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DIGHEM^{IV} SURVEY

FOR

NORANDA EXPLORATION COMPANY, LIMITED

BABINE LAKE PROJECT

BRITISH COLUMBIA

NTS 93L/16, 93 M/I

GEOLOGICAL BRANCH
ASSESSMENT REPORT

20,919

DIGHEM SURVEYS & PROCESSING INC.
MISSISSAUGA, ONTARIO
November 28, 1990

Paul A. Smith
Geophysicist

A1090NOV.91R

Province of British Columbia

Ministry of Energy, Mines and Petroleum Resources

ASSESSMENT REPORT
TITLE PAGE AND SUMMARY

TYPE OF REPORT/SURVEY(S)	TOTAL COST
Geophysical N sheet only $50,623	$ ~~135,500~~ dm

AUTHOR(S) Paul A. Smith, Del Myers SIGNATURE(S) Delmut E Myers

DATE STATEMENT OF EXPLORATION AND DEVELOPMENT FILED 7 Nov. 1990 YEAR OF WORK 1990

PROPERTY NAME(S) Morrison

COMMODITIES PRESENT Cu

B.C. MINERAL INVENTORY NUMBER(S), IF KNOWN 093M-007

MINING DIVISION Omineca NTS 93 M/01W

LATITUDE 55° 12' N LONGITUDE 126° 20' W

NAMES and NUMBERS of all mineral tenures in good standing (when work was done) that form the property [Examples: TAX 1-4, FIRE 2 (12 units); PHOENIX (Lot 1706); Mineral Lease M 123; Mining or Certified Mining Lease ML 12 (claims involved)]:

Alva 1-2, Dull Axe 1-2, Dyke 1-7, Ellen 1-3, 3Fr, 4-16, France 25, 27, Patch Fr., She 13, 14 (Morris Gp.), Bine 5, 8-21 (Lake N Gp), Bine 1-4, 6-7, 22 (Lake S Gp)

OWNER(S)

(1) Noranda Exploration Co., Ltd. (NPL) (2)

MAILING ADDRESS

P.O. Box 2380
Vancouver, B.C., V6B 3T5

OPERATOR(S) (that is, Company paying for the work)

(1) same (2)

MAILING ADDRESS

same

SUMMARY GEOLOGY (lithology, age, structure, alteration, mineralization, size, and attitude):

The Morrison deposit is estimated to contain 86 million tonnes of 0.42% Cu largely within an Eocene Babine biotite-hornblende-plagioclase porphyry stock.

REFERENCES TO PREVIOUS WORK CIM Sp. Vol. 15 (1976) pp. 264-273

FILMED

(over)

Noranda Exploration Company, Limited
(no personal liability)
Unit 3A
1750 Quinn Street
Prince George, B.C. V2N 1X3

noranda

24 January 1991

Phone (604) 562-0022
Fax (604) 562-5043

Gold Commissioner
Omineca Mining Division
Bag 2000
Smithers, B.C.
VOJ 2N0

Re: Babine Lake Dighem Airborne EM Survey, Assessment Report

Dear Sir,

Enclosed please find two copies of Mr. Paul A. Smith's report on the Dighem IV Airborne Survey. I am submitting this report to you for assessment on various claims held by Noranda Minerals Inc. or Noranda Exploration Company, Limited (No Personal Liability) in the Babine Lake area of the Omineca Mining Division.

As only the north map sheet is being submitted for assessment purposes, references to results of the south sheet have been deleted from the text. No other changes have been made to Mr. Smith's report.

The airborne survey as described in Mr. Smith's report consisted of 1797 line-kilometers (p i.) of survey at a total contract cost of $132,600. To this I have added an additional cost of $2,900 as follows:

report preparation	$600
supervision	$2300

This brings the total cost claimed to $135,500.

Rather than estimate the line-km flown on each claim or claim group, I have planimetered the survey areas of the north and south map sheets and estimated the costs on a per area basis, as follows:

N Sheet	124.390 km*km
S Sheet	208.558 km*km

ABEM survey area	332.948 km*km

ON NORTH SHEET ONLY

area flown on Morris Group claims	(33 units)	= 4.916 km*km
area flown on Bine 1-22 claims	(173 units)	= 35.992 km*km
area flown on LWO claims	(74 units)	= 4.692 km*km
area flown off claims		= 78.79 km*km
		-------
	total survey, N sheet	124.390 km*km

unit cost = $135,500 / 332.948 km*km = $406.970 / km*km

cost of N sheet = $406.970 km*km * 124.390 km*km = $50,623

cost on Morris Group claims	= $ 2,000.66
cost on Bine 1-22 claims	= $ 14,647.67
cost on LWO claims	= $ 1,909.50
cost off claims	= $ 32,065.17
total cost, N sheet	$ 50,623.

These costs have been applied as follows to various claim groups:

to Morris Group (7 Nov. 90)	= $ 6,400
to Lake N Group (30 Nov. 90)	= $ 23,300
to Lake S Group (30 Nov. 90)	= $ 20,900
to PAC	= $ 23
total	$ 50,623

These costs do not exceed the total cost of the N sheet. The areas applied do not exceed ten times the area of any claim group.

Please note that all but three flight lines were flown on or after 14 July 1990. The area flown on 14 July did not include any ground staked by Noranda that day.

A map is attached showing the location of the claims and the survey area.

I believe the above apportionment of costs to the various claim groups created in the ABEM survey area to be in accordance with the assessment report guidelines.

Sincerely,

Delbert E. Myers, Jr., FGAC
Senior Project Geologist

encl.

GEOLOGICAL ASSOCIATION OF CANADA
DEL MYERS
FELLOW

C:\DEL\DATA\LET-BAB.PW

SUMMARY

This report describes the logistics and results of a DIGHEM^{IV} airborne geophysical survey carried out for Noranda Exploration Company, Limited, over a property located in the Babine Lake area of British Columbia. Total coverage of the survey block amounted to 1797 km. The survey was flown from July 11 to July 22, 1990.

The purpose of the survey was to detect zones of conductive mineralization and to provide information that could be used to map the geology and structure of the survey area. This was accomplished by using a DIGHEM^{IV} multi-coil, multi-frequency electromagnetic system, supplemented by a high sensitivity Cesium magnetometer and a two-channel VLF receiver. The information from these sensors was processed to produce maps which display the magnetic and conductive properties of the survey area. An electronic navigation system, operating in the UHF band, ensured accurate positioning of the geophysical data with respect to the base maps. Visual flight path recovery techniques were used in areas where transponder signals were blocked by topographic features.

Several bedrock conductors were detected on the property, most of which are considered to be of moderate to high priority as exploration targets. Most of these inferred

bedrock conductors appear to warrant further investigation using appropriate surface exploration techniques. Areas of interest may be assigned priorities on the basis of supporting geophysical, geochemical and/or geological information. After initial investigations have been carried out, it may be necessary to re-evaluate the remaining anomalies based on information acquired from the follow-up program.

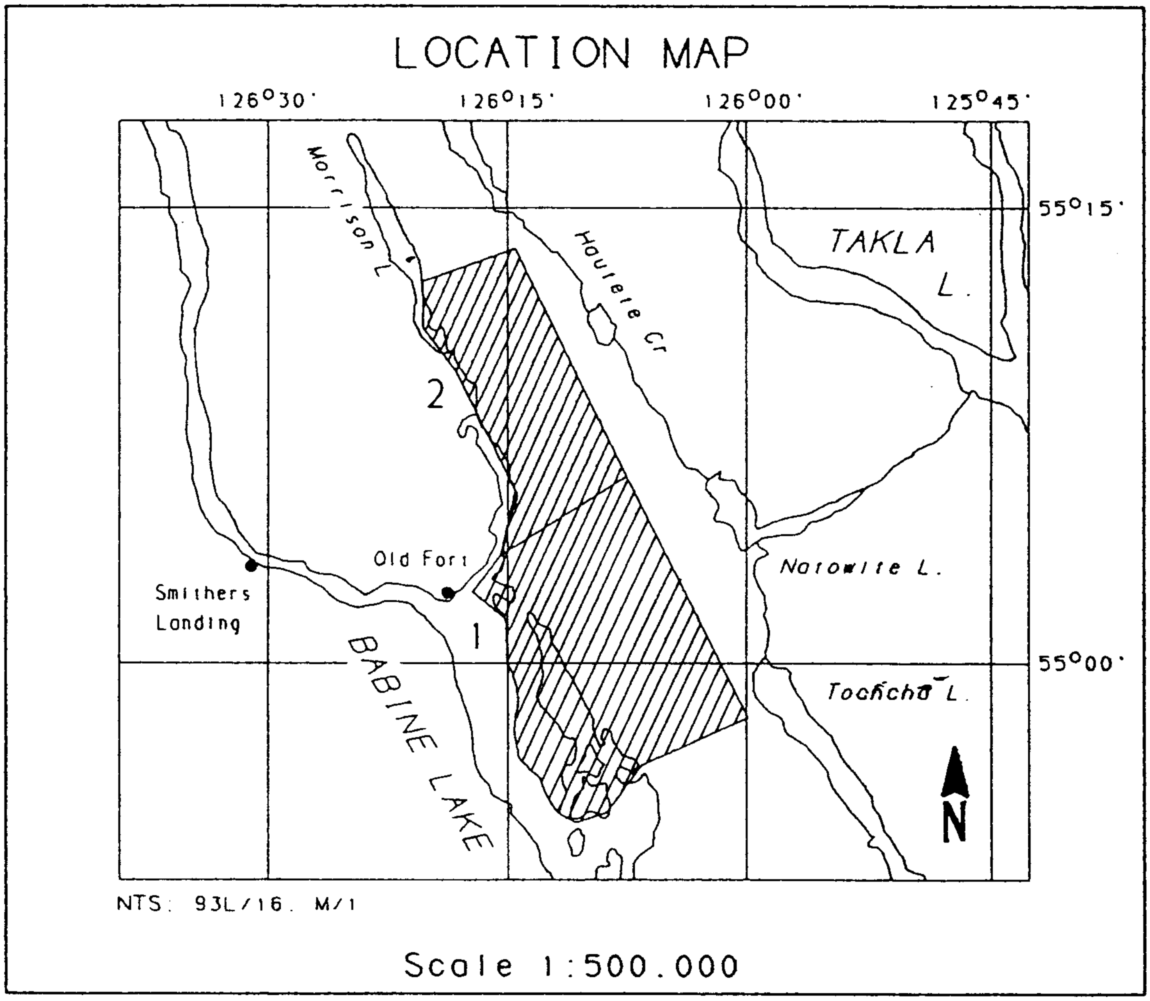

FIGURE 1

BABINE LAKE PROPERTY

CONTENTS

INTRODUCTION

A DIGHEM^{IV} electromagnetic/resistivity/magnetic/VLF survey was flown for Noranda Exploration Company, Limited from July 11 to July 22, 1990, over a survey block in central British Columbia. The property, designated the Babine Lake Project, abuts the eastern shore of Babine Lake. The survey area can be located on NTS map sheets 93L/16 and 93M/1, (See Figure 1).

Survey coverage consisted of approximately 1797 line-km, including tie lines. Flight lines were flown in an azimuthal direction of 070° with a line separation of 200 metres.

The survey employed the DIGHEM^{IV} electromagnetic system. Ancillary equipment consisted of a magnetometer, radar altimeter, video camera, analog and digital recorders, a VLF receiver and an electronic navigation system. Details on the survey equipment are given in Section 2.

The instrumentation was installed in an Aerospatiale AS350B turbine helicopter (Registration C-GNIX) which was provided by Questral Helicopters Ltd. The helicopter flew at an average airspeed of 120 km/h with an EM bird height of approximately 30 m.

Section 2 also provides details on the data channels, their respective sensitivities, and the navigation/flight path recovery procedure. Noise levels of less than 2 ppm are generally maintained for wind speeds up to 35 km/h. Higher winds may cause the system to be grounded because excessive bird swinging produces difficulties in flying the helicopter. The swinging results from the 5 m^2 of area which is presented by the bird to broadside gusts.

The southwestern portion of the property contains numerous sources of cultural interference, which are related to the current operations of the Bell Copper mine. The mining operations cover a large portion of the Newman Peninsula, and have affected the geophysical responses in this area. There are many anomalies in the southwestern portion which have been attributed to possible bedrock sources, but which may be due to culture. Detailed follow-up will be required to confirm conductor sources in the presence of cultural features.

SURVEY EQUIPMENT

This section provides a brief description of the geophysical instruments used to acquire the survey data:

Electromagnetic System

Model:	DIGHEM IV
Type:	Towed bird, symmetric dipole configuration operated at a nominal survey altitude of 30 metres. Coil separation is 8 metres for 900 Hz and 7200 Hz, and 6.3 metres for the 56,000 Hz coil-pair.
Coil orientations/frequencies:	coaxial / 900 Hz coplanar/ 900 Hz coplanar/ 7,200 Hz coplanar/56,000 Hz
Channels recorded:	4 inphase channels 4 quadrature channels 2 monitor channels
Sensitivity:	0.2 ppm at 900 Hz 0.4 ppm at 7,200 Hz 1.0 ppm at 56,000 Hz
Sample rate:	10 per second

The electromagnetic system utilizes a multi-coil coaxial/coplanar technique to energize conductors in different directions. The coaxial transmitter coil is vertical with its axis in the flight direction. The coplanar coils are horizontal. The secondary fields are sensed simultaneously by means of receiver coils which are maximum coupled to their respective transmitter coils. The system yields an inphase and a quadrature channel from each transmitter-receiver coil-pair.

Magnetometer

Model:	Picodas 3340
Type:	Optically pumped Cesium vapour
Sensitivity:	0.01 nT
Sample rate:	10 per second

The magnetometer sensor is towed in a bird 15 m below the helicopter.

Magnetic Base Station

Model:	Scintrex MP-3
Type:	Digital recording proton precession
Sensitivity:	0.10 nT
Sample rate:	0.2 per second

A digital recorder is operated in conjunction with the base station magnetometer to record the diurnal variations of the earth's magnetic field. The clock of the base station is synchronized with that of the airborne system to permit subsequent removal of diurnal drift.

VLF System

Manufacturer:	Herz Industries Ltd.
Type:	Totem-2A
Sensitivity:	0.1%
Stations:	Seattle, Washington; NLK, 24.8 kHz Lualualei, Hawaii; NPM, 23.4 kHz

The VLF receiver measures the total field and vertical quadrature components of the secondary VLF field. Signals from two separate transmitters can be measured simultaneously. The VLF sensor is towed in a bird 10 m below the helicopter.

Radar Altimeter

Manufacturer:	Honeywell/Sperry
Type:	AA 220
Sensitivity:	1 ft

The radar altimeter measures the vertical distance between the helicopter and the ground. This information is used in the processing algorithm which determines conductor depth.

Analog Recorder

Manufacturer: RMS Instruments

Type: DGR33 dot-matrix graphics recorder

Resolution: 4x4 dots/mm

Speed: 1.5 mm/sec

The analog profiles were recorded on chart paper in the aircraft during the survey. Table 2-1 lists the geophysical data channels and the vertical scale of each profile.

Digital Data Acquisition System

Manufacturer: RMS Instruments

Type: DGR 33

Tape Deck: RMS TCR-12, 6400 bpi, tape cartridge recorder

The digital data were used to generate several computed parameters. Both measured and computed parameters were plotted as "multi-channel stacked profiles" during data processing. These parameters are shown in Table 2-2.

In Table 2-2, the log resistivity scale of 0.06 decade/mm means that the resistivity changes by an order of magnitude in 16.6 mm. The resistivities at 0, 33 and 67 mm up from the bottom of the digital profile are respectively 1, 100 and 10,000 ohm-m.

Table 2-1. The Analog Profiles

Channel Name	Parameter	Scale units/mm	Designation on digital profile
1X9I	coaxial inphase (900 Hz)	2.5 ppm	CXI (900 Hz)
1X9Q	coaxial quad (900 Hz)	2.5 ppm	CXQ (900 Hz)
3P9I	coplanar inphase (900 Hz)	2.5 ppm	CPI (900 Hz)
3P9Q	coplanar quad (900 Hz)	2.5 ppm	CPQ (900 Hz)
2P7I	coplanar inphase (7200 Hz)	5 ppm	CPI (7200 Hz)
2P7Q	coplanar quad (7200 Hz)	5 ppm	CPQ (7200 Hz)
4P5I	coplanar inphase(56000 Hz)	10 ppm	CPI (56 kHz)
4P5Q	coplanar quad (56000 Hz)	10 ppm	CPQ (56 kHz)
ALTR	altimeter	3 m	ALT
CMGC	magnetics, coarse	25 nT	MAG
CMGF	magnetics, fine	2.5 nT	
VF1T	VLF-total: primary stn.	2%	
VF1Q	VLF-quad: primary stn.	2%	
VF2T	VLF-total: secondary stn.	2%	
VF2Q	VLF-quad: secondary stn.	2%	
CXSP	coaxial sferics monitor		CXS
CPSP	coplanar sferics monitor		
CXPL	coaxial powerline monitor		
CPPL	coplanar powerline monitor		CPP

Table 2-2. The Digital Profiles

Channel Name (Freq)	Observed parameters	Scale units/mm
MAG	magnetics	10 nT
ALT	bird height	6 m
CXI (900 Hz)	vertical coaxial coil-pair inphase	2 ppm
CXQ (900 Hz)	vertical coaxial coil-pair quadrature	2 ppm
CPI (900 Hz)	horizontal coplanar coil-pair inphase	2 ppm
CPQ (900 Hz)	horizontal coplanar coil-pair quadrature	2 ppm
CPI (7200 Hz)	horizontal coplanar coil-pair inphase	4 ppm
CPQ (7200 Hz)	horizontal coplanar coil-pair quadrature	4 ppm
CPI (56 kHz)	horizontal coplanar coil-pair inphase	10 ppm
CPQ (56 kHz)	horizontal coplanar coil-pair quadrature	10 ppm
CXS	coaxial sferics monitor	
CPP	coplanar powerline monitor	
	Computed Parameters	
DFI (900 Hz)	difference function inphase from CXI and CPI	2 ppm
DFQ (900 Hz)	difference function quadrature from CXQ and CPQ	2 ppm
RES (900 Hz)	log resistivity	.06 decade
RES (7200 Hz)	log resistivity	.06 decade
RES (56 kHz)	log resistivity	.06 decade
DP (900 Hz)	apparent depth	6 m
DP (7200 Hz)	apparent depth	6 m
DP (56 kHz)	apparent depth	6 m
CDT	conductance	1 grade

Tracking Camera

Type: Panasonic Video

Model: AG 2400/WVCD132

Fiducial numbers are recorded continuously and are displayed on the margin of each image. This procedure ensures accurate correlation of analog and digital data with respect to visible features on the ground.

Navigation System

Model: Del Norte 547

Type: UHF electronic positioning system

Sensitivity: 1 m

Sample rate: 2 per second

The navigation system uses ground based transponder stations which transmit distance information back to the helicopter. The ground stations are set up well away from the survey area and are positioned such that the signals cross the survey block at an angle between 30° and 150°. The onboard Central Processing Unit takes any two transponder distances and determines the helicopter position relative to these two ground stations in cartesian coordinates.

The cartesian coordinates are transformed to UTM coordinates during data processing. This is accomplished by correlating a number of prominent topographical locations with the navigational data points. The use of numerous visual tie points serves two purposes: to accurately relate the navigation data to the map sheet and to minimize location errors which might result from distortions in uncontrolled photomosaic base maps.

PRODUCTS AND PROCESSING TECHNIQUES

The following products are available from the survey data. Those which are not part of the survey contract may be acquired later. Refer to Table 3-1 for a summary of the maps which accompany this report, some of which may be sent under separate cover. Most parameters can be displayed as contours, profiles, or in colour.

Base Maps

Base maps of the survey area have been produced from published topographic maps. These provide a relatively accurate, distortion-free base which facilitates correlation of the navigation data to the UTM grid. Photomosaics are useful for visual reference and for subsequent flight path recovery, but usually contain scale distortions. Orthophotos are ideal, but their cost and the time required to produce them, usually precludes their use as base maps.

Electromagnetic Anomalies

Anomalous electromagnetic responses are selected and analysed by computer to provide a preliminary electromagnetic anomaly map. This preliminary map is used, by the

Table 3-1 Plots Available from the Survey

MAP PRODUCT	NO. OF SHEETS	ANOMALY MAP	PROFILES ON MAP	CONTOURS INK	CONTOURS COLOUR	SHADOW MAP
Electromagnetic Anomalies	2	20,000	N/A	N/A	N/A	N/A
Probable Bedrock Conductors		-	N/A	N/A	N/A	N/A
Resistivity (900 Hz)	2	N/A	-	20,000	20,000	-
Resistivity (7,200 Hz)	2	N/A	-	20,000	20,000	-
Resistivity (56,000 Hz)	2	N/A	-	20,000	20,000	-
EM Magnetite		N/A	-	-	-	-
Total Field Magnetics	2	N/A	-	20,000	20,000	-
Enhanced Magnetics		N/A	-	-	-	-
1st Vertical Derivative Magnetics	2	N/A	-	20,000	20,000	-
2nd Vertical Derivative Magnetics		N/A	-	-	-	-
Filtered Total Field VLF	2	N/A	-	20,000	20,000	-
VLF Profiles		N/A	-	N/A	N/A	N/A
Electromagnetic Profiles(900 Hz)		N/A	-	N/A	N/A	N/A
Electromagnetic Profiles(7200 Hz)		N/A	-	N/A	N/A	N/A
Multi-channel stacked profiles		Worksheet profiles				-
		Interpreted profiles				10,000

N/A Not available
- Not required under terms of the survey contract
* Recommended
20,000 Scale of delivered map, i.e, 1:20,000

Notes:

- Inked contour maps are provided on transparent media and show flight lines, EM anomalies and suitable registration. Three paper prints of each map are supplied, in addition to three colour plots of each contour map.

geophysicist, in conjunction with the computer-generated digital profiles, to produce the final interpreted EM anomaly map. This map includes bedrock, surficial and cultural conductors. A map containing only bedrock conductors can be generated, if desired.

