Report #1105

DIGHEM^{IV} SURVEY

FOR

821131

MINNOVA INC.

CLISBAKO, BRITISH COLUMBIA

NTS 93B/12, 13 & 93C/9, 16

DIGHEM SURVEYS & PROCESSING INC.
MISSISSAUGA, ONTARIO
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SUMMARY

This report describes the logistics and results of a DIGHEM^{IV} airborne geophysical survey carried out for Minnova Inc. over a property located near Clisbako River, British Columbia. Total coverage of the survey block amounted to 793 km. The survey was flown from February 7 to February 20, 1991.

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

The survey property contains several anomalous features, many of which are considered to be of moderate to high priority as exploration targets. Most of the inferred

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

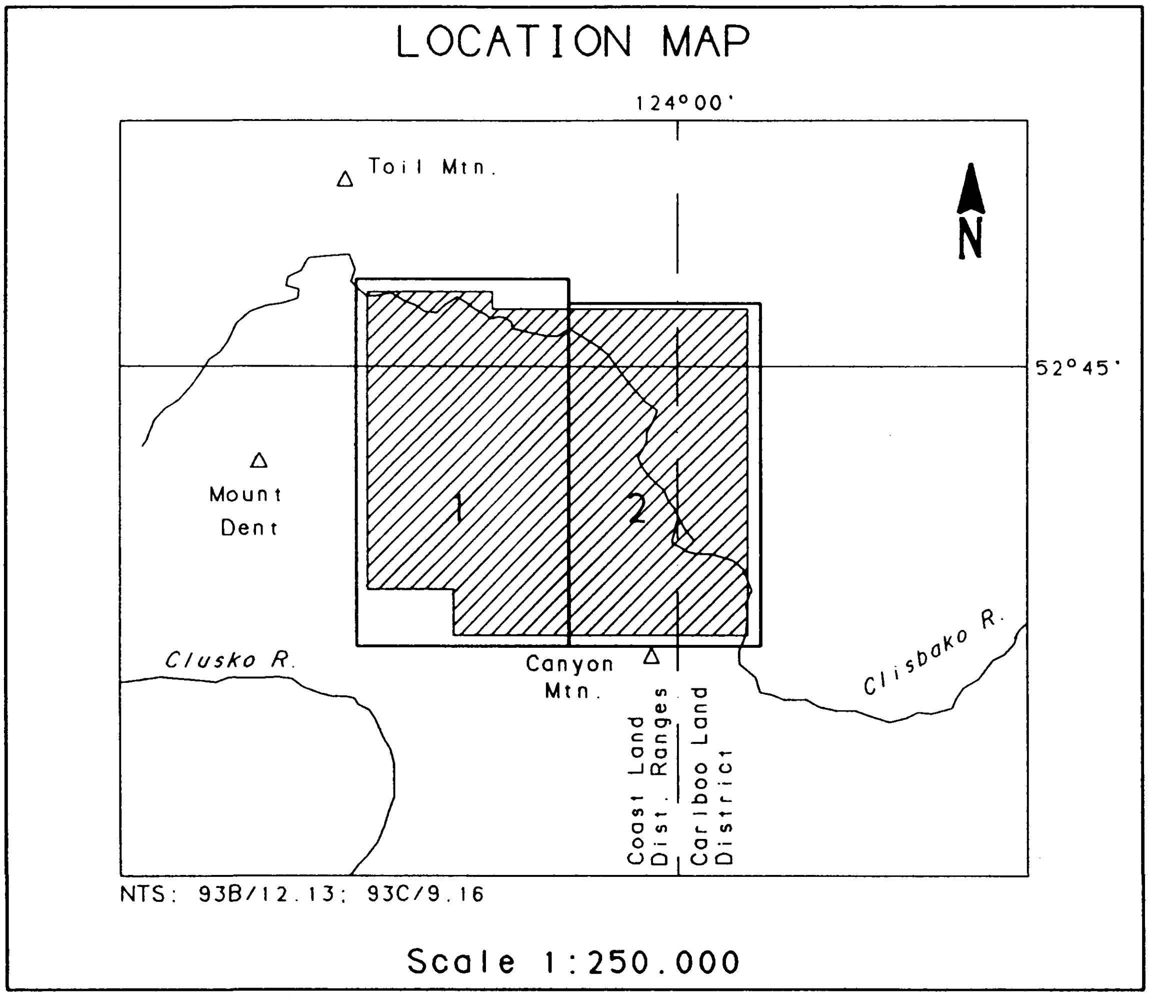

FIGURE 1

THE SURVEY AREA

CONTENTS

INTRODUCTION

A DIGHEM^{IV} electromagnetic/resistivity/magnetic/VLF survey was flown for Minnova Inc. from February 7 to February 20, 1991, over a survey block located near Clisbako River, British Columbia. The survey area can be located on NTS map sheets 93B/12, 13 and 93C/9, 16. (See Figure 1).

Survey coverage consisted of approximately 793 line-km, including tie lines. Flight lines were flown in an azimuthal direction of 90°/270° with a line separation of 150 metres.

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

The instrumentation was installed in an Aerospatiale AS350B turbine helicopter (Registration C-FSWH) which was provided by Hi-Wood Helicopters Ltd. The helicopter flew at an average airspeed of 117 km/h with an EM bird height of approximately 30 m.

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

SURVEY EQUIPMENT

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

Electromagnetic System

Model:	DIGHEM^{IV}
Type:	Towed bird, symmetric dipole configuration operated at a nominal survey altitude of 30 metres. Coil separation is 8 metres for 900 Hz and 7200 Hz, and 6.3 metres for the 56,000 Hz coil-pair.
Coil orientations/frequencies:	coaxial / 900 Hz coplanar/ 900 Hz coplanar/ 7,200 Hz coplanar/56,000 Hz
Channels recorded:	4 inphase channels 4 quadrature channels 3 monitor channels
Sensitivity:	0.2 ppm at 900 Hz 0.4 ppm at 7,200 Hz 1.0 ppm at 56,000 Hz
Sample rate:	10 per second

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

Magnetometer

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

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

Magnetic Base Station

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

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

VLF System

Manufacturer:	Herz Industries Ltd.	
Type:	Totem-2A	
Sensitivity:	0.1%	
Stations:	Seattle, Washington;	NLK, 24.8 kHz
	Annapolis, Maryland;	NSS, 21.4 kHz
	Lualualei, Hawaii;	NPM, 23.4 kHz

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

Radar Altimeter

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

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

Analog Recorder

Manufacturer: RMS Instruments

Type: DGR33 dot-matrix graphics recorder

Resolution: 4x4 dots/mm

Speed: 1.5 mm/sec

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

Digital Data Acquisition System

Manufacturer: RMS Instruments

Type: DGR 33

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

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

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

Table 2-1. The Analog Profiles

Channel Name	Parameter	Scale units/mm	Designation on digital profile
1X9I	coaxial inphase (900 Hz)	2.5 ppm	CXI (900 Hz)
1X9Q	coaxial quad (900 Hz)	2.5 ppm	CXQ (900 Hz)
2P9I	coplanar inphase (900 Hz)	2.5 ppm	CPI (900 Hz)
2P9Q	coplanar quad (900 Hz)	2.5 ppm	CPQ (900 Hz)
3P7I	coplanar inphase (7200 Hz)	5 ppm	CPI (7200 Hz)
3P7Q	coplanar quad (7200 Hz)	5 ppm	CPQ (7200 Hz)
4P5I	coplanar inphase(56000 Hz)	10 ppm	CPI (56 kHz)
4P5Q	coplanar quad (56000 Hz)	10 ppm	CPQ (56 kHz)
ALTR	altimeter	3 m	ALT
CMGC	magnetics, coarse	20 nT	MAG
CMGF	magnetics, fine	2.0 nT	
VF1T	VLF-total: primary stn.	2%	
VF1Q	VLF-quad: primary stn.	2%	
VF2T	VLF-total: secondary stn.	2%	
VF2Q	VLF-quad: secondary stn.	2%	
CXSP	coaxial spherics monitor		CXS
CXPL	coaxial powerline monitor		CXP
CPPL	coplanar powerline monitor		CPP

Table 2-2. The Digital Profiles

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

Tracking Camera

Type: Panasonic Video

Model: AG 2400/WVCD132

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

Navigation System

Model: Del Norte 547

Type: UHF electronic positioning system

Sensitivity: 1 m

Sample rate: 2 per second

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

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

PRODUCTS AND PROCESSING TECHNIQUES

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

Base Maps

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

Electromagnetic Anomalies

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

Table 3-1 Plots Available from the Survey

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

Multi-channel stacked profiles	Worksheet profiles	10,000
	Interpreted profiles	-

N/A Not available
- Not required under terms of the survey contract
* Recommended
10,000 Scale of delivered map, i.e, 1:10,000

Notes:

- Inked contour maps are provided on transparent media and show flight lines, EM anomalies and suitable registration. Two paper prints of each map are supplied.

