'84 - 831 - # 13142
10/85

GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,142

REPORT ON A AIRBORNE ELECTROMAGNETIC SURVEY OF THE ADAMS PLATEAU PROPERTY FOR ADAMS SILVER RESOURCES INC.

KAMLOOPS MINING DISTRICT, N.T.S. 82 M/4E
LATITUDE: 51°04'N   LONGITUDE: 119°37'W

REPORT BY
DANIEL MARTIN, GEOPHYSICIST
QUESTOR SURVEYS LIMITED

CONSULTANT
B. E. SPENCER, P. ENG.
B. E. SPENCER ENGINEERING LTD.

CLAIMS:	ADAM 1-5	ALPHA 1-2
	ADAM 8-10	NOVA 1-2
	L5227-5232	BEE 2A

SEPTEMBER, 1984

C O N T E N T S

INTRODUCTION

This report details the operation and interpretation of a Helicopter INPUT electromagnetic and magnetic survey on the Adams Plateau property at Adams Silver Resources Inc.

The electromagnetic system utilized for the survey was the Barringer/Questor Mk VI INPUT system with receiver and transmitter specifications as described in Appendix A of this report.

In total, 124 line kilometres were flown for the survey. One control line, required to level the magnetic data, accounted for 7 kilometres of this total.

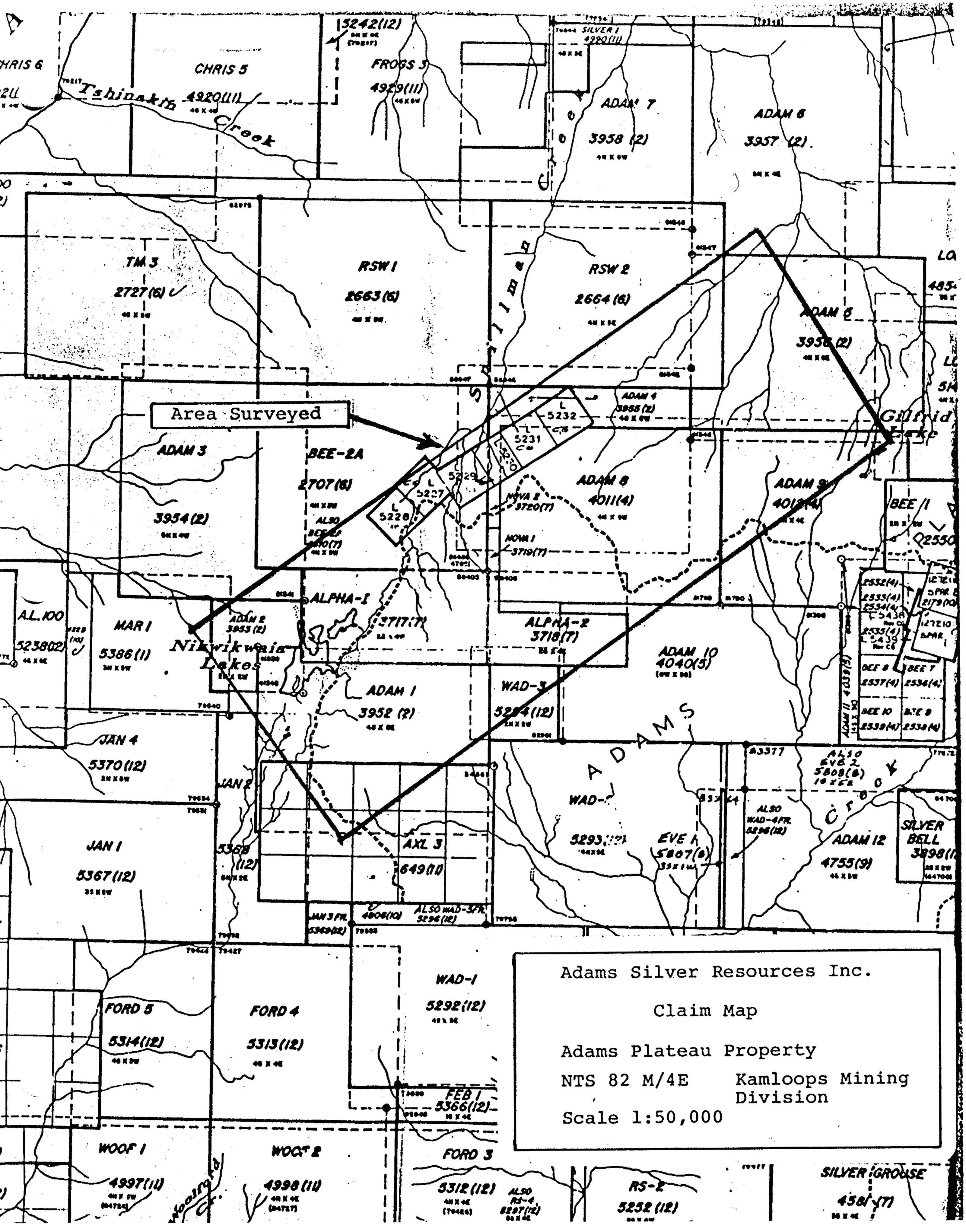
The Adams Plateau property consists of six Crown granted mineral claims and 20 located mineral claims totalling 294 units as tabulated below:

Lot 5227-5232	Alpha 1-2
Adam 1-12	Nova 1-2
RSW 1-2	Eve 1-2
BEE 2A	

The claims are located on the Adams Plateau, 70 kilometres east of Kamloops, British Colubmia. Access is via a 20 kilometre logging road from the south end of Adams Lake and then via a 4 x 4 road which runs 7 kilometres through the centre of the claims.

The claims are located on the top of the Adams Plateau at an elevation of some 1,700 metres. Relief is gentle on the plateau, but very steep on the northern and southern portion of the property where the descent to the Adams and Shuswap Lakes begins.

The claims were explored by trenching, diamond drilling and short adits during 1927-1940. In 1977, two pits were mined and 1,360 tons of mineralization were shipped to Trail, British Columbia. Adams Silver Resources Inc. drilled 19 holes totalling 1,112 metres during 1981 and when regional mapping by Preto outlined a major fold structure on the claims, exploration was expanded to evaluate both the north and previously unexplored south limbs of the fold structure. This work is continuing.



Area Surveyed
Tshinakin Creek
Nikwikwaia Lakes
Adams Creek
Gilfrid Lake
Woolford Cr.
CHRIS 5
4920(11)
FROGS 3
4929(11)
5242(12)
SILVER 1
4990(11)
ADAM 7
3958 (2)
ADAM 6
3957 (2)
TM 3
2727 (6)
RSW 1
2663 (6)
RSW 2
2664 (6)
ADAM 5
3956 (2)
ADAM 3
3954 (2)
BEE-2A
2707 (6)
ADAM 4
3955 (2)
5228
5227
5229
5230
5231
5232
NOVA 2
3720(7)
NOVA 1
3719(7)
ADAM 8
4011(4)
ADAM 9
4012(4)
BEE 1
AL.100
5238(12)
MAR 1
5386 (1)
ADAM 2
3953 (2)
ALPHA-1
3717(7)
ALPHA-2
3718(7)
ADAM 10
4040(5)
ADAM 1
3952 (2)
WAD-3
5294(12)
JAN 4
5370(12)
JAN 2
JAN 1
5367(12)
AXL 3
649(11)
WAD-2
5293
EVE 1
5807(6)
EVE 2
5808(6)
ADAM 12
4755(9)
SILVER BELL
ADAM 11
4039(3)
BEE 8
2537(4)
BEE 7
2536(4)
BEE 10
2539(4)
BEE 9
2538(4)
JAN 3 FR.
5369(12)
4806(10)
ALSO WAD-5FR.
5296(12)
ALSO WAD-4FR.
5295(12)
WAD-1
5292(12)
FORD 5
5314(12)
FORD 4
5313(12)
FEB 1
5366(12)
WOOF 1
4997(11)
WOOF 2
4998(11)
FORD 3
5312 (12)
ALSO RS-4
5297(12)
RS-2
5252 (12)
SILVER GROUSE
4581 (7)
Adams Silver Resources Inc.
Claim Map
Adams Plateau Property
NTS 82 M/4E
Kamloops Mining Division
Scale 1:50,000

2. SURVEY OPERATIONS

2a. Survey Procedure

During the survey, the Helicopter maintained a terrain clearance as close to 22 metres as possible, with the receiver coil (bird) at approximately 60 metres above the ground surface. In areas of substantial topographic relief, 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 C-1 in Appendix C), which was maintained at an average of 40 to 70 knots, while on survey.

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

BLOCK	LINE DIRECTION	SPACING BETWEEN LINES
A	North 45^{o} West	200 metres

Whenever possible, the traverse lines were flown in alternate flight directions (ie: northwest then southeast) facilitating the interpretation of dipping conductors. When the traverse line spacing exceeded 50% the normal spacing interval over a 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.

2b. Production

The following table summarizes the production during the survey operations:

DATE	FLT NO.	PRODUCTION	NON PRODUCTION WX	EQPT	SFERICS	MAG	COMMENTS
1984							
Jun 30	137						arrived in Salmon Arm.
Jul 1-4				X			No gear box.
5	138	X					
	139	X					
	140	X	X(aft)				Windy
6			X				High winds
7	141	X					
	142	X					
	143	X					Completed project.

WX - weather

EQPT - equipment problems

SFERICS - atmospheric noise (tweaks)

MAG - magnetic storm

2c. 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 Mk VI INPUT E.M. System;
c) Geometrics Model 803 Proton Precession Magnetometer;
d) Sonotek Acquisition System;
e) RMS GR33 Analog Recorder;
f) Geocam 35mm. frame/strip camera;
g) Sperry Radar Altimeter;
h) Digidata Digital Recorder;

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.

The continuous chart speed of the RMS recorder was set at 10 cm/min. The firing of the frame camera was snychronized with each sub-fiducial interval, which is every 2 seconds.

2d. Survey Personnel

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

Geophysicist	Dan Martyn
Pilot	Bob Masson (Trans Canada)
Navigator	Bill Smith
Operator	Dan Makos
Engineer	John Caza (Trans Canada)

2e. Magnetic Diurnal

Diurnal variations in the earth's magnetic field had been recorded using a base station equipped with a Geometrics Model 826 Proton Precession Magnetometer. It was monitored periodically during the day for severe diurnal changes (magnetic storms). A variation of greater than 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 Shuswap Inn in Salmon Arm, British Columbia.

One control line was flown over the survey block, at approximately right angles to the traverse line directions. A computer process has calculated the intersection positions (fiducials of the control and traverse 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 aperture setting on the camera can be manually adjusted by the operator during flight, assuring the proper exposure of the film. The camera is fitted with a wide angle 18mm lens.

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 data technician. The recovery is kept up on a daily basis assuring proper flight line coverage of the job and immediate 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

In preparation for the survey, all necessary topographic maps and air photographs were secured from B. C. Maps in Victoria, B.C., and prepared for navigation and flight path recovery purposes by Questor Surveys Limited.

The photo mosaic used in the field for the flight strips and flight path recovery was phoographically enlarged from a controlled, orthophotographic mosaic, which was constructed from 1979 and 1982, 1:60,000 photographs by Northway Gestalt Corp. of Toronto, Ontario. The final data presentation is on a screened cronaflex photomosaic base map which is at a scale of 1:10,000. The flight path and electromagnetic and magnetic data were computer processed at Questor and plotted by Dataplotting Services Inc., Toronto, Ontario.

3b. Products

The following products are supplied:

(i) a controlled orthophotomosaic base map using 1979-1982 aerial photography at a scale of 1:10,000;

(ii) a photomosaic base map showing flight lines, Electromagnetic anomalies, and interpretation at a scale of 1:10,000;

(iii) white prints of the above with (vii);

(iv) xerox copies of the flight log;

(v) anomaly data sheets;

(vi) a photomosaic base map showing combined Electromagnetic and Magnetometer results with flight lines at a scale of 1:10,000;

(vii) a clear cronoflex overlay showing contours of the magnetic total field at 10 gamma intervals at a scale of 1:10,000;

(viii) computer generated analogue profiles at a scale of 1:10,000;

(ix) an Applicon regular colour and Shadow plot of the magnetics to cover the entire survey area (refer to area outline enclosed with our letter dated March 26, 1984) at a scale of 1:50,000 with major topography features outlined;

(x) 5 brief interpretative reports;

(xi) a profile map of channel 3 (provided at the end of the report).

4. GENERAL INTERPRETATION

4a. Data Summary

In summary, all interpreted natural E.M. anomalies have been selected. They have been labelled as bedrock responses. The 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 one instance, caution is advised because they may in fact, derive from a thickening of the overburden.

INPUT responses created by cultural conductors have not been found in the survey area. These are normally distinquished from natural conductors by their relative position to cultural sources on the flight path film and by the 60 Hertz monitor on the analog records.

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 (see map legend)	Symbol
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

Responses classified as "P" are poorly defined bedrock anomalies which exhibit relatively weak INPUT signatures. Potentially, responses of this weak nature could be the result of a deeply buried bedrock conductor or conductive oveburden. In this instance, the former is favoured due to the general absence of overburden attributed INPUT responses in the survey.

