GEOCHEMICAL AND GEOPHYSICAL REPORT

STRIKER PROPERTY

(Footloose 1-5, Cott 1-5, Zip 1-3, Thriller 1-6

Striker 1-5, Ridge 1-3)

VICTORIA MINING DIVISION

92C/16

Lat. 48° 54' N

Long. 124° 12' W

Owned and Operated by

Utah Mines Ltd.

Paul S. Cowley

Utah Mines Ltd.

Vancouver, BC

March, 1985

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SUMMARY

The Striker Property lies immediately north of Cowichan Lake, Vancouver Island. The property, consisting of 458 units in 27 contiguous mineral claims, was staked by Utah Mines Ltd. in June, 1984.

The property overlies Sicker Group rocks which are favourable for volcanogenic massive sulfide mineralization of the Westmin or Twin "J" type. Mineralization on the property is limited to rare pyrite veins carrying Au and rare occurrences of thin banded pyrite associated with graphite. An airborne EM-MAG survey deliniated numerous conductors, four of which are high and medium priority zones. A geochemical silt sampling program concentrated proximal to these conductors returned anomalous values in Cu-Pb-Zn-Ag-Au downslope from one medium priority conductive zone.

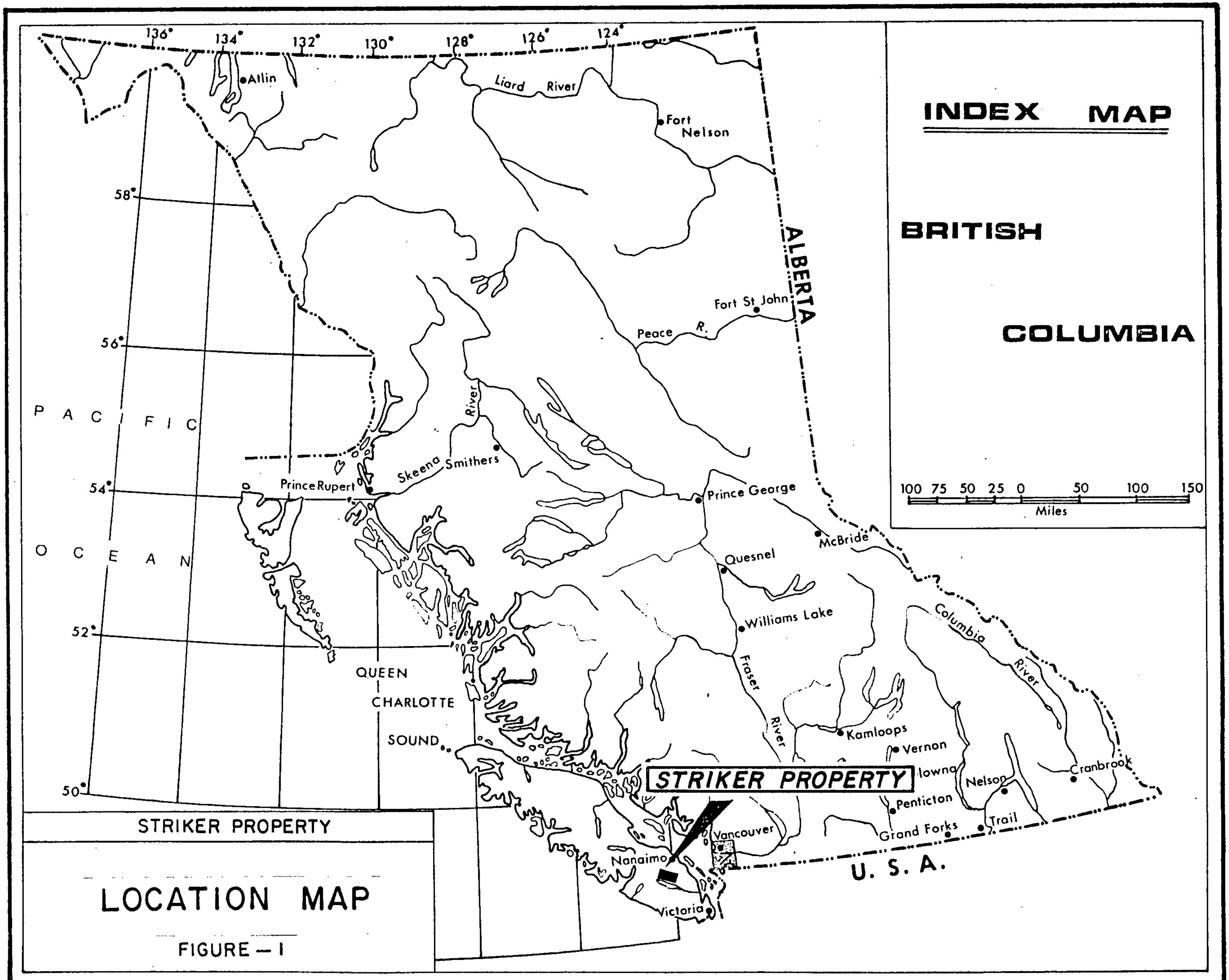
INTRODUCTION

The objective of the 1984 Striker Property exploration program was to provide an initial data base to evaluate the potential for polymetallic massive sulfides on the property. The program commenced with a Questor Surveys airborne INPUT EM and magnetics survey. The entire property, excluding Ridge 1-3, Striker 4-5 and Thriller 6 claims staked after flying, was blanketed by the 768 line kilometre survey. Subsequent geochemical sampling of 24 silt, 33 heavy mineral and 71 rock samples was performed proximal to numerous airborne derived conductors. The geochemical work covered Thriller 1, 3-6, Striker 1-5, Zip 1, Cott 5, Footlose 1-5 and Ridge 2 claims with a biased concentrating in the east half of the property. The exploration crew involved with the 1984 program consisted of geologists P. Cowley, G. Holland and F. Gatchalian and geochemist D. Brabec.

LOCATION AND ACCESS

The Striker Property, within the Victoria Mining Division, is located on the 1:50,000 scale Cowichan Lake Map Sheet 92C/16. The property lies between Cowichan Lake to its southwest and Chemainus river to its northeast. The property is centered on 48° 54' N and 124° 12' W (see Figure 1). The town of Lake Cowichan on the east end of the lake is three (3) kilometres south of the eastern most part of the claims.

Highway 18 heading west from Highway 1 accesses the Cowichan Valley. Within the valley, north bearing principal logging roads access the property via Meade, Cottonwood, McKay and Shaw Creeks. Numerous secondary logging roads in various conditions allow further penetration. An alternate route accessing the property from the north precedes along the Chemainus River MacMillan-Blodel main haul road west from Highway 1.



STRIKER PROPERTY

LOCATION MAP

FIGURE – I

PHYSIOGRAPHY

The Cowichan Lake area lies within the eastern mountainous region of Vancouver Island. Prevalent low rounded summits and U-shaped valleys demonstrate a glacial history. Elevations range from 170 meters at Cowichan Lake to 1541 meters at Mount Whymper. Topography is strongly controlled by the northwest trending geologic fabric and structure. Fault-line scarps and fault controlled valleys are evident.

Heavy Douglas fir, hemlock and red cedar forests cover the landscape. However, approximately 35% of the property has experienced a history of logging with various stages of regrowth.

CLAIMS

The Striker Property is composed of 458 units in 27 contiguous mineral claims (see Figure 2). The property shares common boundaries with several competitors. The Striker property is 100% owned and operated by Utah Mines Ltd. Table 1 details Striker claim status.

GEOLOGICAL BRANCH
ASSESSMENT REPORT

14,302

FIGURE – 2

STRIKER PROPERTY

CLAIM MAP

1000 0 1000 2000 3000 Metres

SCALE

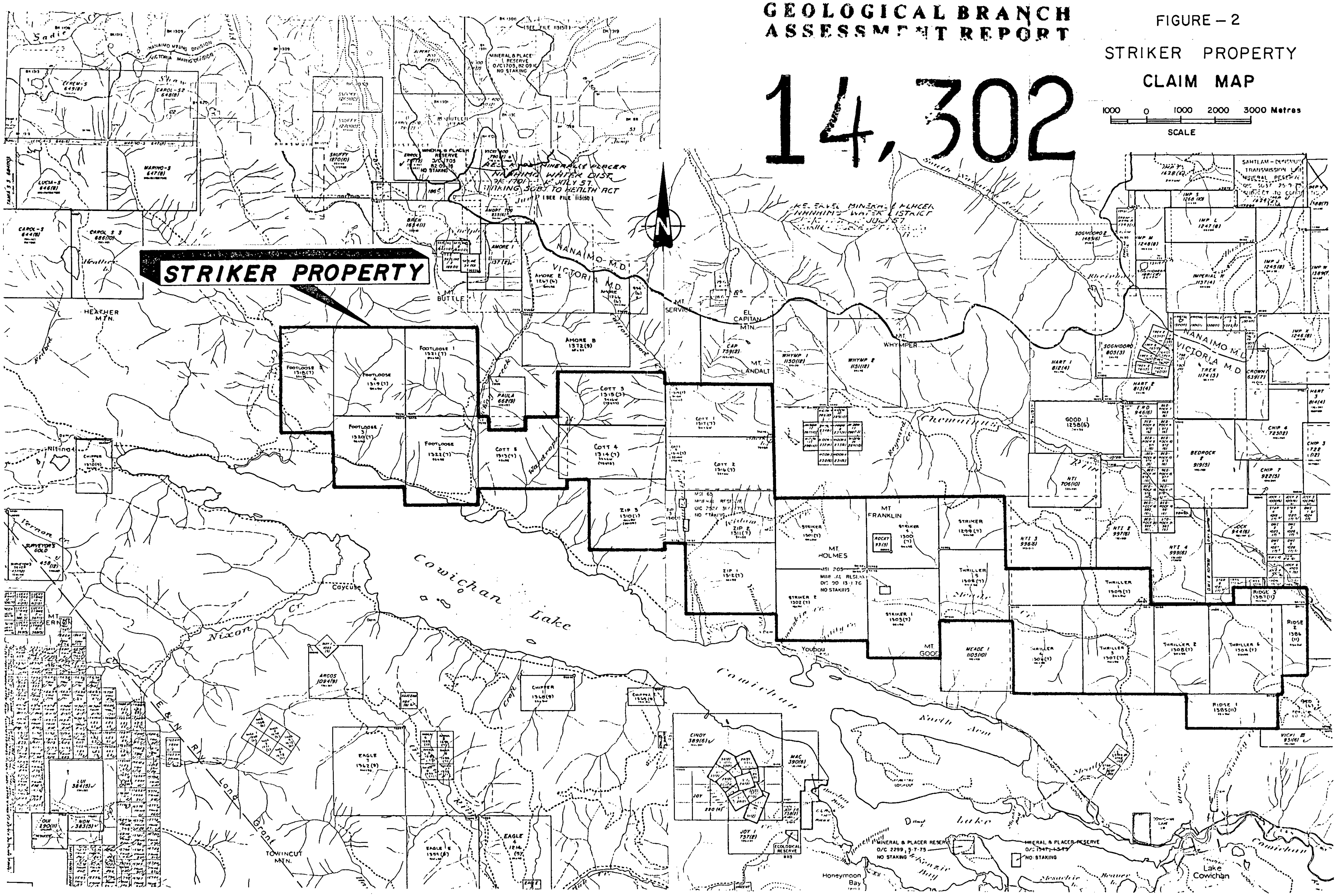


TABLE 1: STRIKER PROPERTY CLAIM DATA

VICTORIA MINING DISTRICT

N.T.S. 92C/16

NAME	UNITS	RECORD DATE	RECORD No	EXPIRY DATE
Footloose 1	(20)	July 6, 1984	1321	July 6, 1985
Footloose 2	(20)	" "	1322	" "
Footloose 3	(16)	" "	1320	" "
Footloose 4	(20)	" "	1319	" "
Footloose 5	(18)	" "	1318	" "
Cott 1	(18)	" "	1317	" "
Cott 2	(18)	" "	1316	" "
Cott 3	(18)	" "	1315	" "
Cott 4	(18)	" "	1314	" "
Cott 5	(20)	" "	1313	" "
Zip 1	(20)	" "	1312	" "
Zip 2	(15)	" "	1311	" "
Zip 3	(20)	" "	1310	" "
Thriller 1	(16)	" "	1309	" "
Thriller 2	(15)	" "	1308	" "
Thriller 3	(20)	" "	1307	" "
Thriller 4	(20)	" "	1306	" "
Thriller 5	(16)	" "	1305	" "
Thriller 6	(20)	" "	1304	" "
Striker 1	(20)	" "	1303	" "
Striker 2	(20)	" "	1302	" "
Striker 3	(20)	" "	1301	" "
Striker 4	(16)	" "	1300	" "
Striker 5	(12)	" "	1299	" "
Ridge 1	(10)	Nov. 1, 1984	1385	Nov. 1, 1985
Ridge 2	(8)	" "	1386	" "
Ridge 3	(4)	" "	1387	" "

HISTORY

Two prominent geologists, Clap (1912 - 1917) and Bancroft (1913), contributed to the first regional geological work on southern Vancouver Island. Clap initially recognized and named the Sicker, Vancouver and Nanaimo Groups. Fyles (1949, 1955) performed detailed geological work within the Cowichan Lake map sheet. Fyles reported a laterally extensive 200 metre thick cherty tuff marker bed with isolated pods of rhodonite ($MnSiO_3$) within Sicker sediments. Muller (1980) in his Sicker Group regional investigation further divided the group into the Nitinat and Myra Formations and an informal sediment - sill unit which underlie the previously named Buttle Lake Formation. The area has been prospected for possible Sicker Group hosted Westmin and Twin "J" type polymetallic massive sulfide deposits throughout the century. Localized geological reports are available from various molybdenum, copper and gold prospects both past and present.

AIRBORNE GEOPHYSICS

From June 13 to 18, 1984, a helicopter MKVl INPUT EM and Magetics Survey was flown over the Striker Property.

A total of 768 measured line kilometres evenly blanketed the entire property with the exclusion of Ridge 1-3, Striker 4-5 and Thriller 6 claims staked after flying. The survey was performed by Questor Surveys Limited of Mississauga, Ontario utilizing a Bell 205A-1, registered under C-GLMC.

A ground clearance of 122 metres was maintained over much of the survey area. The 'bird' or receiving coil maintained 45 metres clearence. The aircraft flew the flight lines using a normal S-pattern flight path with an approximate one half kilometre turn. The 035° azimuth lines were flown consecutively and in alternate directions for the sole purpose of interpreting dipping conductors.

A line spacing of 200 metres was used for all traverse lines within the survey block. Control or tie lines, utilized for the levelling of the magnetic data, were selectively spaced on each block on an individual basis.

The equipment operator or electronic technician logged the details of flight and monitored the equipment on board the aircraft. Such details as the start time for each line, first and last fiducial marker, weather problems and any other pertinent information relating to the flight were recorded on flight logs. It was the responsibility of the Crew Chief to maintain and check the ground magnetic base station, a Geometrics G-826, for diurnal variations in the ambient field. Because of its effect on the levelling of the magnetics, QUESTOR set a diurnal limit of 20 gammas over 5 minutes. However, there may have been very short time spans when this limit was exceeded. Further details of equipment used is found in Appendix A.

The flight path recovery was accomplished by comparing the topographic features on the 35 mm continuous strip film with the photomosaic base map. The fiducial or timing markers on the film, correlated with identifiable topographic points, were then transferred onto the photomosaic. The fiducial points averaged 1080 to 1200 metres separation.

Interpretation

Conductors resolved within the block demonstrate an WNW orientation with considerable local variations. Variations could result from distortions in mapping flight path on an uncontrolled photomosaic. A variable southward dip 30^{o} - 70^{o} is evident in a number of E.M. responses. Noteworthy zones are described below and located on Plates 1, 2, and 3 in the map pocket.

ZONE 1

ZONE 1 represents a spatially discrete conductor responding only on flight line 20920 and the adjacent flight line 29020. Although the apparent conductance is moderate to low, the responses have an anomalous character making them important targets for further investigation. It is suspected that the zone represents a compact pod of conductive mineralization, offering little thickness to the induction process. Examination of the profile magnetic data offers a suggestion of a weak coincident susceptibility anomaly. The site can be considered a high priority for additional work.

ZONE 2

ZONE 2 has revealed a single INPUT response of flight line 21020 which demonstrates a high apparent conductance. The response is weak and broad, indicating a depth of 170 metres. However, extremely low amplitudes place a considerable error margin on this value. There does not appear to be a magnetic anomaly associated with the conductivity.

The site is recommended for follow-up as a high priority target.

ZONE 3

ZONE 3 has provided a single INPUT response on flight line 20251. The response is weak and partly corrupted by noise. It offers no indication of a coincident susceptibility anomaly, however, the apparent conductance is moderately high. It can only be viewed as a low priority target based on available evidence.

ZONE 4

Although ZONE 4 is apparently part of a long conductive trend, at this location the conductance is particularly high. The site deserves further investigation at a medium priority level. INPUT response 'A' on flight line 20553 is apparently accompanied by a susceptibility anomaly of approximately 15 nanoTeslas, although no consideration for the irregular terrain has been made. The conductor undergoes a southward offset to the west of this zone.

ZONE 5

ZONE 5 has demonstrated an extremely weak INPUT response on a single flight line. The response shows tell-tale evidence of a relatively high conductance, and lies proximal to a mafic intrusion as evidenced by the magnetic data. It can only be recommended as a low priority due to low E.M. response amplitude.

ZONE 6

ZONE 6 is situated near a complex contact, possibly involving faulting. The conductor is short, having provided an INPUT response on only a single flight line. The response suggests the presence of a vertical planar conductor. The resultant poor coupling geometry explains the low response amplitudes. The site may be worth checking based on its interesting geological aspect. It can only be considered a low priority based on E.M. response. As previously outlined, the coupling geometry is non-ideal in this situation. There appears to be no directly associated magnetic anomaly to the conductor.

ZONE 7

ZONE 7 has shown a portion of a longer conductor extended from zone 4 and has provided a local increase in response amplitude. This is due to an effective widening of the conductor either by a decrease in dip, or a splitting or division of the conductor. Although the conductance values are not high, the site may imply an interesting structural situation conductive to economic mineralization. On this basis it can only be considered a low priority for future investigation. The site has shown no evidence of a local or discrete magnetic susceptibility anomaly.

ZONE 8

ZONE 8 represents a weak single line INPUT response partially corrupted by noise. It offers an indication of relatively high conductance on three channels, and appears to be situated near a mafic intrusive contact to the north and west. The zone should be considered a low priority target based on geophysical evidence. An extremely weak susceptibility anomaly appears to coincide with the target. This can only be resolved on the analogue profile data record.

ZONE 9

ZONE 9 has been identified as a conductive trend of intermediate length. INPUT responses derived from this area do not display exceptional conductance, however, the trend is sufficiently compact to warrant some interest as a low priority. The E.M. responses are better defined towards the east end of the zone. No directly associated magnetic anomaly is evident. Magnetic data indicates the conductor may relate to a contact.

ZONE 10

ZONE 10 is represented by very weak E.M. responses which appear to be accompanied by small susceptibility anomalies offering indications of a shallow source. The zone can only be marginally recommended as a very low priority target owing to the extremely poor E.M. responses. Conductor orientation is very difficult to establish and can thus be considered highly subject to further modification.

ZONE 11

ZONE 11 is marked by a relatively sharp INPUT response intercepted only on control line 29020. It can be deduced that the associated conductor may lie sub-parallel to the flight grid. The conductance appears to be low and a vague positive magnetic anomaly lies in direct coincidence with the E.M. response. The site can be regarded as a low priority target for additional work based on the available evidence. It appears to be situated on, or near, a north trending bedrock contact. Although the INPUT response is not of outstanding merit, the zone was selected on the basis of the response being atypical in both amplitude and definition of the surrounding area. This raises some question as to its origin.

SILT AND ROCK GEOCHEMISTRY

The 1984 geochemical sampling program was concentrated proximal to several high and medium priority airborne derived conductive zones. A total of 24 silt samples, 33 heavy mineral separates and 71 rock samples comprise the program.

Silt and heavy mineral samples were collected from intra-stream bars to avoid bank sampling. The heavy mineral samples, taken with a -20 mesh sieve-pan apparatus, were not pan concentrated at the sample site.

Sample preparation followed generally accepted procedures. Heavy minerals having specific gravity of 2.96 were separated from stream sediment pan concentrates and ring pulverized to -100 mesh. Silt samples were dried at 60^{o} and sieved to -80 mesh. Rocks samples were pulverized to -100 mesh. Samples were digested by Nitric-aqua regia and analyzed by Atomic Absorption for Cu, Pb, Zn, Ag, Au, As, Hg, +/- Mn and Sb (Au, As and Hg requiring additional acid digestion). The analytical data is found in Appendix D.

Interpretation

The limited silt population was subjected to elementary statistical analyses and plotted for normal and log normal distribution (see Appendix E). Relative anomalous values were found in all elements excluding Ag. Sample 84SGL81 yielded anomalous Cu (115 ppm) - Pb (24 ppm) - Zn (265 ppm) - As (140 ppm). Sample 84SGL 78 yielded a 70 ppb Au anomaly and 84SGL74 and 83 returned anomalous values in Hg (130 and 110 ppb). Absolute geochemical values, however, are weak.

The limited heavy mineral population was also subjected to elementary statistical analyses and plotted for normal and log normal distribution (see Appendix E). Relative anomalies are apparent for all elements analyzed excluding Mn and Sb. Sample 84SGH110 (site equivalent to 84SGL81) yielded anomalous values in Cu (254 ppm) - Zn (780 ppm) - As (800 ppm) and sample 84SGH129 returned anomalous Pb (770 ppm) - Ag (2 4 ppm). An apparent coincidental high in Zn - As +/- Sb - Hg exists in five borderline background/anomalous samples. Absolute values of these anomalies are weak for heavy mineral separates with the exception of 84SDH112 with 5200 ppb Au.