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

Resistivity

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

EM Magnetite

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

Total Field Magnetics

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

Enhanced Magnetics

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

Magnetic Derivatives

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

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

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

VLF

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

Multi-channel Stacked Profiles

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

Contour, Colour and Shadow Map Displays

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

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

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

SURVEY RESULTS

GENERAL DISCUSSION

The survey results are presented on two separate map sheets for each parameter at a scale of 1:10,000. Table 4-1 summarizes the EM responses in the survey area, with respect to conductance grade and interpretation.

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

TABLE 4-1

EM ANOMALY STATISTICS

CLISBAKO

CONDUCTOR GRADE	CONDUCTANCE RANGE SIEMENS (MHOS)	NUMBER OF RESPONSES
7	> 100	0
6	50 - 100	0
5	20 - 50	5
4	10 - 20	19
3	5 - 10	60
2	1 - 5	349
1	< 1	101
*	INDETERMINATE	170
TOTAL		704

CONDUCTOR MODEL	MOST LIKELY SOURCE	NUMBER OF RESPONSES
D	DISCRETE BEDROCK CONDUCTOR	14
B	DISCRETE BEDROCK CONDUCTOR	172
S	CONDUCTIVE COVER	404
H	ROCK UNIT OR THICK COVER	110
E	EDGE OF WIDE CONDUCTOR	4
TOTAL		704

(SEE EM MAP LEGEND FOR EXPLANATIONS)

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

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

Magnetics

A Scintrex proton precession magnetometer was operated at the survey base to record diurnal variations of the earth's magnetic field. The clock of the base station was synchronized with that of the airborne system to permit subsequent removal of diurnal drift.

The background magnetic level has been adjusted to match the International Geomagnetic Reference Field (IGRF) for the survey area. The IGRF gradient across the survey block is left intact.

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

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

There is ample evidence on the magnetic maps which suggests that the survey area has been subjected to deformation and/or alteration. These structural complexities are evident on the contour maps as variations in magnetic intensity, irregular patterns, and as offsets or changes in strike direction.

The eastern portion of the survey block exhibits the greatest complexity. Offsets and truncations in the contour patterns give many magnetic features in this portion of the survey block a segmented appearance.

Several sub-parallel possible linear structural features strike northeast/southwest across the eastern portion of the survey area. At least two possible structural breaks, inferred from the magnetic data, strike northwest/southeast across this complex magnetic zone. The northeast/southwest striking linears intersect the northwest/southeast trending structural features, and in places seem to truncate or offset them.

Magnetic features in the southern portion of the survey area are somewhat less complex and have a more continuous appearance. The highest magnetic values of over 58,500 nT are located in the southern region of the map within two magnetic trends centered at fiducial 4570 on line 10740 and fiducial 3290 on line 10701.

The west-central region of the survey block exhibits relatively low gradient magnetics. Several plug-like features are situated within this less magnetic zone. One such feature is centered at fiducial 5240 on line 10351. It also contains magnetic values of over 58,500 nT. The negative inphase values displayed on the digital profiles indicate that this feature is magnetite-rich.

Another moderately magnetic zone which is located within the less magnetic region is centered at fiducial 6203 on line 10190. This feature has a very segmented appearance. Magnetic intensity and anomaly shape vary greatly from line to line in the vicinity of this feature.

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

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

VLF

VLF results were obtained from the transmitting stations at Seattle, Washington (NLK - 24.8 kHz), Annapolis, Maryland (NSS - 21.4 kHz), and Lualualei, Hawaii (NPM - 23.4 kHz). The VLF maps show the contoured results of the filtered total field from Lualualei for most of the area. When Lualualei was not transmitting, signals from Annapolis were used to fill in the gap between lines 10081 and 10201, and from Seattle between lines 10500 and 10560.

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

The VLF parameter does not normally provide the same degree of resolution available from the EM data. Closely-spaced conductors, conductors of short strike length or conductors which are poorly coupled to the VLF field, may escape detection with this method. Erratic signals from the VLF transmitters can also give rise to strong, isolated anomalies which should be viewed with caution. In general, the VLF trends are weak and poorly defined. They generally strike north/south. The VLF results are probably adversely affected by conductive overburden as the area seems to exhibit a conductive surficial layer. The filtered total field VLF contours are presented on the base maps with a contour interval of one percent.

Resistivity

Resistivity maps, which display the conductive properties of the survey area, were produced from the 900 Hz, 7200 Hz and 56,000 Hz coplanar data. In general, the resistivity patterns show some agreement with the magnetic trends. This suggests that several anomalous resistivity zones are probably related to bedrock features, rather than conductive overburden. There are some areas, however, where contour patterns appear to be strongly influenced by conductive surficial material. Several of the possible structural breaks, inferred from the magnetic data are evident on the resistivity maps as offsets or truncations in the resistivity contours.

In general, resistivities decrease as the frequency increases. This suggests that most of the area is covered by a layer of conductive surficial material. The lake and river systems within the area give rise to well-defined resistivity lows.

Other resistivity lows are best defined by the lower frequencies, which suggests that these lows may result from bedrock sources. Some of these resistivity lows are also coincident with lakes or rivers, and may therefore be the result of both surficial and bedrock sources.

An arcuate resistivity low, which is situated over the central portions of lines 10570 through 10650, is best defined on the 900 Hz and 7200 Hz resistivity maps. Many possible bedrock anomalies are located within this conductive zone. The west arm of this feature is coincident with a river and may be adversely affected by conductive surficial material.

Another well-defined resistivity low is situated over the west ends of lines 10081 through 10370. This zone is coincident with a river. The north end of this zone contains several bedrock anomalies and is best defined on the 900 Hz resistivity map. This portion of the conductive zone may result from a combination of surficial and bedrock sources.

The southern end of the zone is evident mainly on the 56,000 Hz resistivity map, which suggests a surficial origin.

Electromagnetics

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

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

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

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

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

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

CONDUCTORS IN THE SURVEY AREA

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

In areas where several conductors or conductive trends appear to be related to a common geological unit, these have been outlined as "zones" on the EM anomaly maps. The zone outlines usually approximate the limits of conductive units defined by the resistivity contours, but may also be related to distinct rock units which may be inferred from the magnetic data.

Sheet 1

Several probable bedrock conductors are situated on sheet 1. Most seem to be associated with resistivity or magnetic contrasts.

Zone A

The limit of this arcuate zone is defined by the 40 ohm-metre contour on the 7200 Hz resistivity map. The "arms" of this zone seem to flank a magnetic feature which trends north/south over lines 10560 through 10720.

Some of the interpreted bedrock anomalies within this zone are associated with magnetic peaks, whereas others seem to be contact features. Conductor 10610E-10650L is situated at the contact of the magnetic zone and a thin magnetic low to the west of this magnetic high. It reflects a probable, moderately weak bedrock source. Anomalies 10630I and 10650K reflect moderately weak bedrock sources coincident with the thin magnetic low. Conductor 10610D-10630H is indicative of a possible bedrock source which is located west of the above anomalies, at the contact of the thin magnetic low with more magnetic material to the west. This conductor is also associated with the resistivity contrast at the western edge of Zone A.

Conductor 10620F-10640G is situated in close proximity to the southern end of the east arm of Zone A. It reflects a possible bedrock source located in the gradient of the magnetic feature associated with this zone.

Zone B

This zone is a large, highly conductive unit located at the western ends of lines 10030 through

10270. The approximate limit of this zone is the 80 ohm-metre contour on the 7200 Hz resistivity map. Its source seems to have both surficial and bedrock components. Most of the interpreted bedrock anomalies reflect moderately weak, single-line responses. None of these anomalies shows direct magnetic correlation, although anomalies 10130B, 10172B, and 10172C all flank a thin, highly magnetic feature.

Conductors 10341A-10380D and 10341B-10380E

These conductive trends reflect moderately strong bedrock sources. They flank a highly conductive zone whose approximate limit is defined by the 60 ohm-metre contour on the 900 Hz resistivity map. This resistivity low is best defined by the 900 Hz resistivity, which suggests its source is within the bedrock. These conductors display no direct magnetic correlation, although they are situated on the west and east flanks of a moderately strong magnetic feature.

Conductors 10230C-10270C, 10230D-10240E and 10250G-10270D

These conductors reflect probable bedrock sources of moderate strength. Conductors 10230C-10270C and 10250G-10270D both strike approximately northwest/southeast. Conductor 10230C-10270C is coincident with a thin magnetic low which also trends northwest/southeast over lines 10230 through 10270. Conductor 10250G-10270D is situated approximately 150 m east of conductive trend 10230C-10270C. It is coincident with a thin magnetic high. This magnetic high seems to be truncated in the vicinity of fiducial 2824 on line 10240 by a circular magnetic low. Conductor 10230D-10240E is coincident with this circular magnetic feature.

