85-143-13532

Questor Surveys Limited Geophysical Survey of the WEST #1 - #8 MINERAL CLAIMS AREA

NTS 92B/13E LATITUDE 48 51' LONGITUDE 123 40'

VICTORIA M.D.

CLAIM OWNER: FALCONBRIDGE LIMITED
OPERATOR: FALCONBRIDGE LIMITED
CONSULTANT: QUESTOR SURVEYS LIMITED

GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,532

AUTHORS: T.E. CHANDLER, FALCONBRIDGE LIMITED
D. MARTYN, QUESTOR SURVEYS LIMITED

MARCH 20, 1985.

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1:10,000 .... in pocket

Magnetic Contours 1:10,000 .... "

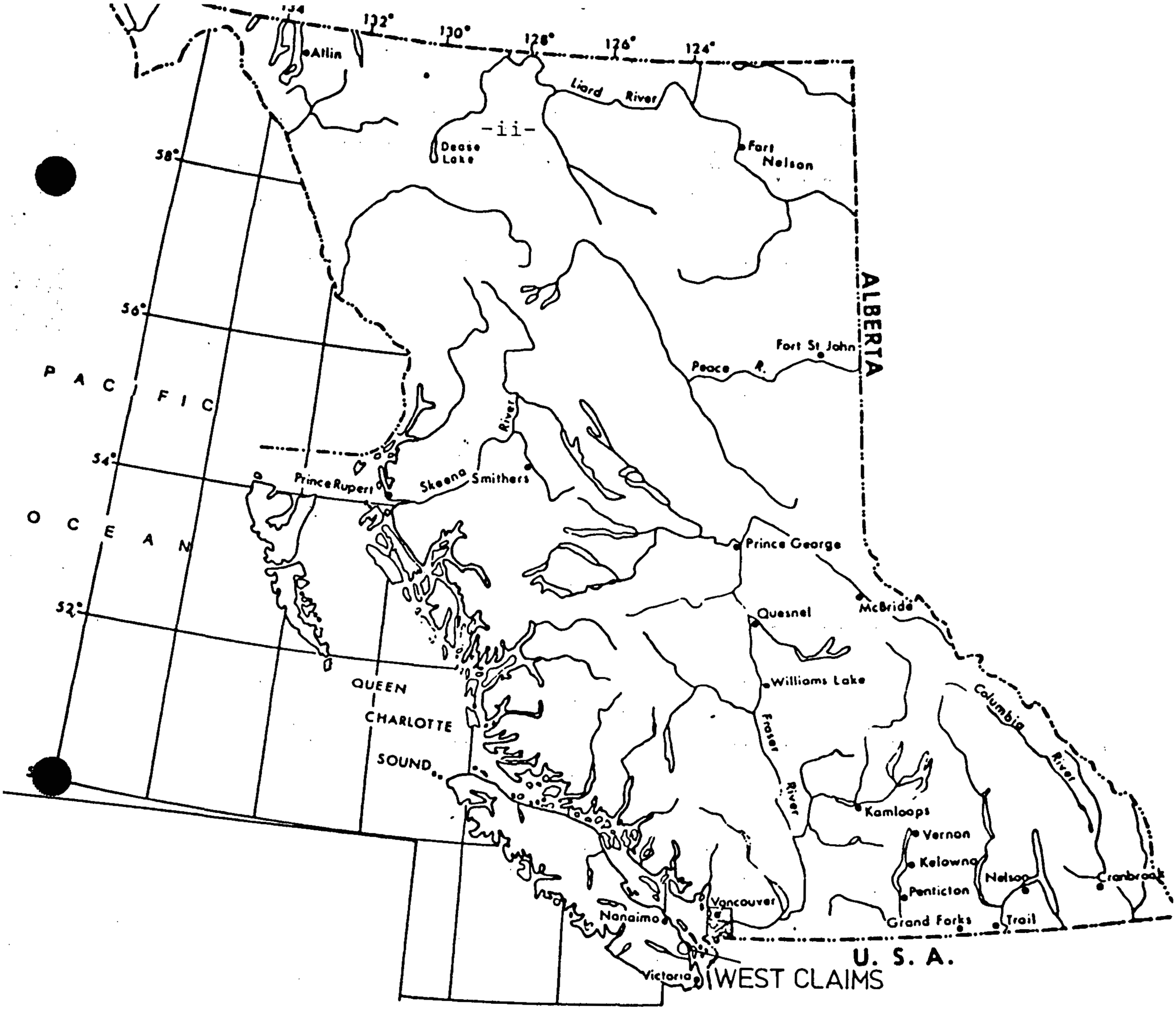
INTRODUCTION

LOCATION AND ACCESS:

The WEST #1 - #8 Mineral Claims are located within NTS sheet 92B/13E, 2 km. west of the town of Crofton, B.C.(Figure 1). The claim area is readily accessible by road from Crofton. Access within the claim block is by 4-wheel drive roads.

PROPERTY:

The WEST claims consist of six modified grid-located claims and two 2-post claims totalling 15.42 km^2 (see Fig.2). the Questor Surveys Limited helicopter borne survey, subject of this report, was contracted to provide targets for ground follow-up work. The accompanying maps indicate several conductive zones which were the subject of further field investigation. This survey was carried out on June 16, 1984, with completion of the report at a later date. For assessment credit purposes, Falconbridge requests the $20,300.00 of the total costs of the survey be credited to WEST #1-#8 as outlined on the accompanying "Statement of Exploration and Development".



INDEX MAP

BRITISH COLUMBIA

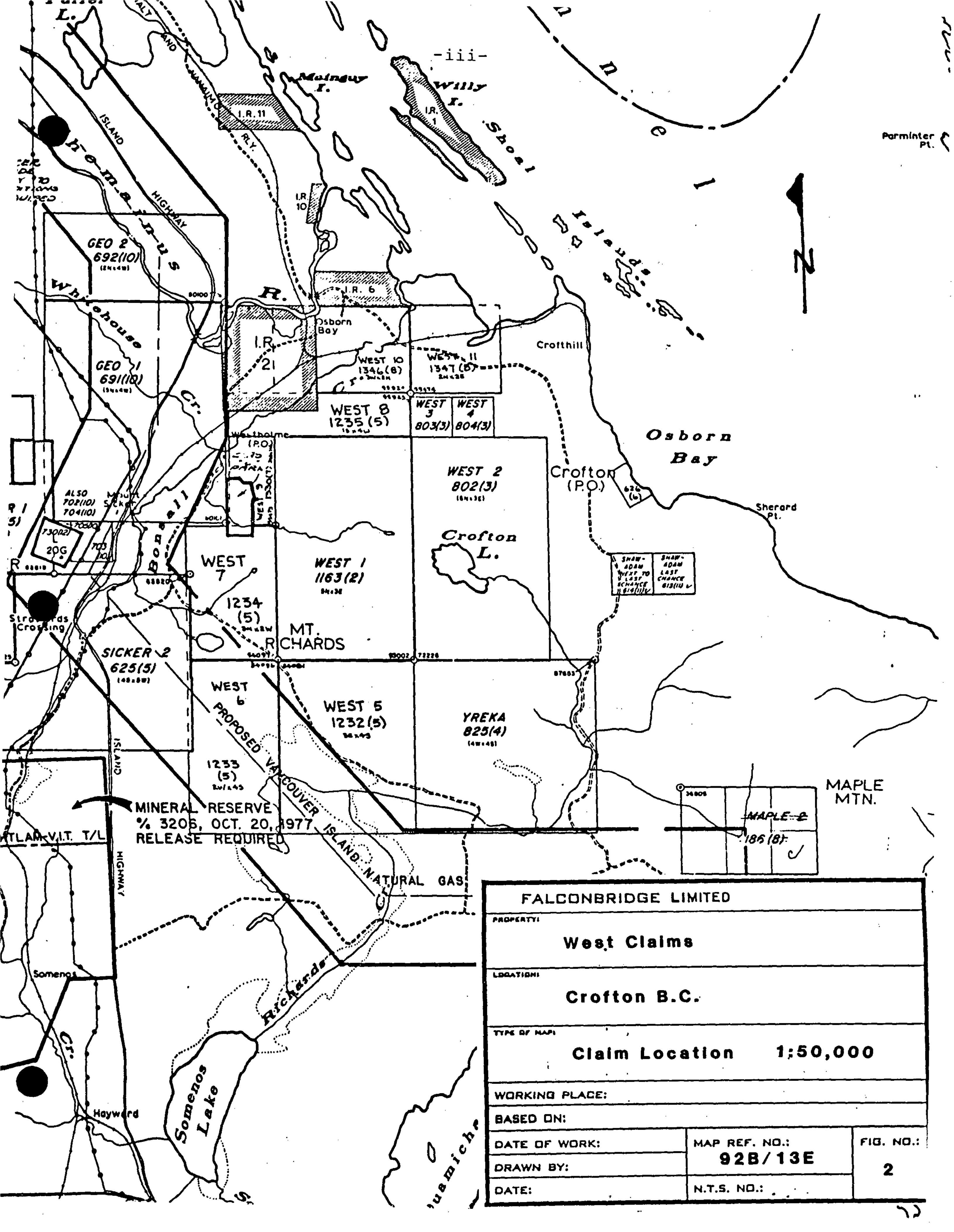
150 0 150 300 450 Km.

SCALE 1: 7·500,000

fig 1

West Claims

location map



FALCONBRIDGE LIMITED		
PROPERTY: West Claims		
LOCATION: Crofton B.C.		
TYPE OF MAP: Claim Location 1:50,000		
WORKING PLACE:		
BASED ON:		
DATE OF WORK:	MAP REF. NO.: 92B/13E	FIG. NO.: 2
DRAWN BY:		
DATE:	N.T.S. NO.:	

FALCONBRIDGE LIMITED
6415 - 64th Street, Delta, B.C., Canada V4K 4E2
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Telex 04-357583

Statement of Qualification

This is to state that I am a graduate of Carleton University, Ottawa, Ontario, obtaining a B.SC. Hons. in geology, 1975, and have worked in a geological capacity for Falconbridge Limited since 1976.

Yours truly;

Falconbridge Limited

T.E. Chandler
Project Geologist

TEC/sl

Questor Surveys Limited
6380 Viscount Road, Mississauga, Ontario, Canada L4V 1H3 Tel: (416) 676-9880 Telex: 06-983611

STATEMENT OF QUALIFICATIONS

I, Daniel Martyn of Toronto, Ontario, Canada, hereby certify that I am a graduate from the University of Toronto and hold an Honours Bachelor of Science degree in Geophysics. Since my graduation in 1977, I have been a practising Geophysicist under the employment of Geoprobe Ltd., Toronto, Chemical Projects Ltd., Toronto, and Questor Surveys Ltd., Mississauga. I have been with Questor Surveys Ltd., from October, 1980 to the present. My title is Staff Geophysicist. I am very familiar with the interpretation of airborne electromagnetic (INPUT) and Magnetic surveys.

The statements contained in the interpretation report of a helicopter INPUT and Magnetic survey flown in the Mount Richards area of Vancouver Island (file #26H29) represent my professional judgments and opinions to the best of my ability.

Daniel Martyn

Date: March 21/85

STATEMENT OF COSTS

QUESTOR SURVEYS LIMITED helicopter borne geophysical survey:	
175 line-km including mobilization, demobilization costs	$40.000.00
Total Cost:	$40,000.00

HELICOPTER-BORNE ELECTROMAGNETIC SURVEY

MOUNT RICHARDS

VANCOUVER ISLAND, B.C.

FALCONBRIDGE LIMITED

FILE NO: 26H29 AUGUST 1984

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

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1. INTRODUCTION

This report details the operation and interpretation of a Helicopter-borne INPUT electromagnetic and magnetic survey. The survey consists of a single block on Vancouver Island, over Mount Richards, which is just west of Crofton and approximately 8 kilometres north of Duncan. The location and boundaries of the survey area are outlined on maps provided at the end of the report. It was conducted for Falconbridge Limited and was commissioned on May 29, 1984 by Mr. L. C. Kilburn, Vice President of Falconbridge Limited.

The survey was flown in one day, on June ~~26~~ 16, 1984. A total of 175 line kilometres were flown over the block at a line spacing of 100 metres.

The electromagnetic system utilized for the survey was the **Barringer/Questor** MK VI INPUT system with receiver and transmitter specifications as outlined in Appendix A. The system was mounted on a Bell 205A Helicopter, which is owned and operated by Trans Canada Helicopter Limited of Canada.

The survey operations by **Questor Surveys Limited** were overseen in part by Terry Chandler and Shelley Lear of Falconbridge Limited. The author supervised the field operations and the data compilation in the office, through to the completion of the project in September, 1984.

2. SURVEY OPERATIONS

2a. Survey Procedure

During the survey, the helicopter maintained a terrain clearance as close to 122 ~~feet~~ metres as possible, with the receiver coil (bird) at approximately 49 metres above the ground surface. In areas of substantial topographic relief and large population, the helicopter height may exceed 122 metres for safety reasons. The height of the bird above the ground is also influenced by the helicopter's air speed (see figure C1 in Appendix C), which may range from 20 to 60 knots, while on survey.

The survey traverse lines for the survey area were flown in the following manner:

BLOCK	LINE DIRECTION	SPACING BETWEEN LINES
A	N 30° E	100 metres

Whenever possible, the traverse lines were flown in alternate flight directions (ie: north then south) facilitating the interpretation of dipping conductors. When the traverse line spacing exceeded twice the normal spacing interval over a 3.2 kilometre distance, the gap was filled with an appropriately spaced fill-in line at a later date.

The details of each flight are documented on the flight logs by the equipment technician. The logs include the survey times, line numbers and fiducial intervals, as well as a record of equipment irregularities and atmospheric conditions.

One may refer to these logs in order to relate the flight path film to the geophysical data.

5. Production

The following table summarizes the production during the survey operations:

DATE	FLT NO.	PRODUCTION	BLOCK	NON PRODUCTION WX	EQPT	SFERICS	MAG	COMMENTS
Jun 16/84	113	X	A					no problems encountered
	114	X	B					

WX - bad weather

EQPT - survey equipment unserviceable

CRAFT - helicopter unserviceable

SFERICS - atmospheric noise

MAG - magnetic storm

2c. Survey Personnel

The survey crew was made up of the following experienced Questor employees:

Geophysicist	D. Martyn
Pilot	B. Masson (Trans Canada)
Navigator	B. Smith
Operator	D. Makos
Engineer	J. Caza (Trans Canada)

2d. Magnetic Diurnal

Diurnal variations in the earth's magnetic field had been recorded to an accuracy of 5nT using a base station equipped with a Geometrics Model 826 Proton Precession Magnetometer and Rustac Chart Recorder. It was monitored periodically during the day by the Geophysicist for severe diurnal changes (magnetic storms). A variation of 20nT over a 5 minute time period was considered to be a magnetic storm. During such an event, the survey would normally have been discontinued or postponed and the survey data would have been scrubbed. The base station was set up at the Village Green Inn in Duncan, which was the operations base for the survey.

2e. Equipment

The survey equipment and helicopter used for the survey are summarized in Appendices A and B, respectively. Briefly, the following equipment was utilized for the survey:

a) Bell 205A-1 Helicopter (Canadian Registration C-GLMC);

b) Barringer/Questor Mark VI INPUT 2 msec. E.M. System;

c) Geometrics Model 803 Proton Precession Magnetometer; (±1nT sensitivity);

d) Sonotek Acquisition System;

e) RMS GR33 Analog Recorder;

f) Geocam 35mm. frame camera with Pentex 18mm lense;

g) Sperry Radar Altimeter (±3 percent accuracy);

h) Digidata Digital Recorder.

j) Vertical axis receiver coil (bird).

The equipment, such as the INPUT system, magnetometer and radar altimeter were regularly calibrated at the beginning and end of each survey flight as well as in mid-flight, whenever necessary. Details of the calibration procedures are given in Appendix C.

Three control lines were flown over the survey block, at approximately right angles to the traverse line directions. For those traverse lines, crossed by one or more control lines, computer process has calculated the intersection positions (fiducials of the control and reverse lines), and has tabulated the magnetic values and gradients. The differences were analysed and a correction was applied, where required, to the magnetic field in the form of a linear sloping datum along the traverse line.

2f. Recovery

The flight path of the helicopter is recorded by a frame camera on black and white, 125 ASA, 35mm. film. The film is exposed continuously during the survey flight at a rate of 1 frame every 2 seconds. The aperture setting on the camera can be manually adjusted by the navigator during flight, assuring the proper exposure of the film.

Recovery of the flight path is performed by comparing the negative of the film to the topographic features of the recovery mosaic. Coincident features are picked and plotted on the mosaic. They are annotated with a fiducial number (timing mark) which is printed on the film. Points are picked at an average interval of one per kilometre whenever possible. On the final presentations, the picked points are indicated on the flight path by means of a dot. Major fiducials are marked as ticks along the flight line and the first and last ticks on a line are numbered. These fiducial marks are interpolated. A list of the picked points are given at the end of the report, according to line number.

The processing of the film and recovery of the flight path are performed in the field by the geophysicist and navigator. The recovery is kept up on a daily basis assuring proper flight line coverage of the job and immediate red ball interpretation of the INPUT results.

The completed flight path is digitized accurately on a flat-bed digitizer at QUESTOR using the picked point co-ordinates. The recovery is then routinely verified by a computer program 'speed check', which flags any abnormalities in the distance per fiducial unit between picked points on a traverse line. As a final check, the rough magnetic contour maps are examined for contour irregularities that could be attributed to recovery errors.