Although the heavy mineral population is limited, certain observations may be drawn from the sample magnetic and non-magnetic yields. Samples within Myra terrain produced consistantly low magnetic yields averaging 0.3%. Samples within Nitinat terrain, however, were irradic but averaged magnetic yields 0.9%. Non-magnetic yields from samples in Myra terrain averaged 6.6%, whereas Nitinat samples averaged 17.4%. A scatter diagram displaying the relationship of the sample magnetic and non-magnetic yield is included in Appendix E. It is evident from this limited population that the rhyodacitic Myra rock is grossly homogenous and the mafic to intermediate Nitinat rock has a range of compositions.

Four noteworthy rock samples were taken from thin pyrite veins on the property. Sample 84SGT47, located over a low priority conductor, returned 0.001 Oz Au. Samples 84SGT103, 106 and 107 yielded Au values of 0.01, 0.006 and 0.005 Oz. The latter grouping of samples is proximal to the medium priority conductor with associated anomalous silt and heavy mineral values.

Six heavy mineral sample sites were resampled for heavy minerals. Five out of six cases reproduced equivalent results, surprising for the degree of human error in field sampling.

CONCLUSIONS

1) The Sicker Group's Myra Formation is favourable volcanogenic polymetallic massive sulfide terrain. The unit hosts the massive sulfide deposits at Westmin's Buttle Lake mine and the past producer Twin "J". The Striker Property is underlain by significant tracts of Myra Formation.

2) Prospecting, limited to road cuts on the property, encountered rare thin banded pyrite associated with graphite. The Twin "J" deposit is associated with graphite.

3) Numerous airborne derived conductive zones have been located predominantly in Myra sediments on the property. Two high, two medium and five low priority geophysically ranked zones have been interpreted.

4) A limited geochemical sampling program was concentrated proximal to the significant airborne derived conductive zones. The sampling returned anomalous silt and heavy mineral values in Cu-Pb-Zn-Ag-Au associated with a medium priority geophysically ranked conductive zone. In addition, a 1 cm wide pyrite vein carrying 0.001 oz Au is proximal to a low priority geophysically ranked conductor.

RECOMMENDATIONS

1) The entire property should be mapped in detail. Rock identification and textures in Sicker rocks can be difficult due to the regional greenstone alteration. Particular attention should be placed on alteration, lithology and sulfide distribution for lateral and vertical variability.

2) Activities should be predominantly in the eastern half of the property due to the distribution of geophysical conductors and associated geochemical anomalies in the Myra Formation. Although the Myra Formation is targetted, the lower Nitinat unit will also be investigated.

3) Preliminary ground geophysical and geochemical gridwork is recommended over promising areas. The priorities of the grid areas should be determined by evaluating the prioritized geophysical responses with geological and geochemical support. Grid areas should not be restricted to geophysical conductors as massive sulfides may not respond to E.M.
A preliminary program of 50 line kilometres of gridwork would tentatively cover 4 to 5 of the higher priority areas.

A geophysical program of VLF-MAG, Max-Min +/- pulse E.M. isprecommended. Geochemical soil sampling should be collected over the grids.

4) Silt and soil samples should be taken during property mapping distally from grid areas to identify promising non-conductive zones.

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APPENDIX A

Barringer/Questor Mark VI Input Helicopter System

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-turn-$meter^2$

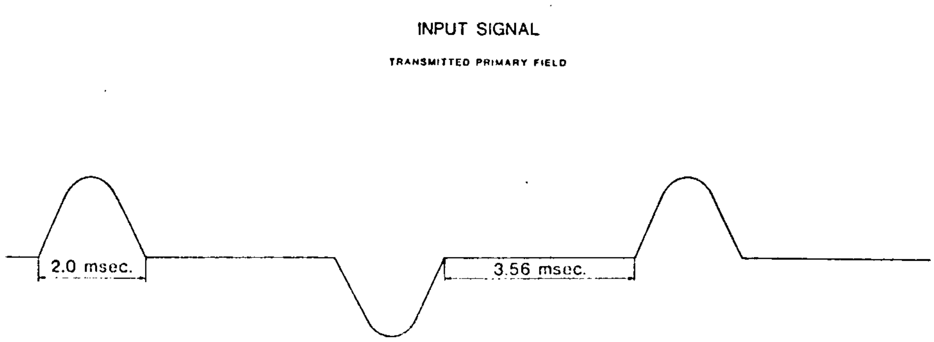


Figure A1

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

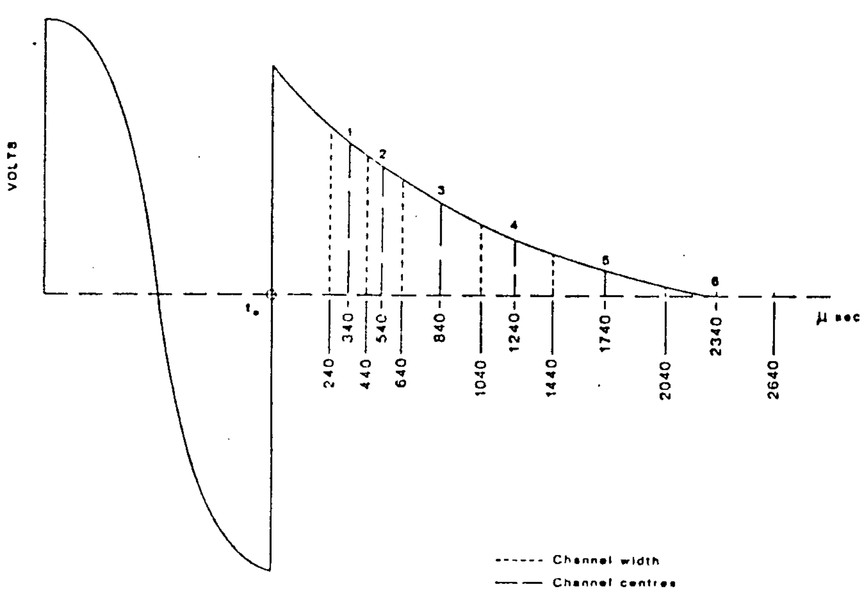


Figure A2

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.

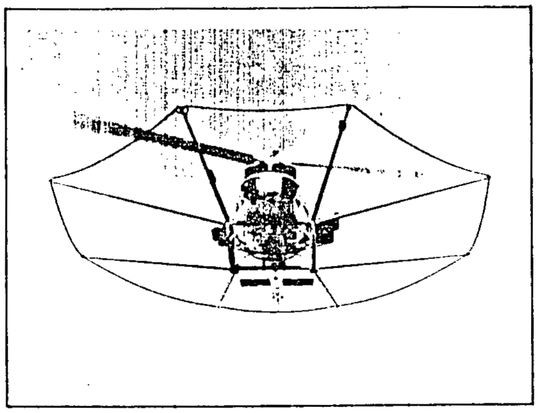
ALTIMETER

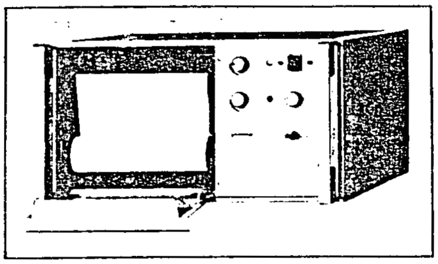
Sperry Radar Altimeter

SONOTEK P.M.H. 5010 PROTON MAGNETOMETER

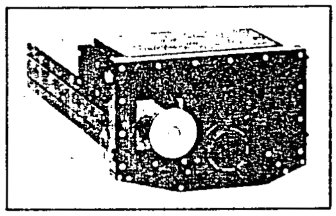
The airborne magnetometer is a proton free precession sensor, which operates on the principle of nuclear magnetic resonance to produce a measurement of the total magnetic intensitity. It has a sensitivity of 1 gamma and an operating range of 20,000 gammas to 100,000 gammas. The sensor is a solenoid type,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

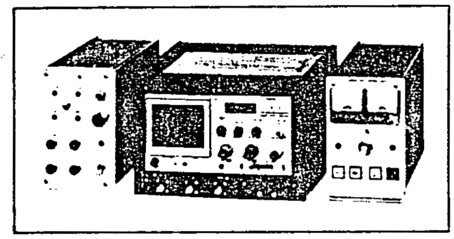




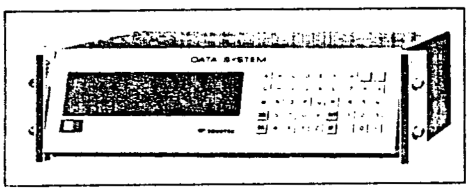
HONEYWELL ANALOGUE CHART RECORDER



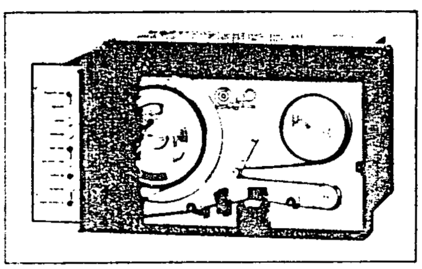
35mm TRACKING CAMERA



INTERFACE, OSCILLOSCOPE & T.C.U.

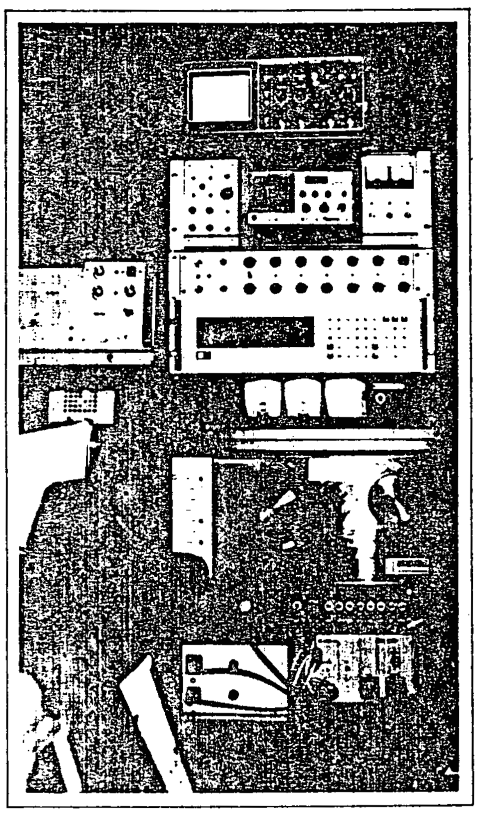


SONOTEK DATA SYSTEM

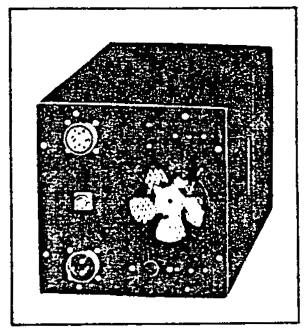


9 TRACK TAPE RECORDER

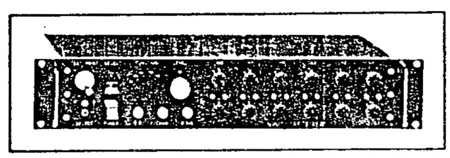
RADAR ALTIMETER



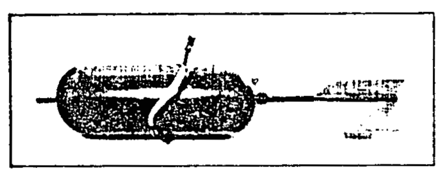
INPUT® EQUIPMENT INSTALLATION



TRANSMITTER



MK VI INPUT® RECEIVER



TOWED "BIRD" ASSEMBLY

QUESTOR/BARRINGER MARK VI "INPUT"® SYSTEM EQUIPMENT

APPENDIX B

Survey Helicopter

APPENDIX B

The Survey Helicopter

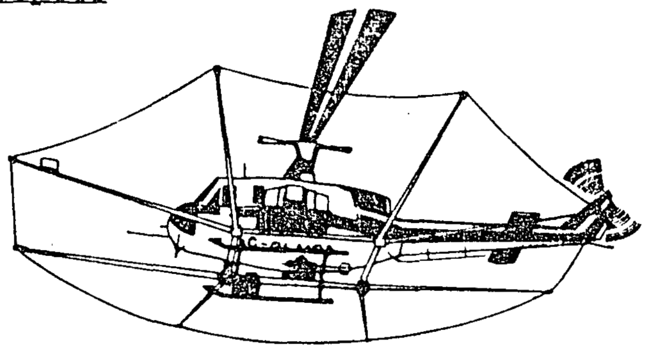


Figure B1

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

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.

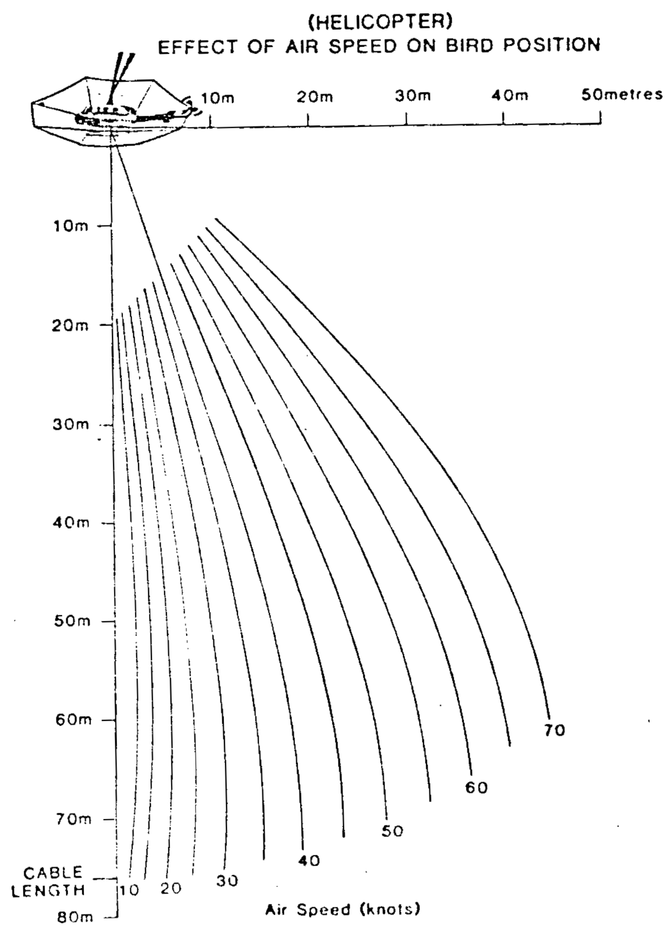


Figure C1

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:

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

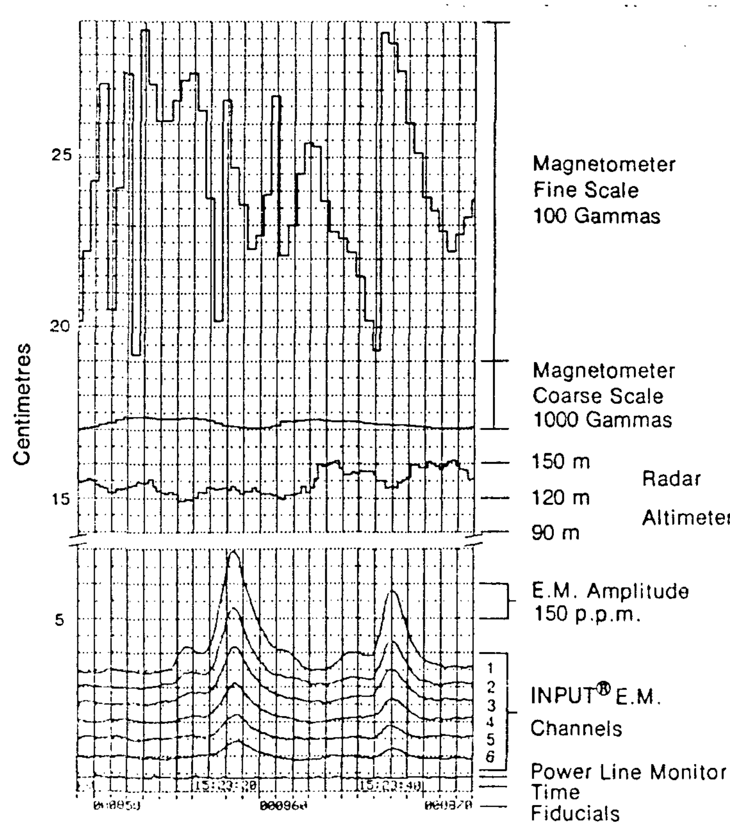


Figure C2

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.

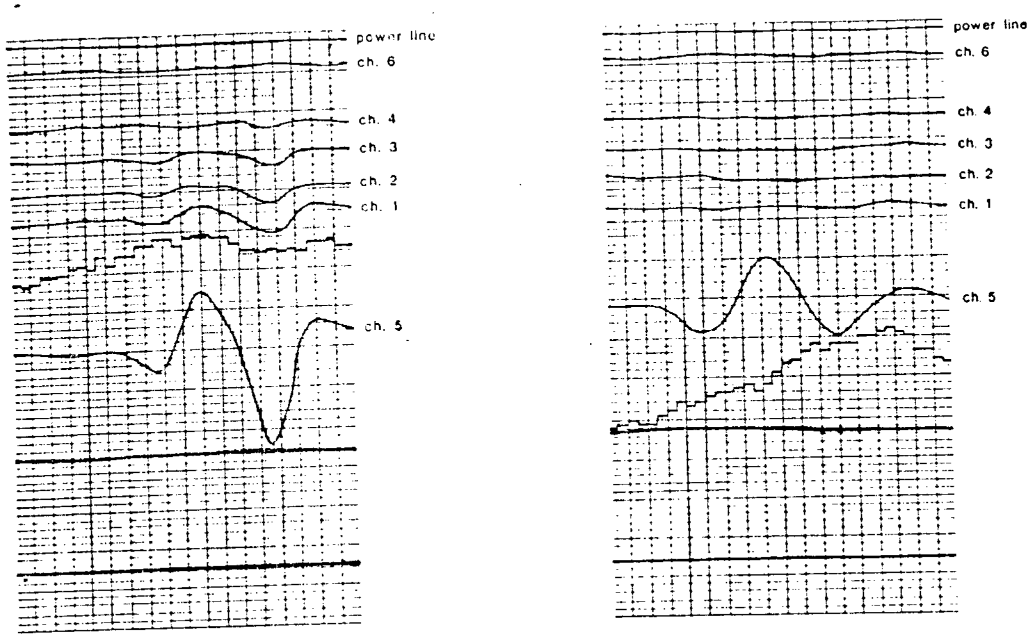
The background levels are recorded and then used to determine the drift that may occur in the E.M. channels during the progression of a survey flight. If drift has occurred, the

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.

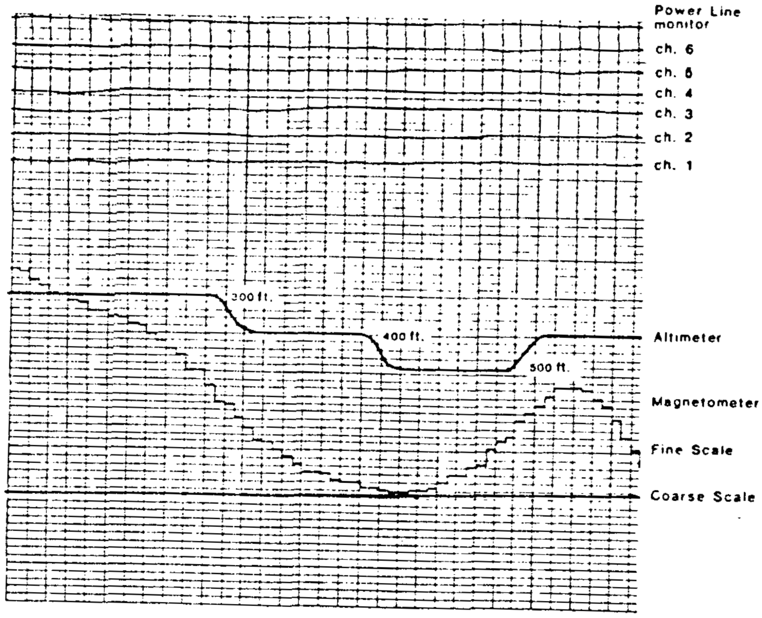


Figure C4

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:

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

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.

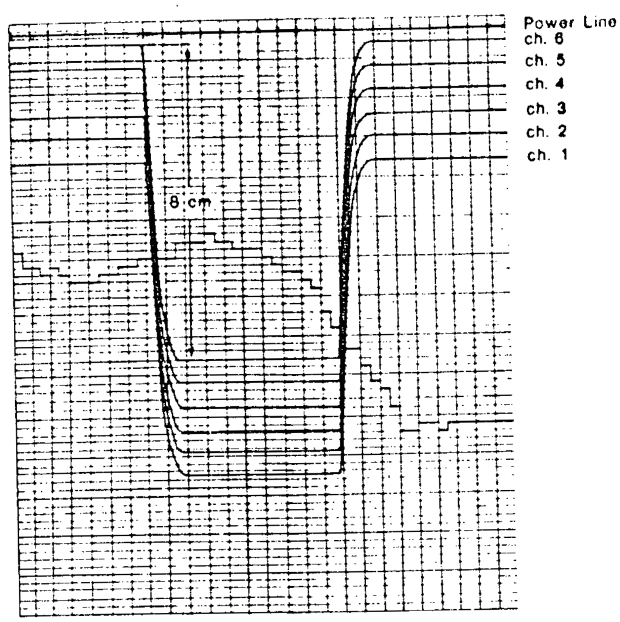


Figure C5

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.