Conductors 10161E-10172G, 10161G-10172I, 10172F-10190E, 10172H-10181K and 10181I-10190D, and anomalies 10161D, 10161F, 10181E, 10181F, 10181G and 10181H

These conductors and single line responses have been grouped together because of their proximity to each other. All reflect moderately weak, possible bedrock sources. These anomalies do not give rise to a distinct resistivity low.

Magnetic correlation varies within this group of anomalies. Conductors 10172F-10190E and 10181I-10190D are situated on the east and west flanks respectively of a small magnetic high. Other anomalies are associated with magnetic lows. This group of anomalies seems to be located in the vicinity of the western edge of the magnetically complex area which extends over most of the eastern region of the survey block.

Conductor 10610A-10630D and anomaly 10590C

Conductor 10610A-10630D reflects a possible thin bedrock source of limited strike length. Both this conductor and anomaly 10590C are associated with a strong magnetic low, which extends from fiducial 2417 on line 10590 to the west end of line 10710.

Sheet 2

Many of the anomalies situated on sheet 2 are stronger and better defined than those on sheet 1. Some appear to have spatial relationships to possible structural features.

Conductors 10250L-10270H and 10230H-10240I, and anomalies 10230G and 10270G

These conductors are located in the northeast corner of the survey block. Conductor 10250L-10270H reflects a thin, moderately strong bedrock source. It is coincident with a thin magnetic low. This magnetic low is possibly truncated by a linear structural feature which trends northwest/southeast immediately north of this conductor. Conductor 10230H-10240I and anomaly 10230G are located immediately north of this possible structural break.

Conductors 10650U-10662F, 10670J-10701I and 10662G-10670K, and anomalies 10690O, 10710K, 10710L and 10740G

These conductors are all located in the southeast corner of the survey block. They are all associated with a highly magnetic feature which strikes south from fiducial 4956 on line 10650 to fiducial 2693 on line 10770. Magnetic values of over 57,500 nT are exhibited by this magnetic feature. A possible northwest/ southeast trending structural break truncates this magnetic zone at the north end. Conductor 10662G-

10670K is situated on the east flank of this zone in close proximity to the possible structural feature.

Anomalies 10690O, 10710L and 10740G all reflect possible bedrock sources situated on the east flank of this magnetic zone.

Conductor 10670J-10701I reflects a strong, thin bedrock source. It is located at the contact of the magnetic high and a thin magnetic low to the west. A possible structural feature strikes northwest/southeast immediately south of this conductor. Anomalies 10650T and 10681D are located north of this break. Conductor 10670J-10701I is also situated at a resistivity contrast.

Conductor 10650U-10662F is indicative of a possible bedrock source of limited strike length. It is associated with the east flank of a thin magnetic unit north of the highly magnetic feature. It is separated from this highly magnetic zone by a thin magnetic low.

Zone C

This zone is situated immediately north of Zone A. The approximate limit of this zone, as with Zone A, is defined by the 40 ohm-metre contour on the 7200 Hz resistivity map. Several moderately strong bedrock conductors are situated within this zone. Magnetic correlation varies within the zone.

Conductors 10690H-10701C, 10690H-10701D and 10730F-10740D, and anomalies 10670D, 10670E, 10670F, 10680G and 10680H

The conductors and anomalies are situated in close proximity to a possible northwest/southeast trending linear structural feature. Only conductor 10730F-10740D exhibits direct magnetic correlation. It is coincident with a moderately strong magnetic peak.

Conductor 10750D-10770C and anomaly 10710E

These probable bedrock responses are associated with a magnetic unit which extends from fiducial 3584 on line 10710 to fiducial 2817 on line 10770. These responses are coincident with the peak of this magnetic zone.

BACKGROUND INFORMATION

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

ELECTROMAGNETICS

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

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

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

Geometric interpretation

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

Discrete conductor analysis

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

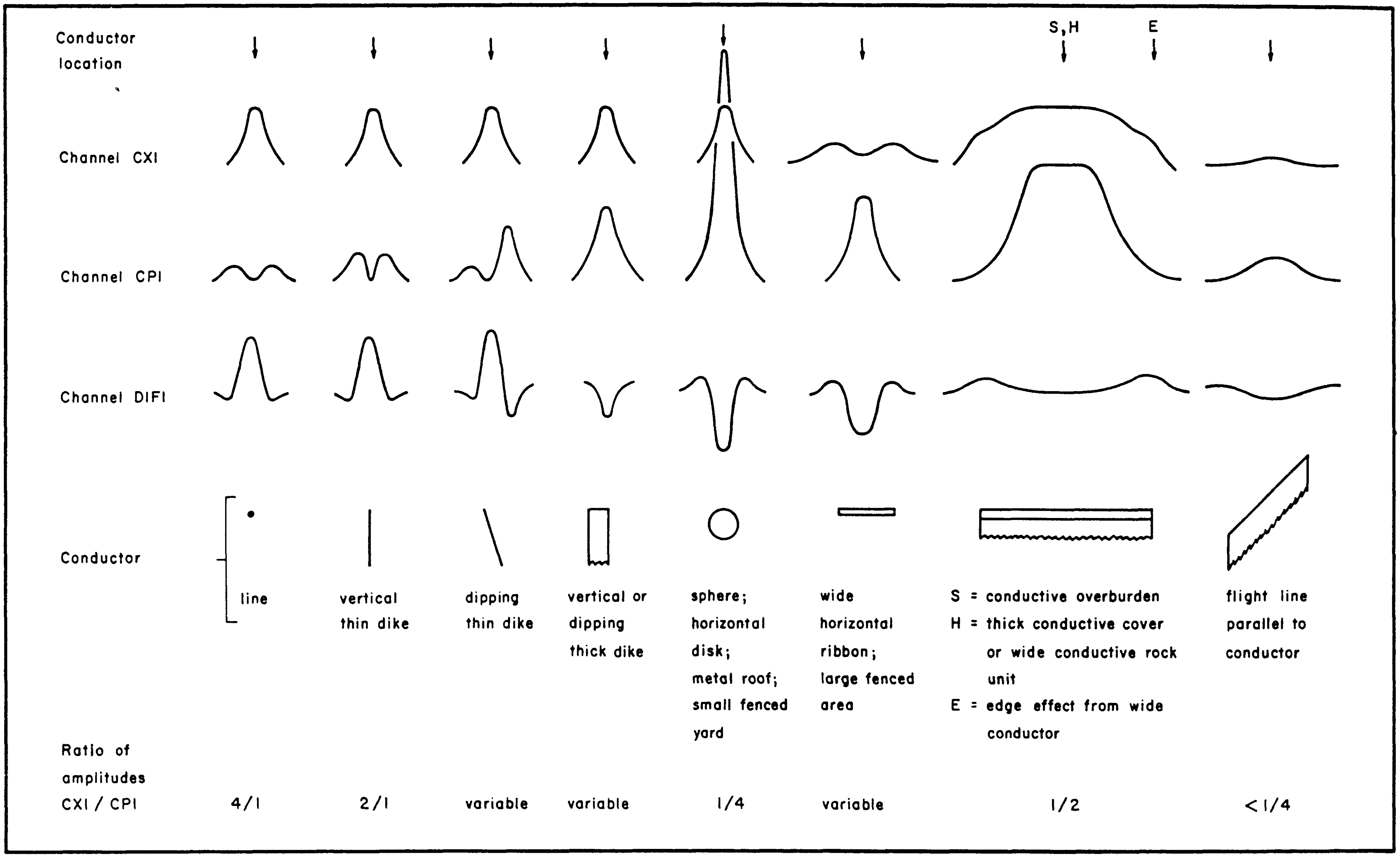

Fig. 5-1 Typical DIGHEM anomaly shapes

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

Table 5-1. EM Anomaly Grades

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Questionable Anomalies

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

The thickness parameter

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

Resistivity mapping

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

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

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

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

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

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

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

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

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

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

Interpretation in conductive environments

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

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

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

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

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

Reduction of geologic noise

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

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

EM magnetite mapping

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

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

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

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

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

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

Recognition of culture

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

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

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

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

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[4] See Figure 5-1 presented earlier.

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

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

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

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

geologic conductor coincided with the cultural line.

