12 metres below the helicopter.

3.2.4 Magnetic Base Station

An IFG-2 proton precession magnetometer was operated at the base of operations 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

A Panasonic video 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	4175 Hz Coplanar Inphase	10 ppm/mm
CPQ1	4175 Hz Coplanar Quadrature	10 ppm/mm
CPI2	32 kHz Coplanar Inphase	20 ppm/mm
CPQ2	32 kHz Coplanar Quadrature	20 ppm/mm
PWRL	Power Line	60 Hz
VLT	VLF-EM Total Field, Line	2.5% ppm/mm
VLQ	VLF-EM Quadrature, Line	2.5% ppm/mm
VOT	VLF-EM Total Field, Ortho	2.5% ppm/mm
VOQ	VLF-EM Quadrature, Ortho	2.5% ppm/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 Radar Positioning System

A Motorola Mini-Ranger (MR III) radar navigation system was used for both navigation and flight path recovery. Transponders sited at fixed locations were interrogated several times per second and the ranges from these points to the helicopter measured to a high degree of accuracy. A navigational computer triangulates the position of the helicopter and provides the pilot with navigation information. The range/range 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 photo laydown based on the available 1:50,000 NTS maps, as a screened mylar base.

4.2 Flight Path Map

The flight path map was derived from the Motorola Mini-Ranger III radar positioning system. The distance from the helicopter to two established reference locations was measured several times per second and the position of the helicopter calculated by triangulation. It is estimated that the flight path is generally accurate to about 10 metres with respect to the topographic detail of the base map.

The flight path map showing all flight lines, is presented on a Cronaflex copy of the photomosaic base map, with time and navigator's manual fiducials for cross reference to both the analog and digital data.

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 the 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 flight lines, fiducials, peak locations of anomalies and conductor axes. The data have been presented on a Cronaflex copy of the photomosaic base map.

4.4 Total Field Magnetic Contours

The aeromagnetic data were corrected for diurnal variations by adjustment with the recorded base station magnetic values. No correction for regional variation was applied. 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 0.2 nT/m interval, the gradient data were presented on a Cronaflex copy of the 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 a 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 pair used. The apparent resistivity profile data were interpolated onto a regular grid at a 25 metres true scale interval using an Akima spline technique. The contoured apparent resistivity data were presented on a Cronaflex copy of the base map with the flight path.

4.7 VLF-EM Total Field

The VLF-EM signals from NAA (Cutler, Maine), broadcasting at 24.0 kHz, were compiled as contours in map form and presented on a Cronaflex overlay of the base map along with flight lines. The orthogonal VLF data from NSS (Annapolis, Maryland), broadcasting at 21.4 kHz, was not utilized in the compilation as the line direction data set was complete. The orthogonal data remains valid, and may be processed at a later date. The data was recorded on the analog records and on digital tape.

5. INTERPRETATION

5.1 Geology

Both geologic or geophysical data of a fairly detailed nature, were supplied to the writer by Twin Gold. According to the available published geologic map[1], the area lies within a mixed assemblage of mafic to intermediate metavolcanics (massive flows and tuffs) bordered by granitic rocks to the north and clastic metasediments to the south along the north shore of Lingman Lake. Occasional quartz porphyry and tonalite outcrops were identified within the metavolcanics and toward the granite contact, but a stratigraphic interpretation was not provided. A series of west-northwesterly trending faults were mapped in the central part of the survey block, particularly in conjunction with a north-south to north-northeasterly trending diabase dike that is dissected by the faulting. A synclinal structure was indicated off the east end of Seeber Lake. An "abandoned" gold mine - the Lingman Lake Mine - is located in the east-central part of the claim area; other mineral occurrences (galena, molybdenite, pentlandite, and arsenopyrite) were noted in the northwest corner, off the southeast tip of Seeber Lake, and toward the eastern end of the block. The mine operated (unprofitably?) for several years but fairly good grades were later encountered in drill tests below the relatively shallow workings.

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[1] Wilson, B.C., Pelletier, C.C., and Paktunc, D.
1987: Lingman Lake Area, District of Kenora (Patricia Portion); Ontario Geological Survey, Map 2511, Precambrian Geology Series, Scale 1:50,000. Geology 1981.

In addition to the published geologic map, a compilation map[2] was provided showing some additional structure and locations of all known geophysical grids as well as the results from a previous airborne (Input) survey that covered the eastern two-thirds of the area. A report on the most recent electromagnetic survey[3] on the property was also available. Discussions were held with a representative of Twin Gold as to the mineralization being sought or the expected targets. In addition, the writer had an opportunity to make a brief evaluation of the Lingman Lake property in 1987 in the capacity of consultant to a financial group that was considering raising flow-through financing for several properties, including the Lingman Lake project.

5.2 Magnetics

The magnetic data from the high sensitivity cesium magnetometer provide virtually a continuous magnetic reading when recording at two-tenth second intervals. The system is also noise free for all practical purposes.

The sensitivity of 0.1 nanoTeslas (nT) allows for the mapping of very small inflections in the magnetic field, resulting in a contour map that is equal to or

[2] Compilation Map (after Wilson, 1987, and assessment files), for Twin Gold Mines Ltd., Lingman Lake Project, Scale 1"=1/4 mile.

[3] Betz, J.E., Turcotte, R.
Electromagnetic Survey, property of Twin Gold Mines Ltd., Lingman Lake Property, Northwestern Ontario, April 1989

exceeds ground data in quality and accuracy. Both the fine and coarse magnetic traces were recorded on the analog charts.

The Total Field magnetic map shows predominantly east-west trends in the northwestern quarter of the survey, changing abruptly to northwesterly-southeasterly trends over the west-central quarter and gradually evolving into east-northeasterly trends through the eastern half of the area. These trend directions are primarily applicable to the northern portion of the area where the trends more-or-less follow the granite/metavolcanic contact; south and east of Seeber Lake, the trends are predominantly east-northeasterly with a very clear indication of a fold nose in the area of Line 10810 at 08:20:27 with considerable structural disruption to the west and south of this point. This inferred fold correlates with the synclinal fold axis shown on the geologic map.

Together with the magnetic lows over the mapped granites, the map clearly shows areas of depressed magnetic activity over the metasediments - within the synclinal structure under Seeber Lake - and over the south-central and southeastern portions of the survey area. Finally, the north-south trending diabase is quite clearly depicted on the magnetic map although it is difficult to follow through the stronger east-west magnetic trends - where it presumably has been progressively offset to the east and north across west-northwesterly trending (mapped) faults. There is some evidence that a second diabase is present (i.e., north end of Line 10980) rather than a single, heavily faulted dike.

The abrupt change in the direction of magnetic trends centred around Line 10450 is thought to be due to a northeasterly fault (unconformity) trend which parallels other northeasterly trending (inferred) faults, as shown on the Interpretation map. The remainder of the area appears to have been subjected to a more complex system of conjugate - with respect to the magnetic trends - and strike-slip faults. An attempt has been made so show these faults on the Interpretation map but a complex system is believed to exist. Note that the Interpretation map was prepared before the receipt of the geologic and geophysical data from Twin Gold, so that it was based solely on the results of this airborne survey.

Total magnetic relief is of the order of 5,000 nT with an average background value of 60,300 nT. The peak value of 65,000+ nT was attained along an east-west trend to the south of the fold axis (Line 10871 at 08:45:19) although many of the magnetic trends show anomalous values in the 2,000 to 3,500 nT range, a figure that is commensurate with mafic to ultramafic sills or iron formation with a overall magnetite content of 3 to 7 percent. (Higher magnetization would tend to reduce the estimated conductance values - due to depressed or inverted EM inphase - but produce no effect on the quadrature response.) Most of the anomalies are quite lenticular in shape so that the rectangular shaped anomaly centred on Line 10350 at 17:42:31 may represent a mafic intrusive (gabbro) although its shape is not borne out by the Vertical Gradient data.

Regional dip appears to be to the south, even for the trends to the south of the synclinal structure. This would suggest that the syncline itself is slightly overturned with the plane of the fold axis plunging to the south.

The magnetic intensities and magnetic patterns indicate a series of uniformly layered sediments and/or water-borne volcanics, interbedded with iron formation or mafic rocks. The stronger magnetic zone is necessarily an iron formation or ultramafic.

5.3 Vertical Gradient Magnetics

The Vertical Gradient data may normally be regarded as a pseudolithologic map as it is believed to provide an excellent rendition of the outline of the underlying magnetic bodies. The gradient map was used by the writer as the preferred data set for establishing magnetic correlation with the electromagnetic data. However, the tendency for gradient trends to be emphasized along directions orthogonal to the flight lines should be borne in mind in analyzing and compiling the gradient data. A compilation of the magnetic trends from the gradient map onto a geologic map at a suitable scale should prove helpful.

The gradient data have also served to as the primary source for the structural; interpretation, contrary to the writer's normal practice, as the trends did not appear to be overly biased by the flight line direction. Normally, structural interpretation is more reliable from the Total Field map as the Vertical Gradient trends tend to be aligned orthogonal to the flight line direction, but this survey may be regarded as an exception.

5.4 Electromagnetics

The electromagnetic data were first checked by a line-to-line examination of the analog profiles. Record quality was generally good with only some system noise present on the 4,600 Hz coaxial trace. Most of this was removed from the plotted traces by an appropriate smoothing filter. Where and if present, anomalies were picked off both the analog records and the plotted profile traces of the multi-frequency responses, using the vertical sheet conductor model as a guide. This helped in weeding out most of the responses due to noise. Surficial responses or those responses from obvious surficial sources, such as lakes or swamps, were not selected. Each conductor or group of conductors was evaluated on the bases of magnetic (and lithologic, where applicable) correlations apparent on the analog and profile data and from the topographic map, man made or surficial features not obvious on the analog charts.

The survey has mapped about twenty discrete bedrock conductors, or what may be regarded as conductive zones, and has located a number of probable surficial conductors that fall into the category of "possible" bedrock conductors. Most of the bedrock conductors conform to local magnetic trends (see the Vertical Gradient map for correlations); a few may be along or associated with structural breaks (shearing?)

although this is difficult to establish. The negative inphase responses are due to induced magnetization effects that result in an inversion of the inphase channel over zones of low conductance. With higher conductance, the response reverts to positive but may result in a lower estimated apparent resistivity. The quadrature component is not affected by magnetization.

With few exceptions, conductances are in the low to moderate range. This together with the extreme length of some of the zones would indicate formational conductors along or within metasediments or metavolcanics (tuffs), generally from graphite or low order sulphide (e.g. narrow bands of 5 to 10% pyrrhotite) mineralization.

Conductive Zone LW-1:- Conductive Zone **LW-1** consists of at least three conductive bands one of which - the more continuous - coincides with a local east-west magnetic band. The conductor and the magnetic band terminates at a northeasterly fault (inferred). Conductance is moderate to high with best response on Lines 10070 (the southerly conductor) and Line 10120 (all three). Dip appears to be steep to the south. Low amplitude, single line responses on Lines 1016 and 10290 near the north boundary should be incorporated into this zone. They fall along the north contacts of minor magnetic trends possibly at the granite contact or within the granite.

Conductor LW-2:- This zone represents two low amplitude responses on Line 10130 that straddle a magnetic low. Conductance is estimated as moderate and dip is to the north on both responses. This type of anomaly is often related to structure or may be due to culture (i.e. survey wire left on the ground). A "surficial" zone about 500 metres south of **LW-2** is believed to be an edge effect from a shallow conductor with no apparent 935 Hz coaxial response.

Conductor LW-3:- This is a relatively short, narrow conductive band of low response and low apparent conductance. It occurs along the north side of a magnetic low (south contact of a magnetic trend). The somewhat stronger response on Line 10380, with nothing evident beyond 10370, would indicate faulting (northeasterly). Dip is estimated as vertical.

Conductor LW-4:- Conductor **LW-4** is really two one-line conductors that in one case (Line 10380) coincides with and in the other (Line 10410) is on the south contact of a magnetic trend that appears to have been faulted in the area of Line 10400. The apparent conductance is slightly higher on Line 10410 (better inphase/quadrature ratio on the 935 Hz response) where dip is northerly as contrasted to vertical on Line 10380. Short, narrow mineralized (sulphides?) lenses may be expected and the conductor is recommended for a ground check. Note that "zone" appears to terminate against a northeasterly fault just to the east and is along the north perimeter of an inferred intrusive body.

Conductor LW-5:- This may actually be a surficial zone (coincident with a small inlet off Seeber Lake) and a two line conductor (Lines 10440, 450) of moderate conductance and north dip. The latter responses coincide with or are along the south contact of a short, faulted section of a longer magnetic trend.

Conductor LW-6:- Conductor **LW-6** is a fairly long, possibly double banded zone along the north shore of Seeber Lake. It coincides with a secondary magnetic zone that conforms to the magnetic trends to the north. Estimated dip is generally to the south - in places (i.e. Line 10460) fairly shallow - and best responses occur in the areas of Lines 10471, 10400, and 10350. Conductance varies from low to moderate though it appears to be fairly high on the 935 Hz channel.

Conductor LW-7:- Conductor **LW-7** is a short, low amplitude, low conductance, east-west trending zone along the eastern portion of a magnetic low to the north of a strong magnetic trend. It is believed to be along the granite contact and may be due to shearing along this contact.

Conductor LW-8:- Conductor **LW-8** is an east-west trending zone that may actually consist of three separate units. The western most section (Lines 10471 to 10520) of low to moderate conductance lies within a magnetic low in the vicinity of an inferred northeasterly fault but more likely along an east-west structure (unconformity). The central section (Lines 10541 to 10570) consisting of two bands is of moderate (to high) conductance and occurs coincident with a minor magnetic high. This continues to Line 10600 after a break in the magnetics but conductance is low. Dip is near vertical, possibly to the south.

Conductive Zone LW-9:- This is a multi-banded, segmented conductive zone that occurs along a major northwesterly magnetic trend which itself appears to be multi-banded. The northern-most conductor is coincident with or along the north contact of a magnetic band whereas the southerly conductor tends to be along the south contact of the magnetics. Conductance is quite variable throughout and magnetic inversion, with only low quadrature response, is apparent toward the southeastern end (e.g.Line 10700 at 07:49:09). This is undoubtedly a formational conductor, probably iron formation. Dip is near vertical with steep north dip toward the northwestern end of the zone.

Conductor LW-10:- A short, low amplitude, low conductance zone, **LW-10** lies along the north flank of a minor magnetic trend. Dip may be to the north but amplitudes are too low for a proper estimate. Based on magnetics, this zone may be stratigraphically related to **LW-4** (and possibly **LW-22**).

Conductor LW-11:- This single conductive band, within the eastern end of Seeber Lake, coincides with a relatively strong magnetic trend near the (inferred) fold nose. Conductance is probably higher than calculated from the 4,600 Hz response although inphase inversion is not evident along or off the ends of the conductor. Dip appears to be steep to the south or vertical. Note that this may be a faulted-off portion of **LW-6**.

Conductor LW-12:- This is a weak, low conductance zone along the south shore of Seeber Lake though classed as a bedrock conductor largely on the basis of the fairly weak response on Line 10550. It occurs along the south flank of a minor magnetic trend near the nose of the synclinal fold at the eastern end of Seeber Lake.

Conductive Zone LW-13:- This is a dual or multi-banded conductor coincident with or straddling a relatively strong magnetic trend along the south shoreline of Seeber Lake. Conductance is moderate to fairly high particularly on Lines 10450, 10490, and 10541 with magnetic suppression of inphase response evident in the area of Line 10490. Estimated dip is steep to northerly. The western end of the conductor may fall along the inferred east-northeasterly fault that parallels this zone.

Conductive Zone LW-14:- The eastern end of **LW-14** is a dual-banded zone of low to moderate conductance along a zone of magnetic lows. The inferred extension to the west, coincident with a magnetic high, also coincides with the western end of a small lake and is believed to be due to lake-bottom sediments within the lake.

Conductor LW-15:- Conductor **LW-15** is a short, low amplitude, low conductance zone along the north flank of a minor magnetic trend.

Conductive Zone LW-16, LW-16a:- Conductive zone **LW-16** is a dual-banded, northeasterly trending conductor that approximates the trend of inferred faulting and is probably associated with faulting. However, the southwestern, high conductance portion of this zone (Lines 10650, 10661) is coincident with magnetic highs. Dip may be southeasterly. Conductor **LW-16a** is a single line, low amplitude, but south dipping anomaly that is coincident with a minor magnetic high.

Conductive Zone LW-17 (LE-2):- This long, multi-banded zone of generally moderate to high conductance correlates with a strong, fairly broad east-west magnetic trend. In fact, the magnetic trend itself is multi-banded (see VMG map) with the conductive zone bounded by the parallel magnetic bands. Peak EM responses and maximum conductance values tend to correlate with the stronger magnetic responses with minor magnetic inversions recorded toward the eastern (Lines 11000 and 11090) and beyond the western ends of the zone. Conductance vanishes to the west of the inferred north-northeasterly fault although the magnetic trend appears to continue. Dip appears to be (steep?) to the south but is difficult to estimate over multi-banded zones. The zone, like **LW-9**, is believed to be formational.

Conductor LW-18:- Conductor **LW-18** is a single line anomaly off the west end of a relatively minor, short magnetic high. Considering its length and amplitude, conductance is quite high. South dip is indicated. This conductor may be fault related and should be considered for ground checks.

Conductor LW-19:- This is classed as a possible bedrock conductor, based almost entirely on quadrature response (and an inverted inphase response on Line 10740). It is probably due to a surficial body though no source is evident on the photomosaic.

Conductive Zone LW-20:- Conductive zone **LW-20** is a multi-banded conductor that is coincident with a moderate amplitude northwesterly trending magnetic anomaly. Conductance is low to moderate; dip is either vertical or steep to the north. The zone is probably bounded by east-west trending structures and part of it may lie along the granite/metavolcanic contact.

