AIRBORNE ELECTROMAGNETIC SURVEY

WESTERN MINES LIMITED

DETOUR LAKE AREA, ONTARIO

PROJECT #22006 JULY, 1980

N.T.S. 32-E-13, 32-L-14

Area of Hopper Lake, Lower Detour Lake
and Sunday Lake.

Claims:
P.549852 to P.549891 incl.
P.549918 to P.549931 incl.
P.553303 to P.553483 incl.
P.553503 to P.553574 incl.
P.553623 to P.553670 incl.
P.553693 to P.553731 incl.
P.553740 to P.553759 incl.
P.577751 to P.577774 incl.
P.577781 to P.577810 incl.
P.575669 to P.575671 incl.

Questor Surveys Limited, 6380 Viscount Road, Mississauga, Ontario L4V 1H3

INTRODUCTION

This report contains our interpretation of the results of an airborne electromagnetic survey flown in the Detour Lake Area, in Northeastern Ontario. A brief description of the survey procedure together with recommendations for ground follow-up is included.

The survey totalled 560 line miles and was performed by Questor Surveys Limited. The survey aircraft was a Britten Norman-Trislander C-GOXZ and the operating base was Matagami, Quebec.

The area outline is shown on the map at the end of this report. This is part of the 1:250,000 N.T.S. Map 32E and 32L.

The personnel on the aircraft were as follows:-

Pilot	D. Reynolds
Navigator	J. Vanderheyden
Operator	S. McKerrell & J. Procter

MAP COMPILATION

The base maps are uncontrolled mosaics constructed from National Air Photo Library 1" to one mile air photographs. The mosaics were reproduced at a scale of 1:20,000 on stable transparent film from which white prints can be made.

Flight path recovery was accomplished by comparison of the prints of the 35mm film with the mosaic in order to locate the fiducial points. These points are approximately 4500 feet apart.

Terrain clearance was maintained as close to 400 feet as possible, with the E. M. Bird at approximately 150 feet above the ground. A normal S-pattern flight path using approximately one mile turns was used. The equipment operator logged the flight details and monitored the instruments.

A line spacing of 660 feet was used.

INTERPRETATIONS AND RECOMMENDATIONS

The Detour Lake survey area is located approximately 120 miles north-northeast of Timmins, Ontario; the Ontario-Quebec border forms the eastern boundary. The survey covers the west-central portion of the Chibougamau-Matagami greenstone belt. The rocks in the area belong to the greenschist facies metamorphic grade except around intrusions and at the western end of the survey area, where rock textures become gneissic. There are several large local granitic intrusives, which are partially outlined by the larger lakes, ie. Sunday Lake and Detour Lake. These intrusives produce trendless magnetic patterns and are not distinguishable from sedimentary trends. However, there are some magnetic anomalies at the intrusive-host rock interface, possibly the result of contact metamorphism.

The survey area is centred around a regional magnetic high which trends east-west and may represent mainly basic volcanic rocks. To the north and south, formational conductor and magnetic anomaly trends mark a sedimentary unit which has strong linears at its base only. Stratigraphically above this unit lies a horizon of mainly mafic to intermediate volcanic rocks. An east-west antiform is suggested as the dominant structural feature; its axis bisecting the central basic volcanic unit.

The Amoco gold deposit lies north of the sediment-intermediate volcanic contact, off the northern end of the survey area. This unique deposit is geophysically characterized by good conductivities, long strike length, a maximum width of 120 feet, and a direct magnetic association related to pyrrhotite stringer mineralization.

The Selco Brouillan Twp Cu-Zn deposits lie south of the magnetic-basic volcanic unit when it is traced eastward 25 miles from the provincial boundary. These deposits are poor conductors and have almost no magnetic expressions, but they were recognizeable INPUT responses.

Most of the responses detected by the INPUT survey over the Detour Lake area are related to formational conductive trends lying on the north limb of an antiform within a sequence of interpreted sedimentary rocks. These rarely have sections with magnetic coincidence and graphitic rocks are the suggested explanation. Several isolated anomalies lie within the magnetic-basic volcanic unit while a proliferation of "isolated" responses are found at the western end of the survey block, where basic volcanics pinch out and a sedimentary sequence is interpreted to host the conductors.

The anomaly selection criteria includes the factors listed in the Appendix as well as the characteristics of the two nearest base metal deposits. Where more than one conductor was selected per zone, they are alphabetically documented from north to south.

ANOMALY 1

		A		B
Best Response	-	10070B	-	10060K
Dip	-	South 50°	-	South 50°
Strike Length	-	+ 1.0 mi	-	0.35 mi
Conductivity Thickness	-	4 mho	-	11 mho
Magnetic Correlation	-	flanking	-	flanking 120nT

Comments - Both conductors straddle a magnetic high. Conductor B is isolated, but zone A appears to be formational, and probably continues westward off the survey area.

ANOMALY 2		A		B		C
Best Response	-	10040D	-	10040E	-	10030D
Dip	-	90°	-	90°	-	90°
Strike Length	-	0.6 mi	-	+ 1.0 mi	-	0.3 mi
Conductivity Thickness	-	12 mho	-	18 mho	-	5 mho
Magnetic Correlation	-	160nT	-	-	-	210nT

Comment - At least three parallel conductive zones are interpreted from the INPUT survey. A fourth response 10030F may also be an isolated zone within the package. Ground follow-up is recommended for this group as sulphides are the suspected cause of at least 2 conductors. Zone B may extend westward off the survey block, and it could join a northeasterly trending conductive zone.

ANOMALY 3

Best Response	-	10063C
Dip	-	90
Strike Length	-	0.4 mi
Conductivity Thickness	-	16 mho
Magnetic Correlation	-	100nT
Comments	-	Anomaly 3 is located within an area of low magnetic activity as an isolated conductor. The conductor shows potential for good width and a sulphide source is interpreted. Conductor intercept 10050J may be a separate adjacent isolated conductor which may be detected as a weak response with ground geophysical surveys.

ANOMALY 4

Best Response	-	10090F
Dip	-	75 South
Strike Length	-	0.6 mi
Conductivity Thickness	-	4 mho
Magnetic Correlation	-	flanking 400nT
Comments	-	Anomaly 4 is a weaker conductor lying isolated from but adjacent to formational zones. The conductor is separated from conductor 5 by an unexplained magnetic low which trends northward from Detour Lake. A fault zone parallel to or along some of the local water courses is a possible explanation.

ANOMALY 5		A		B
Best Response	-	10170D	-	10170C
Dip	-	90	-	90
Strike Length	-	0.2 mi	-	0.2 mi
Conductivity Thickness	-	1	-	1
Magnetic Correlation	-	280nT	-	-

Comments - The two parallel responses of zone 5 may be related to conductor 4, however, the "A" zone has a good magnetic correlation. Ground geophysical follow-up should utilize higher frequency E.M. systems to maximize responses.

ANOMALY 6		A		B
Best Response	-	10220B	-	10210C
Dip	-	90	-	90
Strike Length	-	.1 mi	-	0.1 mi
Conductivity Thickness	-	1	-	22
Magnetic Correlation	-	550nT	-	230nT (direct ?)

Comments - Conductor B is a single response apparently flanking a formational zone. Its authenticity should be checked by establishing the presence of the formational conductors as the apparent conductor could also be caused by other effects. Zone A shows a poor conductivity thickness product, but it should be investigated because of its proximity to the Amoco gold deposit.

ANOMALY 7

Best Response	-	10250B
Dip	-	85 South
Strike Length	-	0.8 mi
Conductivity Thickness	-	1
Magnetic Correlation	-	600nT
Comments	-	Conductor 7 lies adjacent to or directly coincident with a strong magnetic anomaly, which is probably caused by magnetite. The conductor lies just north of a granitic intrusive which rings most of Detour Lake, probably within gneissic rocks.