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

MAGNETICS

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

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

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

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

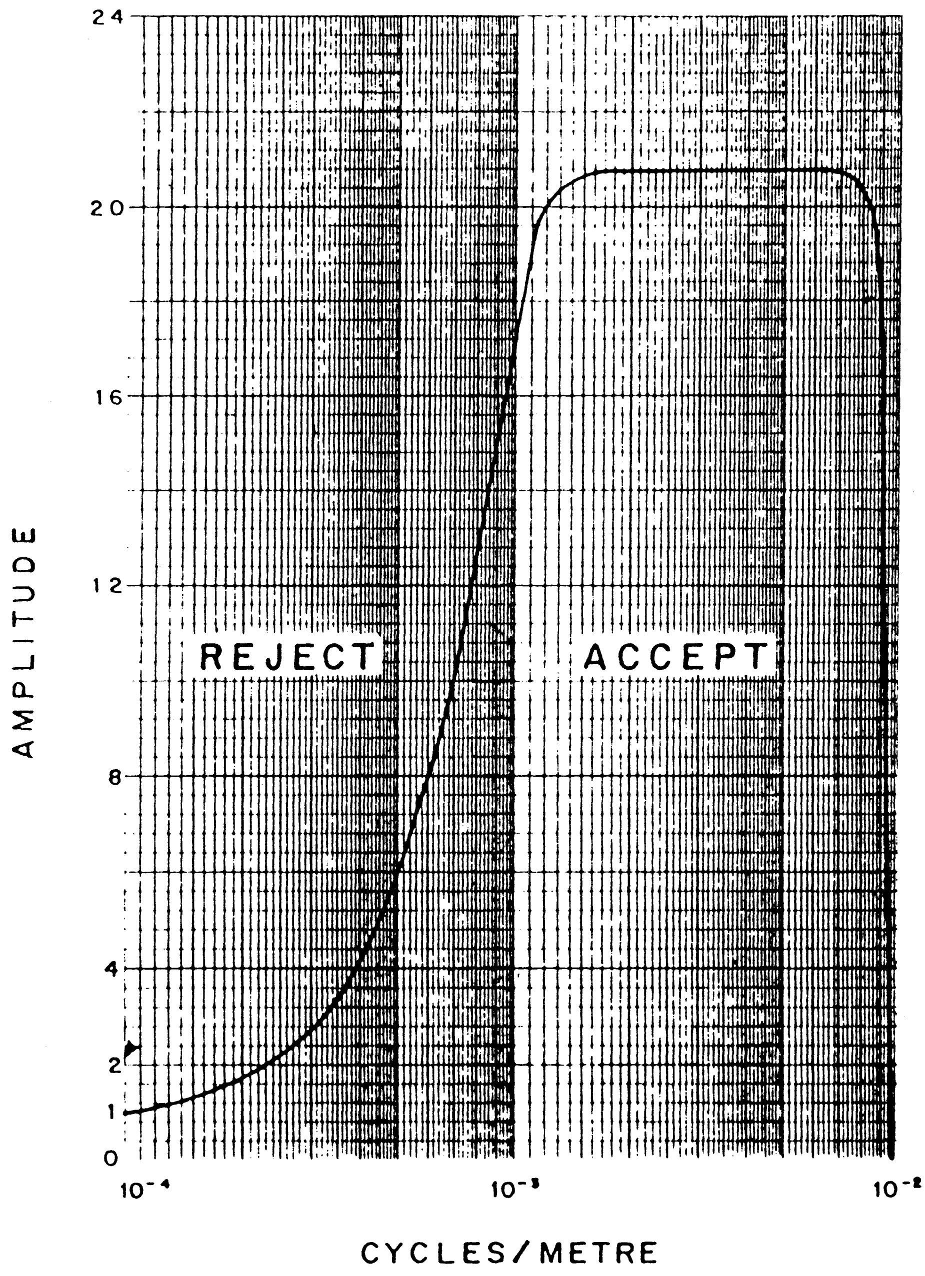

Fig. 5-2 Frequency response of magnetic enhancement operator.

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

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

VLF

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

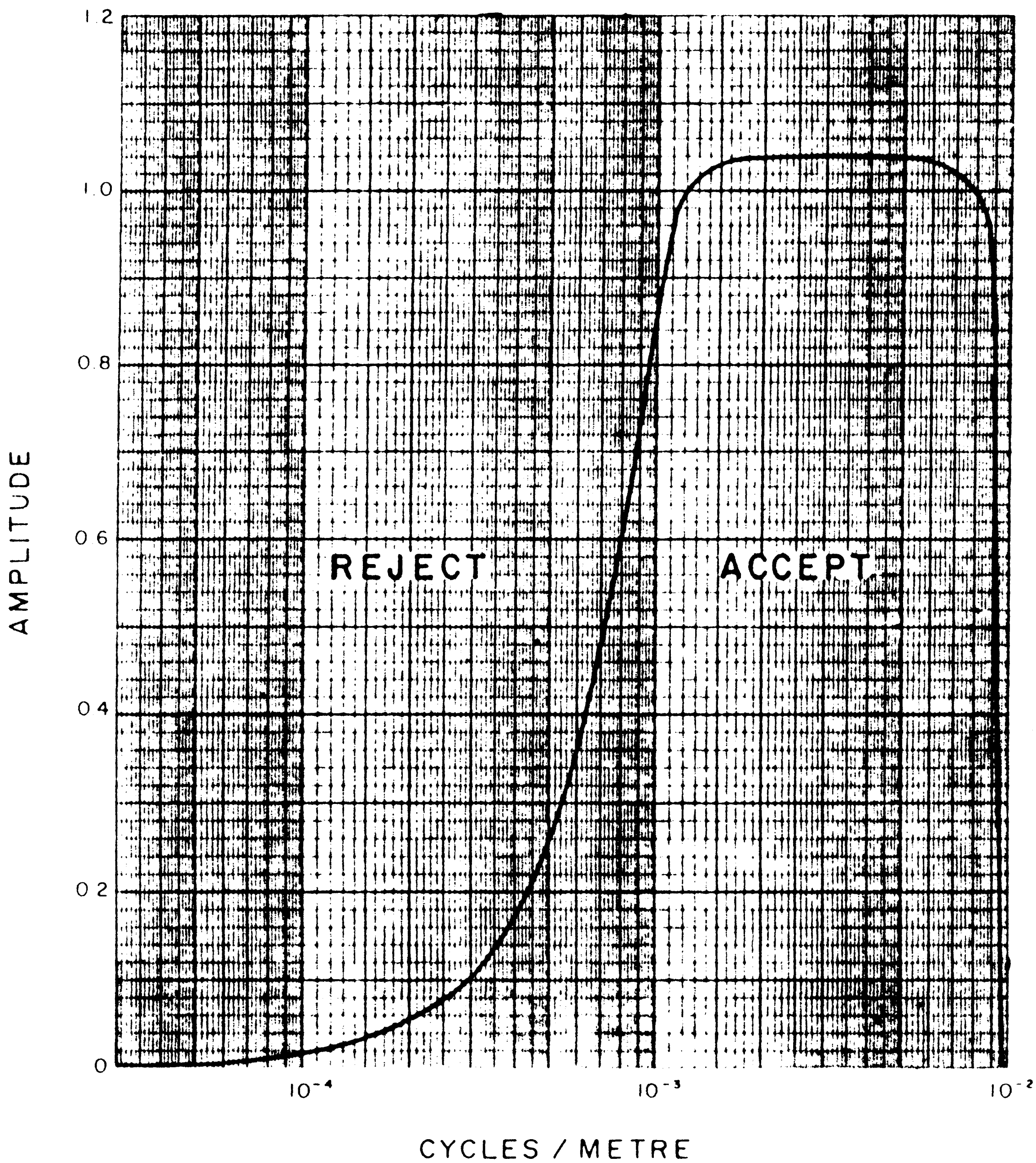

Fig. 5-3 Frequency response of VLF operator.

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

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

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

CONCLUSIONS AND RECOMMENDATIONS

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

There are several anomalies in the survey block which are typical of massive sulphide responses. The survey was also successful in locating a few moderately weak or broad conductors which may warrant additional work. The various maps included with this report display the magnetic and conductive properties of the survey area. It is recommended that the survey results be reviewed in detail, in conjunction with all available geophysical, geological and geochemical information. Particular reference should be made to the computer generated data profiles which clearly define the characteristics of the individual anomalies.

Most anomalies in the area show no direct correlation with magnetic trends, although some appear to be associated with magnetic contacts. Several possible linear structural features, inferred from the magnetic data, are situated in close proximity to possible bedrock responses. Such structural breaks are considered to be of particular interest as they may have influenced mineral deposition within the survey area.

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

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

Respectfully submitted,

DIGHEM SURVEYS & PROCESSING INC.

R. Pritchard

Ruth A. Pritchard
Geophysicist

RAP/sdp

A1105APR.92R

APPENDIX A

LIST OF PERSONNEL

The following personnel were involved in the acquisition, processing, interpretation and presentation of data, relating to a DIGHEM^{IV} airborne geophysical survey carried out for Minnova Inc., near Clisbako River, British Columbia.

Steve Kilty	Vice President, Operations
Robert Gordon	Survey Operations Supervisor
Steve Haney	Senior Geophysical Operator
Jordan Cronkwright	Second Geophysical Operator
Herman Lorenz	Pilot (Hi-Wood Helicopters Ltd.)
Gordon Smith	Data Processing Supervisor
Susan DeRyck	Computer Processor
Paul A. Smith	Interpretation Supervisor
Ruth A. Pritchard	Interpretation Geophysicist
Reinhard Zimmermann	Drafting Supervisor
Lyn Vanderstarren	Draftsperson (CAD)
Susan Pothiah	Word Processing Operator
Albina Tonello	Secretary/Expeditor

The survey consisted of 793 km of coverage, flown from February 7 to February 20, 1991.