Conductor LW-21 (LE-1):- This conductor may in fact represent the "east-west trending" fault that cuts the southeast end of **LW-20**. Magnetic correlation is indefinite, along the south contact of magnetic trends at the east end and along magnetic lows at the west end. Conductance is low but fairly clear, low amplitude intercepts were recorded commensurate with vertical sheet conductors.

Conductor LW-22:- Conductor **LW-22** is a short, low amplitude conductor that is coincident with a secondary magnetic peak of about the same length. It occurs near the nose of the synclinal fold band in some respects, resembles conductors **LW-4** and **LW-18** to which zones it may be related stratigraphically. Conductance is probably higher than has been derived by the computer algorithm.

Conductive Zone LE-3:- Zone LE-3 is a dual banded conductor to the south of a magnetic trend that appears to coincide with **LW-20.** Stratigraphically, LE-3 may be similar to **LE-1 (LW-21)** or it may also be associated with structure. Conductance is low.

Conductors LE-4, LE-4a, LE-4b:- Conductor **LE-4** is equivalent to Conductor "E" discussed in the Val d'Or Geophysique report of Betz and Turcotte. Estimated conductance is moderate (to low) and dip appears to be to the south. Conductors **LE-4a** and **LE-4b** are similar, though of shorter length and lower amplitude, and occur along more or less the same stratigraphic horizon (according to the magnetics). Zone **LE-4c** is classed as a possible bedrock conductor, based primarily on quadrature response. It may be more closely related to portions of **LE-6** (Conductor "C" from Betz-Turcotte).

Conductors LE-5, LE-5a, LE-5b:- These conductors constitute a series of one or two line intercepts on either side of a magnetic low (although **LE-5b** is coincident with a short magnetic trend). Conductances are low and dip appears to be steep to the south. A fourth conductor, missed in the original anomaly selection, should be added. This occurs on Line 10960 at 09:09:11. Conductor **LE-5a** corresponds to Zone "G" of the ground geophysics whereas **LE-5b** does not appear to have been picked up by the ground coverage, though it was covered.

Conductive Zone LE-6:- Conductive zone **LE-6** is essentially a single conductive band along the north flank of a strong, continuous magnetic trend. This zone is paralleled by occasional short, relatively weak conductors that coincide with portions of the magnetic high trend (e.g., conductor **LE-4c** and conductor "C" from the ground geophysics). The weaker, low conductance portion of **LE-6** corresponds to conductors "**B**" and "**AB**" of the Betz-Turcotte report; the much stronger, moderate conductance eastern section to "**C1**" and "**C2**" of the ground survey. Estimated dip, particularly over the eastern half, is to the south - possibly quite shallow over the interval from Lines 11370 to 11460. This conductor is undoubtedly formational and appears to be part of a stratigraphic package extending east from the Lingman Lake mine. The stronger anomaly on Line 11070 at the western terminus of this zone may be due to culture around the mine.

Conductive Zone LE-7:- This rather lengthy zone conforms to magnetic trends at its eastern and western ends and tends to follow an inferred east-northeasterly fault along its central portion. Most of the stronger intercepts show south dip. Some of the higher conductance values coincide with magnetic peaks (e.g., Lines 11230, 11501) but the highest calculated conductance (Line 11330) occurs over a magnetic low along the inferred fault. The conductive zone is therefore believed to be partially formational and partially due to mineralization and structures.

Conductor LE-8:- This may be the "structural" continuation of **LE-7** both sections of **LE-8** tend to coincide with magnetic highs. Conductance is low (to marginal). Follow-up on a zone of this nature would require IP profiles or high frequency EM.

Conductive Zone LE-9:- This multi-banded zone of moderate conductance coincides with or straddles a fairly strong magnetic trend along its southwestern half and a secondary magnetic zone to the northeast. Dip is to the southeast. This conductor and the eastern half of **LE-7** probably lie along or close to a contact with a thick sequence of metasediments. Detailed compilation of the EM and magnetic data together with geology, is required to sort out the rather complex stratigraphy posed by Conductors **LE-7** to **LE-9** in the area of Lines 11180 to 11380.

The stronger conductive zones are indicative of formational conductors along interbedded metasedimentary/metavolcanic stratigraphy. Conductance is likely due to graphite or sulphide mineralization. If sulphides are involved, higher conductance values over the more intense sections of magnetization would suggest pyrrhotite mineralization. However, some of the stronger magnetic bands (iron formation?) are not conductive, showing little or no quadrature response.

5.5 Apparent Resistivity

The Apparent Resistivity contour map demonstrates fairly clearly the conformable relationship between the stronger EM conductive zones and the magnetic trends. The exceptions are generally due to surficial conductors and involve the lower conductance EM zones such as the trend from Line 10820 at 08:25:32 to Line 10950 at 09:06:08, which includes two small lakes, and the anomalies over Seeber and Lingman Lakes. To the extent that these surficial trends may reflect underlying structure, the resistivity data should be re-evaluated in conjunction with the photomosaic map after a structural interpretation has been prepared from the latter.

5.6 VLF-EM Total Field

The VLF map duplicates most of the Apparent Resistivity trends with a strong bias in favour of northwesterly-southeasterly trending conductive zones (i.e., along the direction to the VLF transmitter station). This bias applies both to the lake related anomalous trends and, somewhat surprisingly, to the strong EM zones such as **LE-2** **(LW-21)**, **LW-16**, and to some degree, **LE-7** and **LE-9**. Considering that **LE-2** represents the highest amplitude and highest conductance zones recorded by this survey, one justifiably wonders about the information recorded by the VLF channels. The writer believes that the VLF response is more closely related to major stratigraphic units and contacts than it is to bedrock conductors.

5.7 Discussion & Recommendations

This airborne survey has located and mapped a number of discrete bedrock conductive trends in what appears to be a sequence of interbedded metavolcanics and metasediments. Toward the northwesterly part of the surveyed area, this sequence occupies the northwesterly limb of a (south plunging?, east-west trending) syncline that extends to the east where it appears to have been truncated by an east-northeasterly trending fault or unconformity. The conductive zones are generally conformable with the magnetic trends and to a large extent represent formational conductors, probably from graphite/sulphide mineralization along fairly lean iron formation. Sufficient drill data exists, with a fairly good sampling of the various conductors, to be able to predict the types of mineralization along the conductive trends. These data should therefore be recompiled at a common scale, preferably at 1:10,000.

The bedrock conductors outlined by this survey and depicted on the Interpretation map, could readily be checked with limited grids of standard horizontal loop profiles (60 to 100 metre coil spacings) similar to the work done by Val d'Or Geophysique but confined to the vicinity of the actual airborne anomalies. If required, some of the weaker conductors may be checked - or extended - with IP. Priorities have not been assigned to these anomalies and no specific recommendations have been made for follow-up work pending a compilation of these data with geology. However, the smaller conductors such as **LW-4, LW-5, LW-16** and **LW-16a, LW-18, LW-22, LE-4b, LE-5,** and **LE-5b** should not be overlooked and at least checked with ground reconnaissance and sampling.

Ground magnetic coverage is normally not considered to be necessary as the airborne data is of sufficient quality and accuracy, however, magnetic profiles should be valuable in providing some qualitative data on the conductive horisons. The gradient map may be regarded as a pseudo-lithologic map and should be compiled with available geology.

LICENSED PROFESSIONAL ENGINEER
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Respectfully submitted,

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Consulting Geophysicist
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AERODAT LIMITED
June 4, 1990

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APPENDIX I

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 II 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 II

ANOMALY LIST

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	10010	A	0	4.5	7.3	0.3	4	50
1	10010	B	1	9.5	9.0	1.0	7	48
1	10010	C	0	4.0	13.3	0.1	0	43
1	10010	D	0	3.1	12.8	0.0	0	41
1	10010	E	0	7.2	27.8	0.1	0	38
1	10010	F	0	7.8	28.0	0.1	0	39
1	10010	G	0	6.6	24.9	0.1	0	39
1	10020	A	0	6.4	32.5	0.0	0	34
1	10020	B	0	6.2	21.0	0.1	0	37
1	10020	C	0	3.2	13.9	0.0	0	38
1	10020	D	0	5.4	16.8	0.1	0	34
1	10020	E	0	10.5	16.2	0.5	9	32
1	10020	F	0	6.8	13.1	0.3	11	31
1	10030	A	0	8.6	13.6	0.5	5	38
1	10030	C	0	7.5	9.2	0.6	19	33
1	10030	D	0	3.5	27.7	0.0	0	34
1	10030	E	0	5.4	18.1	0.1	0	36
1	10030	F	0	6.0	20.8	0.1	0	35
1	10030	G	0	4.6	29.9	0.0	0	31
1	10030	H	0	4.7	29.2	0.0	0	32
1	10040	A	0	4.4	26.5	0.0	0	31
1	10040	B	0	4.8	21.9	0.0	0	36
1	10040	C	0	3.9	20.7	0.0	0	40
1	10040	D	0	17.3	35.3	0.4	2	27
1	10040	E	1	27.9	35.4	1.0	6	26
1	10040	F	1	27.1	34.1	1.0	4	29
1	10050	A	0	8.6	16.5	0.3	3	36
1	10050	B	1	29.8	27.0	1.7	5	32
1	10050	C	1	27.7	29.1	1.3	3	33
1	10050	D	0	3.6	29.0	0.0	0	30
1	10050	E	0	8.3	34.5	0.1	0	27
1	10050	F	0	4.0	21.9	0.0	0	30
1	10060	A	0	8.6	26.6	0.1	0	31
1	10060	B	2	33.9	24.0	2.4	6	33
1	10060	C	0	9.9	16.9	0.4	7	33
1	10070	A	2	39.9	23.4	3.3	5	33
1	10070	B	0	3.5	19.8	0.0	0	34
1	10070	C	0	6.9	22.0	0.1	0	33

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	10080	A	0	3.1	27.4	0.0	0	27
1	10080	B	2	31.9	17.7	3.3	5	37
1	10080	C	1	16.1	18.5	1.0	6	36
1	10090	A	0	6.4	10.3	0.4	12	36
1	10090	B	1	15.8	14.5	1.3	11	35
1	10090	C	0	4.2	27.4	0.0	0	34
1	10090	D	0	8.7	43.8	0.1	0	29
1	10100	A	0	8.4	31.9	0.1	0	34
1	10100	B	0	8.8	32.5	0.1	0	34
1	10100	C	0	6.5	27.3	0.1	0	35
1	10100	D	0	6.1	27.0	0.1	0	37
1	10100	E	1	16.6	13.9	1.5	16	31
1	10100	F	0	4.3	15.7	0.1	3	30
1	10110	A	0	16.8	21.9	0.8	6	33
1	10110	B	1	17.0	12.7	1.8	13	35
1	10110	C	0	3.8	18.9	0.0	0	34
1	10110	D	0	6.5	28.1	0.1	0	34
1	10110	E	0	9.7	33.3	0.1	0	34
1	10110	F	0	11.3	34.7	0.2	0	34
1	10110	G	0	11.2	32.2	0.2	0	35
1	10120	A	0	9.7	34.6	0.1	0	33
1	10120	B	0	10.3	35.8	0.1	0	33
1	10120	C	0	11.2	36.0	0.2	0	33
1	10120	D	0	4.6	21.6	0.0	0	37
1	10120	F	0	4.1	15.8	0.0	0	36
1	10120	G	2	28.5	17.9	2.7	9	34
1	10120	H	3	31.5	15.2	4.0	10	34
1	10120	J	1	34.1	29.4	1.9	5	31
1	10130	A	1	18.3	20.7	1.0	7	33
1	10130	B	2	13.8	9.1	2.0	19	35
1	10130	C	1	18.0	14.2	1.7	11	36
1	10130	D	0	8.4	14.8	0.4	8	33
1	10130	E	0	7.1	7.2	0.8	25	33
1	10130	F	0	5.1	22.2	0.0	0	28
1	10130	G	0	5.0	31.2	0.0	0	28
1	10130	H	0	10.2	33.0	0.2	0	34
1	10130	J	0	7.8	27.8	0.1	0	34
1	10140	A	0	3.3	16.7	0.0	0	33

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	10140	B	0	10.6	11.5	0.9	14	35
1	10140	C	1	14.0	11.2	1.5	16	34
1	10140	D	0	11.3	22.4	0.4	5	30
1	10150	A	0	15.3	18.8	0.9	10	31
1	10150	B	0	13.5	17.0	0.8	13	29
1	10150	C	0	10.8	18.0	0.5	10	29
1	10150	D	0	3.8	22.6	0.0	0	27
1	10150	E	0	7.1	29.9	0.1	0	30
1	10150	F	0	7.4	30.5	0.1	0	31
1	10160	A	0	4.3	17.7	0.0	0	38
1	10160	B	0	6.5	23.4	0.1	0	37
1	10160	C	0	7.6	26.5	0.1	0	37
1	10160	D	0	5.0	19.7	0.1	0	35
1	10160	E	0	4.0	16.1	0.0	0	35
1	10160	F	0	6.5	14.0	0.2	6	34
1	10160	G	0	6.2	11.8	0.3	10	34
1	10160	H	1	19.7	22.1	1.1	7	32
1	10160	J	0	8.9	10.8	0.7	15	35
1	10170	A	0	4.9	8.4	0.3	13	38
1	10170	B	0	4.2	13.3	0.1	0	43
1	10170	C	0	10.1	36.8	0.1	0	31
1	10170	D	0	9.5	37.1	0.1	0	30
1	10170	E	0	8.8	34.5	0.1	0	30
1	10170	F	0	6.6	30.0	0.1	0	29
1	10180	A	0	5.9	36.2	0.0	0	27
1	10180	B	0	14.8	42.0	0.2	0	34
1	10180	C	0	14.9	38.2	0.3	0	34
1	10180	D	0	10.5	28.5	0.2	0	34
1	10180	E	0	3.0	28.7	0.0	0	31
1	10180	F	0	3.4	33.1	0.0	0	30
1	10180	G	0	6.6	18.7	0.1	1	32
1	10180	H	0	8.1	18.1	0.3	5	30
1	10190	A	0	6.7	17.8	0.2	1	33
1	10190	B	0	3.3	31.1	0.0	0	32
1	10190	C	0	3.9	28.8	0.0	0	27
1	10190	D	0	18.3	39.9	0.4	0	32
1	10190	E	0	17.4	41.7	0.3	0	32
1	10190	F	0	4.6	22.2	0.0	0	33
1	10200	A	0	3.8	21.2	0.0	0	29

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	10200	B	0	3.6	25.7	0.0	0	28
1	10200	C	0	27.9	52.4	0.6	0	28
1	10200	D	0	36.7	66.7	0.7	0	27
1	10200	E	0	32.4	65.3	0.6	0	27
1	10200	F	0	4.3	35.0	0.0	0	29
1	10200	G	0	8.6	18.5	0.3	3	33
1	10210	A	0	3.2	8.6	0.1	11	34
1	10210	B	0	3.8	24.6	0.0	0	33
1	10210	C	0	3.8	25.9	0.0	0	32
1	10210	D	0	24.6	58.4	0.4	0	28
1	10210	E	0	32.7	55.7	0.7	0	31
1	10210	F	0	31.0	49.8	0.8	0	32
1	10210	G	0	29.8	46.2	0.8	0	30
1	10210	H	0	21.3	44.6	0.5	0	29
1	10220	A	0	26.8	49.4	0.6	0	29
1	10220	B	0	41.2	66.9	0.9	0	28
1	10220	C	0	40.2	64.0	0.9	0	27
1	10220	D	0	29.6	71.9	0.4	0	24
1	10220	E	0	4.5	26.9	0.0	0	32
1	10230	A	0	3.9	30.6	0.0	0	31
1	10230	B	0	3.9	33.6	0.0	0	31
1	10230	C	0	9.4	13.8	0.5	14	30
1	10230	D	0	3.3	33.7	0.0	0	26
1	10230	E	0	12.0	66.9	0.1	0	27
1	10230	F	0	9.7	53.2	0.0	0	29
1	10230	G	0	6.9	42.5	0.0	0	29
1	10230	H	0	19.5	42.5	0.4	0	31
1	10230	J	0	24.8	46.1	0.6	0	33
1	10230	K	0	27.0	42.9	0.8	0	34
1	10230	M	0	17.1	31.1	0.5	0	32
1	10241	A	0	21.4	34.5	0.7	0	31
1	10241	B	0	29.5	51.9	0.7	0	29
1	10241	C	0	31.7	66.8	0.5	0	25
1	10241	D	0	5.5	28.9	0.0	0	27
1	10241	E	0	10.5	51.5	0.1	0	28
1	10241	F	0	11.1	55.9	0.1	0	29
1	10241	G	0	13.3	16.5	0.8	6	37
1	10250	A	0	19.5	31.0	0.7	3	29
1	10250	B	0	3.4	31.7	0.0	0	26
1	10250	C	0	8.4	62.7	0.0	0	24

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	10250	D	0	20.0	50.6	0.3	0	27
1	10250	E	0	25.0	57.4	0.4	0	27
1	10250	F	0	29.2	54.8	0.6	0	28
1	10260	A	0	14.3	37.1	0.3	0	28
1	10260	B	0	19.6	45.4	0.4	0	27
1	10260	C	0	21.3	59.2	0.3	0	25
1	10260	D	0	19.1	57.0	0.3	0	25
1	10260	E	0	4.1	51.0	0.0	0	25
1	10260	F	0	5.5	10.0	0.3	5	42
1	10270	A	0	6.2	13.4	0.2	6	34
1	10270	B	0	11.0	31.3	0.2	0	33
1	10270	C	0	11.0	30.1	0.2	0	34
1	10280	A	0	7.7	28.0	0.1	0	30
1	10280	B	0	3.4	10.5	0.1	7	33
1	10290	A	0	4.9	10.1	0.2	13	32
1	10290	B	0	4.6	22.4	0.0	0	31
1	10290	C	0	4.9	22.3	0.0	0	33
1	10300	A	0	11.0	59.0	0.1	0	33
1	10310	A	0	6.8	21.9	0.1	0	41
1	10310	B	0	5.2	21.5	0.1	0	40
1	10310	C	0	7.1	16.1	0.2	8	30
1	10310	D	0	11.2	55.9	0.1	0	32
1	10310	E	0	11.3	44.4	0.1	0	35
1	10321	A	0	11.7	60.7	0.1	0	25
1	10321	B	0	12.3	65.3	0.1	0	24
1	10321	C	0	10.2	57.8	0.0	0	25
1	10321	D	0	7.2	10.1	0.5	17	32
1	10321	E	0	7.0	27.5	0.1	0	40
1	10321	F	0	11.6	39.3	0.2	0	36
1	10321	G	0	13.2	46.0	0.2	0	34
1	10321	H	0	7.2	23.6	0.1	0	39
1	10330	A	0	21.3	85.4	0.2	0	26
1	10330	B	0	22.0	86.4	0.2	0	27
1	10330	C	0	7.0	7.4	0.8	22	36
1	10330	D	0	13.1	60.0	0.1	0	27
1	10330	E	0	15.5	68.1	0.1	0	26
1	10330	F	0	16.2	67.8	0.1	0	26