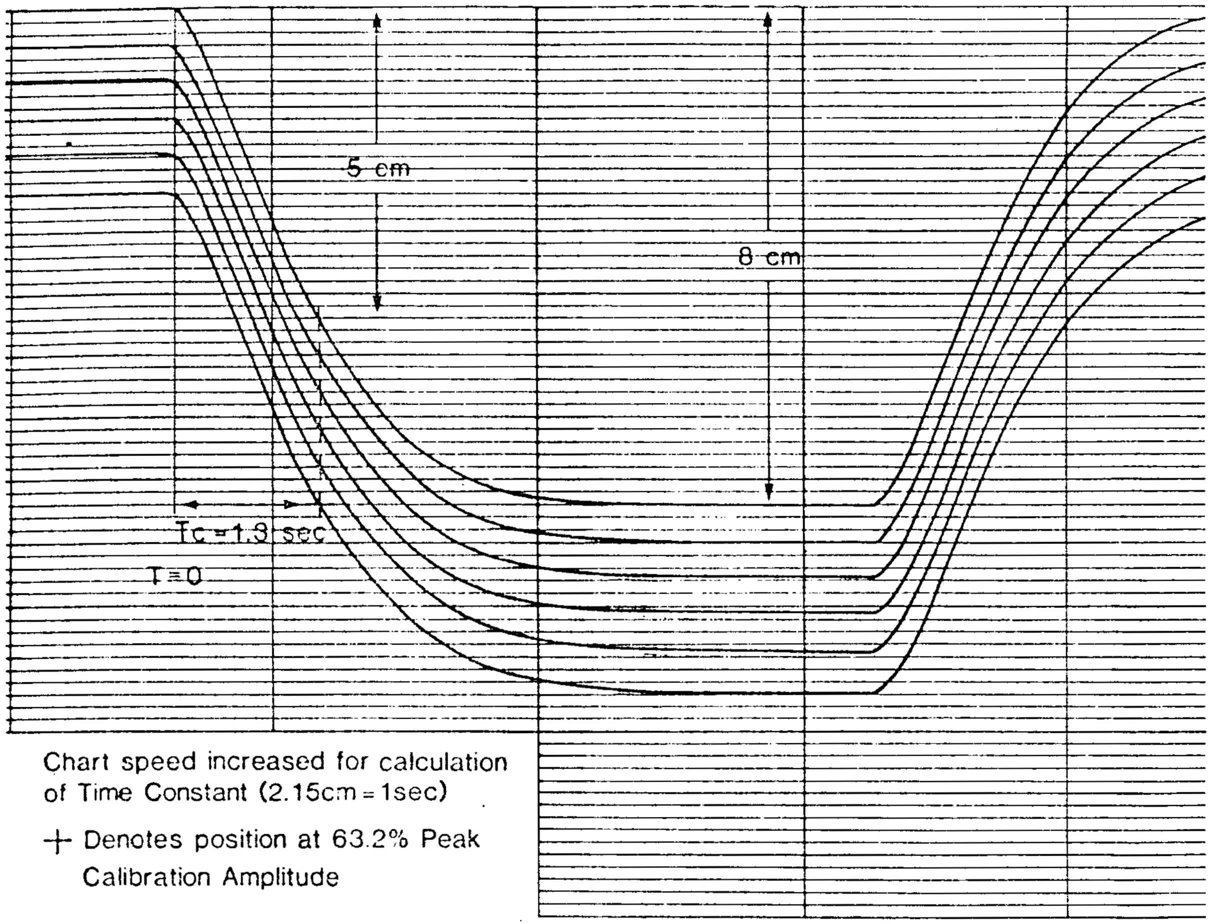


Figure C6

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

Geochemical Data

PROJECT NAME : Striker

SAMPLE TYPE : Silt - Heavy Conc.

NUMBER OF SAMPLES = 33

NUMBER	CU ppm	PB ppm	ZN ppm	AG ppm	AU ppb	AS ppm	HG ppb	MN ppm	SB ppm	Mag Yield %	Non Mag Yield %
84SGH87	66	14	76	.1	10	12	240	724	6.8	0.2	6.2
84SGH88	100	22	108	.4	10	220	340	910	.8	0.2	5.0
84SGH89	62	8	70	.4	10	18	140	640	4	0.4	11.0
84SGH90	70	18	72	.1	10	130	160	1220	6	0.2	4.9
84SGH91	76	12	80	.2	10	24	160	0	3.2	0.3	6.8
84SGH92	78	16	70	.2	40	28	220	0	2.8	0.2	6.1
84SGH96	28	12	52	.2	10	8	260	0	.8	0.6	7.3
84SGH97	182	56	340	.6	40	500	260	0	18	0.2	5.4
84SGH98	130	24	110	.6	10	86	600	0	4	0.4	5.0
84SGH99	164	42	460	.6	40	460	180	0	11.6	0.3	6.5
84SGH100	74	8	74	.4	10	50	100	0	5.2	0.2	5.3
84SGH101	68	6	66	.4	10	32	60	0	3.6	0.2	7.3
84SGH102	82	10	70	.4	10	48	80	0	4.8	0.2	6.1
84SGH109	60	8	114	.4	10	48	60	0	2	0.2	9.5
84SGH110	254	60	780	.8	10	800	140	0	22	0.3	5.6
84SDH112	90	8	76	.6	5200	34	260	1020	0	0.3	8.0
84SDH113	90	6	66	.4	10	22	60	790	0	0.6	14.0
84SDH114	40	8	54	.6	10	18	60	640	0	0.5	10.4
84SDH115	194	52	360	.6	60	520	980	1420	0	0.2	6.6
84SDH116	108	22	124	.8	10	110	140	744	0	0.4	5.5
84SDH117	148	34	390	.8	10	360	80	1800	0	0.2	7.6
84SDH118	60	6	60	1	10	20	60	610	0	0.3	9.3
84SDH119	82	12	80	.6	10	28	60	944	0	0.4	8.3
84SDH120	84	8	86	.8	10	86	120	930	0	0.1	4.5
84SDH121	162	40	420	.8	10	420	20	1680	0	0.2	4.4
84SDH122	58	8	44	.8	60	8	40	650	0	0.5	25.4
84SDH123	56	8	48	.8	10	10	40	1420	0	0.1	15.3

NUMBER -	CU ppm	PB ppm	ZN ppm	AG ppm	AU ppb	AS ppm	HG ppb	MN ppm	SB ppm	Mag Yield %	Non Mag Yield %
84SDH124	60	64	60	.8	10	12	20	590	0	0.6	11.8
84SDH125	60	8	60	.6	10	14	20	660	0	0.4	11.4
84SDH126	82	8	64	.8	60	8	60	950	0	0.9	8.7
84SDH127	70	6	54	.6	20	12	40	780	0	0.6	22.2
84SDH128	78	10	60	.4	10	10	40	830	0	0.3	24.2
84SDH129	46	770	76	2.4	0	16	0	716	0	1.9	19.9

Au Values of 10 = $<$ 20 ppb

PROJECT NAME : Striker

SAMPLE TYPE : Silt

NUMBER OF SAMPLES = 24

NUMBER	CU ppm	PB ppm	ZN ppm	AG ppm	AU ppb	AS ppm	HG ppb
84SGL57	71	5	94	.4	5	16	70
84SGL58	77	7	102	.5	5	19	60
84SGL59	70	2	68	.1	10	10	70
84SGL60	65	4	78	.3	5	6	60
84SGL63	70	6	90	.3	10	11	70
84SGL64	64	8	175	.3	5	110	70
84SGL65	50	8	130	.2	5	35	70
84SGL69	58	4	90	.1	5	14	60
84SGL70	62	3	70	.2	5	9	40
84SGL71	67	4	78	.2	5	11	40
84SGL72	72	13	112	.3	5	67	60
84SGL73	75	6	84	.1	10	9	50
84SGL74	82	9	105	.2	5	27	130
84SGL75	54	3	87	.1	5	19	50
84SGL76	70	12	155	.2	5	79	60
84SGL77	55	6	82	.1	5	23	70
84SGL78	78	2	72	.1	70	15	60
84SGL79	67	2	85	.1	20	14	50
84SGL80	82	4	100	.1	5	22	75
84SGL81	115	24	265	.5	5	140	90
84SGL82	68	3	88	.1	5	15	60
84SGL83	65	4	95	.2	5	6	110
84SGL84	62	3	77	.1	5	9	60
84SGL85	75	2	60	.1	10	3	50

Au Values of 5 = <10 ppb

PROJECT NAME : Striker

SAMPLE TYPE : Rock

NUMBER OF SAMPLES = 72

NUMBER	CU	PB	ZN	AG	AU	AS	HG	SB
-	ppm	ppm	ppm	ppm	ppb	ppm	ppb	ppm
84SGT1	103	1	80	.7	5	10	20	.2
84SGT2	36	1	78	.8	5	6	10	.1
84SGT3	133	1	73	.5	5	10	40	.1
84SGT4	38	1	55	.7	5	7	340	2.4
84SGT5	97	2	62	.3	5	15	120	.1
84SGT6	190	1	48	.7	5	24	170	1
84SGT7	33	3	28	.2	5	14	10	.1
84SGT8	55	8	125	.5	5	6	40	.1
84SGT9	31	20	260	.6	5	1100	260	1
84SGT10	42	75	280	.9	5	38	230	1.4
84SGT11	224	29	290	.7	5	27	780	.2
84SGT12	12	1	68	.5	5	7	40	.2
84SGT13	56	2	70	.5	5	11	40	.1
84SGT14	44	8	56	.5	5	6	30	.2
84SGT15	60	1	72	.6	5	9	10	.1
84SGT16	31	1	96	.7	5	9	10	.8
84SGT17	17	6	11	.4	5	7	10	.4
84SGT18	39	20	92	.6	5	7	10	1
84SGT19	64	3	93	.7	5	23	60	.2
84SGT20	473	65	238	1.3	20	92	10	.8
84SGT21	4550	1	70	3.3	90	12	20	.2
84SGT22	1600	1	18	1.6	70	45	180	.3
84SGT23	77	1	46	.4	5	27	20	.1
84SGT24	47	2	24	.4	5	12	20	1
84SGT25	30	4	38	.8	5	77	200	5
84SGT26	29	1	32	.3	5	7	20	.4
84SGT27	68	1	77	.6	5	36	50	6

NUMBER	CU	PB	ZN	AG	AU	AS	HG	SB
-	ppm	ppm	ppm	ppm	ppb	ppm	ppb	ppm
84SGT28	14	2	33	.4	5	11	10	.8
84SGT29	1880	1	24	.6	5	10	70	.6
84SGT30	103	1	65	.4	5	12	20	.6
84SGT31	40	1	83	.3	5	5	10	.3
84SGT32	94	2	90	.5	5	9	30	.4
84SGT33	102	4	70	.3	5	41	240	.6
84SGT34	98	9	97	.4	5	59	70	1
84SGT35	75	9	255	.4	5	25	50	.6
84SGT36	48	13	102	.4	5	11	50	1.4
84SGT37	100	1	50	.4	5	9	10	.4
84SGT38	31	37	205	.1	5	19	110	1
84SGT39	1750	2	108	2.7	5	73	60	.3
84SGT40	105	1	72	.4	5	9	20	.2
84SGT41	108	4	36	.2	5	9	20	.4
84SGT42	106	1	56	.3	5	6	20	.2
84SGT43	73	1	80	.3	5	12	10	.1
84SGT44	51	1	87	.3	5	5	10	.4
84SGT45	52	1	60	.3	5	5	10	.2
84SGT46	59	1	72	.2	5	6	5	.3
84SGT47	392	1	45	.6	3300	7	80	.3
84SGT48	660	1	50	.5	10	14	20	.3
84SGT49	335	1	33	.6	5	94	10	.2
84SGT50	26	2	17	.1	5	11	10	.9
84SGT51	34	72	90	.3	10	10	50	4
84SGT52	66	1	88	.4	5	5	50	.4
84SGT53	75	7	150	.8	5	12	120	1.4
84SGT54	220	1	47	.4	5	9	30	.3
84SGT55	54	65	72	.3	5	38	140	1
84SGT56	62	1	70	.4	20	9	50	.2
84SGT61	117	2	40	.1	5	3	60	0
84SGT62	36	18	37	.3	5	63	230	0
84SGT66	1560	7	915	2	240	10	180	0
84SGT67	.58 *	<.01 *	.04 *	.28 *	.082*	0	0	0
84SGT68	.11 *	<.01 *	.01 *	.01 *	.01*	0	0	0
84SGT93	30	9	58	.3	30	103	120	7.2
84SGT94	75	8	138	.1	5	11	150	1.2

NUMBER	CU	PB	ZN	AG	AU	AS	HG	SB
-	ppm	ppm	ppm	ppm	ppb	ppm	ppb	ppm
84SGT95	28	2	47	.2	5	6	100	3.4
84SGT103	.02*	<.01 *	<.01*	.68 *	.01*	.01*	<.001 *	<.001*
84SGT104	.06*	<.01 *	.01*	.14 *	.006*	.003*	<.001 *	<.001*
84SGT105	.06*	<.01 *	<.01*	.02 *	.005*	< .001*	<.001 *	<.001*
84SGT106	.06*	<.01 *	<.01*	.12 *	.05*	.001*	<.001 *	<.001*
84SGT107	.07*	<.01 *	<.01*	.02 *	.01*	.002*	<.001 *	<.001*
84SGT108	22	34	80	.1 *	10	>10000	180	41
84SGT111	.41*	<.01 *	.01*	.24 *	.006*	.001*	<.001 *	<.001*
84SGT86	66	500	4600	.31 *	1.518*	980	0	1.6