ANOMALY 8

Best Response	-	10360C
Dip	-	(30?) South
Strike Length	-	0.35 mi
Conductivity Thickness	-	8
Magnetic Correlation	-	-
Comments	-	This zone is isolated from formational trends and may lie within the basic volcanic sequence. The response at conductor intercept 10350A is suggestive of a shallow dip effect. There is a possibility that the response may originate from an additional conductor; any ground surveys should cover this possibility. If results from this work warrant it, weaker adjacent conductors to the north-west should also be explored.

ANOMALY 9

Best Response	-	10402C
Dip	-	90
Strike Length	-	0.1 mi
Conductivity Thickness	-	6 mho
Magnetic Correlation	-	240nT
Comments	-	Conductor 9 is short, narrow and isolated, and lies on the same magnetic trend as zone 7. Pyrrhotite is the most likely conductor explanation, ground geophysical surveys are recommended to delineate this target.

ANOMALY 10

Best Response	-	10470N
Dip	-	90
Strike Length	-	0.3 mi
Conductivity Thickness	-	15
Magnetic Correlation	-	-
Comments	-	This zone lies adjacent to a formational conductor, and should be considered isolated. Weak responses to the west indicate that the zone may extend westward for an additional 0.3 mi. The conductor may show a considerable width, and should be considered a first priority follow-up target.

ANOMALY 11

Best Response	-	10740S
Dip	-	70 South
Strike Length	-	0.8 mi
Conductivity Thickness	-	12 mho
Magnetic Correlation	-	flanking 15nT
Comments	-	Conductor 11 is on the western end of a string of en-echelon conductors which may have been separated by faulting, although there is no evidence for this. There is no magnetic correlation, but a magnetic unit trends parallel to the conductor, on the down-dip side. The width of the INPUT response suggests the presence of a wide source.

ANOMALY 12

Best Response	-	10830D
Dip	-	75 South
Strike Length	-	1.0 mi
Conductivity Thickness	-	15 mho
Magnetic Correlation	-	20nT flanking
Comments	-	This anomaly shows many similarities to conductor 11. The source has better conductivity thickness values and the width of the conductor may be substantial.

ANOMALY 13		A		B
Best Response	-	10910G	-	10940D
Dip	-	80 South	-	80 South
Strike Length	-	1.3 mi	-	0.5 mi
Conductivity Thickness	-	19	-	27
Magnetic Correlation	-	-	-	-

Comments - Conductor 13 is the eastern member of an en-echelon chain. The "B" conductor may be the result of up-dip responses from a conductor "A" if it dips at 90°. The precise location of the "A" and "B" zones should be determined by reconnaisance E.M. methods.

ANOMALY 14

Best Response	-	10810H
Dip	-	65 North
Strike Length	-	0.5 mi
Conductivity Thickness	-	20
Magnetic Correlation	-	-

Comments - This anomaly lies within presumed sedimentary rocks with relatively little magnetic relief. The conductor lies close to a contact with interpreted intermediate volcanic rocks which host the Amoco gold deposit. The conductor shows an enhanced central section with improvements in conductivity and width. This is a first priority ground follow-up target.

ANOMALY 15

Best Response	-	10930G
Dip	-	65 north
Strike Length	-	1.0 mi
Conductivity Thickness	-	1
Magnetic Correlation	-	-
Comments	-	Anomaly 15 may be a strike extension of conductor 14, however, it appears to lie closer to the presumed sediment-volcanic contact. Although poor in conductivity, the conductor is not narrow. Disseminated or stringer sulphides and/or graphite are likely conductor sources.

ANOMALY 16		A		B
Best Response	-	10700F	-	10720E
Dip	-	90	-	90
Strike Length	-	0.3 mi	-	0.6 mi
Conductivity thickness	-	16	-	29
Magnetic Correlation	-	-		-190nT

Comments - Two parallel conductive zones within sediments are recommended as first priority ground follow-up targets. Both are isolated, excellent conductors with short strike length and have possible strike changes. Zone A has no magnetic correlation, while Zone B has a direct magnetic coincidence with the best conductivity. Pyrrhotite is the interpreted source.

ANOMALY 17		A		B
Best Response	-	10860G	-	10860H
Dip	-	90	-	90
Strike Length	-	0.3 & 0.1 mi	-	0.2 & 0.3 mi
Conductivity Thickness	-	5	-	19
Magnetic Corrulation	-	200 nt	-	-

Comments - Conductive zone 17 is separated from zone 16 by a lake and a magnetic low. Broad 2-3 channel responses form a trend connecting the two zones - a bedrock source is more likely than overburden or lake bottom conductors although these may be contributing factors. The high magnetics are not related to good conductivity for this zone. The non-magnetic conductor in this case lies south of the magnetic zone, and is not likely to be related to conductors in anomaly 16.

ANOMALY 18		A		B		C
Best Response	-	10910C	-	10920H	-	10910A
Dip	-	90	-	90	-	90
Strike Length	-	0.1 mi	-	0.8 mi		0.6 mi
Conductivity Thickness	-	3 mho	-	32 mho		6 mho
Magnetic Correlation	-	300nT	-	-		100nT

Comments - Three isolated conductive zones were detected within interpreted basic volcanic rocks, close to the sediment contact.

Zone "B" shows the greatest potential in terms of conductivity, width, and strike length.

ANOMALY 19

Best Response	-	10950A
Dip	-	90
Strike Length	-	0.2 mi
Conductivity Thickness	-	3
Magnetic Correlation	-	-
Comments	-	Conductor 19 is a weaker isolated zone of short strike length and low conductivity. It has no on-strike extensions and should be explained by ground geophysical follow-up.

QUESTOR SURVEYS LIMITED

Marcel H. Konings,
Senior Geophysicist.

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APPENDIX

EQUIPMENT

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

(I) BARRINGER/QUESTOR MARK VI INPUT (R) SYSTEM

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

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

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

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

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

(II) SONOTEK P.M.H. 5010 PROTON MAGNETOMETER

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

Because of the high intensity field produced by the INPUT transmitter, the magnetometer results are recorded on a time-sharing basis. The magnetometer head is energized while the transmitter is on, but the read-out is obtained during a short period when the transmitter is off. Using this technique, the head is energized for 0.83 seconds while the procession frequency is being recorded and coverted to gammas. Thus a magnetic reading is taken every 1.0 second.

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

DATA PRESENTATION

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

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

All the anomaly locations, magnetic correlations, conductivity-thickness values and the amplitudes of channel number 2 are listed on the data sheets accompanying the final maps.