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	10340	A	0	20.0	80.0	0.2	0	28
1	10340	B	0	23.0	85.3	0.2	0	28
1	10340	C	0	19.5	73.4	0.2	0	30
1	10340	D	2	19.1	13.7	2.0	6	41
1	10340	E	0	15.6	55.2	0.2	0	31
1	10340	F	0	22.9	82.8	0.2	0	30
1	10340	G	0	5.5	39.2	0.0	0	31
1	10350	A	0	3.7	33.6	0.0	0	32
1	10350	B	0	3.9	28.9	0.0	0	31
1	10350	C	0	11.4	71.2	0.0	0	27
1	10350	D	0	19.0	86.5	0.1	0	27
1	10350	E	0	24.1	91.8	0.2	0	28
1	10350	F	0	18.8	74.6	0.2	0	30
1	10350	G	2	22.1	14.9	2.2	8	37
1	10350	H	0	13.0	65.7	0.1	0	27
1	10350	J	0	16.4	81.3	0.1	0	26
1	10350	K	0	22.1	81.0	0.2	0	26
1	10350	M	0	24.2	82.7	0.2	0	27
1	10350	N	0	7.7	41.2	0.0	0	30
1	10361	A	0	17.2	53.4	0.2	0	33
1	10361	B	0	16.4	65.5	0.1	0	30
1	10361	D	1	25.7	29.5	1.2	7	28
1	10361	E	0	10.1	43.3	0.1	0	32
1	10361	F	0	11.2	50.3	0.1	0	31
1	10361	G	0	15.8	74.1	0.1	0	29
1	10361	H	0	18.8	80.7	0.1	0	29
1	10361	J	0	15.6	69.9	0.1	0	30
1	10361	K	0	12.6	61.4	0.1	0	31
1	10370	A	0	3.2	15.1	0.0	3	27
1	10370	B	0	7.2	19.4	0.2	6	28
1	10370	C	0	10.8	55.6	0.1	0	29
1	10370	D	0	10.3	57.5	0.0	0	29
1	10370	E	0	7.8	50.7	0.0	0	28
1	10370	F	0	8.0	50.5	0.0	0	28
1	10370	G	0	14.4	36.5	0.3	0	27
1	10370	H	0	20.5	80.8	0.2	0	27
1	10370	J	0	21.6	76.6	0.2	0	29
1	10370	K	0	19.3	61.5	0.2	0	30
1	10380	A	0	18.9	61.4	0.2	0	32
1	10380	B	0	20.5	72.1	0.2	0	28

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	10380	D	0	15.5	33.9	0.4	1	28
1	10380	E	0	4.4	15.6	0.1	1	32
1	10380	F	0	4.7	15.8	0.1	0	36
1	10380	G	0	22.5	30.9	0.9	4	30
1	10390	A	0	10.4	15.1	0.6	13	29
1	10390	B	0	26.3	49.6	0.6	0	28
1	10390	C	0	20.2	76.8	0.2	0	27
1	10390	D	0	22.8	82.6	0.2	0	29
1	10390	E	0	23.2	75.1	0.3	0	31
1	10400	A	0	18.1	23.9	0.8	4	33
1	10400	B	0	4.8	6.3	0.5	21	38
1	10400	C	0	4.0	7.1	0.3	20	33
1	10400	D	0	5.4	13.9	0.2	10	28
1	10410	A	0	5.2	12.5	0.2	11	29
1	10410	B	0	11.1	33.0	0.2	0	29
1	10410	C	0	5.8	18.1	0.1	0	32
1	10410	D	0	4.7	35.1	0.0	0	32
1	10410	E	0	8.5	15.6	0.4	10	30
1	10410	F	0	9.3	19.9	0.3	5	30
1	10410	G	0	9.5	31.9	0.1	0	27
1	10410	H	0	7.7	49.5	0.0	0	28
1	10420	A	0	4.6	31.2	0.0	0	32
1	10420	B	1	24.1	22.0	1.5	7	33
1	10430	A	0	4.7	6.0	0.5	28	33
1	10430	B	0	8.3	15.9	0.3	6	33
1	10440	A	2	22.9	16.5	2.1	9	35
1	10440	B	1	15.1	11.8	1.6	17	33
1	10450	A	0	4.3	38.6	0.0	0	28
1	10450	B	0	5.2	39.7	0.0	0	29
1	10450	C	0	3.9	25.5	0.0	0	34
1	10450	D	0	3.2	11.8	0.0	0	38
1	10450	E	1	11.3	9.0	1.4	23	32
1	10450	G	2	17.9	11.1	2.3	13	37
1	10450	H	0	3.6	13.8	0.0	1	33
1	10450	J	0	5.1	20.9	0.1	0	37
1	10450	K	0	13.7	52.8	0.1	0	31
1	10450	M	0	16.7	60.5	0.2	0	31
1	10450	N	0	15.7	56.7	0.2	0	31

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	10450	O	0	11.4	52.1	0.1	0	23
1	10450	P	0	4.9	23.3	0.0	0	26
1	10450	Q	0	12.7	32.7	0.3	0	30
1	10450	R	3	74.3	33.6	5.6	0	34
1	10460	A	2	33.9	25.7	2.2	6	31
1	10460	B	0	13.5	40.2	0.2	0	31
1	10460	C	0	10.8	33.7	0.2	0	30
1	10460	D	0	14.7	55.7	0.1	0	30
1	10460	E	0	16.6	59.9	0.2	0	30
1	10460	F	0	13.9	55.2	0.1	0	29
1	10460	G	0	12.6	52.0	0.1	0	29
1	10460	H	0	5.1	29.3	0.0	0	32
1	10460	J	2	39.1	22.6	3.3	6	33
1	10460	K	1	17.4	14.9	1.5	12	34
1	10460	M	0	3.2	10.0	0.1	10	30
1	10471	A	0	7.1	36.0	0.0	0	34
1	10471	B	0	5.8	15.9	0.1	6	30
1	10471	C	0	5.2	12.5	0.2	10	30
1	10471	D	1	21.5	22.3	1.2	6	33
1	10471	E	1	22.1	17.7	1.8	8	36
1	10471	F	2	42.3	22.0	3.9	5	33
1	10471	G	0	6.7	34.6	0.0	0	30
1	10471	H	0	5.8	34.1	0.0	0	31
1	10471	J	0	11.4	44.0	0.1	0	32
1	10471	K	0	13.7	51.4	0.1	0	31
1	10471	M	0	12.8	52.7	0.1	0	31
1	10471	N	0	11.1	42.2	0.1	0	29
1	10471	O	0	9.8	50.8	0.1	0	29
1	10471	P	0	11.3	28.3	0.3	0	30
1	10471	Q	1	29.8	28.2	1.6	5	31
1	10480	A	1	33.8	31.2	1.7	6	30
1	10480	B	0	15.6	41.3	0.3	0	29
1	10480	C	0	16.9	83.4	0.1	0	25
1	10480	D	0	21.3	99.0	0.1	0	23
1	10480	E	0	12.1	47.2	0.1	0	30
1	10480	F	0	6.9	34.1	0.0	0	31
1	10480	G	3	49.3	21.6	5.2	5	32
1	10480	H	0	3.2	6.4	0.2	18	36
1	10480	J	1	18.0	15.5	1.5	12	33
1	10480	K	1	19.0	15.6	1.6	12	33
1	10480	M	0	4.9	11.7	0.2	11	30
1	10480	N	0	6.7	33.9	0.0	0	34

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	AMPLITUDE (PPM) QUAD.	CONDUCTOR CTP MHOS	CONDUCTOR DEPTH MTRS	BIRD HEIGHT MTRS
1	10490	A	0	4.1	19.5	0.0	0	40
1	10490	B	0	4.3	23.7	0.0	0	38
1	10490	C	0	3.8	24.6	0.0	0	36
1	10490	D	0	4.9	15.0	0.1	7	28
1	10490	E	0	12.6	14.5	0.9	11	34
1	10490	F	0	9.2	11.0	0.7	18	31
1	10490	G	1	16.6	19.1	1.0	9	32
1	10490	H	1	14.6	15.5	1.0	15	30
1	10490	J	0	9.0	12.0	0.6	15	32
1	10490	K	0	12.9	18.4	0.6	12	28
1	10490	M	0	7.8	18.5	0.2	3	32
1	10490	N	0	6.4	40.2	0.0	0	29
1	10490	O	0	6.4	38.8	0.0	0	29
1	10490	P	0	8.5	49.1	0.0	0	27
1	10490	Q	0	17.0	87.0	0.1	0	21
1	10490	R	0	17.3	79.1	0.1	0	25
1	10490	S	0	16.6	72.2	0.1	0	26
1	10490	T	1	53.5	64.1	1.4	3	23
2	10500	A	0	28.7	41.2	0.9	2	28
2	10500	B	0	13.8	57.9	0.1	0	29
2	10500	C	0	13.9	59.2	0.1	0	29
2	10500	D	0	15.1	58.2	0.1	0	31
2	10500	E	0	6.7	24.2	0.1	0	39
2	10500	F	0	6.7	23.1	0.1	0	35
2	10500	G	0	7.6	18.7	0.2	1	34
2	10500	H	0	9.4	18.3	0.3	3	34
2	10500	J	0	3.4	6.0	0.2	26	31
2	10500	K	0	4.4	6.4	0.4	21	37
2	10500	M	1	7.9	6.7	1.1	21	40
2	10500	N	0	7.6	8.6	0.7	8	46
2	10500	O	1	18.8	13.7	1.9	8	39
2	10500	P	3	59.7	30.8	4.4	0	34
2	10500	Q	2	36.2	26.5	2.4	8	30
2	10500	R	1	29.3	26.5	1.7	6	31
2	10500	S	0	9.3	11.8	0.7	14	34
2	10500	T	0	4.0	11.6	0.1	5	34
2	10500	U	0	4.4	12.0	0.1	7	32
2	10500	V	0	4.3	28.1	0.0	0	34
2	10500	W	0	4.0	28.8	0.0	0	33
2	10510	A	0	3.3	11.3	0.1	0	37
2	10510	B	0	8.8	9.5	0.8	27	26
2	10510	C	1	25.1	21.0	1.8	8	33

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
2	10510	D	2	31.5	15.7	3.8	10	33
2	10510	E	0	9.2	12.2	0.6	13	34
2	10510	F	3	30.0	11.8	5.1	13	33
2	10510	G	0	10.3	16.7	0.5	9	31
2	10510	H	0	16.9	31.3	0.5	0	32
2	10510	J	0	5.6	27.3	0.0	0	31
2	10510	K	0	18.8	64.2	0.2	0	29
2	10510	M	0	24.5	80.8	0.3	0	29
2	10510	N	0	20.2	67.4	0.2	0	30
2	10510	O	1	16.5	18.7	1.0	8	33
2	10520	A	0	5.9	13.9	0.2	6	33
2	10520	B	0	30.4	69.7	0.5	0	33
2	10520	C	0	27.5	74.5	0.4	0	32
2	10520	D	0	6.2	34.1	0.0	0	30
2	10520	E	1	24.9	21.2	1.7	4	36
2	10520	F	1	12.0	12.7	1.0	11	37
2	10520	G	2	21.9	13.0	2.7	14	34
2	10520	H	1	19.9	23.7	1.0	6	32
2	10520	J	0	12.8	32.8	0.3	0	34
2	10520	K	0	7.2	27.1	0.1	0	34
2	10520	L	0	9.4	10.4	0.8	18	33
2	10520	M	0	3.7	30.1	0.0	0	33
2	10530	A	0	3.0	19.8	0.0	0	38
2	10530	B	0	4.0	23.2	0.0	0	40
2	10530	C	0	29.7	48.4	0.8	0	28
2	10530	D	0	17.0	20.9	0.9	6	33
2	10530	E	2	19.8	12.5	2.4	11	37
2	10530	F	0	9.7	12.9	0.6	15	30
2	10530	H	1	33.9	31.0	1.7	4	32
2	10530	J	0	29.1	74.1	0.4	0	32
2	10530	K	0	36.7	77.0	0.6	0	33
2	10530	M	1	13.1	12.2	1.2	15	34
2	10530	N	0	17.7	27.5	0.7	1	33
2	10541	A	2	44.8	29.4	3.0	2	34
2	10541	B	3	48.8	21.2	5.2	5	33
2	10541	C	0	26.6	59.6	0.5	0	31
2	10541	D	0	30.7	76.0	0.4	0	31
2	10541	E	0	25.5	74.3	0.3	0	30
2	10541	F	0	9.5	50.4	0.1	0	29
2	10541	G	0	3.3	38.3	0.0	0	27
2	10541	H	1	35.0	30.3	1.9	3	33
2	10541	J	0	11.3	17.2	0.5	4	36

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
2	10541	K	0	9.0	14.1	0.5	13	30
2	10541	M	0	13.0	25.1	0.4	2	31
2	10541	N	0	12.7	14.1	0.9	14	32
2	10541	O	0	3.2	9.0	0.1	7	37
2	10550	A	0	18.3	27.4	0.7	9	25
2	10550	B	1	49.0	49.7	1.7	2	27
2	10550	D	0	5.4	9.8	0.3	14	34
2	10550	E	0	7.4	16.4	0.2	4	34
2	10550	F	0	3.1	15.0	0.0	0	31
2	10550	H	0	10.7	20.0	0.4	7	29
2	10550	K	0	9.1	37.7	0.1	0	33
2	10550	M	0	11.2	48.0	0.1	0	30
2	10550	N	0	26.4	88.9	0.3	0	28
2	10550	P	0	38.5	88.0	0.5	0	26
2	10550	Q	0	10.9	24.3	0.3	4	29
2	10550	R	2	44.5	24.4	3.7	2	36
2	10550	S	2	28.4	20.6	2.2	4	37
2	10560	A	0	9.0	14.1	0.5	13	30
2	10560	AA	0	12.6	17.2	0.7	9	32
2	10560	B	0	26.1	61.1	0.4	0	31
2	10560	C	0	26.9	93.2	0.2	0	29
2	10560	D	0	11.3	45.6	0.1	0	34
2	10560	E	0	7.9	15.2	0.3	1	39
2	10560	G	0	5.7	11.5	0.2	11	32
2	10560	H	0	15.1	22.5	0.6	7	30
2	10560	J	1	13.9	13.6	1.1	14	33
2	10560	K	2	41.7	24.8	3.3	5	32
2	10570	B	3	38.6	18.8	4.2	7	34
2	10570	C	0	4.9	11.9	0.2	10	31
2	10570	D	0	9.0	17.6	0.3	7	30
2	10570	E	0	5.8	8.3	0.4	25	28
2	10570	F	0	10.0	44.1	0.1	0	27
2	10570	G	0	12.1	57.2	0.1	0	27
2	10570	H	0	13.4	74.5	0.1	0	26
2	10570	J	0	17.6	80.3	0.1	0	26
2	10570	K	0	30.0	141.0	0.2	0	21
2	10570	M	0	28.1	121.6	0.2	0	25
2	10570	N	0	22.1	75.3	0.2	0	29
2	10570	O	0	17.2	65.9	0.2	0	31
2	10580	A	2	13.2	6.0	3.2	23	37
2	10580	B	0	8.9	32.0	0.1	1	24

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
2	10580	C	0	13.0	85.0	0.0	0	23
2	10580	D	0	16.8	106.5	0.1	0	23
2	10580	E	0	17.5	94.7	0.1	0	24
2	10580	F	0	18.9	92.1	0.1	0	25
2	10580	G	0	19.6	89.5	0.1	0	26
2	10580	H	0	18.0	64.2	0.2	0	30
2	10580	J	0	6.8	29.9	0.1	0	35
2	10580	K	2	23.7	12.7	3.1	13	34
2	10580	M	3	23.2	9.6	4.4	12	38
2	10580	N	1	9.4	7.0	1.4	22	38
2	10580	O	0	8.4	8.2	0.9	17	39
2	10590	A	0	4.9	48.8	0.0	0	27
2	10590	B	0	3.8	48.4	0.0	0	27
2	10590	C	0	4.2	12.4	0.1	8	30
2	10590	D	1	10.2	7.3	1.6	20	38
2	10590	E	1	6.8	5.1	1.2	30	37
2	10590	F	0	13.9	94.5	0.0	0	23
2	10590	G	0	15.3	97.1	0.1	0	24
2	10590	H	0	16.4	99.0	0.1	0	25
2	10590	J	0	14.1	88.2	0.0	0	26
2	10590	K	0	10.7	59.2	0.1	0	29
2	10590	M	0	10.3	56.2	0.1	0	30
2	10590	N	0	9.0	49.7	0.0	0	32
2	10600	A	0	3.4	3.7	0.5	40	33
2	10600	B	0	5.8	47.8	0.0	0	29
2	10600	C	0	5.4	48.6	0.0	0	30
2	10600	D	3	26.0	10.8	4.6	12	35
2	10600	E	0	12.1	15.8	0.7	6	37
2	10600	F	2	16.5	7.0	3.8	17	39
2	10600	G	0	3.2	9.6	0.1	11	30
2	10600	H	0	3.2	33.1	0.0	0	28
2	10610	A	2	11.9	6.8	2.3	28	32
2	10610	B	0	10.0	14.5	0.6	11	32
2	10610	C	1	12.8	12.4	1.1	14	34
2	10610	D	0	12.5	14.9	0.8	11	34
2	10620	A	0	4.5	6.1	0.4	20	39
2	10620	B	1	24.2	25.0	1.3	5	33
2	10620	C	0	8.3	12.2	0.5	17	29
2	10620	D	1	4.4	3.0	1.2	50	30
2	10630	B	0	6.2	10.3	0.4	13	35