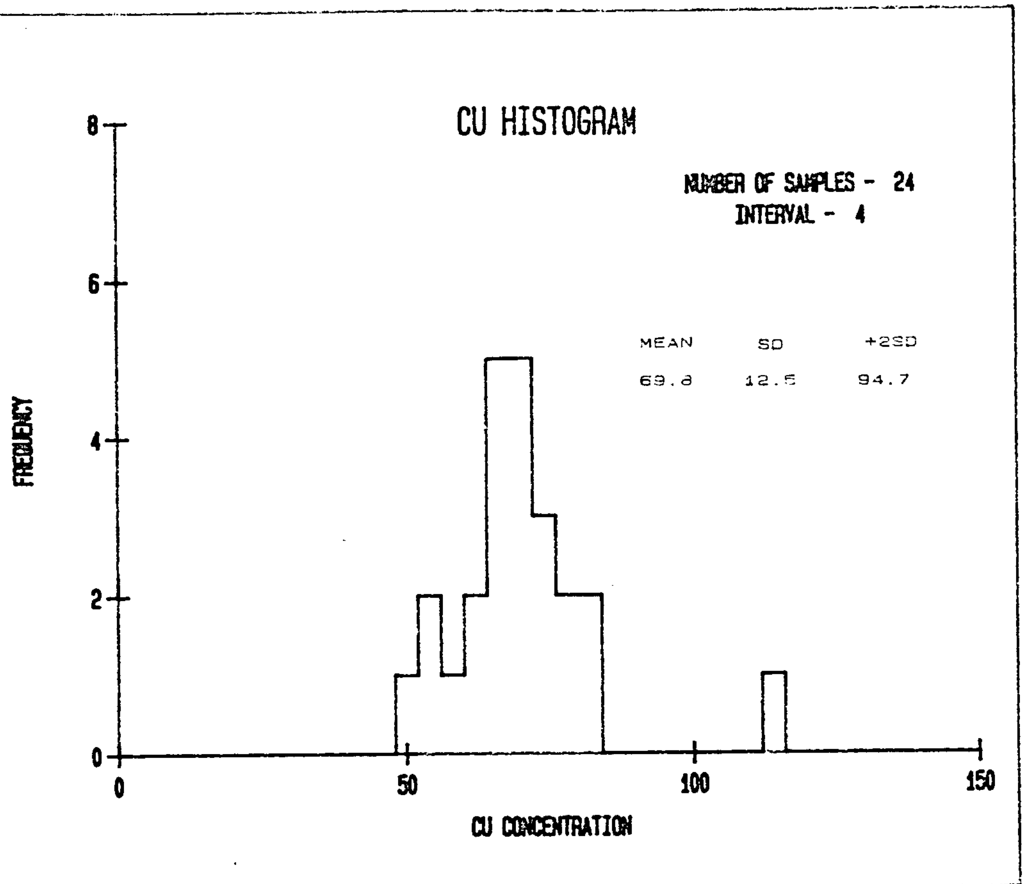
* = ASSAY VALUE

Au Values of 5 = <10 ppb

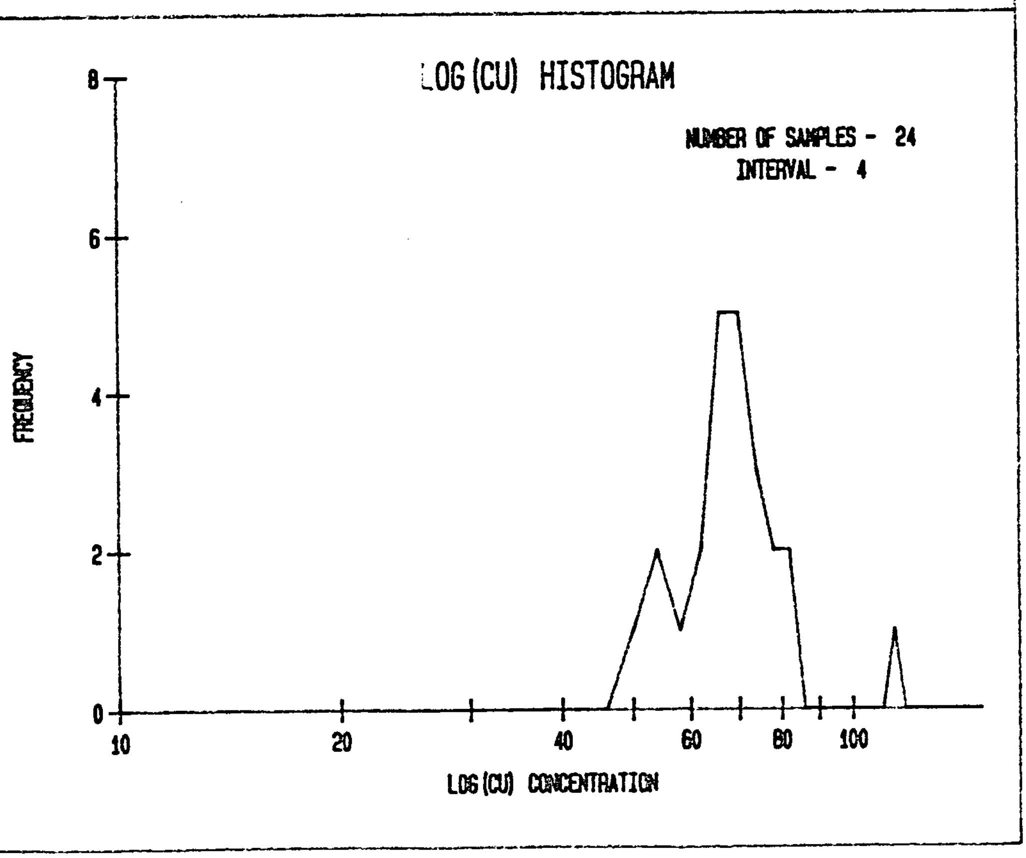
APPENDIX E

Interpretive Geochemical Data

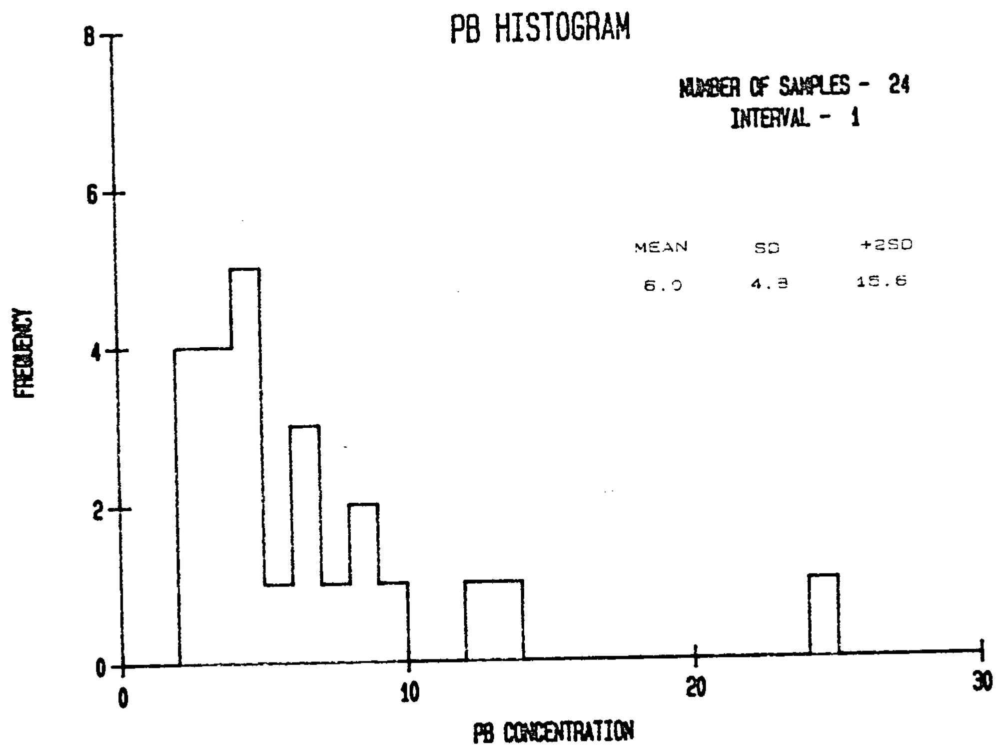
SILT SAMPLE POPULATIONS

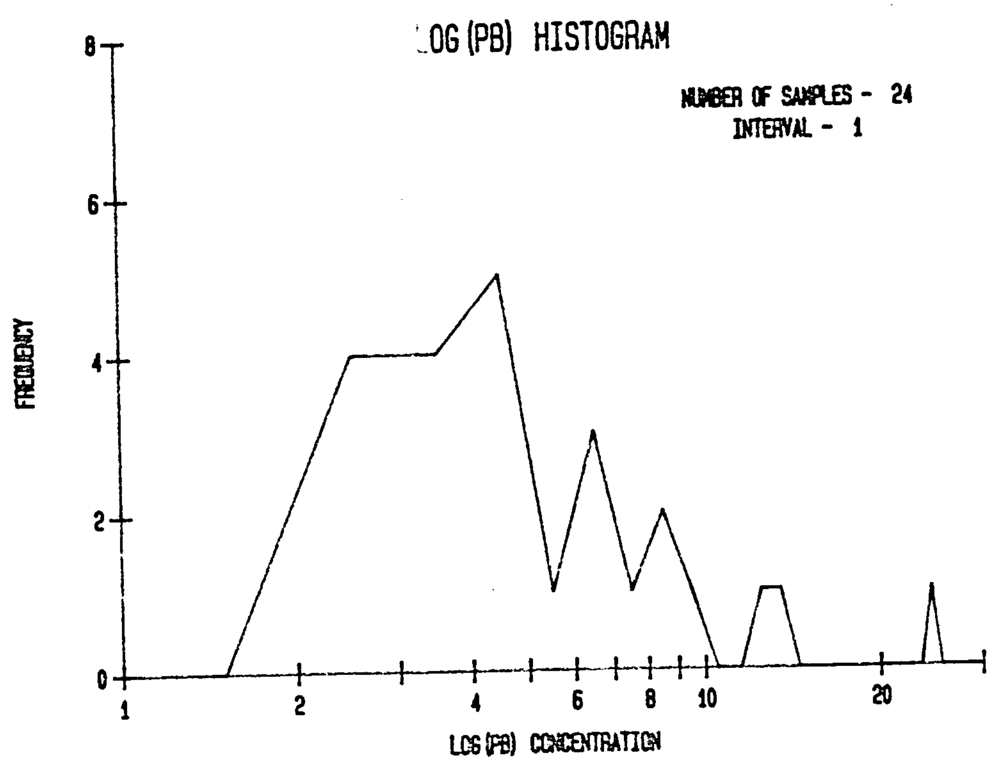


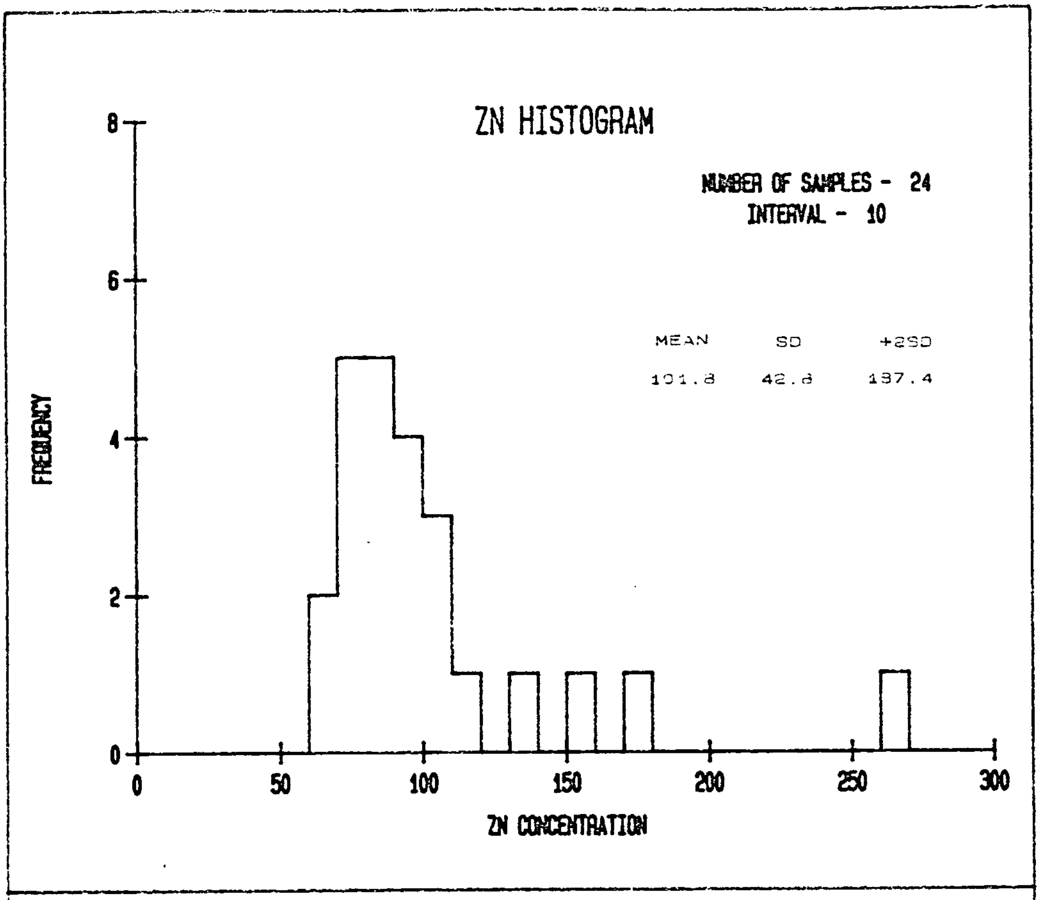
CU HISTOGRAM
NUMBER OF SAMPLES - 24
INTERVAL - 4
MEAN SD +2SD
69.8 12.5 94.7
FREQUENCY
0 2 4 6 8
0 50 100 150
CU CONCENTRATION

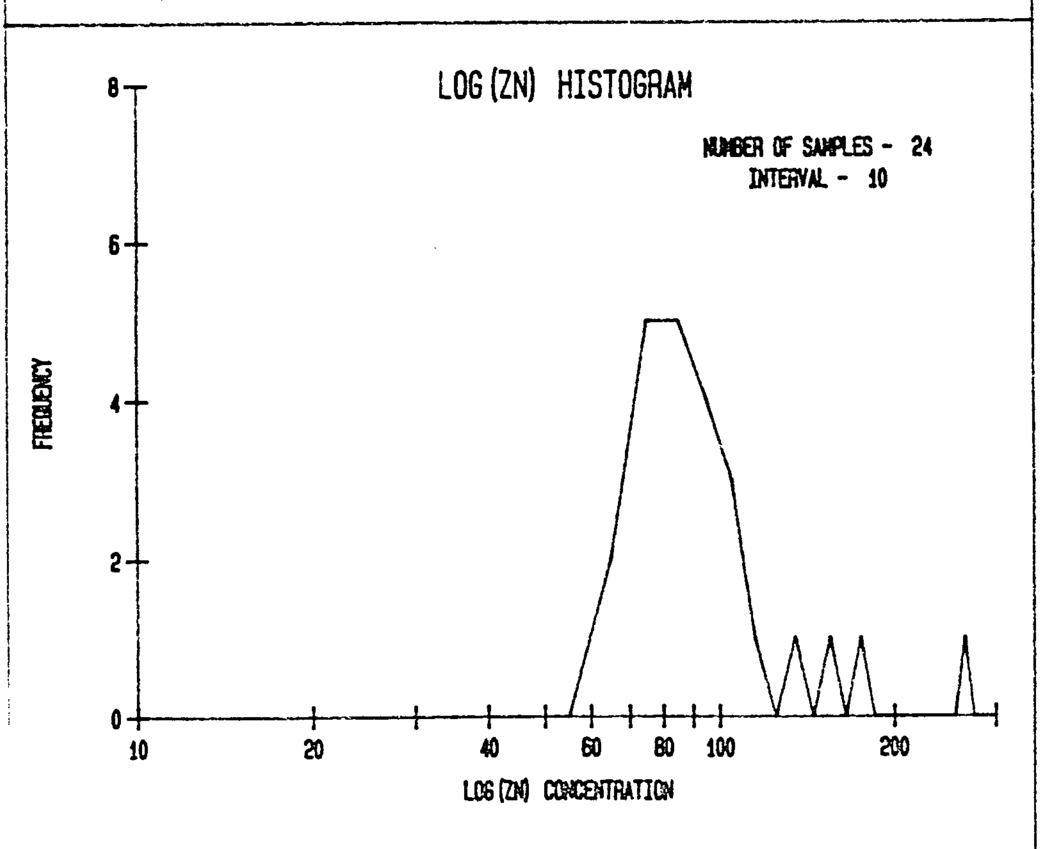


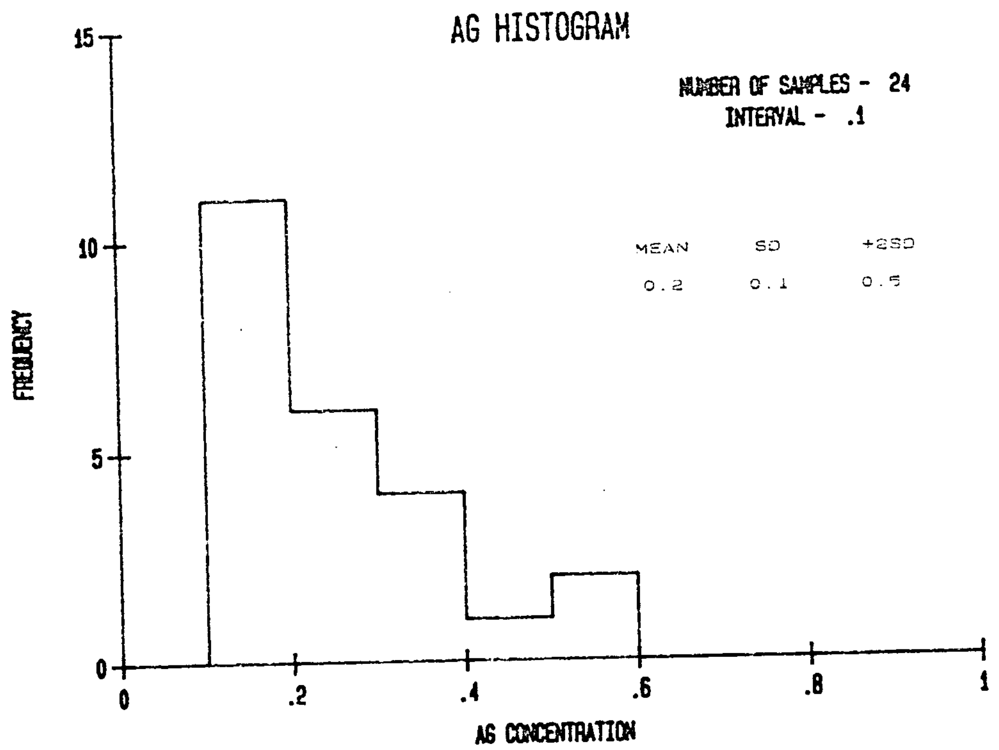
LOG (CU) HISTOGRAM
NUMBER OF SAMPLES - 24
INTERVAL - 4
FREQUENCY
0 2 4 6 8
10 20 40 60 80 100
LOG (CU) CONCENTRATION


PB HISTOGRAM
NUMBER OF SAMPLES - 24
INTERVAL - 1
MEAN SD +2SD
6.0 4.3 15.6
FREQUENCY
PB CONCENTRATION
0
2
4
6
8
0
10
20
30


LOG (PB) HISTOGRAM
NUMBER OF SAMPLES - 24
INTERVAL - 1
FREQUENCY
LOG (PB) CONCENTRATION
0
2
4
6
8
1
2
4
6
8
10
20


ZN HISTOGRAM
NUMBER OF SAMPLES - 24
INTERVAL - 10
MEAN SD +2SD
101.8 42.8 187.4
FREQUENCY
0
2
4
6
8
0 50 100 150 200 250 300
ZN CONCENTRATION


LOG (ZN) HISTOGRAM
NUMBER OF SAMPLES - 24
INTERVAL - 10
FREQUENCY
0
2
4
6
8
10 20 40 60 80 100 200
LOG (ZN) CONCENTRATION


AG HISTOGRAM
NUMBER OF SAMPLES - 24
INTERVAL - .1
MEAN SD +2SD
0.2 0.1 0.5
15
10
5
0
FREQUENCY
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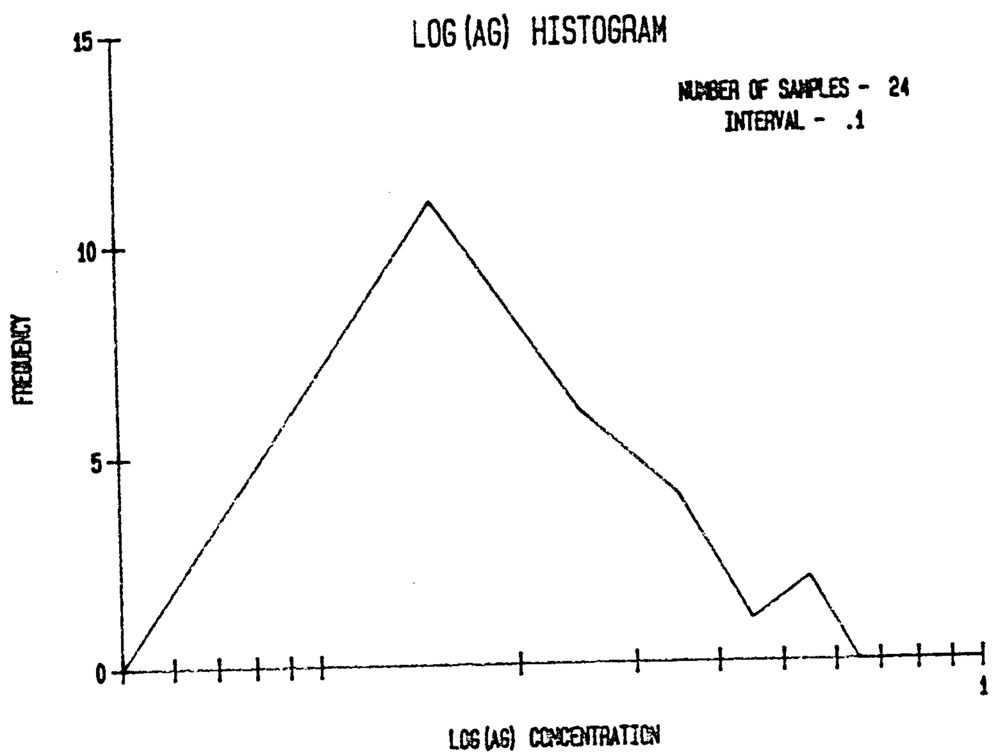
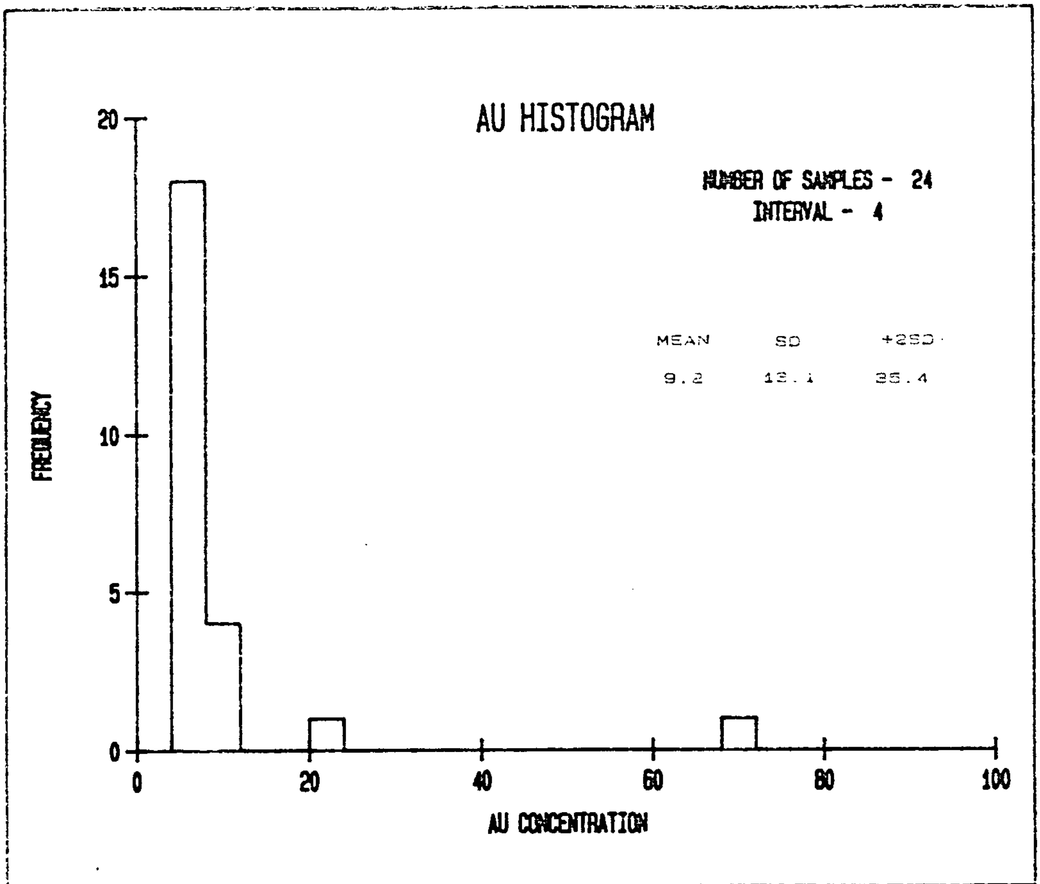
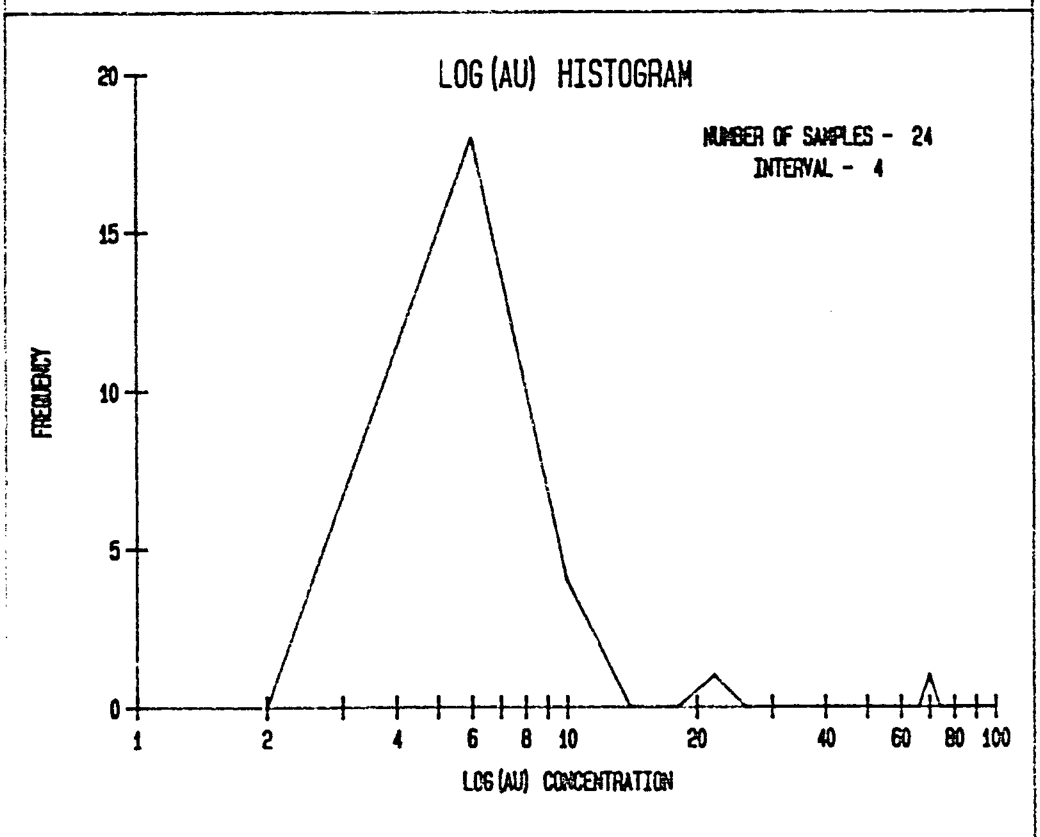
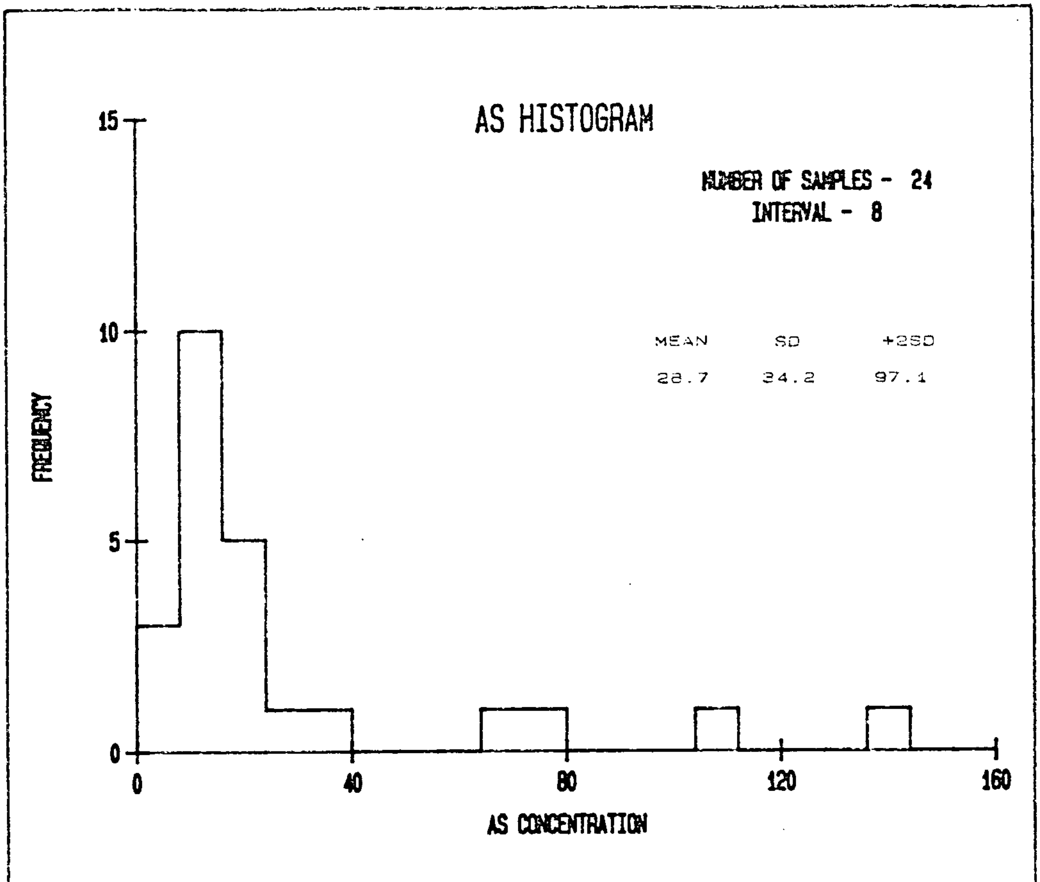
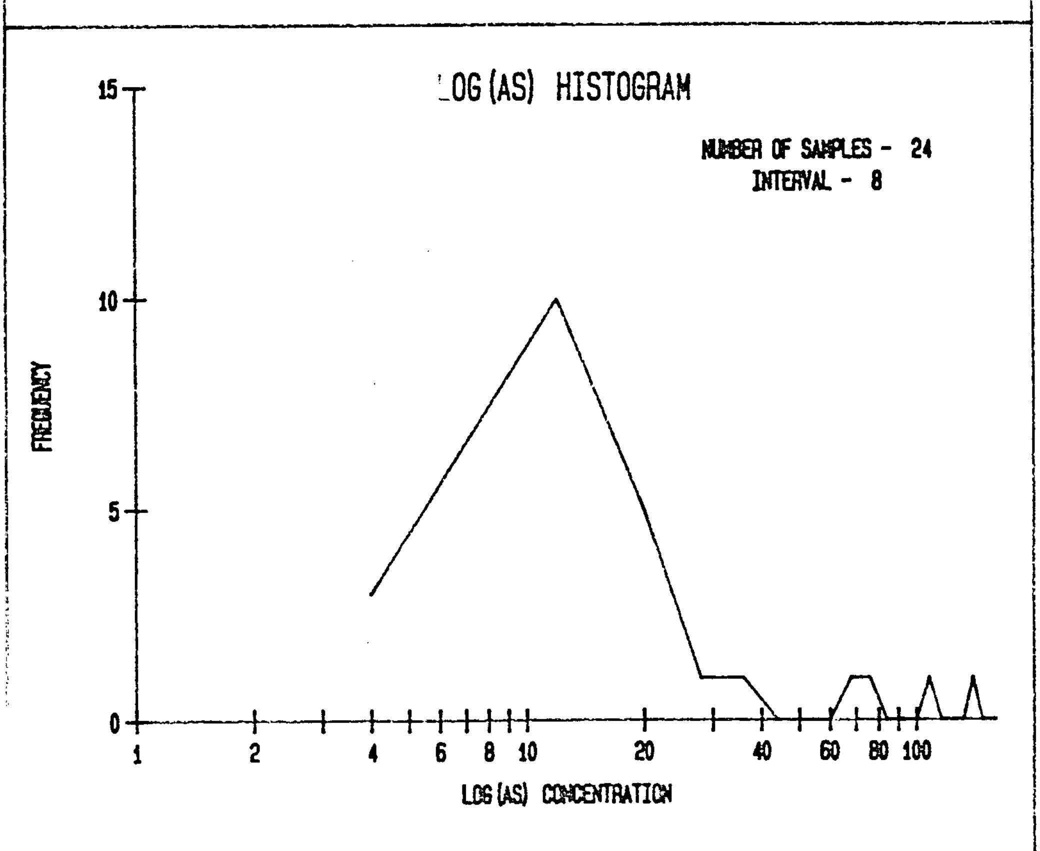
.2
.4
.6
.8
1
AG CONCENTRATION