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 3 amplitudes has been plotted. The profile is provided at the end of this report. It introduces a visual comparison of consecutive responses with respect to their response characteristics (amplitude and width) and their spatial position to one another.

4b. General Geology

The survey area is located in the Adams Plateau area of British Columbia. It lies on the western side of the plateau over Nikwikwaia Lake and part of Spillman Creek, which flows into Adams Lake.

Numerous base metal deposits occur in the Adams Plateau area. Many of which are clearly stratabound massive sulphide deposits and appear to be of syngenetic origin with their host rocks. The host rocks are commonly felsic tuffs and fine-grained cherty tuffs. The deposits are usually localized at volcanic-sedimentary contacts and contain lead-zinc and silver mineralizations. A few of the occurrences show excellent grades. Most are discontinuous, lensy and small in size. A well known example in the area would be the Lucky Coon, which is situated at the head of Spillman Creek. It consists of banded pyrite-arsenopyrite-galena-sphalerite-tetrahedrite-argintite mineralization that occurred parallel to the main foliation in a felsic schist. The mineralized zone was exposed in two areas about 500 metres apart and reportedly had been traced intermittently for more than 1 kilometre.

A recent discovery by Rea Gold Corp. west of Adams Lake has introduced the possibility for significant gold-bearing massive sulphide deposits in the local volcanic rocks, which has not been previously considered to be of economic importance in the region.

Referenced Material:

Preto, V.A., (1979): Barriere Lakes - Adams Plateau Area (82L/13E; 82M/4, SW; 92P/1E,8E), B.C. Ministry of Energy, Mines & Pet. Res., Geological Fieldwork, 1978, Paper 1979-1, pp. 31-37.

Preto, V.A., McLaren, G.P., Schiarizza, P.A., (1980): Barriere Lakes - Adams Plateau Area (82L/13E; 82M/4, SW; 92P/1E,8E), B.C. Ministry of Energy, Mines & Pet. Res., Geological Fieldwork, 1979, Paper 1980-1, pp. 28-36.

Spencer, B. (1984): New Massive Anomalies Discovered by Adams, North American Gold Mining Industry News, April 27, 1984.

5. INPUT INTERPRETATION

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.

The survey area contains many long formational-type bedrock conductors, which strike generally NE-SW throughout the area. Conductor axis have been interpreted for these conductors and have been drawn on the final E.M. map. The axes usually represent the approximate position of the top edge of the conductors. However, due to the shallow dip (about 15 to 20 degrees) of the conductors in the area, the axes may be more representative of the central position of the conductors. Normally, formational conductors are taken to be of no economic importance because most are mineralized with non-economic iron sulphides and/or graphites. But, in this instance, they may have some significance because of their close relationships with contact zones, which is equally shared by the stratabound massive sulphide occurrences in the region.

An examination of the response signatures of the formational conductors reveals that generally they are moderately conductive and that they are situated very close to the surface. The large channel amplitudes displayed by many of the stronger responses (also shown on the profile map at the back of the report) would suggest that neighbouring conductors with less predominance would be masked. A good example of this circumstance is the conductor indicated by intercepts 30090N and 30100G. This particular conductor became apparent to the INPUT systems when two prominent conductors, on either side of it separated. The conductor is probably much longer than the conductor axis indicated on the interpretation map.

Intercepts 30250E, 30261EE, 30270E, 30281Z, 30292C and 30302P have two different interpretative possibilities. Firstly, these intercepts may be the product of a very wide conductor or secondly, there are two parallel conductors here, which have been singularly detected in a given flight direction. As indicated on the interpretation map, the latter was favoured to explain these intercepts.

In the north-east corner of the survey area, there is a conductive zone outlined by hatched dash lines. The zone contains 12 poorly defined INPUT responses, whose response characteristics are weak and broad. The source of the conductivity may be attributed to either local conductive overburden or weak bedrock conductors. The topography may have encouraged the deposition of conductive sediments into thicker deposits that are laterally restricted in one direction. These types of deposits sometimes give rise to particularly deceptive INPUT responses. Presently, bedrock sources are suspected in this zone. They are situated near the surface and have very weak conductivity values.

The magnetic contour data differentiates the 2 main geological units of the Eagle Bay Formation present in the Adams Plateau. Particularly, the greenschist unit, which is known to be strongly magnetic. It also reveals many structural features such as faults and folds. These features are directly responsible for the discordant arrangements of the formational conductors.

As a personnel preference, based on the INPUT survey only, I have selected four isolated intercepts, which warrant a high priority ground follow-up. They have been appropriately marked on the interpretation map. The four targets are coincidently located along flanks of magnetic highs. Their response characteristics indicate bedrock sources that are situated near-surface and are of limited size. This selection should not be construed that all other intercepts in the survey area be neglected. But with the aid of additional geological, geophysical and geochemical information available to the Project Geologist, other potential targets should be chosen.

6. CONCLUSION AND RECOMMENDTIONS

The INPUT survey has revealed four zones of bedrock conductivity, which shows good promise of massive sulphide-bearing conductors. The conductors have been briefly described in the report and are assigned high priority ground follow-up statuses.

Numerous formational-type conductors have been intercepted in the survey. These conductors should be further examined by the Project Geologist with the aid of available field geology and geochemical information as to their individual importance as structural indicators and potential massive sulphide targets.

If a detailed airborne magnetic interpretation has not already been done in the survey area, it would be well worth the effort.

Respectfully submitted

QUESTOR SURVEYS LIMITED

Daniel Martyn

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	4	
Electromagnetic Field Strength (peak)	247,800	$amp\text{-}turn\text{-}meter^2$

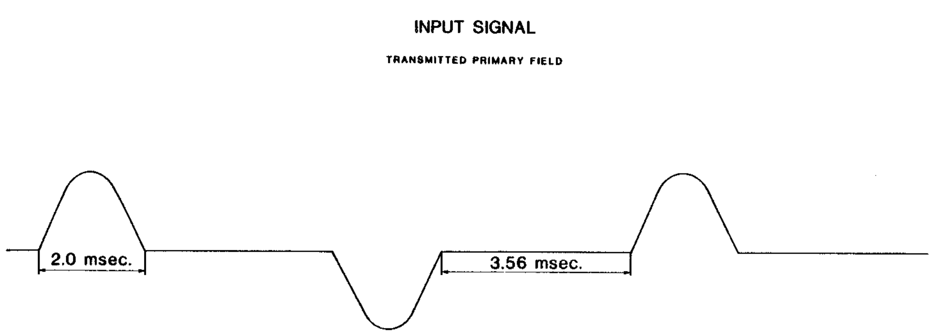


Figure A1

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

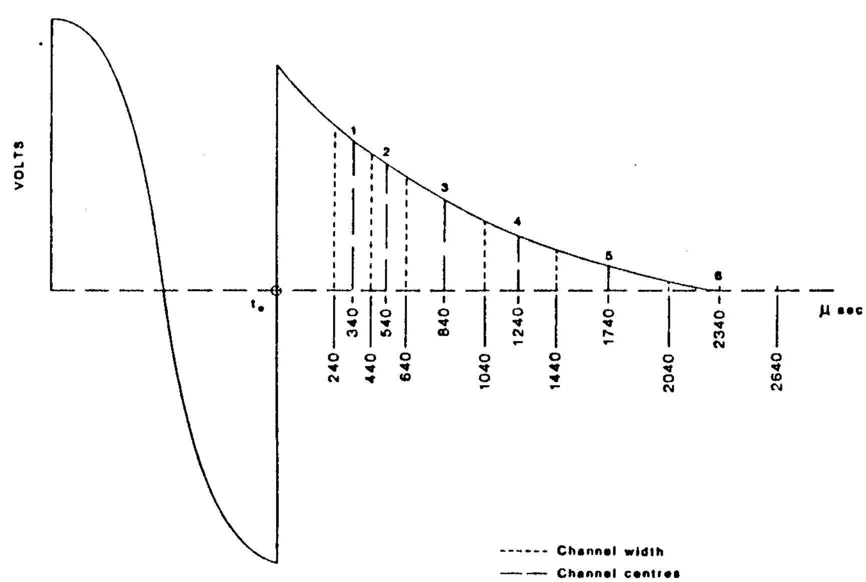


Figure A2

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.

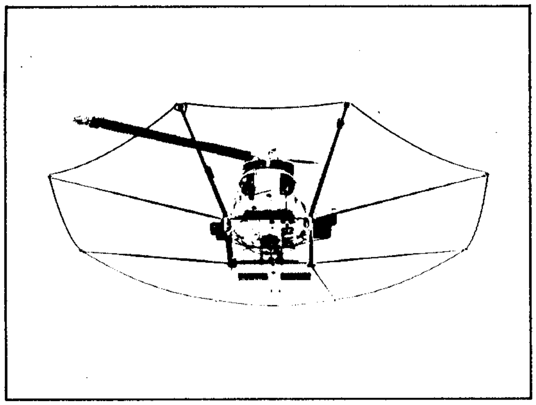
ALTIMETER

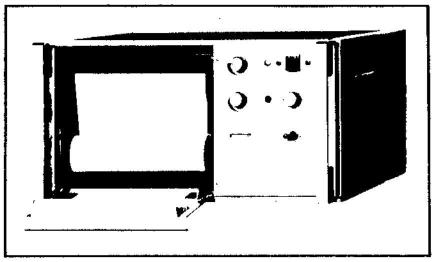
Sperry Radar Altimeter

SONOTEK P.M.H. 5010 PROTON MAGNETOMETER

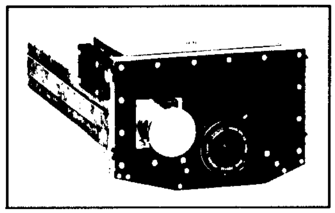
The airborne magnetometer is a proton free precession sensor, which operates on the principle of nuclear magnetic resonance to produce a measurement of the total magnetic intensitity. It has a sensitivity of 1 gamma and an operating range of 20,000 gammas to 100,000 gammas. The sensor is a solenoid type, 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.

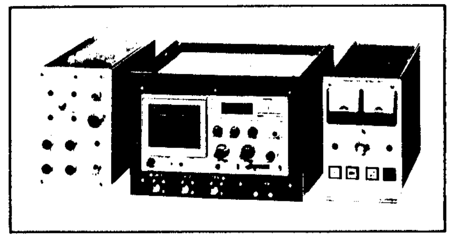




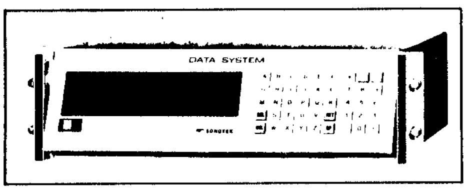
HONEYWELL ANALOGUE CHART RECORDER



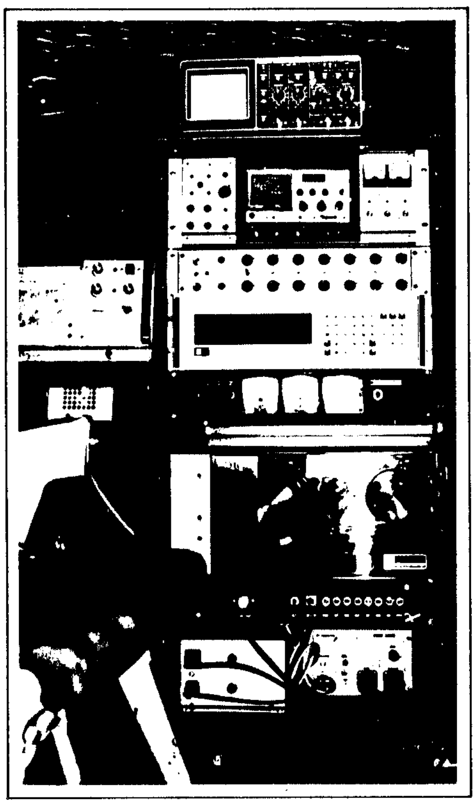
35mm TRACKING CAMERA



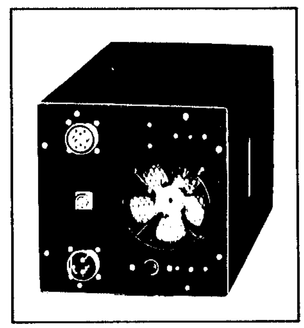
INTERFACE, OSCILLOSCOPE & T.C.U.