Resistivity

The apparent resistivity in ohm-m may be generated from the inphase and quadrature EM components for any of the frequencies, using a pseudo-layer halfspace model. A resistivity map portrays all the EM information for that frequency over the entire survey area. This contrasts with the electromagnetic anomaly map which provides information only over interpreted conductors. The large dynamic range makes the resistivity parameter an excellent mapping tool.

EM Magnetite

The apparent percent magnetite by weight is computed wherever magnetite produces a negative inphase EM response.

Total Field Magnetics

The aeromagnetic data are corrected for diurnal variation using the magnetic base station data. The regional IGRF can be removed from the data, if requested.

Enhanced Magnetics

The total field magnetic data are subjected to a processing algorithm. This algorithm enhances the response of magnetic bodies in the upper 500 m and attenuates the response of deeper bodies. The resulting enhanced magnetic map provides better definition and resolution of near-surface magnetic units. It also identifies weak magnetic features which may not be evident on the total field magnetic map. However, regional magnetic variations, and magnetic lows caused by remanence, are better defined on the total field magnetic map. The technique is described in more detail in Section 5.

Magnetic Derivatives

The total field magnetic data may be subjected to a variety of filtering techniques to yield maps of the following:

- vertical gradient
- second vertical derivative
- magnetic susceptibility with reduction to the pole
- upward/downward continuations

All of these filtering techniques improve the recognition of near-surface magnetic bodies, with the exception of upward continuation. Any of these parameters can be produced on request. Dighem's proprietary enhanced magnetic technique is designed to provide a general "all-purpose" map, combining the more useful features of the above parameters.

VLF

The VLF data are digitally filtered to remove long wavelengths such as those caused by variations in the transmitted field strength.

Multi-channel Stacked Profiles

Distance-based profiles of the digitally recorded geophysical data are generated and plotted by computer. These profiles also contain the calculated parameters which are used in the interpretation process. These are produced as worksheets prior to interpretation, and can also be presented in the final corrected form after interpretation. The profiles display electromagnetic anomalies with their respective interpretive symbols. The differences between the worksheets and the final corrected form occur only with respect to the EM anomaly identifier.

Contour, Colour and Shadow Map Displays

The geophysical data are interpolated onto a regular grid using a modified Akima spline technique. The resulting grid is suitable for generating contour maps of excellent quality.

Colour maps are produced by interpolating the grid down to the pixel size. The parameter is then incremented with respect to specific amplitude ranges to provide colour "contour" maps. Colour maps of the total magnetic field are particularly useful in defining the lithology of the survey area.

Monochromatic shadow maps are generated by employing an artificial sun to cast shadows on a surface defined by the geophysical grid. There are many variations in the shadowing technique. These techniques may be applied to total field or enhanced magnetic data, magnetic derivatives, VLF, resistivity, etc. Of the various magnetic products, the shadow of the enhanced magnetic parameter is particularly suited for defining geological structures with crisper images and improved resolution.

SURVEY RESULTS

GENERAL DISCUSSION

The survey results are presented on 2 separate map sheets for each parameter at a scale of 1:20,000. Table 4-1 summarizes the EM responses in the survey area, with respect to conductance grade and interpretation.

The anomalies shown on the electromagnetic anomaly maps are based on a near-vertical, half plane model. This model best reflects "discrete" bedrock conductors. Wide bedrock conductors or flat-lying conductive units, whether from surficial or bedrock sources, may give rise to very broad anomalous responses on the EM profiles. These may not appear on the electromagnetic anomaly map if they have a regional character rather than a locally anomalous character. These broad conductors, which more closely approximate a half space model, will be maximum coupled to the horizontal (coplanar) coil-pair and should be more evident on the resistivity parameter. Resistivity maps, therefore, may be more valuable than the electromagnetic anomaly maps, in areas where broad or flat-lying conductors are considered to be of importance. Contoured resistivity maps, based on the 900, 7200 and 56,000 Hz coplanar data are included with this report.

TABLE 4-1

EM ANOMALY STATISTICS

BABINE LAKE PROJECT

CONDUCTOR GRADE	CONDUCTANCE RANGE SIEMENS (MHOS)	NUMBER OF RESPONSES
7	> 100.0	2
6	50 - 100.0	2
5	20 - 50.0	14
4	10 - 20.0	39
3	5 - 10.0	135
2	1 - 5.0	637
1	< 1.0	220
*	INDETERMINATE	485
TOTAL		1534

CONDUCTOR MODEL	MOST LIKELY SOURCE	NUMBER OF RESPONSES
D	DISCRETE BEDROCK CONDUCTOR	28
B	CONDUCTIVE COVER	208
S	CONDUCTIVE COVER	1050
H	ROCK UNIT OR THICK COVER	122
E	EDGE OF WIDE CONDUCTOR	33
L	CULTURE	93
TOTAL		1534

(SEE EM MAP LEGEND FOR EXPLANATIONS)

Excellent resolution and discrimination of conductors was accomplished by using a fast sampling rate of 0.1 sec and by employing a common frequency (900 Hz) on two orthogonal coil-pairs (coaxial and coplanar). The resulting "difference channel" parameters often permit differentiation of bedrock and surficial conductors, even though they may exhibit similar conductance values.

Anomalies which occur near the ends of the survey lines (i.e., outside the survey area), should be viewed with caution. Some of the weaker anomalies could be due to aerodynamic noise, i.e., bird bending, which is created by abnormal stresses to which the bird is subjected during the climb and turn of the aircraft between lines. Such aerodynamic noise is usually manifested by an anomaly on the coaxial inphase channel only, although severe stresses can affect the coplanar inphase channels as well.

Magnetics

A Scintrex MP-3 proton precession magnetometer was operated at the survey base 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 permit subsequent removal of diurnal drift.

The background magnetic levels have been adjusted to match the International Geomagnetic Reference Field (IGRF) for the survey area. The IGRF gradient across the survey block is left intact. This procedure ensures that the magnetic contours will match contours from any adjacent surveys which have been processed in a similar manner.

The total field magnetic data have been presented as contours on the base maps using a contour interval of 5 nT where gradients permit. The maps show the magnetic properties of the rock units underlying the survey area.

The total field magnetic data have been subjected to a processing algorithm to produce maps of the calculated first vertical derivative. This procedure enhances near-surface magnetic units and suppresses regional gradients. It also provides better definition and resolution of magnetic units and displays weak magnetic features which may not be clearly evident on the total field maps. Maps of the second vertical magnetic derivative can also be prepared from existing survey data, if requested.

There is some evidence on the magnetic maps which suggests that the survey area has been subjected to deformation and/or alteration. These structural complexities are evident on the contour maps as variations in magnetic intensity, irregular patterns, and as offsets or changes in strike direction. Some of the more prominent linear features are also evident on the topographic base maps.

The magnetic relief on the Babine Lake Project is quite high, ranging from a low of about 57,250 nT near 10350C to a high of more than 60,800 nT on line 10551 near fiducial 1610.

The southern half of the survey block (Sheet 1) generally exhibits lower magnetic values than are evident on Sheet 2, to the north. The individual units which comprise the magnetic trends are more clearly defined on the vertical gradient maps. The latter product also identifies several faults, in addition to the geological contacts.

On the south sheet, the inferred geological strikes vary from 330° to 020°. In the north, trends usually favour directions between 310° and 360°. It is interesting to note that the rock units underlying the Newman Peninsula are of relatively low magnetic intensity, usually less than 58000 nT. The large open pit near the western end of line 10540, however, correlates with a moderately weak, but well-defined circular magnetic anomaly about 100 nT above the background. This may be a significant factor in the search for similar copper mineralization in the area.

If a specific magnetic intensity can be assigned to the rock type which is believed to host the target mineralization, it may be possible to select areas of higher priority on the basis of the total field magnetic data. This is based on the assumption that the magnetite content of the host rocks will give rise to a limited range of contour values which will permit differentiation of various lithological units.

The magnetic results, in conjunction with the other geophysical parameters, should provide valuable information which can be used to effectively map the geology and structure in the survey area.

VLF

VLF results were obtained from the transmitting station at Lualualei, Hawaii (NPM - 23.4 kHz) and Seattle, Washington (NLK - 24.8 kHz). The VLF maps show the contoured results of the filtered total field from Seattle. Gaps in coverage are evident between lines 10060-10130, 10470-10591 and 11100-11120. The noise spikes at the extreme western end of line 11100 and the eastern end of line 10590 should be disregarded.

The VLF method is quite sensitive to the angle of coupling between the conductor and the propogated EM field. Consequently, conductors which strike towards the VLF station will usually yield a stronger response than conductors which are nearly orthogonal to it. The general north-northwest/south-southeast strike in the survey area provides good coupling with the VLF field from Seattle.

The VLF parameter does not normally provide the same degree of resolution available from the EM data. Closely-spaced conductors, conductors of short strike length or conductors which are poorly coupled to the VLF field, may escape detection with this method. Erratic signals from the VLF transmitters can also give rise to strong, isolated anomalies which should be viewed with caution. Regardless of these limitations, however, the VLF results have provided some additional information, particularly within the more resistive portions of the survey area. The VLF method could probably be used as a follow-up tool in most areas, although its effectiveness will be somewhat limited in areas of moderate to high conductivity. The filtered total field VLF contours are presented on the base maps with a contour interval of one percent.

Resistivity

Resistivity maps, which display the conductive properties of the survey area, were produced from the 900 Hz, 7200 Hz and 56,000 Hz coplanar data. In general, the resistivity patterns show moderately good agreement with the magnetic trends. This suggests that many of the resistivity lows are probably related to bedrock features, rather than conductive overburden. There are some areas, however, where resistivity contour patterns are obviously influenced by surficial conductivity and/or cultural sources.

The central core of the property is dominated by moderately high resistivities of more than 1000 ohm-m. This major resistivity high correlates very closly with the stronger magnetic units. Most of the zones which yield resistivities of more than 1000 ohm-m (on the 7200 Hz resistivity map) are associated with magnetic units yielding values of more than 58,250 nT.

There is a well-defined resistivity gradient which separates the central resistive unit from a highly conductive zone to the west. The 500 ohm-m resistivity contour approximates the limit of this conductive zone. The gradient extends in a southeasterly direction from the northwest corner of the grid (at the eastern shore of Morrison Lake), along the western contact of the magnetic high to line 11170.

From this point, it swings south-southeast to line 10891 where it is offset to the west before continuing in a southeasterly direction to line 10370. At this point, it meets a second resistivity gradient which strikes almost north/south. A third resistivity gradient extends in a south-southwesterly direction from the eastern end of line 10580, forming a 'V'shaped conductive zone at the south-central portion of the grid.

One would normally expect to see a fairly consistent relationship between water-covered or low-lying areas and lower resistivities. This does not always appear to be the case on this property. In some areas the land portions are more conductive than the lake areas.

Note, for example, the small island at the intersection of line 10100 and the central tie-line 19020. Resistivities on the island are considerably less than those in the surrounding lake.

In addition to the broad resistivity lows on the property there are several moderately strong, well-defined conductive zones of limited extent. The former have been attributed to conductive rock units while the latter are more likely due to discrete conductors.

Electromagnetics

The EM anomalies resulting from this survey appear to fall within one of four general categories. The first type consists of discrete, well-defined anomalies which yield marked inflections on the difference channels. These anomalies are usually attributed to conductive sulphides or graphite and are generally given a "B", "T" or "D" interpretive symbol, denoting a bedrock source.

The second class of anomalies comprises moderately broad responses which exhibit the characteristics of a half space and do not yield well-defined inflections on the difference channels. Anomalies in this category are usually given an "S" or "H" interpretive symbol. The lack of a difference channel response usually implies a broad or flat-lying conductive source such as overburden. Some of these anomalies may reflect conductive rock units or zones of deep weathering.

The third class consists of moderately broad quadrature anomalies which are associated with negative inphase responses. The negative inphase is due to magnetite. The positive quadrature can be due to conductive material which overlies, or is contained within, the magnetite-rich rock unit. Most of these anomalies have been given an "S?" or "B?" interpretive symbol.

The fourth anomaly type comprises those which have been attributed to culture. These are prevalent in the southwestern portion of the Newman Peninsula, where most of the mining activity is concentrated.

In areas where EM responses are evident primarily on the quadrature components, zones of poor conductivity are indicated. Where these responses are coincident with magnetic anomalies, it is possible that the inphase component amplitudes have been suppressed by the effects of magnetite. Most of these poorly-conductive magnetic features give rise to resistivity anomalies which are only slightly below background. If it is expected that poorly-conductive economic mineralization may be associated with magnetite-rich units, most of these weakly anomalous features will be of interest. In areas where magnetite causes the inphase components to become negative, the apparent conductance and depth of EM anomalies may be unreliable.

The effects of conductive overburden are evident over portions of the survey area. Although the difference channels (DFI and DFQ) are extremely valuable in detecting bedrock conductors which are partially masked by conductive overburden, sharp undulations in the bedrock/overburden interface can yield anomalies in the difference channels which may be interpreted as possible bedrock conductors. Such anomalies usually fall into the "S?" or "B?" classification but may also be given an "E" interpretive symbol, denoting a resistivity contrast at the edge of a conductive unit.

As economic mineralization within the area may consist of massive to weakly disseminated sulphides, which may or may not be hosted by magnetite-rich rocks, it is difficult to assess the relative merits of EM anomalies on the basis of conductance. It is recommended that an attempt be made to compile a suite of geophysical "signatures" over areas of interest. Anomaly characteristics are clearly defined on the computer-processed geophysical data profiles which are supplied as one of the survey products.

A complete assessment and evaluation of the survey data should be carried out by one or more qualified professionals who have access to, and can provide a meaningful compilation of, all available geophysical, geological and geochemical data.

CONDUCTORS IN THE SURVEY AREA

The electromagnetic anomaly maps show the anomaly locations with the interpreted conductor type, dip, conductance and depth being indicated by symbols. Direct magnetic correlation is also shown if it exists. The strike direction and length of the conductors are indicated when anomalies can be correlated from line to line. When studying the map sheets, consult the anomaly listings appended to this report.

Sheet 1

Conductors 10070D-10090E, 10090G-10110E,
10140J-10150O

Three weak conductors of possible bedrock origin are associated with islands in the southern portion of the survey grid. Conductor 10070D-10090E is very close to a road on Sterrett Island. However, its significance is enhanced by its association with the contact of a small, but moderately strong, magnetic anomaly. There is no VLF coverage in this area.

Conductor 10090G-10110E extends from Sterrett Island into the lake. Unlike the previous conductor, this one gives rise to a strong resistivity low. It also appears to be related to the contact of a weak magnetic anomaly and is also situated in the area where no VLF coverage was obtained. This conductor is about 1 km south-southeast of the McDonald mine.

Conductor 10140J-10150O consists of two poorly defined responses located in Hawthorn Bay. They are non-magnetic, but the conductor is associated with a moderately strong magnetic unit, in the vicinity of a possible fold. The conductor is contained within a broad resistivity low near the intersection of NNW and NNE trending linears seen on the resistivity maps.

Conductors 10160C-10180B, 10220B-10230C,
10240E-10260G, 10280F-10300F,
10300E-10310C, 10460F-10500O,

10550D-10560E, 10560D-10570E,
10560C-10581D, 10600B-10620B,
10600C-10620C.

The conductors in this group are all located on the Newman Peninsula. Because of the numerous cultural features in this active mining area, nearly all of the anomalies have been given a 'B?' interpretive symbol. Some, or all of these, could be influenced by culture. Some can probably be eliminated by carrying out visual checks on the ground. Others will require careful follow-up with an appropriate system.

The significance of these conductors is obviously enhanced by their location. All are associated with resistivity lows yielding values of less than 100 ohm-m. Most yield partial weak magnetic correlation along strike although the entire peninsula is underlain by relatively non-magnetic rocks. All conductors show direct or flanking association with VLF anomalies.

In addition to the conductors listed above there are several other possible bedrock conductors which are evident on one line only. Most of these are also considered to be of interest as exploration targets. In many cases, the 'B?' anomalies occur within trends of 'S?'anomalies, suggesting the presence of bedrock conductors beneath conductive surficial material such as mine waste.

All of the anomalous responses on the Newman Peninsula are considered to be potential targets unless they can definitely be confirmed as being due to culture or overburden.

Conductors 10210K-10230I, 10220I-10230K,
10230J-10260M

These three poorly-defined conductors are located in the northern part of Hawthorn Bay and are probably due mainly to conductive lake sediments. However, they are associated with the northern limb of a complex magnetic anomaly in an area of possible folding.

Amplitudes are moderately strong, with conductor 10210K-10230I yielding conductance grades of 4. Conductor 10230J-10260M also shows weak magnetic correlation at its south end.

Conductors 19020C-10360F, 10380G-10390G,
10470G-10571H.

The first two conductors in this group are located near the western shore of Hagen Arm. They are contained within a strong, but fairly broad resistivity low which also correlates with a magnetic low. The southern conductor, 19020C-10360F does not correspond to a VLF anomaly, but this may be because of the apparent change in strike. This conductor exhibits a probable strike to the west-northwest, which coincides with a magnetic gradient in the same area. This conductor may be related to a faulted contact.

Conductors 10340G-10350G, 10340H-10350H,
10340I-10380J, 10380I-10400K

The first two conductors in this group are of very limited strike length. The strike directions are dubious and may be towards the northwest, rather than north/south as shown on the EM map. Anomaly 10360I is possibly related to the strongest anomaly, 10350G. This conductor may be deep, but is likely due to a narrow source. Note the strong VLF correlation.

Conductors 10340I-10380J and 10380I-10400K may reflect a single conductor. This very weak zone is of particular interest because of its apparent strike towards the west-northwest. There is no coincident VLF response but the conductors follow a weak resisitivity low which correlates with a break in the magnetic contour patterns.

Conductors 10380K-10421E, 10380L-10421F

These two conductors are parallel, striking north/south along the eastern face of a hill. They are separated by about 250 m, each exhibiting a probable strike length of approximately 750 m. Both reflect narrow, east-dipping bedrock sources of moderately strong conductance. Only one reponse yields a weak magnetic correlation of 7 nT. Both zones are non-magnetic, but are situated on the flanks of a very weak magnetic response. These conductors give rise to a well-defined resistivity low and associated VLF responses.

This is considered to be a high priority target. The sharp resistivity and magnetic contrasts immediately west of 10380K - 10421E, suggest that these two conductors are likely in close proximity to a major contact. Additional work is recommended to check the source of these two conductors.

Conductors 10360N-10380P, 10380O-10421L, 10390P-10410Q, 10421K, 10440M, 10440N, 10440O.

The first three conductors in this group reflect narrow bedrock sources which strike approximately north/south and dip to the west. This dip is opposite to that indicated by the two conductors to the west, suggesting the presence of a synclinal fold in the area.

The axis of conductor 10380O-10421L shows partial correlation with a resistivity low, but appears to transect the local magnetic trends at a shallow angle. The VLF correlation is poor. The conductor axis follows a swampy area north of a small lake, and may therefore be partially masked by conductive overburden. Further work is recommended to check the source of these conductors as well as the isolated responses on line 10440. At least two of these conductors may extend to the north, beyond the survey limits.

Conductors 10480M-10550J, 10490K-10583H,
10560J-10570N

Conductor 10480M-10550J contains the strongest anomalies on the grid. Conductance grades of 7 are observed on line 10540 and 10591. The strong anomalies reflect a narrow, east-dipping, magnetic conductor which strikes about 10° east of north. The presence of two closely-spaced conductors on line 10583 indicates a second conductor or a folded portion of a single conductor.

The magnetic correlation suggests that pyrrhotite may be a contributing factor on at least two lines. The conductor follows a moderately strong magnetic anomaly which may be offset by a dextral fault trending east/west through anomaly 10490J. The strong resistivity low makes this one of the more attractive targets on the grid. Unfortunately, this conductor is also located on lines over which no VLF information was acquired.

Conductor 10490K-10583H to the east, and the very weak 10560J-10570N, to the north, are both located in relatively non-magnetic rock units. These may reflect structural breaks beneath swampy cover, and should also be subjected to further investigation.

Conductors 10790E-10820B, 10870C-10880D

These two weak conductors are located in the northwestern portion of sheet 1. Conductor 10790E-10820B is situated in the saddle of double-lobed magnetic anomaly. It is associated with a strong resistivity low but there is no VLF correlation.

The magnetic amplitudes are similar to those observed over the open pit operation of the Newman Peninsula to the south. Therefore, this conductor could be due to similar mineralization, and should be investigated.

The more northerly conductor, 10870C-10880D, is non-magnetic and poorly-defined, but is is also associated with a relatively strong resistivity low. This conductor is considered to be of relatively low priority.

BACKGROUND INFORMATION

This section provides background information on parameters which are available from the survey data. Those which have not been supplied as survey products may be generated later from raw data on the digital archive tape.

ELECTROMAGNETICS

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

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

The conductive earth (half space) model is suitable for broad conductors. Resistivity contour maps result from the use of this model. A later section entitled **Resistivity Mapping** describes the method further, including the effect of using it on anomalies caused by discrete conductors such as sulfide bodies.

Geometric interpretation

The geophysical interpreter attempts to determine the geometric shape and dip of the conductor. Figure 5-1 shows typical DIGHEM anomaly shapes which are used to guide the geometric interpretation.