LOG (AG) HISTOGRAM
NUMBER OF SAMPLES - 24
INTERVAL - .1
15
10
5
0
FREQUENCY
1
LOG (AG) CONCENTRATION


AU HISTOGRAM
NUMBER OF SAMPLES - 24
INTERVAL - 4
MEAN SD +2SD
9.2 13.1 35.4
FREQUENCY
0 5 10 15 20
0 20 40 60 80 100
AU CONCENTRATION


LOG (AU) HISTOGRAM
NUMBER OF SAMPLES - 24
INTERVAL - 4
FREQUENCY
0 5 10 15 20
1 2 4 6 8 10 20 40 60 80 100
LOG (AU) CONCENTRATION


AS HISTOGRAM
NUMBER OF SAMPLES - 24
INTERVAL - 8
MEAN SD +2SD
28.7 34.2 97.1
FREQUENCY
15
10
5
0
0 40 80 120 160
AS CONCENTRATION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NUMBER OF SAMPLES - 24
INTERVAL - 8
FREQUENCY
15
10
5
0
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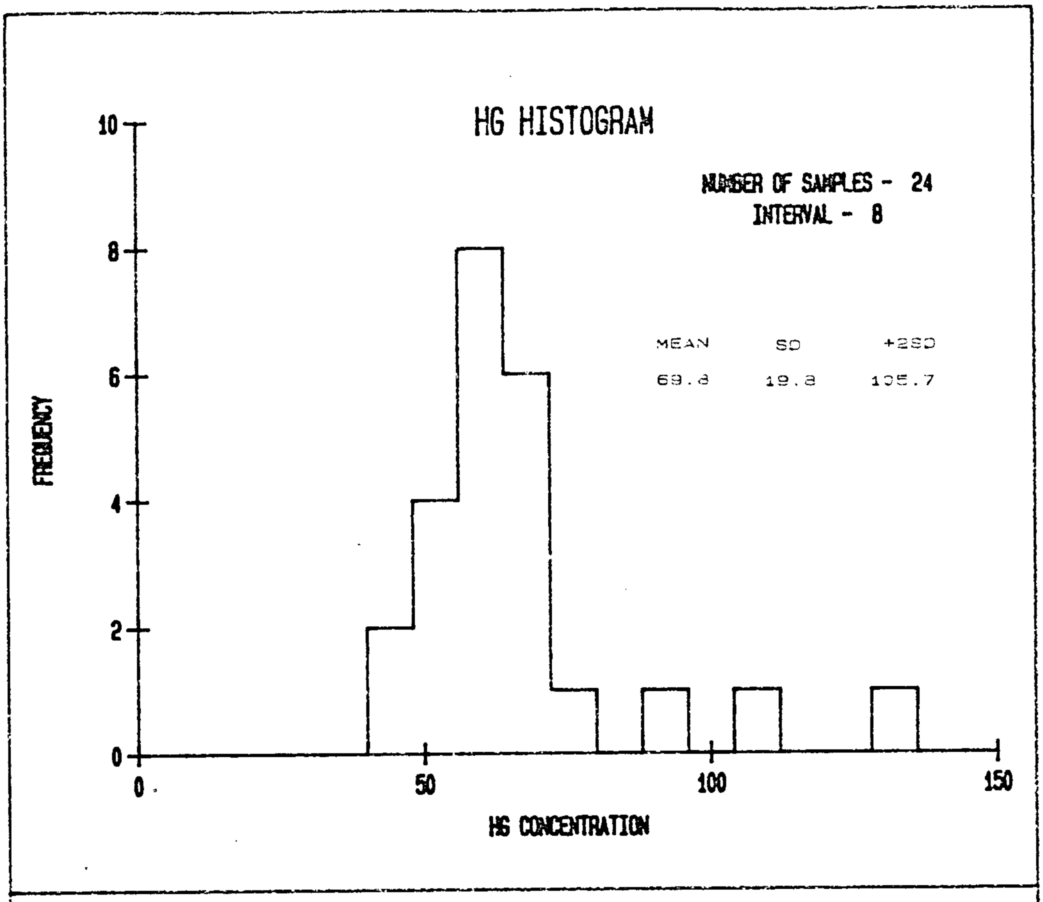
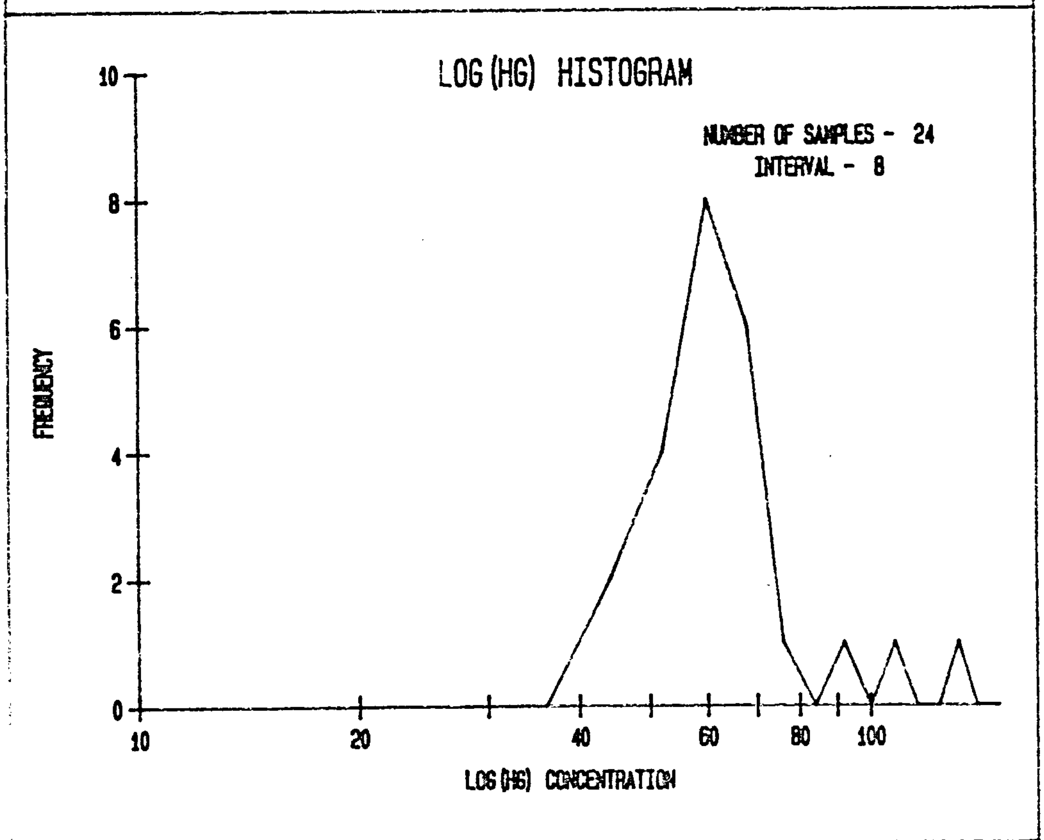
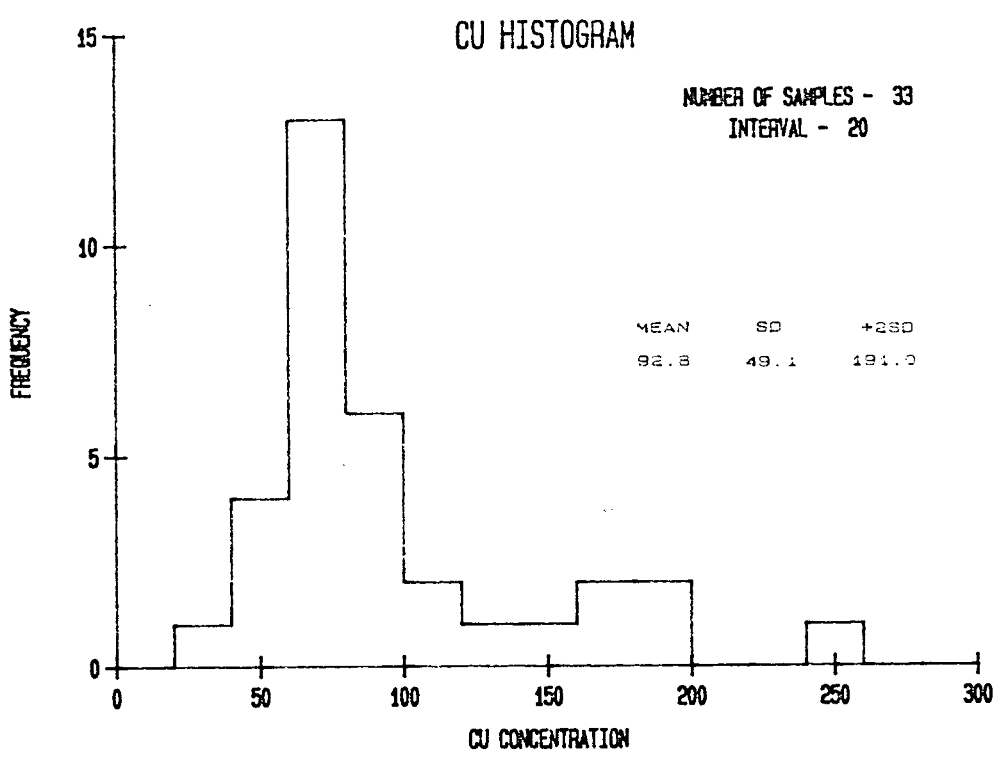
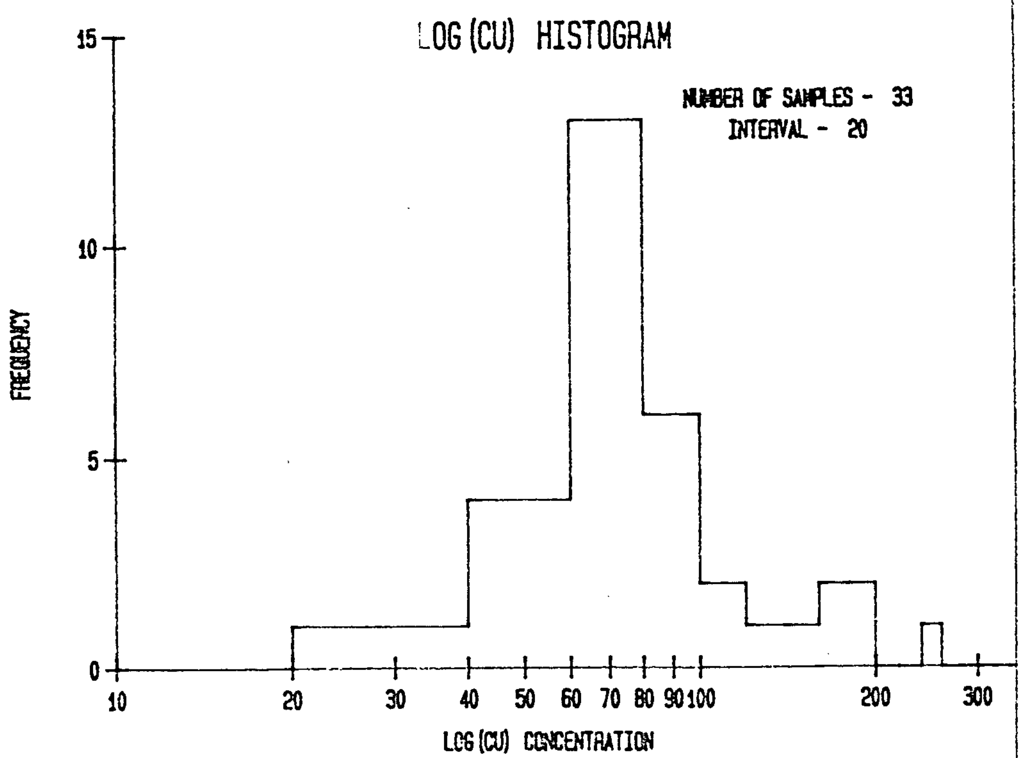
LOG (AS) CONCENTRATION

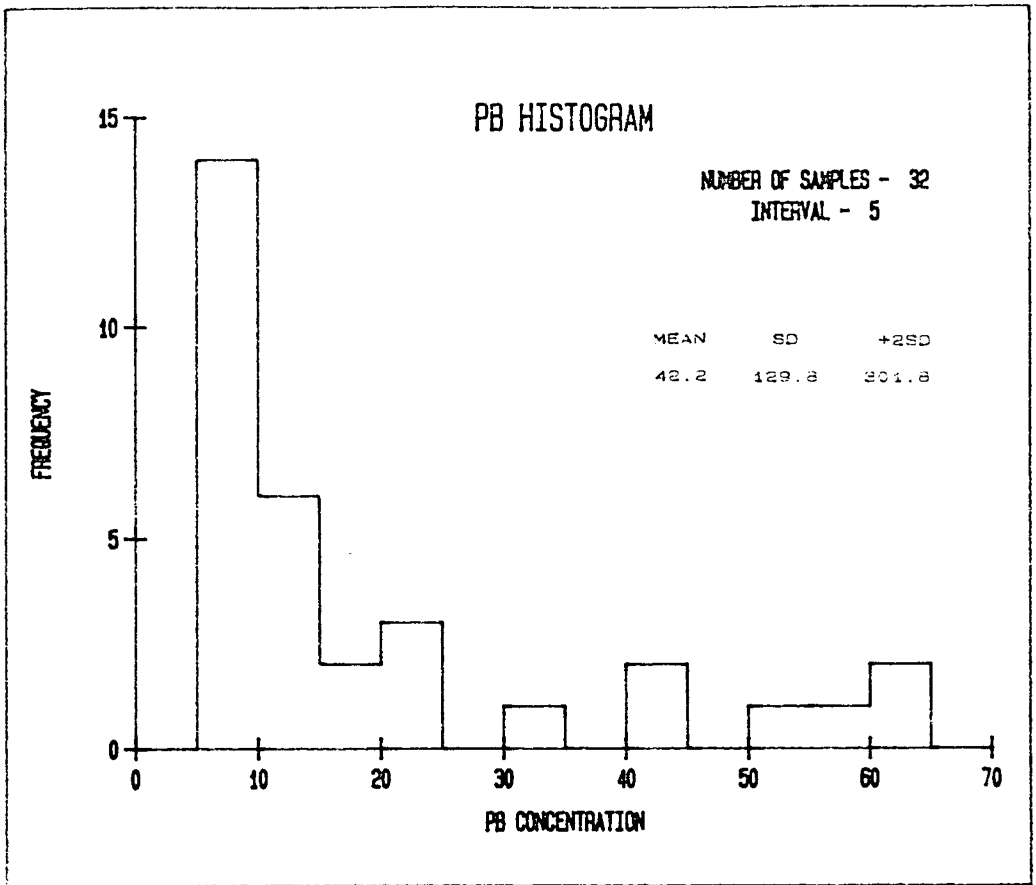

HG HISTOGRAM
NUMBER OF SAMPLES - 24
INTERVAL - 8
MEAN
SD
+2SD
69.8
19.8
105.7
FREQUENCY
0
2
4
6
8
10
0
50
100
150
HG CONCENTRATION


LOG (HG) HISTOGRAM
NUMBER OF SAMPLES - 24
INTERVAL - 8
FREQUENCY
0
2
4
6
8
10
10
20
40
60
80
100
LOG (HG) CONCENTRATION

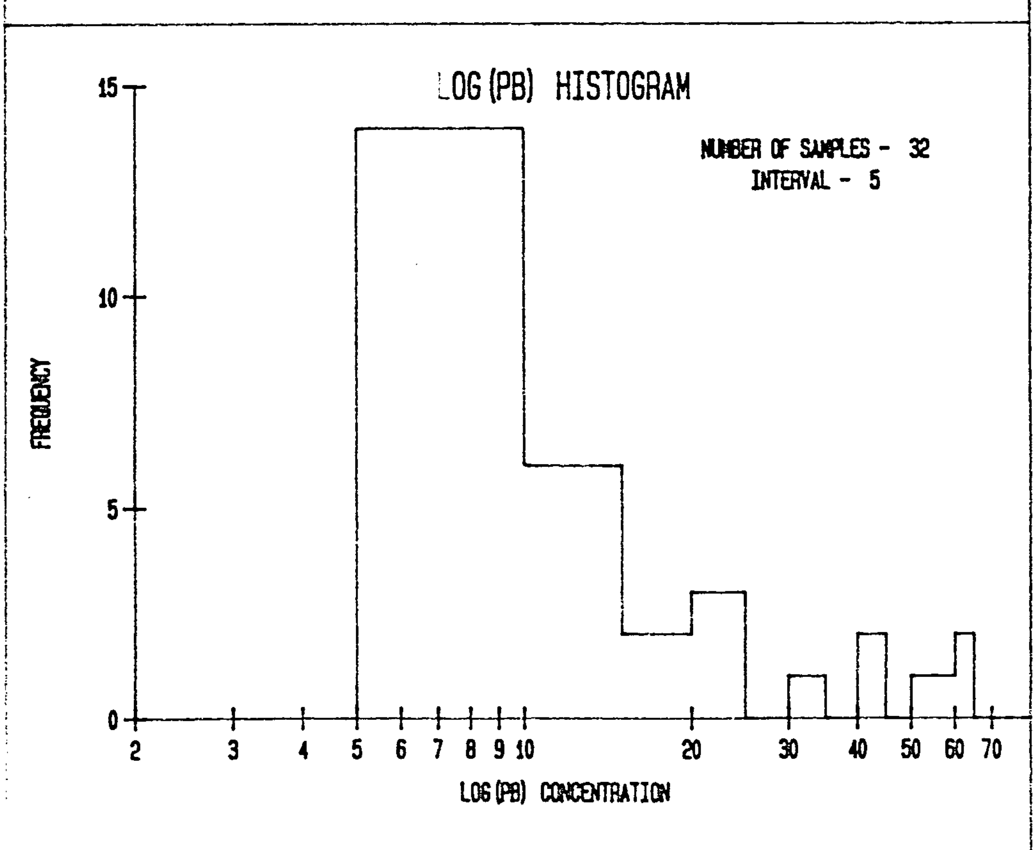
HEAVY MINERAL SAMPLE POPULATIONS


CU HISTOGRAM
NUMBER OF SAMPLES - 33
INTERVAL - 20
MEAN SD +2SD
92.8 49.1 191.0
FREQUENCY
0
5
10
15
0 50 100 150 200 250 300
CU CONCENTRATION