3. DATA PRESENTATION

3a. Map Compilation

The photo base for the navigation strips, the recovery map and the final mylar presentation were prepared at **Questor Surveys Limited** by simply enlarging a portion of a 1982 air photograph from a scale of 1:67,000 to ~~1:20,000~~ 1:10,000. The photo was obtained from the Ministry of Environment of British Columbia.

The geophysical data have been processed by our own computer department. The final plots were, however, plotted at Dataplotting Services Ltd. They are plotted on clear mylar, to be later photographically combined with one another or with the photo base to produce the desired aggregate of products. Before this occurs, the drafting department must clean up the data, making sure that everything is legible as well as draft the interpretation.

3b. Products

The following products are supplied:

1. the original analog records of the electromagnetic and magnetic data, fully labelled with line numbers plus one print and a microfilm negative of the same;
2. the flight logs;
3. two rolls of flight path film;
4. anomaly data sheets (provided at the end of this report);
5. one roll of base station magnetic records;
6. one blank photo base at a scale of 1:10,000;
7. one mylar master of the photo base, flight path, selected INPUT anomalies and interpretation at a scale of 1:10,000;

8. one mylar overlay of the flight path and magnetic contours at a scale of 1:10,000;
9. one regular applicon colour plot of the magnetic data;
10. one shadow relief applicon colour plot of the magnetic data;
11. four reports covering operations and interpretation of the survey;

4. GENERAL INTERPRETATION

4a. Data Summary

Appendices D, E, F and G contain a comprehensive description of the interpretational approach used in our INPUT surveys. Some of this information is repeated in the following paragraphs, in order to emphasize those points which are more relevant to this survey.

Three main power lines cross the survey site and they have been indicated in the interpretation map. Responses arising from these power lines have not been selected or plotted on the map as cultural responses to simplify the E.M. map. They are unmistakenly cultural and could not be taken as being bedrock in origin. In the survey, there are three responses that have been identified as probable cultural in origin; they concidently plot over farm buildings. These anomalies are designated by a square symbol on the map and by lower case letters.

A film check has been routinely performed for all anomalies to substantiate their source. In some cases, this check is not very conclusive, especially when a cultural source is buried (not visible on the film), and when a natural conductor coincides with culture. In these situations, the questionable anomaly would have been given the benefit of the doubt and selected as a bedrock conductor.

The overburden cover in the survey area varies from extremes of nonconductive to very conductive. In the resistive areas, which is a large portion of the area, maximum penetration of the INPUT system is likely, and the masking effect of any underlying bedrock conductor would be minimal.

Weaker responses in the order of one to three channels, originating from the bedrock, would be indicative. Conductive overburden, on the other hand, suppresses the depth of penetration, making anomaly discrimination difficult, except for those conductors that demonstrate high conductivity and slow transients. Those responses suspected or originating from an overburden or lake bottom sediment source have been identified on the records and plotted on the final INPUT maps, using the appropriate symbols (see legend).

In this survey, all interpreted natural E.M. anomalies have been selected. They have been either labelled or grouped as bedrock or surficial type responses. The bedrock intercepts display response characteristics or anomaly patterns normally associated with bedrock-type conductors. Therefore, they were selected as bedrock anomalies and have been recommended for further investigation. In some instances, caution is advised because they may in fact, derive from a thickening of the overburden or a cultural source.

The topography may encourage the deposition of conductive sediments into thicker deposits that are laterally restricted in one direction. These deposits sometimes give rise to particularly deceptive INPUT responses. They are often distinguishable from bedrock-type responses by their quick decay rates, early channel detection and broadness. Also, these deposits produce a characteristic anomaly pattern, which identifies them as being flat-lying surficial conductors.

An anomaly listing, at the back of this report summarizes all selected anomalous responses in numerical sequence. The listing includes the following specifications for each anomaly: anomaly number, fiducial location, anomaly type, channel classification, amplitude of channels one to six in parts-per-million, conductivity-thickness product in siemens, associated magnetic peak location, intensity of magnetic anomaly in nT and altitude of aircraft above the ground surface in metres. The anomaly label is comprised of four elements, for example:

10200A

1 - first digit signifies the block (BLOCK A);

020 - next three digits signify the flight line number (line 20), control lines are differentiated by having a number 9 in the first position;

0 - fifth digit indicates the number of flight attempts;

A - a letter is assigned to each anomaly, which corresponds to the anomaly's sequential order along the flight line. Natural anomalies are in capital letters, while culture responses are in small letters.

Questor's alphabet is as follows: ABCDEFGHJKLMNPRSTWYZ

In addition to the standard anomaly parameters, an "anomaly type" classification has been added. The letters correlate with the plotted symbols according to the following table:

Anomaly Type	Response Source	Symbol (see map legend)
Blank	bedrock conductor	circular
S	surficial (overburden or lake bottom)	diamond
U	up-dip, accessory peak to main response	half circle and half diamond, the diamond end "pointing" in the dip direction
P	poorly defined response	asterisk "*" in lower left quadrant
C	culture	square

In addition to the plan presentations of the INPUT anomalies, listed in Section 3(a), a scaled profile map of the raw E.M. channel 1 amplitudes have been plotted. The profiles are provided at the end of this report. They introduce a visual comparison of consecutive responses with respect to their response characteristics (amplitude and width) and their spatial position to one another.

4b. Conductivity Analysis

The conductivity-thickness product of a conductor is proportional to the time constant of its secondary field electromagnetic transient decay. The conductivity-thickness product of an anomaly is determined by taking the inverse of the log difference of two channel peak amplitudes. Preferably the latest affected channel and the second channel. For details see the section on Quantitative Interpretation in Appendix G.

4c. Regional Geology

No specifics are known about the geology in the survey area. Generally, the area is composed of three prominent geological units: upper Cretaceous sedimentary rocks, upper Triassic sedimentary and volcanic rocks and Mesozoic granodiorite and quartz diorite intrusions.

5. INPUT INTERPRETATION

The survey area contains numerous INPUT responses, which have been interpreted as being bedrock, surficial or cultural in origin. The bedrock anomalies have been further segregated into two groups: probable and possible bedrock conductors. The former is identified on the interpretation map by a solid conductor axis, while the latter has a dashed conductor axis and/or is encircled by a surficial zone symbol (see legend). The weak response characteristics of the possible bedrock conductors makes it difficult to distinguish their source with any certainty. They are suspected of deriving from a surficial source much more so than a bedrock conductor. Therefore, these conductors are assigned low priority ground follow-up status.

The following intercepts are those classified as low priority follow-up targets:

10040D	10060C	10131A
10150E	10170F	10190D
10190F	10200B	10202A
10202B	10210D	10210E
10240A	10240B	10250E
10260A	10360A	

Conductive lake bottom sediments in Lake Crofton account for eight weak intercepts and are appropriately designated on the interpretation map as well as in the computer sheets.

In addition to the lake bottom sediments, there are two distinct zones of increased surficial conductivity, which have been outlined in the same manner on the map. The larger of the two, takes in the northern portion of the survey area. It is attributed to a metasediment formation that is rich in brine or graphite.? The anomalies within this zone are believed to be of no economic value and no further work is recommended in this particular area. Conductor axes have been drawn within the zone with some apprehension due to the nature of the conductivity in the zone. The other zone of surficial conductivity is discussed later in conjunction with the referenced conductor 7.

Some of the referenced bedrock conductors have been grouped together primarily to simplify their discussion in the following paragraphs. They were grouped in accordance to their similarity in response characteristics and location in respect to one another and to the magnetic relief.

CONDUCTORS 1a, 1b

Anomalies: 1a: 10010A, 10021A, 10030C

1b: 10020D, 10040G

Priority: Medium

Both these conductors are situated along the southern edge of the conductive zone, which spans the northern part of the survey area. An examination of the half-peak widths on the interpretation map confirms this corroboration. However, the conductors are believed to be far enough away to be suspected of originating from a bedrock source other than conductive metasediments.

The five intercepts belonging to the two conductors exhibit very much the same response characteristics as those in the conductive zone with one difference. The responses of conductors 1a and 1b are slender compared to those in the conductive zone.

The conductors have moderate conductivity-thickness values and are situated near the surface. -> how deep?

A ground check is warranted starting with conductor 1a to investigate the possibility that it may be a discrete sulphide-bearing bedrock conductor. Due to their somewhat resemblance and close proximation to those intercepts in the conductive zone, they are assigned a medium priority check at this time.

CONDUCTORS 2a, 2b

Anomalies: 2a: 10010C

2b: 10010D

Priority: Medium-Low

There is a great deal of uncertainty as to the origin of these two intercepts. Their channel amplitudes are relatively weak but display slow decay rates, which explains their high conductance of 30 and 26 siemens. Unfortunately, the intercepts are situated at the west survey boundary in an area of culture. The electromagnetic disturbance (noise) caused by the power line to the north-northeast and the deflection of the 60Hz power monitor on the analog records above the anomalies make it appear that the anomalies may perhaps be cultural. However, a film check at the anomaly locations revealed no immediate cultural sources. Therefore, a ground check is recommended to help explain the sources of the two intercepts.

CONDUCTORS 3a, 3b

Anomalies: 3a: 10040F, 10050C

3b: 10040E, 10050D

Priority: Medium-Low

The response signatures of these pairs of intercepts are similar to intercepts 10010C and 10010D. They occur between two converging power lines, which have disturbed the E.M. records on either side of the anomalies and have influenced their character. Again, no evidence of culture is visible on the tracking film at the intercept positions to assume that cultural sources are responsible. But, the possibility of culture is present because of their close proximity to roads and buildings. Keeping this in mind, a medium-low priority ground check is recommended for the conductive sources, which are near-surface and have low conductances.

Personally, I have interpreted the intercepts as being the result of two parallel conductors. However, I should mention that another possibility exists and it is that, a single vertical conductor may be the cause. In that instance, the conductor axis would plot between the two present axes. Properly grounded wires such as powerlines have been known to produce double responses but are normally weaker than the one experienced here.

CONDUCTORS 4a to 4f

Anomalies: 4a: 19030A

4b: 10010E, 10020C, 10030D, 10040C, 10050E

4c: 10020B, 10030E, 10040B, 10050F, 10060B, 10070D, 10080A

4d: 10020A, 10040A

4e: 10060A

4f: 10100A, 10120A

Priority: Medium

On the interpretation maps, solid conductor axes have been drawn along 6 NW-SE striking conductors in the SW corner of the survey block. The conductors originate from bedrock sources, which are formational, perhaps the same as those exposed in the conductive zone to the north. The conductors in both areas occur in relatively inactive magnetic relief. The prominent differences between the two areas are the sharper and smaller channel amplitudes exhibited by the responses of conductors 4a to 4f. This suggests that conductors 4a to 4f are more discrete sources.

Ground investigation of the area should focus on conductor 4c at first to establish its source of conductivity. Due to the formational nature of the conductors, a medium priority follow-up is warranted.

CONDUCTORS 5a, 5b

Anomalies: 5a: 10150G, 10160B, 10170G, 10180A, 19030B,
10190G, 10200A, 10210F

5b: 10140A, 10150H, 10160A, 10170H

Priority: Medium-Low

Having a second look at conductor 5a, the conductor axis plotted through its 8 intercepts may be too long. It was drawn in its present location using the relationship of its coherent intercept positions. But, when overlayed by the magnetic contour data, there does not appear to be any conformity between the two. Perhaps, the single conductor could be split in two. For example, anomalies 10150G, 10160B and 10170G would make up one conductor, while the other is composed of anomalies 10200A and 10210F. This would leave intercepts 10180A, 19030B and 10190G on their own. The fact that they are situated in the vicinity of culture would suggest that they may arise from culture. However, this association is not directly supported by the film. The ambiguity as to the conductor's strike length can only be resolved by a ground check.

The four intercepts that make up conductor 5b are early channel responses with fast decay rates. Their peak positions coincidently plot north as well as parallel to a secondary road, which apparently has power lines. Talking to Terry Chandler of Falconbridge Ltd., a VLF ground check has been already performed with no success of finding this conductor. Perhaps, the responses are the product of a properly grounded power line.

They may be the result of current gathering in the overburden. Its difficult to say, however, the possibility of a natural source situated 100 metres north of the roadway should be considered.

CONDUCTORS 6a to 6g

Anomalies: 6a: 10080B

6b: 10080C, 10090C, 10100C, 10110E

6c: 10110D

6d: 10120B

6e: 10161A

6f: 10100B, 10120C, 10130D, 10140A, 10150F, 10161B, 10170E

6g: 10230E

Priority: High

The collection of conductors in the central region of the survey site are most interesting. Conductors 6a to 6g are scattered with an area of low magnetic activity, suggesting a mutual geological environment. Electromagnetically, the conductors are weak and exhibit response signatures, which have early channel deflections with small amplitudes. A great number of the responses resemble surficial-type anomalies. But, given the fact that the surrounding area is resistive, the conductors are believed to originate from weak bedrock sources located sub-surface. Due to their weak response behavior, it is not possible to evaluate the responses with respect to a particular geometry and dip.

Ground investigation of the area is highly recommended and could begin at the more prominent intercepts, such as 10080B, 10120C, 10141A, 10161A and 10170E or with those situated furthest away from cultural sources.

CONDUCTORS 7a to 7d

Anomalies: 7a: 10170D, 10180A, 10190E, 10202C

7b: 10220B, 10230D, 10240D

7c: 10210C, 10220A, 10240C, 10250D, 10260B, 10270C, 10280C

7d: 10280B

Priority: High and Medium

The conductors in this group are weak and can be explained by either bedrock or surficial sources. With the exception of intercept 10170D, which is believed to be of bedrock origin, the remaining intercepts of conductors 7b, 7c and 7d have a solid conductor axes and are encompassed by a surficial conductivity symbol. These particular conductors warrant a medium priority check on the ground to determine their source of conductivity. A bedrock source of near-surface origin is favoured by the author but this preference is solely based on anomaly patterns.

Conductor 7a is situated on a magnetic peak of 62nT. The magnetic anomaly is attributed to a formational unit and not the conductor. This conductor should be investigated at intercept 10170D for a deep bedrock source, whose short strike length conforms to the local geological strike of NW-SE. A high priority ground follow-up is recommended for conductor 7a, using a deep penetrating EM ground system.

CONDUCTOR 8

Anomalies: 10350A, 10360B, 10370A

Priority: High

The nature of this conductor is very similar to conductor 7a. The conductor consists of three intercepts. Intercepts 10350A and 10370A are weak, early channel anomalies, while 10360B exhibits a four channel anomaly with weak channel amplitudes that are slightly larger than the background noise level. The anomaly is coincidently situated after a negative response on the analog records, which may or may not be of significance. The response characteristics of 10360B could be easily attributed to a deeply buried conductor with high conductivity and limited size. Consequently, ground geophysics is recommended at its location.

CONDUCTOR 9

Anomaly: 19010A

Priority: Medium

Intercept 19010A is located outside the survey area, just south of Crofton. Due to the intercept's close proximity to cultural sources, it may either originate from a bedrock or a cultural source. A film check of the intercept was not very conclusive. Therefore, a preliminary ground reconnaissance for cultural sources is recommended, followed by geophysics in the event of no cultural explanation.

6. CONCLUSIONS AND RECOMMENDATIONS

The INPUT survey has revealed 9 zones of conductivity, which show some promise of originating from a bedrock source. Conductors have been briefly described in the report and are prioritized as to their ground follow-up importance. They have been classified as high, medium, medium-low or low priority targets, on the basis of their response characteristics, response pattern and magnetic association. In conclusion, there are 3 high, 4 medium, 3 medium-low and 17 low priority targets warranting additional ground investigation.

Respectfully submitted

QUESTOR SURVEYS LIMITED

Daniel Martyn

Project Geophysicist

APPENDIX A

BARRINGER/QUESTOR MARK VI INPUT(R) Helicopter System

The INduced PUlse Transient (INPUT) method is a system whereby measurements are made, in the time domain, of a secondary electromagnetic field while the primary field is between pulses. Currents are induced into the ground by means of a pulsed primary electromagnetic field which is generated from a transmitting loop around the helicopter. By using half-sine wave current pulses (Figure A-1) and a transmitter loop of large turns-area, a high signal-to-noise ratio and the high output power needed for deep penetration, are achieved.

Induced current in a conductor produces a secondary electromagnetic field which is detected and measured after the termination of each primary pulse. Detection of the secondary field is accomplished by means of a receiving coil, wound on an air core form, mounted in a PCV plastic shell called a "bird" and towed behind and below the helicopter on 76 metres (250 feet) of coaxial cable. The received signal is processed and recorded by equipment within the helicopter.

The axis of the receiving coil may be vertical or horizontal relative to the flight direction. In rolling or hilly terrain the standard or horizontal coil axis is preferred, although in steep terrain, the vertical axis coil optimizes coupling with horizontal or dipping stratigraphy. The secondary field is in the form of a decaying voltage transient, measured in time, at the termination of the primary transmitted pulse. The amplitude of the transient is proportional to the amount of measured in time, at the termination of the primary transmitted pulse. The amplitude of the transient is proportional to the amount of current induced into the conductor, the conductor dimensions, conductivity and the depth beneath the aircraft.

The rate of decay of the transient is inversely proportional to conductance. By sampling the decay curve at six different time intervals and recording the amplitude of each sample, an estimate of the relative conductance can be obtained. Transients due to strong conductors such as sulphides and graphite, usually exhibit long decay curves and are therefore commonly recorded on all six channels. Sheet-like surface conductive materials, on the other hand, have short decay curves and will normally only show a response in the first two or three channels.