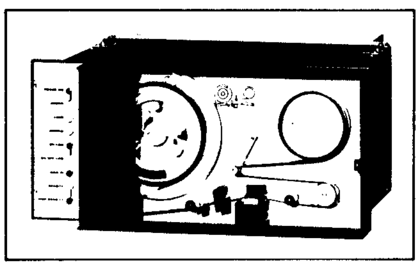
SONOTEK DATA SYSTEM



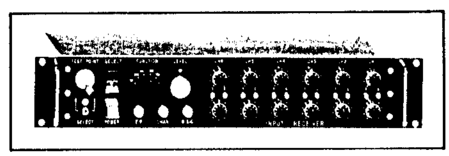
INPUT® EQUIPMENT INSTALLATION



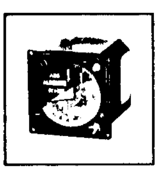
TRANSMITTER



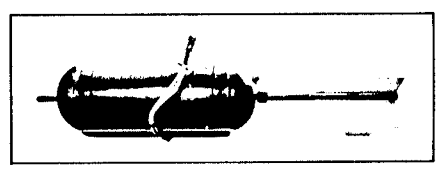
9 TRACK TAPE RECORDER



MK VI INPUT® RECEIVER



RADAR ALTIMETER



TOWED "BIRD" ASSEMBLY

QUESTOR/BARRINGER MARK VI "INPUT"® SYSTEM EQUIPMENT

APPENDIX B

The Survey Helicopter

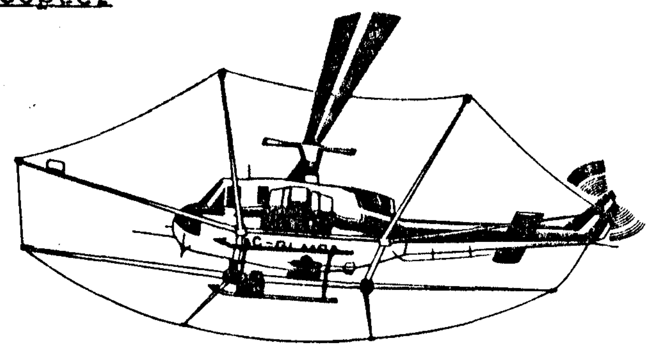


Figure B1

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.

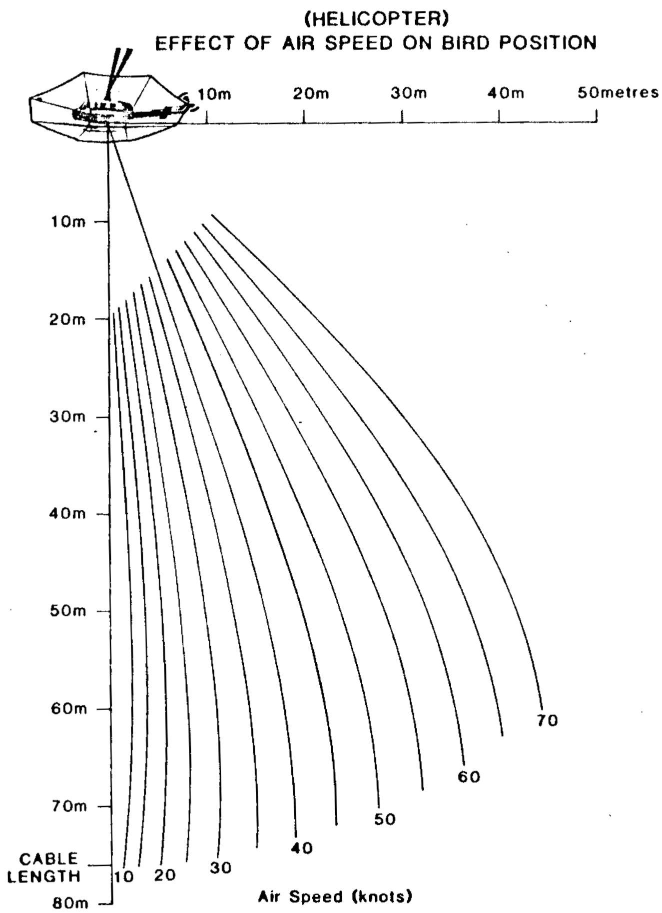


Figure C1

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:

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

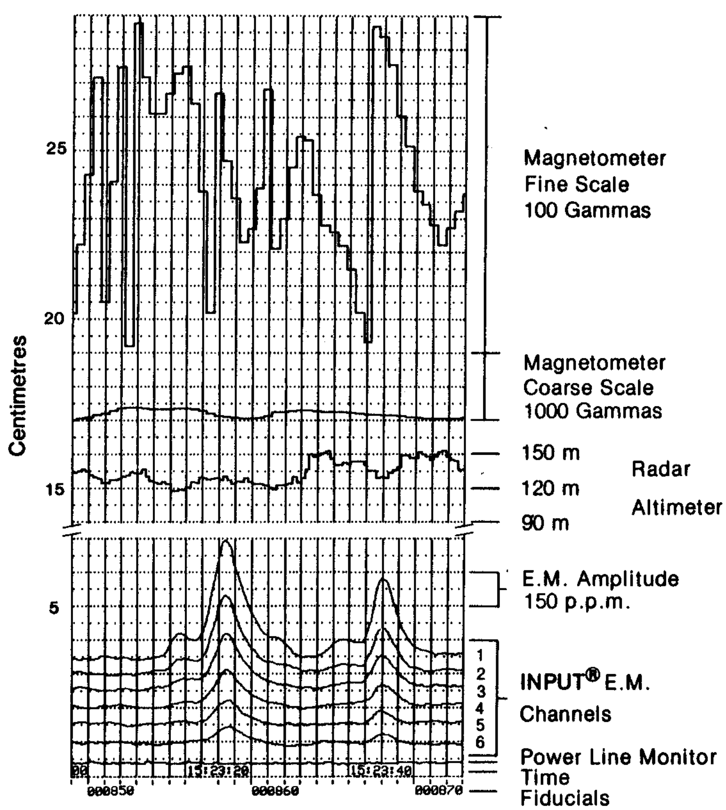


Figure C2

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.

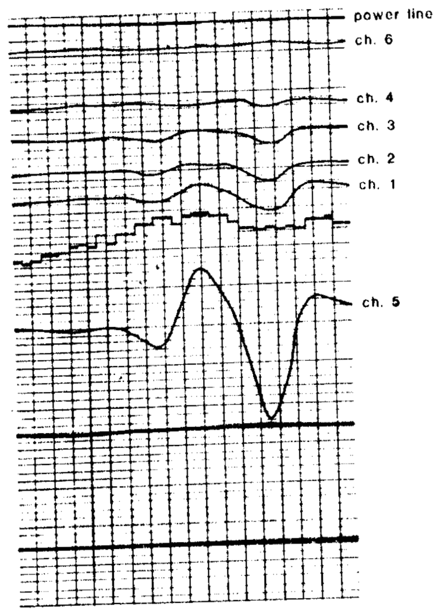
The background levels are recorded and then used to determine the drift that may occur in the E.M. channels during the progression of a survey flight. If drift has occurred, the

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

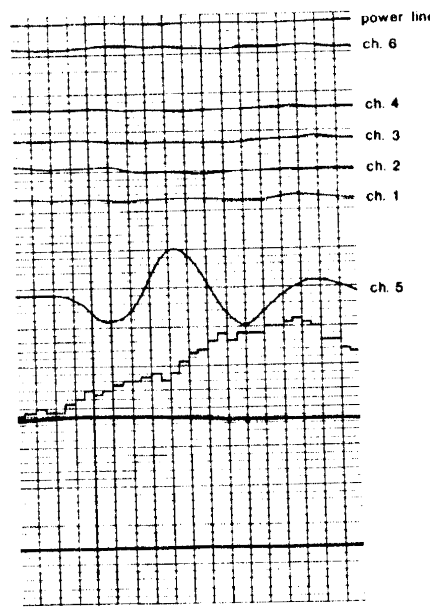
The primary electromagnetic field generated by the INPUT system induces eddy currents in the frame of the helicopter. This spurious secondary field is a significant source of noise which needs to be taken account of before every survey flight is initiated.

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.



Uncompensated



Compensated

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.

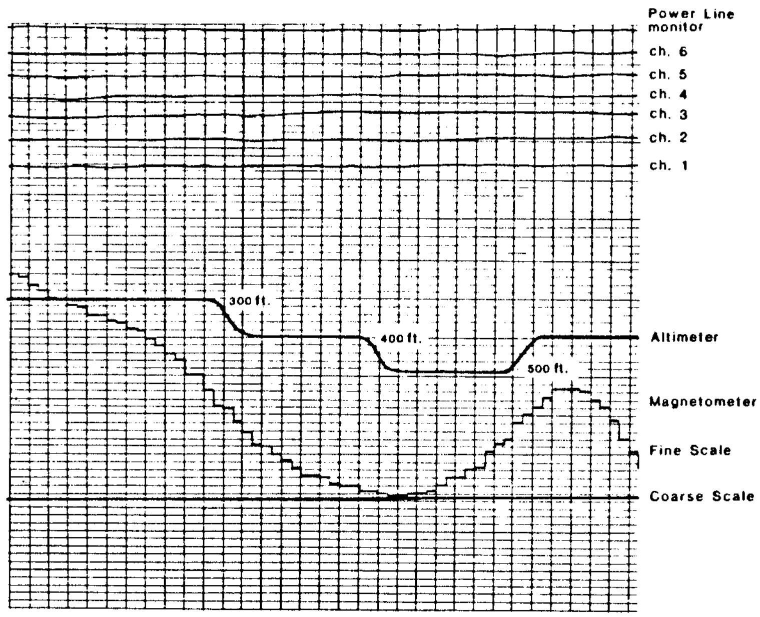


Figure C4

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.

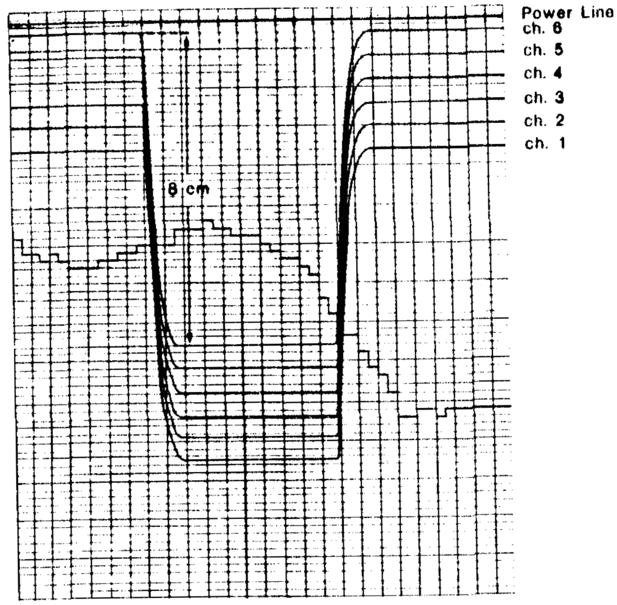


Figure C5

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.

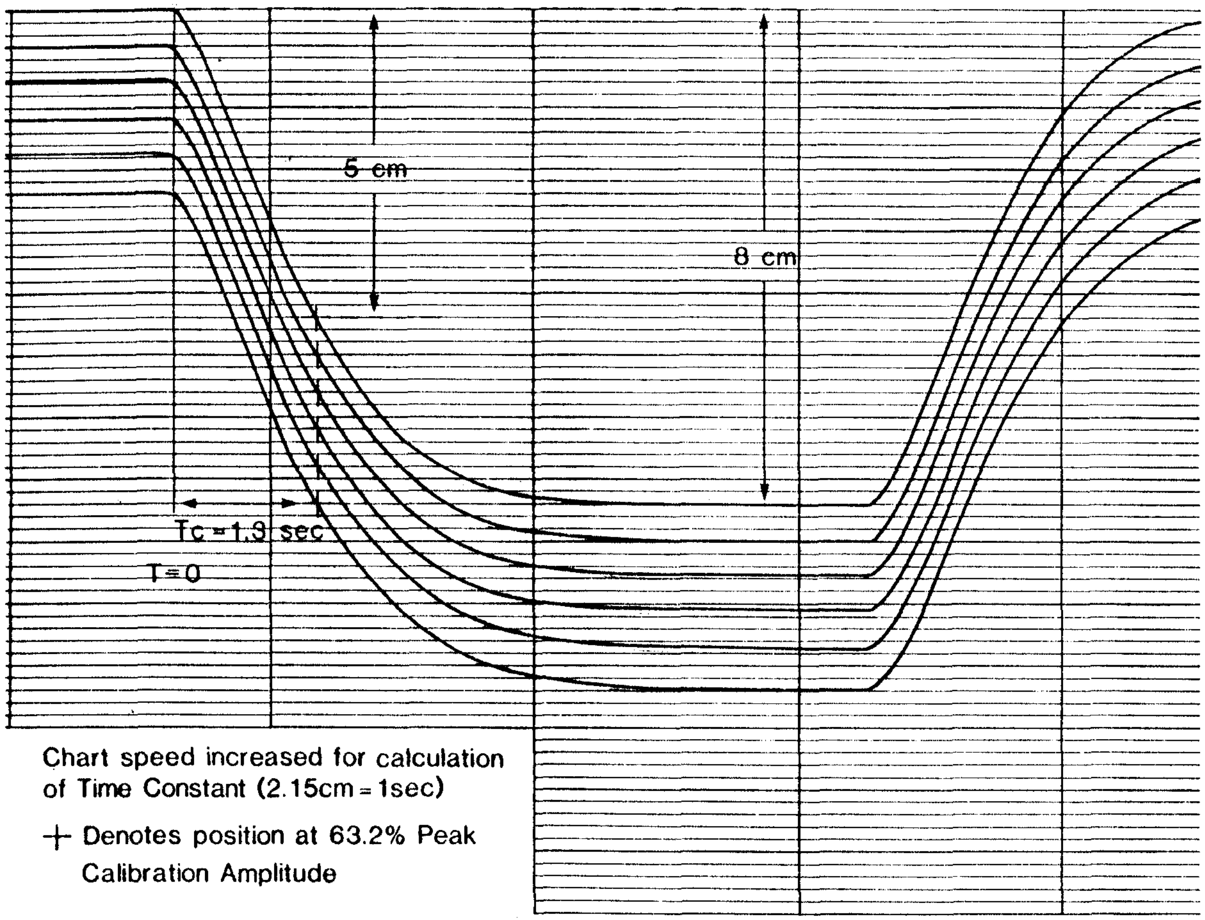


Figure C6

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.