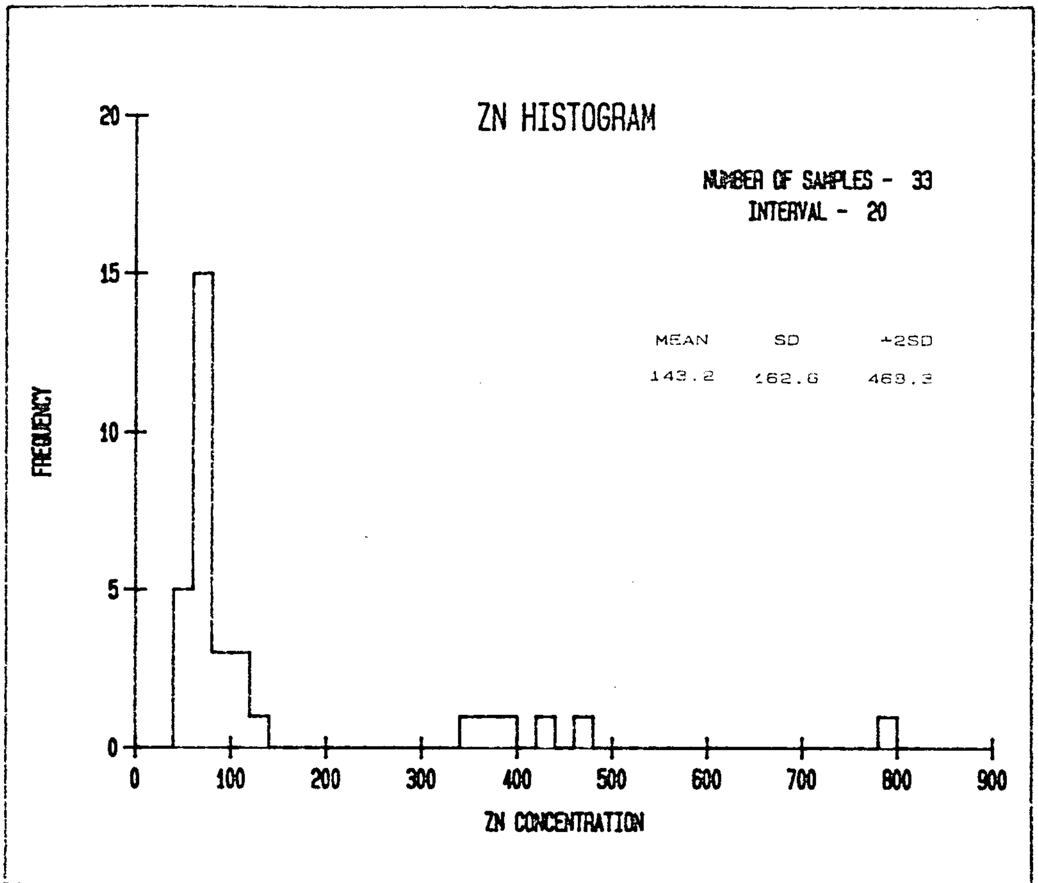

LOG (CU) HISTOGRAM
NUMBER OF SAMPLES - 33
INTERVAL - 20
FREQUENCY
0
5
10
15
10 20 30 40 50 60 70 80 90 100 200 300
LOG (CU) CONCENTRATION

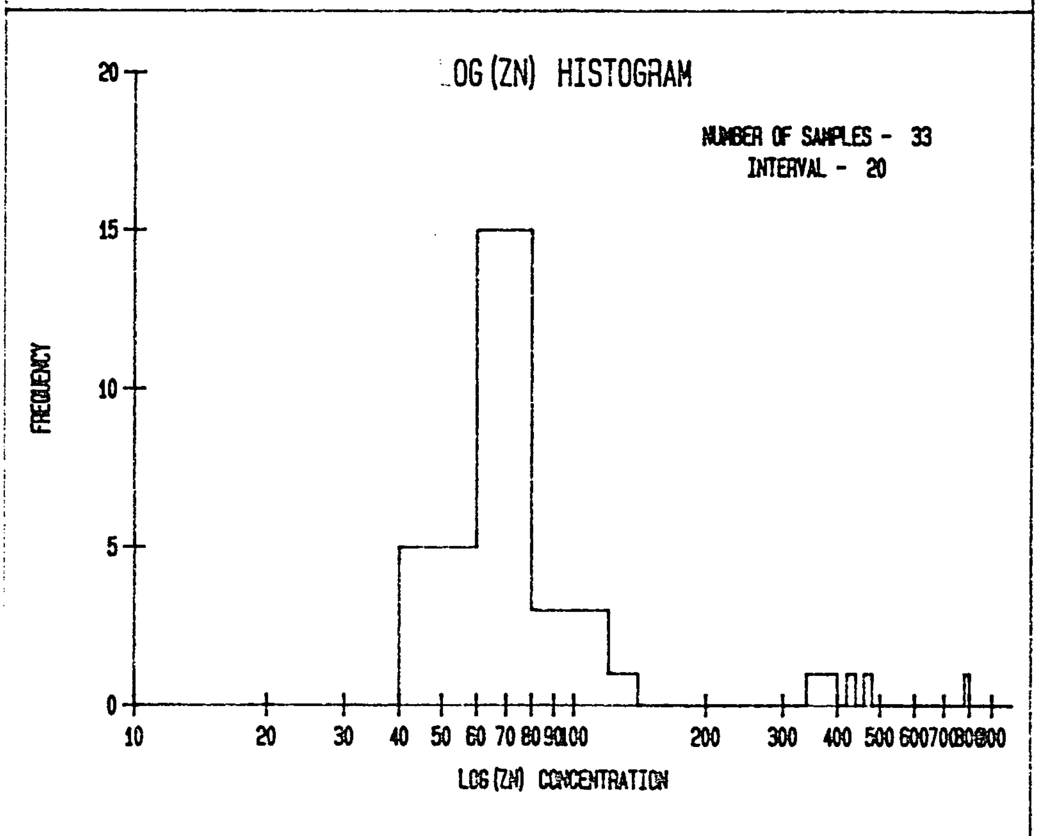


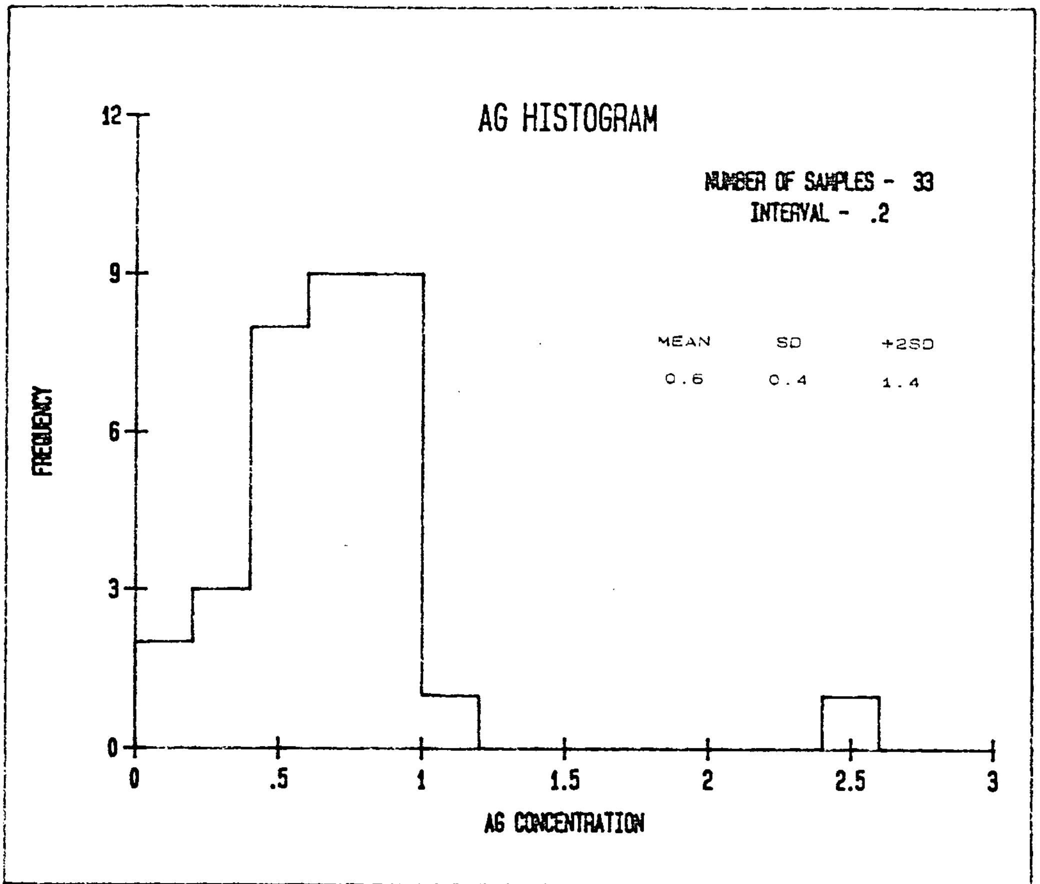
PB HISTOGRAM
NUMBER OF SAMPLES - 32
INTERVAL - 5
MEAN SD +2SD
42.2 129.8 301.8
FREQUENCY
0
5
10
15
0 10 20 30 40 50 60 70
PB CONCENTRATION

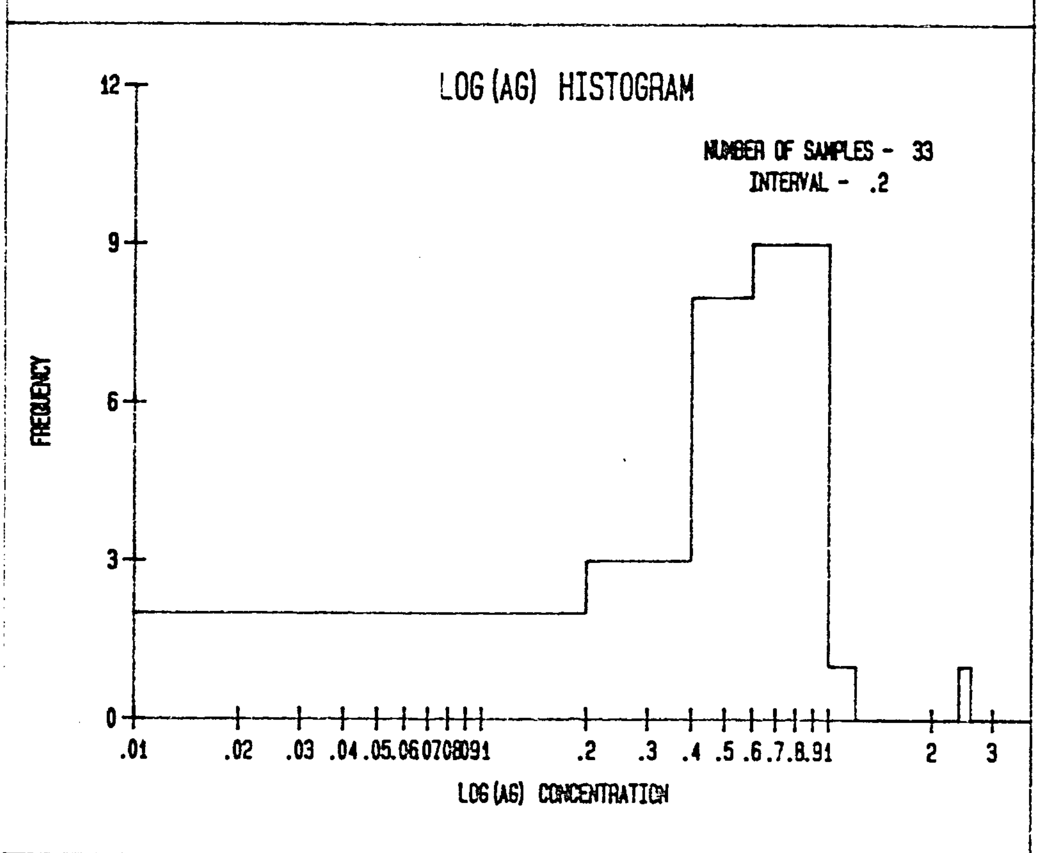


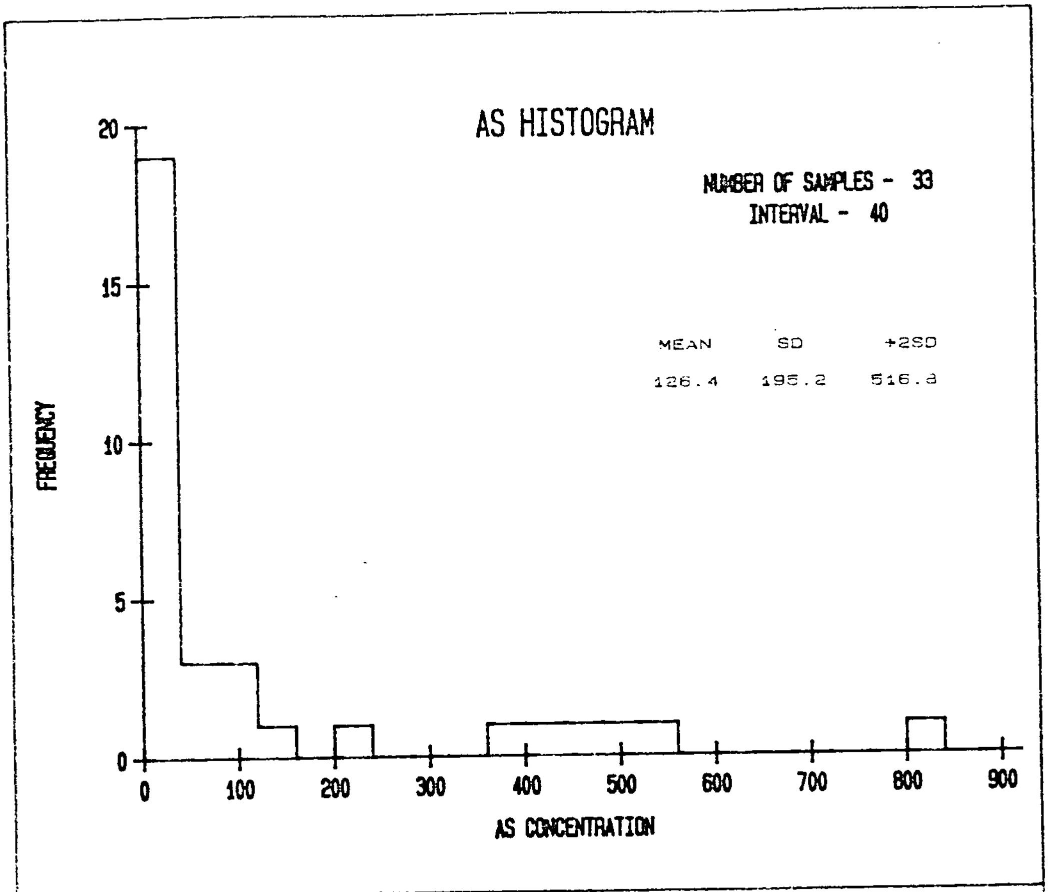
LOG (PB) HISTOGRAM
NUMBER OF SAMPLES - 32
INTERVAL - 5
FREQUENCY
0
5
10
15
2 3 4 5 6 7 8 9 10 20 30 40 50 60 70
LOG (PB) CONCENTRATION

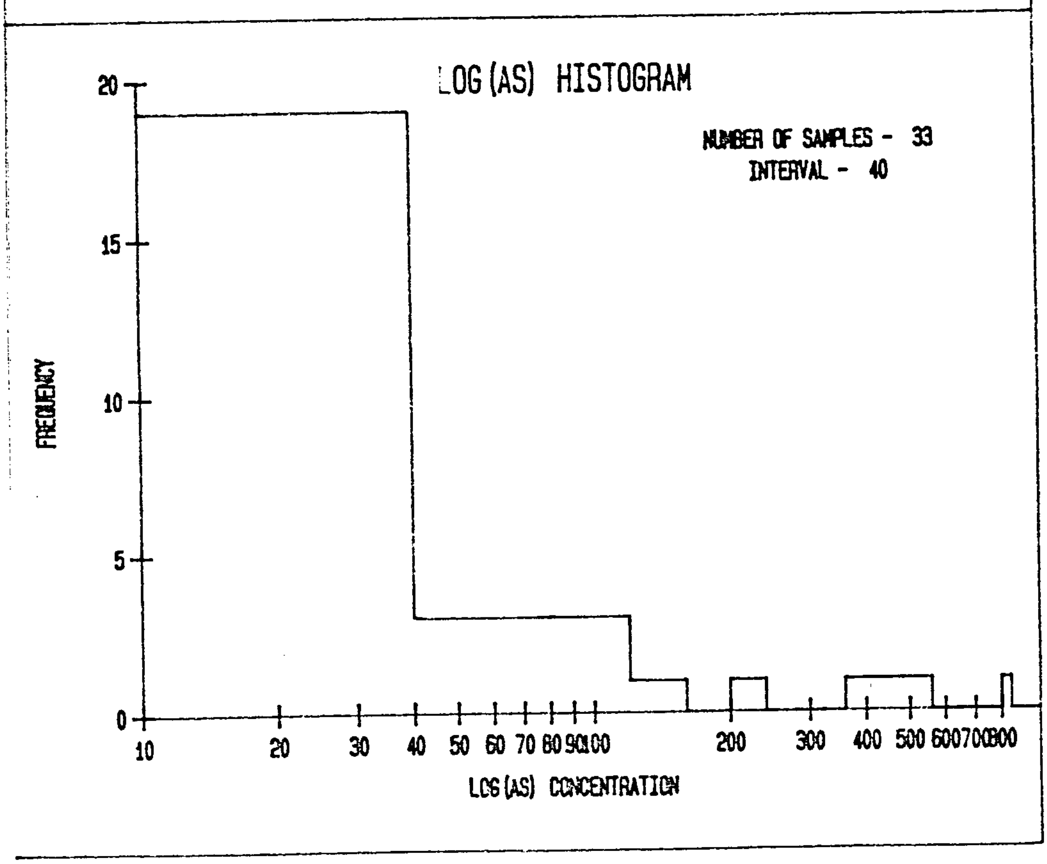

ZN HISTOGRAM
NUMBER OF SAMPLES - 33
INTERVAL - 20
MEAN SD +2SD
143.2 162.6 468.3
FREQUENCY
ZN CONCENTRATION

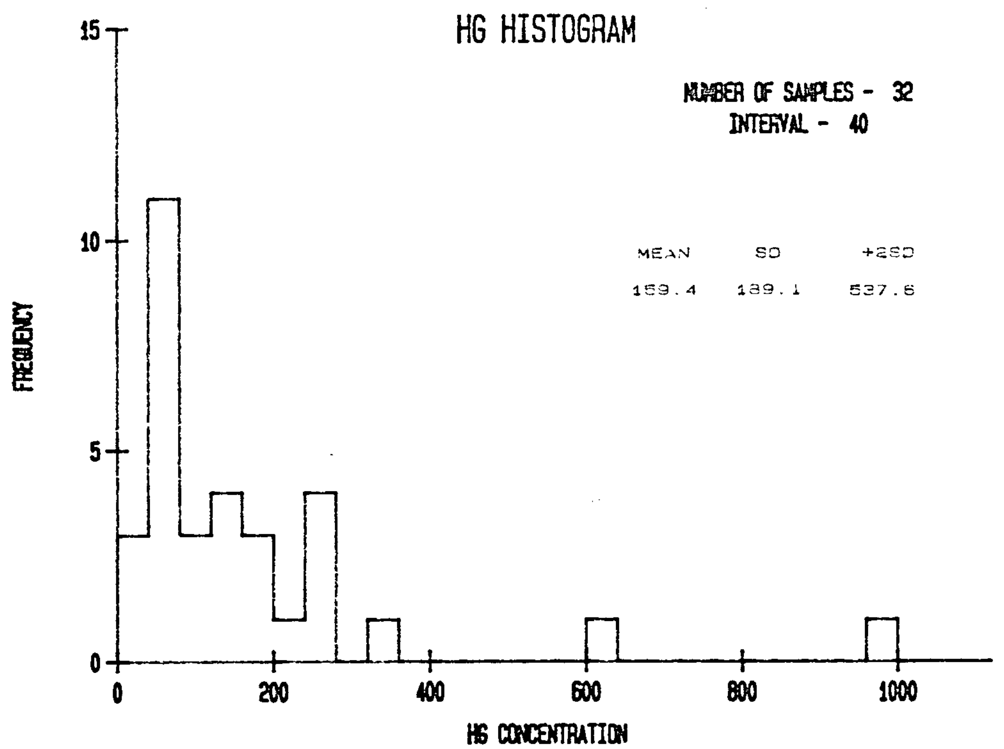

LOG (ZN) HISTOGRAM
NUMBER OF SAMPLES - 33
INTERVAL - 20
FREQUENCY
LOG (ZN) CONCENTRATION

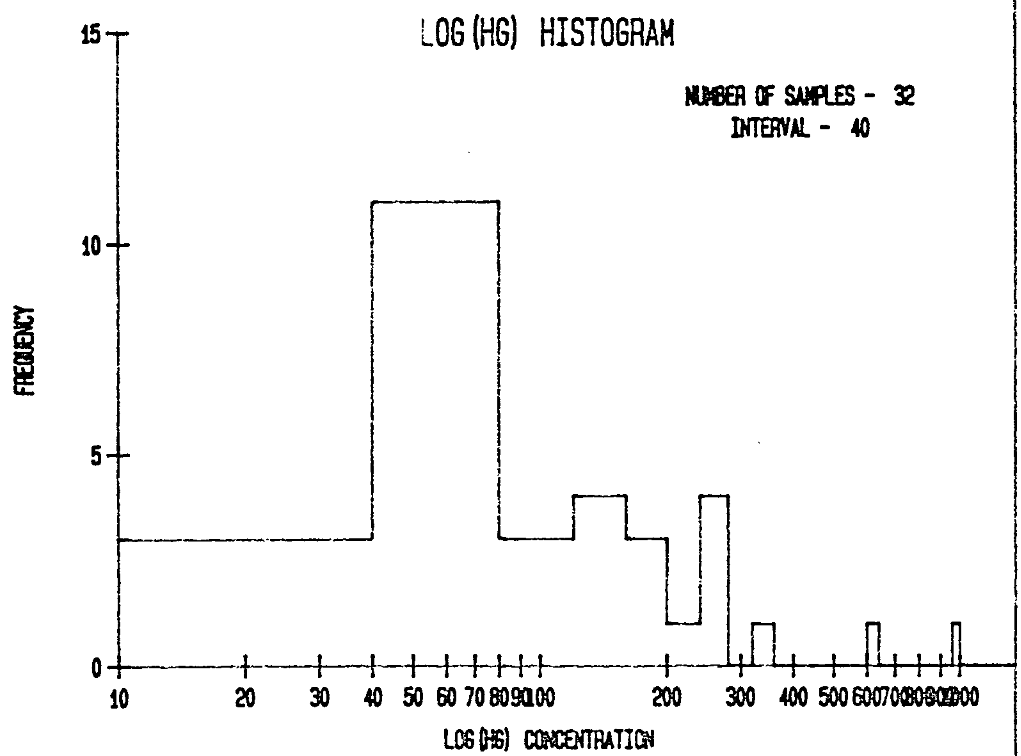

AG HISTOGRAM
NUMBER OF SAMPLES - 33
INTERVAL - .2
MEAN SD +2SD
0.6 0.4 1.4
FREQUENCY
12
9
6
3
0
0 .5 1 1.5 2 2.5 3
AG CONCENTRATION