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

TRANSMITTER SPECIFICATIONS

Pulse Repetition Rate	180	per sec
Pulse	Half sine	
Pulse Width	2.0	millisec
Off Time	3.56	millisec
Output Voltage	67	volts
Output Current Peak	200	amperes
Output Current Average	46	amperes
Coil Area	177 $m.^2$	($1,904$ $ft.^2$)
Coil Turns	7	
Electromagnetic Field Strength (peak)	247,800	amp-turn-$meter^2$

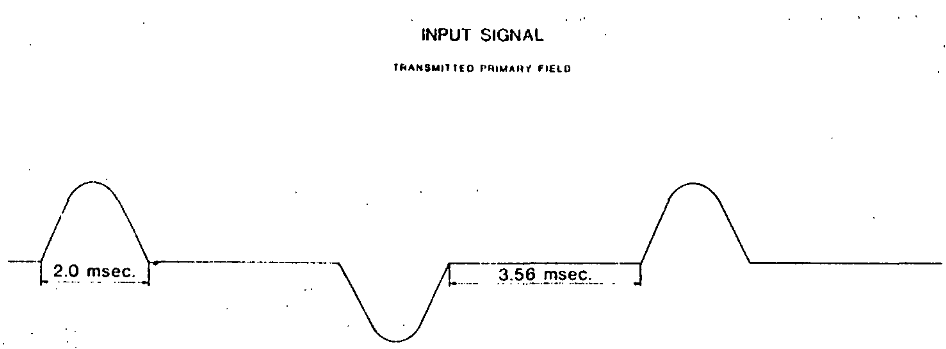


Figure A1

RECEIVER SPECIFICATIONS

Sample Gate	Windows (centre positions)	Widths
CH 1	340 sec	200 sec
CH 2	540	200
CH 3	840	400
CH 4	1240	400
CH 5	1740	600
CH 6	2340	600

Sample Interval	0.5 sec
Integration Time Constant	1.3 sec
Bird Position behind Aircraft (at 40 kt)	19 metres
Bird Position below Aircraft (at 40 kt)	73 metres

Receiver features: Power Monitor 50 or 60 Hz

50 or 60 Hz and Harmonic Filter

VLF Rejection

Spheric Rejection (tweak) Filter

SAMPLING OF INPUT SIGNAL

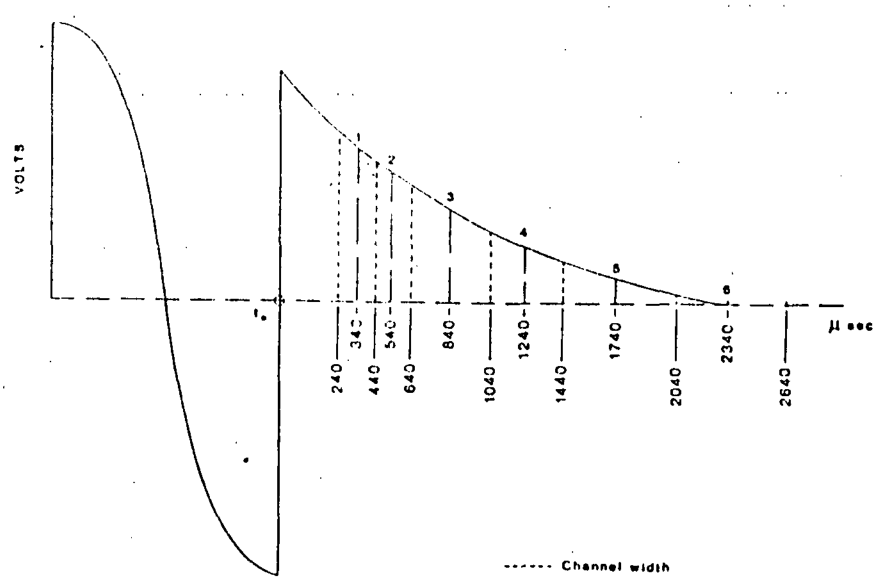


Figure A2

DATA ACQUISITION SYSTEM

Sonotek SDS 1200

9 track 800 BPI ASCII

Includes time base Intervalometer, Fiducial System

CAMERA

Geocam 75 SF

35 mm continuous strip or frame

TAPE DRIVE

Digidata Model 1139

OSCILLOSCOPE

Tektronix Model 305

ANALOG RECORDER

Honeywell Visicorder WS 4010

Kodak Light Sensitive Pape (15cm)

Recording 14 Channels: 50-60 Hz Monitor, 6 INPUT Channels, fine and coarse Magnetics, Altimeter, vertical and horizontal timing lines and fiducial markers.

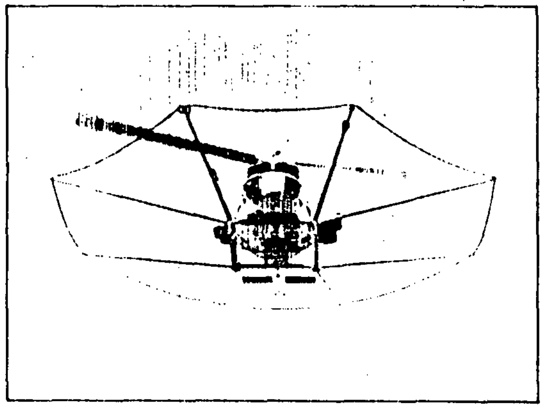
ALTIMETER

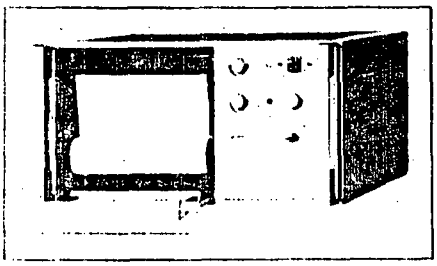
Sperry Radar Altimeter

SONOTEK P.M.H. 5010 PROTON MAGNETOMETER

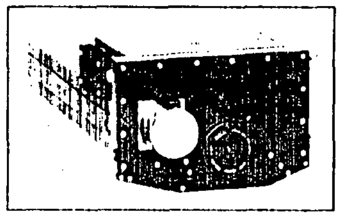
The airborne magnetometer is a proton free precession sensor, which operates on the principle of nuclear magnetic resonance to produce a measurement of the total magnetic intensitity. It has a sensitivity of 1 gamma and an operating range of 20,000 gammas to 100,000 gammas. The sensor is a solenoid type, oriented to optimize results in a low ambient magnetic field. The sensor housing is mounted on the tip of the nose boom supporting the INPUT transmitter cable loop. A 3-term compensating coil and perma-alloy strips are adjusted to counteract the effects of permanent and induced magnetic fields in the aircraft.

Because of the high intensity electromagnetic field produced by the INPUT transmitter, the magnetometer and INPUT results are sampled on a time-share basis. The magnetometer head is energized while the transmitter is on, but a measurement is only obtained during a short period when the transmitter is off. Using this technique, the sensor head is energized for 0.80 seconds and subsequently the precession frequency is recorded and converted to gammas during the following 0.20 seconds when no current pulses are induced into the transmitter coil.

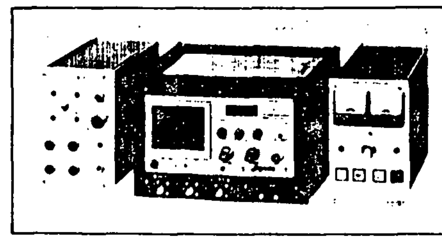




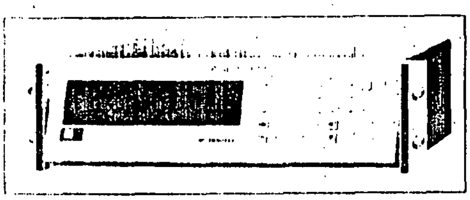
HONEYWELL ANALOGUE CHART RECORDER



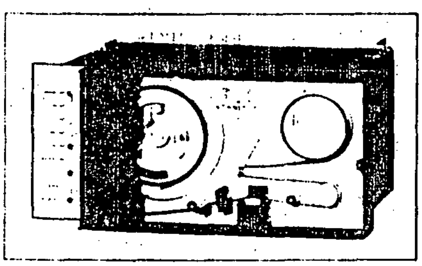
35mm TRACKING CAMERA



INTERFACE, OSCILLOSCOPE & T.C.U.

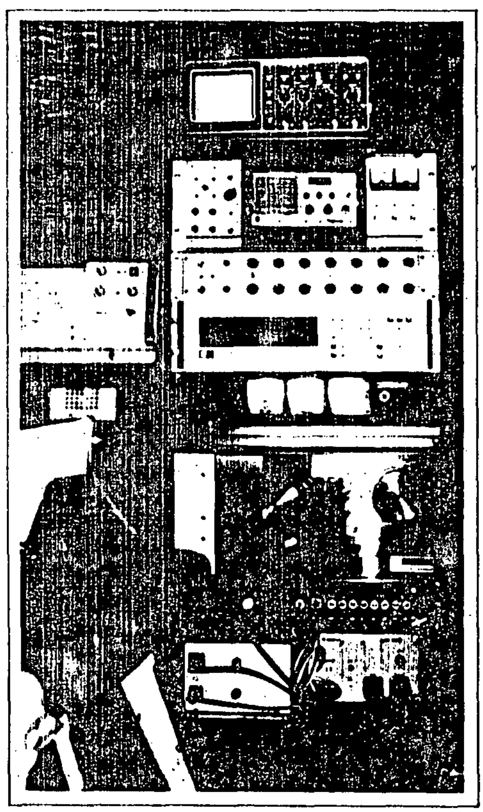


SONOTEK DATA SYSTEM

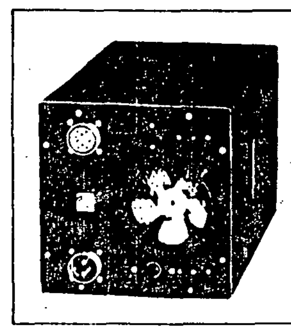


9 TRACK TAPE RECORDER

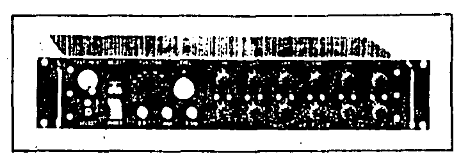
RADAR ALTIMETER



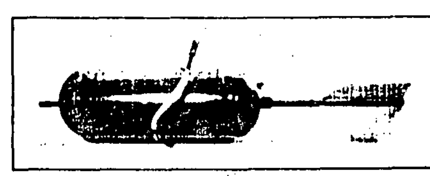
INPUT® EQUIPMENT INSTALLATION



TRANSMITTER



MK VI INPUT® RECEIVER



TOWED "BIRD" ASSEMBLY

QUESTOR/BARRINGER MARK VI "INPUT"® SYSTEM EQUIPMENT

APPENDIX B

The Survey Helicopter

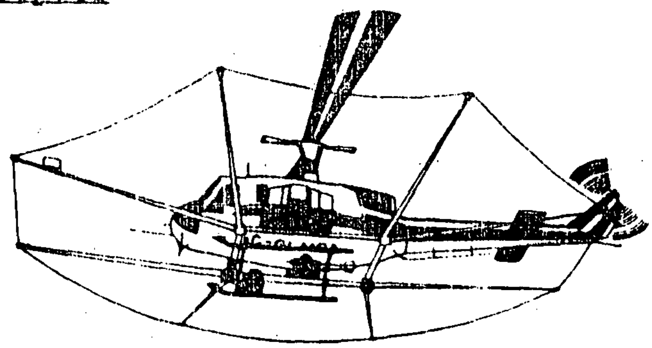


Figure B1

Manufacturer	Bell Helicopter Company
Type	205A-1
Canadian Registration	C-GLMC - present installation
Date of INPUT Installation	May 1982

Modifications:

1) Cradle and wing booms for transmitter coil mounting
2) Camera and altimeter mounting
3) Modified gasoline driven generator system

Any BELL 205-212 airframe can support the QUESTOR Helicopter INPUT system. The 205 is powered by one low maintenance turbine engine. The configuration of the helicopter provides for easy installation of equipment, which can be dissasembled and crated to the survey base. Reassembly takes less than two days. These factors have proven the helicopter to be a reliable and efficient geophysical survey system in areas not suitable for fixed-wing operation.

APPENDIX C

INPUT System Characteristics

a) Geometry

The INPUT system, a time domain airborne electromagnetic system, has the transmitter loop located around the helicopter airframe while the receiver, referred to as the 'bird', typically is towed 19 metres behind and 73 metres below the helicopter at a survey airspeed of 40 knots. The actual spatial position of the bird is dependent on the airspeed of the survey helicopter, as can be seen in Figure C1.

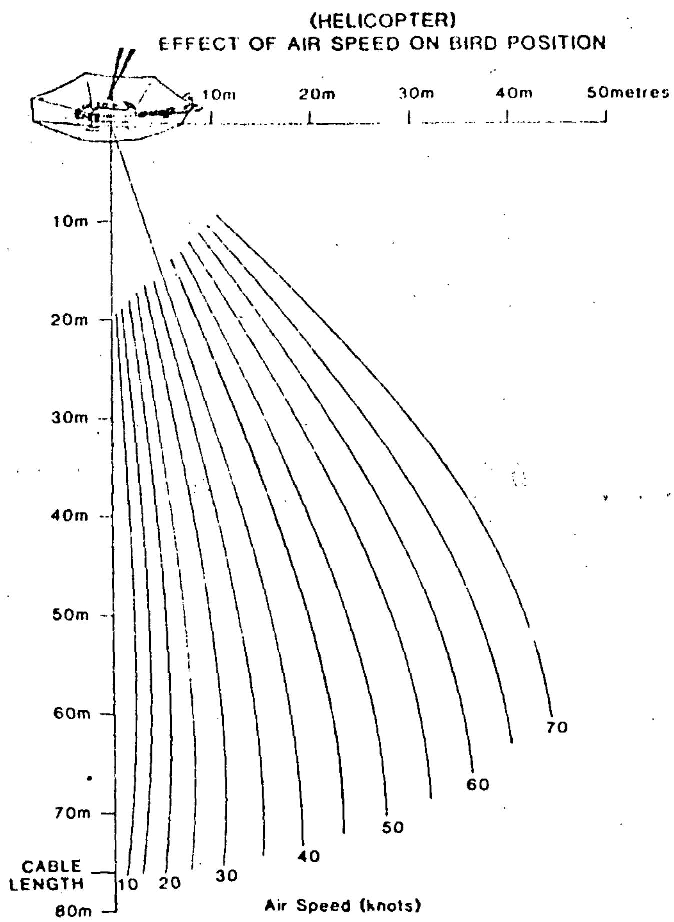


Figure C1

b) The Lag Factor

The bird's spatial position along with the time constant of the system introduces a lag factor (Figure C2) or shift of the response past the actual conductor axis in the direction of the flight line. This is due to fiducial markers being generated and imprinted on the film in real time and then merged with E.M. data which has been delayed due to the two aforementioned parameters. This lag factor necessitates that the receiver response be normalized back to the helicopter's position for the map compilation process. The lag factor can be calculated by considering it in terms of time, plus the elapsed distance of the proposed shift and is given by:us the elapsed distance of the proposed shift and is given by:

$$\text{Lag (seconds)} = \text{time constant} + \frac{\text{bird lag (metres)}}{\text{ground speed (metres/sec)}}$$

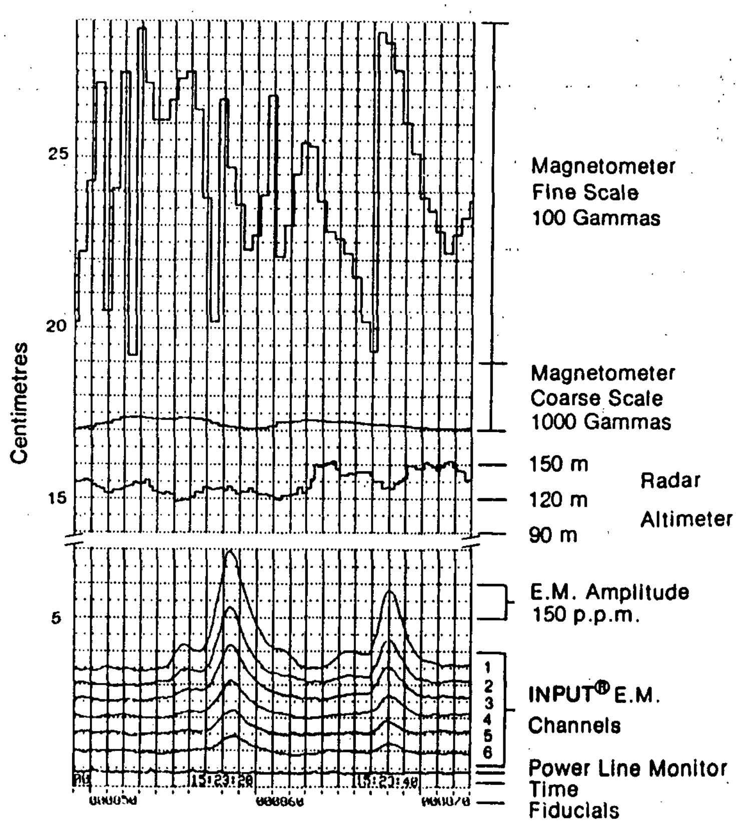


Figure C2

The time constant introduces a 1.3 second lag while, at an aircraft velocity of 40 kt., the 'bird' lag is 1 second. The total lag factor which is to be applied to the INPUT E.M. data at 40 kts. is 2.3 seconds. It must be noted that these two parameters vary within a small range dependent on the helicopter velocity, though they are applied as constants for consistency. As such, the removal of this lag factor will not necessarily position the anomalies in a straight line over the real conductor axis. The offset of a conductor response peak is a function of the system and conductor geometry as well as conductivity.