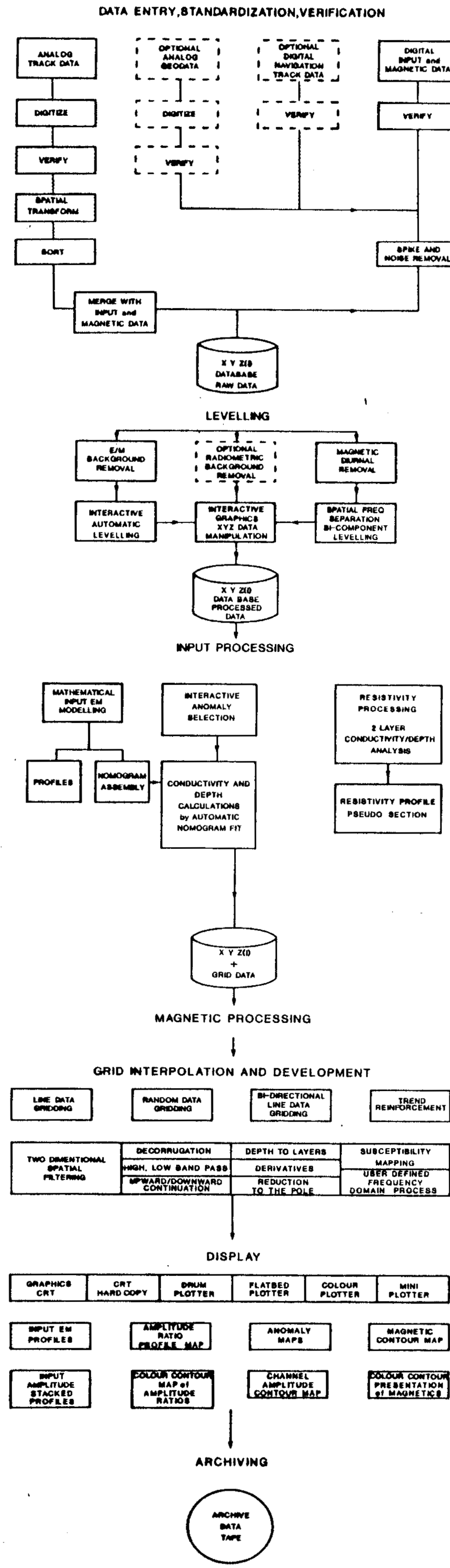
c) Data Enhancement

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 increses, 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.

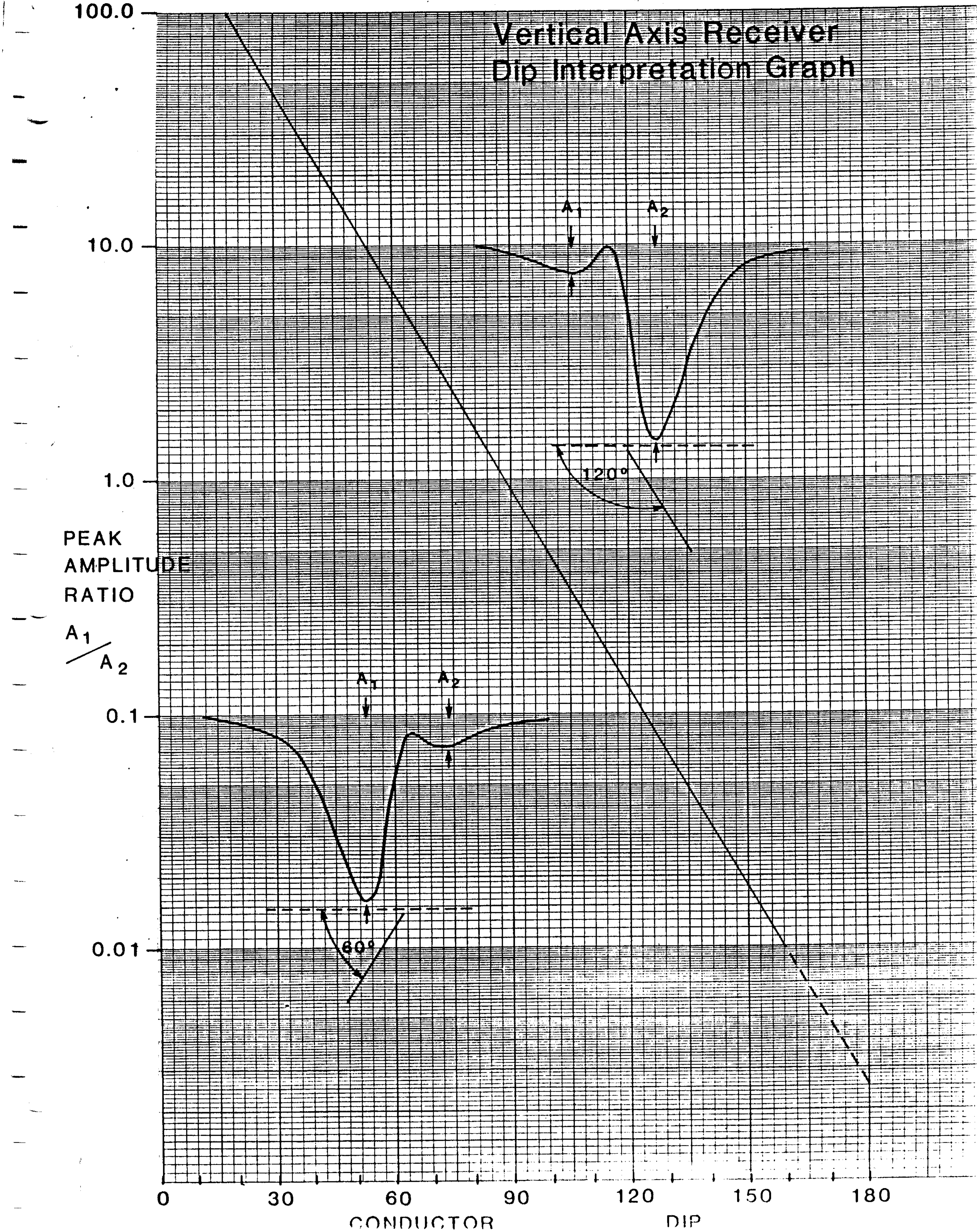
Surficial Conductors

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:26H31

	INPUT EM	ANOMALY		PEAK	RESPONSE		AMPLITUDES		(PPM)	TCP	ALT	MAGNETIC	
LINE	FIDUCIAL	TYPE	CHS	CH1	CH2	CH3	CH4	CH5	CH6	(S)	(M)	FIDUCIAL	VALUE
39021A	60.899		2	100	63	-	-	-	-	NC	156	-	
39021B	61.634		6	516	321	180	100	53	33	22	145	-	
39021C	62.059		6	1192	581	266	118	63	35	13	140	-	
39021D	62.922		6	442	318	214	151	101	70	61	140	-	
39021E	64.218		6	779	593	420	281	184	122	65	123	-	
39021F	64.806		6	1428	952	594	347	204	109	32	129	-	
39021G	66.110		6	5016	2521	1270	1280	979	560	36	118	-	
39021H	66.611		6	5015	2521	1270	1280	776	430	32	117	-	
39021J	67.154		6	5014	2521	1270	1032	581	333	31	114	-	
39021K	67.751		6	5013	2520	1269	1279	897	533	44	119	-	
39021L	68.517		6	3696	2403	1269	938	605	401	48	128	-	
39021M	69.534		6	2748	1761	1106	702	475	323	43	115	-	
39021N	70.321		6	2464	1634	1021	565	323	178	29	118	-	
39021P	70.965		6	3519	1918	886	349	135	47	11	123	-	
30013A	31.505		3	138	46	12	-	-	-	5	108	31.42	158
30013B	32.300		4	608	241	93	28	-	-	7	122	-	
30013C	32.687		5	3179	1212	368	81	12	-	5	123	32.63	9
30013D	33.133		6	2444	1329	616	231	83	32	11	136	33.33	90
30013E	33.537		6	697	436	247	120	64	27	18	145	-	
30013F	34.030		5	338	187	108	53	33	-	19	153	-	
30020A	36.323		4	233	137	86	46	-	-	23	153	-	
30020B	37.152		6	775	509	299	150	65	26	18	129	37.25	95
30020C	37.602		6	1967	1108	517	196	72	18	10	138	-	
30020D	38.246		5	2170	706	191	42	9	-	5	122	-	
30020E	38.830		4	648	254	90	24	-	-	6	121	-	
30020F	40.100		3	110	37	11	-	-	-	5	121	40.00	132
30031A	77.875		6	250	138	80	45	23	18	24	111	-	
30031B	78.415		2	90	36	-	-	-	-	NC	113	78.40	105
30031C	79.375		4	661	267	110	36	-	-	8	124	-	
30031D	79.954		6	4077	2113	908	311	106	30	9	118	79.97	4
30031E	80.295		6	3199	1766	859	367	152	58	12	125	-	
30031F	81.002		4	540	355	227	128	-	-	26	144	80.78	38
30040A	90.248		5	176	109	61	36	27	-	23	149	-	
30040B	91.174		6	861	533	349	221	134	72	42	120	-	
30040C	91.834		6	3084	1893	1040	516	251	107	17	117	-	
30040D	92.280		6	4030	2333	1149	497	211	78	13	119	92.57	8
30040E	93.736		2	212	86	-	-	-	-	NC	110	-	
30040F	94.132		2	119	53	-	-	-	-	NC	110	94.43	40
30040G	95.275		3	67	30	19	-	-	-	24	130	-	

JOB NO:26H31

INPUT EM LINE	FIDUCIAL	ANOMALY TYPE	CHS	PEAK RESPONSE AMPLITUDES (PPM) CH1	CH2	CH3	CH4	CH5	CH6	TCP (S)	ALT (M)	MAGNETIC FIDUCIAL	VALUE
30050C	132.240		1	83	-	-	-	-	-	NC	114	132.55	51
30050D	132.933	U	3	206	86	42	-	-	-	10	113	-	
30050E	133.435		6	5095	2554	1269	990	432	171	15	122	-	
30050F	133.776		6	5095	2554	1269	1279	860	404	21	114	133.98	7
30050G	134.361		6	4276	2553	1269	763	409	207	24	103	-	
30050H	135.246		6	460	299	202	140	101	64	62	140	-	
30050J	135.866		6	449	301	196	122	71	44	41	149	-	
30060A	137.332		3	116	115	69	-	-	-	19	131	137.27	12
30060B	138.750		6	2697	1812	1139	669	395	214	33	121	-	
30060C	139.402		6	5095	2554	1268	1278	909	470	25	119	139.35	6
30060D	139.752		6	5095	2554	1268	1278	973	439	19	116	-	
30060E	140.093		6	5095	2554	1268	1206	514	188	14	115	-	
30060F	141.198	U	3	121	43	18	-	-	-	8	113	141.40	77
30060G	141.750		2	60	26	-	-	-	-	NC	113	-	
30070F	179.770		2	96	26	-	-	-	-	NC	121	180.00	39
30070G	180.844		6	5093	2549	1261	1273	1248	666	28	114	-	
30070H	181.051		6	5093	2549	1261	1273	1271	876	NC	116	-	
30070J	181.366		6	5093	2549	1261	1273	1251	760	NC	114	181.48	24
30070K	181.757		6	5093	2549	1261	1273	872	488	34	108	-	
30070L	182.523		4	2044	888	349	137	-	-	8	114	-	
30080A	185.225		6	546	242	110	59	39	30	16	125	184.80	235
30080B	186.188		6	3509	2398	1260	1004	650	406	54	118	186.50	30
30080C	186.756		6	5093	2548	1260	1272	1172	705	48	113	-	
30080D	187.156		6	5093	2548	1260	1272	1172	745	70	110	-	
30080E	187.652		6	5093	2548	1260	1272	1270	880	NC	110	-	
30080F	189.028		3	71	23	9	-	-	-	7	113	188.82	140
30090K	232.576		1	53	-	-	-	-	-	NC	102	232.65	120
30090L	234.102		3	728	180	38	-	-	-	4	105	233.32	10
30090M	233.856		6	5094	2552	1274	1279	1182	701	44	116	-	
30090N	234.045		6	5094	2552	1274	1279	1133	704	60	110	-	
30090P	234.310		6	5094	2552	1274	1279	1275	767	NC	114	234.45	50
30090R	234.651		6	3488	2392	1274	1025	658	391	55	117	-	
30090S	234.805		5	1961	1294	848	556	370	-	43	113	-	
30090T	235.331		5	969	395	162	63	37	-	9	110	235.70	18
30100B	237.747		3	80	33	14	-	-	-	8	120	-	
30100C	238.193		4	406	194	74	22	-	-	7	119	-	
30100D	238.685		5	591	258	116	57	23	-	11	113	-	
30100E	239.590		6	4172	2554	1275	1139	751	446	69	129	239.57	52
30100F	239.977		6	5095	2554	1275	1280	1234	773	63	113	-	
30100G	240.255		6	5095	2554	1275	1280	1165	692	44	106	-	
30100H	240.415		6	5095	2554	1275	1280	1243	739	45	115	-	
30100J	241.271		5	2442	1087	420	137	44	-	8	112	241.35	50