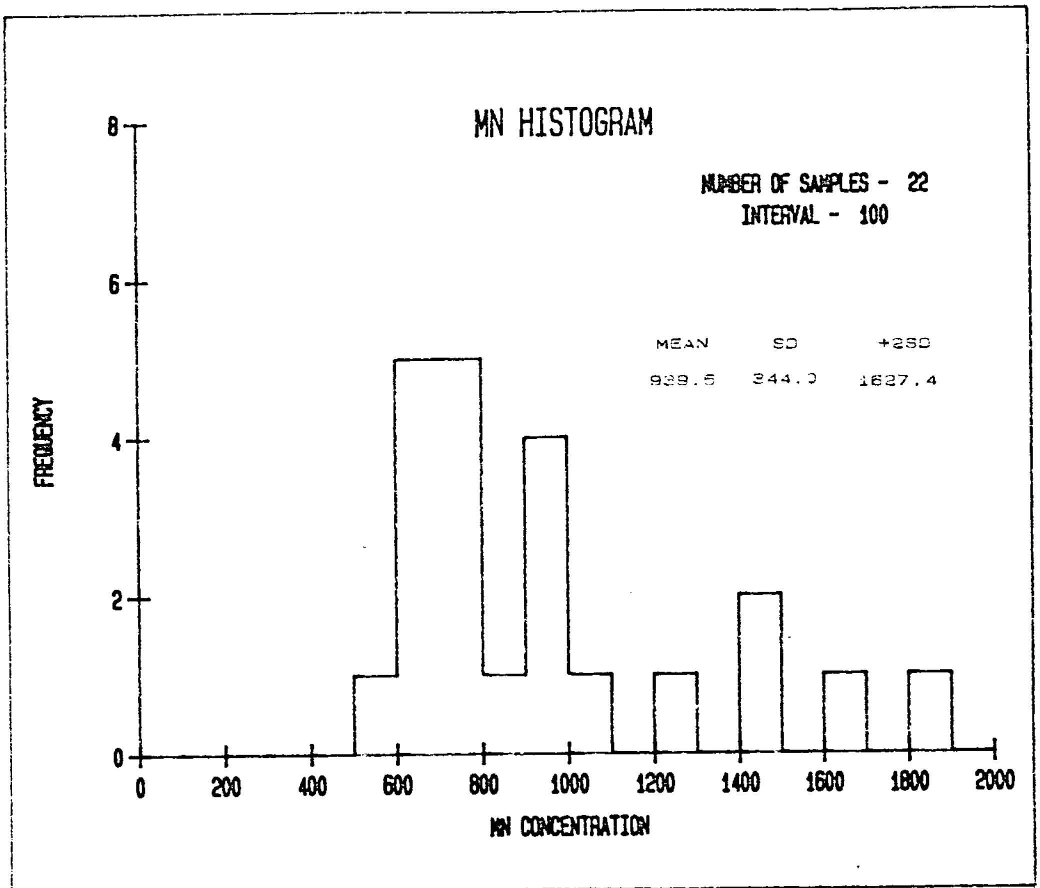

LOG (AG) HISTOGRAM
NUMBER OF SAMPLES - 33
INTERVAL - .2
FREQUENCY
12
9
6
3
0
.01 .02 .03 .04 .05 .06 .07 .08 .09 1 .2 .3 .4 .5 .6 .7 .8 .9 1 2 3
LOG (AG) CONCENTRATION


AS HISTOGRAM
NUMBER OF SAMPLES - 33
INTERVAL - 40
MEAN SD +2SD
126.4 195.2 516.8
FREQUENCY
20
15
10
5
0
0 100 200 300 400 500 600 700 800 900
AS CONCENTRATION

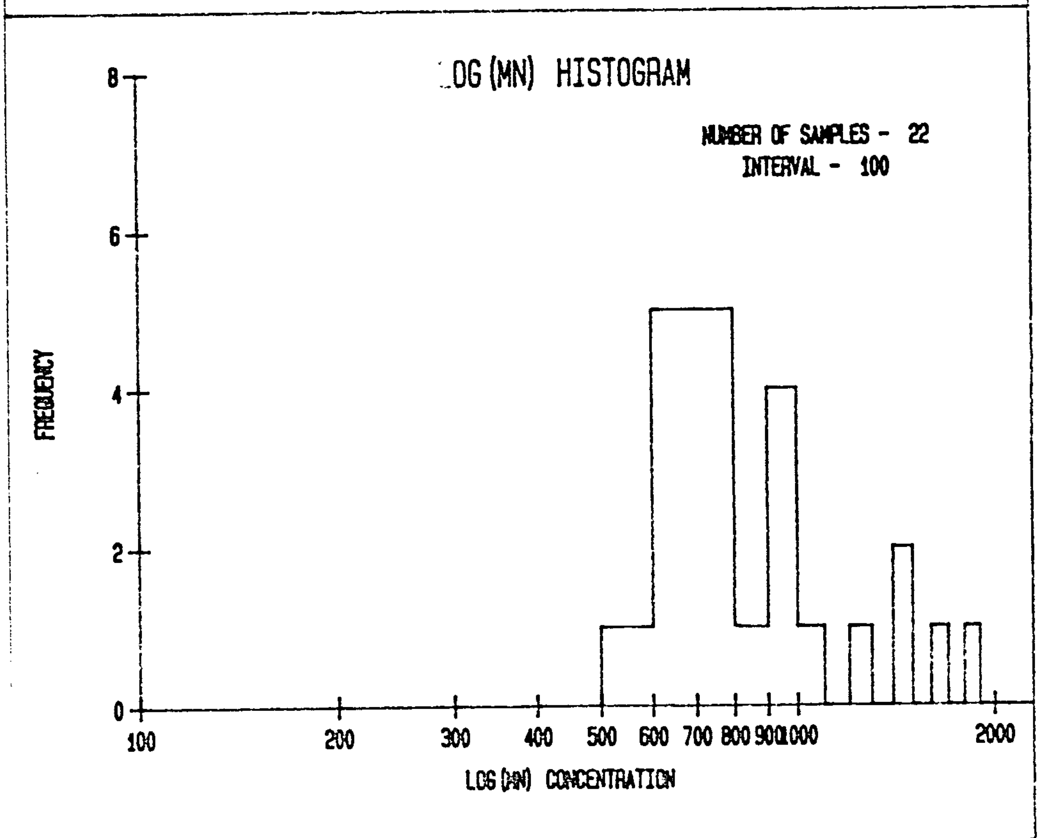

LOG (AS) HISTOGRAM
NUMBER OF SAMPLES - 33
INTERVAL - 40
FREQUENCY
20
15
10
5
0
10 20 30 40 50 60 70 80 90 100 200 300 400 500 600 700 800
LOG (AS) CONCENTRATION


HG HISTOGRAM
NUMBER OF SAMPLES - 32
INTERVAL - 40
MEAN SD +2SD
159.4 189.1 537.6
FREQUENCY
0
5
10
15
0 200 400 600 800 1000
HG CONCENTRATION

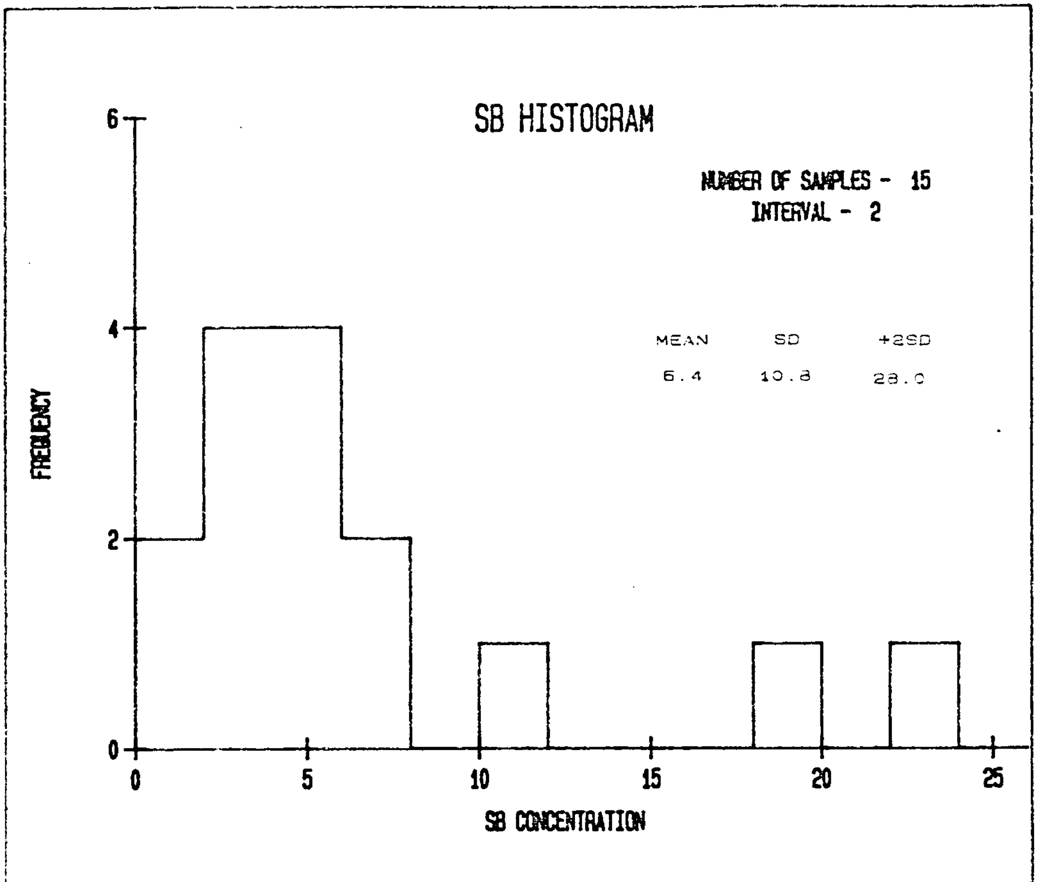

LOG (HG) HISTOGRAM
NUMBER OF SAMPLES - 32
INTERVAL - 40
FREQUENCY
0
5
10
15
10 20 30 40 50 60 70 80 90 100 200 300 400 500 600 700 800 900 1000
LOG (HG) CONCENTRATION

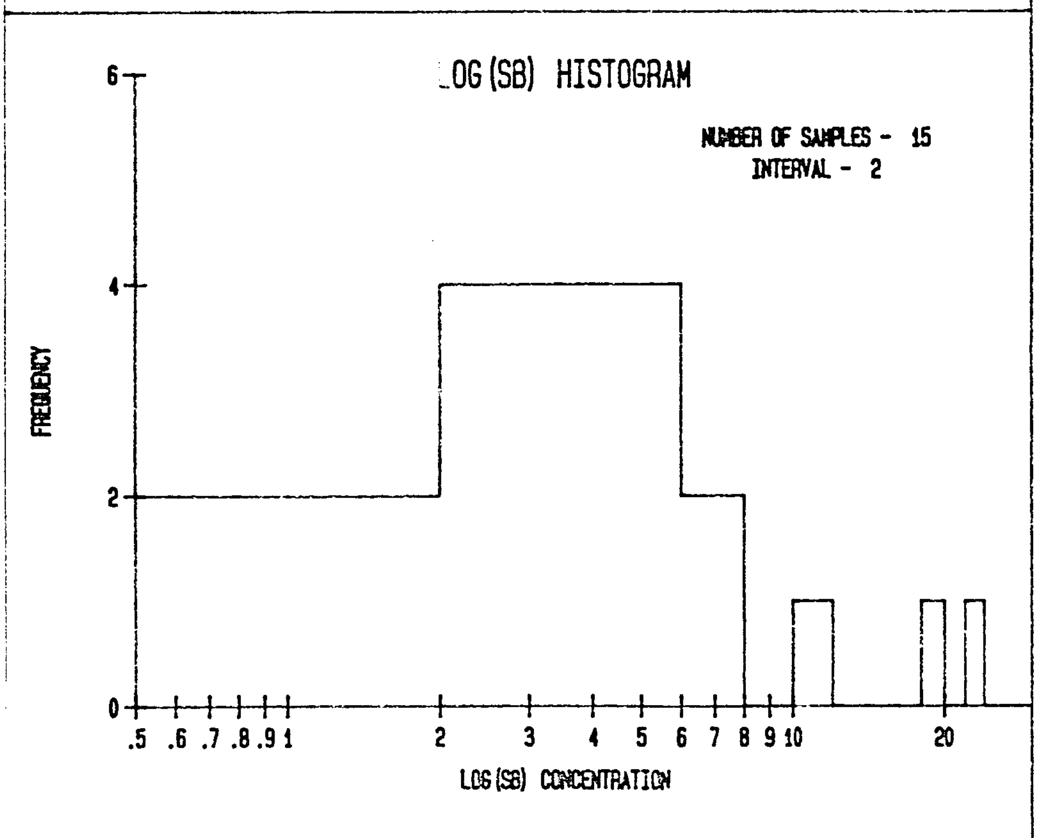


MN HISTOGRAM
NUMBER OF SAMPLES - 22
INTERVAL - 100
MEAN SD +2SD
939.5 344.0 1627.4
FREQUENCY
0
2
4
6
8
0 200 400 600 800 1000 1200 1400 1600 1800 2000
MN CONCENTRATION



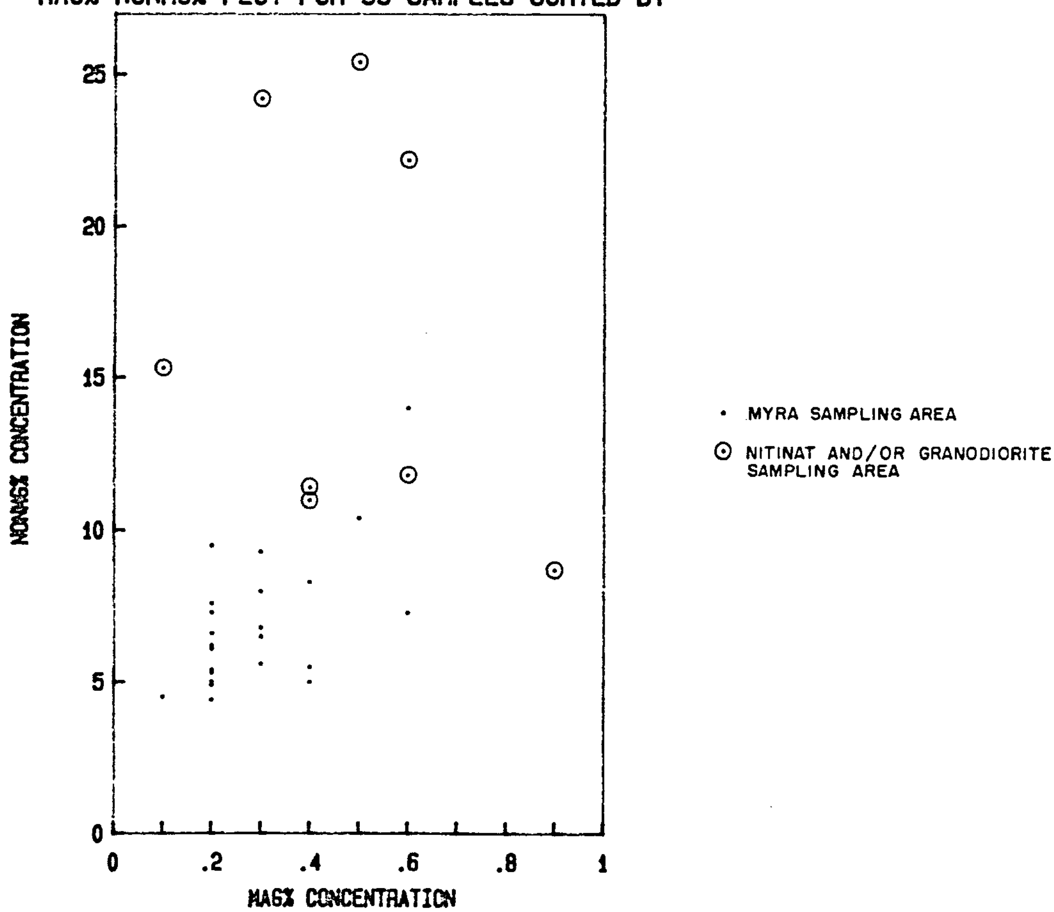
LOG (MN) HISTOGRAM
NUMBER OF SAMPLES - 22
INTERVAL - 100
FREQUENCY
0
2
4
6
8
100 200 300 400 500 600 700 800 900 1000 2000
LOG (MN) CONCENTRATION


SB HISTOGRAM
NUMBER OF SAMPLES - 15
INTERVAL - 2
MEAN SD +2SD
6.4 10.8 28.0
FREQUENCY
0 2 4 6
0 5 10 15 20 25
SB CONCENTRATION


LOG (SB) HISTOGRAM
NUMBER OF SAMPLES - 15
INTERVAL - 2
FREQUENCY
0 2 4 6
.5 .6 .7 .8 .9 1 2 3 4 5 6 7 8 9 10 20
LOG (SB) CONCENTRATION

SCATTER DIAGRAM

MAG%-NONMG% PLOT FOR 33 SAMPLES SORTED BY



APPENDIX F

Cost Statement

APPENDIX F

COST STATEMENT

On Property Costs

1)	Salaries:	P. Cowley	8 days @ $173/day	=	$ 1,384.00
		F. Gatchalian	3 days @ $255/day	=	765.00
		G. Holland	3 days @ $177/day	=	531.00
		D. Brabec	2 days @ $233/day	=	466.00
					$ 3,146.00
2)	Contractors: Questar Surveys Ltd. 768 Km				$135,204.00
3)	Labs: Chemex Labs Ltd. (24 silt, 33 heavies, 71 rocks)				$ 2,792.72
4)	Transportation Costs: gasoline and repairs				$ 275.61
5)	Accommodations: 16 man days @ $40.00/day				$ 640.00
					$142,058.33

Off Property Costs:

1)	Report Preparation (including salaries and materials)	$ 5,673.37
	Total Property Costs	$147,731.70

APPENDIX G

Statement of Qualifications

APPENDIX G

Statement of Qualifications

I, Paul Stuart Cowley, of 107-2280 Cornwall Street, Vancouver, British Columbia, do hereby certify that:

I am a graduate of the University of British Columbia, with a Bachelor of Science Degree in Geology, 1979.