GENERAL INTERPRETATION

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

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

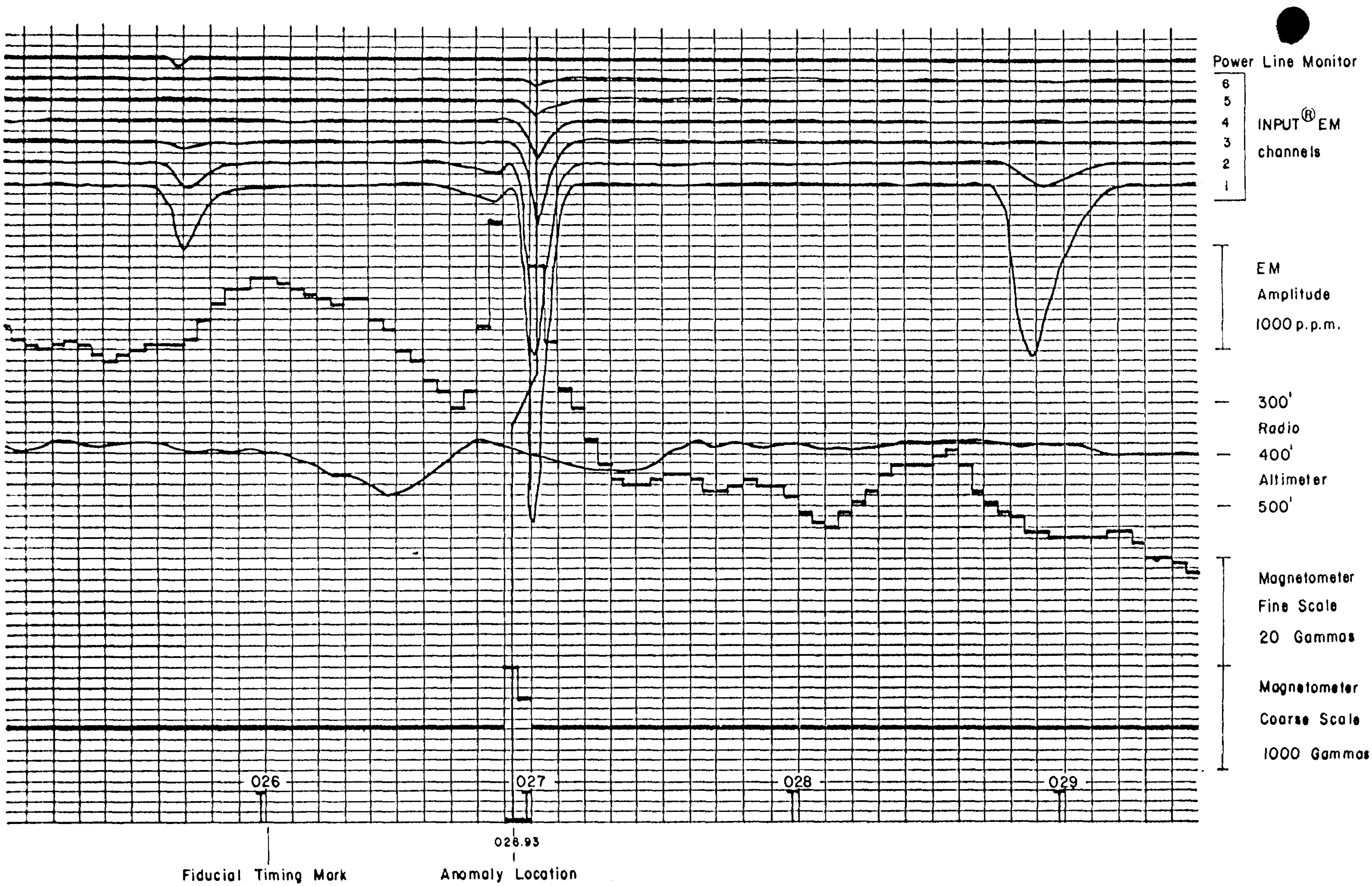
Railroad and pipeline responses are recognized by studying the film strips.

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

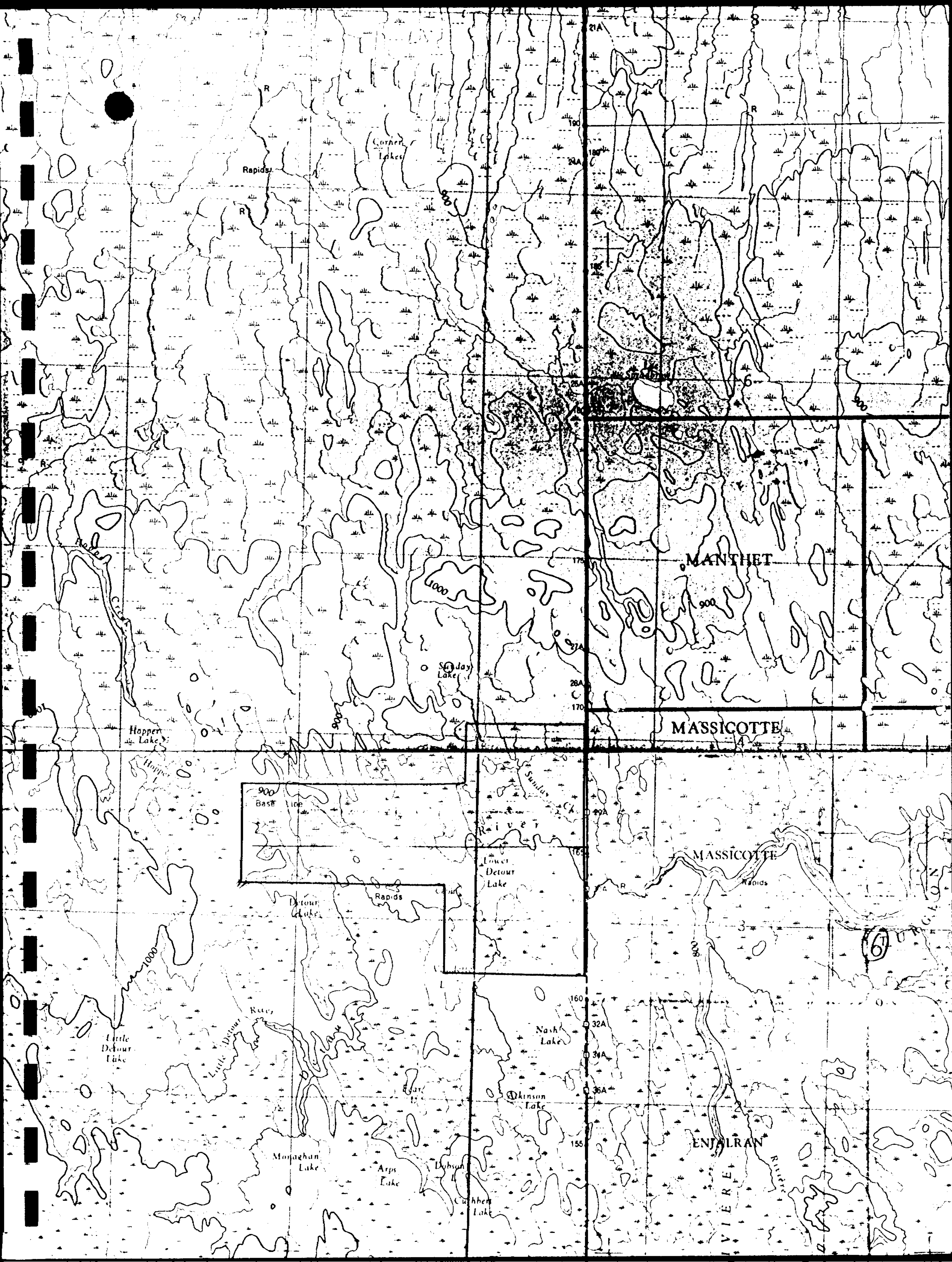
Contact zones can often be predicted when anomaly trends coincide with the lines of maximum gradient along a flanking magnetic anomaly. It is unfortunate that graphite can also occur as relatively short conductors and produce attractive looking anomalies. With no other information than the airborne results,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

Serpentinized peridotites often produce anomalies with a character that is fairly easy to recognize. The conductivity which is probably caused in part by magnetite, is fairly low so that the anomalies often have a fairly large response on channel #1; they decay rapidly, and they have strong magnetic correlation. INPUT E. M. anomalies over massive magnetites show a relationship to the total Fe content. Below 25 - 30%, very little or no response at all is obtained, but as the percentage increases the anomalies become quite strong with a characteristic rate of decay which is usually greater than that produced by massive sulphides.