JOB NO:26H31

INPUT EM		ANOMALY		PEAK	RESPONSE		AMPLITUDES		(PPM)	TCP	ALT	MAGNETIC	
LINE	FIDUCIAL	TYPE	CHS	CH1	CH2	CH3	CH4	CH5	CH6	(S)	(M)	FIDUCIAL	VALUE
30160B	90.995		4	251	118	56	26	-	-	11	117	-	
30160C	92.220		6	5109	2566	1283	1240	709	387	32	109	92.22	5
30160D	92.620		6	4887	2566	1282	801	472	277	37	120	92.75	21
30160E	93.293		6	4442	2566	1282	1214	784	497	69	110	-	
30160F	93.781		6	5114	2566	1282	1282	1209	679	34	124	-	
30160G	94.213		6	5114	2566	1282	1072	469	171	14	113	-	
30160H	95.194		3	120	62	27	-	-	-	9	116	95.25	68
30160J	95.910		2	59	22	-	-	-	-	NC	119	-	
30171P	132.907		2	70	21	-	-	-	-	NC	119	133.18	353
30171R	133.264		2	97	40	-	-	-	-	NC	106	-	
30171S	133.463		3	249	106	45	-	-	-	8	108	-	
30171T	133.888		6	1644	762	323	115	48	19	10	113	133.82	8
30171W	134.414		6	5108	2565	1281	1282	1286	754	NC	118	-	
30171Y	134.746		6	4891	2565	1281	1200	759	467	60	117	-	
30171Z	135.365		6	5108	2565	1281	1165	633	339	26	118	135.40	17
30171AA	135.735		6	5108	2565	1281	1282	1156	684	43	107	136.07	6
30171BB	136.504		5	368	173	83	42	23	-	13	116	-	
30180A	138.735		6	265	140	78	42	32	18	24	136	138.20	334
30180B	139.505		6	5004	2564	1281	1282	877	537	54	109	139.57	26
30180C	139.843		6	5107	2564	1281	1282	1084	570	27	110	-	
30180D	140.153		6	5107	2564	1281	1282	862	439	24	116	-	
30180E	141.201		6	4793	2564	1281	1086	676	422	56	111	-	
30180F	141.595		6	5107	2564	1281	1282	1218	723	44	115	-	
30180G	142.433		6	2736	1334	656	314	154	67	14	106	-	
30180H	143.287		2	73	21	-	-	-	-	NC	119	143.10	243
30194B	184.797		2	54	22	-	-	-	-	NC	115	184.82	186
30194C	185.610		3	122	49	22	-	-	-	9	109	185.40	96
30194D	185.871		4	373	156	67	20	-	-	8	119	-	
30194E	186.350		6	1920	674	225	74	31	10	8	108	186.40	6
30194F	186.998		6	5100	2563	1279	1282	1056	582	32	108	187.45	11
30194G	187.902		6	5100	2563	1279	1282	1275	699	NC	101	-	
30194H	188.344		6	2971	1940	1198	705	416	228	31	124	188.23	51
30200B	190.198		4	87	59	36	24	-	-	26	109	190.45	129
30200C	190.627		6	186	120	82	57	41	30	67	126	-	
30200D	191.241		6	758	508	324	198	124	77	39	152	191.73	71
30200E	192.087		6	5099	2563	1279	1282	734	381	25	111	192.90	9
30200F	193.592		6	5099	2563	1279	1282	1000	543	30	111	-	
30200G	194.379		5	1375	490	192	65	23	-	8	120	-	
30200H	195.072		2	106	51	-	-	-	-	NC	119	194.95	38

JOB NO:26H31

INPUT EM		ANOMALY		PEAK	RESPONSE		AMPLITUDES		(PPM)	TCP	ALT	MAGNETIC	
LINE	FIDUCIAL	TYPE	CHS	CH1	CH2	CH3	CH4	CH5	CH6	(S)	(M)	FIDUCIAL	VALUE
30213L	234.602		6	749	413	225	110	52	25	17	123	-	
30213M	235.292		4	781	275	96	28	-	-	7	106	-	
30213N	236.062		6	1057	514	244	108	50	20	13	108	235.88	57
30213P	236.479		6	5012	2561	1277	1282	954	569	46	113	-	
30213R	236.957		6	2383	1233	676	399	266	165	24	118	-	
30213S	237.291		6	4416	2561	1277	843	438	218	22	111	237.48	56
30213T	237.961		6	510	339	229	143	93	58	50	155	-	
30213W	238.312		6	246	149	96	61	43	31	49	146	-	
30223H	31.285		6	995	440	179	63	19	7	9	124	-	
30224A	31.966		4	308	161	83	37	-	-	12	142	-	
30224B	32.568		3	263	85	36	-	-	-	8	119	-	
30224C	33.305		5	986	472	232	103	49	-	12	105	33.15	9
30224D	33.662		6	5075	2564	1283	1288	841	456	30	111	33.53	5
30224E	34.142		6	1963	1022	566	343	222	135	25	111	-	
30224F	34.480		6	3335	2054	1158	589	306	158	20	115	34.70	59
30224G	35.131		6	778	497	310	181	111	69	34	152	-	
30224H	35.938		5	181	99	75	41	27	-	56	125	-	
30230C	37.934		6	199	130	87	50	38	27	50	148	-	
30230D	38.807		6	681	421	258	148	85	53	30	150	39.25	15
30230E	39.516		6	3974	2285	1191	548	264	126	15	115	-	
30230F	40.358		6	3517	2465	1283	991	584	316	44	121	40.25	34
30230G	40.799		6	2713	1168	470	169	66	23	9	125	41.17	8
30230H	41.447		4	347	151	58	24	-	-	8	118	-	
30230J	41.938		5	867	425	194	84	37	-	11	128	-	
30241K	80.825		6	646	365	220	112	62	36	23	122	80.13	303
30241L	81.229		4	482	181	80	29	-	-	9	123	-	
30241M	81.415		3	537	185	73	-	-	-	7	121	-	
30241N	81.712		5	674	310	137	55	23	-	10	117	-	
30241P	82.201		5	499	238	116	44	20	-	11	113	-	
30241R	82.400		5	1651	648	239	75	25	-	8	113	82.60	18
30241S	83.370		6	5109	2561	1281	1287	699	314	19	117	-	
30241T	83.741		6	2077	1288	814	490	297	164	35	117	83.78	21
30241W	84.195		6	5108	2561	1281	1186	580	255	19	110	-	
30241Y	84.401		6	5108	2561	1281	1287	782	399	24	105	84.43	5
30241Z	85.154		6	958	632	391	225	138	76	31	143	-	
30241AA	85.734		6	364	222	141	79	45	29	32	155	-	
30250A	86.579		6	382	227	143	85	49	30	34	151	-	
30250B	87.164		6	642	422	277	160	90	54	36	146	87.05	34

JOB NO:26H31

INPUT EM		ANOMALY		PEAK	RESPONSE		AMPLITUDES		(PPM)	TCP	ALT	MAGNETIC	
LINE	FIDUCIAL	TYPE	CHS	CH1	CH2	CH3	CH4	CH5	CH6	(S)	(M)	FIDUCIAL	VALUE
30250C	87.631		6	761	557	399	268	179	109	67	130	-	
30250D	88.190		6	869	633	473	331	232	149	83	123	-	
30250E	88.767		6	5107	2561	1281	1278	665	311	21	116	-	
30250F	89.722		6	5107	2560	1281	1144	568	247	19	129	89.38	21
30250G	90.394		6	4700	2555	1198	441	139	36	10	114	90.38	21
30250H	90.933		6	1210	636	312	136	63	29	13	128	-	
30250J	91.497		6	602	239	95	33	16	9	10	111	-	
30250K	91.762		6	807	476	288	155	100	56	28	117	-	
30261T	129.034		6	1394	688	323	125	52	18	11	128	-	
30261W	130.254		5	881	400	186	70	27	-	10	114	-	
30261Y	131.000		4	587	223	91	27	-	-	8	112	131.10	4
30261Z	131.299		4	673	304	134	44	-	-	9	110	-	
30261AA	131.869		6	4059	2375	1214	502	187	62	12	123	131.98	18
30261BB	132.257		6	3590	2089	1146	570	274	116	17	118	-	
30261CC	132.564		6	5097	2558	1279	1111	582	278	22	113	-	
30261DD	133.064		6	2068	1240	735	418	250	139	26	118	132.93	20
30261EE	133.624		6	5097	2558	1279	1285	1190	676	36	102	133.60	12
30261FF	134.487		6	892	655	470	304	198	126	63	117	-	
30261GG	134.878		6	964	647	411	232	141	79	33	128	134.93	87
30261HH	135.411		6	529	312	194	110	61	28	27	151	-	
30270C	137.451		6	321	215	135	76	40	20	28	152	137.82	162
30270D	138.170		6	497	363	283	191	140	85	90	117	-	
30270E	139.260		6	4421	2498	1274	690	352	164	20	128	139.00	14
30270F	139.899		6	2998	1949	1159	625	330	160	23	117	139.45	11
30270G	140.488		6	4858	2551	1144	411	138	35	10	113	140.52	12
30270H	140.853		6	666	292	138	49	33	16	13	121	-	
30270J	141.942		6	1597	895	472	214	103	46	15	134	-	
30281P	177.844		3	269	119	45	-	-	-	7	124	-	
30281R	178.455		3	277	107	50	-	-	-	9	112	-	
30281S	178.870		3	473	196	87	-	-	-	9	110	-	
30281T	179.111		5	623	270	119	44	20	-	10	122	179.13	30
30281W	179.595		6	2647	1487	721	289	113	44	12	127	179.90	5
30281Y	180.020		6	4242	2468	1278	645	320	154	18	108	180.50	5
30281Z	180.958		6	5085	2555	1278	1284	766	390	24	105	180.95	6
30281AA	181.316		6	879	636	477	336	241	161	86	124	181.73	145
30281BB	182.333		6	995	654	381	203	107	52	22	135	-	
30291A	193.061		6	802	511	320	182	104	59	31	105	-	
30292A	194.348		6	706	496	342	222	137	82	53	96	194.48	163
30292B	194.929		6	1368	895	593	392	270	173	53	106	-	

JOB NO:26H31

INPUT EM LINE	FIDUCIAL	ANOMALY TYPE	CHS	PEAK CH1	RESPONSE CH2	CH3	AMPLITUDES CH4	CH5	(PPM) CH6	TCP (S)	ALT (M)	MAGNETIC FIDUCIAL	VALUE
30292C	195.527		6	5121	2566	1282	1285	829	353	17	116	195.60	7
30292D	196.107		6	2903	1649	863	411	209	97	15	120	-	
30292E	196.541		6	2357	1263	590	239	97	37	12	125	196.63	15
30292F	196.823		6	862	372	153	65	28	17	11	124	-	
30292G	197.278		4	292	130	60	27	-	-	10	114	-	
30292H	197.614		5	511	251	115	44	23	-	11	128	197.65	64
30302J	250.992		4	271	140	64	23	-	-	9	119	251.25	92
30302K	251.559		3	311	129	58	-	-	-	9	116	-	
30302L	252.089		5	875	345	145	54	21	-	9	129	252.30	26
30302M	252.434		6	2846	1567	786	349	150	56	13	117	-	
30302N	252.956		6	3433	1862	913	406	188	80	13	117	253.00	3
30302P	253.671		6	5111	2565	1280	1276	616	266	18	123	-	
30302R	254.646		6	609	392	274	172	116	66	56	108	254.30	12
30302S	255.366		6	591	348	219	121	73	43	31	117	-	
30311A	282.249		6	226	144	95	47	30	19	33	107	-	
30311B	282.525		3	216	138	99	-	-	-	54	118	-	
30311C	283.146		6	217	128	89	49	34	19	46	120	-	
30312A	285.201		6	562	295	169	96	55	37	24	113	285.25	31
30312B	286.31[illegible]		6	5106	2564	1278	1117	550	246	19	118	286.58	4
30312C	287.149		6	2529	1344	664	305	144	59	14	118	-	
30312D	287.561		6	1764	914	443	194	78	25	12	128	287.67	18
30312E	289.215	P	4	415	163	59	27	-	-	8	118	288.52	22
30321C	11.099	F	3	427	137	35	-	-	-	5	111	-	
30321D	11.612	F	3	413	171	63	-	-	-	7	121	12.13	14
30321E	13.232		6	1836	908	407	165	70	30	11	115	12.85	7
30321F	13.742		6	3066	1592	734	309	134	55	12	106	13.55	5
30321G	14.124		6	1448	885	496	258	132	70	20	118	14.18	5
30321H	14.645		6	5085	2558	1279	954	397	148	14	105	-	
30321J	15.318		6	2494	1058	440	195	100	50	12	119	-	
30321K	16.198		4	298	175	92	54	-	-	15	123	16.23	78
30321L	16.598		4	158	110	68	42	-	-	24	134	-	
30333A	41.769		6	2305	1344	698	311	143	66	14	121	-	
30333B	42.123		6	2927	1734	907	408	175	66	14	125	-	
30333C	42.606		6	1008	595	313	154	76	31	16	135	-	
30333D	42.825		6	1446	718	327	138	66	28	12	120	-	
30333E	43.448		5	508	256	109	41	18	-	9	137	43.40	10
30333F	44.130		5	1488	568	195	54	21	-	7	134	-	
30333G	44.374		4	2138	767	231	52	-	-	5	126	-	
30333H	44.936	P	4	573	227	86	30	-	-	8	109	44.80	18