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

DIGHEM SURVEYS & PROCESSING INC.

R. Pritchard

Ruth A. Pritchard
Geophysicist

RAP/sdp

Ref: Report #1105

A1105APR.92R

APPENDIX B

STATEMENT OF COST

Date: April 15, 1991

IN ACCOUNT WITH
DIGHEM SURVEYS & PROCESSING INC.

To: Dighem flying of Agreement dated January 14, 1991, pertaining to an Airborne Geophysical Survey in the Clisbako River area, British Columbia.

Survey Charges

793 km of flying @ $113.00/km plus mobilization costs of $5,000.00	$94,609.00

Allocation of Costs

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

DIGHEM SURVEYS & PROCESSING INC.

R. Pritchard

Ruth A. Pritchard
Geophysicist

RAP/sdp

A1105APR.92R

A P P E N D I X C

EM ANOMALY LIST

ANOMALY/ FID/INTERP	COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 10010	(FLIGHT		1)										
A 1047S?	1	5	3	3	19	12	1.0	0	1	34	88	15	150
B 1063H	1	2	1	2	2	1	-	-	-	-	-	-	80
LINE 10020	(FLIGHT		1)										
A 1422S?	4	12	2	24	60	70	1.6	0	1	0	460	0	0
LINE 10030	(FLIGHT		1)										
A 1497S?	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 10040	(FLIGHT		1)										
A 1995B?	8	13	7	26	74	68	3.8	12	1	30	109	2	0
LINE 10050	(FLIGHT		1)										
A 2163B?	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 10070	(FLIGHT		1)										
A 2466B?	9	2	5	12	32	24	13.0	30	1	28	61	2	0
B 2496S?	5	4	7	34	93	123	3.1	11	1	21	204	0	7
C 2528S?	11	20	2	6	69	70	4.3	15	1	25	77	0	60
LINE 10081	(FLIGHT		12)										
A 1212B?	11	24	2	37	90	118	2.7	0	1	27	48	3	0
B 1220B?	1	2	1	2	2	4	-	-	-	-	-	-	0
C 1227E	12	35	6	68	197	195	2.3	0	1	26	148	0	0
D 1260H	7	8	6	15	34	23	5.0	15	2	35	36	11	0
E 1280H	2	7	5	15	27	56	1.8	12	1	52	54	24	0
F 1292H	2	6	4	13	25	45	1.9	20	1	58	75	27	0
G 1318B?	7	12	5	22	44	107	3.1	12	1	41	69	13	0
H 1407S	1	1	1	1	2	4	-	-	-	-	-	-	0
LINE 10090	(FLIGHT		2)										
A 1107S?	1	2	1	2	2	4	-	-	-	-	-	-	0
B 1093H	3	17	5	30	78	97	1.4	1	1	35	61	10	0
C 1052B	20	62	17	121	361	392	3.0	0	1	12	84	0	0
D 1050B	10	6	17	121	361	392	3.1	0	1	19	59	0	0
E 1045H	1	3	6	12	193	200	2.5	24	1	23	51	1	0
F 887S	1	3	0	11	21	66	1.0	11	1	34	683	0	0
G 771S?	4	12	2	29	107	131	1.5	0	1	0	380	0	0
LINE 10101	(FLIGHT		12)										
A 1845H	1	2	1	2	2	4	-	-	-	-	-	-	0

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

ANOMALY/ FID/INTERP	COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 10101 (FLIGHT 12)													
B 1832H	7	12	5	18	74	139	3.7	7	1	21	68	0	0
C 1794B?	21	51	7	101	295	251	2.9	0	1	17	54	0	0
D 1785H	7	6	1	67	177	116	1.7	0	1	28	51	5	0
E 1691H	1	4	1	23	68	49	0.6	0	1	31	125	2	0
F 1676H	1	2	1	2	2	4	-	-	-	-	-	-	0
G 1537S	0	2	0	2	2	4	-	-	-	-	-	-	0
LINE 10110 (FLIGHT 2)													
A 2598B?	9	23	2	39	105	87	2.3	0	1	34	90	6	0
B 2587H	1	2	1	2	2	4	-	-	-	-	-	-	0
C 2541S?	11	21	9	37	108	75	3.8	0	1	17	106	0	0
D 2502H	1	2	1	2	2	4	-	-	-	-	-	-	0
E 2364H	1	2	0	2	2	4	-	-	-	-	-	-	0
F 2262S	3	5	2	9	29	26	3.0	16	1	11	562	0	0
G 2246S?	3	4	0	9	41	79	1.2	15	1	14	444	0	0
LINE 10121 (FLIGHT 12)													
A 1898B?	10	9	11	31	77	62	5.4	8	2	46	49	18	0
B 1904B?	7	10	11	27	68	60	4.3	14	1	51	118	17	0
C 1913S?	4	12	5	15	53	60	2.6	5	1	28	268	0	50
D 1945S?	3	42	13	72	166	381	1.2	0	1	0	224	0	0
E 1959S	2	19	4	37	87	140	0.8	0	1	22	131	0	0
F 1968H	1	15	3	24	49	123	0.6	4	1	34	147	6	0
G 2015H	7	15	11	28	69	168	3.8	13	1	27	114	1	0
H 2026H	1	0	1	2	2	4	-	-	-	-	-	-	180
I 2047H	1	2	1	2	2	4	-	-	-	-	-	-	250
J 2059S	1	2	1	2	2	4	-	-	-	-	-	-	0
K 2130S	1	8	0	13	34	40	0.5	0	1	20	620	0	0
LINE 10130 (FLIGHT 2)													
A 3318H	7	2	3	6	52	76	16.6	45	1	17	59	0	0
B 3308B?	4	5	3	4	17	27	5.5	32	1	22	53	0	0
C 3293S?	3	19	5	31	113	134	1.4	0	1	12	252	0	40
D 3251S	5	10	5	15	61	52	3.1	8	1	11	204	0	30
E 3237S?	1	2	1	2	2	4	-	-	-	-	-	-	0
F 2980S	2	7	1	13	33	46	0.9	0	1	19	555	0	0
LINE 10140 (FLIGHT 2)													
A 3382H	1	2	1	2	2	4	-	-	-	-	-	-	0
B 3400B?	1	2	1	2	2	4	-	-	-	-	-	-	0
C 3428S	1	2	1	2	2	4	-	-	-	-	-	-	0

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ANOMALY/ FID/INTERP	COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 10140	(FLIGHT	2)											
D 3507S?	1	2	1	2	2	4	-	-	-	-	-	-	0
E 3575S	1	8	1	14	25	59	0.7	1	1	40	298	3	270
LINE 10150	(FLIGHT	2)											
A 4047B?	1	2	1	2	2	4	-	-	-	-	-	-	0
B 3943S?	1	2	1	2	2	4	-	-	-	-	-	-	0
C 3930S?	1	2	1	2	2	4	-	-	-	-	-	-	0
D 3820S	1	6	3	9	15	67	1.5	17	1	46	274	8	40
E 3740S	0	2	1	2	2	4	-	-	-	-	-	-	0
LINE 10161	(FLIGHT	12)											
A 2478S	4	6	4	26	82	99	2.1	4	1	18	212	0	0
B 2439S	7	10	3	24	196	252	3.3	13	1	17	104	0	30
C 2421H	12	17	19	34	87	94	6.2	13	2	29	36	8	0
D 2416B?	1	2	1	2	2	4	-	-	-	-	-	-	200
E 2408B?	14	29	19	54	166	147	4.5	1	1	23	50	1	0
F 2400B?	1	2	1	2	2	4	-	-	-	-	-	-	40
G 2394B?	8	17	21	39	67	60	5.1	9	1	26	69	2	0
H 2226S	2	8	3	16	53	79	1.4	0	1	22	311	0	0
I 2203S?	2	12	0	21	8	130	1.2	9	1	27	515	0	800
LINE 10172	(FLIGHT	12)											
A 2674S?	1	2	1	2	2	4	-	-	-	-	-	-	0
B 2678B	2	13	3	28	61	153	1.0	0	1	23	50	0	0
C 2681B	12	19	18	28	61	153	6.5	9	1	22	62	0	0
D 2719S	1	5	1	8	12	24	0.6	0	1	39	283	0	0
E 2747S	3	6	4	11	25	24	2.5	0	1	22	187	0	0
F 2771B?	1	2	1	2	2	4	-	-	-	-	-	-	0
G 2774D	9	13	9	27	61	51	4.5	0	1	32	51	6	0
H 2778B	4	7	9	27	61	51	3.4	0	2	46	48	16	0
I 2792B?	1	2	1	2	2	4	-	-	-	-	-	-	0
J 2796H	11	10	18	22	45	15	9.7	0	2	32	32	8	0
K 2878S	2	4	1	6	10	31	2.0	32	1	54	230	15	0
L 2915S?	2	6	3	6	34	28	2.3	2	1	25	247	0	0
LINE 10181	(FLIGHT	12)											
A 3256H	1	2	1	2	2	4	-	-	-	-	-	-	0
B 3214S	4	5	3	5	23	37	4.0	35	1	40	379	1	0
C 3198S	0	8	1	14	31	74	0.5	4	1	22	421	0	20
D 3184S	2	3	2	6	27	22	2.5	27	1	34	252	0	0
E 3153B?	5	24	9	40	90	238	1.9	13	1	23	222	2	5