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



Representative INPUT®, Magnetometer and Altimeter Recording



Corner Lakes
Rapids
190
900
1000
MANTHET
175
Sunday Lake
Hopper Lake
170
MASSICOTTE
Base Line
River
Lower Detour Lake
MASSICOTTE
Rapids
Detour Lake
Rapids
165
800
160
Nash Lake
Atkinson Lake
155
ENJALRAN
Little Detour Lake
Monaghan Lake
Arps Lake
Cuthbert Lake

ANOMALY	FID	CHS	CH2.AMP	MHOS	MAG	VALUE
10010A	47.425	4	520	5	-	
10010B	47.700	5	1080	3	47.60	64
10010C	47.875	5	830	2	-	
10010D	48.425	4	960	1	48.45	27
10010E	48.625	4	555	1	-	
10010F	48.850	4	735	2	-	
10010G	49.150	4	305	4	49.35	6
10010H	49.925	4	740	1	49.85	98
10010J	50.675	2	25	NC	-	
10010K	51.700	3	170	1	51.25	13
10010L	51.950	6	810	6	-	
10010M	52.525	3	100	1	52.30	620
10010N	53.475	6	1685	10	-	
10010P	53.725	6	2590	6	-	
10010R	54.075	6	1755	6	54.15	86
10020A	56.000	6	1565	13	55.80	89
10020B	56.325	6	930	6	-	
10020C	56.625	3	155	1	-	
10020D	57.400	3	85	1	57.20	570
10020E	57.650	6	555	7	57.95	17
10020F	59.000	4	755	1	58.95	76
10020G	59.700	5	1710	1	59.45	10
10020H	60.100	5	1320	1	59.95	18
10020J	60.250	5	1145	2	-	
10020K	60.650	4	350	13	60.55	152
10030DX	63.140	5	1150	8		
10030A	62.025	5	660	4	62.05	360
10030B	62.200	6	1045	6	-	
10030C	62.900	5	960	4	-	
10030D	63.950	6	1925	5	63.80	68
10030E	64.150	6	3175	6	-	
10030F	64.225	6	2645	10	64.15	110
10030G	64.350	6	2470	7	-	
10030H	64.950	2	20	NC	64.85	13
10030J	68.300	3	230	1	68.50	440
10040A	70.800	2	30	NC	70.80	520
10040B	71.200	3	260	1	71.30	71
10040C	72.650	2	50	NC	72.55	180
10040D	73.800	6	2390	13	73.75	140
10040E	73.925	6	1715	18	-	
10040F	74.075	5	865	4	74.00	160
10040G	74.225	3	415	1	-	
10040H	74.550	6	2360	20	74.40	37
10050A	75.500	2	140	NC	-	
10050B	75.950	5	885	4	75.75	47
10050C	76.675	5	2675	2	76.70	21
10050D	76.900	5	2020	2	-	
10050E	77.250	3	385	3	-	
10050F	77.675	6	3455	10	77.60	164
10050G	77.825	6	1070	12	-	
10050H	78.500	3	95	9	78.50	120
10050J	78.675	3	200	7	-	
10050K	81.275	3	170	1	81.45	270

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ANOMALY	FID	CHS	CH2.AMP	MHOS	MAG	VALUE
10060A	83.125	2	135	NC	-	
10060B	83.400	2	10C	NC	83.50	52
1006CC	85.100	3	14C	4	-	
10060D	85.450	6	1900	8	85.45	12C
10060E	86.075	6	2165	10	-	
10060F	86.150	6	201C	13	86.10	230
10060G	86.525	4	84C	1	-	
10060H	86.775	6	2300	13	86.65	8
10060J	87.125	4	350	3	-	
10060K	87.450	6	755	11	87.25	124
10063A	15.425	2	160	NC	15.65	240
10063B	17.250	3	130	3	16.90	15
10063C	17.600	6	1595	16	17.60	135
10063D	18.175	6	685	18	-	
10063E	18.300	6	700	16	18.25	147
10063F	18.775	6	1695	8		
10063G	18.900	6	1260	15	-	
10063H	19.225	4	170	2C	-	
10070A	89.200	2	180	NC	-	
10070B	89.650	5	104C	4	89.40	166
10070C	90.025	4	680	2	-	
10070D	90.275	4	795	2	90.35	35
10070E	90.575	3	130	10	-	
10070F	90.775	2	80	NC	90.70	23
10070G	91.650	5	740	5	91.55	50
10070H	92.375	2	60	NC	92.20	69
10070J	93.700	3	245	1	93.50	41C
10070K	94.825	3	325	1	94.55	18
10080A	97.500	2	105	NC	97.60	32C
1008CB	98.225	4	430	6	98.20	56C
10080C	99.675	6	7CC	15	99.65	39
10080D	10C.200	2	125	NC	100.30	2C
1008CE	10C.825	6	237C	5	100.55	17
1008CF	101.250	2	130	NC	101.30	170
10080G	101.525	5	825	2	-	
10090A	103.600	4	650	4	103.65	4C
10090B	103.875	5	1130	2	-	
10090C	104.600	4	375	3	-	
10090D	104.750	4	365	2	104.65	78
10090E	107.700	3	160	1	104.95	1C
10090F	107.975	5	545	4	107.75	29C
10090G	109.125	3	160	2	108.50	32C
10100A	111.675	3	140	1	111.80	290
10100B	112.400	4	22C	10	112.45	270
1010CC	114.150	2	70	NC	114.30	77
10100D	114.825	3	150	1	114.50	14
10100E	115.300	5	1275	3	115.25	15
10102A	20.125	4	290	15	-	
10102B	20.350	4	2C5	10	20.20	11
10102C	20.900	3	10C	2	-	
10102D	21.125	3	355	5	21.05	33
10102E	21.500	2	50	NC	-	

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ANOMALY	FID	CHS	CH2.AMP	MHOS	MAG	VALUE
10102F	23.775	4	125	10	-	
10102G	24.625	3	180	1	24.15	180
10110A	117.400	4	225	4	117.20	31
10110B	117.725	6	1105	12	117.65	56
10110C	118.450	3	180	1	118.10	61
10110D	120.675	2	115	NC	-	
10110E	121.150	3	135	1	121.20	150
10110F	121.575	3	405	1	-	
10120A	123.975	2	85	NC	-	
10120B	124.300	3	155	1	124.20	200
10120C	124.575	4	220	8	125.10	148
10120D	126.375	2	65	NC	-	
10120E	126.600	2	110	NC	126.50	55
10120F	127.075	5	435	1	126.95	48
10130A	130.325	3	100	2	130.30	16
10130B	130.575	2	55	NC	-	
10130C	131.450	3	295	1	-	
10130D	131.800	4	430	1	131.65	98
10130E	134.050	6	845	17	134.25	150
10140A	137.575	3	275	1	137.45	180
10140B	137.800	6	750	9	-	
10140C	139.550	4	640	1	139.45	107
10140D	139.975	3	170	1	140.10	13
10142A	28.400	4	505	4	28.15	230
10142B	28.550	6	730	29	28.75	170
10142C	29.775	2	20	NC	-	
10142D	30.075	4	440	5	29.90	63
10142E	30.300	3	100	1		
10150A	147.750	6	1675	14	147.25	350
10150B	148.125	3	45	1	148.10	210
10160A	151.575	6	1360	4	151.25	270
10160B	151.975	2	75	NC	151.85	370
10160C	152.175	2	50	NC	-	
10160D	152.850	2	50	NC	152.80	44
10160E	153.725	2	75	NC	153.80	104
10170A	158.975	2	125	NC	-	
10170B	159.175	2	185	NC	159.05	7
10170C	160.000	2	150	NC	-	
10170D	160.300	4	480	1	160.20	280
10170E	160.625	6	2710	11	-	
10170F	160.825	6	1100	6	160.80	59
10182A	37.500	6	1495	13	37.25	106
10182B	37.675	4	860	9	37.65	38