JOB NO:26H31

INPUT EM		ANOMALY		PEAK	RESPONSE		AMPLITUDES		(PPM)	TCP	ALT	MAGNETIC	
LINE	FIDUCIAL	TYPE	CHS	CH1	CH2	CH3	CH4	CH5	CH6	(S)	(M)	FIDUCIAL	VALUE
30336A	51.259	P	3	524	176	79	-	-	-	9	116	51.20	6
30340Y	88.411	P	4	560	212	76	24	-	-	7	116	-	
30340Z	89.033		6	1010	354	125	41	17	0	8	122	89.07	8
30340AA	90.022		5	659	314	146	58	28	-	11	123	89.90	10
30340BB	90.489		6	1448	663	290	112	44	14	10	117	-	
30340CC	90.980		6	1692	1117	496	320	100	50	16	120	-	
30340DD	91.322		6	2862	1684	889	413	191	73	15	121	91.10	5
30340EE	91.902		6	1782	1017	527	246	123	57	15	117	-	
30340FF	92.088		6	1146	683	365	172	81	41	16	121	92.38	33
30352A	115.857		6	693	383	207	111	61	28	19	146	-	
30352B	116.270		6	1421	809	450	233	118	56	19	130	-	
30352C	116.867		6	997	496	227	91	42	14	11	133	-	
30352D	117.574		4	523	251	126	56	-	-	12	133	117.55	6
30352E	118.563		4	2222	788	235	54	14	-1	6	119	118.53	8
30352F	119.412	P	4	465	157	57	23	-	-	8	125	119.00	15
30361M	152.531	P	3	372	131	47	-	-	-	6	113	-	
30361N	153.478		4	481	188	80	32	-	-	9	122	-	
30361P	153.810		4	1949	706	218	56	-	-	6	129	-	
30361R	154.235		5	1087	444	165	61	30	-	8	115	-	
30361S	154.521		5	664	309	139	59	26	-	11	147	-	
30361T	155.035		5	427	202	95	45	27	-	13	116	-	
30361W	155.589		6	511	304	164	82	42	21	17	151	-	
30361Y	156.052		6	1225	608	302	134	63	25	13	113	-	
30361Z	156.772		6	587	347	194	104	60	29	21	112	-	
30371A	177.840		6	1820	896	386	161	74	31	11	130	-	
30371B	178.501		5	521	256	122	48	28	-	12	118	-	
30371C	179.039		6	636	277	127	53	24	6	11	146	-	
30371D	179.447		6	1367	582	211	61	17	4	7	127	-	
30371E	180.032		5	698	308	129	52	23	-	9	128	-	
30371F	180.507		4	412	180	77	32	-	-	9	120	-	
30371G	181.394	P	3	523	208	77	-	-	-	7	120	181.30	25
30381T	216.626	P	4	419	187	90	34	-	-	10	122	-	
30381W	217.156		5	670	291	124	48	21	-	9	121	-	
30381Y	217.905		4	1343	613	224	62	-	-	7	125	-	
30381Z	218.410		5	700	275	126	59	24	-	11	147	-	
30381AA	218.851		5	743	328	138	56	20	-	9	108	-	
30381BB	219.314		5	505	280	146	74	29	-	14	124	-	
30381CC	219.727		6	2139	1001	417	148	59	25	9	117	-	
30381DD	220.143		6	856	532	303	151	73	36	19	108	220.23	20
30381EE	220.479		6	438	256	152	87	49	28	26	116	220.77	190
30381FF	220.908		4	175	85	59	32	-	-	36	112	-	

JOB NO:26H31

INPUT LINE	EM FIDUCIAL	ANOMALY TYPE	ANOMALY CHS	PEAK RESPONSE AMPLITUDES (PPM) CH1	CH2	CH3	CH4	CH5	CH6	TCP (S)	ALT (M)	MAGNETIC FIDUCIAL	MAGNETIC VALUE
30390F	239.464		5	747	393	193	88	36	-	12	145	-	
30390G	240.298		5	643	305	134	63	31	-	11	127	-	
30390H	240.839		4	725	275	121	50	-	-	9	144	-	
30390J	241.626		5	1248	571	223	69	25	-	8	143	-	
30390K	242.575		5	714	317	132	55	24	-	9	125	-	
30390L	243.302	P	3	394	177	71	-	-	-	8	118	243.40	15
30390M	243.822	P	4	478	193	78	28	-	-	8	122	244.13	11
30401J	14.600		5	1166	493	188	66	27	-	8	130	-	
30401K	15.294		5	1569	847	409	159	60	-	11	122	-	
30401L	15.791		5	935	396	162	62	21	-	9	147	-	
30401M	16.283		5	596	325	170	85	36	-	14	136	-	
30401N	16.994		5	570	247	117	53	26	-	12	126	-	
30401P	17.263		5	646	313	148	67	36	-	12	114	-	

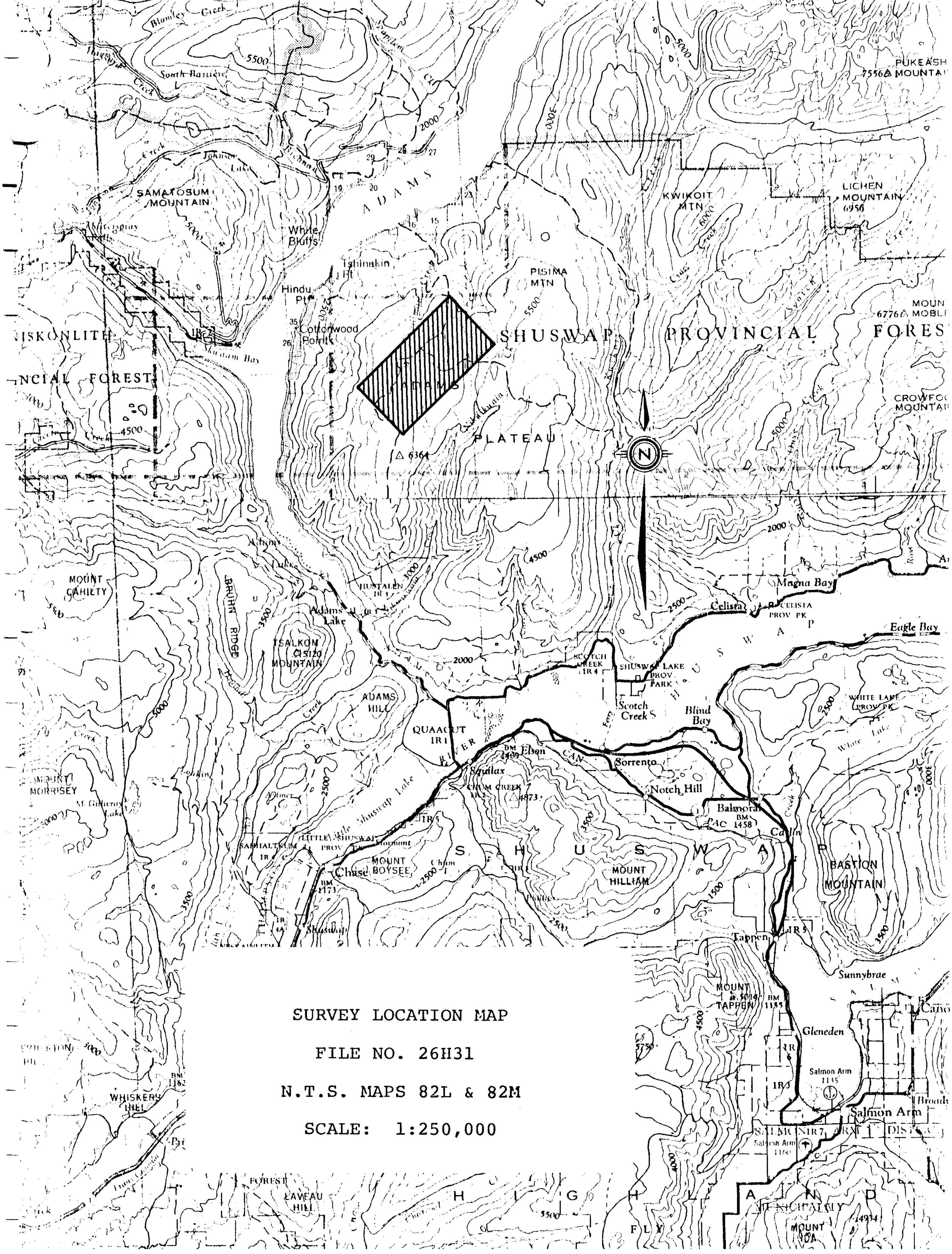
LINE NO.	FIDUCIAL	MAP	UTM CO-ORDINATES EASTING	NORTHING
39021	60.5	2	104353.	116689.
39021	61.3	2	103834.	116692.
39021	63.0	2	102749.	116589.
39021	66.4	2	100634.	116872.
39021	69.0	2	98874.	117201.
39021	70.4	2	97890.	117379.
39021	71.8	2	96976.	117414.
30013	31.4	2	96848.	116149.
30013	33.3	2	97312.	117651.
30013	34.1	2	97537.	118117.
30013	34.6	2	97690.	118551.
30020	34.7	2	98048.	118662.
30020	37.4	2	97399.	117607.
30020	38.7	2	97100.	116924.
30020	39.2	2	97070.	116598.
30020	40.1	2	96966.	116075.
30020	40.6	2	96887.	115736.
30031	77.6	2	97072.	115522.
30031	78.3	2	97159.	116023.
30031	79.1	2	97293.	116541.
30031	80.4	2	97627.	117510.
30031	82.2	2	98020.	118776.
30040	90.1	2	98081.	118490.
30040	91.1	2	97887.	117766.
30040	91.6	2	97757.	117427.
30040	92.6	2	97554.	116938.
30040	93.6	2	97399.	116513.
30040	94.4	2	97417.	116099.
30040	95.4	2	97276.	115450.
30050	132.1	2	97505.	115710.
30050	133.0	2	97767.	116333.
30050	133.6	2	97901.	116700.
30050	134.3	2	97960.	117258.
30050	134.7	2	98009.	117569.
30050	136.1	2	98126.	118454.
30050	136.4	2	98154.	118613.
30060	136.5	2	98546.	118468.
30060	138.2	2	98259.	117586.
30060	138.8	2	98119.	117250.
30060	139.6	2	97991.	116793.
30060	141.3	2	97735.	116043.
30060	142.0	2	97688.	115585.
30070	179.7	2	97868.	115674.
30070	180.3	2	97979.	116047.
30070	181.4	2	98251.	116857.
30070	182.0	2	98404.	117290.
30070	182.7	2	98567.	117812.
30070	183.8	2	98703.	118427.