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	COAXIAL 900 HZ		COPLANAR 900 HZ		COPLANAR 7200 HZ		VERTICAL DIKE		HORIZONTAL SHEET		CONDUCTIVE EARTH		MAG CORR
ANOMALY/ FID/INTERP	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	COND SIEMEN	DEPTH* M	COND SIEMEN	DEPTH M	RESIS OHM-M	DEPTH M	NT
LINE 10181 (FLIGHT 12)													
F 3148B?	1	2	1	2	2	4	-	-	-	-	-	-	0
G 3144B	9	7	26	38	148	14	9.0	15	1	25	83	0	0
H 3141B?	14	27	21	54	197	153	4.9	0	1	17	59	0	0
I 3138B	15	27	21	54	197	153	5.2	1	1	25	52	2	0
J 3133B?	1	2	1	2	2	4	-	-	-	-	-	-	0
K 3129B?	1	2	1	2	2	4	-	-	-	-	-	-	0
L 3122E	8	31	13	56	57	204	2.6	0	1	26	61	2	0
M 3101H	1	2	1	2	2	4	-	-	-	-	-	-	0
N 3083S	1	10	2	16	48	82	0.8	0	1	3	432	0	400
O 3052S?	6	11	14	22	39	106	4.8	29	1	39	244	9	0
P 2976S	1	2	1	2	2	4	-	-	-	-	-	-	0
Q 2953S?	2	7	3	10	28	32	1.5	0	1	22	337	0	0
LINE 10190 (FLIGHT 2)													
A 6234S	4	20	1	40	125	182	0.8	0	1	0	308	0	0
B 6197S?	2	3	1	1	15	83	2.9	55	1	20	506	0	0
C 6130S?	4	9	1	3	56	90	1.0	0	1	27	61	13	0
D 6110B?	6	10	2	13	61	67	3.1	0	1	18	108	0	0
E 6102B?	1	2	1	2	2	4	-	-	-	-	-	-	0
F 6009S?	1	2	1	2	2	1	-	-	-	-	-	-	0
G 5911S	5	7	3	9	35	34	3.5	18	1	35	200	0	0
H 5886S	2	5	3	7	20	53	2.2	14	1	28	411	0	0
LINE 10201 (FLIGHT 12)													
A 3354S	2	19	3	36	107	169	0.8	0	1	29	126	1	0
B 3379S	3	25	5	46	126	202	1.1	0	1	10	246	0	0
C 3397S?	2	19	5	31	61	135	1.0	0	1	7	359	0	870
D 3439S	2	2	5	28	52	140	1.9	19	1	25	278	0	20
E 3459H	4	11	5	15	45	47	2.7	0	1	28	83	0	16
F 3493S?	6	1	7	35	123	155	3.8	17	1	14	199	0	0
G 3503S?	1	2	1	2	2	4	-	-	-	-	-	-	0
H 3539H	2	7	6	13	24	62	2.6	21	1	61	101	27	0
I 3560S?	2	12	8	19	28	126	1.9	6	1	15	383	0	0
J 3599S	3	10	4	12	33	28	2.2	0	1	31	179	0	0
K 3618S	2	5	4	9	26	22	2.3	0	1	32	238	0	0
LINE 10210 (FLIGHT 3)													
A 1695S?	1	9	5	20	52	22	1.4	0	1	19	90	0	30
B 1708S	4	9	3	13	57	49	2.4	9	1	5	420	0	0
C 1720S	2	11	0	11	51	72	0.8	1	1	9	413	0	0
D 1732S	7	12	3	24	99	125	2.8	0	1	3	439	0	0

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ANOMALY/ FID/INTERP		COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 10210	(FLIGHT 3)													
E	1743S	2	5	1	5	15	51	2.1	11	1	21	594	0	0
F	1765S	4	4	1	7	22	16	3.3	25	1	30	486	0	0
G	1792S	9	3	7	29	95	20	5.7	4	1	18	92	0	0
H	1818S	5	13	1	22	100	75	1.8	0	1	0	403	0	0
I	1827S	1	2	1	2	2	4	-	-	-	-	-	-	0
J	1923S?	5	11	3	7	57	70	3.0	0	1	5	374	0	0
K	1944S	3	6	3	7	36	35	3.0	0	1	19	377	0	0
LINE 10220	(FLIGHT 3)													
A	2292E	17	7	6	25	42	350	10.4	21	1	0	262	0	20
B	2288B?	3	4	9	27	255	322	3.1	16	1	4	196	0	0
C	2256S?	7	18	3	30	145	161	2.0	0	1	3	379	0	0
D	2251S?	1	2	0	2	2	4	-	-	-	-	-	-	620
E	2242S?	7	11	2	32	147	164	2.2	5	1	3	341	0	0
F	2168S	10	19	2	34	127	106	2.7	0	1	15	125	0	0
G	2161S	2	1	1	4	114	122	1.0	0	1	19	45	6	0
H	2145S?	1	2	1	2	2	4	-	-	-	-	-	-	0
I	2118S	1	5	2	8	31	48	1.2	9	1	44	747	0	0
J	2016S?	5	4	2	6	24	29	6.5	15	1	33	232	0	0
K	1989S	2	7	2	5	41	60	1.9	12	1	19	591	0	0
LINE 10230	(FLIGHT 3)													
A	2353S?	1	2	1	0	2	4	-	-	-	-	-	-	0
B	2412S	3	7	2	12	28	15	1.8	0	1	10	466	0	40
C	2466B?	9	14	5	25	89	82	3.9	1	1	15	154	0	0
D	2478B?	8	19	2	11	122	129	3.1	3	1	0	472	0	0
E	2541S	3	5	3	9	44	62	3.0	11	1	33	109	0	0
F	2560H	1	2	1	2	2	4	-	-	-	-	-	-	0
G	2608B?	5	9	1	4	45	67	2.9	19	1	25	482	0	130
H	2618B?	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 10240	(FLIGHT 3)													
A	2979B?	3	38	2	108	435	581	0.8	0	1	0	268	0	0
B	2943S	1	10	1	5	28	54	0.5	0	1	17	608	0	0
C	2899S?	1	2	1	2	1	4	-	-	-	-	-	-	0
D	2834B?	14	18	7	24	111	85	5.5	9	1	8	174	0	0
E	2826B?	16	25	14	4	173	118	9.1	11	1	19	104	0	0
F	2794S?	0	2	0	2	2	4	-	-	-	-	-	-	0
G	2730S	3	7	1	7	32	88	2.5	26	1	48	211	12	0
H	2710S?	0	9	5	6	23	92	1.6	16	1	34	638	0	0
I	2677B?	2	10	1	8	35	58	1.3	6	1	35	699	0	0

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ANOMALY/ FID/INTERP	COAXIAL 900 HZ REAL PPM	QUAD PPM	COPLANAR 900 HZ REAL PPM	QUAD PPM	COPLANAR 7200 HZ REAL PPM	QUAD PPM	VERTICAL DIKE COND SIEMEN	DEPTH* M	HORIZONTAL SHEET COND SIEMEN	DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	DEPTH M	MAG CORR NT
LINE 10250	(FLIGHT		3)										
A 3078S	0	7	0	2	27	42	0.9	0	1	19	267	0	0
B 3091S	0	4	2	5	18	51	1.4	12	1	37	600	0	0
C 3097S	0	4	1	7	26	22	0.7	4	1	41	705	0	0
D 3111S	0	3	3	4	19	34	0.6	0	1	25	307	2	0
E 3145S	1	8	1	6	25	117	0.5	0	1	25	479	0	0
F 3173B?	11	14	6	3	96	60	1.0	0	1	18	37	5	0
G 3181B	15	16	14	28	99	53	7.3	0	1	13	116	0	210
H 3195S?	0	2	0	2	2	4	-	-	-	-	-	-	250
I 3212S	2	6	1	10	44	57	1.1	1	1	36	304	0	0
J 3230S	1	6	0	10	53	95	0.6	7	1	23	515	0	0
K 3279S	3	3	6	6	25	33	6.7	28	1	44	127	7	0
L 3323D	4	27	0	26	132	227	1.6	0	1	10	418	0	0
LINE 10260	(FLIGHT		3)										
A 3673B?	5	3	1	4	98	140	1.0	0	1	14	45	2	0
B 3626S	0	4	0	3	11	41	0.3	0	1	21	324	0	0
C 3607S	1	5	0	5	20	50	0.7	11	1	48	722	0	0
D 3571S?	3	7	0	7	42	48	1.8	14	1	31	666	0	0
E 3556S	2	7	2	11	39	101	1.1	0	1	25	530	0	0
F 3530S?	6	9	4	17	51	34	3.6	0	1	22	131	0	0
G 3522B?	1	2	1	2	2	4	-	-	-	-	-	-	190
H 3505S	6	11	0	22	106	100	1.8	0	1	1	431	0	0
I 3492S	4	6	2	12	54	44	2.9	14	1	15	534	0	0
J 3426S	3	4	3	6	23	40	3.6	22	1	47	121	10	0
K 3380D	1	25	0	22	129	263	1.5	0	1	7	387	0	0
LINE 10270	(FLIGHT		3)										
A 3927S	0	2	0	2	2	4	-	-	-	-	-	-	50
B 3940S	0	7	0	8	33	63	0.5	0	1	41	735	0	60
C 3984B?	6	6	3	9	26	12	4.9	0	1	31	116	0	0
D 3992B?	5	12	2	9	22	69	2.3	8	1	25	251	0	0
E 4011S	4	14	0	7	100	140	1.6	3	1	1	356	0	480
F 4107S	1	7	0	9	28	75	0.5	0	1	21	581	0	0
G 4122B?	0	2	0	2	2	4	-	-	-	-	-	-	0
H 4127D	6	9	0	6	19	79	2.1	15	1	13	475	0	0
LINE 10280	(FLIGHT		4)										
A 1392S	0	3	1	4	3	33	0.1	0	1	11	252	0	0
B 1408S	0	2	1	2	2	4	-	-	-	-	-	-	0
C 1454S	1	3	1	6	26	10	1.0	0	1	38	169	0	0
D 1561H	2	7	3	23	82	171	1.4	0	1	36	77	7	0