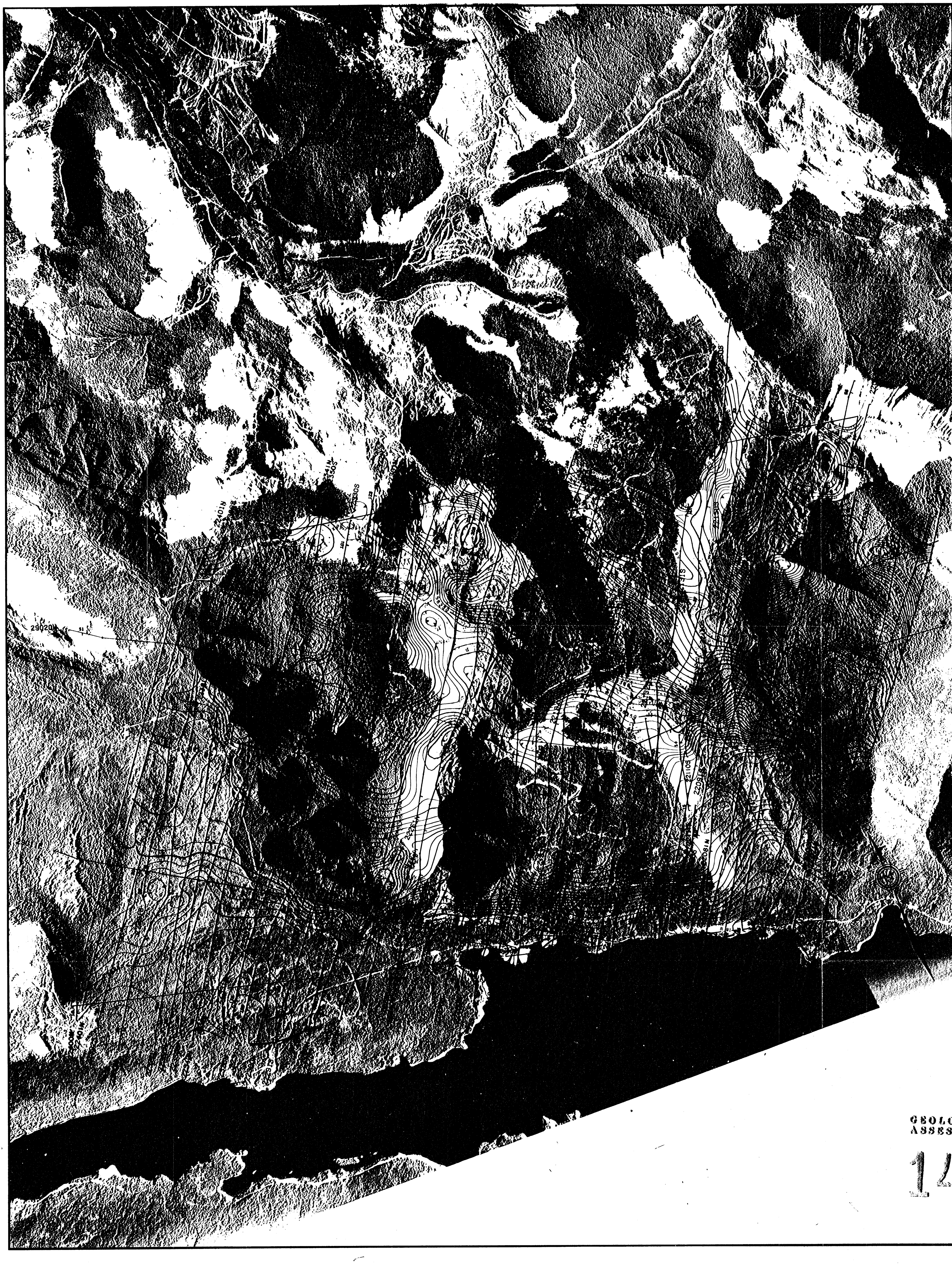
I was employed as a temporary Geological Assistant during the 1977 and 1978 field seasons by Denison Mines and B.C. MEMPR.

Since graduation, I have been engaged in coal exploration in B.C., Alberta and NWT, and mineral exploration in Chile and B.C. for Utah Mines Ltd.

I am a fellow of the Geological Association of Canada.

Paul S. Cowley
Geologist

Vancouver, BC



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.)

MAGNETIC CONTOURS

10 Gamma Contour Line

50 Gamma Contour Line

250 Gamma Contour Line

Magnetic Depression

1 Gamma = 1 Nanotesla in SI Units

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)

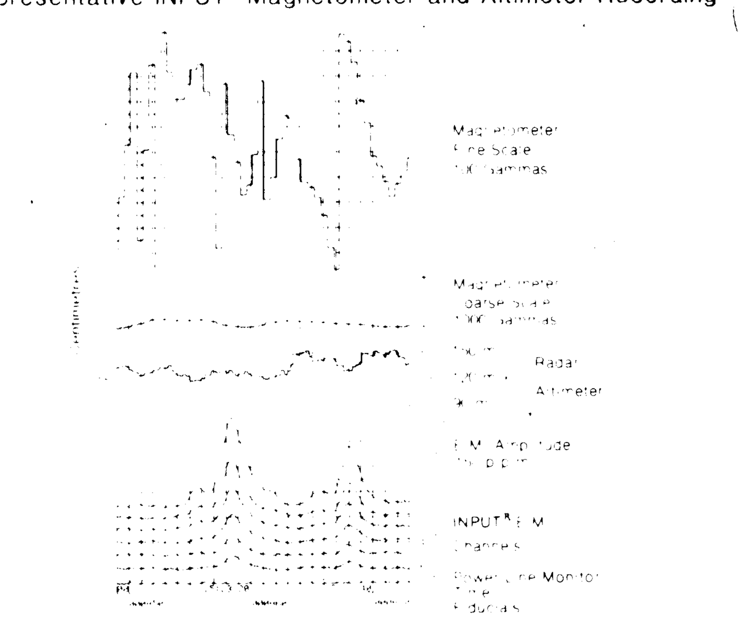
20 Selected Zone, with reference number

Conductive Zone

Fault Zone

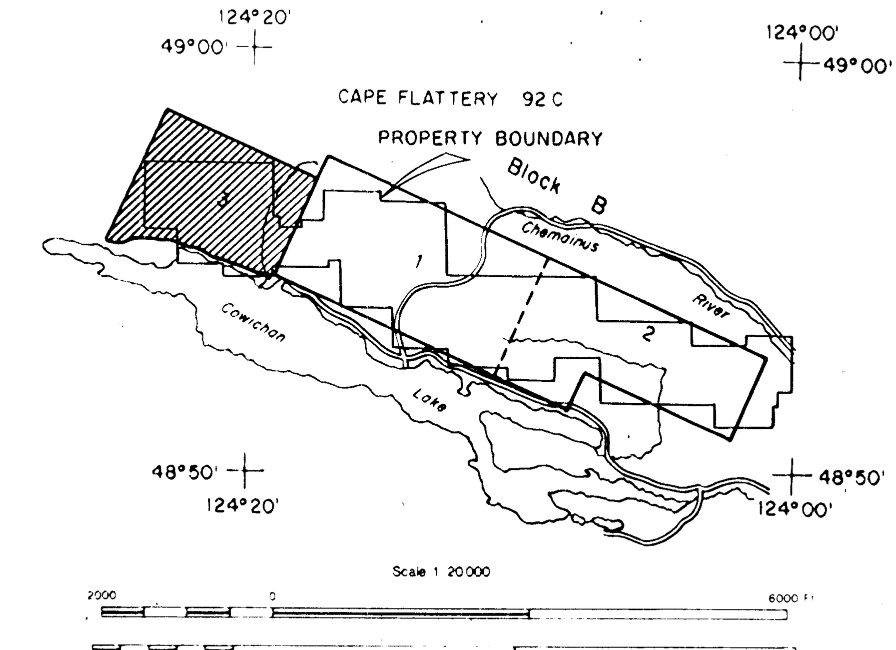
A Channel 1 Half-Peak Width

Representative INPUT Magnetometer and Altimeter Recording



DESCRIPTIVE NOTES

INTERPRETATION REFERENCES

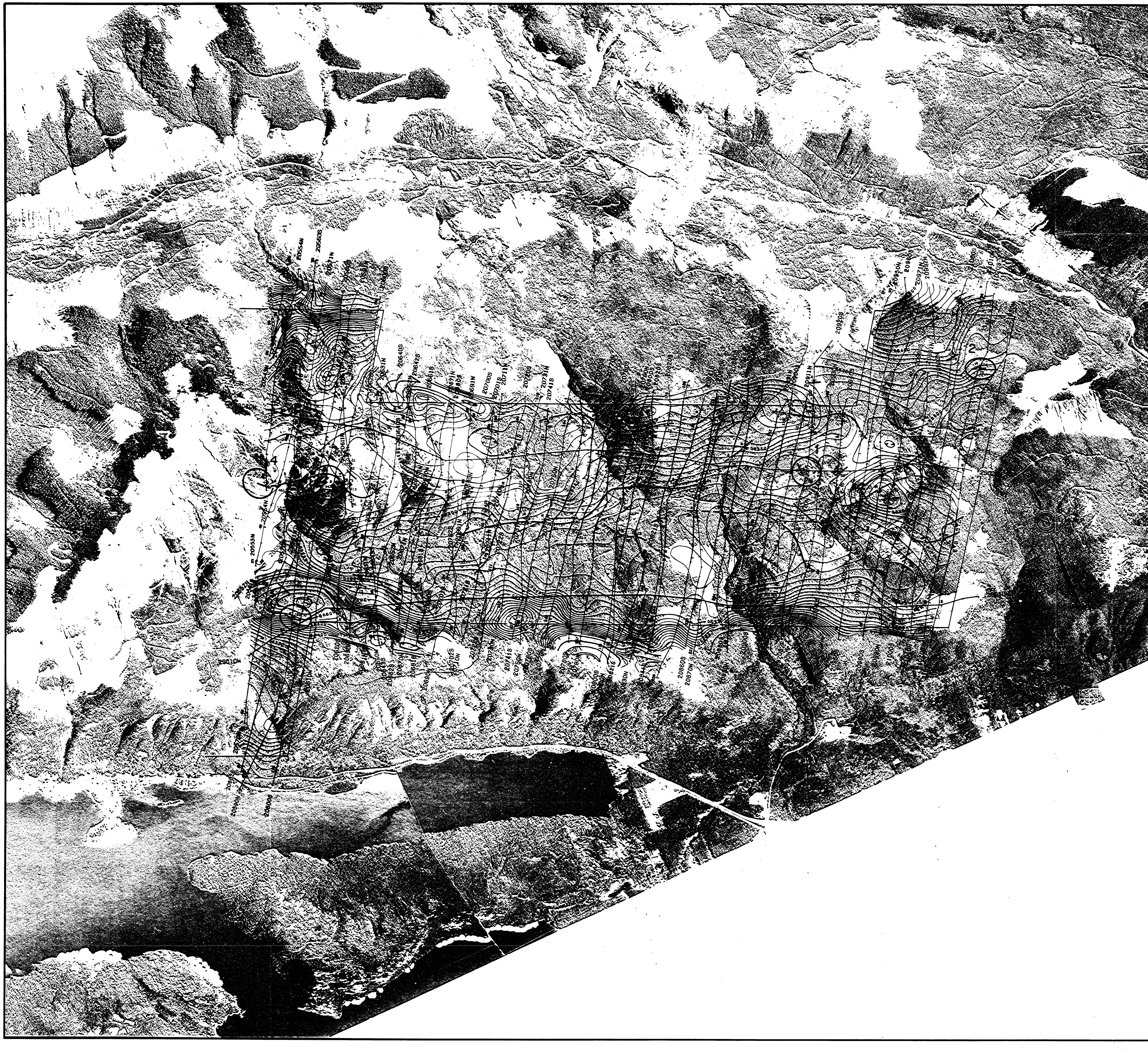


HELICOPTER MK VI INPUT® SURVEY TOTAL MAGNETIC INTENSITY SURVEY
UTAH MINES LTD.
STRIKER PROPERTY
Province of BRITISH COLUMBIA

FILE NO	SHEET NO.	DATE	COMPILED BY
26H268	3 of 3	June 1984	Questor Surveys Limited

Questor Surveys Limited
Mississauga Ontario Canada

PLATE-3



INPUT* PEAK RESPONSE SYMBOLS 2ms PULSF

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

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

Poorly Defined Response

Ch. 2 Amplitude (p.p.m.)

GEOLOGICAL BRANCH ASSESSMENT REPORT

14,302

MAGNETIC CONTOURS

10 Gamma Contour Line

50 Gamma Contour Line

250 Gamma Contour Line

Magnetic Depression

1 Gamma = 1 Nanotesla in SI Units

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)

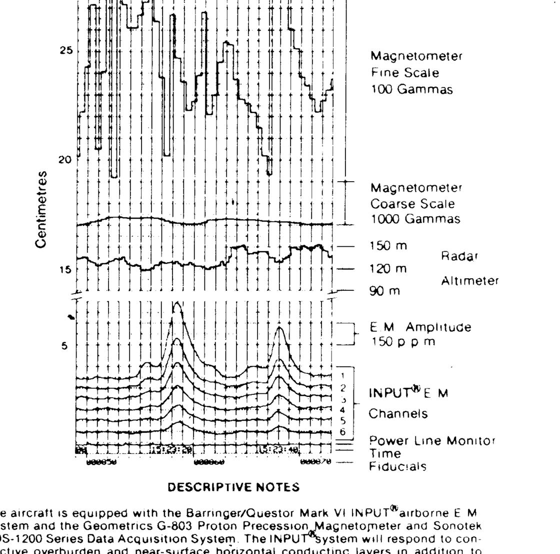
20 Selected Zone, with reference number

Conductive Zone

Fault Zone

A Channel 1 Half-Peak Width

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.

* Registered Trade Mark of Barringer Research Limited

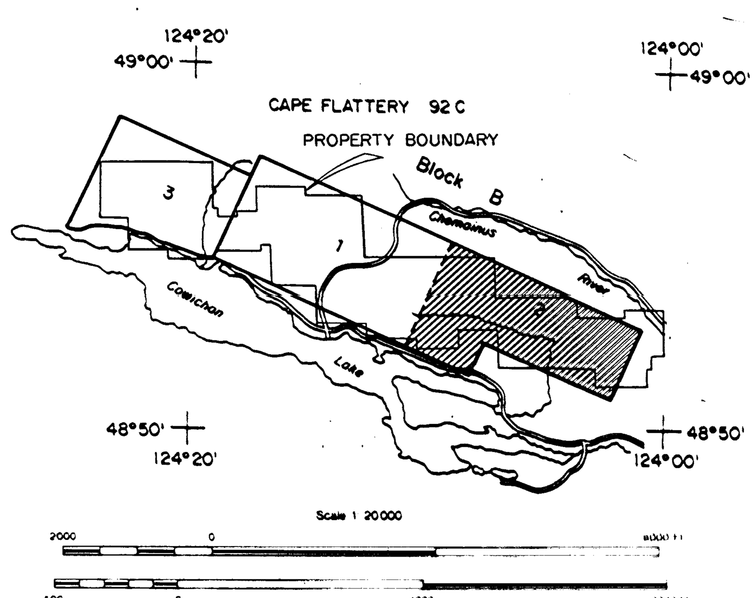
INTERPRETATION REFERENCES

Becker, A., Gauvreau, C., and Collett, L.S.
1972 Scale Model Study of Time Domain Electromagnetic Response of Tabular Conductors. Canadian Mining and Metallurgical Bulletin, Volume 65, No. 725, p. 90-96

Dyck, A.V., Becker, A., and Collett, L.S.
1974 Surficial Conductivity Mapping with the Airborne INPUT* System. Canadian Mining and Metallurgical Bulletin, Volume 67, No. 744, p. 104-109

Lazenby, P.G.
1973 New Developments in the INPUT* Airborne E M System. Canadian Mining and Metallurgical Bulletin, Volume 66, No. 732, p. 96-104

Nelson, Philip, H.
1973 Model Results and Field Checks for a Time-Domain Airborne E.M. System. Geophysics, Volume 38, No. 5, p. 845-853



Scale 1: 20000

2000 0 8000 Ft

500 0 1000 3000 M

HELICOPTER MK VI INPUT® SURVEY
TOTAL MAGNETIC INTENSITY SURVEY

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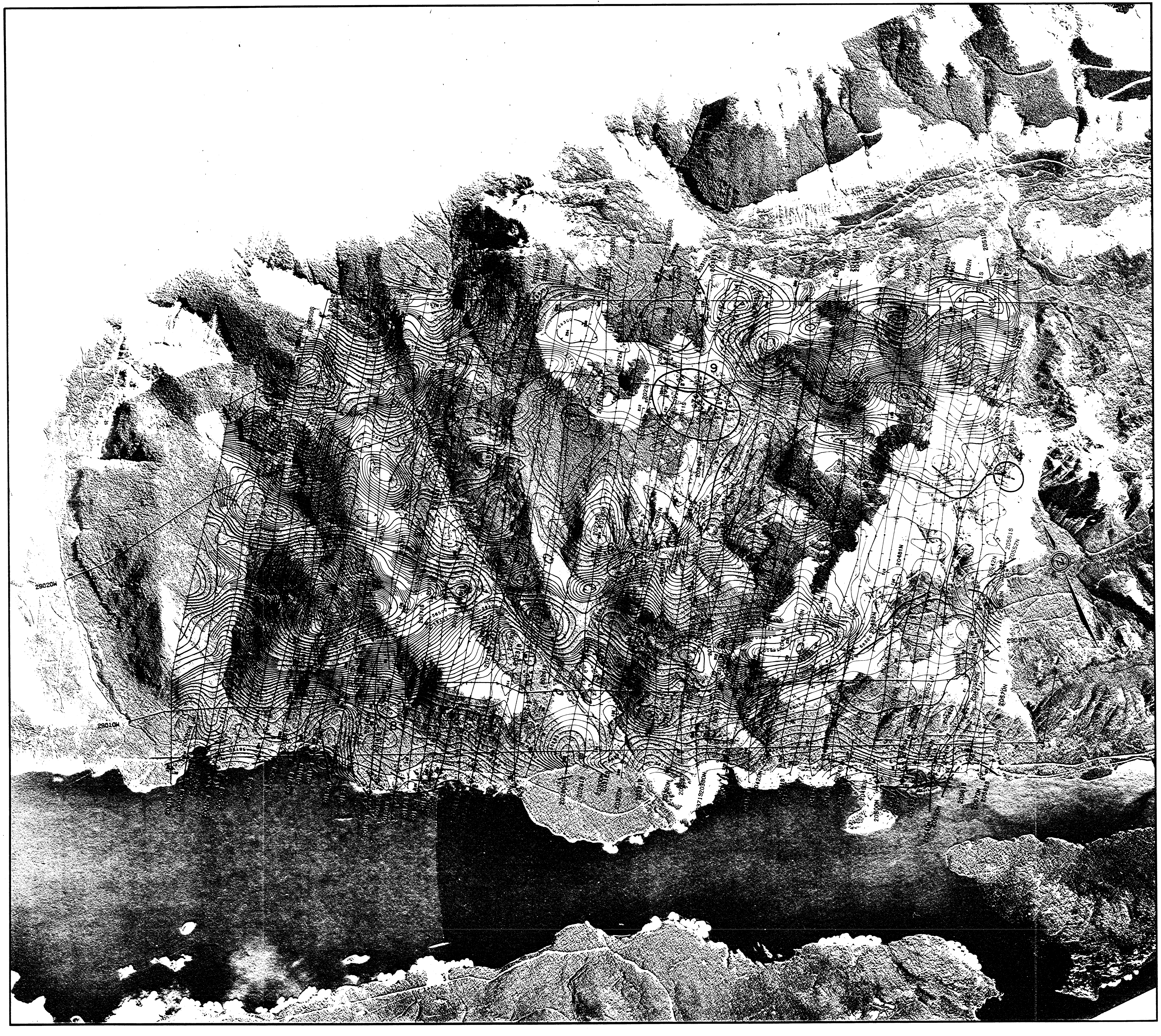
PLATE – 2



INPUT® PEAK RESPONSE SYMBOLS 2ms PULSF

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.)

MAGNETIC CONTOURS

10 Gamma Contour Line

50 Gamma Contour Line

250 Gamma Contour Line

Magnetic Depression

1 Gamma = 1 Nanotesla in SI Units

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)

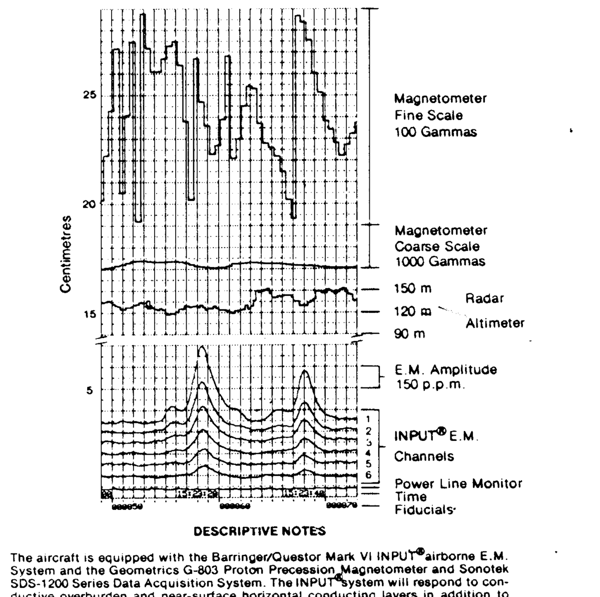
20 Selected Zone, with reference number

Conductive Zone

Fault Zone

A Channel 1 Half-Peak Width

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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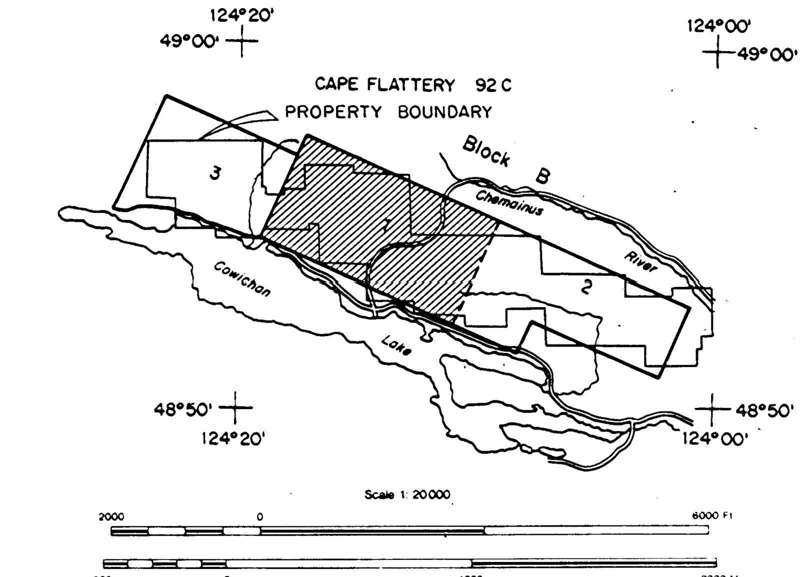

Scale 1: 20000

2000 0 6000 Ft

500 0 1000 2000 M

HELICOPTER MK VI INPUT® SURVEY
TOTAL MAGNETIC INTENSITY SURVEY

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PLATE - 1