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ANOMALY	FID	CHS	CH2.AMP	MHCS	MAG	VALUE
10190A	173.675	6	1945	11	173.40	74
10190B	173.825	6	1385	19	173.85	29
10190C	174.500	4	235	1	174.25	560
10190D	174.725	2	50	NC	-	
10200A	177.225	2	80	NC	-	
10200B	177.450	3	350	1	177.40	630
10200C	177.850	6	2095	11	177.65	21
10202A	40.125	2	100	NC	-	
10202B	40.300	3	255	1	40.25	420
10202C	40.700	6	1855	29	40.50	90
10202D	42.050	2	55	NC	42.00	151
10210A	187.050	6	2760	26	178.00	57
10210B	187.125	6	2650	21	-	
10210C	187.250	6	1830	22	187.35	230
10210D	187.650	2	125	NC	-	
10210E	187.850	4	270	1	187.70	260
10210F	188.175	3	450	1	-	
10220A	190.625	4	785	1	-	
10220B	190.775	4	500	1	190.75	210
10220C	191.200	6	2225	22	190.95	180
10230A	198.025	3	190	1	191.55	70
10230B	201.050	6	1805	27	198.20	290
10230C	201.225	6	960	16	201.35	290
10230D	202.025	4	325	1	202.25	3
10240A	204.500	3	210	2	-	
10240B	204.650	3	205	1	204.75	320
10240C	205.025	6	1170	25	-	
10240D	205.175	6	645	6	205.45	16
10240E	207.300	3	370	1	207.00	400
10250A	210.825	2	145	NC	-	
10250B	211.150	5	1025	1	211.10	200
10250C	214.075	6	1695	28	211.40	90
10250D	214.900	2	80	NC	214.55	91
10260A	217.750	2	120	NC	217.65	260
10260B	218.100	6	2070	28	217.85	38
10260C	218.225	6	1495	12	-	
10260D	219.950	2	110	NC	220.05	90
10260E	220.475	5	1035	1	220.30	180
10270A	223.925	3	240	1	-	
10270B	224.250	5	850	1	224.15	220
10270C	225.550	2	50	NC	225.35	49
10270D	225.750	2	40	NC	225.80	170
10270E	226.950	6	1450	11	-	
10270F	227.125	6	2125	23	-	
10270G	227.800	2	50	NC	227.60	490
10270H	228.000	2	50	NC	-	
10280A	230.200	2	100	NC	-	
10280B	230.675	6	3170	19	230.40	54

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ANOMALY	FID	CHS	CH2.AMP	MHOS	MAG	VALUE
10280C	232.000	2	65	NC	231.95	56
10280D	232.700	2	40	NC	-	
10280E	232.950	5	1180	1	232.80	51
10290A	236.300	3	440	1	236.15	68
10290B	237.550	2	50	NC	237.25	330
10290C	239.125	6	2355	26	246.50	174
10300A	251.575	2	20	NC	251.50	600
10300B	252.000	6	2185	25	-	
10300C	253.225	2	25	NC	253.25	490
10300D	254.200	3	115	2	254.00	30
10310A	257.575	2	30	NC	257.40	130
10310B	260.475	6	2650	33	-	
10320A	264.425	2	90	NC	264.45	570
10320B	264.975	6	2690	32	-	
10320C	266.825	3	95	8	266.30	360
10330A	272.000	3	155	2	272.05	52
10330B	272.325	2	50	NC	272.30	60
10330C	273.975	6	2795	25	274.30	45
10340A	277.300	2	70	NC	277.20	660
10340B	277.775	6	3300	20	-	
10340C	279.400	3	100	9	279.30	580
10340D	279.600	5	520	2	-	
10350A	283.325	5	475	4	-	
10350B	283.500	5	425	5	283.70	200
10350C	285.725	6	2315	23	285.35	75
10360A	290.300	2	100	NC	290.25	690
10360B	290.900	6	2080	24	291.15	112
10360C	292.750	6	745	8	292.40	140
10362A	46.850	2	25	NC		
10362A	49.225	6	1540	25	48.90	240
10362B	47.950	2	25	NC	47.60	800
10370A	299.575	6	1620	21	299.15	230
10380A	303.025	2	75	NC	302.90	670
10380B	303.550	6	1485	25	303.85	220
10390A	312.075	6	1905	13	311.65	180
10390B	312.475	2	110	NC	312.85	400
10400A	315.150	2	115	NC	315.05	53
10400B	315.225	2	100	NC	315.35	49
10400C	315.650	6	1200	19	-	
10400D	318.550	4	345	4	318.50	240
10402A	54.675	3	145	1	54.80	130
10402B	55.050	6	2100	30	-	
10402C	57.975	4	295	6	57.90	190
10410A	321.500	3	135	4	321.35	90
10410B	321.750	2	60	NC	321.95	240

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ANOMALY	FID	CHS	CH2.AMP	MHOS	MAG	VALUE
10411A	327.275	6	2795	21	326.80	240
10411B	327.525	5	615	3	327.60	220
10420A	330.800	3	245	1	330.90	220
10420B	331.175	6	2495	23	331.55	200
10422A	62.675	6	1515	13	62.25	190
10422B	62.875	5	635	6	62.90	180
10422C	63.375	2	70	NC	-	
10430A	339.350	6	1190	9	338.85	173
10430B	339.600	6	880	20	339.65	230
10440A	342.950	4	575	4	343.00	310
10440B	343.225	6	2110	20	-	
10440C	343.525	3	75	1	343.60	180
10450A	353.200	5	635	12	352.75	410
10450B	353.475	6	1390	22	353.55	290
10450C	353.875	5	840	2	-	
10460A	357.600	5	925	8	357.60	280
10460B	357.825	6	1125	36	358.25	550
10462A	68.300	6	1075	17	68.30	210
10462B	68.525	6	1225	30	68.90	750
10470A	366.375	5	760	8	365.80	860
10470B	366.550	6	1600	10	366.55	158
10470C	366.850	6	600	15	-	
10480A	370.450	6	1540	14	-	
10480B	370.650	6	1230	14	370.50	126
10482A	77.250	3	70	7	77.00	960
10482B	77.550	6	910	21	-	
10482C	77.675	6	1710	9	77.70	87
10482D	77.950	5	695	5	-	
10490A	379.000	6	2300	7	379.00	53
10490B	379.325	6	705	10	379.55	3
10500A	383.475	6	2340	11	-	
10500B	383.625	6	1575	26	383.50	37
10502A	81.675	6	2850	29	81.60	14
10502B	82.225	2	45	NC	82.25	1000
10510A	393.300	6	3895	20	384.15	1030
10510B	393.400	6	4635	17	393.35	7
10520A	397.075	6	4420	19	397.00	12
10522A	89.475	6	3530	20	89.50	24
10530A	405.775	5	700	11	405.40	980

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ANOMALY	FID	CHS	CH2.AMP	MHOS	MAG	VALUE
10530B	406.050	6	2480	20	-	
10530C	406.175	6	2825	12	406.15	15
10530D	406.420	5	550	6	-	
10540A	410.000	6	2345	16	409.85	9
10540B	410.175	6	1615	25	-	
10540C	410.350	6	1345	10	410.50	1010
10540AX	409.86	5	1600	1		
10550A	417.600	6	2430	14	417.10	710
10550B	417.950	6	1725	7	418.00	11
10550C	418.275	3	385	1	-	
10560A	422.750	6	2190	14	-	
10560B	422.975	6	1370	17	-	
10560C	423.200	4	390	3	423.30	580
10570A	430.075	6	2705	20	429.55	260
10570B	430.400	6	1075	22	430.30	12
10580A	434.650	6	1890	13	434.60	14
10580B	434.900	6	1630	7	435.20	220
10590A	451.075	5	1085	3	450.75	120
10590B	451.325	6	1140	21	-	
10590C	451.600	5	980	5	451.60	6
10600A	456.175	6	1425	20	456.10	8
10600B	456.550	6	620	52	456.75	76
10622C	94.50	2	50	NC	94.30	30
10610A	472.775	3	265	9	472.50	43
10610B	473.025	6	1450	14	-	
10610C	473.625	4	320	3	473.80	55
10620A	477.850	3	575	2	477.75	21
10620B	478.225	6	980	15	478.40	60
10622A	93.325	3	375	1	93.45	19
10622B	93.775	6	700	13	93.90	53
10630A	494.100	3	285	5	493.85	43
10630B	494.325	6	1325	13	494.40	25
10630C	494.975	3	180	2	495.35	8
10640A	506.800	3	405	1	-	
10640B	507.225	6	820	23	507.05	7
10650A	514.025	4	1140	2	507.35	33
10650B	515.775	2	130	NC	515.55	116
10650C	522.925	3	455	1	522.75	30
10650D	523.200	5	1330	4	-	
10660A	535.075	3	245	1	534.85	4
10660B	535.300	2	145	NC	535.25	3
10660C	535.525	5	695	3	-	
10660D	535.675	6	1020	13	535.65	23
10660E	541.225	3	235	3	541.15	100
10670A	542.250	6	905	7	542.27	58
10670B	551.125	3	695	2	-	