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ANOMALY/ FID/INTERP	COAXIAL 900 HZ REAL PPM	QUAD PPM	COPLANAR 900 HZ REAL PPM	QUAD PPM	COPLANAR 7200 HZ REAL PPM	QUAD PPM	VERTICAL DIKE COND SIEMEN	DEPTH* M	HORIZONTAL SHEET COND SIEMEN	DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	DEPTH M	MAG CORR NT
LINE 10280	(FLIGHT		4)										
E 1626S	3	5	2	5	36	5	2.6	15	1	11	506	0	330
LINE 10290	(FLIGHT		4)										
A 2018S	3	7	3	15	128	138	2.3	7	1	16	268	0	0
B 1978S	0	5	1	8	16	76	0.5	2	1	43	580	0	0
C 1964S	1	5	0	4	10	55	0.2	0	1	22	306	2	0
D 1954S?	1	6	2	7	32	52	1.2	0	1	32	436	0	0
E 1831H	1	2	1	2	2	4	-	-	-	-	-	-	0
F 1788S	3	8	2	15	43	13	1.5	0	1	39	62	10	0
G 1691S?	0	10	1	13	39	75	0.5	0	1	11	540	0	0
H 1674S?	3	6	9	9	70	61	5.2	18	1	16	207	0	0
LINE 10300	(FLIGHT		4)										
A 2084S	3	11	2	14	48	1	1.4	0	1	1	488	0	0
B 2150S?	2	11	0	14	56	133	0.7	0	1	17	497	0	0
C 2162S?	2	12	0	16	60	157	0.6	0	1	22	547	0	0
D 2188S	1	2	1	2	2	4	-	-	-	-	-	-	0
E 2375S	2	5	2	9	29	7	1.9	0	1	11	517	0	0
LINE 10310	(FLIGHT		4)										
A 2952S?	3	10	1	4	3	102	1.8	0	1	7	545	0	0
B 2894S	1	6	0	6	40	48	0.9	11	1	19	504	0	80
C 2884S?	3	12	1	14	59	136	1.1	4	1	23	530	0	0
D 2848S	1	5	0	16	51	97	0.5	9	1	24	490	0	0
E 2825S?	5	9	3	11	53	66	3.2	10	1	21	164	0	30
F 2816S	8	14	7	26	80	68	3.7	0	1	22	59	0	0
G 2790H	1	2	1	2	2	4	-	-	-	-	-	-	0
H 2772H	2	8	2	13	4	75	1.0	4	1	53	66	23	70
I 2633S	2	1	2	10	45	36	2.6	31	1	30	296	0	0
LINE 10320	(FLIGHT		4)										
A 3288S	2	3	2	10	54	45	2.4	9	1	5	496	0	0
B 3293S?	0	10	1	1	85	126	1.0	0	1	14	261	0	0
C 3326S	0	8	2	12	18	111	0.5	6	1	39	680	0	0
D 3351S	1	8	1	13	53	99	0.5	0	1	15	536	0	20
E 3433H	1	2	1	2	2	4	-	-	-	-	-	-	0
F 3514H	1	2	1	1	2	4	-	-	-	-	-	-	0
G 3575S	2	4	2	7	31	25	2.3	4	1	15	424	0	70
LINE 10330	(FLIGHT		4)										
A 3945S	1	6	1	3	28	142	0.3	0	1	15	291	0	0

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ANOMALY/ FID/INTERP	COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 10330	(FLIGHT	4)											
B 3872S	2	6	2	9	54	52	1.6	11	1	13	493	0	250
C 3841S?	0	2	0	2	2	4	-	-	-	-	-	-	0
D 3826E	9	16	9	2	100	80	1.0	0	1	28	43	15	0
E 3659S?	2	7	1	11	44	73	1.4	0	1	12	544	0	0
F 3644S?	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 10340	(FLIGHT	4)											
A 4075S	2	12	0	10	51	94	0.6	0	1	20	505	0	0
B 4088S	1	6	0	11	41	74	0.5	0	1	9	505	0	280
C 4109S	0	7	0	12	50	85	0.5	8	1	24	505	0	0
D 4124S?	1	10	0	7	33	103	0.5	4	1	5	354	0	0
E 4149S	1	2	1	2	2	4	-	-	-	-	-	-	16
LINE 10341	(FLIGHT	4)											
A 4454B?	1	2	1	2	2	4	-	-	-	-	-	-	6
B 4468B?	11	7	8	20	48	26	7.5	5	2	30	41	5	0
C 4549H	6	9	9	15	52	100	4.9	13	2	41	45	15	0
LINE 10350	(FLIGHT	4)											
A 4821S	0	8	3	12	45	101	0.8	12	1	23	454	0	0
LINE 10351	(FLIGHT	4)											
A 5265S?	3	14	0	21	101	146	0.9	2	1	21	479	0	5
B 5256S	2	8	1	10	46	80	1.1	0	1	14	528	0	0
C 5240S	1	2	0	2	2	4	-	-	-	-	-	-	0
D 5203B	12	8	8	13	32	14	10.8	17	1	35	58	8	0
E 5191B	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 10360	(FLIGHT	4)											
A 5405S	1	8	0	7	18	73	0.6	1	1	41	693	0	0
B 5484S	4	12	0	25	97	155	0.9	0	1	14	445	0	0
C 5501B?	4	17	3	21	117	170	1.6	7	1	15	415	0	0
D 5516S?	5	13	4	19	84	2	2.4	0	1	22	204	0	0
E 5526B	14	18	6	34	109	64	4.7	7	1	28	76	2	0
F 5540B	9	9	11	12	54	35	8.7	9	1	26	65	0	0
G 5557S	1	2	1	1	2	4	-	-	-	-	-	-	0
H 5580H	5	8	7	6	6	99	5.6	26	2	40	38	15	0
I 5613H	1	2	1	2	2	4	-	-	-	-	-	-	17
J 5693S	2	6	1	9	35	58	1.2	0	1	24	290	0	50
LINE 10370	(FLIGHT	5)											
A 1356S	1	4	1	5	20	39	0.6	0	1	9	294	0	0