Discrete conductor analysis

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

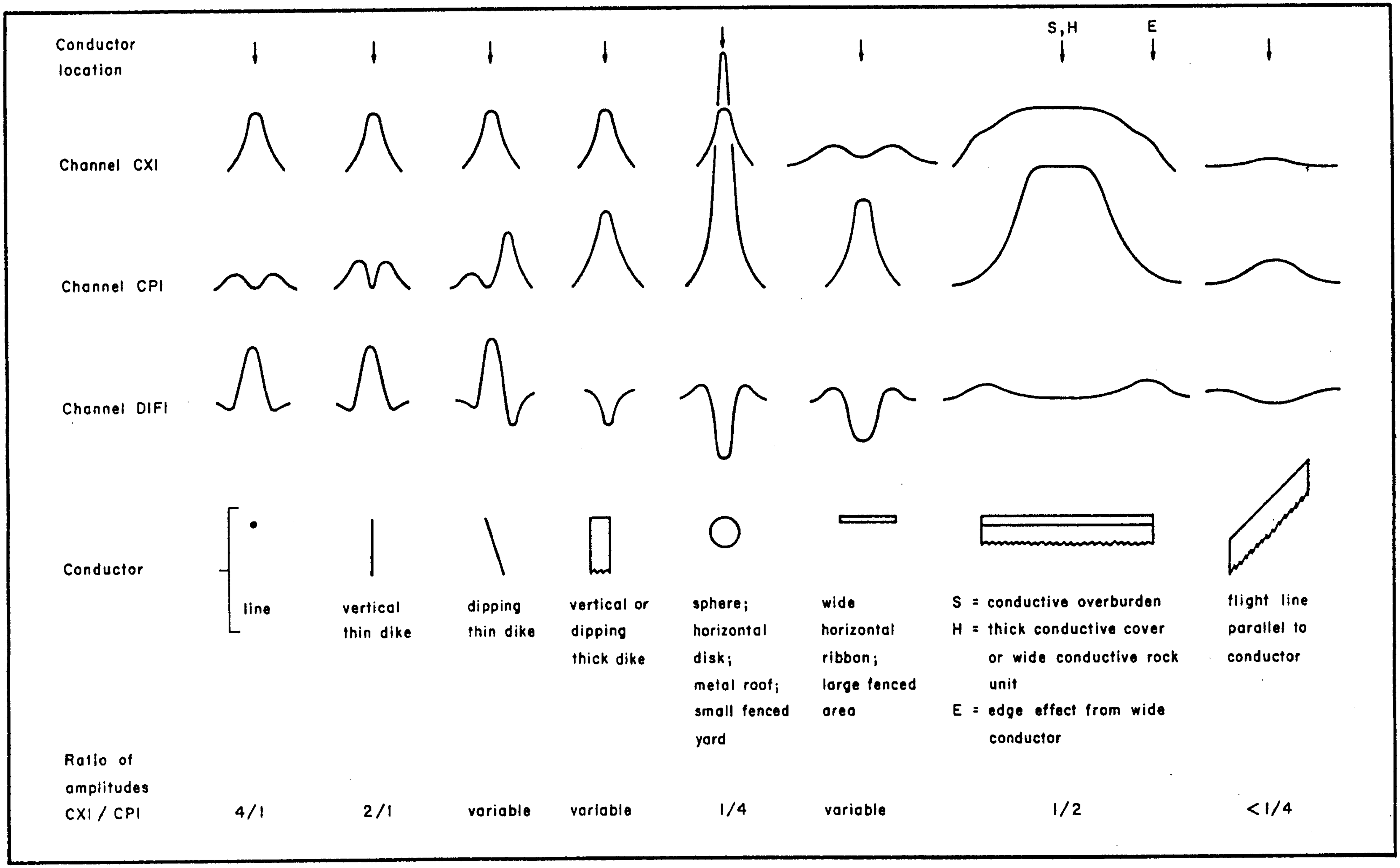

Fig. 5-1 Typical DIGHEM anomaly shapes

are divided into seven grades of conductance, as shown in Table 5-1 below. The conductance in siemens (mhos) is the reciprocal of resistance in ohms.

Table 5-1. EM Anomaly Grades

Anomaly Grade	siemens
7	> 100
6	50 - 100
5	20 - 50
4	10 - 20
3	5 - 10
2	1 - 5
1	< 1

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

Conductive overburden generally produces broad EM responses which may not be shown as anomalies on the EM maps. However, patchy conductive overburden in otherwise resistive areas can yield discrete anomalies with a conductance grade (cf. Table 5-1) of 1, 2 or even 3 for conducting clays which have resistivities as low as 50 ohm-m. In areas where ground resistivities are below 10 ohm-m, anomalies caused by weathering variations and similar causes can have any conductance grade. The anomaly shapes from the multiple coils often allow such conductors to be recognized, and these are indicated by the letters S, H, and sometimes E on the electromagnetic anomaly map (see EM map legend).

For bedrock conductors, the higher anomaly grades indicate increasingly higher conductances. Examples: DIGHEM's New Insco copper discovery (Noranda, Canada) yielded a grade 5 anomaly, as did the neighbouring copper-zinc Magusi River ore body; Mattabi (copper-zinc, Sturgeon Lake, Canada) and Whistle (nickel, Sudbury, Canada) gave grade 6; and DIGHEM's Montcalm nickel-copper discovery (Timmins, Canada) yielded a grade 7 anomaly. Graphite and sulfides can span all grades but, in any particular survey area, field work may show that the different grades indicate different types of conductors.

Strong conductors (i.e., grades 6 and 7) are characteristic of massive sulfides or graphite. Moderate conductors (grades 4 and 5) typically reflect graphite or sulfides of a less massive character, while weak bedrock conductors (grades 1 to 3) can signify poorly connected graphite or heavily disseminated sulfides. Grades 1 and 2 conductors may not respond to ground EM equipment using frequencies less than 2000 Hz.

The presence of sphalerite or gangue can result in ore deposits having weak to moderate conductances. As an example, the three million ton lead-zinc deposit of Restigouche Mining Corporation near Bathurst, Canada, yielded a well-defined grade 2 conductor. The 10 percent by volume of sphalerite occurs as a coating around the fine grained massive pyrite, thereby inhibiting electrical conduction.

Faults, fractures and shear zones may produce anomalies which typically have low conductances (e.g., grades 1 to 3). Conductive rock formations can yield anomalies of any conductance grade. The conductive materials in such rock formations can be salt water, weathered products such as clays, original depositional clays, and carbonaceous material.

On the interpreted electromagnetic map, a letter identifier and an interpretive symbol are plotted beside the EM grade symbol. The horizontal rows of dots, under the interpretive symbol, indicate the anomaly amplitude on the flight record. The vertical column of dots, under the anomaly letter, gives the estimated depth. In areas where anomalies are crowded, the letter identifiers, interpretive symbols and dots may be obliterated. The EM grade symbols, however, will always be discernible, and the obliterated information can be obtained from the anomaly listing appended to this report.

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

Flight line deviations occasionally yield cases where two anomalies, having similar conductance values but dramatically different depth estimates, occur close together on the same conductor. Such examples illustrate the reliability of the conductance measurement while showing that the depth estimate can be unreliable. There are a number of factors which can produce an error in the depth estimate, including the averaging of topographic variations by the altimeter, overlying conductive overburden, and the location and attitude of the conductor relative to the flight line. Conductor location and attitude can provide an erroneous depth estimate because the stronger part of the conductor may be deeper or to one side of the flight line, or because it has a shallow dip. A heavy tree cover can also produce errors in depth estimates. This is because the depth estimate is computed as the distance of bird from conductor, minus the altimeter reading. The altimeter can lock onto the top of a dense forest canopy. This situation yields an erroneously large depth estimate but does not affect the conductance estimate.

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

A further interpretation is presented on the EM map by means of the line-to-line correlation of anomalies, which is based on a comparison of anomaly shapes on adjacent lines. This provides conductor axes which may define the geological structure over portions of the survey area. The absence of conductor axes in an area implies that anomalies could not be correlated from line to line with reasonable confidence.

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

The attached EM anomaly list provides a tabulation of anomalies in ppm, conductance, and depth for the vertical sheet model. The EM anomaly list also shows the conductance and depth for a thin horizontal sheet (whole plane) model, but only the vertical sheet parameters appear on the EM map. The horizontal sheet model is suitable for a flatly dipping thin bedrock conductor such as a sulfide sheet having a thickness less than 10 m. The list also shows the resistivity and depth for a conductive earth (half space) model, which is suitable for thicker slabs such as thick conductive overburden. In the EM anomaly list, a depth value of zero for the conductive earth model, in an area of thick cover, warns that the anomaly may be caused by conductive overburden.

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

Questionable Anomalies

DIGHEM maps may contain EM responses which are displayed as asterisks (*). These responses denote weak anomalies of indeterminate conductance, which may reflect one of the following: a weak conductor near the surface, a strong conductor at depth (e.g., 100 to 120 m below surface) or to one side of the flight line, or aerodynamic noise. Those responses that have the appearance of valid bedrock anomalies on the flight profiles are indicated by appropriate interpretive symbols (see EM map legend). The others probably do not warrant further investigation unless their locations are of considerable geological interest.

The thickness parameter

DIGHEM can provide an indication of the thickness of a steeply dipping conductor. The amplitude of the coplanar anomaly (e.g., CPI channel on the digital profile) increases relative to the coaxial anomaly (e.g., CXI) as the apparent thickness increases, i.e., the thickness in the horizontal plane. (The thickness is equal to the conductor width if the conductor dips at 90 degrees and strikes at right angles to the flight line.) This report refers to a conductor as thin when the thickness is likely to be less than 3 m, and thick when in excess of 10 m. Thick conductors are indicated on the EM map by parentheses "( )". For base metal exploration in steeply dipping geology, thick conductors can be high priority targets because many massive sulfide ore bodies are thick, whereas non-economic bedrock conductors are often thin. The system cannot sense the thickness when the strike of the conductor is subparallel to the flight line, when the conductor has a shallow dip, when the anomaly amplitudes are small, or when the resistivity of the environment is below 100 ohm-m.

Resistivity mapping

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

The resistivity profiles and the resistivity contour maps present the apparent resistivity using the so-called pseudo-layer (or buried) half space model defined by Fraser (1978)[1]. This model consists of a resistive layer overlying

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1 Resistivity mapping with an airborne multicoil electromagnetic system: Geophysics, v. 43, p.144-172

a conductive half space. The depth channels give the apparent depth below surface of the conductive material. The apparent depth is simply the apparent thickness of the overlying resistive layer. The apparent depth (or thickness) parameter will be positive when the upper layer is more resistive than the underlying material, in which case the apparent depth may be quite close to the true depth.

The apparent depth will be negative when the upper layer is more conductive than the underlying material, and will be zero when a homogeneous half space exists. The apparent depth parameter must be interpreted cautiously because it will contain any errors which may exist in the measured altitude of the EM bird (e.g., as caused by a dense tree cover). The inputs to the resistivity algorithm are the inphase and quadrature components of the coplanar coil-pair. The outputs are the apparent resistivity of the conductive half space (the source) and the sensor-source distance. The flying height is not an input variable, and the output resistivity and sensor-source distance are independent of the flying height. The apparent depth, discussed above, is simply the sensor-source distance minus the measured altitude or flying height. Consequently, errors in the measured altitude will affect the apparent depth parameter but not the apparent resistivity parameter.

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

The resistivity map often yields more useful information on conductivity distributions than the EM map. In comparing the EM and resistivity maps, keep in mind the following:

(a) The resistivity map portrays the absolute value of the earth's resistivity, where resistivity = 1/conductivity.

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

The resistivity map might be likened to a total field map and the EM map to a horizontal gradient in the direction of flight[2]. Because gradient maps are usually more sensitive than total field maps, the EM map therefore is to be preferred in resistive areas. However, in conductive areas, the absolute character of the resistivity map usually causes it to be more useful than the EM map.

Interpretation in conductive environments

Environments having background resistivities below 30 ohm-m cause all airborne EM systems to yield very large responses from the conductive ground. This usually prohibits the recognition of discrete bedrock conductors. However, DIGHEM data processing techniques produce three parameters which contribute significantly to the recognition of bedrock conductors. These are the inphase and quadrature difference channels (DIFI and DIFQ), and the resistivity and depth channels (RES and DP) for each coplanar frequency.

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2 The gradient analogy is only valid with regard to the identification of anomalous locations.

The EM difference channels (DIFI and DIFQ) eliminate most of the responses from conductive ground, leaving responses from bedrock conductors, cultural features (e.g., telephone lines, fences, etc.) and edge effects. Edge effects often occur near the perimeter of broad conductive zones. This can be a source of geologic noise. While edge effects yield anomalies on the EM difference channels, they do not produce resistivity anomalies. Consequently, the resistivity channel aids in eliminating anomalies due to edge effects. On the other hand, resistivity anomalies will coincide with the most highly conductive sections of conductive ground, and this is another source of geologic noise. The recognition of a bedrock conductor in a conductive environment therefore is based on the anomalous responses of the two difference channels (DIFI and DIFQ) and the resistivity channels (RES). The most favourable situation is where anomalies coincide on all channels.

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

The conductance channel CDT identifies discrete conductors which have been selected by computer for appraisal by the geophysicist. Some of these automatically selected anomalies on channel CDT are discarded by the geophysicist. The automatic selection algorithm is intentionally oversensitive to assure that no meaningful responses are missed. The interpreter then classifies the anomalies according to their source and eliminates those that are not substantiated by the data, such as those arising from geologic or aerodynamic noise.

Reduction of geologic noise

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

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

EM magnetite mapping

The information content of DIGHEM data consists of a combination of conductive eddy current responses and magnetic permeability responses. The secondary field resulting from conductive eddy current flow is frequency-dependent and consists of both inphase and quadrature components, which are positive in sign. On the other hand, the secondary field resulting from magnetic permeability is independent of frequency and consists of only an inphase component which is negative in sign. When magnetic permeability manifests itself by decreasing the measured amount of positive inphase, its presence may be difficult to recognize. However, when it manifests itself by yielding a negative inphase anomaly (e.g., in the absence of eddy current flow), its presence is assured. In this latter case, the negative component can be used to estimate the percent magnetite content.

A magnetite mapping technique was developed for the coplanar coil-pair of DIGHEM. The technique yields a channel (designated FEO) which displays apparent weight percent magnetite according to a homogeneous half space model.[3] The method can be complementary to magnetometer mapping in certain cases. Compared to magnetometry, it is far less sensitive but is more able to resolve closely spaced magnetite zones, as well as providing an estimate of the amount of magnetite in the rock. The method is sensitive to 1/4% magnetite by weight when the EM sensor is at a height of 30 m above a magnetitic half space. It can individually resolve steep dipping narrow magnetite-rich bands which are

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[3] Refer to Fraser, 1981, Magnetite mapping with a multi-coil airborne electromagnetic system: Geophysics, v. 46, p. 1579-1594.

separated by 60 m. Unlike magnetometry, the EM magnetite method is unaffected by remanent magnetism or magnetic latitude.

The EM magnetite mapping technique provides estimates of magnetite content which are usually correct within a factor of 2 when the magnetite is fairly uniformly distributed. EM magnetite maps can be generated when magnetic permeability is evident as negative inphase responses on the data profiles.

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

Recognition of culture

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

1. Channel CPS monitors 60 Hz radiation. An anomaly on this channel shows that the conductor is radiating power. Such an indication is normally a guarantee that the conductor is cultural. However, care must be taken to ensure that the conductor is not a geologic body which strikes across a power line, carrying leakage currents.

2. A flight which crosses a "line" (e.g., fence, telephone line, etc.) yields a center-peaked coaxial anomaly and an *m-shaped coplanar anomaly.*[4] When the flight crosses the cultural line at a high angle of intersection, the amplitude ratio of coaxial/coplanar response is 4. Such an EM anomaly can only be caused by a line. The geologic body which yields anomalies most closely resembling a line is the vertically dipping thin dike. Such a body, however, yields an amplitude ratio of 2 rather than 4. Consequently, an m-shaped coplanar anomaly with a CXI/CPI amplitude ratio of 4 is virtually a guarantee that the source is a cultural line.

3. A flight which crosses a sphere or horizontal disk yields center-peaked coaxial and coplanar anomalies with a CXI/CPI amplitude ratio (i.e., coaxial/coplanar) of

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[4] See Figure 5-1 presented earlier.

1/4. In the absence of geologic bodies of this geometry, the most likely conductor is a metal roof or small fenced yard.[5] Anomalies of this type are virtually certain to be cultural if they occur in an area of culture.

4. A flight which crosses a horizontal rectangular body or wide ribbon yields an m-shaped coaxial anomaly and a center-peaked coplanar anomaly. In the absence of geologic bodies of this geometry, the most likely conductor is a large fenced area.[5] Anomalies of this type are virtually certain to be cultural if they occur in an area of culture.

5. EM anomalies which coincide with culture, as seen on the camera film or video display, are usually caused by culture. However, care is taken with such coincidences because a geologic conductor could occur beneath a fence, for example. In this example, the fence would be expected to yield an m-shaped coplanar anomaly as in case #2 above. If, instead, a center-peaked coplanar anomaly occurred, there would be concern that a thick

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

geologic conductor coincided with the cultural line.

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

MAGNETICS

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

The magnetometer data are digitally recorded in the aircraft to an accuracy of one nT (i.e., one gamma) for proton magnetometers, and 0.01 nT for cesium magnetometers. The digital tape is processed by computer to yield a total field magnetic contour map. When warranted, the magnetic data may also be treated mathematically to enhance the magnetic response of the near-surface geology, and an enhanced magnetic contour map is then produced. The response of the enhancement operator in the frequency domain is illustrated in Figure 5-2. This figure shows that the passband components of the airborne data are amplified 20 times by the enhancement operator. This means, for example, that a 100 nT anomaly on the enhanced map reflects a 5 nT anomaly for the passband components of the airborne data.

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

Because the enhanced magnetic map bears a resemblance to a ground magnetic map, it simplifies the recognition of trends in the rock strata and the interpretation of geological structure. It defines the near-surface local

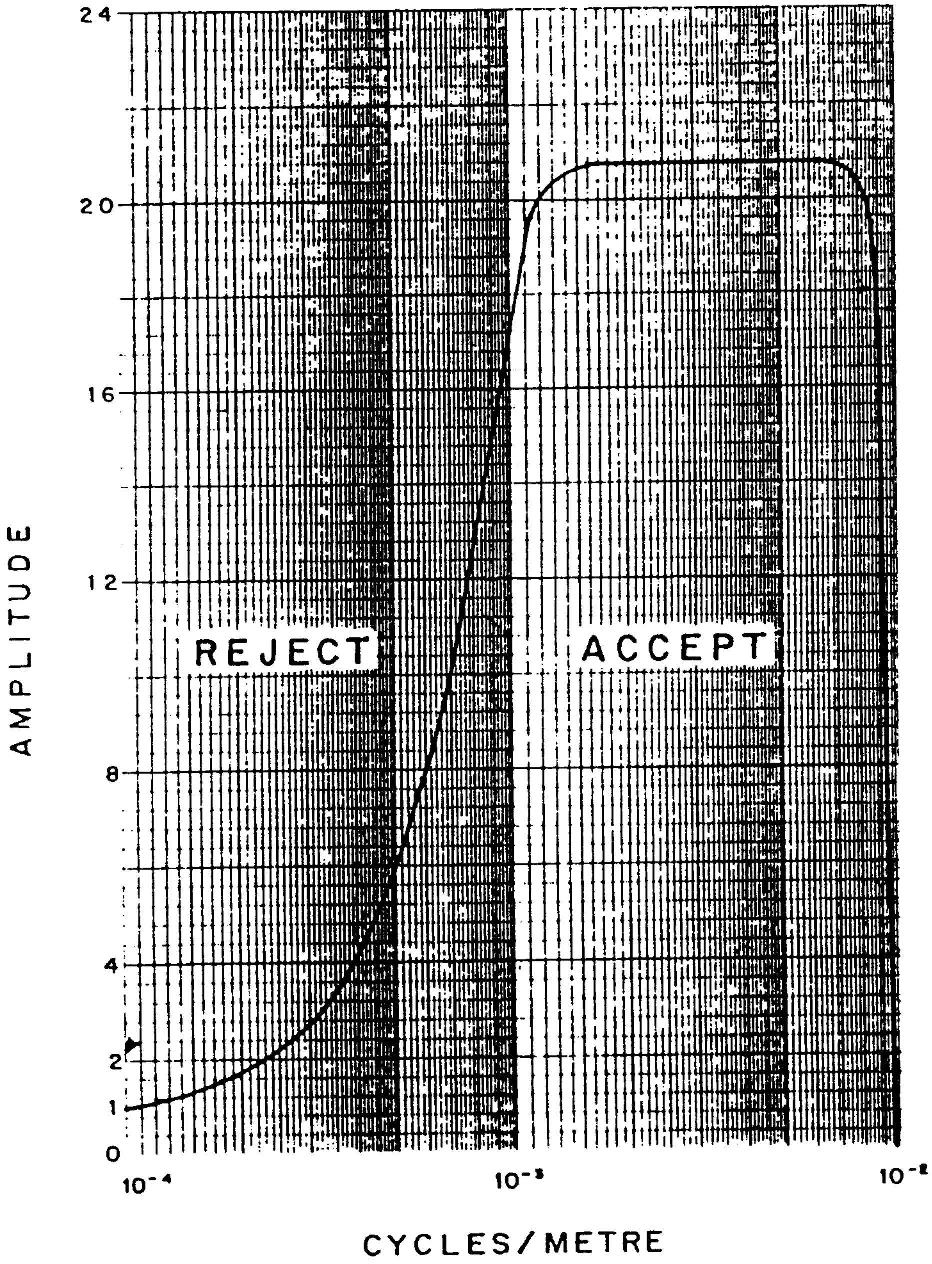

Fig. 5-2 Frequency response of magnetic enhancement operator.

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

Any of a number of filter operators may be applied to the magnetic data, to yield vertical derivatives, continuations, magnetic susceptibility, etc. These may be displayed in contour, colour or shadow.