The magnetic data has a 1.0 second lag factor introduced relative to the real time fiducial positions. This factor is software controlled with the magnetic value recorded relative to the leading edge (left end) of each step 'bar', for both the fine and coarse scales. For example, a magnetic value positioned at fiducial 10.00 on the records would be shifted to fiducial 9.95 along the flight path.

A lag factor of 2 seconds (0.1 fiducial) is introduced to correct 50-60 Hz monitor for the effects of bird position and signal processing. In cases where a 50-60 Hz signal is induced in along formational conductor, a 50-60 Hz secondary electromagnetic transient may be detected as much as 5 km. from the direct source over the conductive horizon.

The altimeter data has no lag introduced as it is recorded in real time relative to the fiducial markings.

c) Calibration

The major advance made during the transition from the INPUT MK V to the INPUT MK VI has been the ability to calibrate the equipment accurately and consistently. Field tests at established test sites are carried out on an average of once every 6 months to check the consistency of the INPUT installations available from QUESTOR.

To calibrate the equipment for a survey operation the following tests are used:

1) "ZERO" the digital and record background E.M. levels;
2) magnetometer scale calibrations;
3) altimeter calibration;
4) calibration of INPUT receiver gain;
5) aircraft compensation;
6) record background E.M. levels at 600 m.;
7) survey flight;
8) record background E.M. levels at 600 m.
9) record full scale INPUT receiver gain;
10) record compensation drift;
11) terminate or repeat from step 4.

This sequence of tests may be repeated in midflight given that the duration of the flight is sufficiently long. Typically, this process is conducted every 2 hours of actual flying time and at the termination of every flight.

The background levels are recorded and then used to determine the drift that may occur in the E.M. channels during the progression of a survey flight. If drift has occurred, the

E.M. channels are brought back to a levelled position by use of the linear interpolation technique during the data processing.

The primary electromagnetic field generated by the INPUT system induces eddy currents in the frame of the helicopter. This spurious secondary field is a significant source of noise which needs to be taken account of before every survey flight is initiated.

Compensation is the technique by which the effects of this spurious secondary field are eliminated. A reference signal, which is equal in amplitude and waveform but opposite in polarity, is obtained from the primary field voltage in the receiver coil and applied to each channel of the receiver. The compensation signal is not a constant value due to coupling differences induced by 'bird' motion relative to the aircraft. The signal applied is proportional to the inverse cube of the distance between the 'bird' and aircraft. Figure C3 displays the effect of compensation.

Typically, channel 5 is selected for compensation because it is not affected by geological noise due to its sampling location in the transient and then coupling changes are induced by precipitating 'bird' motion. Phase considerations of channel 5, relative to the remaining channels, dictates whether sufficient compensation has been applied. If the remaining channels are in-phase to channel 5 during this procedure, an over-compensated situation is indicated, whereas, out-of-phase would be indicative of an under-compensation case. Normally this adjustment is carried out at an altitude of 600 metres in order to eliminate the influence of external geological and cultural conductors.

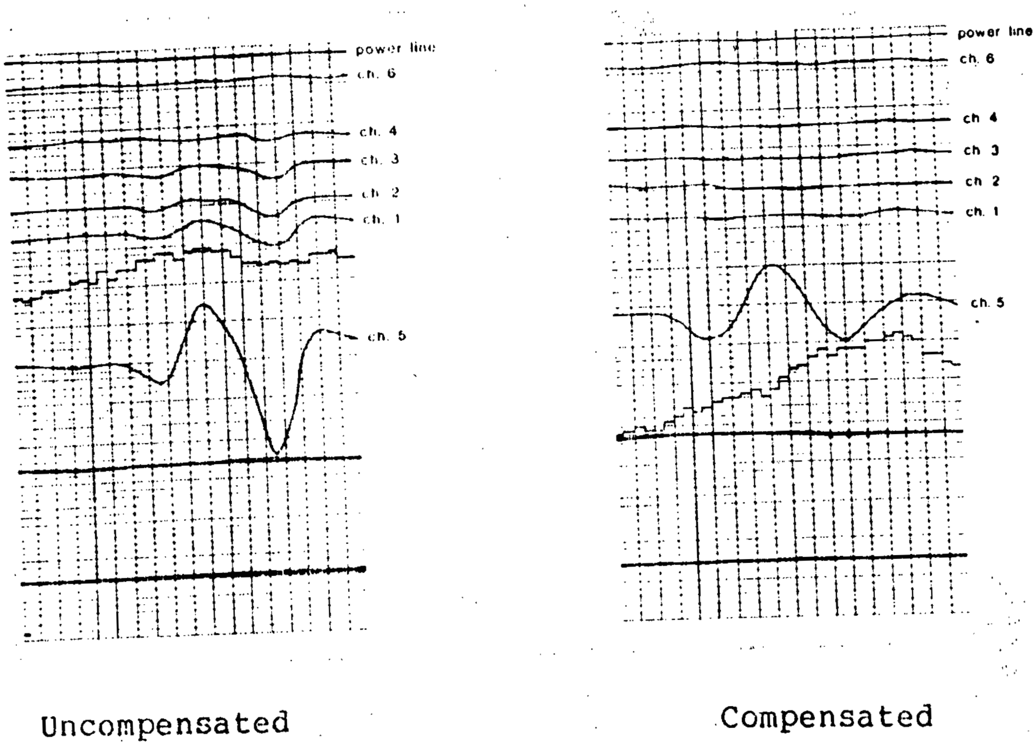


Figure C3

The magnetometer, altimeter and INPUT receiver gain are also calibrated at the initiation of every survey flight. With the magnetometer, there are two scales, a coarse and a fine scale. The fine scale indicates a 10 gamma change for a 1 cm. change in amplitude (Figure C2). The coarse scale moves 2 mm. (or 1 division) for a 100 gamma change with full scale,2 cm., indicating a 1000 gamma shift.

The altimeter (Figure C4), is calibrated to indicate 400 feet altitude at the seventh major division (7 cm.), read from the bottom of the analog record. This is the nominal flying height of INPUT surveys, wherever relief and aircraft performance are not limiting factors. The eighth major division correlates with 300 feet while the sixth corresponds with 500 feet in altitude.

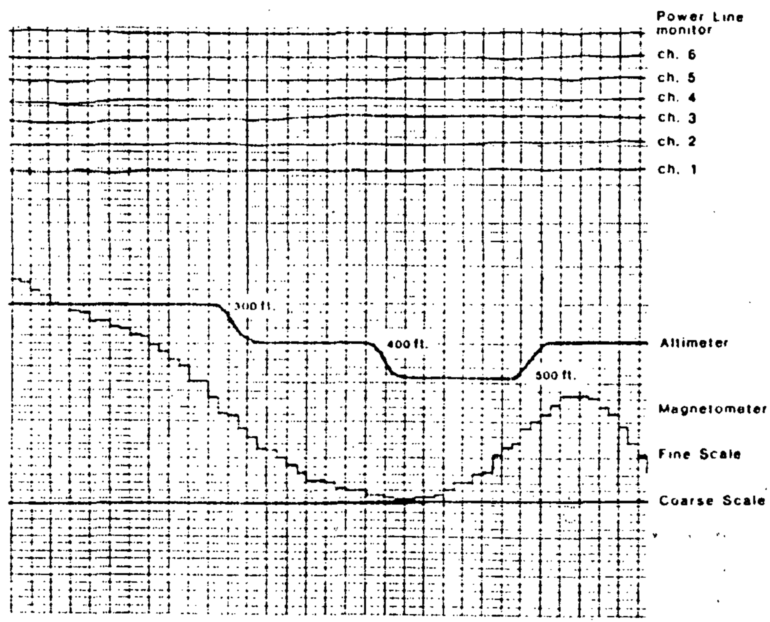


Figure C4

The INPUT receiver gain is expressed in parts per million of the primary field amplitude at the receiver coil. At the 'bird', the primary field strength is 8.5 and 8 volts peak-to-peak, for the vertical and horizontal axis coils respectively or 4.2 and 4.0 volts peak amplitude. The calibration signal introduced at the input stage of the receiver is 4.0 mV. Expressed in parts- per-million, this induces a change of:

$$\frac{4 \times 10^{-3} \times 10^6}{4.2} = 1{,}000 \text{ ppm (vertical coil)}$$

These calibration signals (Figure C5) cause an 8 cm. deflection of all 6 traces which translates to a sensitivity of 125 ppm/cm. for the vertical axis receiver coil system.

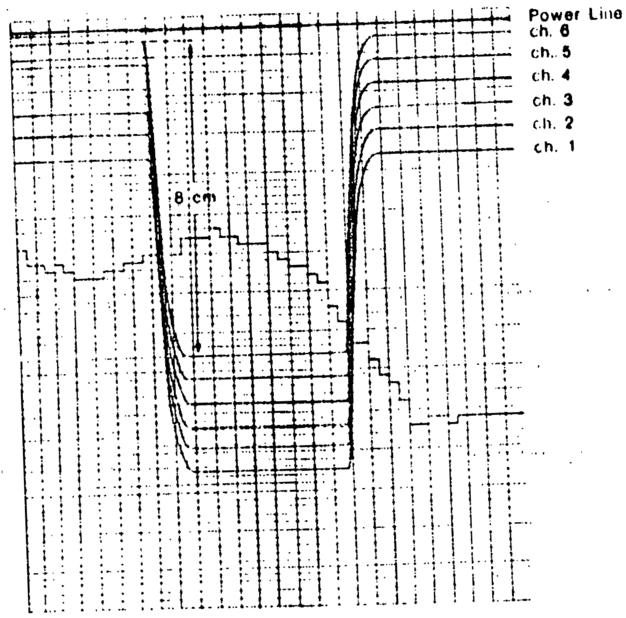


Figure C5

With the chart speed increased from the normal 0.25 cm. to 2.5 cm. per second, the time constant of the system (Figure C6), can be obtained by analysis of the exponential rise of the calibration signal for all 6 traces. The time constant, is defined as the time for the calibrated voltage to build up or decay to 63.2% of its final of initial value. A longer time constant reduces background noise but also has the effect of reducing the amplitude of the signal, especially for near surface responses.

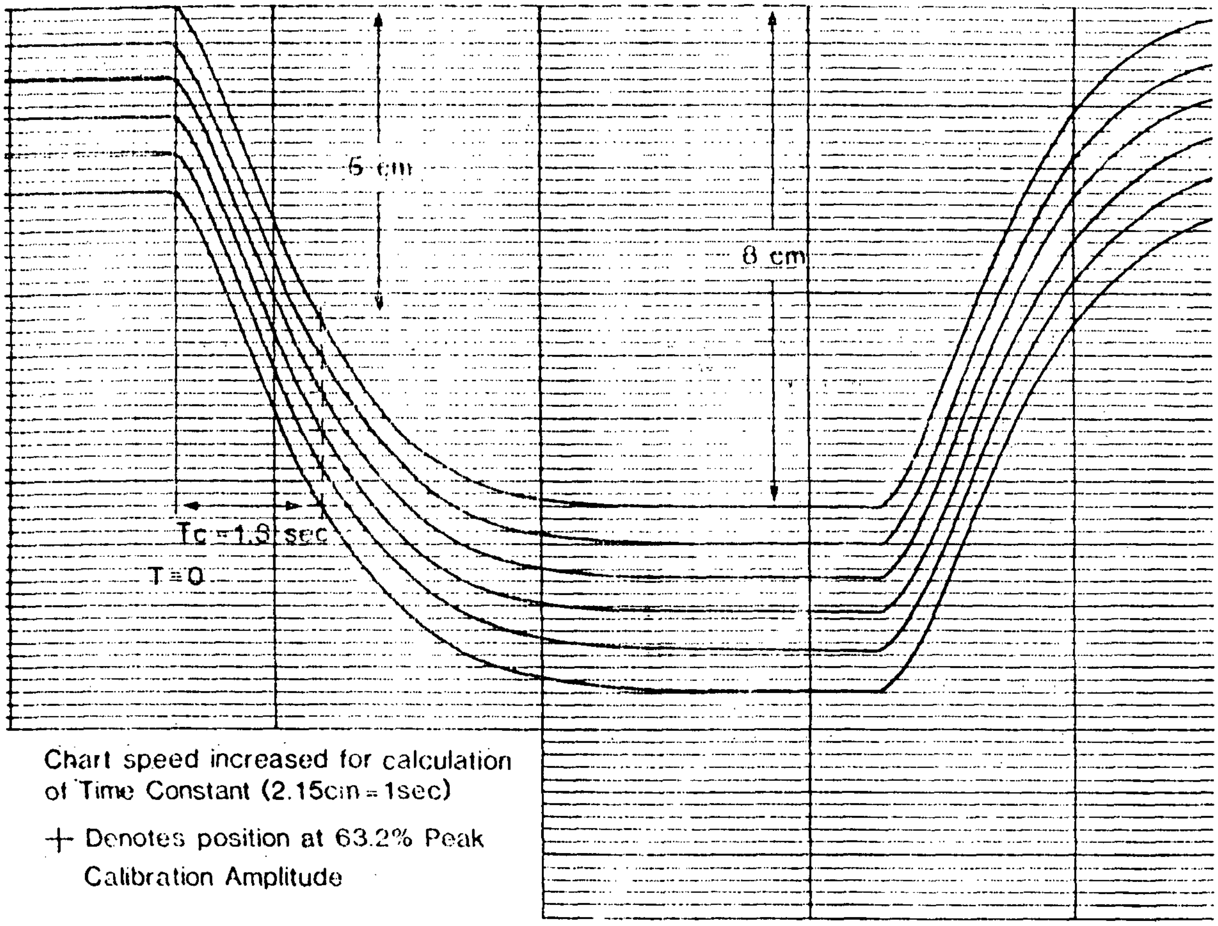


Figure C6

This trade-off indicates the importance of selecting an optimum value for the time constant. Experience and years of testing have indicated that a time constant of 1.3 second does not impede interpretation of bedrock source conductors.

d) Depth Penetration Capabilities

There are many factors which effect the depth of penetration. These factors consist of:

1) altitude of the helicopter above the ground;

2) conductivity contrast between conductor and host rock;

3) size and attitude of conductor;

4) type and conductivity of overburden present.

Of these factors, only the first parameter can be controlled. Typically, a survey altitude of 120 metres (400 feet) or less above the terrain is maintained. At this height, the helicopter INPUT MARK VI system has responded to conductors located at a depth of 200 metres (650 feet) below the surface.

APPENDIX D

INPUT Data Processing

The QUESTOR designed and implemented computer software routines for automatic interactive compilation and presentation, may be applied to all QUESTOR INPUT Systems. The software is compatible with the fixed-wing MARK VI INPUT, and the helicopter MARK VI INPUT. The procedures are all common, however, separate subroutines are accessed which contain the unique parameters to each system. Although many of the routines are standard data manipulations such as error detection, editing and levelling, several innovative routines are also optionally available for the reduction of INPUT data. The flow chart on the following page (Figure D1) illustrates some of the possibilities. Software and procedures are constantly under review to take advantage of new developments and to solve interpretational problems.

a) INPUT Data Entry and Verification

During the data entry stage, the digital data range is compared to the analog records and film. The raw data may be viewed on a high-resolution video graphics screen at any desirable scale. This technique is especially helpful in the identification of background level drift and instrument problems.

b) Levelling Electromagnetic Data

Instrument drift, recognized by viewing compressed data from several hours of survey flying, is corrected by an interactive levelling program. Although only two or three calibration sequences are normally recorded, the QUESTOR technique permits the use of multiple non-anomalous background recordings to divide a possible problematic situation into segments. All 6 INPUT channels are levelled simultaneously, yet independently. The sensitivity of the levelling process is normally better than 10 ppm on data with a peak-to-peak noise level of 30 ppm.

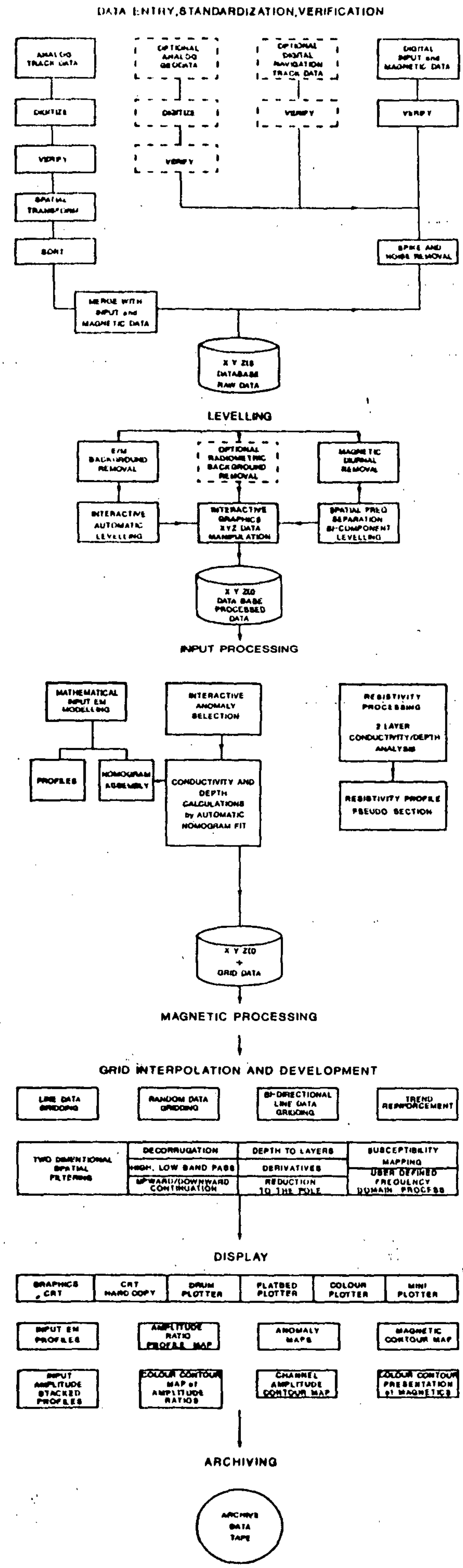
c) Data Enhancement

Normal INPUT processing does not include the filtering of electromagnetic data. The residual high frequency variations often apparent on analog INPUT data, is due almost wholly to "spherics", atmospheric static discharges. In conductive environments, spherics are apparently grounded and effectively filtered. In resistive environments, frequency spectrum analysis and subsequent FFT (Fast Fourier Transform) filters have been applied to data to reduce the noise envelope.

d) Selection of EM Anomalies

The levelled data may be viewed sequentially on a graphics screen for the selection of INPUT anomalies. Anomalies are selected by aligning a cursor to the position of the peaks. Some of the parameters of the response are manually entered during the picking of the response. These include the number of channels above background levels and the type of anomaly, e.g. cultural, bedrock, surficial, up-dip, etc.