ANOMALY	FID	CHS	CH2.AMP	MHCS	MAG	VALUE
10670C	551.375	4	870	2	-	
10680A	564.275	4	905	1	563.95	3
10680B	564.500	6	450	35	564.40	5
10682A	104.800	3	205	9	104.45	30
10682B	105.050	6	1000	7	105.05	4
10682C	105.350	3	315	1	105.90	11
10690A	45.850	3	275	2	-	
10690B	46.325	4	745	1	46.05	35
10690C	52.900	3	385	2	52.50	20
10690D	53.125	6	1370	9	-	
10690E	53.425	4	530	1	-	
10690F	54.225	2	75	NC	54.05	7
10690G	55.125	2	100	NC	54.95	22
10690H	58.350	2	285	NC	58.70	200
10700A	62.975	2	125	NC	62.50	133
10700B	65.725	3	265	3	65.60	18
10700C	66.550	3	280	3	66.35	7
10700D	67.100	5	855	4	-	
10700E	67.375	6	1130	18	67.60	16
10700F	73.000	6	2210	16	73.05	38
10700G	73.225	4	510	2	-	
10710A	74.075	2	195	NC	73.90	91
10710B	75.225	6	1155	8	75.15	64
10710C	75.400	4	1295	1	-	
10710D	82.150	6	1625	8	82.45	3
10710E	83.100	4	365	1	83.00	13
10710F	83.950	3	155	2	84.00	22
10710G	84.175	5	615	5	84.35	2
10710H	87.400	2	165	NC	87.70	159
10720A	94.925	5	535	11	94.75	20
10720B	95.825	2	105	NC	95.65	14
10720C	96.400	4	410	2	96.15	3
10720D	96.725	4	280	1	96.95	22
10720E	102.300	6	1680	29	102.30	136
10720F	103.650	3	155	3	103.50	120
10730A	104.475	2	155	NC	104.80	117
10730B	106.300	5	1135	2	106.30	168
10730C	112.525	4	245	6	112.15	9
10730D	112.775	5	1395	1	-	
10730E	114.100	2	55	NC	-	
10730F	114.625	2	105	NC	114.75	14
10730G	115.000	5	385	6	-	
10740A	125.400	6	1120	12	125.40	15
10740B	127.125	6	1500	9	127.15	10
10740C	127.350	6	740	12	127.65	27
10750A	141.625	6	2660	12	141.65	20
10750B	141.800	6	2040	13	-	
10750C	141.900	6	1580	12	142.25	24
10750D	143.850	4	215	2	143.50	6

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ANOMALY	FID	CHS	CH2.AMP	MHOS	MAG	VALUE
10760A	153.925	2	100	NC	153.85	7
10760B	155.500	6	2455	8	155.50	14
10760C	155.650	6	1950	5	155.80	13
10770A	169.400	6	2265	9	156.10	90
10770B	169.800	6	880	17	169.45	8
10770C	174.900	2	120	NC		
10780A	177.600	2	65	NC	177.45	58
10780B	180.700	3	135	4	180.30	22
10780C	181.375	4	255	35	181.25	17
10780D	182.600	4	290	11	-	
10780E	182.825	6	1870	8	-	
10780F	183.175	5	575	5	183.20	24
10790A	196.875	5	1830	3	196.60	160
10790B	197.250	5	1090	4	-	
10790C	198.600	6	365	20	-	
10790D	198.775	6	990	8	198.65	22
10790E	202.025	2	50	NC	-	
10790F	202.350	2	60	NC	202.65	54
10800A	206.200	2	55	NC	-	
10800B	206.450	3	115	9	-	
10800C	208.925	3	105	1	-	
10800D	209.175	6	1635	14	209.10	19
10800E	210.325	4	460	7	-	
10800F	210.475	6	1545	8	210.60	21
10800G	210.875	6	1230	3	210.90	150
10800H	216.100	3	320	1	215.95	230
10810A	218.400	5	665	3	-	
10810B	218.575	4	415	1	218.50	220
10810C	224.375	3	100	9	224.30	280
10810D	224.575	6	2585	6	224.65	33
10810E	225.050	6	1405	39	-	
10810F	226.275	2	100	NC	226.35	22
10810G	226.650	5	760	1	-	
10810H	229.750	6	815	20	-	
10810J	230.350	2	80	NC	-	
10820A	233.600	4	115	15		
10820B	233.800	4	370	8	234.05	4
10820C	236.525	6	820	9	236.50	25
10820D	237.625	5	400	12		
10820E	237.800	6	1750	11	-	
10820F	238.200	5	1340	3	238.00	100
10820G	243.350	4	430	1	243.20	330
10830A	251.000	6	1850	3	251.00	96
10830B	251.500	6	1055	9	-	
10830C	252.825	5	530	6	252.70	21
10830D	252.950	6	1000	15		
10830E	256.200	3	135	1	-	
10830F	256.900	2	80	NC	257.10	70
10840A	263.950	6	1840	8	264.00	26

ANOMALY	FID	CHS	CH2.AMP	MHCS	MAG	VALUE
10840B	264.950	4	295	16	-	
10840C	265.150	6	1545	11	-	
10840D	265.650	3	225	1	265.75	300
10840E	270.800	3	215	1	270.70	96
10850A	272.000	4	380	3	271.90	173
10850B	277.950	4	730	1	277.55	440
10850C	278.125	4	430	2	-	
10850D	278.550	6	1305	10	278.80	3
10850E	279.650	4	160	1	279.60	23
10850F	279.850	4	475	4	-	
10860A	289.625	2	35	NC	289.30	10
10860B	290.400	2	40	NC	290.30	13
10860C	290.675	3	305	1	-	
10860D	291.250	3	110	9	291.05	4
10860E	291.500	6	1200	7	-	
10860F	292.000	3	220	1	292.10	570
10860G	296.825	5	665	5	296.80	200
10860H	297.050	6	930	19	-	
10870A	304.850	3	560	1	304.80	390
10870B	305.000	4	295	1	-	
10870C	305.400	5	625	7	-	
10870D	306.400	4	525	1	-	
10870E	307.700	2	25	NC	307.55	11
10870F	310.625	3	55	1	-	
10880A	314.475	2	45	NC	-	
10880B	318.150	5	920	1	318.05	10
10880C	319.025	6	1065	11	319.30	220
10880D	319.525	2	55	NC	319.50	170
10880E	323.025	2	25	NC	322.90	450
10880F	324.600	3	290	2	-	
10890A	336.650	3	450	1	336.55	180
10890B	337.225	6	1295	15	-	
10890C	338.025	3	105	9	338.05	15
10890D	338.325	6	655	7	338.40	7
10890E	342.250	2	80	NC	342.10	6
10890F	342.950	3	160	1	-	
10900A	346.450	2	170	NC	-	
10900B	350.350	6	1505	7	350.30	13
10900C	351.200	6	1160	4	351.50	230
10900D	351.700	3	180	1	351.70	39
10900E	355.675	3	145	1	355.80	21
10900F	357.350	5	305	7	357.35	200
10910A	359.850	4	205	6	359.70	90
10910B	360.000	6	495	23	-	
10910C	360.200	3	220	3	360.25	290
10910D	364.875	3	550	1	364.80	340
10910E	365.425	5	800	1	-	
10910F	366.150	4	275	10	365.90	6
10910G	366.375	6	1550	19	366.20	13
10910H	369.550	2	40	NC	369.35	10