LINE NO.	FIDUCIAL	MAP	UTM CO-ORDINATES EASTING	UTM CO-ORDINATES NORTHING
30080	183.9	2	98845.	118487.
30080	184.7	2	98812.	118003.
30080	185.8	2	98626.	117341.
30080	186.7	2	98449.	116810.
30080	188.3	2	98104.	116094.
30080	189.1	2	98039.	115623.
30090	232.5	2	98291.	115572.
30090	233.4	2	98430.	116148.
30090	234.1	2	98596.	116689.
30090	234.7	2	98732.	117186.
30090	235.5	2	98962.	117796.
30100	237.7	2	99220.	118199.
30100	238.3	2	99091.	117831.
30100	239.4	2	98866.	117151.
30100	240.5	2	98797.	116466.
30100	241.2	2	98746.	116144.
30100	242.0	2	98669.	115737.
30100	242.7	2	98517.	115252.
30113	283.5	2	98705.	115311.
30113	284.3	2	98852.	115805.
30113	284.9	2	98920.	116127.
30113	285.8	2	99050.	116842.
30113	286.5	2	99272.	117347.
30113	287.1	2	99402.	117822.
30113	287.8	2	99515.	118249.
30120	288.6	2	99519.	117973.
30120	289.5	2	99349.	117279.
30120	290.2	2	99188.	116773.
30120	291.4	2	99105.	116184.
30120	293.3	2	98808.	115017.
30133	33.3	2	99057.	115111.
30133	34.5	2	99261.	115799.
30133	36.2	2	99692.	117021.
30133	36.9	2	99908.	117591.
30133	37.3	2	100035.	117893.
30133	37.7	2	100122.	118148.
30136	88.7	2	99771.	117236.
30136	89.8	2	99902.	118280.
30140	41.1	2	100047.	117968.
30140	42.1	2	99910.	117234.
30140	42.9	2	99717.	116743.
30140	44.2	2	99517.	116025.
30140	44.7	2	99452.	115744.
30140	45.4	2	99342.	115263.
30151	83.1	2	99515.	115381.
30151	83.9	2	99657.	115925.
30151	84.8	2	99889.	116620.
30151	85.8	2	100145.	117486.

LINE NO.	FIDUCIAL	MAP	UTM CO-ORDINATES EASTING	NORTHING
30151	86.8	2	100331.	118123.
30160	91.2	2	100228.	117634.
30160	92.5	2	100056.	116857.
30160	94.2	2	99892.	116012.
30160	94.9	2	99807.	115628.
30160	95.8	2	99626.	115020.
30171	132.8	2	99882.	114992.
30171	133.5	2	100026.	115430.
30171	134.0	2	100131.	115771.
30171	135.1	2	100373.	116593.
30171	136.1	2	100457.	117367.
30171	137.1	2	100569.	118005.
30180	138.6	2	100618.	117780.
30180	139.1	2	100646.	117424.
30180	140.5	2	100505.	116565.
30180	142.0	2	100306.	115913.
30180	142.5	2	100232.	115537.
30180	143.5	2	100052.	114916.
30194	185.2	2	100215.	114966.
30194	185.9	2	100344.	115399.
30194	186.5	2	100437.	115789.
30194	187.5	2	100632.	116484.
30194	188.1	2	100773.	116977.
30194	189.4	2	100877.	117991.
30200	190.8	2	101105.	117522.
30200	192.0	2	100878.	116760.
30200	193.9	2	100588.	115841.
30200	194.9	2	100460.	115252.
30200	195.8	2	100310.	114599.
30213	234.5	2	100680.	114811.
30213	235.2	2	100767.	115208.
30213	235.9	2	100823.	115611.
30213	237.4	2	101089.	116665.
30213	238.0	2	101210.	117198.
30213	238.6	2	101471.	117739.
30223	30.7	2	100938.	114499.
30223	31.8	2	101113.	115185.
30224	31.9	2	100866.	114871.
30224	32.3	2	100910.	115157.
30224	33.2	2	100990.	115683.
30224	33.8	2	101081.	116070.
30224	34.5	2	101196.	116599.
30224	35.5	2	101388.	117233.
30230	37.7	2	101671.	117617.
30230	38.2	2	101572.	117243.
30230	39.1	2	101425.	116717.
30230	40.2	2	101321.	116062.
30230	40.9	2	101252.	115598.

LINE NO.	FIDUCIAL	MAP	UTM CO-ORDINATES EASTING	NORTHING
30230	41.4	2	101220.	115175.
30230	42.2	2	100999.	114458.
30241	81.1	2	101197.	114474.
30241	82.2	2	101388.	115161.
30241	83.1	2	101509.	115871.
30241	84.0	2	101591.	116316.
30241	85.5	2	101745.	117177.
30241	85.9	2	101865.	117540.
30250	86.2	2	102137.	117469.
30250	87.3	2	101927.	116828.
30250	89.0	2	101787.	116211.
30250	90.0	2	101607.	115524.
30250	90.6	2	101543.	115141.
30250	91.6	2	101318.	114446.
30261	129.9	2	101541.	114291.
30261	131.7	2	101764.	115253.
30261	132.7	2	101898.	115910.
30261	133.3	2	101997.	116277.
30261	134.9	2	102171.	116933.
30270	137.7	2	102371.	117002.
30270	139.2	2	102191.	116254.
30270	139.9	2	102132.	115721.
30270	140.6	2	101987.	115248.
30270	141.2	2	101881.	114820.
30281	177.7	2	101932.	114189.
30281	178.7	2	102093.	114881.
30281	180.2	2	102339.	115808.
30281	180.8	2	102412.	116208.
30281	181.7	2	102538.	116798.
30281	182.6	2	102742.	117422.
30291	193.3	2	102791.	117037.
30292	194.1	2	102824.	117108.
30292	195.6	2	102567.	116081.
30292	196.2	2	102449.	115626.
30292	197.0	2	102298.	114958.
30292	198.0	2	102108.	114178.
30302	250.8	2	102314.	114291.
30302	251.6	2	102480.	114824.
30302	253.1	2	102754.	115789.
30302	254.4	2	102920.	116625.
30311	283.6	2	102874.	115976.
30312	285.8	2	103123.	116586.
30312	286.7	2	103005.	115985.
30312	287.8	2	102788.	115166.
30312	288.9	2	102552.	114331.
30321	11.8	2	102754.	114413.
30321	14.2	2	103168.	115997.
30321	15.1	2	103302.	116573.

LINE NO.	FIDUCIAL	MAP	UTM CO-ORDINATES EASTING	NORTHING
30332	40.2	2	103699.	116909.
30333	41.3	2	103671.	116787.
30333	41.8	2	103577.	116452.
30333	42.4	2	103505.	116001.
30333	43.1	2	103478.	115497.
30333	43.8	2	103432.	114997.
30336	50.7	2	102954.	114525.
30336	51.0	2	102897.	114264.
30340	88.2	2	103081.	113997.
30340	89.0	2	103204.	114602.
30340	89.9	2	103364.	115272.
30340	90.6	2	103452.	115715.
30340	91.2	2	103586.	116168.
30340	92.2	2	103756.	116655.
30351	114.9	2	103713.	115973.
30352	115.3	2	103910.	116739.
30352	116.2	2	103769.	116270.
30352	117.3	2	103589.	115487.
30352	117.8	2	103462.	115049.
30352	119.4	2	103195.	113979.
30361	152.5	2	103380.	113628.
30361	153.2	2	103511.	114096.
30361	154.2	2	103732.	114866.
30361	154.9	2	103888.	115425.
30361	155.6	2	104008.	115905.
30361	156.5	2	104173.	116472.
30371	177.7	2	104335.	116211.
30371	178.1	2	104246.	115845.
30371	178.8	2	104130.	115287.
30371	180.9	2	103779.	114075.
30371	181.4	2	103665.	113690.
30381	216.3	2	103744.	113751.
30381	218.6	2	104276.	115324.
30381	219.2	2	104363.	115789.
30390	239.6	2	104601.	116028.
30390	240.0	2	104504.	115761.
30390	240.5	2	104422.	115323.
30390	243.4	2	103975.	113786.
30401	15.7	2	104662.	115393.
30401	16.4	2	104732.	115835.
30401	16.9	2	104820.	116045.
30401	18.3	2	105004.	116741.

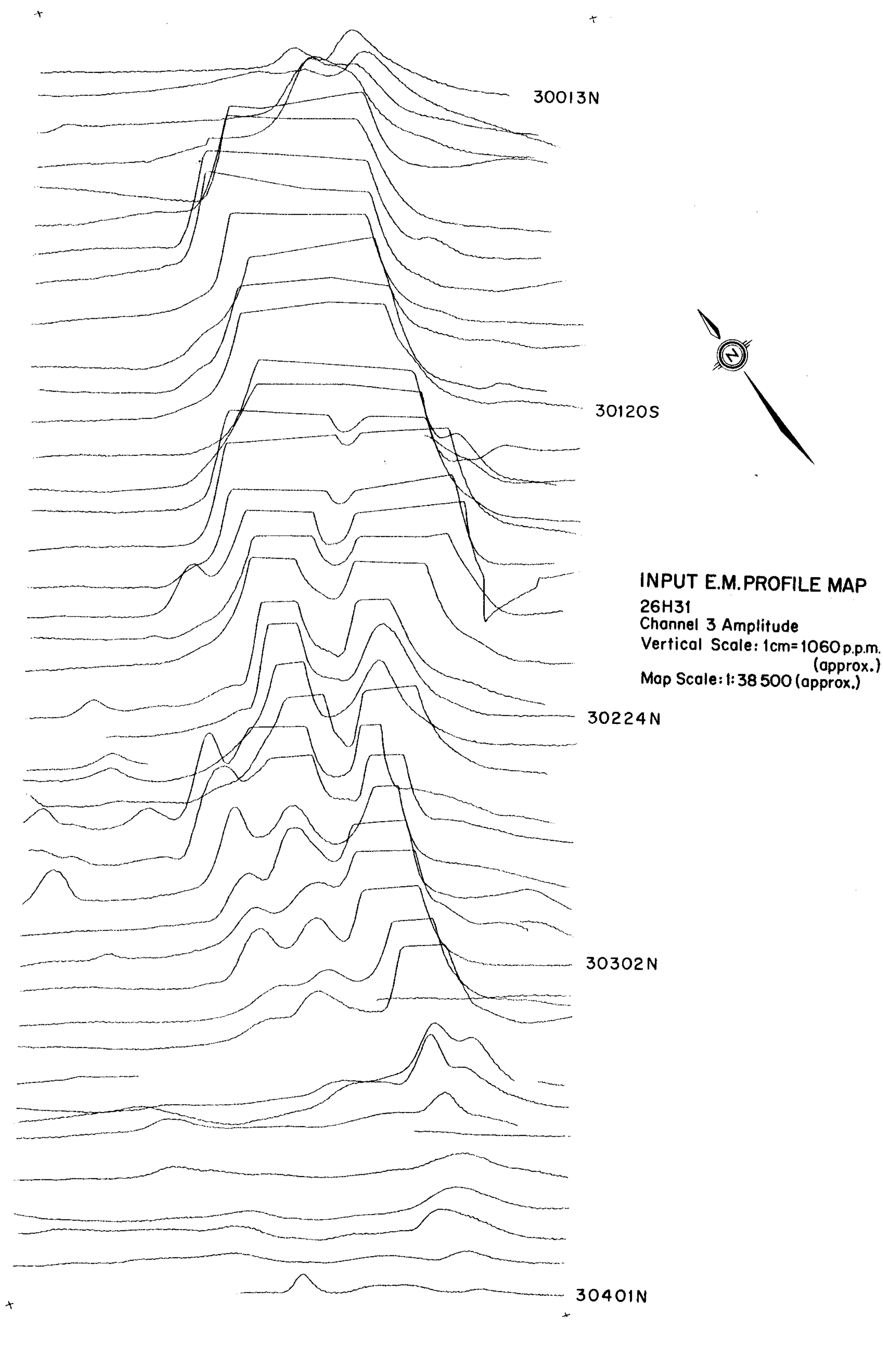


SURVEY LOCATION MAP

FILE NO. 26H31

N.T.S. MAPS 82L & 82M

SCALE: 1:250,000


30013N
30120S
30224N
30302N
30401N
INPUT E.M. PROFILE MAP
26H31
Channel 3 Amplitude
Vertical Scale: 1cm=1060 p.p.m. (approx.)
Map Scale: 1:38 500 (approx.)

STATEMENT OF QUALIFICATIONS

I, Bruce Everton Spencer, of the City of Vancouver, in the Province of British Columbia hereby certify as follows:

1) I am a Geological Engineer residing at 7 - 2485 Cornwall Avenue, Vancouver, B.C. and with office at 960 - 625 Howe Street, Vancouver, B.C.

2) I am a registered Professional Engineer of the Province of British Columbia.

3) I am a graduate of the University of British Columbia with a degree of B.A. Sc. (1958).

4) I have practised my profession as a Geologist for more than twenty years.

5) I commissioned and oversaw the survey by Questor Surveys Ltd. of Toronto, Ontario, a major airborne geophysical research and development corporation with fifteen years experience.

Oct 1, 1984
Date

B.E. Spencer
Bruce Everton Spencer, P. Eng.

COST STATEMENT - CONTRACT

PROJECT # 26H31

THIS AGREEMENT made as of the 8th day of June 1984.

B E T W E E N :

QUESTOR SURVEYS LIMITED, a company incorporated under the laws of Canada,

(hereinafter called "Questor"),

OF THE FIRST PART,

- and -

ADAMS SILVER RESOURCES INC., a company incorporated under the laws of British Columbia,

(hereinafter called the "Company"),

OF THE SECOND PART.

THIS AGREEMENT WITNESSETH that, in consideration of the mutual covenants and agreements herein contained, the parties hereto have agreed as follows:

1. Questor will supply to the Company the results of a helicopter INPUT airborne geophysical survey (hereinafter referred to as the "Survey") comprising approximately 127 line kilometres over that area delineated in red on the map attached hereto as Appendix A (hereinafter referred to as the "Survey Area").