QUESTOR INPUT DATA PROCESSING



APPENDIX E

INPUT INTERPRETATION PROCEDURES

The INPUT system is dependent upon a definite resistivity contrast and is most suitable for highly conductive massive sulphides. Differentiation is possible between flat-lying surficial conductors and bedrock conductors.

The selection of anomalies is based on their characteristics and interpretation is sometimes enhanced by analyzing the magnetics. Spherics, due to atmospheric static discharges and lightning storms, are distinguishable from conductive anomalies. In the analysis of each conductor anomaly, the following parameters may be considered: anomaly shape with the conductor pattern, topography, corresponding magnetic features, anomaly decay rate, the number of channels affected, geological environment and strike direction and the interpreted dip relative to structural features.

For each anomaly selected, the following are recorded: location by fiducial, channel amplitudes in parts per million, number of channels, conductivity-thickness in siemens, corresponding magnetic association in gammas, magnetic fiducial location altitude of aircraft above ground in metres and also, the origin of the response (ie. surficial, bedrock, cultural).

Conductive responses are categorized into three main groups. These are bedrock, surficial and cultural.

Bedrock conductors can be sorted into conductive sources which are commonly encountered on INPUT surveys: massive sulphides, graphites, serpentinized peridotites and fault or shear zones. Magnetite and manganese concentrations may also yield INPUT responses in some circumstances. INPUT responses over alkalic intrusives and weathered basic volcanics have been well documented by Macnae (1979) and Palacky (1979).

Massive Sulphides

Massive sulphides occur as both syngenetic and stratified deposits and as vein infilling deposits. Nickel deposits often occur as magmatic injections of massive sulphides. Kuroko-type syngenetic copper-zinc massive sulphides usually occur at an interface of felsic intermediate rocks. In this environment, there are seldom any significant formations of carbonaceous sediments on the same horizon. Often, these deposits are overlain by a silicious zone which may contain stingers of continuous sulphides, which change to disseminated sulphides away from the main deposit. These often give a deposit the appearance of a long strike-length zone which may not fit the explorationist's target model. A careful analysis of conductivities and apparent widths (half-peak-width), will often reveal the geometry and source. Syngenetic deposits of base metal sulphides of up to 2 km strike length are not unknown, although most sizeable deposits have strike lengths between 500 and 1000 m.

The conductivity of most massive sulphide deposits may be attributed to the pyrrhotite and chalcopyrite content, as both minerals form elongated interconnected masses which are most amenable to the induction of electromagnetic secondary fields. Pyrite normally forms cubic crystals which must be interconnected electrically in order to produce a response. Massive pyrite often produces only a moderate response which may be difficult to distinguish from graphite. The in-situ conductivity of massive sulphides, although very high for individual crystals, often falls in the range of 5 to 20 S/m.

Sulphide conductive zones are rare in nature; economic sulphides are even more scarce. Long formational sulphide zones are known, but are not common. More often, sulphide concentrations may occur within formational graphitic zones.

The geometry of many syngenetic and injected sulphide deposits may fall within broad classifications of size, conductivity and magnetization but most of these bodies are anomalous within their local geological environment. There are often changes in dip, conductivity, thickness and magnetization with respect to the regional environment. There are no rules which apply universally to massive sulphide deposits. One observation which has consistently applied to sulphide deposits is that INPUT responses (amplitude and conductivity) are roughly proportional to mineral content.

The INPUT system is capable of detecting disseminated sulphides within zones of resistivity changes. These may have low conductivities and responses will normally be restricted to channels 1 through 4. The response amplitudes will vary with the horizontal and vertical extent of the zone. Gold deposits often fall within this response classification.

The magnetic response of a sulphide deposit is the most deceiving information available to the explorationist. Although many large economic deposits have a strong direct magnetic association, some of the largest base metal deposits have no magnetic association. An isolated magnetic anomaly caused by oxidation conditions at a volcanic vent flanking a conductor, may have more significance than a body which has a uniform magnetic anomaly along its strike length. Differing geochemical environments often results in the zoning of minerals so that non-homogeneous conductivities and magnetic responses may be favourable parameters.

Graphitic Carbonaceous Conductors

Carbonaceous sediments are usually found within the sedimentary facies of Precambrian and Proterozoic greenstone belts. These represent a low energy, sedimentary environment with good bedding planes and little or no structural deformation. Graphites are often located in basins of the sub-aqueous environment, producing the same body shape as sulphide concentrations. Most often however, they form long, homogeneous planar sequences. These may have thicknesses from a metre to hundreds of metres. The recognition of graphites in this setting is normally straightforward.

Conductivities and apparent widths may be very consistent along strike. Strike lengths of tens of kilometres are common for individual horizons.

The conductivity of a graphite unit is a function of two variables:

a) the quality and quantity of the graphite and

b) the presence of pyrrhotite as an accessory conductive mineral

Pyrite is the most common sulphide mineral which occurs within carbonaceous beds. It does not contribute significantly to the overall conductivity as it will normally be found as disseminated crystals. Greenschist facies metamorphosis will often be sufficient to convert carbonaceous sediments to graphitic beds. Likewise, pyrite will often be transformed to pyrrhotite.

Without pyrrhotite, most graphitic conductors have less than 20 S conductivity-thickness value as detected by the INPUT system or 1 to 10 S/m conductivity from ground geophysical measurements. With pyrrhotite content, there may be little difference from sulphide conductors.

It is not unusual to find local concentrations of sulphides within graphitic sediments. These may be recognized by local increases in apparent width, conductivity or as a conductor offset from the main linear trends.

Graphite has also been noted in fault and shear zones which may cross geological formations at oblique angles.

Serpentinized Peridotites

Serpentinized peridotites are very distinguishable from other anomalies. Their conductivity is low and is caused partially by magnetite. They have a fast decay rates, large amplitudes and strong magnetic correlation.

Magnetite

INPUT anomalies over massive magnetites correlate to the total Fe content. Below 25-30% Fe, little or no response is obtained. However, as the Fe percentage incr^a^ses, strong anomalies result with a distinguished rate of decay that usually is more pronounced than those for massive sulphides.

Contact zones are often predicted when anomaly trends coincide with lines of maximum gradient along a flanking magnetic anomaly.

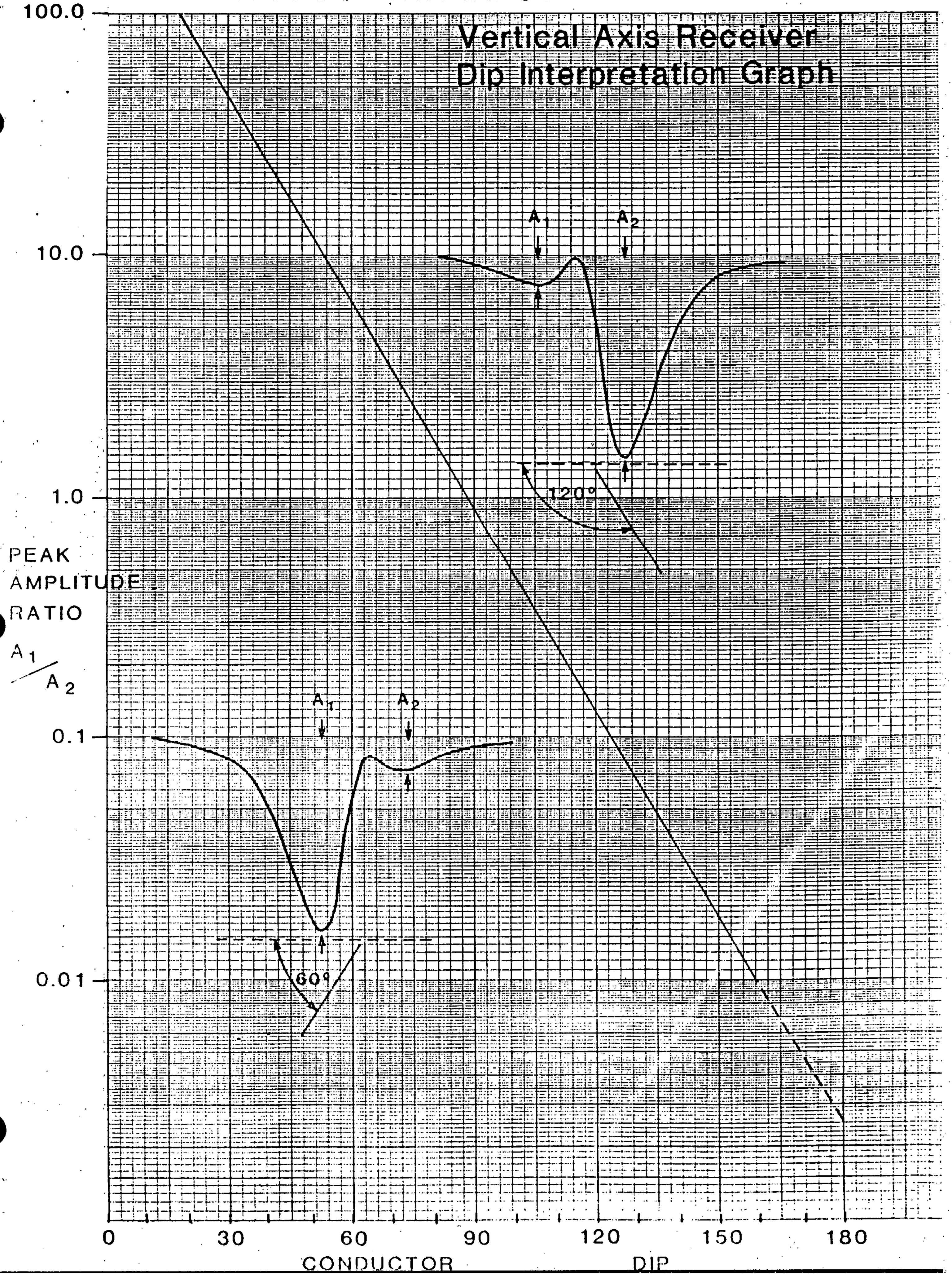
Surficial Conductors

Surficial conductors are characterized by fast decay rates and usually have a conductivity-thickness of 1-5 siemens. These values will be much higher in saline conditions. Overburden responses are broad, more so than bedrock conductors. Anomalies due to surficial conductivity are not dependent on flight direction. In profile form, surficial responses are symmetrical from line-to-line with the Helicopter INPUT system, and are characterized by a single response rather than a double peak for dipping and vertical conductors. Conductive deposits such as clay beds, may lie in valleys which can be checked on the altimeter trace and with the base maps topography.

Cultural Conductors

Cultural conductors are identifiable by examining the power line monitor and the film to locate railway tracks, power lines, buidings, fences or pipe lines. Power lines produce INPUT anomalies of high conductivity that are similar to bedrock responses. The strength of cultural anomalies is dependent on the grounding of the source. INPUT anomalies usually lag the power line monitor by 1 second, which should be consistent from line-to-line. If this distance between the INPUT response and the power line monitor differs between lines, then there is the possibility of an additional conductor present. The amplitude and conductivity-thickness of anomalies should be relatively consistent from line-to-line.

HELICOPTER INPUT



JOB NO:26H29

INPUT EM		ANOMALY		PEAK	RESPONSE		AMPLITUDES		(PPM)	TCP	ALT	MAGNETIC	
LINE	FIDUCIAL	TYPE	CHS	CH1	CH2	CH3	CH4	CH5	CH6	(S)	(M)	FIDUCIAL	VALL
19030A	163.525		6	162	85	38	28	21	14	20	152	-	
19030B	165.374		3	211	67	6	-	-	-	1	147	-	
19020A	158.344		4	274	142	69	33	-	-	11	150	-	
19020B	158.727		3	137	79	41	-	-	-	12	147	-	
19020C	159.530		5	92	50	31	20	15	-	33	149	-	
19020D	162.401		5	423	217	96	47	19	-	11	145	-	
19010A	155.713		5	42	25	15	11	10	-	40	141	155.90	10
10010A	12.796		5	1380	647	285	123	56	-	10	117	-	
10010B	13.970		5	460	209	89	32	16	-	9	129	-	
10010C	16.047		3	30	21	14	-	-	-	30	139	-	
10010D	16.325		3	42	26	17	-	-	-	26	147	-	
10010E	17.629		5	312	169	74	32	18	-	11	143	17.45	31
10020A	18.303		4	125	59	34	33	-	-	31	143	-	
10020B	18.716		6	348	215	141	87	33	32	31	138	-	
10020C	19.065		4	478	258	105	45	-	-	9	144	19.10	14
10020a	19.848	C											
10020D	23.886		3	268	110	55	-	-	-	11	122	-	
10021A	25.865		4	430	187	76	31	-	-	8	133	25.98	15
10021B	27.371		4	1254	558	247	108	-	-	9	128	27.27	4
10030A	28.177		4	905	456	234	128	-	-	13	144	28.40	13
10030B	28.577		3	1120	506	215	-	-	-	8	125	-	
10030C	29.704		4	349	159	74	34	-	-	10	129	29.45	13
10030a	32.603	C											
10030D	33.427		6	756	421	211	98	43	28	14	122	33.25	20
10030E	33.726		6	637	400	249	135	60	33	22	123	-	
10040A	34.125		6	373	258	154	88	50	26	24	125	34.33	6
10040B	34.470		6	409	266	154	89	54	27	23	130	-	
10040C	34.828		4	449	269	122	45	-	-	9	131	34.85	17
10040D	35.274		2	182	66	-	-	-	-	NC	137	35.65	9
10040a	35.926	C											
10040E	37.949		2	65	15	-	-	-	-	NC	116	37.88	29
10040F	38.198		3	92	32	7	-	-	-	4	128	38.58	14
10040G	39.527		3	281	110	63	-	-	-	15	127	39.35	11
10040H	40.432		3	1058	468	198	-	-	-	8	129	40.58	24
10050A	41.217		6	847	428	216	101	56	27	15	145	41.53	11

JOB NO:26H29

INPUT EM		ANOMALY		PEAK	RESPONSE		AMPLITUDES		(PPM)	TCP	ALT	MAGNETIC	
LINE	FIDUCIAL	TYPE	CHS	CH1	CH2	CH3	CH4	CH5	CH6	(S)	(M)	FIDUCIAL	VALU
10050B	41.772		4	932	413	183	74	-	-	9	130	-	
10050C	43.923		2	31	15	-	-	-	-	NC	141	-	
10050D	44.227		3	81	16	3	-	-	-	3	143	44.17	28
10050E	46.985		2	118	59	-	-	-	-	NC	148	46.92	5
10050F	47.473		4	193	137	84	52	-	-	23	149	-	
10060A	47.775		6	157	114	86	55	39	26	71	151	47.60	12
10060B	48.128		3	105	92	61	-	-	-	29	148	-	
10060C	49.083		1	91	-	-	-	-	-	NC	145	-	
10060D	54.532		4	820	359	154	62	-	-	9	138	54.60	4
10070A	55.518		5	1288	598	291	141	63	-	12	145	55.60	5
10070B	55.825		4	1266	580	263	122	-	-	10	123	-	
10070C	56.604		3	554	221	92	-	-	-	8	121	56.60	14
10070D	62.275		4	151	98	70	32	-	-	30	147	-	
10080A	62.714		4	123	75	57	32	-	-	54	129	-	
10080B	65.853		3	30	15	10	-	-	-	30	117	65.47	18
10080C	66.445		2	56	15	-	-	-	-	NC	117	66.53	55
10080D	69.878		4	970	431	193	87	-	-	10	148	69.30	16
10090A	70.676		6	1436	681	314	137	76	41	13	146	-	
10090B	70.979		4	1418	641	273	115	-	-	9	117	70.90	9
10090C	74.420		2	71	19	-	-	-	-	NC	127	74.25	38
10100A	78.124		4	162	97	42	27	-	-	11	142	78.40	5
10100B	81.828		5	38	17	20	18	10	-	1	134	81.63	7
10100C	82.180		2	108	36	-	-	-	-	NC	131	82.20	14
10100D	86.475		3	483	240	116	-	-	-	10	152	-	
10111A	87.700		5	794	468	255	149	87	-	18	147	-	
10111B	88.045		5	1081	555	260	125	61	-	12	144	-	
10111C	88.453		4	956	438	185	81	-	-	9	125	88.32	19
10111D	91.592		4	42	18	20	14	-	-	1	146	-	
10111E	92.054		3	79	30	3	-	-	-	2	144	91.88	9
10120A	96.817		3	181	96	59	-	-	-	20	148	-	
10120B	100.525		3	30	15	20	-	-	-	1	146	-	
10120C	101.205		4	93	33	18	12	-	-	17	138	-	
10120D	105.298		3	625	304	135	-	-	-	9	146	105.28	20
10120E	105.719		4	761	399	212	112	-	-	14	147	-	
10130A	106.225		5	861	514	278	166	82	-	17	146	-	