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
2	10630	C	0	14.3	16.4	0.9	15	28
2	10640	A	0	5.1	9.0	0.3	13	36
2	10640	B	1	10.5	7.2	1.7	21	38
2	10640	C	2	16.2	8.9	2.7	9	45
2	10640	D	2	18.6	9.8	3.0	11	40
2	10650	C	2	23.6	15.4	2.4	16	29
2	10650	D	2	26.8	17.2	2.6	15	28
2	10650	E	2	29.4	20.7	2.3	13	28
2	10650	G	0	6.8	17.0	0.2	2	34
2	10650	J	0	5.9	6.8	0.6	22	37
2	10650	K	3	51.0	20.5	5.9	6	31
2	10650	M	1	9.1	6.2	1.6	31	31
2	10661	A	3	28.1	11.9	4.5	6	41
2	10661	B	2	18.3	13.0	2.0	8	41
2	10661	C	1	9.8	7.7	1.3	17	41
2	10661	D	0	11.1	15.3	0.6	9	34
2	10661	EE	0	-3.2	9.7	0.0	0	30
2	10661	E	1	25.0	25.8	1.3	10	27
2	10661	F	2	47.2	39.3	2.2	6	27
2	10661	G	1	36.8	35.5	1.7	6	27
2	10670	A	1	26.2	21.3	1.9	13	27
2	10670	B	0	17.7	25.1	0.7	7	29
2	10670	C	0	-1.8	5.5	0.0	0	30
2	10670	D	2	26.2	18.3	2.3	10	32
2	10670	E	1	12.1	12.1	1.0	16	33
2	10680	A	0	15.6	65.4	0.1	0	32
2	10680	B	0	17.3	70.7	0.1	0	31
2	10680	C	0	9.5	50.2	0.1	0	30
2	10680	D	0	5.8	13.7	0.2	3	36
2	10680	E	0	6.7	12.5	0.3	6	37
2	10680	F	0	5.6	11.8	0.2	3	40
2	10680	G	0	4.0	7.9	0.2	17	33
2	10680	GG	0	-2.8	24.8	0.0	0	30
2	10680	H	0	12.2	20.9	0.5	6	30
2	10690	A	0	7.8	17.2	0.3	5	32
2	10690	B	0	4.7	9.4	0.2	17	30
2	10690	C	0	0.9	39.9	0.0	0	29
2	10690	D	0	3.3	15.0	0.0	0	39
3	10700	A	0	4.5	13.2	0.1	9	29

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
3	10700	B	0	9.9	12.1	0.7	15	33
3	10700	C	2	20.2	10.1	3.3	15	36
3	10700	D	1	14.1	12.2	1.4	13	36
3	10700	E	0	6.8	37.1	0.0	0	33
3	10700	F	0	6.3	37.8	0.0	0	32
3	10710	A	0	12.6	65.5	0.1	0	28
3	10710	B	1	10.8	7.1	1.8	20	39
3	10710	C	4	41.8	9.3	12.1	7	36
3	10710	E	0	12.0	13.4	0.9	13	33
3	10710	F	2	21.9	15.1	2.2	14	32
3	10710	G	1	21.0	21.2	1.3	10	30
3	10720	A	2	10.4	4.4	3.3	39	26
3	10720	B	1	13.4	14.5	1.0	13	33
3	10720	C	0	3.9	7.0	0.2	25	28
3	10720	D	2	14.2	6.2	3.5	31	27
3	10720	DD	0	3.8	5.0	0.4	38	26
3	10720	E	4	56.0	16.1	9.4	8	30
3	10720	EE	1	18.7	13.7	1.9	18	29
3	10720	F	0	17.0	74.5	0.1	0	28
3	10720	G	0	20.2	75.3	0.2	0	30
3	10720	H	0	20.3	66.7	0.2	0	32
3	10730	A	0	17.8	44.0	0.3	0	37
3	10730	B	0	20.8	59.9	0.3	0	37
3	10730	D	4	117.2	28.3	14.5	0	30
3	10730	E	4	91.6	29.9	9.1	3	29
3	10730	F	1	7.6	5.0	1.6	30	37
3	10740	A	0	5.3	12.0	0.2	11	31
3	10740	B	0	6.4	8.7	0.5	21	31
3	10740	C	0	1.5	3.0	0.1	39	31
3	10740	E	0	-6.3	26.8	0.0	0	31
3	10740	F	2	23.5	10.8	3.8	13	36
3	10740	G	4	44.1	13.4	8.1	5	36
3	10740	H	0	14.5	43.5	0.2	0	43
3	10750	A	0	14.4	94.3	0.0	0	22
3	10750	B	0	11.2	78.3	0.0	0	23
3	10750	B	0	2.5	23.0	0.0	0	30
3	10750	C	2	30.1	15.8	3.5	13	30
3	10750	D	1	25.7	20.2	1.9	8	33
3	10750	E	2	43.4	23.5	3.8	4	34
3	10750	EE	0	1.1	19.3	0.0	0	37

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
3	10750	F	0	5.4	12.1	0.2	7	34
3	10750	G	0	2.2	5.7	0.1	17	35
3	10750	H	0	11.9	13.4	0.9	11	35
3	10750	J	0	6.4	12.3	0.3	10	33
3	10750	K	0	6.4	13.7	0.2	7	33
3	10760	A	0	4.7	10.9	0.2	10	32
3	10760	B	0	4.4	10.4	0.2	11	32
3	10760	C	0	4.1	11.5	0.1	8	31
3	10760	D	0	7.7	11.0	0.5	11	37
3	10760	E	0	6.8	13.3	0.3	10	31
3	10760	F	0	3.3	24.4	0.0	0	33
3	10760	G	0	3.2	3.9	0.4	44	27
3	10760	H	3	55.8	21.8	6.3	4	33
3	10760	J	3	44.0	22.1	4.2	5	34
3	10760	K	2	29.9	16.8	3.2	11	32
3	10760	M	0	15.5	70.2	0.1	0	28
3	10760	N	0	20.3	79.6	0.2	0	29
3	10770	A	0	15.9	70.2	0.1	0	30
3	10770	B	0	14.5	60.8	0.1	0	31
3	10770	C	0	12.2	55.2	0.1	0	30
3	10770	E	3	32.8	14.4	4.6	7	37
3	10770	F	2	26.5	14.7	3.1	9	36
3	10770	G	4	79.8	22.2	10.8	0	34
3	10770	H	0	3.1	22.8	0.0	0	38
3	10770	KK	1	12.5	9.0	1.7	17	37
3	10770	K	2	23.7	18.0	2.0	6	37
3	10770	M	0	6.4	19.6	0.1	0	33
3	10770	N	0	15.0	17.6	0.9	4	38
3	10770	O	1	24.3	22.3	1.5	8	31
3	10770	P	0	4.7	10.4	0.2	13	31
3	10780	A	1	10.1	7.3	1.5	22	37
3	10780	B	2	23.0	13.7	2.7	10	36
3	10780	D	0	12.4	20.1	0.5	5	33
3	10780	E	0	12.1	19.7	0.5	6	32
3	10780	EE	0	0.6	5.4	0.0	6	30
3	10780	F	4	30.1	8.5	8.0	11	37
3	10780	G	2	18.7	9.9	2.9	14	38
3	10780	H	2	23.7	14.2	2.7	10	36
3	10780	J	0	3.1	17.4	0.0	0	34
3	10780	K	0	9.1	52.8	0.0	0	29
3	10780	M	0	12.2	63.5	0.1	0	28
3	10790	A	1	11.3	10.9	1.1	5	45

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
3	10790	B	2	28.6	14.5	3.6	3	42
3	10790	C	3	36.0	16.8	4.3	3	39
3	10790	D	1	4.9	3.3	1.3	44	33
3	10790	E	0	5.9	12.7	0.2	2	39
3	10790	F	0	4.0	7.8	0.2	12	38
3	10800	A	0	9.5	17.4	0.4	6	33
3	10800	B	0	5.0	12.8	0.1	9	30
3	10800	C	3	35.2	13.5	5.6	10	33
3	10800	D	3	45.1	21.8	4.4	2	36
3	10800	E	2	24.4	18.4	2.0	5	37
3	10800	F	0	10.3	14.3	0.6	10	34
3	10810	A	0	4.5	42.9	0.0	0	24
3	10810	B	0	7.2	12.7	0.4	6	37
3	10810	C	3	41.9	18.5	4.9	0	40
3	10810	D	2	21.9	11.7	3.1	11	38
3	10810	E	0	13.6	16.9	0.8	10	32
3	10810	F	0	10.3	15.4	0.5	10	32
3	10820	A	1	15.0	15.2	1.1	14	31
3	10820	B	2	21.5	13.8	2.4	17	30
3	10820	C	3	45.2	21.6	4.5	6	32
3	10820	D	0	10.8	16.0	0.6	7	34
3	10830	A	0	6.5	20.9	0.1	1	30
3	10830	B	0	11.1	17.8	0.5	5	34
3	10830	C	2	26.6	15.6	2.9	6	39
3	10830	D	3	22.4	9.9	4.0	13	37
3	10830	E	0	12.8	14.8	0.9	10	35
3	10841	A	0	7.1	13.8	0.3	7	34
3	10841	B	2	32.3	19.3	3.0	8	34
3	10841	C	1	16.0	15.2	1.2	11	34
3	10841	D	0	11.8	20.7	0.5	4	33
3	10841	E	1	30.9	25.4	1.9	8	30
3	10850	A	0	2.6	25.8	0.0	0	31
3	10850	B	0	3.5	15.9	0.0	0	36
3	10850	C	2	59.4	34.3	3.8	2	32
3	10850	D	0	14.9	24.2	0.6	3	32
3	10860	A	2	19.0	12.7	2.2	10	38
3	10860	B	0	4.6	13.4	0.1	2	35
3	10860	C	0	7.7	16.9	0.3	0	39

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3	10871	A	0	5.5	10.9	0.2	10	34
3	10871	B	1	10.0	9.3	1.1	19	35
3	10871	C	0	10.5	18.2	0.4	6	32
3	10880	A	0	11.1	18.3	0.5	7	31
3	10880	B	0	7.0	11.4	0.4	16	30
3	10880	C	0	-2.3	5.0	0.0	0	31
3	10880	D	0	4.2	10.0	0.2	9	35
3	10880	E	0	6.9	12.8	0.3	9	34
3	10890	A	0	11.1	15.2	0.6	11	32
3	10890	B	0	6.7	13.7	0.3	6	35
3	10890	C	1	18.3	19.2	1.1	14	27
3	10890	D	0	19.6	38.3	0.5	0	34
3	10890	E	0	8.8	9.8	0.8	17	35
3	10890	F	0	5.4	9.6	0.3	12	36
3	10900	A	0	-1.3	6.1	0.0	0	34
3	10900	B	0	-0.5	12.5	0.0	0	30
3	10900	C	0	3.5	8.4	0.1	15	31
3	10900	D	0	8.7	12.9	0.5	13	31
3	10900	E	1	24.3	21.7	1.6	9	31
3	10910	A	0	8.1	13.9	0.4	5	37
3	10910	B	0	10.2	12.8	0.7	10	36
3	10910	C	1	21.8	22.5	1.3	4	35
3	10910	D	0	-5.5	12.9	0.0	0	38
3	10920	A	2	23.4	15.5	2.3	9	36
3	10920	B	1	19.1	14.9	1.7	7	38
3	10920	C	0	16.7	24.0	0.7	2	34
3	10920	D	0	18.6	26.4	0.8	3	32
3	10930	A	0	22.8	31.5	0.9	0	34
3	10930	B	0	14.3	41.5	0.2	0	30
3	10930	C	2	66.7	40.7	3.7	5	27
3	10930	D	2	50.5	31.9	3.2	8	27
3	10940	A	1	11.1	8.6	1.4	23	32
3	10940	B	3	43.1	18.3	5.2	6	34
3	10940	C	3	56.5	24.3	5.5	2	34
3	10940	D	2	36.0	26.5	2.4	4	34
3	10940	E	0	28.5	39.5	0.9	0	34
3	10940	F	1	25.7	26.3	1.3	5	32

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3	10950	A	0	5.5	7.0	0.5	15	43
3	10950	B	1	24.1	22.6	1.5	6	33
3	10950	C	2	30.7	17.8	3.1	10	32
3	10950	D	3	67.6	31.0	5.4	2	32
3	10950	E	0	3.0	10.2	0.0	9	30
3	10960	A	3	57.6	22.7	6.2	2	34
3	10960	B	1	15.2	13.1	1.4	7	41
3	10970	A	0	10.6	11.0	0.9	14	36
3	10970	B	1	16.1	14.5	1.3	10	36
3	10970	C	0	5.6	10.2	0.3	19	28
3	10980	A	0	12.8	27.7	0.3	1	30
3	10980	B	1	19.5	20.9	1.1	9	30
3	10980	C	1	17.0	17.0	1.2	15	28
3	10980	D	0	5.3	9.1	0.3	14	35
3	10990	A	0	7.5	42.4	0.0	0	28
3	10990	B	0	8.4	51.8	0.0	0	28
3	10990	C	0	12.2	30.5	0.3	0	30
3	10990	D	1	14.3	15.8	1.0	15	29
3	10990	E	1	20.5	20.9	1.2	7	33
3	10990	F	1	19.3	21.1	1.1	7	33
3	10990	G	1	22.6	23.5	1.3	4	34
3	10990	H	0	4.7	26.8	0.0	0	34
3	10990	J	0	0.5	29.9	0.0	0	30
3	11000	A	0	3.2	40.2	0.0	0	31
3	11000	C	0	9.4	29.0	0.2	0	30
3	11000	D	0	13.3	25.8	0.4	0	33
3	11000	E	0	11.9	24.4	0.4	4	30
3	11000	F	1	38.6	56.8	1.0	1	26
3	11000	G	0	10.7	33.7	0.2	0	39
4	11011	A	0	18.1	50.9	0.3	0	38
4	11011	B	1	33.8	33.0	1.6	0	38
4	11011	C	0	7.0	15.2	0.2	0	41
4	11011	D	0	10.2	15.4	0.5	4	38
4	11020	A	1	17.8	21.1	1.0	3	36
4	11020	B	0	13.4	19.9	0.6	1	37
4	11020	C	0	11.5	31.4	0.2	0	34
4	11020	D	2	46.3	41.6	2.0	0	38

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
4	11031	A	2	55.7	49.1	2.2	0	33
4	11031	B	0	14.6	30.7	0.4	0	34
4	11031	C	0	9.8	20.3	0.3	0	38
4	11031	D	0	5.9	13.7	0.2	1	38
4	11040	A	0	4.1	8.1	0.2	15	35
4	11040	C	0	6.7	11.4	0.4	8	37
4	11040	D	0	9.7	17.9	0.4	3	35
4	11050	A	0	12.3	20.3	0.5	7	30
4	11050	D	0	4.1	10.9	0.1	9	32
4	11050	E	0	6.2	7.5	0.6	21	35
4	11050	G	0	3.6	5.0	0.4	35	29
4	11060	A	0	9.7	19.9	0.3	3	33
4	11070	A	0	8.3	17.2	0.3	4	34
4	11070	C	3	22.8	7.1	6.4	24	28
4	11080	A	0	6.7	7.8	0.6	27	29
4	11080	B	0	6.9	19.4	0.2	0	33
4	11090	A	0	12.1	23.2	0.4	1	33
4	11090	B	0	3.1	16.1	0.0	0	33
4	11090	C	0	3.7	14.2	0.0	0	35
4	11090	D	0	6.9	15.4	0.2	6	32
4	11090	E	0	5.2	13.3	0.2	8	31
4	11100	A	0	3.8	10.5	0.1	9	32
4	11100	B	0	3.6	8.3	0.1	13	34
4	11100	C	0	3.5	16.3	0.0	0	33
4	11100	D	0	3.3	20.5	0.0	0	30
4	11110	A	0	3.4	16.2	0.0	0	36
4	11110	B	0	5.6	15.4	0.1	6	30
4	11120	A	0	5.5	12.1	0.2	8	34
4	11120	B	0	3.1	15.9	0.0	0	34
4	11130	A	0	3.1	14.4	0.0	1	30
4	11130	B	0	9.2	18.6	0.3	6	30
4	11140	A	0	9.7	16.0	0.5	17	24
4	11150	A	0	3.3	7.8	0.1	16	32