VLF

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

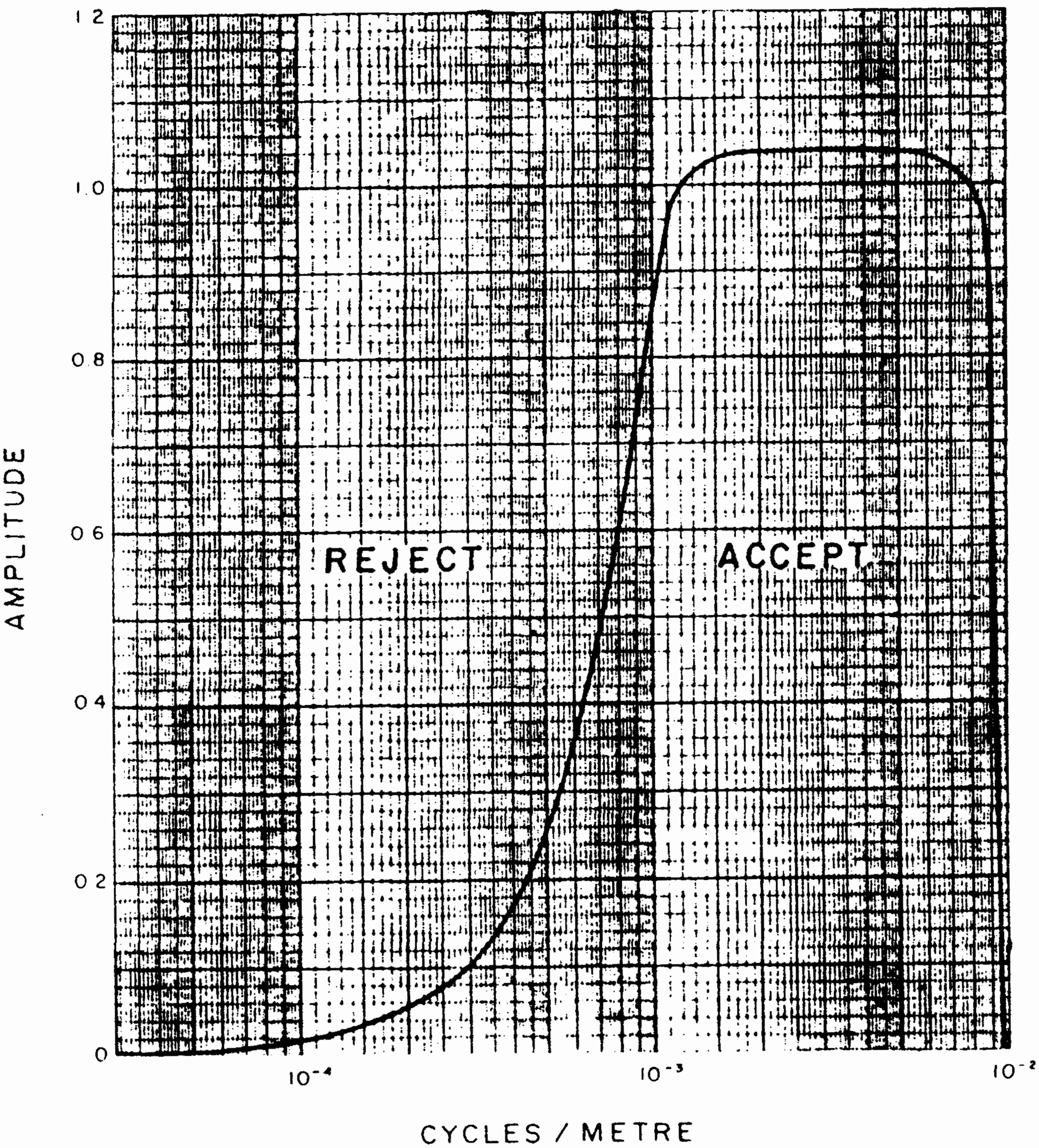

Fig. 5-3 Frequency response of VLF operator.

The VLF field is horizontal. Because of this, the method is quite sensitive to the angle of coupling between the conductor and the transmitted VLF field. Conductors which strike towards the VLF station will usually yield a stronger response than conductors which are nearly orthogonal to it.

The Herz Industries Ltd. Totem VLF-electromagnetometer measures the total field and vertical quadrature components. Both of these components are digitally recorded in the aircraft with a sensitivity of 0.1 percent. The total field yields peaks over VLF current concentrations whereas the quadrature component tends to yield crossovers. Both appear as traces on the profile records. The total field data are filtered digitally and displayed as contours to facilitate the recognition of trends in the rock strata and the interpretation of geologic structure.

The response of the VLF total field filter operator in the frequency domain (Figure 5-3) is basically similar to that used to produce the enhanced magnetic map (Figure 5-2). The two filters are identical along the abscissa but different along the ordinant. The VLF filter removes long wavelengths such as those which reflect regional and wave transmission variations. The filter sharpens short wavelength responses such as those which reflect local geological variations.

CONCLUSIONS AND RECOMMENDATIONS

This report provides a very brief description of the survey results and describes the equipment, procedures and logistics of the survey over the Babine Lake project.

Mining activity over much of the Newman Peninsula may have obscured some valid bedrock conductors in the southwestern quadrant of the survey block. However, several conductors, which are typical of massive sulphide responses, were identified in the survey area. The survey was also successful in locating many moderately weak or poorly defined conductors of limited strike extent which may warrant additional work. The various maps included with this report display the magnetic and conductive properties of the survey area. It is recommended that the survey results be reviewed in detail, in conjunction with all available geophysical, geological and geochemical information. Particular reference should be made to the computer generated data profiles which clearly define the characteristics of the individual anomalies.

Most anomalies in the Newman Peninsula have been given a 'B?' designation, and will require detailed follow-up. On the rest of the grid, anomalous responses are variable. Many have been attributed to conductive overburden or deep weathering, and several appear to be associated with magnetite-rich rock units. Others coincide with VLF anomalies, resistivity gradients, and/or magnetic gradients, which may reflect faults or shears. Such structural breaks are considered to be of particular interest as they may have influenced mineral deposition within the survey area. The fact that the current copper zones are located in a relatively non-magnetic rock unit, suggests that other low-intensity zones may be favourable areas for follow-up.

The interpreted bedrock conductors defined by the survey should be subjected to further investigation, using appropriate surface exploration techniques. Resistivity anomalies are also considered to be potential areas of interest. Anomalies which are currently considered to be of moderately low priority may require upgrading if follow-up results are favourable.

It is also recommended that image processing of existing geophysical data be considered, in order to extract the maximum amount of information from the survey results. Current software and imaging techniques often provide valuable information on structure and lithology, which may not be clearly evident on the contour and colour maps. These techniques can yield images which define subtle, but significant, structural details.

Respectfully submitted,
DIGHEM SURVEYS & PROCESSING INC.

Paul A. Smith
Geophysicist

PAS/sdp
A1090ANOV.91R

APPENDIX A

LIST OF PERSONNEL

The following personnel were involved in the acquisition, processing, interpretation and presentation of data, relating to a DIGHEM^{IV} airborne geophysical survey carried out for Noranda Exploration Company, Limited, over the Babine Lake property, B.C.

Steve Kilty	Vice President, Operations
Dave Pritchard	Survey Operations Supervisor
Phil Miles	Senior Geophysical Operator
Dave Miles	Second Geophysical Operator
D.B. Wilton	Pilot (Questral Helicopters Ltd.)
Gordon Smith	Data Processing Supervisor
Paul A. Smith	Interpretation Geophysicist
Reinhard Zimmerman	Drafting Supervisor
Lyn Vanderstarren	Draftsperson (CAD)
Susan Pothiah	Word Processing Operator
Albina Tonello	Secretary/Expeditor

The survey consisted of 1797 km of coverage, flown from July 11 to July 22, 1990.

All personnel are employees of Dighem Surveys & Processing Inc., except for the pilot who is an employee of Questral Helicopters Ltd.

DIGHEM SURVEYS & PROCESSING INC.

Paul A. Smith
Geophysicist

PAS/sdp

Ref: Report #1090A

A1090NOV.91R

APPENDIX B

STATEMENT OF COST

Date: November 28, 1990

IN ACCOUNT WITH
DIGHEM SURVEYS & PROCESSING INC.

To: Dighem flying of Agreement dated May 22, 1990, pertaining to an Airborne Geophysical Survey of the Babine Lake Project, B.C.

Survey Charges

1768 km of flying @ $75.00/km	$132,600.00

Allocation of Costs

- Data Acquisition	(60%)
- Data Processing	(20%)
- Interpretation, Report and Maps	(20%)

DIGHEM SURVEYS & PROCESSING INC.

Paul A. Smith
Geophysicist

PAS/sdp

A1090ANOV.91R

A P P E N D I X   C

EM ANOMALY LIST

1090-A

ANOMALY/ FID/INTERP	COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT	
LINE 10880	(FLIGHT		18)											
B 2345 S?	1	2	1	2	2	4	–	–	–	–	–	–	0	Sheet 2
LINE 10880	(FLIGHT		18)											
A 2341 B?	1	2	1	2	2	4	–	–	–	–	–	–	0	Sheet 2
LINE 10891	(FLIGHT		18)											
A 2901 H	5	18	9	34	36	98	2.3	0	1	29	63	2	0	sheet 2
B 2884 H	5	3	8	7	15	9	12.1	22	2	56	43	26	0	
C 2858 S	1	10	2	7	45	90	1.0	0	1	5	588	0	0	Sheet 1
	(FLIGHT		14)											
	0	2	0	2	1	4	–	–	–	–	–	–	0	Sheet
LINE 10901	(FLIGHT		18)											
A 3007 H	5	28	13	50	91	152	2.2	0	1	32	74	5	60	Sheet
B 3010 H	5	27	13	40	92	161	2.3	0	1	31	56	6	0	
C 3022 H	1	2	1	2	2	4	–	–	–	–	–	–	0	
D 3043 S	0	2	1	2	2	4	–	–	–	–	–	–	0	
E 3053 S	0	2	1	2	2	4	–	–	–	–	–	–	0	
							–	–	–	–	–	–		Sheet
							–	–	–	–	–	–		
LINE 10910	(FLIGHT		14)											
A 1827 S	0	1	0	2	2	4	–	–	–	–	–	–	230	Sheet 2
LINE 10911	(FLIGHT		18)											
A 3326 S?	6	20	7	31	75	125	2.4	0	1	27	87	0	0	sheet
B 3310 H	7	10	12	18	13	24	6.2	13	2	52	38	25	0	
C 3275 S?	1	8	1	10	14	59	0.6	0	1	25	391	0	0	
LINE 10920	(FLIGHT		14)											
A 2100 S	0	4	0	8	16	36	0.5	0	1	43	828	0	0	Sheet
LINE 10921	(FLIGHT		18)											
A 3422 S	1	2	1	2	2	4	–	–	–	–	–	–	0	Sheet

* 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.

1090-A

	COAXIAL 900 HZ		COPLANAR 900 HZ		COPLANAR 7200 HZ		VERTICAL DIKE		HORIZONTAL SHEET		CONDUCTIVE EARTH		MAG CORR	
ANOMALY/ FID/INTERP	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	COND SIEMEN	DEPTH* M	COND SIEMEN	DEPTH M	RESIS OHM-M	DEPTH M	NT	
LINE 10921	(FLIGHT		18)											
B 3461 S	1	2	1	2	2	4	-	-	-	-	-	-	0	Sheet ?
C 3484 S	3	5	7	9	25	2	4.8	3	1	63	102	23	0	
LINE 10930	(FLIGHT		14)											
A 2261 S?	0	2	0	2	2	4	-	-	-	-	-	-	0	Sheet 2
B 2312 S	1	2	0	2	2	4	-	-	-	-	-	-	0	
							-	-	-	-	-	-		Sheet
LINE 10931	(FLIGHT		18)											
A 3729 H	5	4	7	6	11	12	8.8	22	1	56	62	23	0	Sheet ?
B 3713 H	4	5	3	6	20	40	4.4	30	1	52	83	19	0	
C 3700 B	10	30	9	53	126	201	2.5	0	1	18	91	0	0	
D 3679 S?	6	14	10	25	62	87	3.5	0	1	24	93	0	0	
LINE 10940	(FLIGHT		14)											Sheet
A 2678 S?	0	2	0	2	2	4	-	-	-	-	-	-	0	
B 2625 S	0	2	0	2	2	4	-	-	-	-	-	-	0	
C 2589 S	0	4	0	7	21	28	0.5	0	1	33	831	0	0	
D 2541 S	0	4	1	7	8	32	0.5	0	1	43	577	0	0	
LINE 10941	(FLIGHT		18)											
A 3829 H	1	2	1	2	2	4	-	-	-	-	-	-	0	
B 3847 B?	1	2	1	2	2	4	-	-	-	-	-	-	0	
C 3852 S?	4	22	8	38	102	147	1.7	0	1	19	117	0	0	
D 3887 H	4	7	7	10	21	15	5.0	3	2	56	56	23	0	
LINE 10950	(FLIGHT		14)											
A 2758 S	0	2	0	2	2	4	-	-	-	-	-	-	0	
B 2780 S	0	2	0	2	1	4	-	-	-	-	-	-	0	
C 2798 S	0	2	0	2	2	4	-	-	-	-	-	-	0	
D 2836 S	1	6	2	10	32	39	1.2	0	1	27	618	0	0	
LINE 10951	(FLIGHT		18)											
A 4138 H	3	15	2	24	67	108	1.0	0	1	18	109	0	0	
B 4111 H	2	3	2	5	11	10	2.8	11	2	35	40	8	0	
C 4094 H	5	8	8	14	27	5	4.4	0	1	57	63	23	0	
LINE 10960	(FLIGHT		14)											
A 3119 B?	0	2	0	2	2	4	-	-	-	-	-	-	220	
B 3080 B?	1	2	0	2	2	4	-	-	-	-	-	-	0	
LINE 10961	(FLIGHT		18)											
A 4393 H	4	4	7	4	11	8	1.0	0	1	54	77	35	0	

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

ANOMALY/ FID/INTERP	COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 10961	(FLIGHT	18)											
B 4423 S	4	14	9	21	42	88	2.9	0	1	25	89	0	0
C 4444 S?	2	6	2	8	22	27	1.3	0	1	35	91	0	0
LINE 10970	(FLIGHT	14)											
A 3284 S?	0	1	0	2	2	4	-	-	-	-	-	-	0
B 3343 B	5	8	5	4	32	27	5.8	13	1	37	361	0	80
LINE 10971	(FLIGHT	18)											
A 4677 H	5	5	7	16	24	32	5.1	6	1	48	56	17	0
B 4660 H	3	3	3	7	17	13	3.8	6	2	40	53	9	0
C 4643 H	5	6	7	5	16	4	7.0	8	2	49	38	20	0
LINE 10980	(FLIGHT	14)											
A 3572 S?	0	2	0	2	2	4	-	-	-	-	-	-	0
B 3509 D	1	2	1	2	2	4	-	-	-	-	-	-	0
C 3478 S	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 10982	(FLIGHT	25)											
A 4565 S	3	7	3	10	26	27	2.5	2	1	56	151	15	0
LINE 10990	(FLIGHT	14)											
A 3666 B?	0	2	0	2	2	4	-	-	-	-	-	-	0
B 3725 D	6	8	7	14	32	15	5.1	10	1	50	296	4	0
LINE 11000	(FLIGHT	14)											
A 3957 S	0	2	0	2	2	4	-	-	-	-	-	-	0
B 3885 D	4	7	3	11	27	26	3.0	0	1	43	279	0	0
LINE 11002	(FLIGHT	25)											
A 4854 S?	1	2	1	2	2	4	-	-	-	-	-	-	0
B 4876 H	2	5	7	11	24	20	3.4	12	1	53	82	19	0
C 4901 H	5	6	10	11	24	13	6.8	11	1	61	79	26	0
LINE 11010	(FLIGHT	14)											
A 4103 S?	0	1	0	2	2	4	-	-	-	-	-	-	510
LINE 11011	(FLIGHT	14)											
A 4247 B?	1	2	1	2	2	4	-	-	-	-	-	-	20
LINE 11012	(FLIGHT	20)											
A 899 H	5	3	6	4	16	6	1.0	0	1	27	55	11	0

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

1090-A

ANOMALY/ FID/INTERP	COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 11012	(FLIGHT		20)										
B 926 H	10	7	14	6	42	26	19.0	26	1	29	98	0	0
C 943 B?	0	7	0	15	18	79	0.5	0	1	22	678	0	330
LINE 11020	(FLIGHT		14)										
A 4392 S?	1	7	1	10	13	46	0.5	0	1	32	664	0	50
B 4360 S	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 11021	(FLIGHT		20)										
A 1127 H	5	8	10	18	39	35	4.4	0	1	26	52	0	0
B 1114 H	1	2	1	2	2	4	-	-	-	-	-	-	0
C 1103 S	3	7	3	14	29	39	2.1	0	1	31	116	0	0
LINE 11030	(FLIGHT		14)										
A 4541 B?	1	2	1	2	2	4	-	-	-	-	-	-	30
LINE 11031	(FLIGHT		20)										
A 1230 H	4	5	8	15	8	25	4.2	23	1	53	56	24	0
B 1239 H	3	7	4	11	26	29	2.6	19	1	52	60	23	0
C 1258 S	1	2	1	2	2	4	-	-	-	-	-	-	0
D 1275 S?	1	10	2	20	15	81	0.5	0	1	14	614	0	0
LINE 11040	(FLIGHT		14)										
A 4709 H	0	2	1	2	2	4	-	-	-	-	-	-	30
B 4702 S?	1	2	0	2	2	4	-	-	-	-	-	-	0
C 4688 S	0	2	1	2	2	4	-	-	-	-	-	-	7
LINE 11041	(FLIGHT		20)										
A 1468 S?	7	17	9	34	52	84	2.9	0	1	25	58	0	0
B 1438 S	2	4	2	7	17	21	2.1	5	1	51	131	11	0
LINE 11050	(FLIGHT		14)										
A 5154 S	0	2	0	2	2	4	-	-	-	-	-	-	0
B 5104 S	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 11051	(FLIGHT		20)										
A 1540 H	5	5	7	10	26	34	5.8	28	1	47	60	19	0
B 1629 S?	0	1	0	1	0	4	-	-	-	-	-	-	0
LINE 11060	(FLIGHT		14)										
A 5328 S?	1	2	1	2	2	4	-	-	-	-	-	-	0
B 5339 H	1	2	1	2	2	4	-	-	-	-	-	-	0

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ANOMALY/ FID/INTERP	COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 11061	(FLIGHT	20)											
A 1771 H	4	6	6	11	23	18	4.2	7	1	39	74	7	0
B 1744 H	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 11070	(FLIGHT	14)											
A 5536 S?	0	2	0	2	2	4	-	-	-	-	-	-	0
B 5460 S?	4	5	3	10	18	19	3.1	2	1	34	322	0	0
C 5443 H	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 11071	(FLIGHT	20)											
A 1861 H	3	6	6	13	6	10	3.3	6	1	47	65	16	0
B 1869 H	4	5	4	15	-25	43	3.0	2	1	25	125	0	0
C 1901 E	2	7	8	13	34	32	3.2	0	1	25	267	0	0
D 2015 H	2	5	3	11	31	15	2.1	5	1	33	316	0	0
LINE 11080	(FLIGHT	34)											
A 2062 H	1	2	1	2	2	4	-	-	-	-	-	-	0
B 2049 H	1	7	3	12	39	3	1.3	0	1	33	118	0	0
C 2021 S	4	9	7	13	50	72	3.5	0	1	14	353	0	0
D 1993 B?	0	2	0	2	0	4	-	-	-	-	-	-	190
E 1905 H	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 11090	(FLIGHT	34)											
A 1618 H	2	9	1	17	49	75	0.9	0	1	27	149	0	0
B 1644 H	4	1	10	21	53	64	5.8	12	1	40	85	7	0
C 1701 S?	0	2	0	2	2	4	-	-	-	-	-	-	0
D 1770 H	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 11100	(FLIGHT	34)											
A 1526 S?	3	16	4	30	58	113	1.1	0	1	24	121	0	0
B 1510 S	1	5	1	11	33	45	0.5	0	1	35	154	0	0
C 1498 H	4	7	6	11	27	16	4.0	6	1	43	76	11	0
D 1474 S?	0	2	0	2	2	4	-	-	-	-	-	-	0
E 1437 S?	0	2	0	2	2	4	-	-	-	-	-	-	0
F 1342 S	1	2	3	2	15	90	0.2	0	1	21	76	6	0
LINE 11110	(FLIGHT	34)											
A 1061 S?	3	21	5	40	114	150	1.0	0	1	18	139	0	0
B 1077 H	6	9	6	13	33	13	4.2	0	1	48	62	16	0
C 1141 S?	0	2	0	2	2	4	-	-	-	-	-	-	0
D 1196 S	0	5	2	9	17	15	0.6	0	1	36	214	0	0
E 1210 S	1	10	1	15	34	86	0.6	0	1	24	223	0	0