JOB NO:26H29

INPUT LINE	EM FIDUCIAL	ANOMALY TYPE	CHS	PEAK CH1	RESPONSE CH2	CH3	AMPLITUDES CH4	CH5	(PPM) CH6	TCP (S)	ALT (M)	MAGNETIC FIDUCIAL	VALU
10130B	106.478		5	1056	536	275	144	68	-	14	139	106.72	32
10130C	107.164		4	645	306	139	50	-	-	9	140	-	
10130D	110.500		4	94	24	13	11	-	-	21	138	-	
10131A	112.827		3	30	22	22	-	-	-	1	147	112.82	31
10140A	116.578		4	192	79	19	7	-	-	5	124	116.35	11
10141A	121.072		3	112	36	12	-	-	-	6	118	-	
10141B	124.046		3	213	110	56	-	-	-	11	125	123.80	10
10141C	124.749		4	633	318	141	77	-	-	10	145	-	
10150A	133.182		3	1812	1074	555	-	-	-	12	147	-	
10150B	133.771		5	1138	634	343	183	99	-	16	120	133.93	28
10150C	134.108		5	1027	496	233	108	51	-	12	127	-	
10150D	134.520		4	696	316	166	63	-	-	11	128	-	
10150E	137.608		4	40	24	13	12	-	-	23	117	137.02	39
10150F	137.849		1	45	-	-	-	-	-	NC	113	-	
10150G	141.373		2	110	43	-	-	-	-	NC	140	-	
10150H	141.870		4	324	117	48	8	-	-	6	126	-	
10160A	144.656		3	284	98	42	-	-	-	8	113	144.57	20
10160B	145.140		3	222	69	6	-	-	-	1	133	-	
10161A	148.876		3	38	27	24	-	-	-	42	143	-	
10161B	149.373		3	81	29	14	-	-	-	10	125	-	
10161C	152.046		3	103	61	31	-	-	-	11	109	-	
10161D	152.484		3	488	218	101	-	-	-	9	128	-	
10170A	153.071		5	873	437	180	96	42	-	10	144	-	
10170B	153.390		5	593	313	115	57	29	-	9	143	-	
10170C	153.900		2	141	75	-	-	-	-	NC	111	-	
10170D	155.679		3	58	32	25	-	-	-	85	117	155.63	62
10170E	156.526		3	79	44	18	-	-	-	8	131	-	
10170F	160.114		3	33	24	17	-	-	-	45	145	-	
10170G	160.517		6	216	66	19	23	14	22	15	134	-	
10170H	160.882		3	359	118	48	-	-	-	8	114	160.93	19
10180A	163.678		2	278	82	-	-	-	-	NC	143	163.35	21
10181A	168.526		2	69	39	-	-	-	-	NC	108	168.68	48
10181B	171.098		2	144	79	-	-	-	-	NC	134	-	

JOB NO:26H29

INPUT LINE	EM FIDUCIAL	ANOMALY TYPE	CHS	PEAK CH1	RESPONSE CH2	CH3	AMPLITUDES CH4	CH5	(PPM) CH6	TCP (S)	ALT (M)	MAGNETIC FIDUCIAL	VALUE
10181C	171.603		4	585	299	144	80	-	-	12	146	-	
10181D	171.818		5	746	401	198	101	41	-	13	148	-	
10190A	172.388		6	910	561	343	200	116	90	30	146	172.45	27
10190B	172.738		5	740	377	178	99	46	-	13	144	-	
10190C	173.495		2	115	54	-	-	-	-	NC	112	-	
10190D	174.425		3	53	46	27	-	-	-	16	130	174.68	36
10190E	175.401		5	59	34	21	19	12	-	50	118	175.38	39
10190F	180.024		2	30	26	-	-	-	-	NC	148	-	
10190G	180.419		3	109	75	39	-	-	-	12	141	180.45	17
10200A	182.043		6	309	193	106	60	19	21	18	139	182.07	17
10200B	182.457		5	99	73	29	13	8	-	10	127	-	
10202A	190.188		3	30	15	9	-	-	-	18	125	-	
10202B	190.886		2	54	15	-	-	-	-	NC	125	-	
10202C	191.497		2	64	28	-	-	-	-	NC	116	191.38	34
10202D	193.811		4	551	297	134	60	-	-	10	147	193.85	15
10210A	194.321		6	727	468	258	141	89	61	22	150	-	
10210B	194.687		5	806	431	202	95	52	-	12	136	194.60	14
10210C	197.717		4	83	47	24	16	-	-	15	129	-	
10210D	198.273		2	70	30	-	-	-	-	NC	133	-	
10210E	202.471		3	78	63	52	-	-	-	124	146	-	
10210F	202.858		6	381	224	149	61	28	1	14	117	202.73	19
10220A	15.928		3	94	46	25	-	-	-	13	126	16.15	21
10220B	16.315		4	66	41	14	2	-	-	5	127	16.85	37
10230A	18.824		5	916	503	246	116	64	-	13	147	-	
10230B	19.144		3	407	209	97	-	-	-	9	133	-	
10230C	19.700		2	119	62	-	-	-	-	NC	119	19.50	17
10230D	21.307		4	88	42	18	11	-	-	10	117	20.70	43
10230E	22.447		5	53	34	13	5	13	-	11	113	-	
10240A	31.595		2	30	21	-	-	-	-	NC	129	-	
10240B	32.471		3	51	20	12	-	-	-	18	142	-	
10240C	33.022		3	87	35	14	-	-	-	7	119	-	
10240D	33.426		4	88	39	17	8	-	-	9	136	-	
10240E	35.756		5	977	528	265	125	64	-	13	145	35.80	18
10250A	36.092		5	883	500	247	124	59	-	13	146	-	
10250B	36.424		4	597	310	146	73	-	-	11	146	-	

JOB NO:26H29

INPUT LINE	EM FIDUCIAL	ANOMALY TYPE	CHS	PEAK CH1	RESPONSE CH2	CH3	AMPLITUDES CH4	CH5	(PPM) CH6	TCP (S)	ALT (M)	MAGNETIC FIDUCIAL	VALUE
10250C	36.778		3	279	138	63	-	-	-	9	133	-	
10250D	38.595		4	77	40	14	5	-	-	7	116	37.78	32
10250E	39.238		4	53	15	5	1	-	-	6	124	-	
10260A	48.440		4	60	19	5	2	-	-	6	141	-	
10260B	49.025		4	114	50	25	15	-	-	13	136	49.22	25
10260C	49.375		3	89	38	16	-	-	-	8	113	49.80	30
10260D	50.679		3	176	82	37	-	-	-	9	143	-	
10270A	51.526		5	882	485	250	114	55	-	13	146	51.50	13
10270B	52.132		3	143	65	35	-	-	-	13	143	-	
10270C	53.533		4	111	38	21	10	-	-	14	140	53.25	22
10270D	53.854	S	2	102	24	-	-	-	-	NC	130	-	
10280A	62.957	S	2	161	20	-	-	-	-	NC	113	-	
10280B	63.424		3	72	44	19	-	-	-	8	116	-	
10280C	63.617		3	61	27	22	-	-	-	112	117	63.80	24
10280D	64.753		2	84	43	-	-	-	-	NC	138	-	
10280E	65.225		5	428	236	120	56	34	-	14	150	-	
10290A	65.814		5	689	385	211	109	60	-	16	147	-	
10290B	66.327		4	440	242	136	66	-	-	15	133	-	
10290C	68.103	S	1	173	-	-	-	-	-	NC	118	-	
10291A	72.522	S	1	128	-	-	-	-	-	NC	147	-	
10301A	83.226	S	1	188	-	-	-	-	-	NC	110	-	
10301B	85.081		4	185	127	73	31	-	-	14	149	-	
10310A	86.054		5	264	180	111	56	24	-	19	144	-	
10310B	86.534		4	246	157	89	48	-	-	16	150	-	
10310C	86.820		4	107	74	36	19	-	-	12	133	87.55	15
10310D	88.372	S	1	138	-	-	-	-	-	NC	122	-	
10320A	97.373	S	1	65	-	-	-	-	-	NC	126	98.07	17
10320B	98.922		3	54	23	11	-	-	-	10	147	-	
10320C	99.435		3	200	134	68	-	-	-	11	150	-	
10330A	100.062		6	341	223	119	67	39	33	21	151	-	
10330B	100.516		4	264	140	81	40	-	-	16	132	-	
10330C	102.073	S	1	79	-	-	-	-	-	NC	120	-	
10340A	110.718	S	1	40	-	-	-	-	-	NC	122	-	

JOB NO:26H29

INPUT EM LINE	FIDUCIAL	ANOMALY TYPE	CHS	PEAK CH1	RESPONSE CH2	CH3	AMPLITUDES CH4	CH5	(PPM) CH6	TCP (S)	ALT (M)	MAGNETIC FIDUCIAL	VALU
10350A	112.074		3	35	21	7	-	-	-	6	125	-	
10360A	119.944		2	30	19	-	-	-	-	NC	131	-	
10360B	120.714		5	30	15	15	15	4	-	33	118	-	
10370A	122.383		3	30	25	17	-	-	-	34	126	-	

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LINE NO.	FIDUCIAL	MAP	POSITION (INCHES) X	Y
19030	162.9	1	7.269	25.315
19030	163.6	1	7.366	22.806
19030	164.2	1	7.136	20.502
19030	164.7	1	6.944	18.829
19030	165.5	1	6.337	16.243
19030	166.3	1	5.934	14.647
19030	167.8	1	5.495	10.085
19030	168.5	1	5.329	8.139
19030	168.9	1	5.148	6.811
19030	169.3	1	5.063	6.060
19020	158.3	1	18.945	7.571
19020	159.0	1	18.769	9.751
19020	159.4	1	19.113	11.143
19020	160.0	1	18.975	12.772
19020	160.5	1	18.981	14.244
19020	161.4	1	19.678	17.339
19020	162.1	1	19.904	20.066
19020	162.4	1	20.038	21.014
19020	162.7	1	20.586	22.072
19010	155.6	1	12.482	4.162
19010	156.0	1	12.655	5.561
19010	157.3	1	13.260	9.331
19010	157.7	1	13.597	10.850
10010	12.3	1	22.194	20.703
10010	13.2	1	19.401	21.370
10010	13.7	1	17.741	21.456
10010	14.3	1	15.859	21.655
10010	14.9	1	14.018	21.969
10010	16.1	1	10.944	22.860
10010	16.8	1	8.893	23.103
10010	17.3	1	7.286	23.233
10010	17.9	1	5.480	23.399
10010	18.5	1	4.696	23.603
10020	18.3	1	3.962	23.060
10020	19.1	1	6.120	22.691
10020	19.8	1	8.485	22.384
10020	20.4	1	10.022	22.454
10020	21.3	1	11.834	22.171
10020	22.3	1	14.455	21.543
10020	23.4	1	16.976	20.676
10020	24.2	1	18.891	20.462
10021	24.7	1	14.101	22.005
10021	25.2	1	15.929	21.575
10021	26.0	1	17.545	21.184
10021	26.8	1	19.707	20.853
10021	27.8	1	22.128	20.389
10030	27.9	1	22.775	19.898
10030	28.8	1	19.872	20.483

LINE NO.	FIDUCIAL	MAP	POSITION (INCHES) X	Y
10030	29.8	1	16.643	21.199
10030	30.7	1	13.863	21.542
10030	31.4	1	11.733	21.674
10030	32.4	1	9.064	22.078
10030	33.2	1	6.568	22.582
10030	33.9	1	4.486	22.918
10040	34.0	1	3.565	22.584
10040	34.5	1	4.925	22.432
10040	34.8	1	5.821	22.213
10040	35.7	1	8.599	21.743
10040	36.8	1	10.799	21.242
10040	38.1	1	14.212	20.826
10040	38.7	1	15.911	20.769
10040	39.3	1	17.556	20.617
10040	40.7	1	21.319	19.823
10040	41.0	1	22.210	19.664
10050	41.1	1	22.538	19.460
10050	41.4	1	21.662	19.464
10050	42.5	1	18.322	20.027
10050	42.8	1	17.545	20.097
10050	43.4	1	15.934	20.352
10050	44.2	1	13.785	20.650
10050	45.4	1	10.792	21.119
10050	46.0	1	9.170	21.332
10050	46.7	1	6.904	21.707
10050	47.3	1	4.908	22.059
10050	47.6	1	3.934	22.269
10060	47.7	1	2.848	22.020
10060	48.0	1	3.859	21.875
10060	48.6	1	5.835	21.432
10060	49.2	1	7.726	21.136
10060	50.1	1	10.100	20.652
10060	50.9	1	11.581	20.391
10060	51.9	1	14.082	20.198
10060	52.8	1	16.005	20.227
10060	53.4	1	17.487	19.934
10060	53.8	1	18.617	19.627
10060	55.0	1	21.998	19.160
10060	55.2	1	22.614	19.091
10070	55.3	1	23.235	18.470
10070	55.9	1	21.511	18.820
10070	56.8	1	19.380	19.278
10070	57.6	1	17.458	19.442
10070	58.4	1	15.516	19.787
10070	59.2	1	13.400	20.000
10070	60.5	1	10.226	20.403
10070	61.4	1	7.292	20.963
10070	61.8	1	5.925	21.215

LINE NO.	FIDUCIAL	MAP	POSITION (INCHES) X	Y
10070	62.4	1	3.874	21.435
10080	62.5	1	3.570	21.003
10080	63.6	1	6.362	20.439
10080	64.4	1	8.681	20.108
10080	65.5	1	11.067	19.879
10080	66.4	1	13.433	19.571
10080	67.8	1	15.731	19.391
10080	68.7	1	17.862	18.913
10080	69.2	1	19.219	18.720
10080	70.3	1	22.324	18.221
10080	70.4	1	22.729	18.171
10090	70.5	1	22.769	17.705
10090	70.7	1	22.211	17.798
10090	72.5	1	18.061	18.845
10090	73.5	1	15.741	19.141
10090	74.4	1	13.471	19.194
10090	75.0	1	11.597	19.370
10090	76.1	1	8.899	19.698
10090	77.0	1	6.270	20.171
10090	78.0	1	3.636	20.620
10100	78.1	1	2.815	20.313
10100	78.4	1	3.736	20.209
10100	79.1	1	5.868	19.953
10100	79.6	1	7.644	19.684
10100	81.7	1	12.389	18.748
10100	82.2	1	13.874	18.532
10100	84.0	1	15.754	18.356
10100	85.7	1	19.069	17.866
10100	86.8	1	22.331	17.116
10100	86.9	1	22.693	17.033
10111	87.6	1	23.966	16.710
10111	88.1	1	22.435	16.903
10111	89.2	1	19.232	17.542
10111	90.9	1	15.923	18.003
10111	91.9	1	13.851	18.285
10111	92.7	1	11.267	18.653
10111	94.4	1	8.395	19.064
10111	95.2	1	6.047	19.506
10111	96.5	1	3.161	19.995
10120	96.7	1	2.743	19.658
10120	97.5	1	4.628	19.352
10120	98.3	1	7.131	18.849
10120	99.0	1	8.729	18.515
10120	101.0	1	12.355	17.879
10120	101.9	1	14.298	17.824
10120	103.4	1	17.092	17.333
10120	104.9	1	20.407	16.658
10120	105.7	1	22.615	16.517

LINE NO.	FIDUCIAL	MAP	POSITION (INCHES) X	Y
10120	106.0	1	23.544	16.505
10130	106.1	1	24.080	15.903
10130	106.6	1	22.276	16.200
10130	107.4	1	20.389	16.544
10130	109.2	1	16.420	17.085
10130	110.4	1	13.636	17.364
10130	110.8	1	12.283	17.517
10130	111.6	1	10.566	17.690
10131	111.8	1	10.688	17.959
10131	112.7	1	9.419	18.210
10131	113.5	1	7.675	18.432
10131	114.2	1	5.279	18.806
10131	115.2	1	2.915	19.285
10140	115.3	1	3.004	18.722
10140	116.4	1	5.377	18.483
10140	117.2	1	7.840	18.137
10140	118.2	1	9.351	18.032
10141	118.5	1	7.653	18.222
10141	121.1	1	13.581	17.029
10141	122.1	1	15.580	16.800
10141	123.4	1	18.485	16.317
10141	124.5	1	21.173	15.847
10141	125.0	1	22.835	15.672
10150	133.2	1	24.585	14.978
10150	134.3	1	21.291	15.506
10150	136.8	1	16.275	16.355
10150	137.7	1	14.050	16.666
10150	140.1	1	9.083	17.331
10150	141.2	1	7.512	17.574
10150	141.9	1	5.640	17.954
10150	142.9	1	3.725	18.306
10150	143.3	1	2.671	18.919
10160	143.5	1	3.205	18.032
10160	144.6	1	5.543	17.611
10160	145.4	1	7.758	17.144
10160	146.4	1	8.857	17.004
10161	146.5	1	7.751	17.134
10161	147.8	1	9.720	16.805
10161	149.4	1	13.733	16.335
10161	150.6	1	16.331	16.176
10161	152.1	1	21.384	15.394
10161	152.9	1	21.894	15.343
10170	153.0	1	22.362	14.580
10170	153.2	1	21.652	14.688
10170	154.0	1	19.491	15.040
10170	155.0	1	17.410	15.286
10170	156.1	1	14.667	15.676
10170	157.5	1	12.695	15.880