2. The Survey will be conducted in accordance with the specifications set out in Appendix B hereto with the Barringer/Questor Mark VI INPUT Electromagnetic System and the Geometrics G-803 Proton Magnetometer with flight lines being in the direction indicated on the map attached hereto as Appendix A and with line spacing of 200 metres and terrain clearance of 122 metres or as near to these distances as is practicable.

3. (a) The Company shall pay to Questor a fee for its services hereunder at the rate of $145.00 in respect of each line kilometre within the Survey Area to which the INPUT System is utilized. For this fee Questor will deliver to the Company the following relative to the Survey:

(i) a semi-controlled photomosaic base map using 1982 aerial photography at a scale of 1:10,000;

(ii) a photomosaic base map showing flight lines, Electromagnetic anomalies, and interpretation at a scale of 1:10,000;

(iii) white prints of the above;

(iv) Xerox copies of the flight log;

(v) anomaly data sheets;

(vi) a photomosaic base map showing combined Electromagnetic and Magnetometer results with flight lines at a scale of 1:10,000;

(vii) a clear cronoflex overlay showing contours of the magnetic total field at 10 gamma intervals at a scale of 1:10,000;

(viii) computer generated analogue profiles at a scale of 1:10,000;

(ix) an Applicon regular colour and Shadow plot of the magnetics to cover the entire survey area (refer to area outline enclosed with our letter dated March 26, 1984) at a scale of 1:50,000 with major topography features outlined;

(x) brief interpretative report.

The Company shall determine the number of items (iii), (v) and (x) that it requires and Questor shall provide any number up to four without extra charge. Any number in excess thereof at a mutually agreed upon price.

The Survey results are being supplied to the Company on a non-exclusive basis. Questor will retain the original results from the survey for possible further sale.

(b) Payment of the above fee shall be made by the Company as follows:

(i) 50% ($9,207.50) of the estimated total fee of $18,415.00 will be payable upon receipt of invoice from Questor on the completion of the survey flying;

(ii) the balance comprising the actual fee less the aforementioned interim payments will be payable upon receipt of invoice from Questor against delivery of the material described in paragraph 3(a) above.

(c) All payments from the Company to Questor to be made under this agreement shall be made in Canadian currency.

4. The services being provided by Questor will be in its capacity as principal and not as agent or servant of the Company.

5. Notwithstanding anything to the contrary herein expressly contained or implied, Questor shall not be under any liability to the Company for any damages (including consequential damages) arising out of, or in connection with, use by the Company or its assigns of any information or opinions furnished to the Company hereunder.

6. Any notice by any party under the provisions of this agreement shall be valid and effective if sent by registered mail, postage prepaid, addressed as follows:

(a) if to Questor - 6380 Viscount Road,
MISSISSAUGA, Ontario
L4V 1H3

(b) if to the Company - 501-409 Granville St.
~~201, 1431 Howe Street~~,
VANCOUVER, British Columbia

or to such other address as either party may designate by notice as set forth above, and such notice shall be deemed to have been effectively given three business days following the date of posting.

7. Any dispute between the parties, whether arising during the term of this agreement or at any time thereafter, which touches upon the validity, construction, meaning, performance or effect of this agreement or the rights and liabilities of the parties hereto, or any matter arising out of or in connection with this agreement, shall be subject to arbitration. There shall be three arbitrators, with one appointed by Questor, one appointed by the Company and a third selected by the two arbitrators thus appointed. The decision of the arbitrators shall be final and binding as between the parties hereto and shall not be subject

to appeal. Any arbitral tribunal shall have the powers and duties set out in, and shall conduct the arbitration in accordance with, the Arbitrations Act, R.S.O. 1980, c.25 of Ontario.

8. This agreement shall be deemed to be a contract made under the laws of Ontario and, for all purposes, shall be construed in accordance with the laws of the said Province. The Appendices A and B attached hereto form part of this agreement which shall be effective as and from the date hereof although actually executed and delivered after the aforesaid date.

IN WITNESS WHEREOF the parties have hereto executed this agreement under their respective corporate seals and the hands of their respective proper officers duly authorized in that behalf.

QUESTOR SURVEYS LIMITED

By ______________________

____

ADAMS SILVER RESOURCES INC.

By ______________________

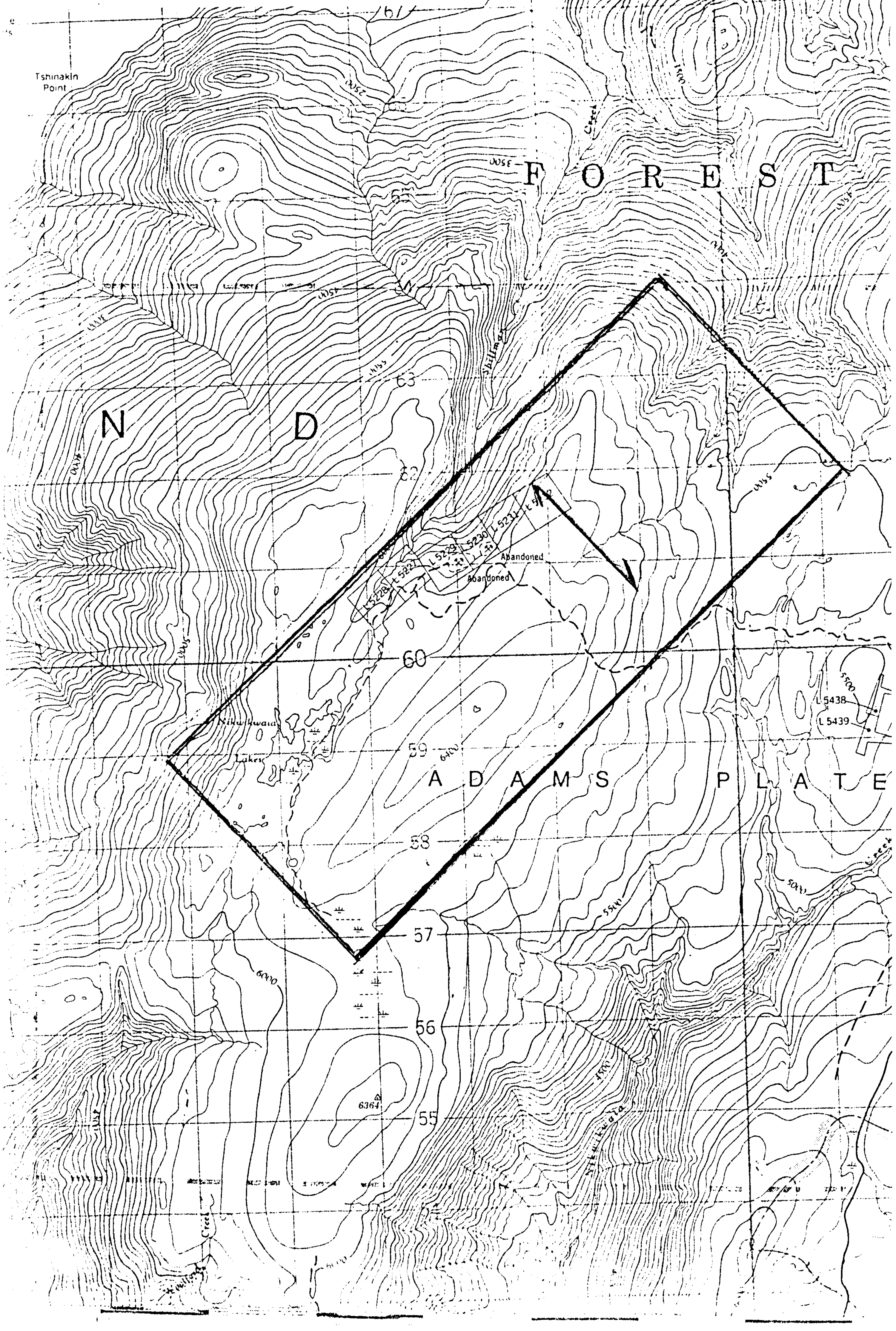
____

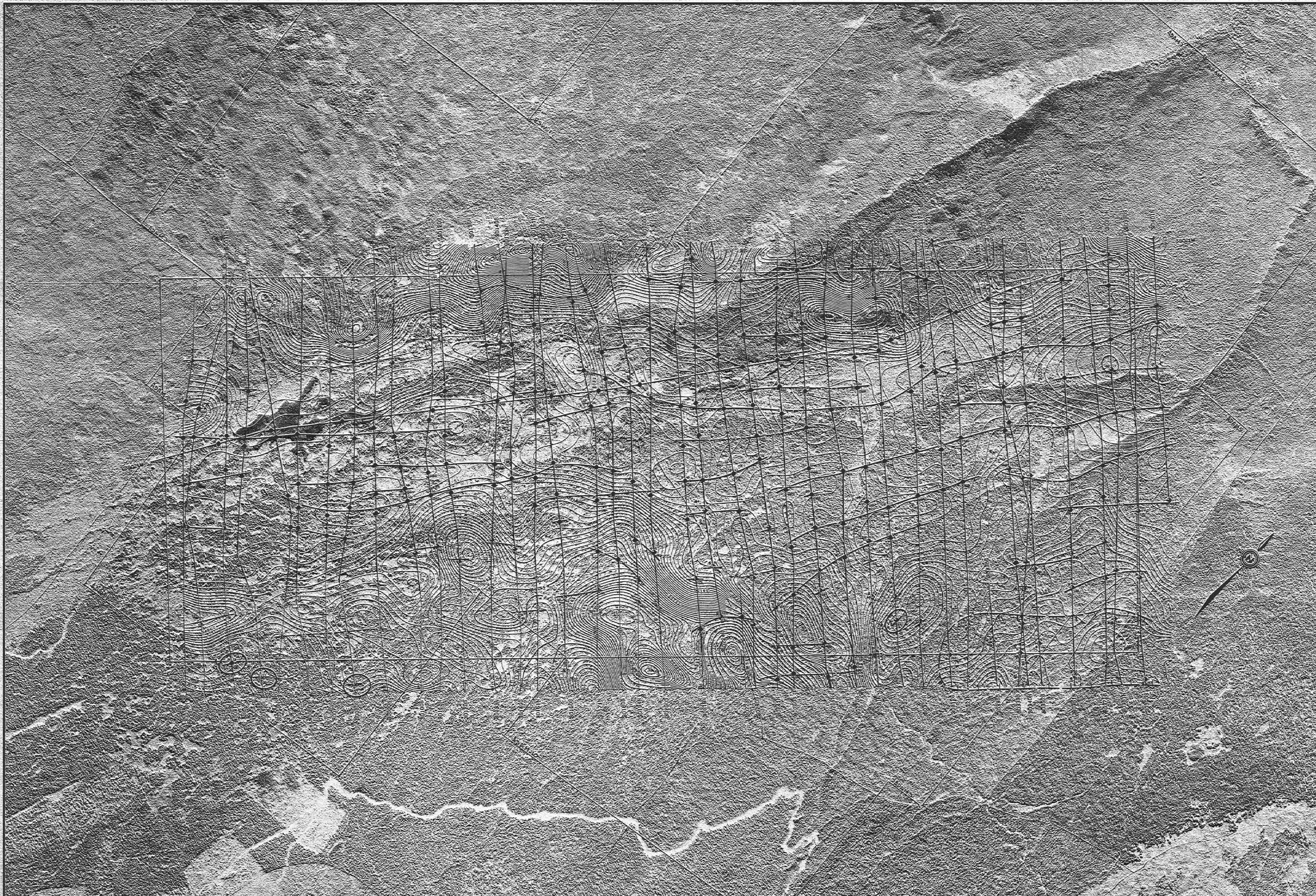
APPENDIX "A" - To Agreement dated June 8, 1984, between QUESTOR SURVEYS LIMITED and ADAMS SILVER RESOURCES INC.

Map No: N.T.S. 82 M/4

Scale: 1:50,000

Project: # 26H31





GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,142

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

Associated Magnetic Response

Anomaly Letter

Apparent Conductivity-Width (siemens) (N.C. = No Calculation)

Poorly Defined Response

Ch. 2 Amplitude

MAGNETIC CONTOURS

10 Gamma Contour Line

50 Gamma Contour Line

250 Gamma Contour Line

Magnetic Depression

1 Gamma = 1 Nanotesla in SI Units

INTERPRETATION

Conductor Axis, with reference number (good definition)

Conductor Axis, with reference number (poor definition)

Vertical Conductor

Conductor Dip (magnitude and direction known)

Conductor Dip (direction known)

Selected Zone, with reference number

Conductive Zone

Fault Zone

Channel 2 Half-Peak Width

Representative INPUT® Magnetometer and Altimeter Recording

DESCRIPTIVE NOTES

INTERPRETATION REFERENCES

Scale Approx. 1 : 10,000

HELICOPTER MK VI INPUT® SURVEY
TOTAL MAGNETIC INTENSITY SURVEY

ADAMS SILVER RESOURCES

ADAMS PLATEAU

Province of BRITISH COLUMBIA

FILE NO.	SHEET NO.	DATE	COMPILED BY
26H31	1 of 1	July, 1984	Questor Surveys Limited

Questor Surveys Limited
Mississauga Ontario Canada