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ANOMALY/ FID/INTERP	COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 11110	(FLIGHT		34)										
F 1220 H	2	6	3	12	29	52	1.7	0	1	26	119	0	0
LINE 11120	(FLIGHT		34)										
A 885 S	0	2	0	2	2	4	-	-	-	-	-	-	0
B 833 S	1	6	5	8	25	31	2.2	0	1	11	340	0	0
C 803 S	1	6	0	18	17	69	0.5	0	1	17	169	0	0
LINE 11121	(FLIGHT		34)										
A 988 S	3	8	4	15	39	52	2.0	0	1	41	87	8	0
B 977 S	3	6	6	12	27	24	3.1	10	1	43	91	10	0
C 960 S	2	7	2	12	35	44	1.3	0	1	17	175	0	0
LINE 11130	(FLIGHT		34)										
A 448 S	2	6	5	14	35	34	2.1	0	1	35	73	3	0
B 457 H	3	4	5	8	17	15	3.8	17	1	54	103	17	0
C 570 E	1	2	0	2	2	4	-	-	-	-	-	-	190
D 585 H	2	6	5	12	25	36	2.3	0	1	26	124	0	0
E 603 S	1	9	2	15	11	39	0.9	0	1	33	117	0	140
LINE 11140	(FLIGHT		33)										
A 4147 H	2	4	4	7	17	15	3.8	21	1	57	129	18	0
B 4178 H	1	2	1	2	2	4	-	-	-	-	-	-	0
C 4192 E	4	6	3	10	31	19	3.6	0	1	11	698	0	0
D 4258 E	0	2	1	1	2	4	-	-	-	-	-	-	0
E 4272 H	3	6	5	12	29	31	3.3	0	1	31	84	0	5
F 4288 S?	2	12	2	21	51	68	0.8	0	1	27	110	0	0
LINE 11150	(FLIGHT		33)										
A 4071 H	4	8	7	15	36	30	3.3	0	1	40	97	6	0
B 4049 S?	1	2	1	1	2	4	-	-	-	-	-	-	0
C 4044 S?	5	14	8	25	65	74	2.8	0	1	37	77	6	0
D 4015 E	3	10	4	15	66	62	1.8	0	1	2	628	0	0
E 3956 S	0	4	0	8	25	37	0.5	0	1	25	777	0	0
F 3934 H	3	3	7	7	18	22	6.0	31	1	30	101	0	0
G 3922 H	3	16	7	10	77	26	2.5	1	1	33	84	4	0
LINE 11160	(FLIGHT		33)										
A 3674 S	3	8	7	13	34	40	3.1	0	1	37	68	5	0
B 3689 H	1	2	1	2	2	4	-	-	-	-	-	-	0
C 3705 E	6	5	5	11	38	13	5.7	0	1	16	227	0	0
D 3776 H	4	28	6	52	86	239	1.2	0	1	5	244	0	0

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1090-A

ANOMALY/ FID/INTERP	COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 11160	(FLIGHT	33)											
E 3794 H	3	13	6	24	53	17	1.9	0	1	32	83	2	0
F 3816 S	2	4	3	4	16	12	1.0	0	1	34	76	15	0
LINE 11170	(FLIGHT	33)											
A 3578 S	3	10	5	17	42	41	2.2	0	1	43	82	9	0
B 3552 S	2	7	5	17	45	60	2.1	0	1	30	99	0	0
C 3524 S	4	5	8	9	27	47	5.4	14	1	24	146	0	0
D 3518 B?	1	2	1	2	2	4	-	-	-	-	-	-	0
E 3452 S	3	8	6	14	35	49	2.7	2	1	23	108	0	0
F 3428 H	2	5	3	10	27	26	2.1	3	1	42	104	7	0
G 3400 S	3	11	6	1	51	54	1.0	0	1	23	100	7	0
LINE 11180	(FLIGHT	33)											
A 3132 S	3	6	6	10	22	18	4.1	10	1	41	81	9	0
B 3162 S	3	6	6	10	22	29	3.7	3	1	40	79	7	0
C 3181 H	5	5	8	11	28	32	6.1	4	1	33	84	0	0
D 3191 S	3	10	5	22	41	53	2.1	0	1	17	224	0	0
E 3224 S	2	5	0	9	27	50	1.1	0	1	22	715	0	110
F 3250 H	5	8	7	8	36	15	5.1	15	1	44	195	5	0
G 3261 S?	4	20	10	39	98	107	2.1	0	1	20	134	0	0
H 3268 S?	1	2	1	2	2	4	-	-	-	-	-	-	0
I 3283 S	2	3	3	6	13	13	3.1	12	1	34	131	0	0
J 3305 S	3	14	5	24	34	32	1.6	0	1	26	138	0	0
LINE 11190	(FLIGHT	33)											
A 3069 S	3	7	2	11	31	37	2.0	0	1	41	112	5	0
B 3028 S?	11	27	21	47	79	86	4.5	0	1	31	57	5	0
C 2998 S?	0	1	0	1	2	4	-	-	-	-	-	-	250
D 2976 S	2	4	2	8	25	26	1.8	0	1	6	528	0	0
E 2944 S	1	5	3	9	23	24	1.3	0	1	35	86	2	0
F 2930 S	4	11	5	21	52	76	2.2	0	1	22	135	0	0
G 2917 S	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 11200	(FLIGHT	33)											
A 2651 S	3	8	4	14	37	38	2.6	0	1	34	95	1	0
B 2681 H	2	3	2	6	14	15	2.4	15	1	58	111	19	0
C 2688 H	0	2	3	6	13	14	1.6	18	1	64	86	27	0
D 2699 H	7	19	14	22	57	61	4.4	0	1	32	63	4	0
E 2701 B?	1	2	1	2	2	4	-	-	-	-	-	-	0
F 2723 S?	1	2	1	2	2	4	-	-	-	-	-	-	0
G 2758 S	3	11	7	20	16	62	2.3	0	1	24	139	0	0

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1090-A

ANOMALY/ FID/INTERP	COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 11200	(FLIGHT	33)											
H 2783 S	2	3	2	7	19	18	1.9	0	1	37	75	3	0
I 2803 S	4	5	3	11	13	32	3.2	7	1	22	150	0	0
LINE 11210	(FLIGHT	33)											
A 2557 S	4	7	5	14	21	33	3.0	0	1	42	88	7	0
B 2515 S	4	6	9	11	47	49	5.6	10	1	31	75	1	0
C 2509 E	7	14	13	25	67	57	4.3	0	1	26	137	0	0
D 2461 S	2	5	1	12	11	28	0.9	0	1	24	157	0	0
E 2415 S	2	3	3	17	10	15	1.6	0	1	19	156	0	0
F 2408 S	0	10	3	20	48	60	0.6	0	1	14	195	0	0
LINE 11220	(FLIGHT	33)											
A 2187 S?	1	2	1	2	2	4	-	-	-	-	-	-	0
B 2192 H	4	16	7	30	70	96	2.0	0	1	25	101	0	0
C 2200 E	6	11	12	20	60	37	5.0	3	1	22	160	0	0
D 2215 S	1	7	0	13	41	61	0.5	0	1	0	526	0	0
E 2246 S	2	11	4	11	7	85	1.3	0	1	10	271	0	0
F 2256 S	0	15	0	29	59	109	0.5	0	1	10	234	0	0
G 2309 S	1	5	2	9	15	14	1.1	0	1	15	217	0	0
LINE 11230	(FLIGHT	33)											
A 2067 S?	4	14	5	23	61	77	1.9	0	1	9	149	0	0
B 2054 S	4	8	3	12	48	70	2.4	3	1	24	109	0	0
C 2043 H	5	7	10	12	29	28	6.2	12	1	2	412	0	0
D 2021 S	0	7	0	13	40	51	0.5	0	1	0	480	0	0
E 2014 S	0	4	0	15	13	81	0.5	0	1	0	438	0	0
F 1996 S	0	4	0	7	15	23	0.5	0	1	0	539	0	0
LINE 11240	(FLIGHT	33)											
A 1699 E	1	2	1	2	2	4	-	-	-	-	-	-	0
B 1704 S	4	12	6	21	45	70	2.3	0	1	18	137	0	0
C 1721 S	5	6	7	11	29	59	5.5	14	1	0	440	0	0
D 1726 E	0	8	0	22	55	62	0.5	0	1	3	515	0	0
E 1760 S	0	4	0	9	23	32	0.5	0	1	3	505	0	0
F 1773 S	0	2	0	2	2	4	-	-	-	-	-	-	0
LINE 11250	(FLIGHT	33)											
A 1626 S	5	13	10	15	53	59	3.9	3	1	27	105	0	0
B 1568 S?	0	10	0	19	43	100	0.5	0	1	3	470	0	0
C 1557 S	0	5	0	8	28	38	0.5	0	1	4	668	0	0
D 1546 S	0	2	0	2	2	4	-	-	-	-	-	-	0

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1090-A

ANOMALY/ FID/INTERP	COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 11250	(FLIGHT	33)											
E 1531 S	0	7	0	11	27	62	0.5	0	1	13	588	0	0
F 1522 S	0	2	0	2	2	4	-	-	-	-	-	-	0
G 1491 S	0	2	0	2	2	4	-	-	-	-	-	-	0
LINE 11260	(FLIGHT	33)											
A 1249 S	2	7	5	12	14	42	2.5	4	1	25	129	0	0
B 1279 S?	0	10	0	18	41	92	0.5	0	1	1	468	0	0
C 1291 S	0	5	0	5	24	46	0.6	0	1	9	477	0	0
LINE 11261	(FLIGHT	33)											
A 1349 S	3	8	1	12	-36	27	1.6	0	1	7	524	0	6
LINE 11270	(FLIGHT	33)											
D 720 S	0	3	0	6	20	40	0.9	0	1	21	714	0	0
E 660 S	2	7	0	10	33	27	0.6	0	1	7	698	0	0
LINE 11280	(FLIGHT	33)											
A 296 E	1	2	1	2	2	4	-	-	-	-	-	-	0
B 300 S	5	17	8	33	66	109	2.2	0	1	25	79	0	0
C 308 S	0	7	4	15	35	48	0.9	0	1	26	83	0	0
D 331 E	0	2	0	2	2	4	-	-	-	-	-	-	550
E 351 S?	0	2	0	2	2	4	-	-	-	-	-	-	550
F 404 S	3	6	0	11	30	18	0.7	0	1	23	721	0	0
G 416 S	1	5	0	8	5	21	0.5	0	1	29	749	0	0
LINE 11290	(FLIGHT	33)											
A 4616 S?	6	7	13	20	75	64	6.3	4	1	30	80	0	0
B 4601 S?	1	2	1	2	2	4	-	-	-	-	-	-	0
C 4591 S	6	20	13	39	97	3	3.0	0	1	22	57	0	0
D 4580 S	1	18	10	35	93	120	1.4	0	1	24	61	0	0
E 4568 B?	10	33	14	41	174	259	3.2	0	1	15	160	0	0
F 4545 S?	0	4	0	8	4	54	0.5	0	1	46	792	0	0
G 4534 S?	0	2	0	2	2	4	-	-	-	-	-	-	0
H 4530 S?	0	2	0	2	2	4	-	-	-	-	-	-	0
I 4478 S?	1	2	0	2	2	4	-	-	-	-	-	-	19
LINE 11300	(FLIGHT	26)											
A 370 S	3	10	4	18	40	76	1.9	0	1	28	79	0	0
B 396 S	0	2	0	2	2	4	-	-	-	-	-	-	0
C 425 S?	0	2	0	2	2	4	-	-	-	-	-	-	0
D 483 S	1	2	1	2	2	4	-	-	-	-	-	-	0

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ANOMALY/ FID/INTERP	COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 11310	(FLIGHT	26)											
A 774 H	1	2	1	2	2	3	-	-	-	-	-	-	0
B 679 S	1	4	1	9	14	17	0.8	0	1	23	729	0	0
LINE 11320	(FLIGHT	26)											
A 977 E	1	2	1	2	2	4	-	-	-	-	-	-	0
B 1001 B?	0	2	0	2	2	4	-	-	-	-	-	-	0
C 1023 S?	0	2	0	2	2	4	-	-	-	-	-	-	560
D 1068 S	0	4	0	7	24	23	0.5	0	1	33	759	0	0
LINE 11330	(FLIGHT	26)											
A 1386 H	6	6	7	11	11	11	6.5	9	1	45	90	10	0
B 1338 S?	0	5	0	8	11	18	1.0	0	1	49	831	0	0
C 1314 S?	0	2	0	2	2	4	-	-	-	-	-	-	0
D 1292 S?	0	2	0	2	2	4	-	-	-	-	-	-	0
E 1284 S	0	2	0	2	2	4	-	-	-	-	-	-	70
LINE 11340	(FLIGHT	26)											
A 1501 H	1	2	1	2	2	4	-	-	-	-	-	-	0
B 1554 S	0	2	0	3	2	26	0.5	0	1	125	1035	0	0
C 1562 S?	0	2	0	2	0	4	-	-	-	-	-	-	0
D 1606 S	0	2	0	2	2	4	-	-	-	-	-	-	0
E 1677 S	0	1	1	2	2	4	-	-	-	-	-	-	17
LINE 11350	(FLIGHT	26)											
A 1953 H	1	2	1	2	2	4	-	-	-	-	-	-	0
B 1895 S	0	2	0	2	2	4	-	-	-	-	-	-	0
C 1891 S?	0	2	0	2	2	4	-	-	-	-	-	-	0
D 1829 S	2	2	0	4	10	18	0.5	0	1	36	392	8	0
LINE 11361	(FLIGHT	27)											
A 694 S	2	5	3	8	18	19	2.3	0	1	31	140	0	0
B 707 S	3	4	2	6	15	15	2.6	0	1	27	193	0	0
C 774 S?	0	2	0	2	2	4	-	-	-	-	-	-	0
D 795 S	1	2	0	5	19	26	0.8	0	1	41	458	15	0
LINE 11370	(FLIGHT	27)											
A 1255 S	6	6	0	11	32	13	3.4	15	1	48	760	0	0
B 1205 S	0	4	0	11	0	40	1.6	4	1	81	927	0	130
C 1196 S?	0	9	0	18	23	96	0.5	0	1	15	553	0	0
D 1191 S?	0	2	0	2	2	4	-	-	-	-	-	-	0
E 1149 S	1	2	1	2	2	4	-	-	-	-	-	-	0

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1090-A

ANOMALY/ FID/INTERP	COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 11380	(FLIGHT		27)										
A 1442 S	2	3	0	7	4	32	0.5	0	1	65	903	0	0
B 1448 S?	2	4	0	5	4	32	0.5	0	1	67	846	0	350
C 1455 S	0	2	0	2	2	4	-	-	-	-	-	-	0
D 1491 S?	2	4	0	4	12	22	0.5	0	1	24	440	0	0
LINE 11390	(FLIGHT		27)										
A 1912 S	2	3	2	6	14	23	2.8	20	1	40	83	8	0
B 1902 S	4	8	6	13	13	20	3.7	0	1	33	82	0	0
C 1887 S	5	7	3	3	12	13	0.9	0	1	25	92	6	0
D 1839 S	0	2	0	2	1	4	-	-	-	-	-	-	0
E 1822 S?	0	3	0	6	0	22	1.1	16	1	113	1035	0	0
F 1809 S	0	2	0	2	0	4	-	-	-	-	-	-	0
G 1801 S	0	3	0	5	26	25	1.0	0	1	33	300	8	0
H 1779 S	0	2	0	2	2	4	-	-	-	-	-	-	0
I 1716 S?	0	2	1	2	2	4	-	-	-	-	-	-	0
J 1708 S?	0	2	0	2	2	4	-	-	-	-	-	-	0
LINE 11400	(FLIGHT		27)										
A 1988 S	1	6	3	11	13	34	0.9	0	1	34	95	1	0
B 2125 S	1	2	0	2	2	4	-	-	-	-	-	-	0
LINE 11410	(FLIGHT		27)										
A 2514 S?	4	7	5	12	26	10	3.3	0	1	53	219	7	0
B 2425 S?	0	5	0	6	21	34	0.5	0	1	67	828	0	0
C 2396 S	0	3	0	5	14	23	0.6	0	1	16	396	0	0
D 2339 S?	0	1	0	2	2	4	-	-	-	-	-	-	0
LINE 11420	(FLIGHT		27)										
A 2754 S	2	3	0	3	15	14	1.0	0	1	18	476	0	0
B 2782 S	2	5	0	11	9	55	0.5	0	1	27	702	0	0
LINE 11430	(FLIGHT		27)										
A 3169 S	1	2	1	2	2	4	-	-	-	-	-	-	20
B 3150 S	5	6	6	10	24	32	4.9	0	1	33	102	0	0
C 3060 S?	0	2	0	2	2	4	-	-	-	-	-	-	0
D 3027 S	1	4	1	8	10	2	0.6	0	1	14	692	0	0
E 3003 S	1	2	0	2	2	4	-	-	-	-	-	-	0
LINE 11441	(FLIGHT		27)										
A 3379 S?	1	2	0	2	2	4	-	-	-	-	-	-	0
LINE 11442	(FLIGHT		27)										
A 3539 S	0	2	0	2	0	4	-	-	-	-	-	-	690

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1090-A

ANOMALY/ FID/INTERP	COAXIAL 900 HZ REAL PPM	QUAD PPM	COPLANAR 900 HZ REAL PPM	QUAD PPM	COPLANAR 7200 HZ REAL PPM	QUAD PPM	VERTICAL DIKE COND SIEMEN	DEPTH* M	HORIZONTAL SHEET COND SIEMEN	DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	DEPTH M	MAG CORR NT
LINE 11442	(FLIGHT		27)										
B 3568 S	1	7	0	12	25	38	0.5	0	1	26	703	0	0
C 3590 S	1	3	1	4	11	18	0.6	0	1	18	349	0	0
LINE 11450	(FLIGHT		27)										
A 3965 H	1	2	1	2	2	4	-	-	-	-	-	-	0
B 3869 S	1	5	0	4	14	10	1.0	0	1	27	338	0	0
C 3846 S	0	2	0	2	2	4	-	-	-	-	-	-	0
D 3822 S	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 11460	(FLIGHT		27)										
A 4089 H	1	2	1	2	2	0	-	-	-	-	-	-	0
B 4107 S	4	4	4	9	11	20	4.4	14	1	32	449	0	0
LINE 11462	(FLIGHT		28)										
A 1031 S	1	2	1	2	2	4	-	-	-	-	-	-	0
B 918 S	0	4	2	5	24	24	1.0	0	1	22	343	0	0
C 904 S?	0	2	0	2	2	4	-	-	-	-	-	-	0
D 873 S	1	3	2	5	15	25	0.6	0	1	39	381	11	0
LINE 11471	(FLIGHT		28)										
A 638 S	0	4	1	6	21	29	0.5	0	1	39	706	0	0
B 678 S	0	2	0	2	2	4	-	-	-	-	-	-	0
C 686 S	0	2	1	2	2	4	-	-	-	-	-	-	0
LINE 11481	(FLIGHT		28)										
A 1337 S	0	2	0	2	2	4	-	-	-	-	-	-	0
B 1366 S	0	2	0	2	2	4	-	-	-	-	-	-	0
LINE 11490	(FLIGHT		28)										
A 1750 H	2	5	3	7	14	22	2.2	8	1	57	119	18	0
B 1639 S	0	2	1	2	2	4	-	-	-	-	-	-	0
C 1598 S	1	2	1	2	2	4	-	-	-	-	-	-	0
D 1554 S	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 11570	(FLIGHT		29)										
A 2538 H	3	5	5	10	24	22	3.2	0	1	36	145	0	0
B 2474 S	0	2	0	5	16	11	1.0	0	1	43	335	15	0
C 2451 S	1	4	2	5	12	10	0.9	0	1	19	614	0	0
D 2395 S	1	3	3	7	22	14	1.7	6	1	25	443	0	0
E 2348 S	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 11580	(FLIGHT		30)										
A 448 S	1	2	1	1	2	4	-	-	-	-	-	-	0

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

1090-A

	COAXIAL 900 HZ		COPLANAR 900 HZ		COPLANAR 7200 HZ		VERTICAL DIKE		HORIZONTAL SHEET		CONDUCTIVE EARTH		MAG CORR
ANOMALY/ FID/INTERP	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	COND SIEMEN	DEPTH* M	COND SIEMEN	DEPTH M	RESIS OHM-M	DEPTH M	NT
LINE 11580	(FLIGHT	30)											
B 481 S	0	3	0	1	14	17	0.8	0	1	47	477	17	0
C 530 S	0	0	0	2	2	4	-	-	-	-	-	-	0
D 587 S	5	6	4	62	26	34	1.6	0	1	0	327	0	0
E 644 S	2	7	3	10	22	42	1.5	0	1	34	333	0	0
LINE 11590	(FLIGHT	30)											
A 880 S	0	5	0	10	21	57	0.5	0	1	31	742	0	0
LINE 11591	(FLIGHT	30)											
A 1372 H	5	11	9	23	56	39	3.5	2	1	36	85	6	0
B 1401 B?	5	8	6	11	28	21	4.2	8	1	43	192	3	0
C 1408 S	0	2	1	2	2	4	-	-	-	-	-	-	0
LINE 11592	(FLIGHT	30)											
A 1171 S?	0	1	0	2	0	4	-	-	-	-	-	-	330
B 1130 S	1	3	2	6	17	19	1.9	11	1	41	438	0	0
C 1079 S?	3	11	3	18	52	87	1.5	2	1	20	462	0	0
D 1069 S?	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 11600	(FLIGHT	30)											
A 1675 H	5	14	7	21	49	62	3.0	0	1	33	109	1	0
B 1707 B?	8	10	7	14	30	20	5.4	5	1	38	148	1	0
C 1713 S	1	5	5	8	26	20	2.0	0	1	33	724	0	0
D 1825 S	1	4	2	7	16	21	1.4	0	1	17	441	0	0
LINE 11620	(FLIGHT	31)											
A 474 S	2	4	1	5	17	12	1.8	0	1	13	790	0	0
B 561 S	0	3	1	5	19	22	1.0	0	1	41	312	14	0
C 597 S	0	4	0	6	24	20	0.6	0	1	35	792	0	0
D 611 S	2	8	3	16	15	54	1.4	0	1	17	319	0	0
E 631 S	0	2	0	2	2	4	-	-	-	-	-	-	0
LINE 11630	(FLIGHT	31)											
A 1060 S	1	6	2	11	30	16	1.3	0	1	36	584	0	0
B 1042 S?	0	2	0	2	2	4	-	-	-	-	-	-	240
C 1028 S	0	6	0	9	22	47	0.5	0	1	38	715	0	0
D 931 S?	0	5	1	9	25	33	0.5	0	1	27	589	0	0
E 877 S	2	5	2	7	5	21	1.7	0	1	16	361	0	0
LINE 11640	(FLIGHT	31)											
A 1195 S	0	2	1	2	1	4	-	-	-	-	-	-	0