ANOMALY	FID	CHS	CH2.AMP	MHOS	MAG	VALUE
10910J	371.300	4	485	1	-	
10920A	374.750	3	135	1	374.30	90
10920B	375.075	3	305	1	-	
10920C	379.000	4	90	3	-	
10920D	379.200	6	1490	9	379.10	8
10920E	379.650	2	30	NC	-	
10920F	380.100	5	840	1	-	
10920G	380.550	2	95	NC	380.35	410
10920H	384.500	6	1150	32	380.75	77
10930A	388.050	4	285	2	384.65	22
10930B	388.225	2	155	NC	388.50	150
10930C	393.000	2	225	NC	-	
10930D	393.500	4	525	1	-	
10930E	394.275	6	310	23	394.10	5
10930F	394.475	6	695	18		
10930G	399.400	4	530	1	399.90	150
10940A	402.750	2	65	NC	-	
10940B	403.000	3	265	1	-	
10940C	407.050	4	95	18	-	
10940D	407.250	6	1030	27		
10940E	407.675	2	105	NC	407.50	11
10940F	408.175	3	355	1	-	
10940G	408.600	2	25	NC	408.75	240
10940H	412.475	3	140	2	412.20	210
10940J	412.625	4	320	3	-	
10950A	417.675	4	310	3	417.90	46
10950B	421.225	4	660	1	420.80	50
10950C	421.650	3	265	1	-	
10950D	422.675	4	135	14	422.45	5
10950E	424.700	2	30	NC	424.50	17
10950F	427.125	2	50	NC	-	
10950G	427.675	3	135	1	-	
10960A	432.000	2	85	NC	-	
10960B	434.550	2	20	NC	434.45	11
10960C	437.250	5	1025	2	-	
10960D	437.500	4	560	2	437.60	53
10960E	440.400	5	385	2	440.10	230
10960F	441.175	2	100	NC	440.75	340
10971A	454.725	3	215	1	454.35	41
10971B	456.000	2	10	NC	456.00	5
10971C	456.350	2	70	NC	-	
10971D	458.300	2	35	NC	458.10	22
10971E	461.775	2	105	NC	462.15	46
10980A	464.550	2	35	NC	-	
10980B	467.500	2	30	NC	467.50	23
10980C	469.125	3	160	1	469.05	5
10980D	470.125	3	180	1	470.55	60
10980E	473.150	2	35	NC	473.05	32
10980F	475.350	2	65	NC	-	

5

ANOMALY	FID	CH	PPM	MHO	MAG	VALUE	ANOMALIES NOT PLOTTED
19010A	573.025	3	260	2	572.95	132	
19010B	573.800	6	1945	12	573.80	15	
19010C	574.175	6	1235	6	574.20	150	
19021BB	40.200	3	165	1			
19021CC	43.400	3	155	3	43.05	220	
19021DD	43.750	5	570	6	43.65	52	
19021EE	44.825	6	3555	9	44.70	134	-Near F Line 10050N
19021FF	45.200	6	2055	8	45.20	97	-Near D Line 10040S
19021GG	45.400	5	980	4			-Near F Line 10030N
19021HH	45.675	3	375	1	45.70	48	-Near A Line 10010N
19030D	28.675	3	135	6	28.9	8	
19030E	29.400	3	160	7	29.35	6	-Near G Line 10710N
19030F	32.325	2	90	NC			
19030G	32.775	2	125	NC			
19030H	33.650	6	1980	10	33.25	4	
19030J	33.825	5	1440	2			

5

ANOMALY	FID	CHS	CH2.AMP	MHOS	MAG	VALUE
~~9030K~~	~~34.525~~	~~4~~	~~500~~	~~8~~	~~34.45~~	~~80~~
9030L	34.700	4	735	6	-	
9030M	34.875	4	525	7	-	
~~9030N~~	~~35.375~~	~~4~~	~~390~~	~~9~~	~~35.35~~	~~23~~
9030P	35.500	3	330	9	-	
9030R	35.750	3	225	9	35.65	4
~~9030S~~	~~36.875~~	~~4~~	~~195~~	~~34~~	~~36.95~~	~~66~~
9030T	37.225	2	300	NC	-	
9030W	37.425	4	395	20	-	
~~9030Y~~	~~37.775~~	~~5~~	~~595~~	~~16~~	~~37.85~~	~~35~~
9030Z	38.075	6	1005	28	-	
9030AA	38.250	6	1095	30	38.20	4
~~9030BB~~	~~38.475~~	~~5~~	~~1030~~	~~10~~	~~-~~	
9030CC	38.700	4	615	8	38.90	42
9030DD	39.450	2	140	NC	39.40	163
~~9030EE~~	~~39.975~~	~~2~~	~~95~~	~~NC~~	~~40.10~~	~~135~~
9030FF	41.675	2	105	NC	-	
9030GG	42.550	2	105	NC	42.55	48
9040A	581.550	2	35	NC	581.40	36

Ontario

Ministry of Natu

32E13NE0091 2.3651 HOPPER LAKE

900

GEOPHYSICAL – GEOLOG
TECHNICAL DATA STATEMENT

RECEIVED
JAN - 9 1980
MINING LANDS SECTION

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

Type of Survey(s) Airborne Electromagnetic & Magnetometer

Township or Area Hopper L.,Lower Detour L.,Sunday Lake

Claim Holder(s) Western Mines Limited

390 Bay St., Suite 1414,Toronto, Ont.

Survey Company Questor Surveys Limited

Author of Report Marcel H. Konings

Address of Author 6380 Viscount Rd.,Mississauga, Ontario

Covering Dates of Survey June 28 to July 30,1980
(linecutting to office)

Total Miles of Line Cut ____

SPECIAL PROVISIONS
CREDITS REQUESTED

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

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
--Electromagnetic	20
–Magnetometer	20
–Radiometric	
–Other	
Geological	
Geochemical	

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

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

DATE: Dec. 17,1980 SIGNATURE: [signature]
Author of Report or Agent

MINING CLAIMS TRAVERSED
List numerically

(prefix) (number)

See attached list
for details

P.549852 to P.549891 incl. (40)
P.549918 to P.549931 incl. (14)
P.553303 to P.553483 incl. (181)
P.553503 to P.553562 incl. (60)
P.553563 to P.553574 incl. (12)
P.553623 to P.553670 incl. (48)
P.553693 to P.553731 incl. (39)
P.553740 to P.553759 incl. (20)
P.577751 to P.577774 incl. (24)
P.577781 to P.577810 incl. (30)
P.575669 to P.575671 incl. (3)

If space insufficient, attach list

TOTAL CLAIMS 471

OFFICE USE ONLY

Res. Geol. ____ Qualifications 2.1666

Previous Surveys

File No.	Type	Date	Claim Holder
			L.D.