LINE NO.	FIDUCIAL	MAP	POSITION (INCHES) X	Y
10170	158.5	1	9.654	16.612
10170	160.1	1	7.654	16.969
10170	161.0	1	5.526	17.422
10170	162.3	1	2.848	17.858
10180	162.4	1	2.946	17.274
10180	163.0	1	4.510	17.009
10180	163.7	1	6.363	16.804
10180	164.2	1	7.579	16.596
10181	164.9	1	7.435	16.794
10181	166.1	1	9.651	16.462
10181	167.3	1	11.084	15.968
10181	167.7	1	13.316	15.594
10181	168.1	1	14.410	15.416
10181	169.6	1	17.481	15.022
10181	171.2	1	20.385	14.503
10181	171.9	1	22.359	14.094
10181	172.1	1	22.865	14.032
10190	172.3	1	22.761	13.676
10190	173.1	1	20.579	14.190
10190	174.8	1	17.463	14.584
10190	175.9	1	14.273	14.959
10190	177.5	1	10.982	15.656
10190	178.7	1	8.459	15.956
10190	180.4	1	5.830	16.376
10190	181.3	1	3.268	16.745
10200	181.4	1	3.944	16.379
10200	182.4	1	6.230	15.789
10201	184.1	1	6.215	15.522
10201	185.4	1	8.762	14.895
10201	186.0	1	10.286	14.562
10201	186.9	1	12.197	14.137
10202	187.1	1	5.628	16.069
10202	188.4	1	8.516	15.034
10202	189.4	1	11.318	14.782
10202	190.8	1	14.153	14.651
10202	191.8	1	16.456	14.126
10202	192.9	1	18.771	13.866
10202	193.5	1	20.697	13.749
10202	194.1	1	22.382	13.483
10210	194.2	1	22.872	12.992
10210	195.0	1	20.520	13.311
10210	196.1	1	18.578	13.478
10210	197.4	1	15.707	13.737
10210	197.9	1	14.417	14.121
10210	199.7	1	10.807	14.763
10210	200.9	1	8.339	15.168
10210	202.6	1	5.958	15.576
10210	203.1	1	3.240	15.938

LINE NO.	FIDUCIAL	MAP	POSITION (INCHES) X	Y
10220	9.5	1	2.159	15.728
10220	10.8	1	5.731	14.883
10220	11.8	1	6.806	14.621
10220	12.9	1	8.274	14.449
10220	13.9	1	10.179	14.437
10220	14.7	1	11.587	14.257
10220	15.5	1	14.024	13.843
10220	16.1	1	15.701	13.615
10220	17.5	1	18.220	13.165
10220	18.2	1	20.548	12.918
10220	18.7	1	22.051	12.747
10230	18.8	1	21.792	12.324
10230	19.3	1	20.256	12.402
10230	20.0	1	18.829	12.636
10230	21.3	1	15.873	13.123
10230	22.7	1	12.032	13.757
10230	24.2	1	9.322	14.048
10230	25.7	1	6.198	14.481
10230	26.9	1	2.766	15.117
10240	27.0	1	3.431	14.754
10240	27.3	1	4.392	14.675
10240	28.5	1	6.614	14.016
10240	30.1	1	8.552	13.832
10240	31.5	1	11.141	13.426
10240	32.8	1	14.411	13.116
10240	33.6	1	16.245	12.887
10240	34.6	1	18.514	12.686
10240	35.3	1	20.457	12.285
10240	35.8	1	21.902	11.821
10250	36.0	1	22.284	11.380
10250	36.5	1	20.706	11.683
10250	37.2	1	18.803	11.966
10250	37.9	1	17.210	12.265
10250	38.2	1	16.336	12.543
10250	38.8	1	14.412	13.114
10250	39.9	1	11.535	13.435
10250	41.1	1	8.810	14.000
10250	42.6	1	5.930	14.419
10250	43.2	1	4.168	14.569
10250	43.6	1	2.696	14.609
10260	43.7	1	2.871	14.071
10260	44.1	1	4.100	13.981
10260	44.6	1	5.138	13.766
10260	45.0	1	6.060	13.459
10260	45.9	1	7.669	13.169
10260	46.8	1	9.382	12.935
10260	47.5	1	11.084	12.783
10260	48.7	1	14.342	12.344

LINE NO.	FIDUCIAL	MAP	POSITION (INCHES) X	Y
10260	49.3	1	16.075	12.016
10260	50.3	1	18.328	11.548
10260	50.7	1	19.416	11.293
10260	51.2	1	20.979	11.116
10270	51.3	1	21.087	10.591
10270	51.4	1	19.535	10.968
10270	52.4	1	18.304	11.360
10270	53.2	1	16.162	11.852
10270	54.0	1	13.633	12.105
10270	54.9	1	11.441	12.151
10270	55.5	1	9.958	12.357
10270	56.3	1	8.252	12.482
10270	57.1	1	5.933	13.049
10270	57.6	1	4.458	13.401
10270	58.0	1	3.367	13.677
10280	58.1	1	3.012	13.145
10280	58.5	1	4.117	12.995
10280	60.1	1	7.620	12.426
10280	61.6	1	10.237	12.071
10280	62.7	1	13.382	11.632
10280	63.6	1	15.025	11.392
10280	64.4	1	17.823	11.049
10280	65.5	1	21.412	10.801
10290	65.6	1	21.260	10.159
10290	66.4	1	19.093	10.275
10290	67.8	1	14.863	10.701
10290	68.3	1	13.006	11.139
10290	68.9	1	11.665	11.495
10290	70.7	1	7.782	12.428
10290	71.8	1	4.804	13.152
10290	72.2	1	3.709	13.588
10291	72.6	1	13.339	11.192
10291	73.0	1	12.062	11.141
10291	74.0	1	9.794	11.318
10291	74.7	1	7.944	11.555
10291	75.4	1	5.821	11.798
10291	76.1	1	4.114	12.245
10291	76.5	1	2.984	12.803
10300	76.6	1	3.361	12.300
10300	76.8	1	4.041	12.173
10300	77.9	1	6.324	11.551
10300	78.6	1	8.166	11.074
10300	79.8	1	10.670	10.556
10300	80.6	1	13.247	10.527
10300	80.8	1	14.264	10.383
10301	81.0	1	8.129	12.101
10301	81.5	1	9.193	11.848
10301	82.6	1	12.067	11.128

LINE NO.	FIDUCIAL	MAP	POSITION (INCHES) X	Y
10301	83.0	1	13.267	10.851
10301	83.8	1	16.497	10.498
10301	85.0	1	19.209	10.113
10301	85.9	1	21.840	9.896
10310	86.0	1	21.121	9.414
10310	86.6	1	18.998	9.534
10310	87.5	1	16.126	10.101
10310	88.5	1	13.247	10.524
10310	89.6	1	10.614	10.871
10310	91.1	1	8.196	11.126
10310	92.3	1	3.878	12.276
10320	92.8	1	1.797	11.359
10320	93.6	1	4.309	11.425
10320	95.0	1	7.665	10.703
10320	95.6	1	9.060	10.448
10320	96.6	1	11.123	10.273
10320	97.4	1	13.875	9.903
10320	98.1	1	16.005	9.740
10320	99.2	1	19.076	9.204
10320	99.8	1	20.918	9.055
10330	99.9	1	20.296	8.484
10330	100.3	1	18.956	8.646
10330	100.9	1	17.004	9.079
10330	101.6	1	15.101	9.489
10330	102.2	1	13.161	9.767
10330	103.5	1	10.089	10.337
10330	103.9	1	9.111	10.504
10330	104.5	1	7.664	10.712
10330	105.8	1	4.339	11.203
10330	106.2	1	3.234	11.322
10340	106.3	1	3.049	10.596
10340	107.1	1	5.023	10.477
10340	108.0	1	7.008	10.213
10340	108.9	1	8.616	9.799
10340	109.9	1	10.935	9.631
10340	110.8	1	13.995	9.183
10340	111.1	1	14.946	9.120
10350	111.2	1	15.490	8.768
10350	111.7	1	14.082	9.107
10350	112.8	1	10.920	9.602
10350	113.9	1	8.671	9.982
10350	114.6	1	6.910	10.282
10350	115.1	1	5.535	10.305
10350	116.0	1	3.271	10.628
10360	116.2	1	2.983	9.878
10360	116.5	1	3.991	9.844
10360	116.9	1	5.084	9.583
10360	118.7	1	7.883	9.088

LINE NO.	FIDUCIAL	MAP	POSITION (INCHES) X	Y
10360	119.6	1	9.705	8.999
10360	120.3	1	11.425	8.868
10360	121.1	1	14.029	8.774
10360	121.4	1	15.442	8.724
10370	121.5	1	15.143	8.122
10370	121.8	1	14.177	8.229
10370	122.8	1	11.555	8.460
10370	123.7	1	9.617	8.758
10370	124.8	1	7.652	9.066
10370	125.5	1	6.634	9.272
10370	126.5	1	4.933	9.539
10370	126.6	1	3.908	9.817
10370	126.7	1	3.432	10.148
10380	127.0	1	3.592	8.896
10380	127.1	1	3.993	8.845
10380	127.8	1	5.742	8.897
10380	128.9	1	7.692	8.606
10380	130.0	1	9.461	8.130
10380	131.0	1	11.722	7.846
10380	131.6	1	13.734	7.461
10380	131.7	1	13.987	7.450
10390	131.8	1	14.673	6.737
10390	132.3	1	13.218	6.994
10390	133.5	1	10.398	7.578
10390	134.3	1	8.989	8.005
10390	135.0	1	7.761	8.448
10390	135.3	1	6.896	8.971
10391	135.4	1	11.218	7.207
10391	136.4	1	8.996	7.564
10391	137.0	1	7.552	7.777
10391	137.6	1	5.992	8.273
10391	138.0	1	5.107	8.629
10391	138.4	1	4.185	8.916
10391	138.6	1	3.449	9.529
10400	138.7	1	4.048	8.026
10400	139.3	1	5.861	7.861
10400	140.0	1	7.211	7.379
10400	140.8	1	9.383	7.035
10400	141.4	1	11.089	6.888
10400	141.9	1	12.460	6.700
10400	142.4	1	13.990	6.494
10411	145.3	1	13.973	7.441
10411	145.6	1	12.924	7.009
10411	146.4	1	11.090	6.879
10411	147.2	1	8.899	6.883
10411	147.8	1	7.251	7.245
10411	148.5	1	5.523	7.586
10411	149.3	1	3.561	8.240

LINE NO.	FIDUCIAL	MAP	POSITION (INCHES) X	Y
10420	149.4	1	3.362	8.527
10420	149.7	1	4.279	8.292
10420	150.4	1	5.774	7.172
10420	150.7	1	6.613	6.715
10420	151.1	1	7.188	6.336
10420	151.4	1	7.704	6.053
10421	151.5	1	2.692	7.397
10421	151.9	1	4.245	7.333
10421	152.8	1	6.788	7.083
10421	154.5	1	10.868	6.454
10421	155.1	1	12.613	6.307
10421	155.5	1	13.874	6.173

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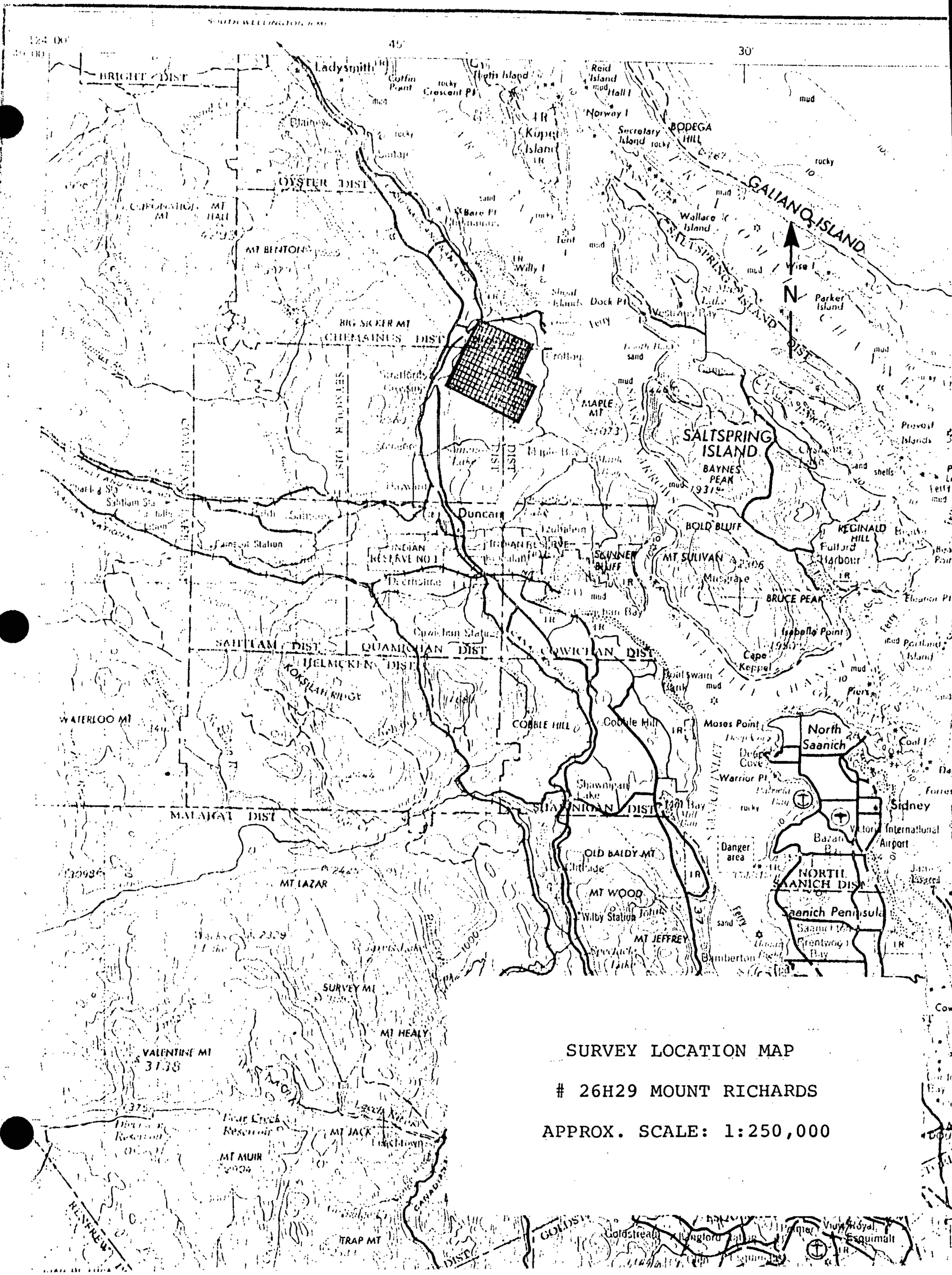
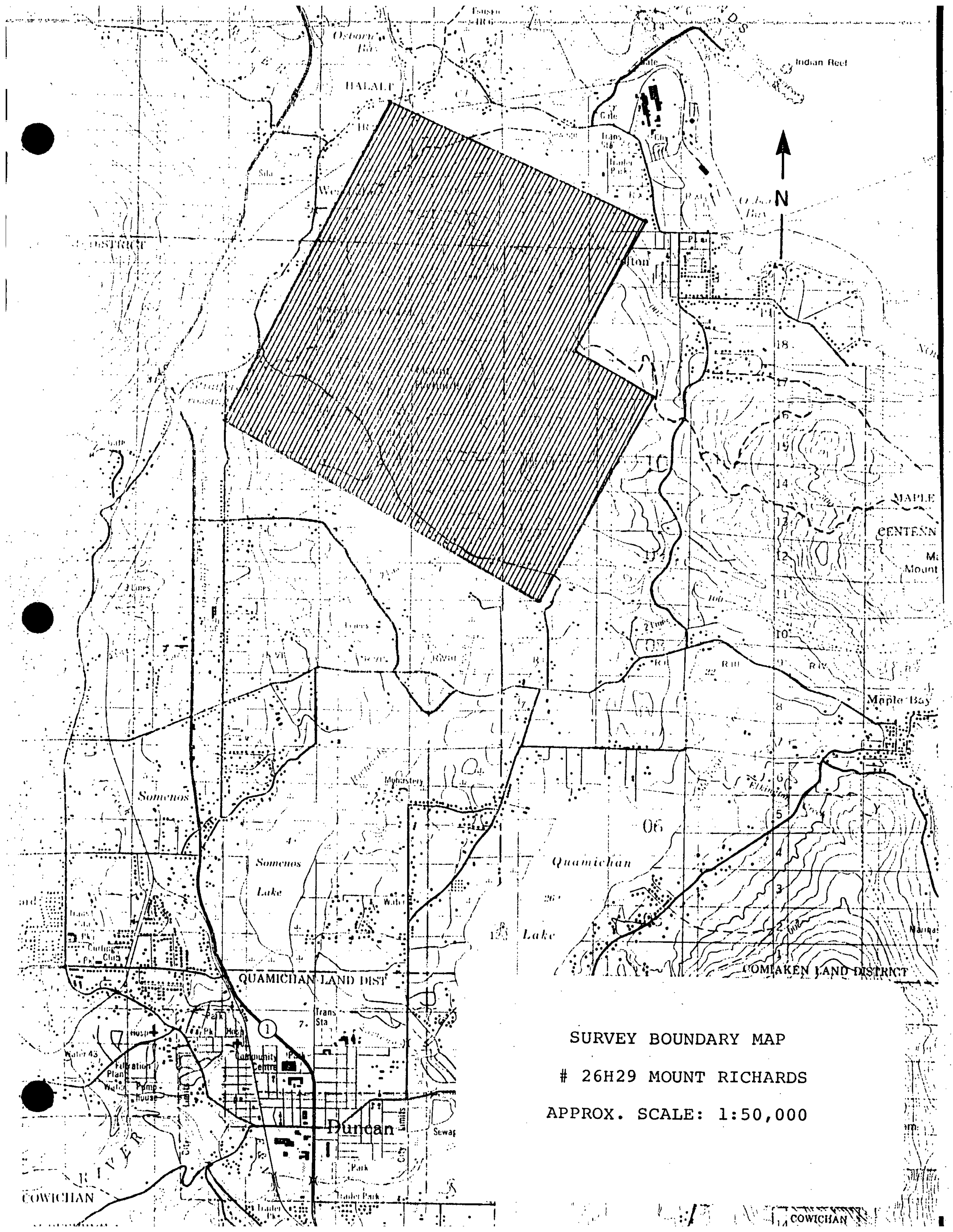