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ANOMALY/ FID/INTERP	COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 11640	(FLIGHT	31)											
B 1215 H	1	3	2	6	21	3	1.6	14	1	50	315	5	5
C 1293 S	1	4	2	6	15	29	1.1	0	1	47	380	0	0
D 1342 S	2	6	2	4	15	9	1.0	0	1	24	162	3	0
E 1346 S	1	2	1	2	2	4	-	-	-	-	-	-	0
F 1368 S	4	2	0	3	15	13	1.0	0	1	25	432	0	0
LINE 11650	(FLIGHT	31)											
A 1756 H	3	10	8	17	44	22	3.0	0	1	42	111	6	0
B 1737 S?	1	6	0	9	23	54	0.6	10	1	58	754	1	0
C 1726 S	0	5	0	6	15	50	0.5	0	1	49	773	0	9
D 1652 S	0	2	1	2	2	4	-	-	-	-	-	-	0
E 1630 H	1	4	2	7	21	25	1.5	11	1	39	586	0	0
F 1620 S	1	5	1	5	16	31	0.5	0	1	31	412	5	0
G 1602 S?	0	5	0	7	17	46	0.5	0	1	38	747	0	0
H 1563 S	1	3	1	4	16	15	1.0	0	1	20	303	0	0
LINE 11660	(FLIGHT	31)											
A 1840 S	3	6	7	11	5	22	3.4	0	1	44	120	6	0
B 1867 S	0	4	0	7	20	25	0.5	0	1	50	804	0	0
C 1884 S?	2	8	5	17	45	41	1.6	0	1	17	225	0	0
D 1899 S	0	2	1	2	2	4	-	-	-	-	-	-	15
E 1963 S	0	8	2	13	44	60	0.5	0	1	17	480	0	0
F 1993 S?	0	5	0	8	16	25	0.5	0	1	37	733	0	0
G 2031 S	0	3	1	6	18	31	0.5	0	1	40	553	0	0
LINE 11670	(FLIGHT	31)											
A 2427 H	3	12	10	22	51	62	2.7	0	1	43	105	10	0
B 2388 H	2	3	3	9	26	11	2.6	5	1	38	299	0	0
C 2309 S	2	6	3	11	38	36	1.7	10	1	42	276	2	0
D 2299 S?	1	2	1	2	2	4	-	-	-	-	-	-	0
E 2279 S	1	2	1	4	13	20	0.6	0	1	14	388	0	0
F 2254 S?	1	2	1	2	2	4	-	-	-	-	-	-	0
G 2240 S	2	4	1	5	12	24	0.5	0	1	22	307	0	0
LINE 11680	(FLIGHT	31)											
A 2535 H	3	7	4	15	10	5	2.3	6	1	46	222	6	0
B 2603 S	2	6	3	9	30	25	2.0	0	1	28	265	0	0
C 2611 S	1	2	1	2	2	4	-	-	-	-	-	-	0
D 2640 S	1	7	3	12	46	60	1.2	0	1	22	367	0	0
LINE 11690	(FLIGHT	31)											
A 3020 S	2	9	4	15	42	43	1.7	0	1	32	240	0	0

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ANOMALY/ FID/INTERP	COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 11690	(FLIGHT	31)											
B 2985 S	3	15	6	30	99	83	1.7	0	1	16	201	0	0
C 2980 S?	1	2	1	2	2	4	-	-	-	-	-	-	0
D 2913 H	2	2	3	7	40	39	3.2	16	1	28	249	0	0
E 2887 S	1	7	1	13	36	65	0.7	0	1	17	446	0	0
F 2868 S	0	2	1	2	2	4	-	-	-	-	-	-	0
G 2842 S	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 11700	(FLIGHT	32)											
A 464 S	1	2	1	2	2	4	-	-	-	-	-	-	0
B 518 S	0	2	1	2	2	4	-	-	-	-	-	-	0
C 526 S	1	3	3	7	23	21	1.4	4	1	26	307	0	0
D 559 S	0	4	1	8	27	36	0.5	0	1	22	460	0	0
E 598 S	0	2	1	2	2	4	-	-	-	-	-	-	0
LINE 11710	(FLIGHT	32)											
A 924 S	0	7	2	12	36	42	0.8	0	1	29	494	0	0
B 893 S	1	4	1	5	14	8	1.0	0	1	42	116	21	0
C 870 S	0	2	0	2	2	4	-	-	-	-	-	-	0
D 845 S	0	4	1	5	16	27	0.7	0	1	25	224	3	11
E 836 S	1	3	2	8	20	31	1.1	9	1	42	453	0	0
F 815 S	1	4	1	7	16	33	1.0	8	1	46	733	0	0
G 798 S?	0	4	2	9	7	34	0.8	0	1	36	438	0	0
LINE 11720	(FLIGHT	32)											
A 1024 S?	0	5	2	9	25	22	0.5	0	1	19	472	0	0
B 1065 S?	0	8	1	13	30	70	0.5	0	1	25	550	0	0
C 1076 S	0	5	1	6	16	38	0.5	0	1	46	759	0	0
D 1126 S	1	2	1	2	2	4	-	-	-	-	-	-	0
E 1132 S?	0	2	1	2	2	4	-	-	-	-	-	-	30
LINE 11730	(FLIGHT	32)											
A 1440 S	1	6	6	20	47	59	1.6	0	1	29	178	0	0
B 1395 S	1	4	2	7	16	24	1.0	0	1	28	568	0	0
C 1385 S	0	2	0	2	2	4	-	-	-	-	-	-	0
D 1339 S?	1	2	1	2	2	4	-	-	-	-	-	-	0
E 1333 S?	1	2	0	2	2	4	-	-	-	-	-	-	0
LINE 11740	(FLIGHT	32)											
A 1559 S	2	9	5	15	33	44	1.7	0	1	32	161	0	0
B 1611 H	3	10	2	14	48	45	1.5	0	1	25	403	0	0
C 1629 S	0	2	1	2	2	4	-	-	-	-	-	-	0

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1090-A

ANOMALY/ FID/INTERP	COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 11740	(FLIGHT	32)											
D 1651 S	0	2	0	7	14	13	0.5	0	1	36	623	0	12
LINE 11750	(FLIGHT	32)											
A 2058 S	1	3	1	6	15	15	1.3	0	1	37	604	0	0
B 2038 S	2	7	5	12	35	28	2.3	0	1	39	141	0	0
C 1988 H	2	9	3	14	48	54	1.4	0	1	25	299	0	0
D 1955 S	0	5	1	8	17	49	0.5	0	1	37	613	0	0
LINE 11760	(FLIGHT	32)											
A 2120 S	2	8	3	13	38	42	1.2	0	1	36	263	0	0
B 2153 S?	1	2	1	2	2	4	-	-	-	-	-	-	0
C 2193 H	2	8	5	15	34	28	1.9	12	1	44	215	8	0
D 2232 S	0	2	0	2	2	4	-	-	-	-	-	-	0
E 2244 B?	1	2	1	2	2	4	-	-	-	-	-	-	6
F 2284 S	0	2	0	2	2	2	-	-	-	-	-	-	0
LINE 19010	(FLIGHT	36)											
A 553 S	1	2	1	2	2	4	-	-	-	-	-	-	0
B 601 S	1	2	1	2	2	4	-	-	-	-	-	-	0
C 671 S	1	2	0	2	2	4	-	-	-	-	-	-	0
D 679 S	1	2	0	2	2	4	-	-	-	-	-	-	0
E 702 S	1	5	0	9	25	7	0.5	0	1	24	769	0	0
F 945 S?	1	8	0	8	18	52	0.5	0	1	16	668	0	0
G 954 B?	4	10	6	20	56	35	2.9	0	1	0	453	0	0
LINE 19020	(FLIGHT	35)											
A 701 S	4	9	6	12	9	4	3.4	0	1	27	90	0	0
B 747 B?	1	1	1	2	2	1	-	-	-	-	-	-	0
C 806 B?	3	7	4	6	28	24	2.9	0	1	36	77	2	0
D 822 H	3	4	4	6	15	18	3.8	7	2	49	46	18	0
E 834 S?	5	7	9	12	31	25	5.5	0	1	27	88	0	0
F 874 S	0	6	0	11	41	64	0.5	0	1	18	668	0	0
G 901 S	0	7	1	12	38	29	0.5	0	1	6	616	0	0
H 949 S	1	2	1	2	2	4	-	-	-	-	-	-	0
I 963 S	1	6	0	6	20	28	0.6	0	1	35	801	0	0
J 978 S	1	5	0	5	13	20	0.7	0	1	55	913	0	0
K 1081 S	1	2	1	2	2	4	-	-	-	-	-	-	0
L 1107 S	3	3	4	7	14	13	4.8	5	2	44	46	13	0
M 1233 S	1	4	3	5	14	10	2.2	0	2	42	56	10	0
N 1350 B?	1	2	1	2	2	4	-	-	-	-	-	-	0
O 1455 S?	1	4	2	8	19	22	1.0	0	1	45	370	0	0

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1090-A

ANOMALY/ FID/INTERP			COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 19030			(FLIGHT 35)												
A	547	L	1	2	1	2	2	4	-	-	-	-	-	-	0
B	507	H	6	4	10	14	19	26	9.1	6	2	52	43	22	0
C	416	B?	1	2	1	2	2	4	-	-	-	-	-	-	0
D	340	B?	1	2	0	2	2	4	-	-	-	-	-	-	0
E	305	L	14	3	6	11	21	8	22.8	0	1	78	113	31	0
F	293	L	7	6	2	4	2	2	7.3	0	1	125	440	11	0
G	282	L	7	5	10	7	14	6	13.2	0	2	51	35	18	0
H	262	S	1	3	2	5	9	19	1.7	0	1	26	507	0	0
I	220	S?	1	4	0	7	22	19	0.7	0	1	50	932	0	0
J	202	S	1	5	1	6	13	17	1.4	0	1	22	422	0	0
K	168	H	1	2	1	2	2	4	-	-	-	-	-	-	7

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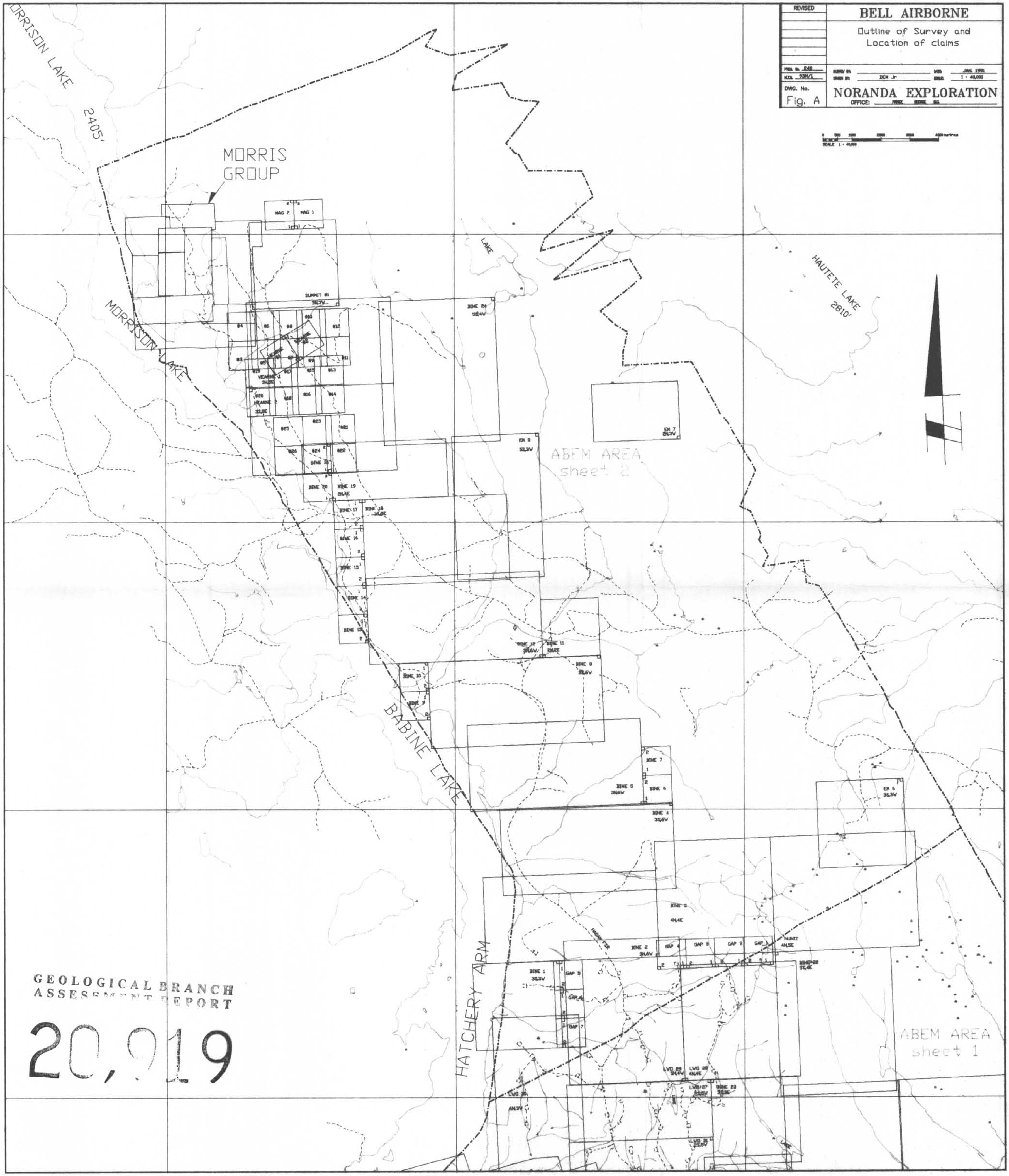
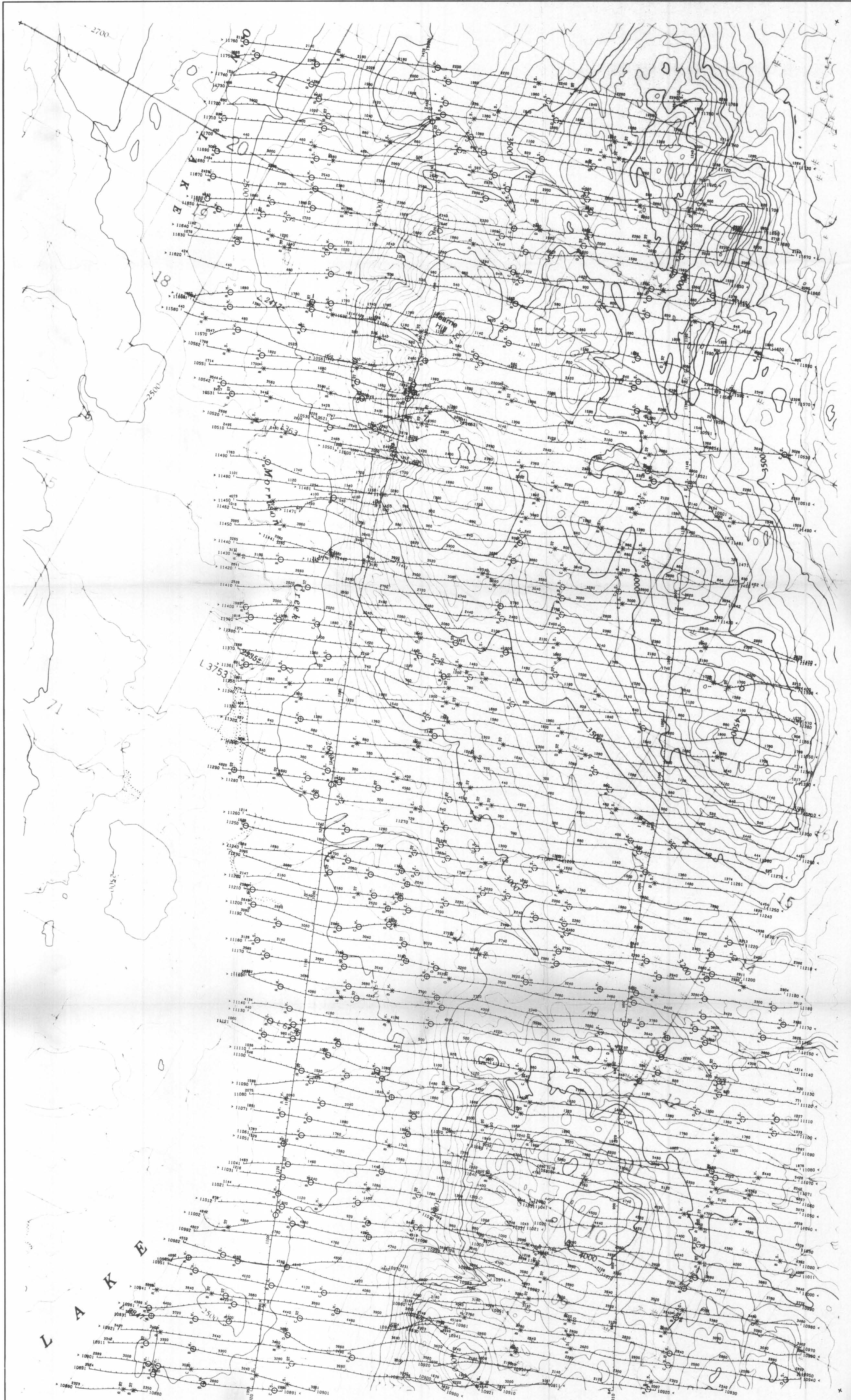

BELL AIRBORNE
Outline of Survey and
Location of claims
REVISED
93M/1
DEM Jr
JAN 1991
1 : 40,000
DWG. No.
Fig. A
NORANDA EXPLORATION
OFFICE:
MORRISON LAKE
2405'
MORRIS
GROUP
MAG 2
MAG 1
MORRISON LAKE
LAKE
HAUTETE LAKE
2810'
ABEM AREA
sheet 2
BABINE LAKE
HATCHERY ARM
ABEM AREA
sheet 1



EM LEGEND

Grade	Anomaly	Conductance
7	●	≥100 siemens
6	◕	50-100 siemens
5	◒	20-50 siemens
4	⊕	10-20 siemens
3	⊕	5-10 siemens
2	○	1-5 siemens
1	◌	<1 siemens
-	✳	Questionable anomaly

Anomaly identifier
Interpretive symbol
C H.
Depth is greater than
· 15 m
: 30 m
⋮ 45 m
⁞ 60 m
Inphase and Quadrature of coaxial coil is greater than
. 5 ppm
.. 10 ppm
... 15 ppm
.... 20 ppm

Interpretive symbol	Conductor ('model')
B.	Bedrock conductor
D.	Narrow bedrock conductor ('thin dike')
S.	Conductive cover ('horizontal thin sheet')
H.	Broad conductive rock unit, deep conductive weathering, thick conductive cover ('half space')
E.	Edge of broad conductor ('edge of half space')
L.	Culture, e.g. power line, building, fence

FLIGHT LINES WITH EM ANOMALIES

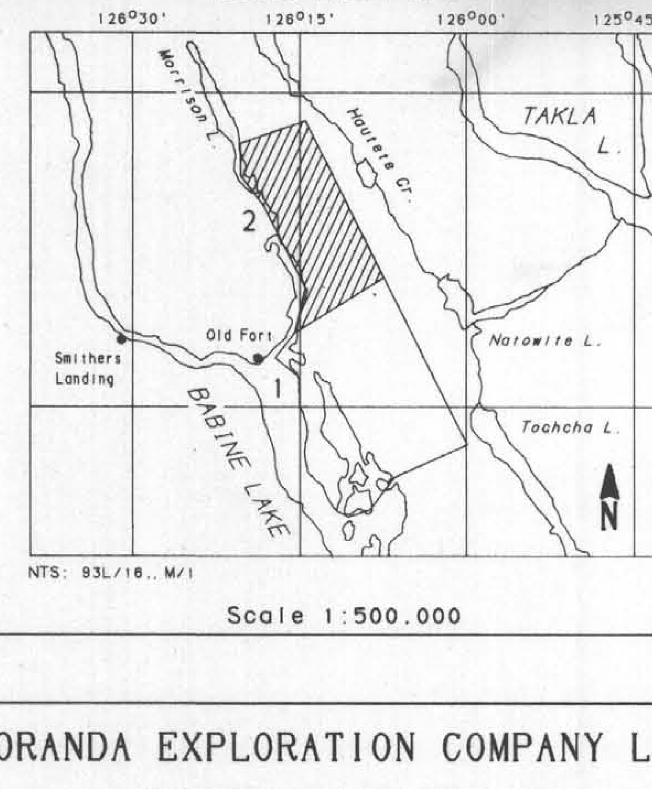
13010
13020
11020
120
A D
F B
100

Flight direction
Flight line number
Reflight Number
Line Number
Area Number
Fiducials identified on profiles
Dip direction
EM anomaly (see EM legend)
Conductor axis (on EM maps only)
Arcs indicate the conductor has a thickness > 10m
Magnetic correlation in nT (gammas)