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
4	11160	A	0	5.2	9.7	0.3	12	35
4	11160	B	0	6.0	16.8	0.1	0	35
4	11170	A	0	4.2	20.0	0.0	0	31
4	11170	B	0	5.2	21.1	0.1	0	32
4	11170	C	1	8.8	8.5	1.0	23	32
4	11170	D	0	3.8	8.5	0.2	13	34
4	11180	A	0	3.5	10.5	0.1	7	33
4	11180	B	0	4.4	8.2	0.2	21	29
4	11180	C	0	5.7	12.9	0.2	0	43
4	11180	D	0	36.9	54.4	0.9	0	28
4	11190	A	0	20.9	42.6	0.5	0	32
4	11190	B	0	16.0	35.8	0.4	0	31
4	11190	C	0	6.8	16.0	0.2	0	37
4	11190	D	0	4.4	11.8	0.1	4	36
4	11190	E	1	12.9	10.1	1.5	18	35
4	11190	F	0	0.6	6.4	0.0	0	36
4	11200	A	0	2.2	6.9	0.0	6	39
4	11200	AA	0	9.9	10.2	0.9	16	36
4	11200	B	0	6.1	9.4	0.4	15	35
4	11200	D	0	5.9	15.9	0.2	0	36
4	11200	F	0	23.7	35.7	0.8	0	33
4	11200	G	0	30.2	43.2	0.9	0	32
4	11210	A	0	14.5	23.9	0.5	0	40
4	11210	B	0	18.3	24.3	0.8	0	40
4	11210	C	0	7.1	13.9	0.3	4	37
4	11210	D	0	0.9	5.4	0.0	9	32
4	11220	A	2	42.0	37.2	2.0	1	32
4	11220	B	0	8.6	23.3	0.2	0	33
4	11220	C	1	25.8	31.6	1.1	1	33
4	11220	D	0	18.0	39.6	0.4	0	33
4	11230	A	0	21.9	55.7	0.4	0	34
4	11230	B	0	20.0	68.7	0.2	0	30
4	11230	C	1	31.6	41.5	1.0	0	31
4	11230	D	0	10.7	19.4	0.4	0	38
4	11230	E	2	52.3	33.8	3.2	1	33
4	11230	F	0	1.3	11.9	0.0	0	34
4	11240	A	0	1.3	14.8	0.0	0	27

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
4	11240	B	0	-12.4	8.6	0.0	0	28
4	11240	C	2	52.3	44.4	2.2	0	31
4	11240	D	0	21.7	34.9	0.7	0	32
4	11240	E	1	20.6	23.5	1.1	7	31
4	11240	F	0	39.7	117.7	0.4	0	24
4	11250	A	0	19.8	49.5	0.3	0	31
4	11250	B	0	28.5	72.3	0.4	0	31
4	11250	C	0	27.9	78.4	0.3	0	30
4	11250	D	1	36.3	33.9	1.7	3	31
4	11250	E	0	14.6	22.1	0.6	3	34
4	11250	F	0	7.6	17.0	0.2	0	41
4	11250	G	0	-1.1	11.5	0.0	0	36
4	11260	A	0	4.7	16.2	0.1	7	26
4	11260	B	0	5.2	17.0	0.1	0	34
4	11260	C	1	29.5	31.3	1.4	3	32
4	11260	D	1	27.9	27.5	1.5	4	33
4	11260	E	0	22.8	72.3	0.3	0	29
4	11260	F	0	16.4	60.4	0.2	0	29
4	11270	A	0	12.8	39.2	0.2	0	34
4	11270	B	0	10.4	36.6	0.1	0	35
4	11270	C	2	43.1	31.4	2.5	0	37
4	11270	D	0	10.0	17.0	0.4	1	38
4	11270	E	0	4.7	16.2	0.1	0	34
4	11270	F	0	3.3	1.1	3.1	72	29
4	11280	A	0	5.6	12.3	0.2	15	26
4	11280	B	0	15.4	18.1	0.9	7	35
4	11280	C	2	40.9	34.7	2.0	0	35
4	11290	A	0	14.1	42.6	0.2	0	36
4	11290	B	1	19.4	22.1	1.0	1	38
4	11290	C	0	9.6	12.5	0.6	9	37
4	11290	D	0	5.1	12.8	0.2	3	36
4	11290	E	1	14.2	9.6	1.9	19	34
4	11290	F	0	6.2	9.8	0.4	18	31
4	11290	G	0	10.0	12.9	0.7	15	31
4	11300	AA	2	30.3	22.9	2.2	10	29
4	11300	A	0	4.3	8.2	0.2	21	29
4	11300	B	0	4.4	18.0	0.0	0	32
4	11300	C	0	6.7	20.3	0.1	0	33
4	11300	D	0	6.6	18.1	0.2	0	35

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
4	11300	E	1	24.0	23.5	1.4	2	36
4	11300	F	0	8.3	37.4	0.1	0	39
4	11300	G	0	10.0	39.1	0.1	0	40
4	11310	A	0	20.8	76.4	0.2	0	29
4	11310	B	0	15.1	55.2	0.2	0	31
4	11310	C	2	39.4	32.0	2.1	4	31
4	11310	D	1	30.8	29.5	1.6	3	33
4	11310	E	0	3.8	6.8	0.2	20	34
4	11310	F	1	30.5	25.4	1.9	7	30
4	11320	A	1	27.2	29.0	1.3	10	25
4	11320	B	2	40.0	21.4	3.7	4	36
4	11320	C	1	14.8	15.3	1.1	10	35
4	11320	D	1	19.5	17.8	1.4	6	37
4	11320	E	0	16.1	49.1	0.2	0	34
4	11330	A	0	15.7	46.0	0.2	0	32
4	11330	B	1	15.8	16.8	1.1	6	37
4	11330	C	1	18.3	13.3	1.9	7	41
4	11330	D	3	40.0	20.3	4.0	2	37
4	11330	E	0	5.2	19.1	0.1	0	30
4	11340	A	0	5.2	22.7	0.0	0	30
4	11340	B	2	41.0	32.6	2.2	3	32
4	11340	C	2	32.5	24.1	2.3	6	32
4	11340	D	0	17.5	24.5	0.8	5	31
4	11340	E	0	11.6	20.7	0.4	4	32
4	11340	F	0	14.8	49.0	0.2	0	33
4	11350	A	0	14.6	62.4	0.1	0	29
4	11350	B	0	16.7	63.2	0.2	0	30
4	11350	C	0	9.8	19.4	0.3	5	31
4	11350	D	0	11.1	21.3	0.4	3	32
4	11350	E	1	21.8	18.9	1.6	10	32
4	11350	F	0	13.8	19.4	0.7	7	33
4	11350	H	0	3.7	18.4	0.0	0	32
4	11350	J	0	4.7	22.8	0.0	0	31
4	11360	A	0	9.0	18.7	0.3	6	30
4	11360	B	0	3.1	12.5	0.0	5	29
4	11360	C	0	16.2	19.5	0.9	8	32
4	11360	D	1	21.6	22.0	1.3	7	33
4	11360	E	0	7.5	14.6	0.3	5	36
4	11360	F	0	19.3	74.7	0.2	0	26

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
4	11360	G	0	19.0	70.7	0.2	0	28
4	11370	A	0	9.4	41.6	0.1	0	31
4	11370	B	0	12.1	40.0	0.2	0	33
4	11370	C	0	10.9	13.9	0.7	8	37
4	11370	D	2	18.4	12.2	2.2	15	34
4	11380	A	2	43.8	24.0	3.7	9	29
4	11380	B	0	4.4	16.8	0.1	3	29
4	11380	C	0	10.6	25.4	0.3	3	28
4	11380	D	0	7.1	23.4	0.1	0	29
4	11380	E	0	15.3	61.4	0.1	0	29
4	11380	F	0	19.5	71.9	0.2	0	27
4	11390	A	0	10.0	30.3	0.2	0	38
4	11390	B	0	8.2	30.2	0.1	0	37
4	11390	C	0	10.0	16.3	0.5	4	36
4	11390	D	0	6.4	14.4	0.2	5	34
4	11390	E	0	2.3	15.5	0.0	0	33
4	11400	A	1	34.7	35.2	1.5	6	27
4	11401	A	2	43.8	32.5	2.5	8	27
4	11401	B	0	3.5	16.3	0.0	0	31
4	11401	C	0	4.2	14.9	0.1	3	31
4	11401	D	0	5.9	15.7	0.2	3	33
4	11401	E	0	14.7	51.1	0.2	0	31
4	11410	A	0	7.7	23.1	0.1	0	41
4	11410	B	0	6.6	23.1	0.1	0	39
4	11410	C	0	3.5	17.8	0.0	0	32
4	11410	D	0	4.0	15.1	0.0	1	32
4	11410	E	2	47.5	30.5	3.1	5	30
4	11420	A	2	38.2	30.1	2.2	10	26
4	11420	B	0	4.0	19.7	0.0	0	27
4	11420	C	0	3.9	19.5	0.0	0	30
4	11420	D	0	8.5	39.8	0.1	0	30
4	11420	E	0	10.2	43.3	0.1	0	31
4	11430	A	0	6.2	22.1	0.1	0	40
4	11430	B	0	6.5	22.7	0.1	0	39
4	11430	C	0	5.6	13.1	0.2	1	38
4	11430	D	2	36.3	21.7	3.1	7	33
4	11440	A	1	23.6	19.1	1.8	13	29

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
4	11440	B	0	4.5	11.6	0.1	13	27
4	11440	C	0	6.5	20.4	0.1	1	30
4	11440	D	0	9.4	20.2	0.3	5	30
4	11440	E	0	10.3	52.0	0.1	0	30
4	11440	F	0	11.1	50.5	0.1	0	32
4	11440	G	0	10.7	42.8	0.1	0	32
4	11450	A	0	7.4	50.4	0.0	0	29
4	11450	B	0	10.8	52.4	0.1	0	30
4	11450	C	0	12.2	55.0	0.1	0	30
4	11450	D	0	12.6	21.1	0.5	5	31
4	11450	E	0	2.2	21.9	0.0	0	30
4	11450	F	0	15.9	22.5	0.7	7	30
4	11460	A	0	19.0	28.3	0.7	7	27
4	11460	B	0	9.1	22.3	0.2	4	28
4	11460	C	0	4.8	27.6	0.0	0	28
4	11460	D	0	8.0	44.1	0.0	0	30
4	11460	E	0	8.9	43.6	0.1	0	30
4	11470	A	0	7.1	35.7	0.0	0	33
4	11470	B	0	6.5	32.5	0.0	0	34
4	11470	C	0	5.0	25.1	0.0	0	34
4	11470	D	0	3.9	12.9	0.1	0	45
4	11470	E	0	4.3	16.1	0.1	0	44
4	11470	F	0	11.0	19.5	0.4	5	33
4	11470	G	0	0.6	20.3	0.0	0	28
4	11470	H	0	1.5	24.5	0.0	0	29
4	11470	J	0	13.9	18.4	0.7	4	37
4	11470	K	0	12.7	15.1	0.8	7	37
4	11481	A	1	26.9	23.2	1.7	9	30
4	11481	B	0	6.5	11.7	0.3	9	35
4	11481	C	0	-4.1	17.4	0.0	0	32
4	11481	D	0	10.1	15.7	0.5	10	31
4	11481	E	0	4.4	19.1	0.0	0	38
4	11490	A	0	5.5	32.1	0.0	0	32
4	11490	B	0	6.5	37.1	0.0	0	30
4	11490	C	0	3.7	27.0	0.0	0	31
4	11490	D	0	16.4	28.1	0.5	10	23
4	11490	E	0	-0.8	20.6	0.0	0	30
4	11490	F	1	28.4	23.2	1.9	4	35
4	11501	A	0	13.6	19.3	0.7	10	30

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
4	11501	B	1	29.5	27.2	1.6	7	30
4	11501	C	0	4.1	33.0	0.0	0	29
4	11501	D	0	5.9	34.7	0.0	0	31
4	11501	E	0	5.8	32.2	0.0	0	32
4	11510	A	0	3.8	26.3	0.0	0	27
4	11510	B	0	3.4	18.7	0.0	0	31
4	11510	C	1	25.2	23.2	1.5	7	32
4	11510	D	0	-0.2	7.4	0.0	0	32
4	11520	A	0	15.6	19.0	0.9	5	35
4	11520	B	0	5.0	34.1	0.0	0	26
4	11520	C	0	4.8	33.7	0.0	0	27
4	11520	D	0	3.5	25.7	0.0	0	28
4	11520	E	0	3.1	20.9	0.0	0	32
4	11520	F	0	3.4	20.9	0.0	0	31
4	11530	A	0	3.3	29.6	0.0	0	29
4	11530	B	0	3.3	29.4	0.0	0	30
4	11530	C	0	5.6	19.8	0.1	0	38
4	11530	D	1	21.7	23.8	1.2	4	34
4	11540	A	0	16.8	20.9	0.9	2	37
4	11540	B	0	5.9	29.3	0.0	0	35
4	11540	C	0	3.6	30.6	0.0	0	30
4	11550	A	0	8.4	50.5	0.0	0	29
4	11550	B	0	8.9	50.7	0.0	0	30
4	11550	C	0	4.0	31.6	0.0	0	31
4	11550	D	1	21.1	22.5	1.2	4	35
4	11560	A	1	17.6	19.9	1.0	1	40
4	11560	B	0	5.3	39.3	0.0	0	27
4	11560	C	0	4.9	38.4	0.0	0	26
4	11570	A	0	3.6	13.8	0.0	0	38
4	11570	B	0	3.6	23.4	0.0	0	33
4	11570	C	1	26.2	27.8	1.3	4	32
4	11580	A	0	-21.2	19.8	0.0	0	27
4	11580	B	0	-21.0	27.1	0.0	0	26
4	11580	C	1	21.6	24.7	1.1	5	33
5	11590	A	0	5.3	11.1	0.2	5	38
5	11600	A	0	7.9	13.7	0.4	4	39

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
5	11610	A	1	25.6	22.4	1.7	8	32
5	11620	A	0	9.4	16.6	0.4	3	37
5	11630	A	0	5.0	12.8	0.1	6	33
5	11660	A	0	3.2	25.3	0.0	0	28
5	11660	B	0	3.1	20.6	0.0	0	29

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APPENDIX III

CERTIFICATE OF QUALIFICATIONS

I, GEORGE PODOLSKY, certify that:

1. I am registered as a Professional Engineer in the Province of Ontario and work as a Professional Geophysicist.

2. I reside at 172 Dunwoody Drive in the town of Oakville, Halton County, Ontario.

3. I hold a B. Sc. in Engineering Physics from Queen's University, having graduated in 1954.

4. I have been continuously engaged in both professional and managerial roles in the minerals industry in Canada and abroad for the past thirty-five years.

5. I have been an active member of the Society of Exploration Geophysicists since 1960 and hold memberships on other professional societies involved in the minerals extraction and exploration industry.

6. The accompanying report was prepared from published or publicly available information and material supplied by Twin Gold Mines Ltd. and Aerodat Limited in the form of government reports and proprietary airborne exploration data. I have not personally visited the specific property.

7. I have no interest, direct or indirect, in the property described nor in Twin Gold Mines Ltd.

8. I hereby consent to the use of this report in a Statement of Material Facts of the Company and for the preparation of a prospectus for submission to the Ontario Securities Commission and/or other regulatory authorities.

LICENSED PROFESSIONAL ENGINEER
G. PODOLSKY
PROVINCE OF ONTARIO

Signed,

George Podolsky, P. Eng.
GEOPOD Associates Inc.

J9026
Oakville, Ontario
June 4, 1990

APPENDIX IV

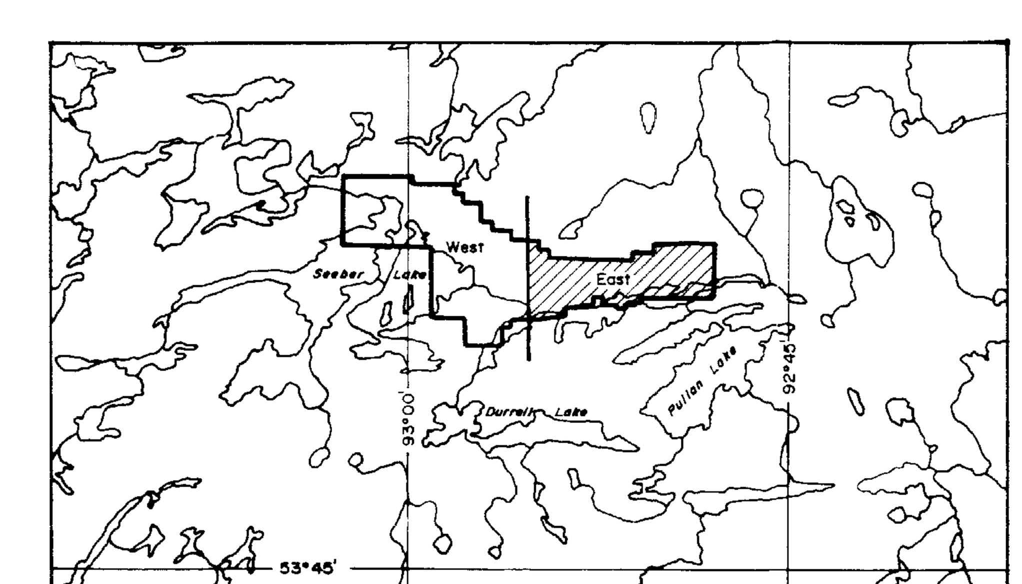
PERSONNEL

FIELD

Flown	April, 1990
Pilot	B. Riley
Operator	J. Mercier

OFFICE

Processing	D. Oneschuk
Report	G. Podolsky



TWIN GOLD MINES LTD.