SURVEY LOCATION MAP

26H29 MOUNT RICHARDS

APPROX. SCALE: 1:250,000



SURVEY BOUNDARY MAP

26H29 MOUNT RICHARDS

APPROX. SCALE: 1:50,000

INPUT E.M. Profile Map

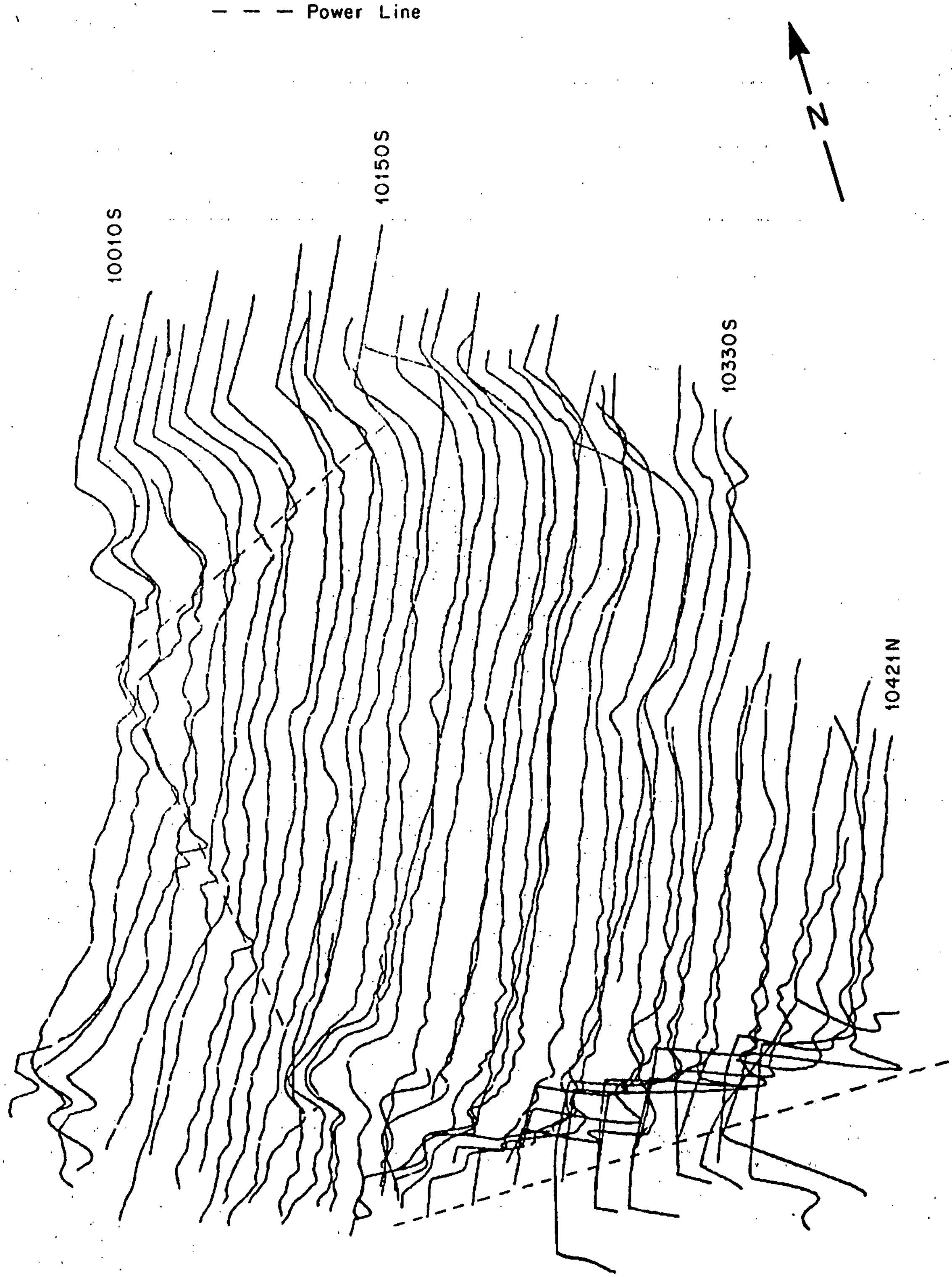
26H29

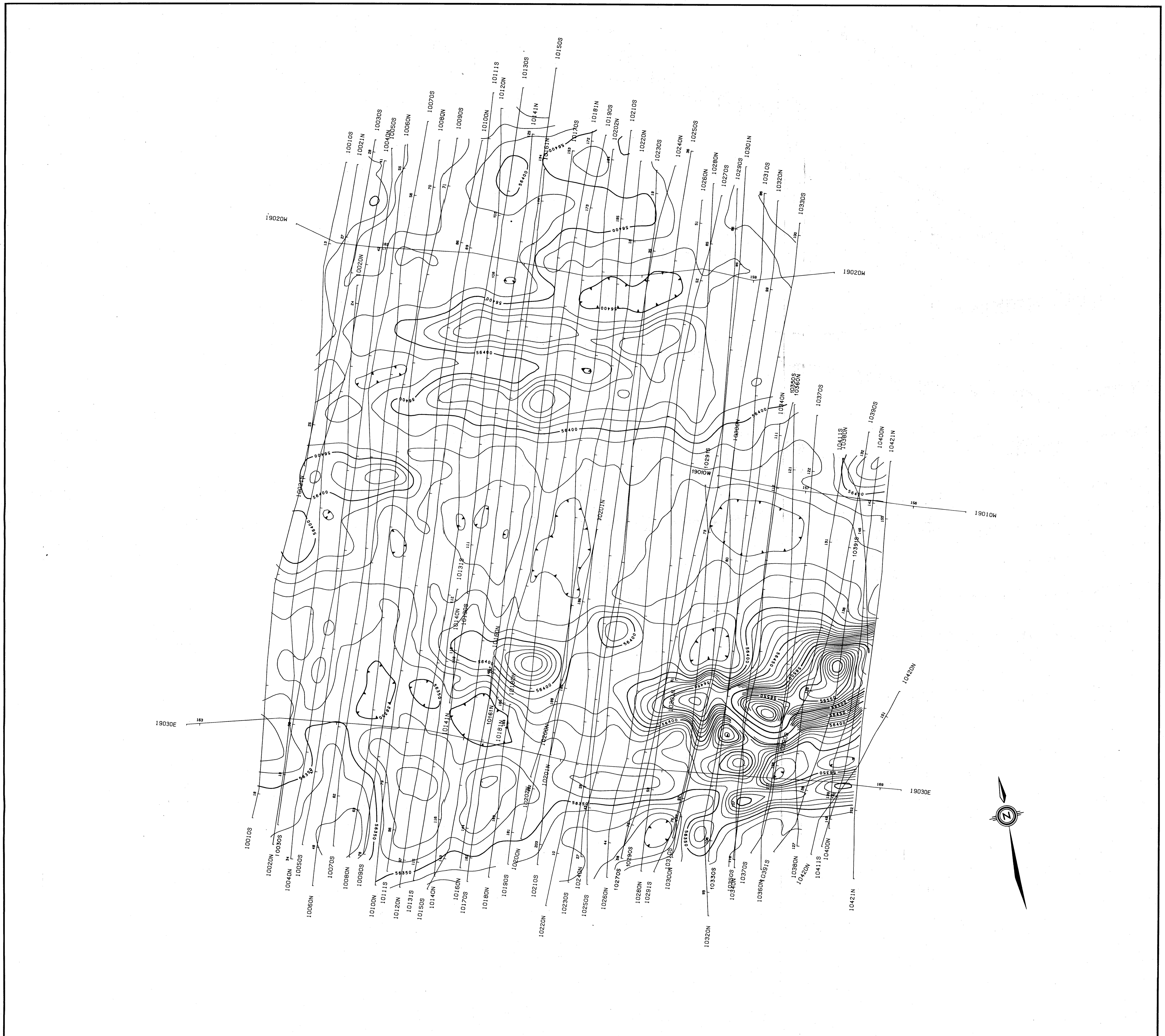
Channel 1 Amplitude

Scale Approx. 1:30000

Note:

— — — Power Line





MAGNETIC CONTOURS

10 Gamma Contour Line

50 Gamma Contour Line

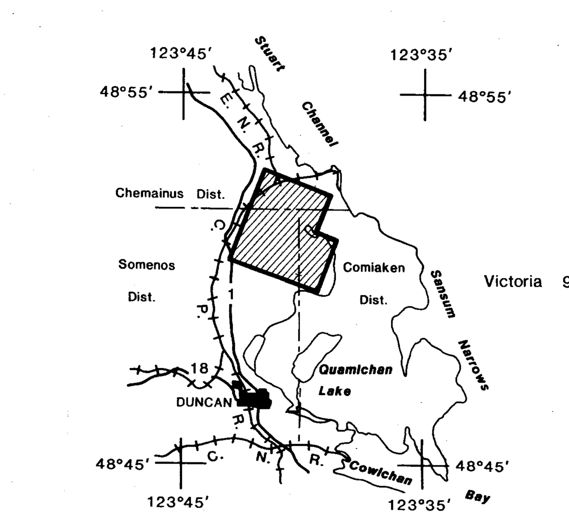
250 Gamma Contour Line

Magnetic Depression

1 Gamma = 1 Nanotesla in SI Units

GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,532



Scale 1: 10000

TOTAL MAGNETIC INTENSITY SURVEY

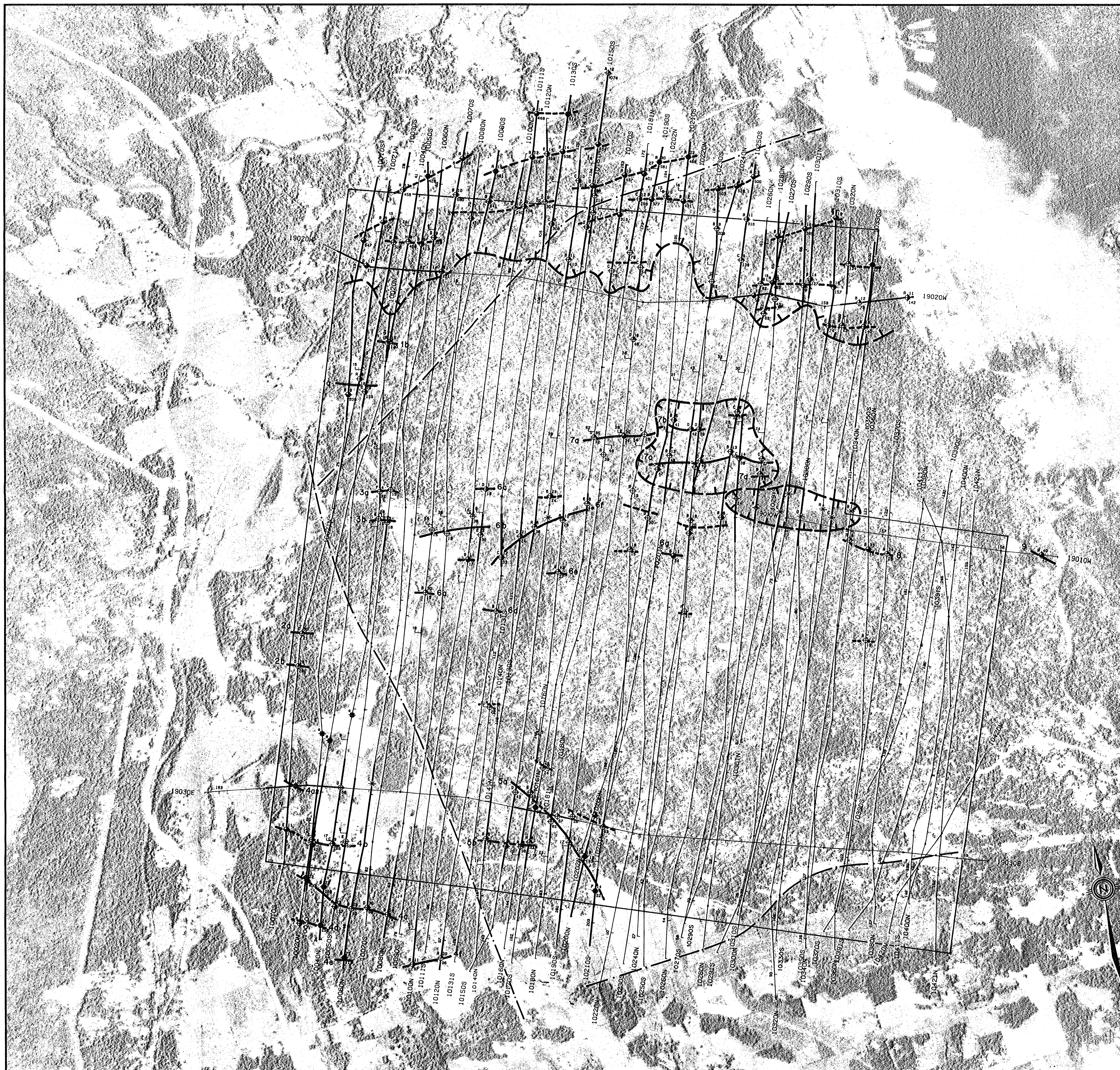
FALCONBRIDGE LIMITED

MOUNT RICHARDS

Province of BRITISH COLUMBIA

FILE NO.	SHEET NO.	DATE	COMPILED BY
26H29	1 of 1	June 1984	Questor Surveys Limited

Questor Surveys Limited
Mississauga Ontario Canada



INPUT® PEAK RESPONSE SYMBOLS 2ms PULSE

SURFICIAL RESPONSE	UP-DIP PEAK RESPONSE	BEDROCK RESPONSE	DECAY INTERVAL CLASSIFICATION
			1 Channel (300 microseconds)
			2 Channel (500 microseconds)
			3 Channel (800 microseconds)
			4 Channel (1200 microseconds)
			5 Channel (1700 microseconds)
			6 Channel (2300 microseconds)

Culture Response

50 Associated Magnetic Response

Anomaly Letter — B 5 — Apparent Conductivity-Width (siemens) (N.C. – No Calculation)

Poorly Defined Response — 1800 — Ch. 2 Amplitude (p.p.m.)

GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,532

INTERPRETATION

20 Conductor Axis, with reference number good definition)

20 Conductor Axis, with reference number (poor definition)

Vertical Conductor

Conductor Dip (magnitude and direction known)

Conductor Dip (direction known)

20 Selected Zone, with reference number

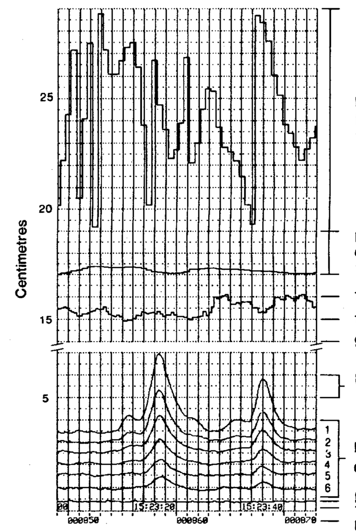
Conductive Zone

Fault Zone

A Channel 1 Half-Peak Width

Hydro Power Line

Representative INPUT® Magnetometer and Altimeter Recording



DESCRIPTIVE NOTES

The aircraft is equipped with the Barringer/Questor Mark VI INPUT® airborne E.M. System and the Geometrics G-803 Proton Precession Magnetometer and Sonotek SDS-1200 Series Data Acquisition System. The INPUT® system will respond to conductive overburden and near-surface horizontal conducting layers in addition to bedrock conductors. Discrimination of conductors is based on the rate of transient decay, magnetic correlation and the anomaly shape, together with the conductor pattern and topography.

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INTERPRETATION REFERENCES

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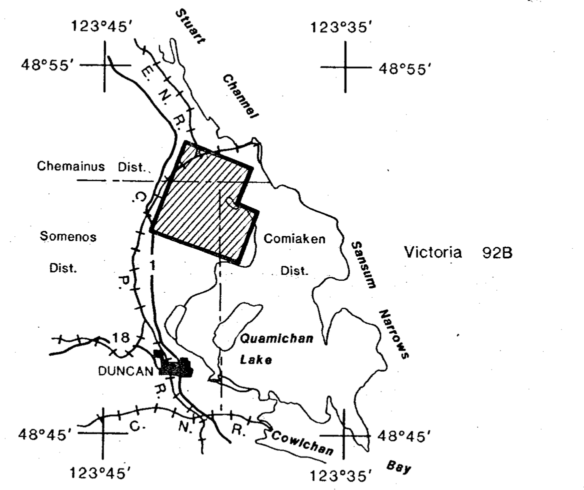

1000 0 3000 Ft

200 0 1000 M

Scale 1: 10000

HELICOPTER MK VI INPUT® SURVEY

FALCONBRIDGE LIMITED

MOUNT RICHARDS

Province of BRITISH COLUMBIA

FILE NO.	SHEET NO.	DATE	COMPILED BY
26H29	1 of 1	June 1984	Questor Surveys Limited

Questor Surveys Limited
Mississauga Ontario Canada