GEOLOGICAL BRANCH
ASSESSMENT REPORT

20,919

LOCATION MAP



NTS: 93L/16., M/1

Scale 1:500,000

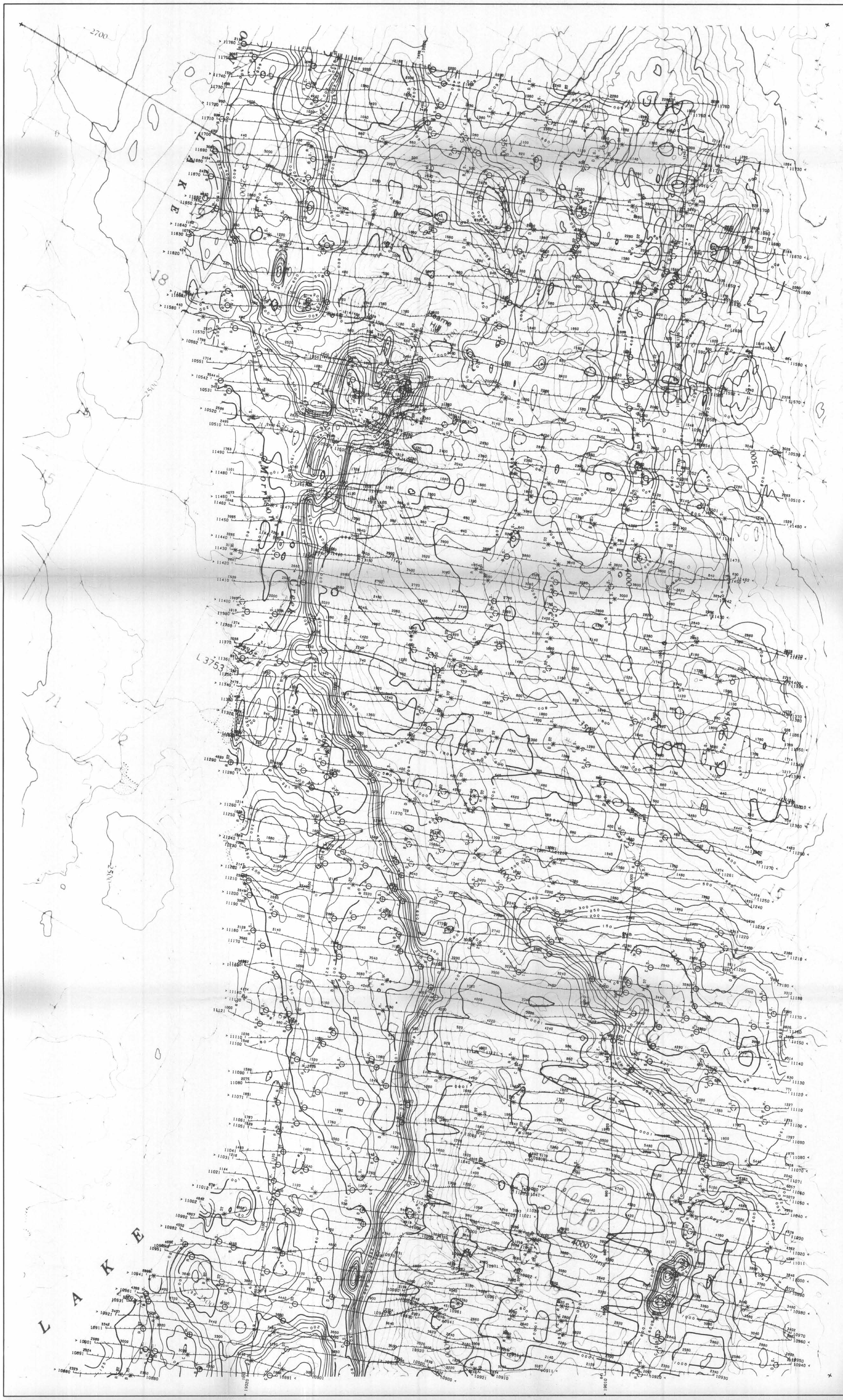
NORANDA EXPLORATION COMPANY LTD.
BABINE LAKE PROJECT
ELECTROMAGNETIC ANOMALIES

SYSTEM: DIGHEM^IV SURVEY	NTS: 93L/16, M/1	GEOPHYSICIST:
DATE: July 1990	JOB: 1090	SHEET: 2

DIGHEM SURVEYS & PROCESSING INC.

0 1 2 Km
Scale 1:20000

Dighem



EM LEGEND

Grade	Anomaly	Conductance
7	●	≥100 siemens
6	◕	50-100 siemens
5	◒	20-50 siemens
4	⊕	10-20 siemens
3	⊕	5-10 siemens
2	○	1-5 siemens
1	◌	<1 siemens
-	✳	Questionable anomaly

Anomaly identifier
Interpretive symbol
C H.
Depth is greater than
· 15 m
: 30 m
⋮ 45 m
⁞ 60 m
Inphase and Quadrature of coaxial coil is greater than
. 5 ppm
.. 10 ppm
... 15 ppm
.... 20 ppm

Interpretive symbol	Conductor ("model")
B.	Bedrock conductor
D.	Narrow bedrock conductor ("thin dike")
S.	Conductive cover ("horizontal thin sheet")
H.	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E.	Edge of broad conductor ("edge of half space")
L.	Culture, e.g. power line, building, fence

FLIGHT LINES WITH EM ANOMALIES

13010
13020
120
A D
F B
100

- Flight direction
- Flight line number
- 11020
  - Reflight Number
  - Line Number
  - Area Number
- Fiducials identified on profiles
- Dip direction
- EM anomaly (see EM legend)
- Conductor axis (on EM maps only)
- Arcs indicate the conductor has a thickness > 10m
- Magnetic correlation in nT (gammas)

CONTOUR LEVELS

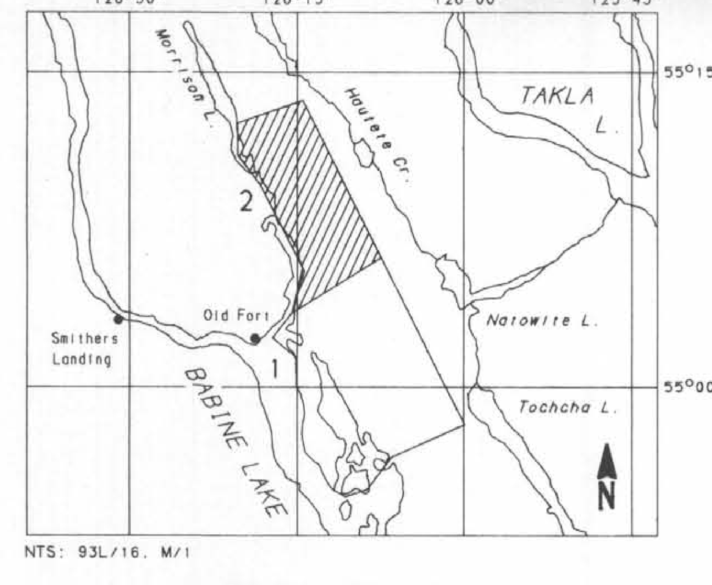
1000
800
600
500
400
300
250
200
150
125
100

Contours in ohm-m
at 10 intervals per decade

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

20,919

LOCATION MAP



NTS: 93L/16, M/1

Scale 1:500,000

NORANDA EXPLORATION COMPANY LTD.

BABINE LAKE PROJECT

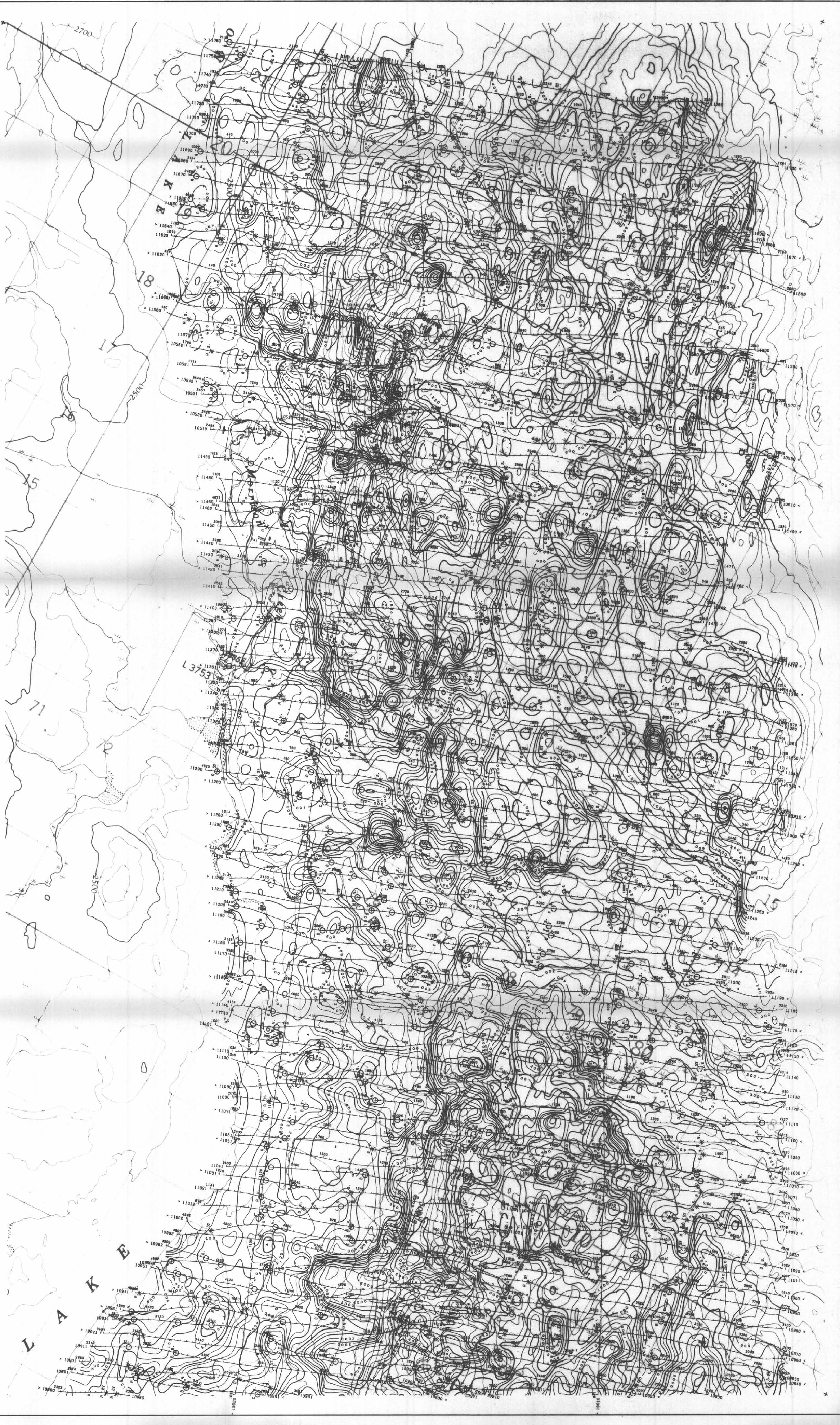
RESISTIVITY (900 Hz)

SYSTEM: DIGHEM IV SURVEY	NTS: 93L/16, M/1	GEOPHYSICIST:
DATE: July 1990	JOB: 1090	SHEET: 2

DIGHEM SURVEYS & PROCESSING INC.

0 1 2 Km
Scale 1:20000

Dighem



EM LEGEND

Grade	Anomaly	Conductance
7	●	≥100 siemens
6	◕	50-100 siemens
5	◒	20-50 siemens
4	⊕	10-20 siemens
3	⊕	5-10 siemens
2	○	1-5 siemens
1	◌	<1 siemens
–	✳	Questionable anomaly

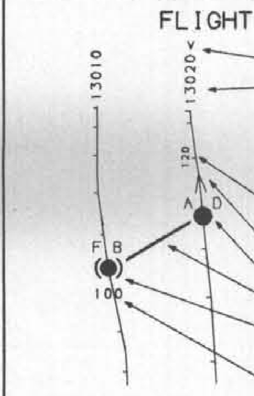
Anomaly identifier — C
Interpretive symbol — H.

Depth is greater than
- · 15 m
- : 30 m
- ⁝ 45 m
- ⁞ 60 m

Inphase and Quadrature of coaxial coil is greater than
- . 5 ppm
- .. 10 ppm
- ... 15 ppm
- .... 20 ppm

Interpretive symbol	Conductor ("model")
B.	Bedrock conductor
D.	Narrow bedrock conductor ("thin dike")
S.	Conductive cover ("horizontal thin sheet")
H.	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E.	Edge of broad conductor ("edge of half space")
L.	Culture, e.g. power line, building, fence

FLIGHT LINES WITH EM ANOMALIES



- Flight direction
- Flight line number
- Refilght Number
- Line Number
- Area Number
- Fiducials identified on profiles
- Dip direction
- EM anomaly (see EM legend)
- Conductor axis (on EM maps only)
- Arcs indicate the conductor has a thickness > 10m
- Magnetic correlation in nT (gammas)

CONTOUR LEVELS

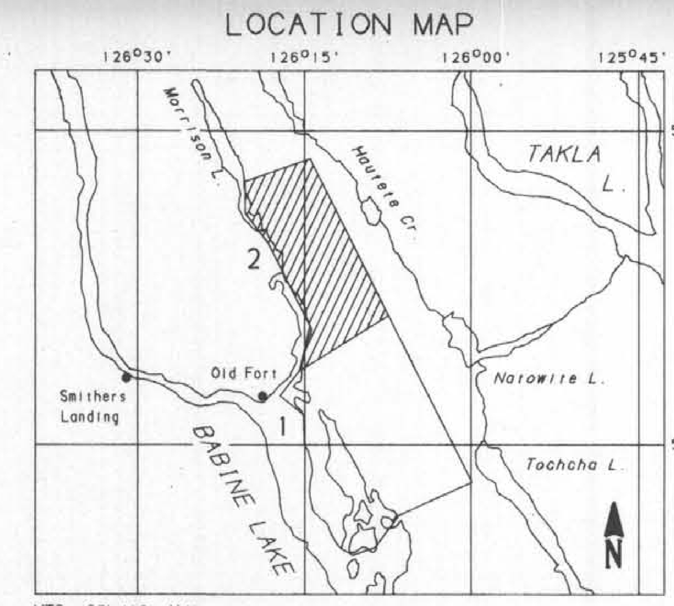
1000
800
600
500
400
300
250
200
150
125
100

Contours in ohm·m at 10 intervals per decade

GEOLOGICAL BRANCH ASSESSMENT REPORT

20,919

LOCATION MAP



NTS: 93L/16, M/1

Scale 1:500,000

NORANDA EXPLORATION COMPANY LTD.

BABINE LAKE PROJECT

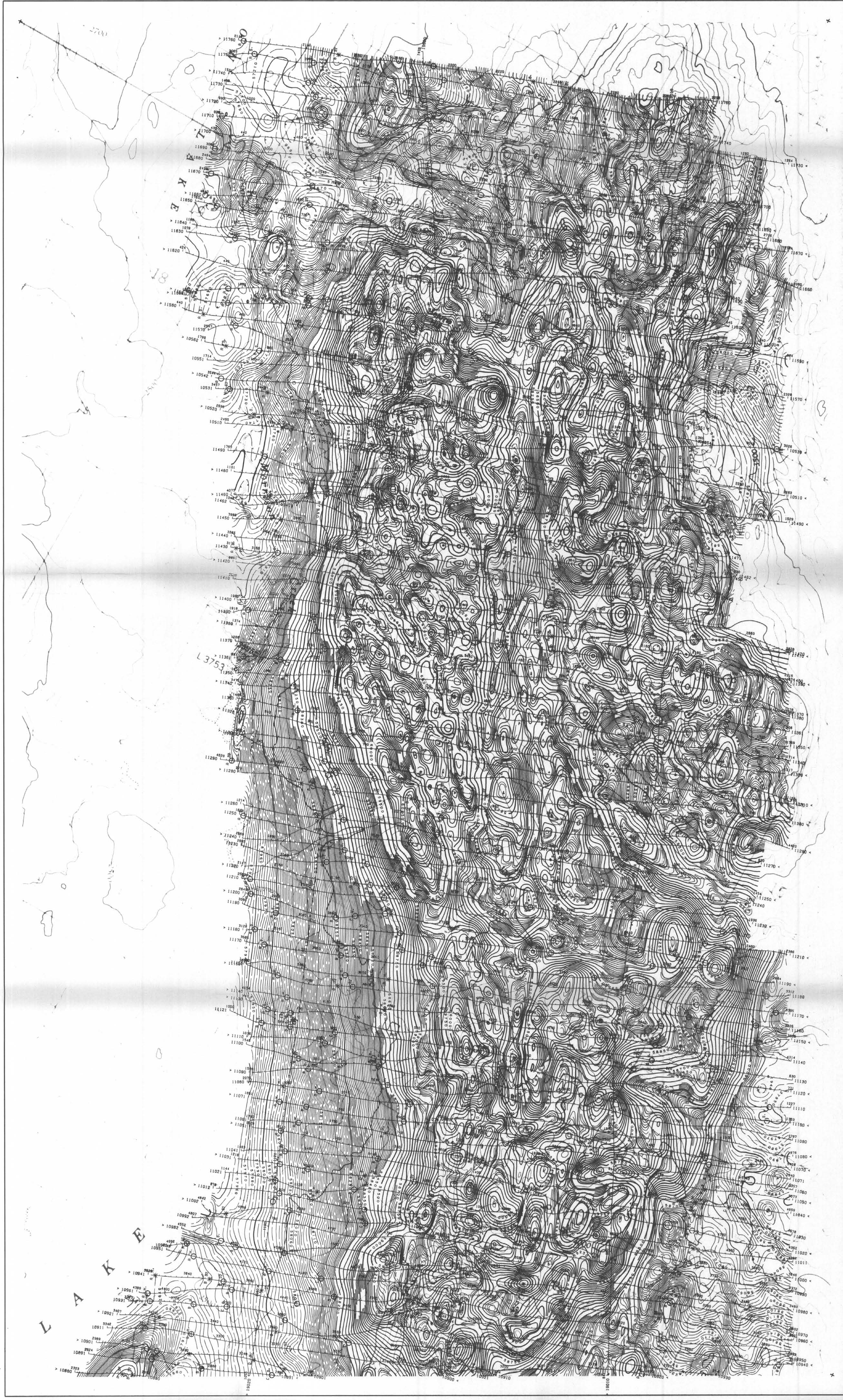
RESISTIVITY (56,000 Hz)

SYSTEM: DIGHEM IV SURVEY	NTS: 93L/16, M/1	GEOPHYSICIST:
DATE: July 1990	JOB: 1090	SHEET: 2

DIGHEM SURVEYS & PROCESSING INC.

0 1 2 Km
Scale 1:20000

Dighem



EM LEGEND

Grade	Anomaly	Conductance
7	●	≥100 siemens
6	◕	50-100 siemens
5	◒	20-50 siemens
4	⊕	10-20 siemens
3	⊕	5-10 siemens
2	○	1-5 siemens
1	◌	<1 siemens
-	✳	Questionable anomaly

Anomaly identifier — C | H — Interpretive symbol

Depth is greater than
· 15 m
: 30 m
⋮ 45 m
⁞ 60 m

Inphase and Quadrature of coaxial coil is greater than
. 5 ppm
.. 10 ppm
... 15 ppm
.... 20 ppm

Interpretive symbol	Conductor ('model')
B.	Bedrock conductor
D.	Narrow bedrock conductor ('thin dike')
S.	Conductive cover ('horizontal thin sheet')
H.	Broad conductive rock unit, deep conductive weathering, thick conductive cover ('half space')
E.	Edge of broad conductor ('edge of half space')
L.	Culture, e.g. power line, building, fence

FLIGHT LINES WITH EM ANOMALIES

13010
13020 <
Flight direction
Flight line number
11020
Reflight Number
Line Number
Area Number
120
A D
Fiducials identified on profiles
Dip direction
F B
100
EM anomaly (see EM legend)
Conductor axis (on EM maps only)
Arcs indicate the conductor has a thickness > 10m
Magnetic correlation in nT (gammas)

CONTOUR INTERVALS

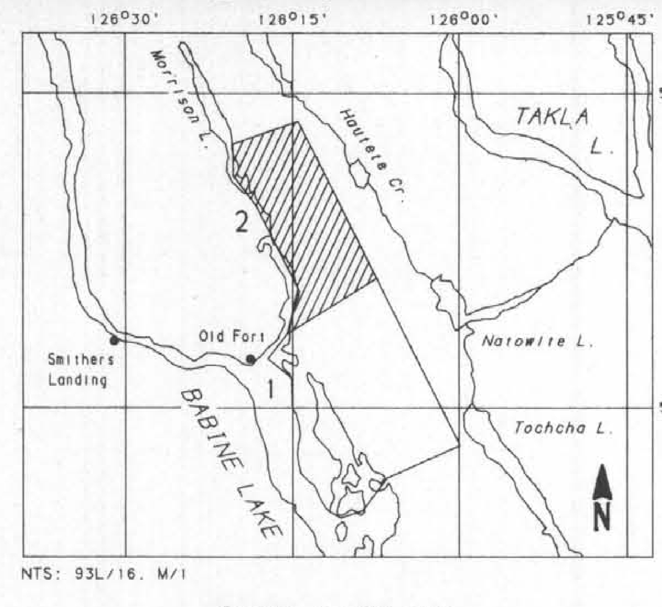
————	250nT
————	50nT
————	10nT
— — — —	5nT
(ellipse with ticks)	magnetic low

Magnetic inclination within the survey area: 75 degrees

GEOLOGICAL BRANCH ASSESSMENT REPORT

20,919

LOCATION MAP



NTS: 93L/16, M/1

Scale 1:500,000

NORANDA EXPLORATION COMPANY LTD.