BASE MAP

LINGMAN LAKE PROPERTY

Northwestern Ontario

SCALE 1:10,000

AERODAT LIMITED

DATE: APRIL 1990

NTS No: 53F/15,16

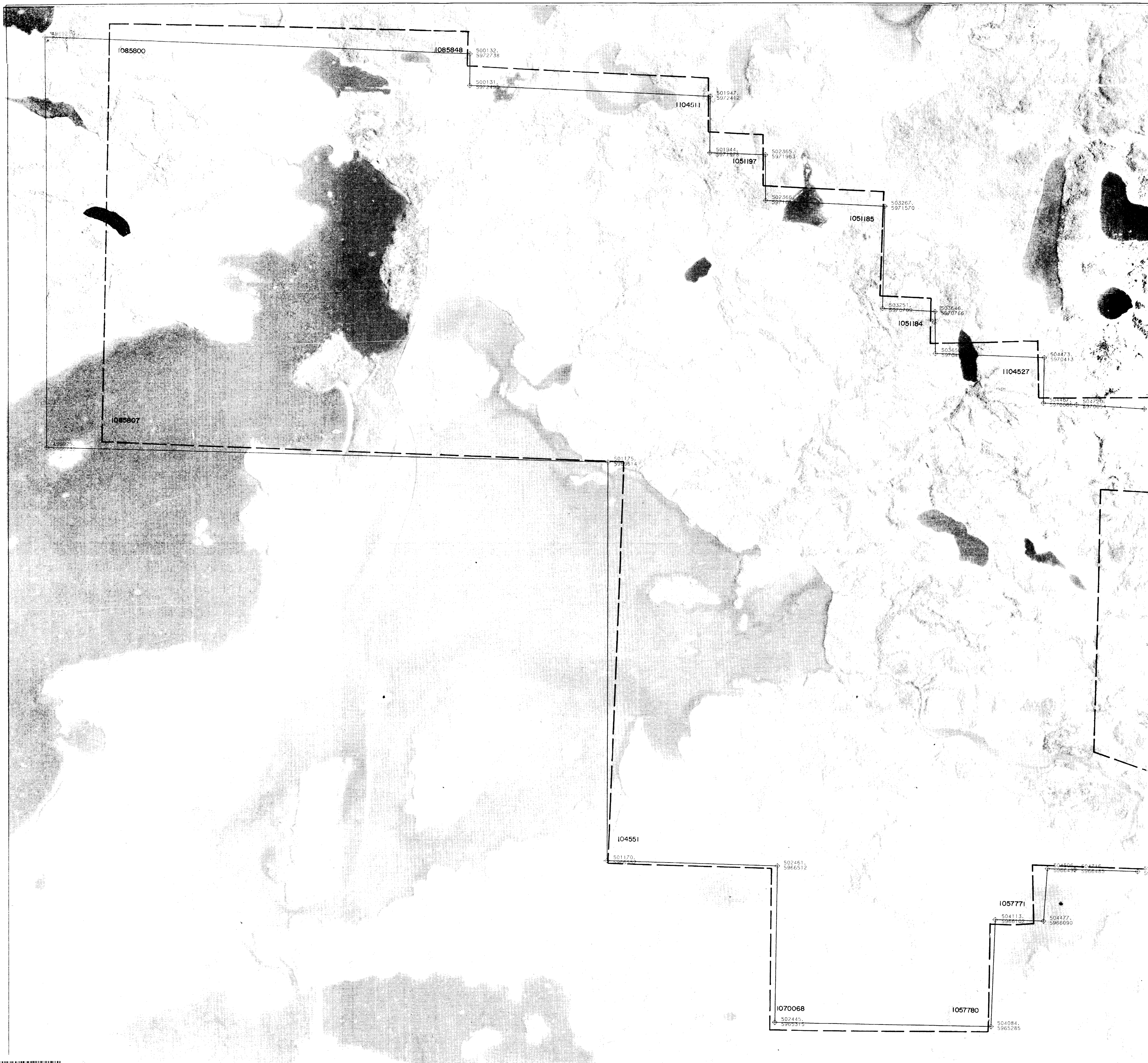
MAP No: 1E

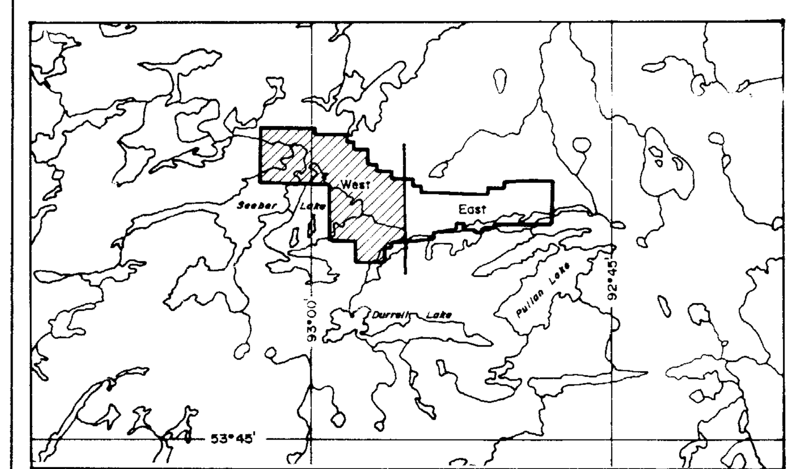
J9026

63.6017

C

200





TWIN GOLD MINES LTD.

BASE MAP

LINGMAN LAKE PROPERTY

Northwestern Ontario

SCALE 1:10,000

2640 Feet

1000 Metres

AERODAT LIMITED

DATE: APRIL 1990

NTS No: 53F/15,16

MAP No: 1W

J9026

63.6017

210

63.6017

Flight Path

Navigation and recovery using Motorola Mini-Ranger (MRS (II)) radar navigation system.

Average terrain clearance 60m
Average line spacing 100m

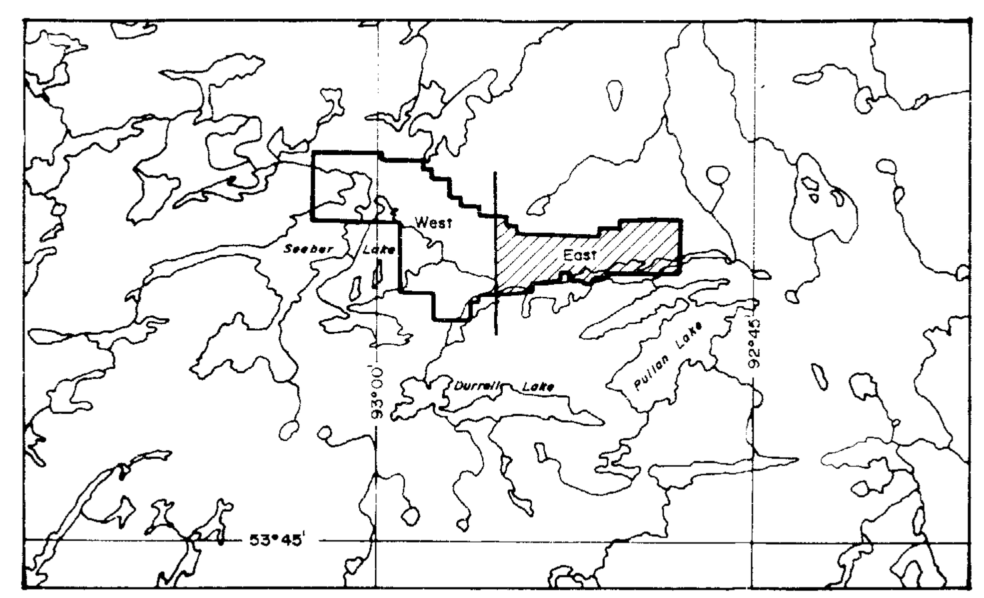
EM Anomalies

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)

N



TWIN GOLD MINES LTD.

FLIGHT PATH

LINGMAN LAKE PROPERTY

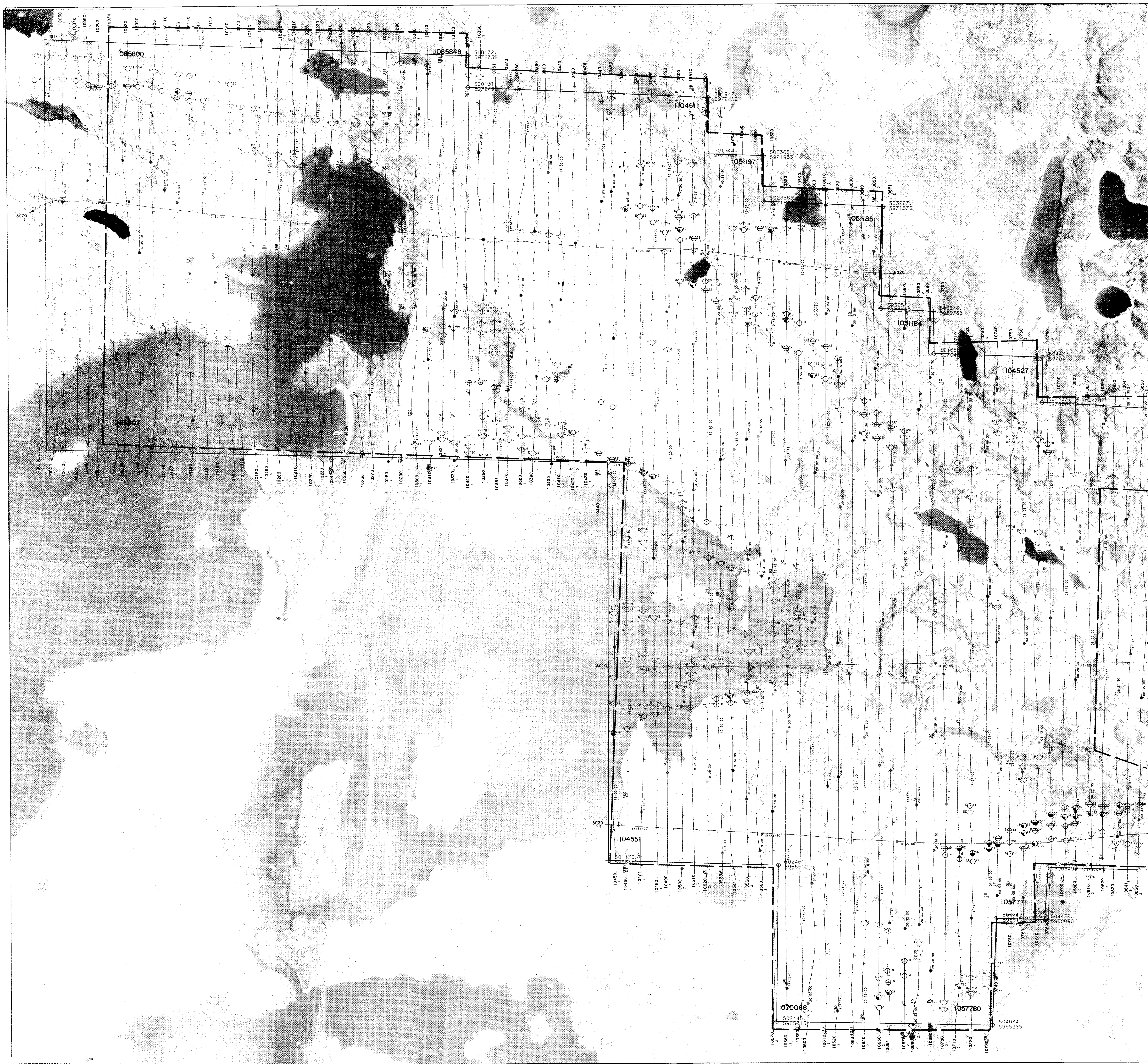
Northwestern Ontario

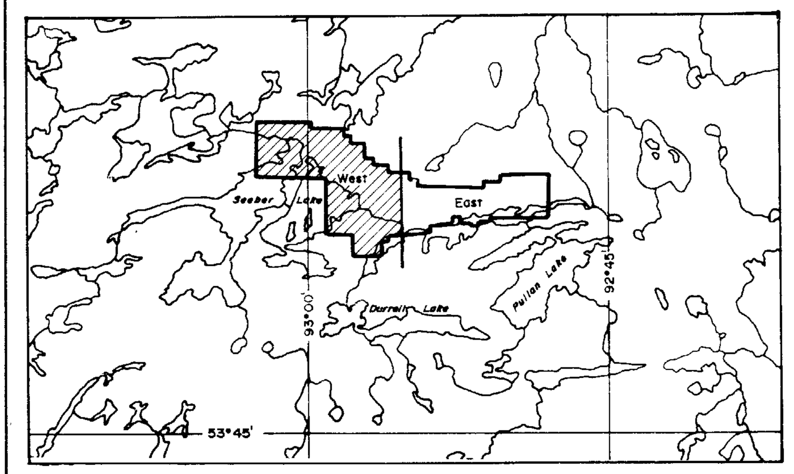
SCALE 1:10,000

AERODAT LIMITED

DATE:	APRIL 1990
NTS No:	53F/15,16
MAP No:	2E J9026

C 220





Flight Path

Navigation and recovery using Motorola Mini-Ranger (MRS III) radar 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).

TWIN GOLD MINES LTD.

FLIGHT PATH

LINGMAN LAKE PROPERTY

Northwestern Ontario

SCALE 1:10,000

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DATE: APRIL 1990
NTS No: 53F/15,16
MAP No: 2W
J9026

63.6017

230

Flight Path

Navigation and recovery using Motorola Mini-Ranger (MRS III) radar navigation system.

Average terrain clearance 60m
Average line spacing 100m

INTERPRETATION LEGEND

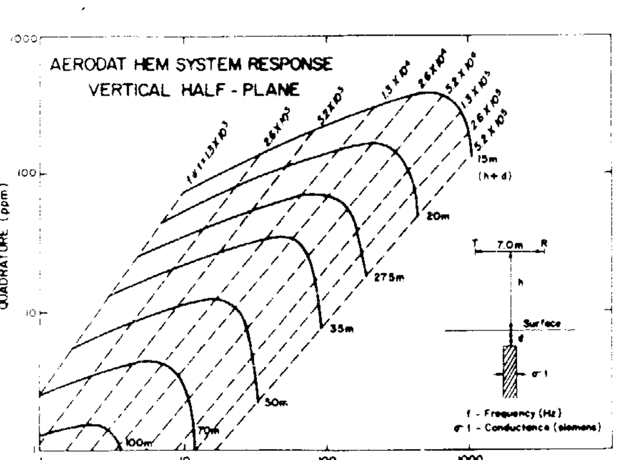
- Interpreted bedrock conductor axis
- Possible bedrock conductor axis
- S Probable Surficial Conductor
- Faults - Inferred from Magnetics
- Diabase - Inferred from Magnetics

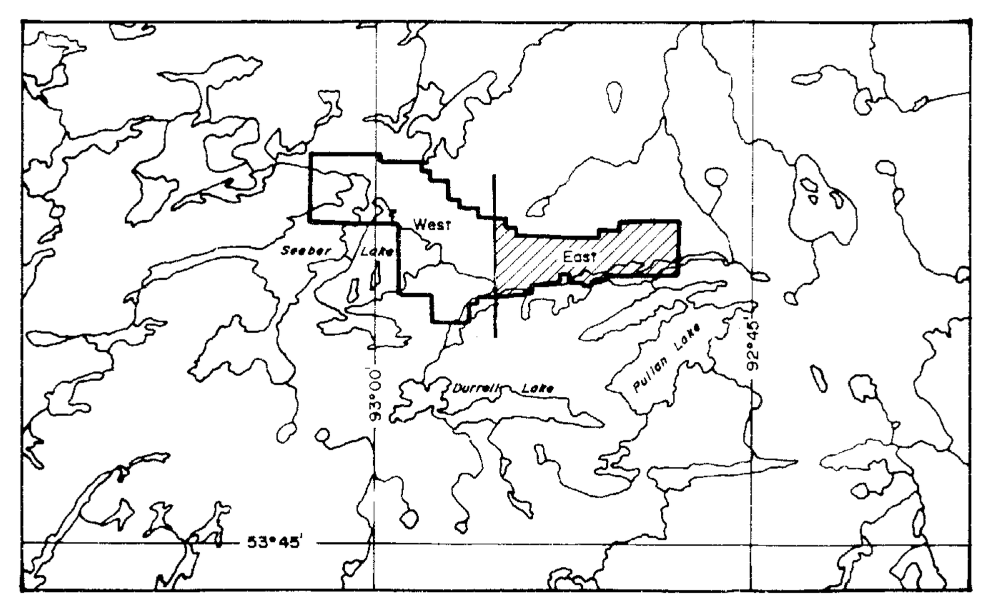
EM Anomalies

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).





TWIN GOLD MINES LTD.