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations ____________ Number of Readings ____________

Station interval ____________ Line spacing ____________

Profile scale ____________

Contour interval ____________

MAGNETIC

Instrument ____________

Accuracy – Scale constant ____________

Diurnal correction method ____________

Base Station check-in interval (hours) ____________

Base Station location and value ____________

ELECTROMAGNETIC

Instrument ____________

Coil configuration ____________

Coil separation ____________

Accuracy ____________

Method: ☐ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency ____________ (specify V.L.F. station)

Parameters measured ____________

GRAVITY

Instrument ____________

Scale constant ____________

Corrections made ____________

Base station value and location ____________

Elevation accuracy ____________

INDUCED POLARIZATION RESISTIVITY

Instrument ____________

Method ☐ Time Domain ☐ Frequency Domain

Parameters – On time ____________ Frequency ____________

– Off time ____________ Range ____________

– Delay time ____________

– Integration time ____________

Power ____________

Electrode array ____________

Electrode spacing ____________

Type of electrode ____________

SELF POTENTIAL

Instrument ______ Range ______

Survey Method ______

Corrections made ______

RADIOMETRIC

Instrument ______

Values measured ______

Energy windows (levels) ______

Height of instrument ______ Background Count ______

Size of detector ______

Overburden ______

(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey ______

Instrument ______

Accuracy ______

Parameters measured ______

Additional information (for understanding results) ______

AIRBORNE SURVEYS

Type of survey(s) Electromagnetic & Magnetometer

Instrument(s) Mark VI Input (R) Sonotex P.M.H. 5010 Proton Magnetometer

(specify for each type of survey)

Accuracy 50 ppm Sensitivity 1 gamma, Range 20,000-100,000

(specify for each type of survey)

Aircraft used Britten Norman-Trislander C-GOXZ

Sensor altitude 150 feet (with E.M.Bird)

Navigation and flight path recovery method comparison of the prints of the 35 mm film with the ~~mosaic.~~

Aircraft altitude 400 feet Line Spacing 660 feet (1/8 mile)

Miles flown over total area 560 Over claims only 235.5 miles

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken

Total Number of Samples

Type of Sample
(Nature of Material)

Average Sample Weight

Method of Collection

Soil Horizon Sampled

Horizon Development

Sample Depth

Terrain

Drainage Development

Estimated Range of Overburden Thickness

SAMPLE PREPARATION

(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis

General

ANALYTICAL METHODS

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

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

Others

Field Analysis (tests)

Extraction Method

Analytical Method

Reagents Used

Field Laboratory Analysis

No. (tests)

Extraction Method

Analytical Method

Reagents Used

Commercial Laboratory (tests)

Name of Laboratory

Extraction Method

Analytical Method

Reagents Used

General

APPENDIX

CLAIM No.

1. P.549852
2. P.549853
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4. P.549855
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470. P.575670
471. P.575671


WEST OF SUNDAY LAKE AREA (M. 3004)
HOPPER LAKE AREA (M.2601)
SUNDAY LAKE AREA (M. 3003)
LOWER DETOUR LAKE AREA (M. 2603)
50°00'
79°45'
Sunday Cr.
Detour River
LOWER DETOUR LAKE
DETOUR LAKE
Detour River
PROVINCE OF QUEBEC
PROVINCE OF ONTARIO
N
32E13NE0091 2.3651 HOPPER LAKE 200
INDEX MAP
JAMES BAY
NIPIGON LAKE
Kenogami R.
ONTARIO
DETOUR PROPERTY
Port Arthur
Nipigon
Cochrane
Timmins
ABITIBI LAKE
Kirkland Lake
QUEBEC
LAKE SUPERIOR
Sault Ste. Marie
Sudbury
NIPISSING LAKE
U.S.A.
LAKE MICHIGAN
LAKE HURON
SCALE: 1" = 100 Miles
WESTERN MINES LIMITED
DETOUR PROPERTY
CLAIM MAP
ONTARIO
32-E-13
32-L-4
DATE: JANUARY, 1980
SCALE: 1:31,680

2.3651

Legend

- 6 Channel Anomaly
- 5 Channel Anomaly
- 4 Channel Anomaly
- 3 Channel Anomaly
- 2 Channel Anomaly

Magnetic Correlation

Anomaly Letter — B, 5 — Apparent Conductivity-Width

1800 — Ch. 2 Amplitude P.P.M.

Fault

Diabase

DETOUR LAKE AREA

Map 1 22006

ISOMAGNETIC INTERVAL

(TOTAL FIELD)

10 GAMMA CONTOUR LINE

50 GAMMA CONTOUR LINE

500 GAMMA CONTOUR LINE

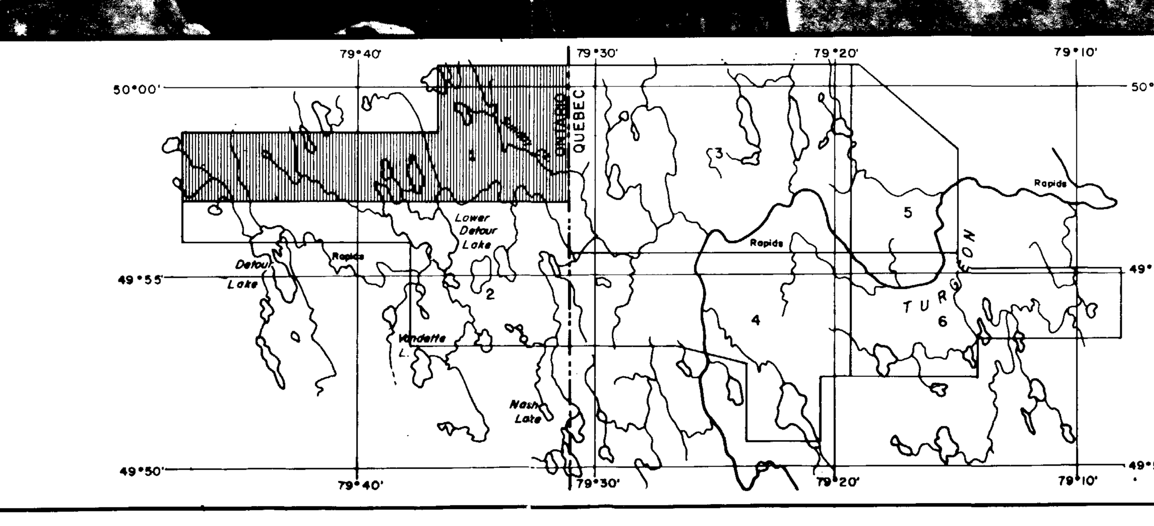
MAGNETIC DEPRESSION

FLIGHT ALTITUDE 400' ABOVE TERRAIN

WESTERN MINES LTD. CLAIM BOUNDARIES

32E13NE0091 2.3651 HOPPER LAKE

210



QUESTOR SURVEYS LIMITED

Airborne Mk VI Input Survey

DETOUR LAKE AREA

MILE 1/2 1/4 0 1/4 1/2

Scale: 1:15,840 (1" = 1/4 Mile)

Drawn By	Dataplotting
Flight Path Recovery	T.M.
Data Reduction	D.L.S., B.D., W.K.
Completed	July 1980
Checked	M.K.
File No.	2200
Map 1	

Legend

6 Channel Anomaly
5 Channel Anomaly
4 Channel Anomaly
3 Channel Anomaly
2 Channel Anomaly

Magnetic Correlation

Anomaly
Lurker
Fault
Diabase
Apparent Conductivity-Width
Ch. 2 Amplitude P.P.M.

DETOUR LAKE AREA

Map 2 22006

ISOMAGNETIC INTERVAL

(TOTAL FIELD)

10 GAMMA CONTOUR LINE
50 GAMMA CONTOUR LINE
500 GAMMA CONTOUR LINE
MAGNETIC DEPRESSION
FLIGHT ALTITUDE 400' ABOVE TERRAIN

WESTERN MINES LTD.
CLAIM BOUNDARIES

220

QUESTOR SURVEYS LIMITED
Airborne Mk VI Input Survey

DETOUR LAKE AREA

Scale: 1:15,840 (1" = 1/4 Mile)

Drawn By	Dataplotting
Flight Path Recovery	T.M.
Data Reduction	D.L.S., B.D., W.K.
Completed	July 1980
Checked	M.K.
File No.	2200
	Map 2