BABINE LAKE PROJECT

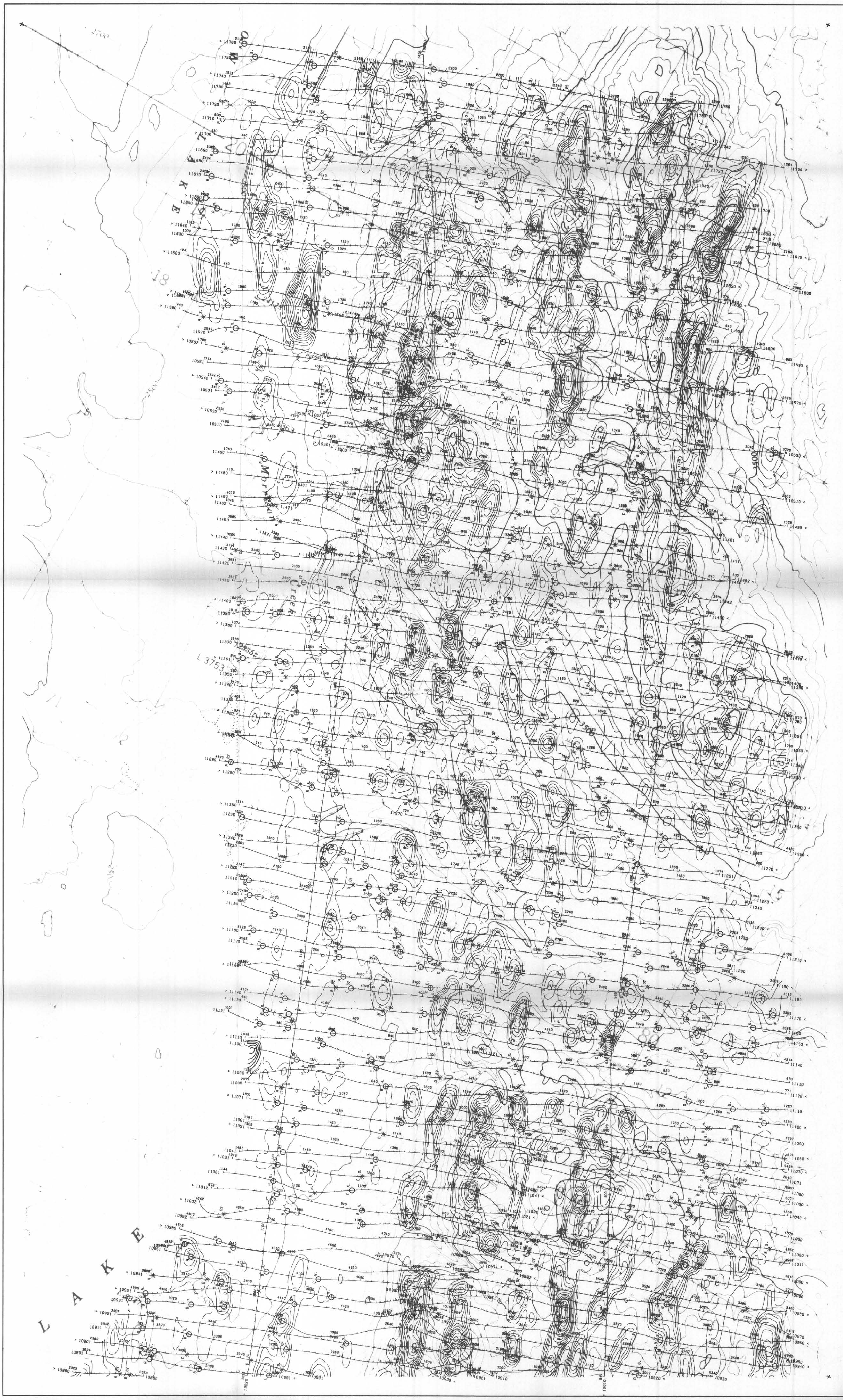
TOTAL FIELD MAGNETICS

SYSTEM: DIGHEM IV SURVEY	NTS: 93L/16, M/1	GEOPHYSICIST:
DATE: July 1990	JOB: 1090	SHEET: 2

DIGHEM SURVEYS & PROCESSING INC.

0 1 2 Km
Scale 1:20000

Dighem



EM LEGEND

Grade	Anomaly	Conductance
7	●	≥100 siemens
6	◕	50-100 siemens
5	◒	20-50 siemens
4	⊕	10-20 siemens
3	⊕	5-10 siemens
2	○	1-5 siemens
1	◌	<1 siemens
-	✳	Questionable anomaly

Anomaly identifier

Interpretive symbol

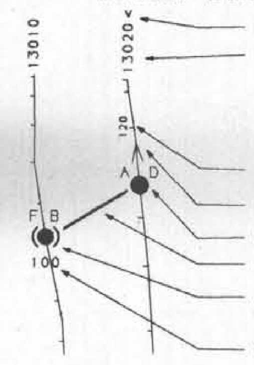
C|H.

Depth is greater than
· 15 m
: 30 m
⁝ 45 m
⁞ 60 m

Inphase and Quadrature of coaxial coil is greater than
. 5 ppm
.. 10 ppm
... 15 ppm
.... 20 ppm

Interpretive symbol	Conductor ('model')
B.	Bedrock conductor
D	Narrow bedrock conductor ('thin dike')
S.	Conductive cover ('horizontal thin sheet')
H.	Broad conductive rock unit, deep conductive weathering, thick conductive cover ('half space')
E.	Edge of broad conductor ('edge of half space')
L.	Culture, e.g. power line, building, fence

FLIGHT LINES WITH EM ANOMALIES

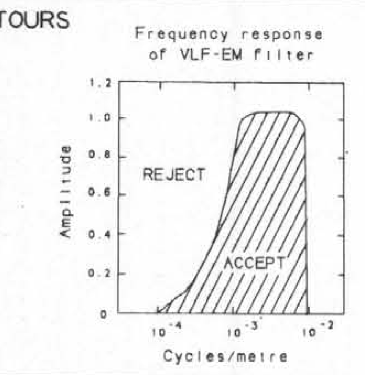


Flight direction
Flight line number
11020
Reflight Number
Line Number
Area Number
Fiducials identified on profiles
Dip direction
EM anomaly (see EM legend)
Conductor axis (on EM maps only)
Arcs indicate the conductor has a thickness > 10m
Magnetic correlation in nT (gammas)

CONTOURS

Contours in percent

10
2
1



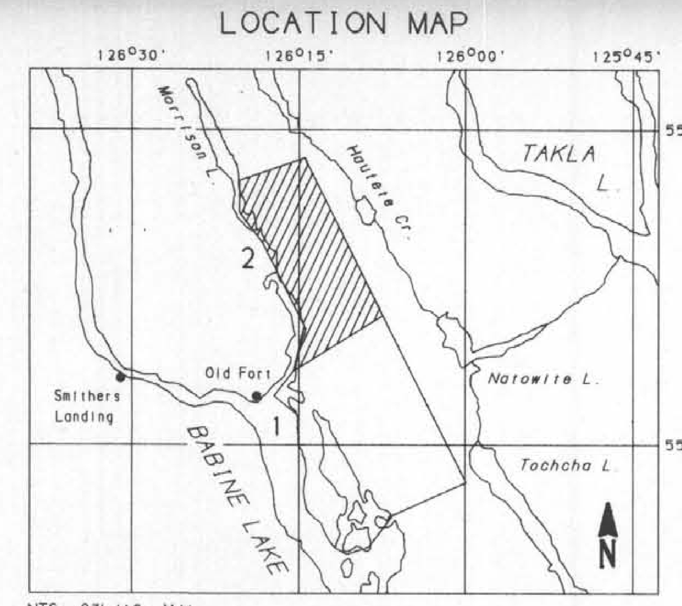
VLF STATION

TRANSMITTER	LINE
NLK (Seattle, Wash.) 24.8 kHz	all

GEOLOGICAL BRANCH
ASSESSMENT REPORT

20,919

LOCATION MAP



NTS: 93L/16, M/1

Scale 1:500,000

NORANDA EXPLORATION COMPANY LTD.

BABINE LAKE PROJECT

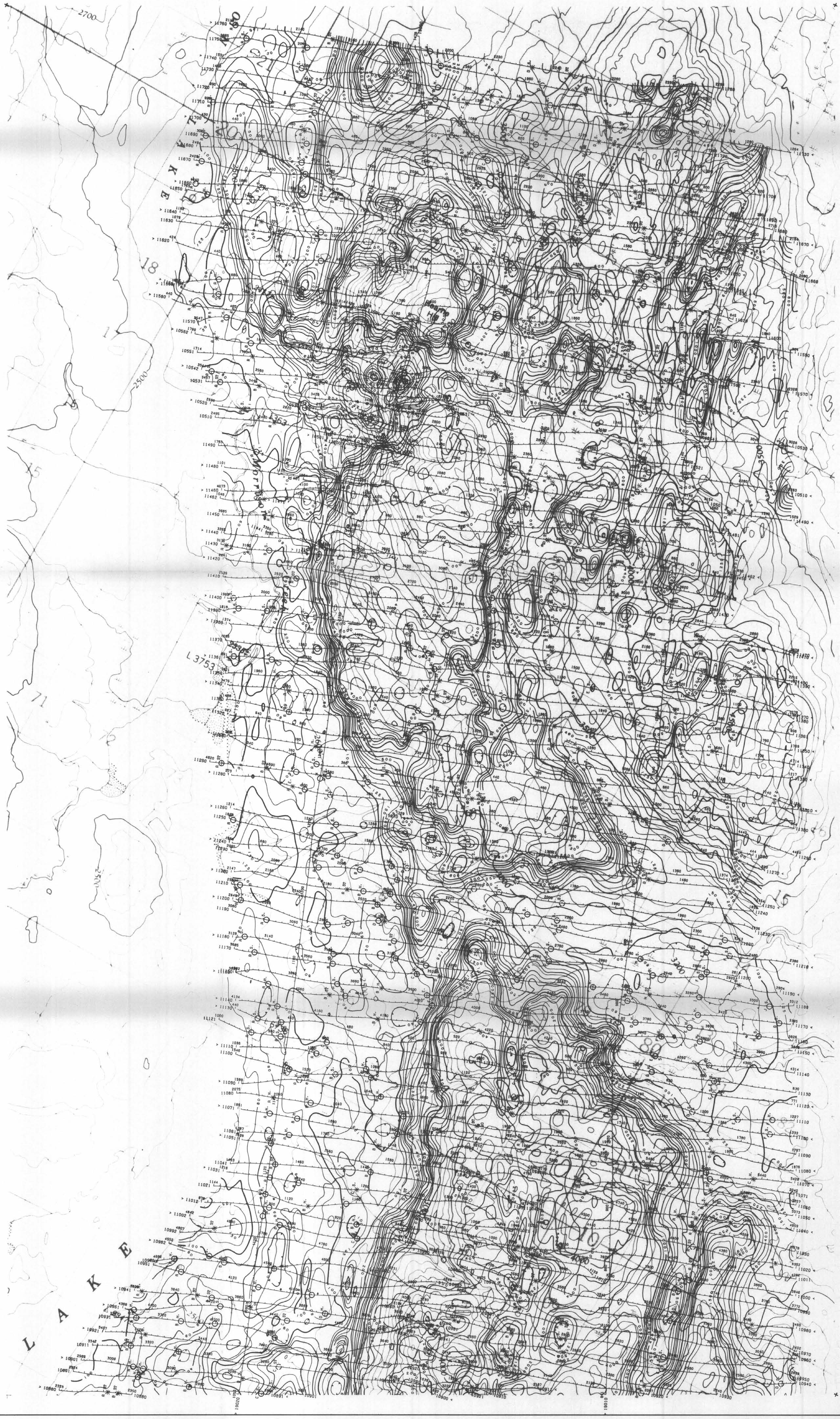
FILTERED VLF

SYSTEM: DIGHEM^{IV} SURVEY	NTS: 93L/16, M/1	GEOPHYSICIST:
DATE: July 1990	JOB: 1090	SHEET: 2

DIGHEM SURVEYS & PROCESSING INC.

0 1 2 Km
Scale 1:20000

Dighem



EM LEGEND

Grade	Anomaly	Conductance
7		≥100 siemens
6		50-100 siemens
5		20-50 siemens
4		10-20 siemens
3		5-10 siemens
2		1-5 siemens
1		<1 siemens
-	✳	Questionable anomaly

Anomaly identifier
Interpretive symbol
C H
Depth is greater than
· 15 m
: 30 m
⁝ 45 m
⁞ 60 m
Inphase and Quadrature of coaxial coil is greater than
. 5 ppm
.. 10 ppm
... 15 ppm
.... 20 ppm

Interpretive symbol	Conductor ("model")
B.	Bedrock conductor
D.	Narrow bedrock conductor ("thin dike")
S.	Conductive cover ("horizontal thin sheet")
H.	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E.	Edge of broad conductor ("edge of half space")
L.	Culture, e.g. power line, building, fence

FLIGHT LINES WITH EM ANOMALIES

13010
13020 <
Flight direction
Flight line number
11020
Reflight Number
Line Number
Area Number
120
A D
F B
100
Fiducials identified on profiles
Dip direction
EM anomaly (see EM legend)
Conductor axis (on EM maps only)
Arcs indicate the conductor has a thickness > 10m
Magnetic correlation in nT (gammas)

CONTOUR LEVELS

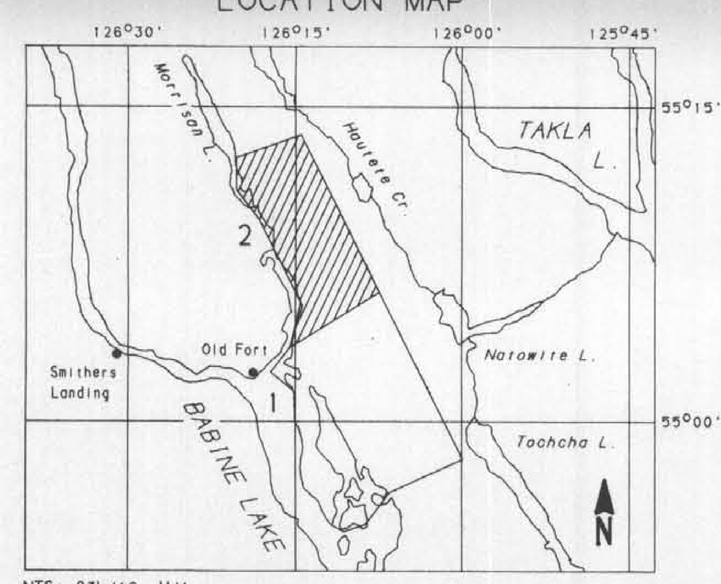
1000
800
600
500
400
300
250
200
150
125
100

Contours in ohm-m at 10 intervals per decade

GEOLOGICAL BRANCH
ASSESSMENT REPORT

20,919

LOCATION MAP



NTS: 93L/16, M/1

Scale 1:500,000

NORANDA EXPLORATION COMPANY LTD.

BABINE LAKE PROJECT

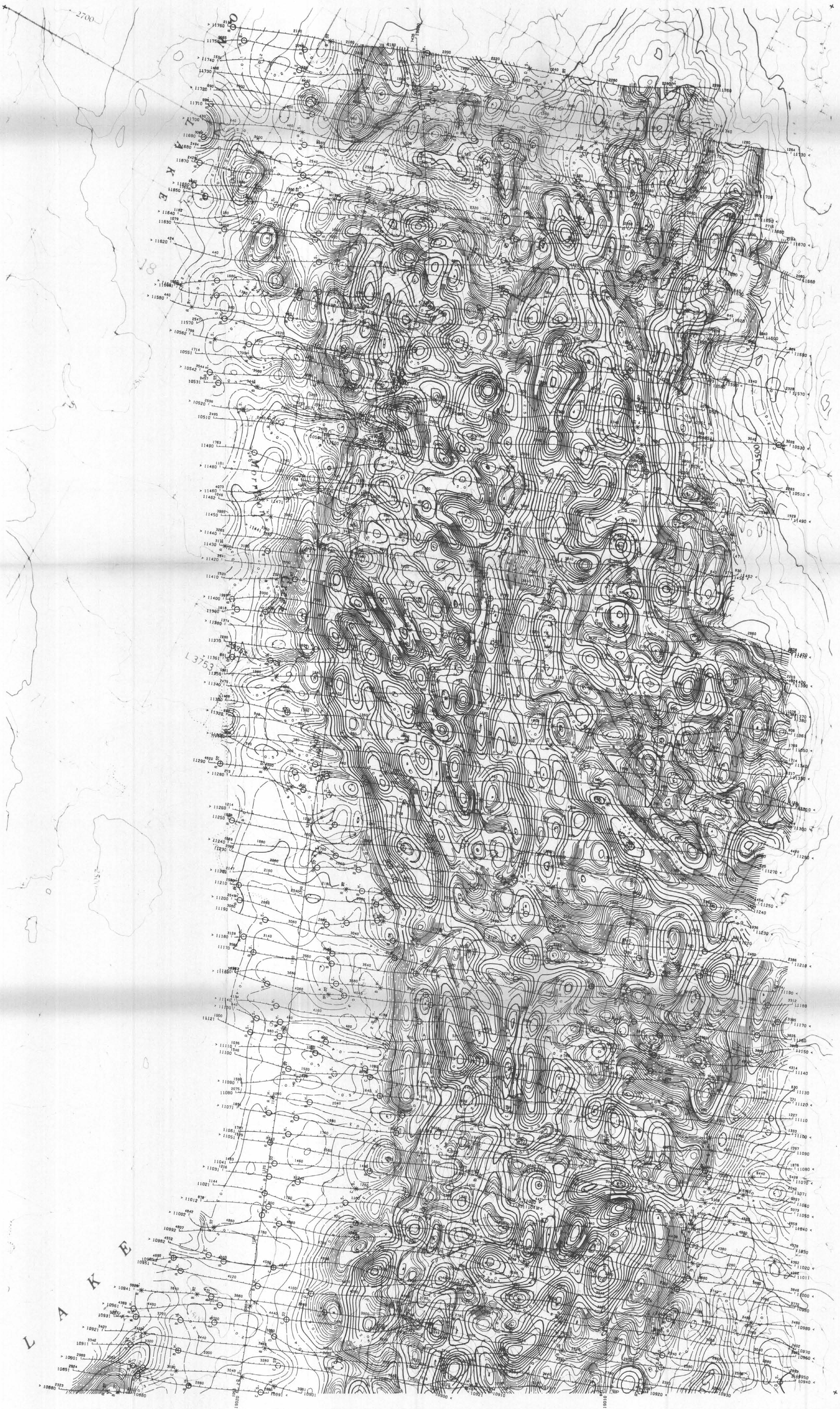
RESISTIVITY (7200 Hz)

SYSTEM: DIGHEM IV SURVEY	NTS: 93L/16, M/1	GEOPHYSICIST:
DATE: July 1990	JOB: 1090	SHEET: 2

DIGHEM SURVEYS & PROCESSING INC.

0 1 2 Km
Scale 1:20000

Dighem



EM LEGEND

Grade	Anomaly	Conductance
7	●	≥100 siemens
6	◕	50-100 siemens
5	◒	20-50 siemens
4	⊕	10-20 siemens
3	⊕	5-10 siemens
2	○	1-5 siemens
1	◌	<1 siemens
-	✳	Questionable anomaly

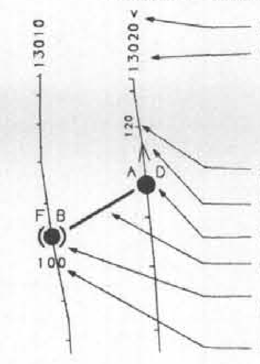
Anomaly identifier — Interpretive symbol — C|H

Depth is greater than
· 15 m
: 30 m
⋮ 45 m
⁞ 60 m

Inphase and Quadrature of coaxial coil is greater than
. 5 ppm
.. 10 ppm
... 15 ppm
.... 20 ppm

Interpretive symbol	Conductor ("model")
B.	Bedrock conductor
D.	Narrow bedrock conductor ("thin dike")
S.	Conductive cover ("horizontal thin sheet")
H.	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E.	Edge of broad conductor ("edge of half space")
L.	Culture, e.g. power line, building, fence

FLIGHT LINES WITH EM ANOMALIES



Flight direction
Flight line number
11020
Reflight Number
Line Number
Area Number
Fiducials identified on profiles
Dip direction
EM anomaly (see EM legend)
Conductor axis (on EM maps only)
Arcs indicate the conductor has a thickness > 10m
Magnetic correlation in nT (gammas)

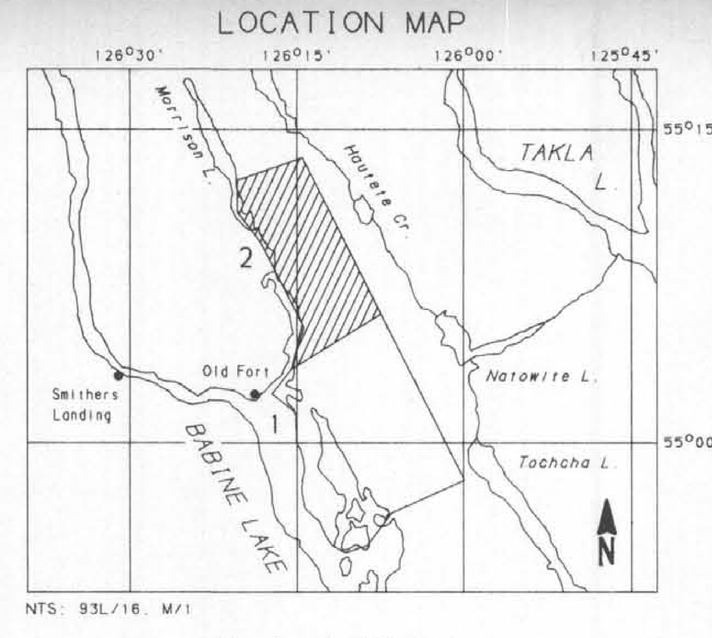
CONTOURS

━━━━━━	2.5 nT/metre
━━━━━━	0.5 nT/metre
──────	0.1 nT/metre
— — — —	0.05 nT/metre

GEOLOGICAL BRANCH
ASSESSMENT REPORT

20,919

LOCATION MAP



NTS: 93L/16, M/1

Scale 1:500,000

NORANDA EXPLORATION COMPANY LTD.

BABINE LAKE PROJECT

CALCULATED VERTICAL GRADIENT MAGNETICS

SYSTEM: DIGHEM IV SURVEY	NTS: 93L/16, M/1	GEOPHYSICIST:
DATE: July 1990	JOB: 1090	SHEET: 2

DIGHEM SURVEYS & PROCESSING INC.

0 1 2 Km
Scale 1:20000

Dighem