INTERPRETATION

LINGMAN LAKE PROPERTY

Northwestern Ontario

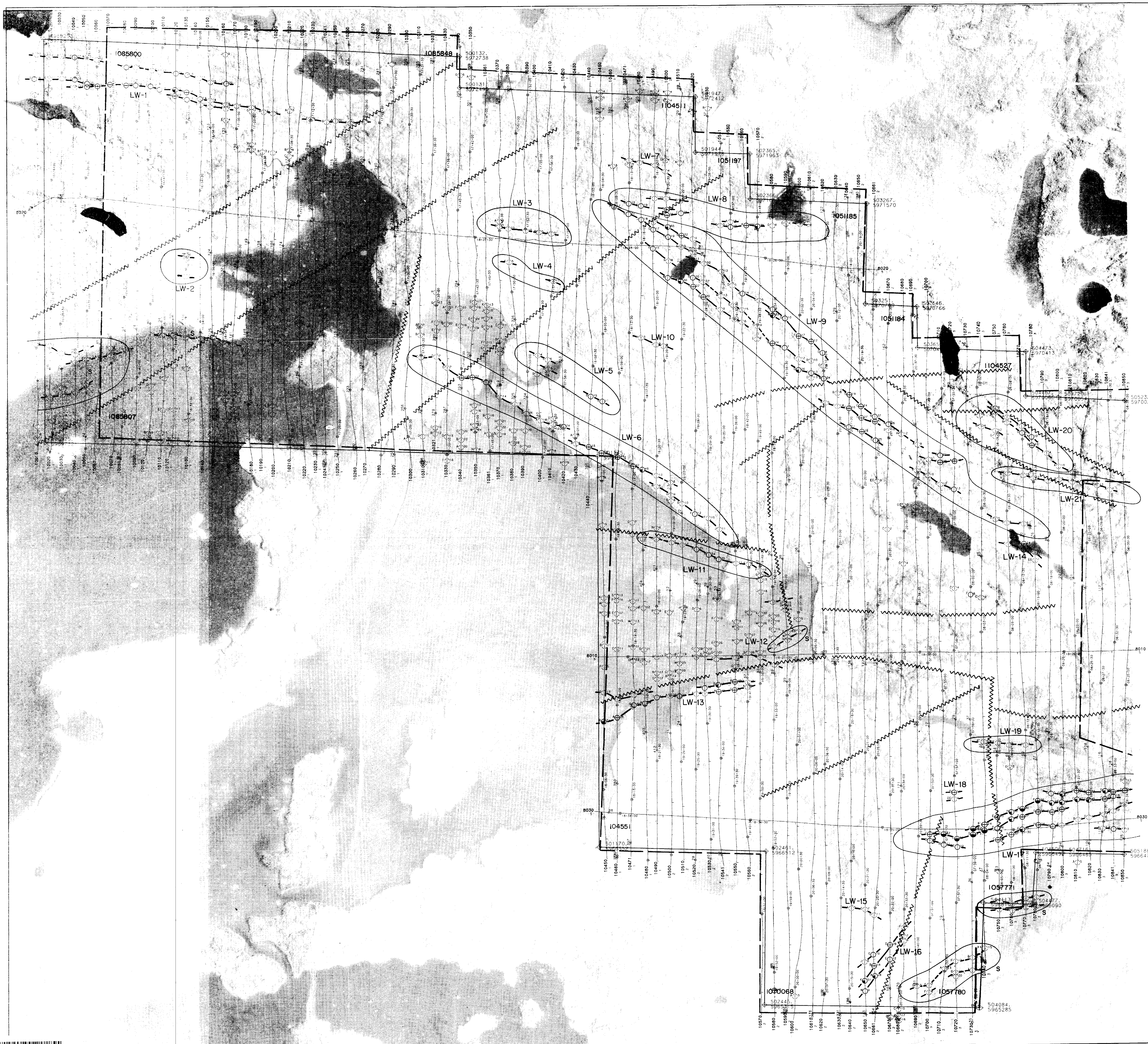
SCALE 1:10,000

AERODAT LIMITED

DATE:	APRIL 1990
NTS No:	53F/15,16
MAP No:	3E J9026

240

63.6017



Flight Path

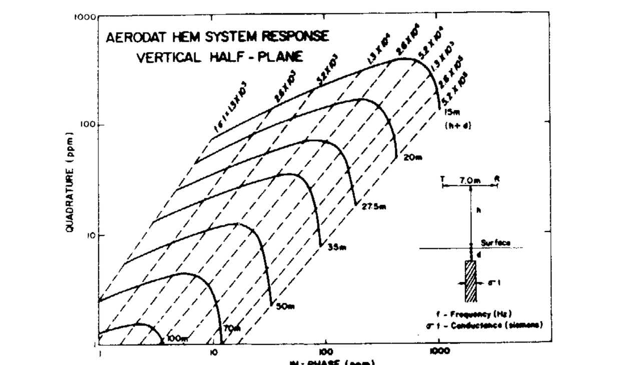
Navigation and recovery using Motorola Mini Ranger (MRS III) radar navigation system.
Average terrain clearance 60m
Average line spacing 100m

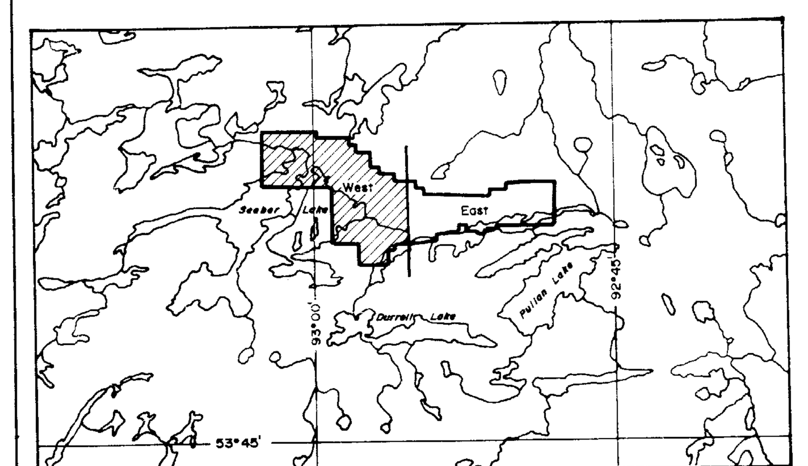
INTERPRETATION LEGEND

Interpreted bedrock conductor axis
Possible bedrock conductor axis
Probable Surficial Conductor
Faults - inferred from Magnetics
Diabase - inferred from Magnetics

EM Anomalies

Conductivity Thickness (mhos)





TWIN GOLD MINES LTD.

INTERPRETATION

LINGMAN LAKE PROPERTY

Northwestern Ontario

SCALE 1:10,000

AERODAT LIMITED

DATE: APRIL 1990
NTS No: 53F/15,16
MAP No: 3W
J9026

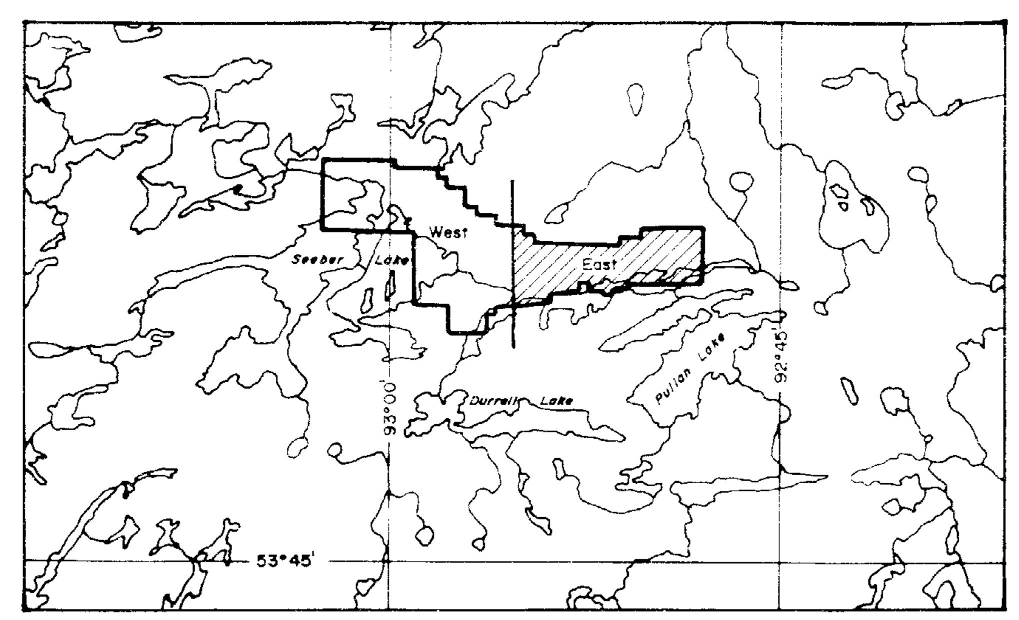
63.6017

250

Flight Path

Magnetics

	2 nT
	10 nT
	50 nT
	250 nT
	500 nT



TWIN GOLD MINES LTD.

TOTAL FIELD MAGNETIC CONTOURS

LINGMAN LAKE PROPERTY

Northwestern Ontario

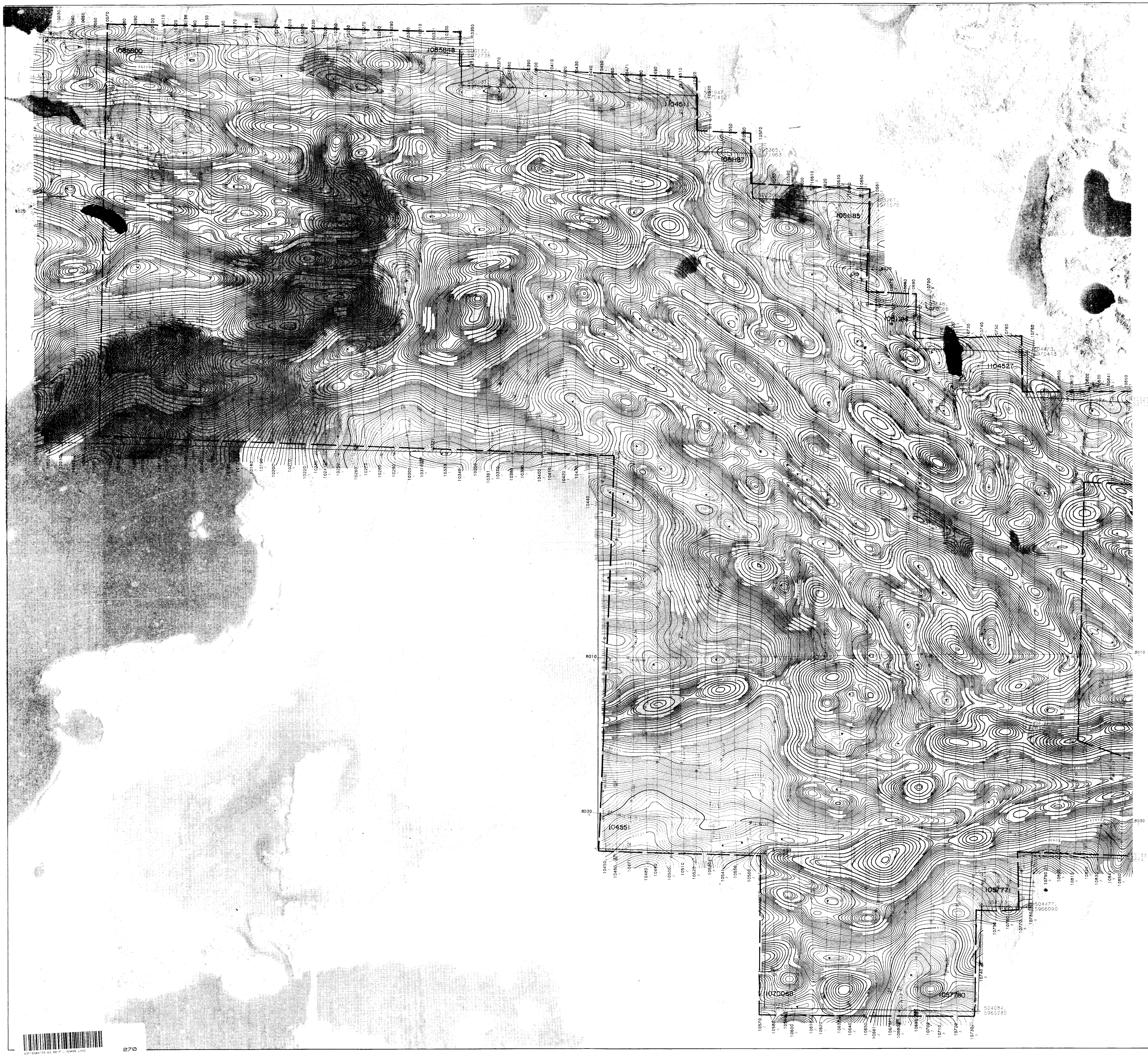
AERODAT LIMITED

APRIL 1990

53F/15,16

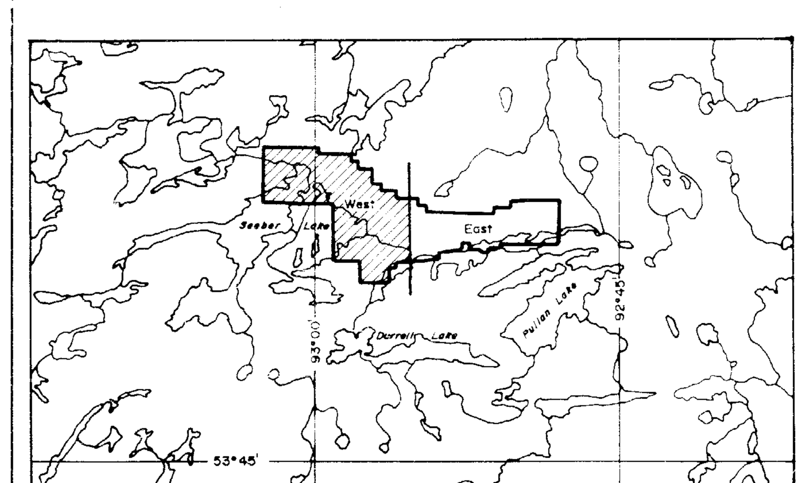
J9026

260



Flight Path

Magnetics



TWIN GOLD MINES LTD.

TOTAL FIELD MAGNETIC CONTOURS

LINGMAN LAKE PROPERTY

Northwestern Ontario

AERODAT LIMITED

DATE: APRIL 1990

NTS No: 53F/15,16

MAP No: 4W J9026

270

Flight Path

Navigation and recovery using Motorola Mini-Ranger (MRS III) radar navigation system.

Average terrain clearance 60m
Average line spacing 100m

Vertical Gradient

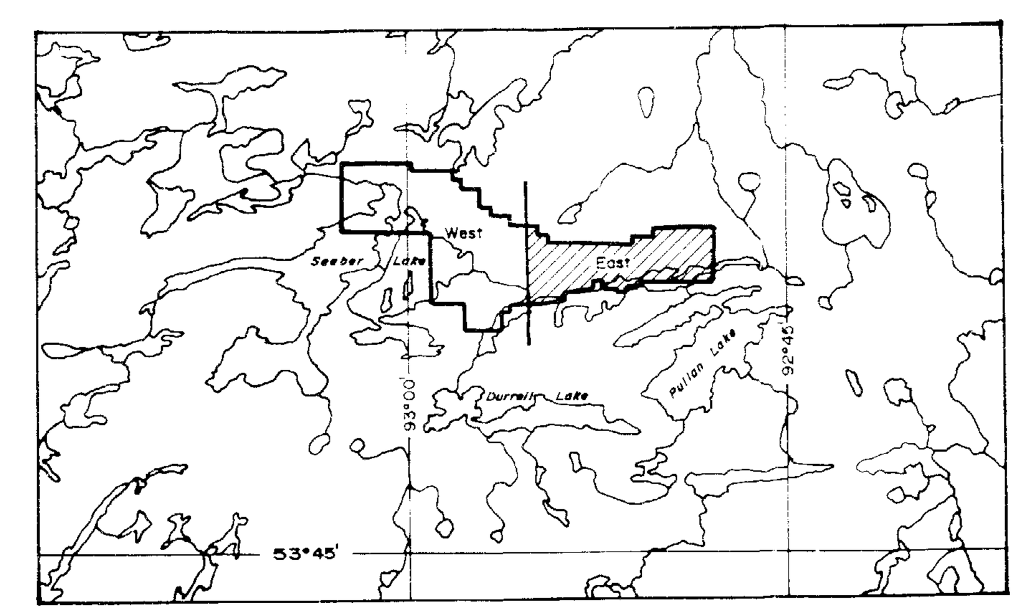
Vertical Magnetic Gradient calculated from the total field magnetic intensity in nT/m.

Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below.

- 0.2 nT/m
- 1.0 nT/m
- 5 nT/m
- 25 nT/m
- 100 nT/m



TWIN GOLD MINES LTD.

CALCULATED VERTICAL MAGNETIC GRADIENT

LINGMAN LAKE PROPERTY

Northwestern Ontario

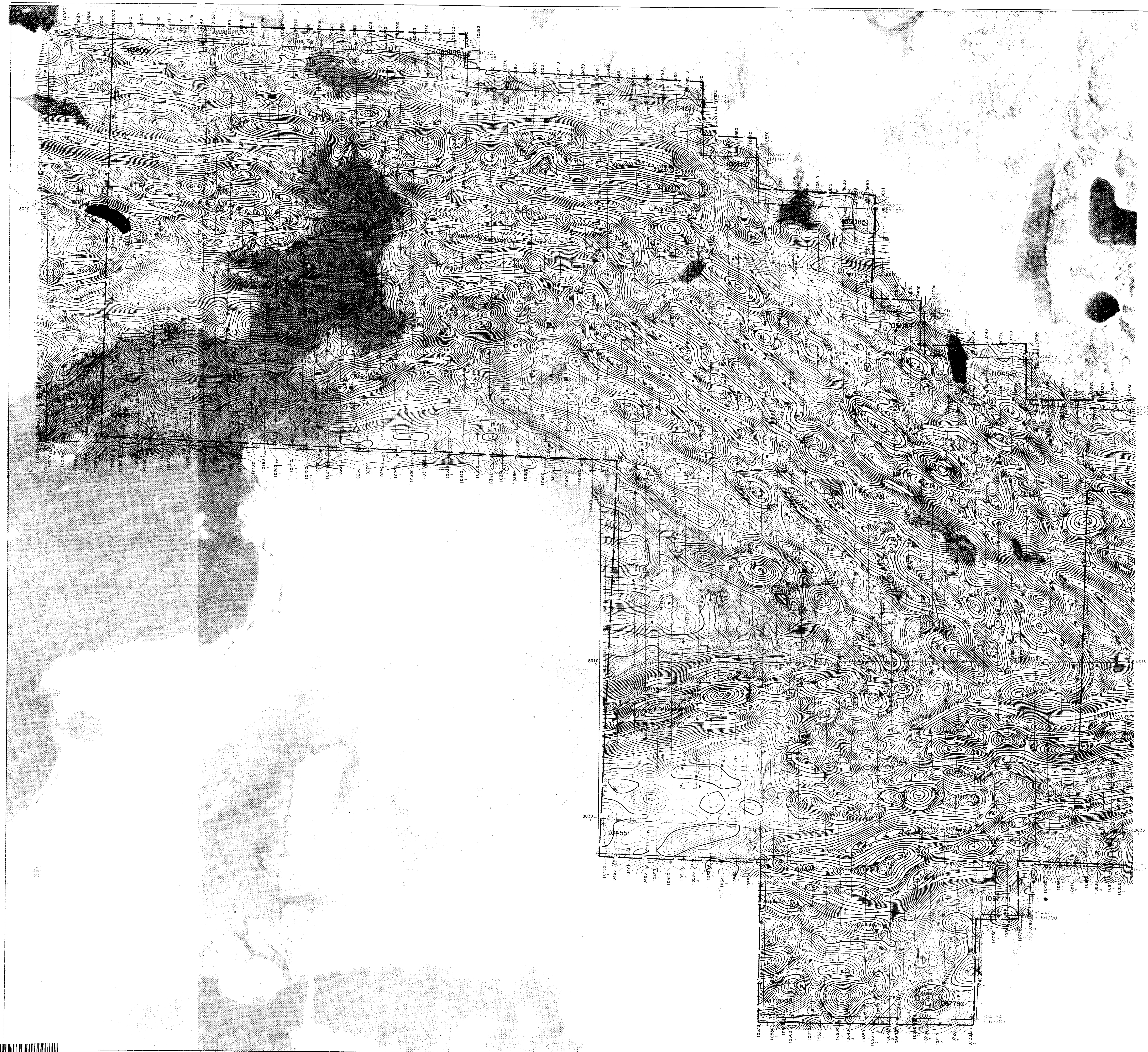
SCALE 1:10,000

0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

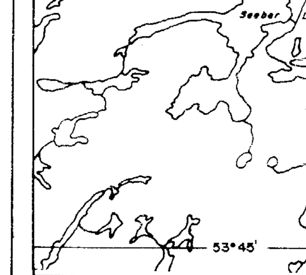
AERODAT LIMITED

DATE:	APRIL 1990
NTS No:	53F/15,16
MAP No:	5E J9026



Flight Path

Vertical Gradient



TWIN GOLD MINES LTD.

CALCULATED VERTICAL MAGNETIC GRADIENT

LINGMAN LAKE PROPERTY

Northwestern Ontario

DATE: APRIL 1990

NTS: 53F/15,16

J9026

AERODAT LIMITED

290

Flight Path

Navigation and recovery using Motorola Mini-Ranger (MRS III) radar navigation system.

Average terrain clearance 60m
Average line spacing 100m

Apparent Resistivity

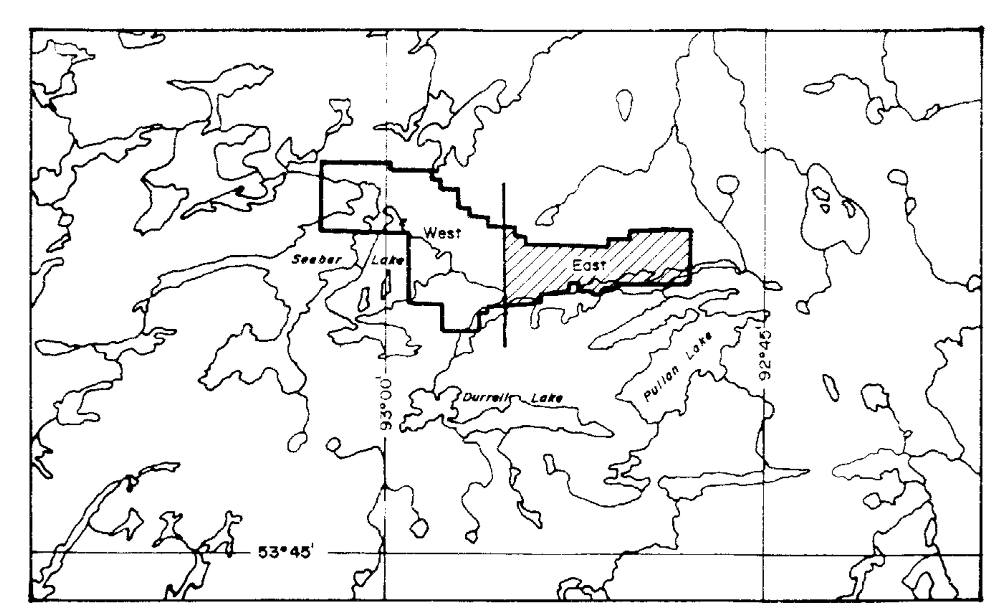
Calculated from 4600 Hz coaxial EM response assuming a 200 m conductive layer.

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)
2.0 log(ohm*m)



TWIN GOLD MINES LTD.

APPARENT RESISTIVITY CONTOURS

LINGMAN LAKE PROPERTY

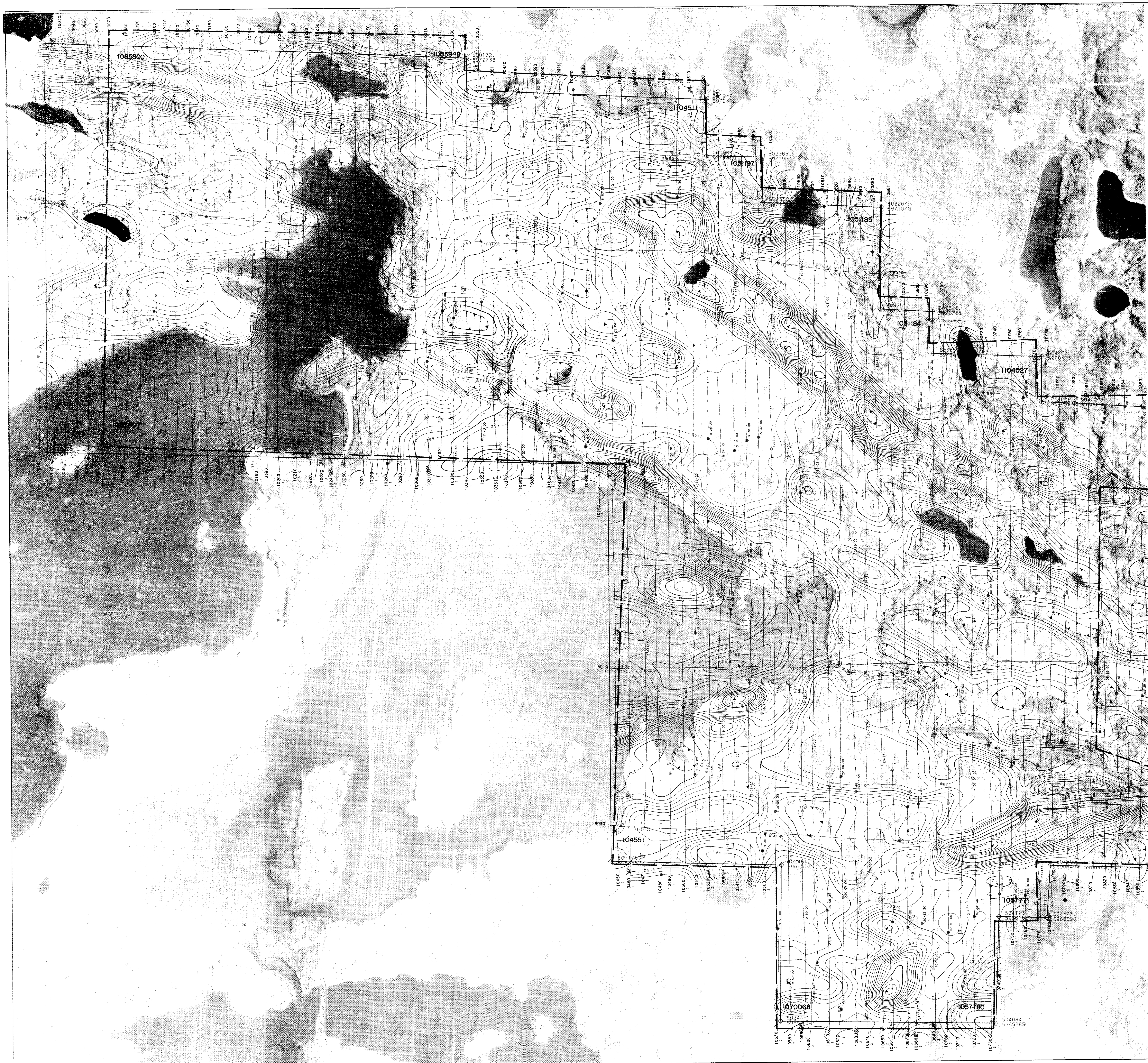
Northwestern Ontario

SCALE 1:10,000

AERODAT LIMITED

DATE: APRIL 1990
NTS NO: 53F/15,16
MAP NO: 6E
J9026

C
300



Flight Path

Navigation and recovery using Motorola Mini-Ranger (MRS III) radar navigation system.

Average terrain clearance 60m
Average line spacing 100m

Apparent Resistivity

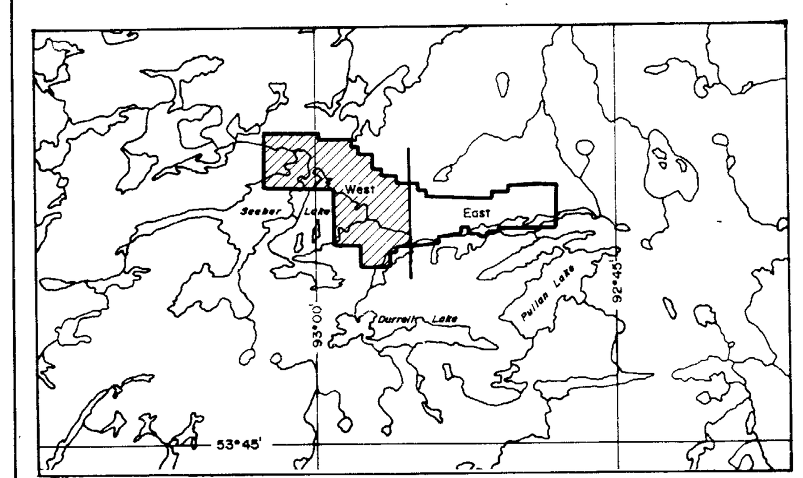
Calculated from 4600 Hz coaxial EM response assuming a 200 m conductive layer.

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)
2.0 log(ohm-m)



TWIN GOLD MINES LTD.

APPARENT RESISTIVITY CONTOURS

LINGMAN LAKE PROPERTY

Northwestern Ontario

SCALE 1:10,000

0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

AERODAT LIMITED

DATE: APRIL 1990
NTS No: 53F/15,16
MAP No: 6W
J9026

63.6017

310

63.6017

N

Flight Path

Navigation and recovery using Motorola Mini-Ranger (MRS III) radar navigation system.

Average terrain clearance 60m
Average line spacing 100m

VLF-EM

VLF-EM Total Field Intensity in percent.

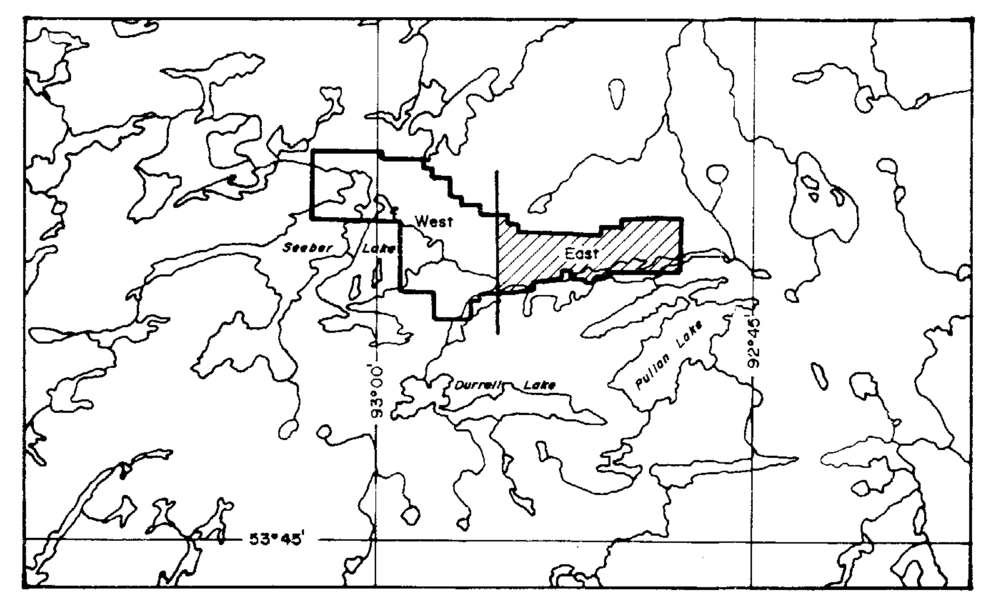
Station: NSS
Annapolis, Maryland
21.4 kHz

Station: NAA
Cutler, Main
24.0 kHz

Sensor elevation 45m

Map contours are multiples of those listed below

1 %
5 %
10 %



TWIN GOLD MINES LTD.

VLF-EM TOTAL FIELD CONTOURS

LINGMAN LAKE PROPERTY

Northwestern Ontario

SCALE 1:10,000

0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

AERODAT LIMITED

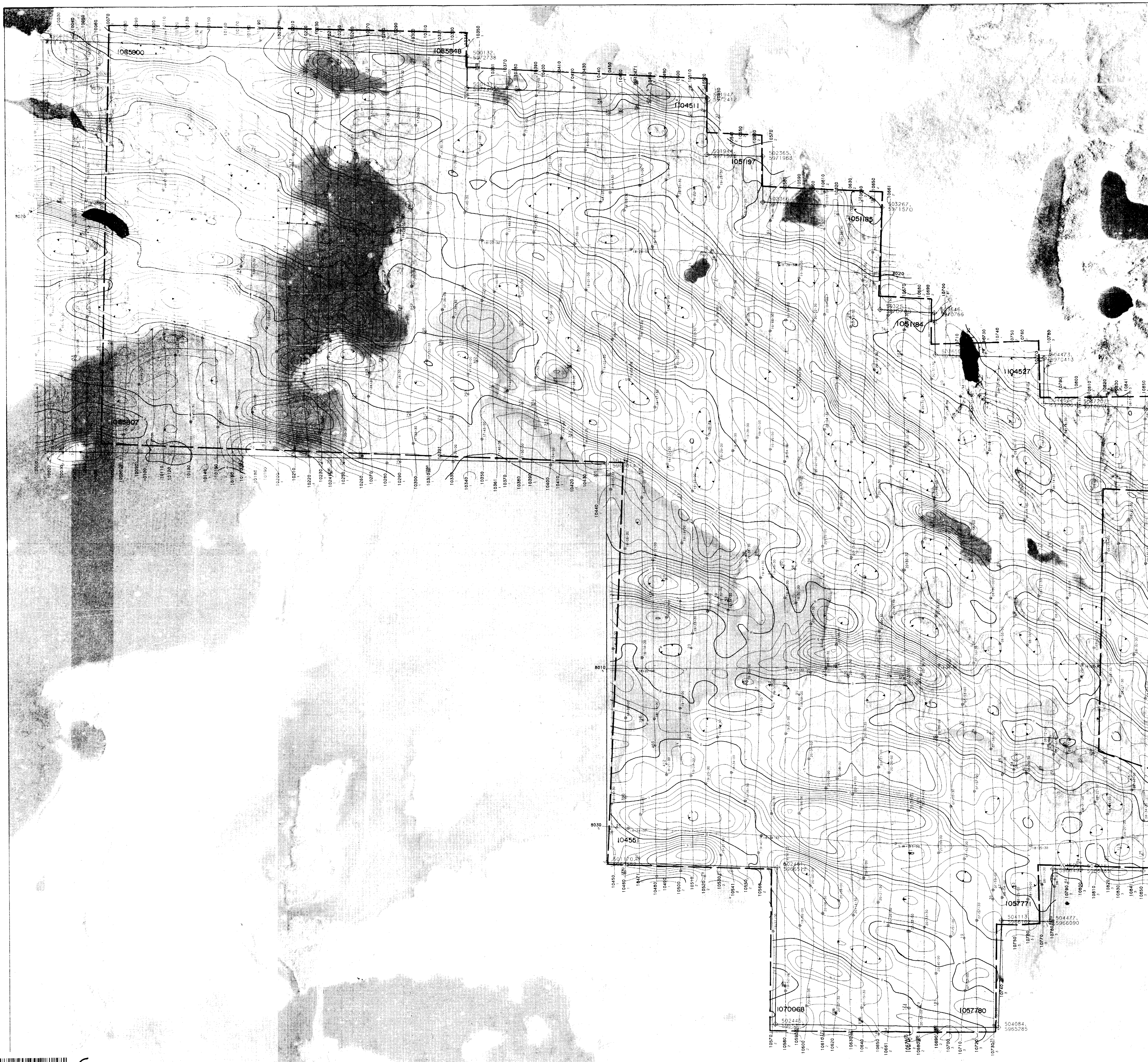
DATE: APRIL 1990

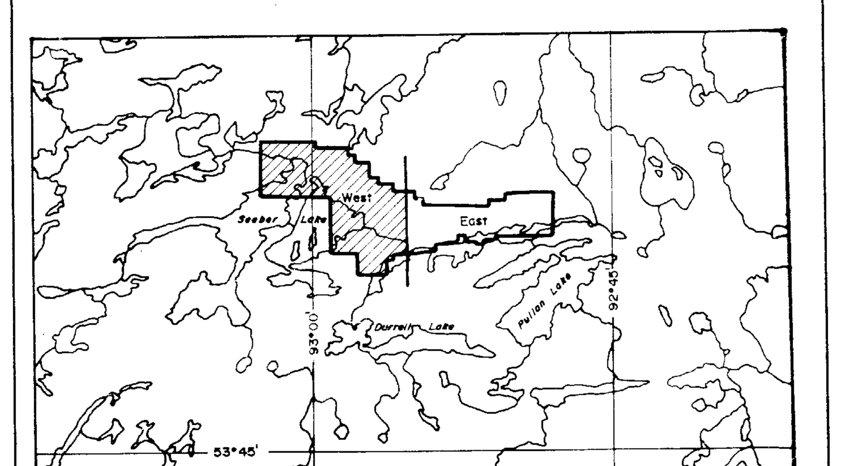
NTS No: 53F/15,16

MAP No: 7E

J9026

C 320





Flight Path

Navigation and recovery using Motorola Mini-Ranger (MRS III) radar navigation system.

Average terrain clearance 60m
Average line spacing 100m

VLF-EM

VLF-EM Total Field Intensity in percent.

Station: NSS
Annapolis, Maryland
21.4 kHz

Station: NAA
Cutler, Main
24.0 kHz

Sensor elevation 45m

Map contours are multiples of those listed below
1 %
5 %
10 %

TWIN GOLD MINES LTD.

VLF-EM TOTAL FIELD CONTOURS

LINGMAN LAKE PROPERTY

Northwestern Ontario

SCALE 1:10,000

0 330 660 1320 2640 Feet
0 100 200 500 1000 Metres

AERODAT LIMITED

DATE: APRIL 1990
NTS No: 53F/15,16
MAP No: 7W
J9026

63.6017

330