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ANOMALY/	FID/INTERP	COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 10370	(FLIGHT 5)													
B	1336S	1	2	1	2	2	4	-	-	-	-	-	-	0
C	1269S	1	4	2	5	28	20	1.9	13	1	27	345	0	0
D	1250S	2	11	0	17	81	132	0.7	0	1	16	481	0	0
E	1232S?	4	5	5	5	12	64	6.7	24	1	28	165	0	13
F	1222B	1	2	1	2	2	4	-	-	-	-	-	-	0
G	1205B	6	7	8	11	39	20	6.4	0	2	32	47	2	0
H	1179H	1	2	1	2	2	4	-	-	-	-	-	-	0
I	1146H	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 10380	(FLIGHT 6)													
A	1078S	0	2	1	2	2	4	-	-	-	-	-	-	0
B	1046S	1	2	0	2	2	4	-	-	-	-	-	-	0
C	990S	1	2	0	2	2	4	-	-	-	-	-	-	0
D	943B?	9	11	8	12	47	37	6.6	21	1	32	84	5	0
E	926B?	15	19	22	44	113	52	7.0	3	2	32	46	8	0
F	905H	1	2	1	2	2	4	-	-	-	-	-	-	14
G	859H	6	8	9	12	43	25	6.1	10	1	29	50	2	0
H	845H	2	6	4	12	37	42	2.3	15	1	39	107	8	0
I	824S	3	4	3	10	29	37	2.9	14	1	28	133	0	0
J	794S	2	3	4	5	15	31	3.0	37	1	33	300	0	0
LINE 10390	(FLIGHT 6)													
A	1339S?	10	8	12	20	70	51	8.2	13	1	18	83	0	0
B	1358B?	10	25	10	49	132	135	3.2	0	1	21	54	0	0
C	1379S	1	2	1	2	2	4	-	-	-	-	-	-	0
D	1392S	3	1	6	19	50	38	3.5	4	1	23	80	0	0
E	1413S	3	7	2	12	53	53	2.0	3	1	35	124	2	0
LINE 10400	(FLIGHT 6)													
A	1747B	4	13	6	22	80	82	2.4	10	1	23	253	0	12
B	1733B	6	13	7	25	67	38	3.2	5	1	30	87	3	0
C	1713H	6	18	7	44	115	139	2.3	3	1	34	67	8	0
D	1596S	2	5	5	9	15	61	2.8	26	1	26	320	0	0
LINE 10410	(FLIGHT 6)													
A	2157S?	4	13	5	18	62	47	2.2	10	1	22	198	0	0
B	2168B?	1	2	1	2	2	4	-	-	-	-	-	-	0
C	2176B	5	9	2	12	48	60	2.8	5	1	17	125	0	0
D	2230H	1	7	0	12	39	53	0.5	0	1	31	221	0	0
E	2260H	1	2	1	2	2	4	-	-	-	-	-	-	0
F	2279H	1	2	1	2	2	4	-	-	-	-	-	-	0

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LINE 10420		(FLIGHT		6)										
A	2648S?	1	8	1	11	12	84	0.7	2	1	34	666	0	40
B	2633S	2	4	1	7	13	49	1.4	15	1	39	665	0	0
C	2602S	1	2	1	2	2	4	-	-	-	-	-	-	0
D	2569S	1	6	1	5	25	37	0.9	0	1	30	278	9	0
E	2536S	1	11	1	20	33	127	0.6	6	1	22	465	0	0
F	2510S	3	9	3	15	59	66	2.0	13	1	25	185	0	0
G	2446S?	3	18	4	32	87	154	1.1	0	1	3	281	0	9
H	2406H	1	2	1	2	2	4	-	-	-	-	-	-	0
I	2362H	0	6	0	10	19	52	0.5	5	1	47	167	12	0
J	2332S	3	9	4	10	42	51	2.2	16	1	14	442	0	0
LINE 10430		(FLIGHT		6)										
A	2746S	0	2	0	2	2	4	-	-	-	-	-	-	0
B	2847S	0	2	1	2	2	4	-	-	-	-	-	-	0
C	2891S?	2	6	2	8	31	28	2.0	0	1	15	163	0	0
D	2911S	2	6	0	6	30	14	1.5	2	1	30	136	0	0
E	3028S?	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 10440		(FLIGHT		6)										
A	3439S	1	2	1	2	2	4	-	-	-	-	-	-	0
B	3423S	1	2	1	2	2	4	-	-	-	-	-	-	0
C	3408S	0	4	2	10	20	44	0.6	11	1	34	622	0	0
D	3383S?	1	3	1	4	23	21	6.2	52	1	63	797	0	70
E	3284S	4	12	1	18	69	74	1.4	0	1	20	146	0	0
F	3192H	5	8	8	17	38	61	4.2	9	1	39	59	10	0
G	3149S	1	2	1	2	2	4	-	-	-	-	-	-	0
H	3110B?	3	9	2	10	33	54	1.9	13	1	19	489	0	0
LINE 10450		(FLIGHT		6)										
A	4486S	0	3	1	6	11	34	0.5	0	1	41	765	0	0
B	4310B?	1	12	2	26	33	16	0.7	0	1	33	128	1	0
C	4297B?	1	2	1	2	2	4	-	-	-	-	-	-	0
D	4255S	3	12	2	23	81	13	1.2	0	1	8	368	0	0
E	4221H	9	15	7	29	60	85	3.8	3	2	34	44	10	0
F	4181S	1	4	1	12	31	15	1.1	11	1	39	181	5	190
G	4152S	1	18	0	33	53	169	0.5	14	1	17	371	0	0
LINE 10460		(FLIGHT		6)										
A	4581S	2	6	2	9	27	51	1.3	11	1	28	615	0	0
B	4608S	1	2	1	2	2	4	-	-	-	-	-	-	0
C	4655S	0	2	1	2	2	4	-	-	-	-	-	-	0

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	COAXIAL 900 HZ		COPLANAR 900 HZ		COPLANAR 7200 HZ		VERTICAL DIKE		HORIZONTAL SHEET		CONDUCTIVE EARTH		MAG CORR
ANOMALY/ FID/INTERP	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	COND SIEMEN	DEPTH* M	COND SIEMEN	DEPTH M	RESIS OHM-M	DEPTH M	NT
LINE 10460	(FLIGHT		6)										
D 4673S	2	5	4	8	28	29	2.9	3	1	24	134	0	0
E 4684B?	9	9	14	21	47	16	7.8	0	1	24	68	0	0
F 4686H	1	2	1	2	2	4	-	-	-	-	-	-	0
G 4695B?	9	9	15	9	44	18	11.7	13	1	31	58	4	0
H 4730S	2	6	4	17	57	27	2.1	6	1	21	266	0	14
LINE 10470	(FLIGHT		7)										
A 1563S	2	6	1	7	30	56	1.8	7	1	21	504	0	0
B 1491S?	1	2	1	2	2	3	-	-	-	-	-	-	0
C 1477S?	1	6	7	24	77	138	1.7	3	1	14	195	0	20
D 1471B?	10	6	17	12	22	26	16.5	19	1	26	68	0	0
E 1464H	6	10	7	4	55	12	1.0	0	1	39	35	27	0
F 1450B?	3	12	20	26	60	22	4.4	0	1	24	61	0	0
G 1449B	15	13	20	26	60	22	10.7	0	1	19	91	0	0
H 1377H	1	2	1	2	2	4	-	-	-	-	-	-	0
I 1352S	2	6	1	9	22	66	1.4	15	1	33	219	1	0
J 1338S	1	9	2	17	49	86	0.5	3	1	26	250	0	0
LINE 10480	(FLIGHT		10)										
A 2868S?	5	10	4	15	76	93	2.9	21	1	19	330	0	0
B 2832S	2	8	4	21	58	54	1.4	0	1	21	147	0	0
C 2801S	3	9	1	14	52	50	1.4	3	1	21	292	0	0
D 2776H	1	2	1	2	2	4	-	-	-	-	-	-	0
E 2704S?	2	20	8	34	76	188	1.4	0	1	0	261	0	13
LINE 10481	(FLIGHT		11)										
A 4600S	1	5	1	11	22	77	0.6	7	1	37	642	0	0
B 4487S	0	2	0	2	2	4	-	-	-	-	-	-	0
C 4450S	0	8	3	10	32	66	0.6	3	1	32	363	0	0
LINE 10490	(FLIGHT		10)										
A 3216S	3	11	2	27	98	110	1.0	0	1	12	170	0	0
B 3276S?	5	11	13	15	57	98	5.2	14	1	9	263	0	0
C 3289B?	1	2	1	2	2	4	-	-	-	-	-	-	30
D 3299B?	1	2	1	2	2	4	-	-	-	-	-	-	0
E 3318S	1	13	0	24	45	133	0.5	8	1	16	481	0	0
LINE 10491	(FLIGHT		11)										
A 4670S	1	8	0	13	28	39	0.5	6	1	38	670	0	0
B 4701S	1	2	1	2	2	4	-	-	-	-	-	-	0
C 4788S	0	11	2	21	51	130	0.6	0	1	17	450	0	0

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LINE 10491 (FLIGHT 11)													
D 4816S	1	12	1	20	29	152	0.5	10	1	26	451	0	0
LINE 10500 (FLIGHT 10)													
A 3566H	11	21	18	21	115	52	6.2	11	2	40	46	15	0
B 3556H	4	14	24	32	87	74	5.0	13	1	30	53	6	0
C 3553B?	18	16	24	32	161	57	11.2	8	1	20	77	0	0
D 3529S?	2	8	2	6	113	163	1.9	27	1	12	344	0	6
E 3525S?	2	15	0	24	61	163	0.7	7	1	13	317	0	0
F 3506S	4	10	3	18	58	63	2.2	12	1	15	384	0	0
G 3476S	9	17	18	33	75	86	5.2	4	1	33	63	6	0
H 3429S?	0	2	0	2	2	4	-	-	-	-	-	-	0
I 3410S?	0	34	0	59	94	415	1.0	6	1	2	147	0	0
LINE 10501 (FLIGHT 11)													
A 5086S	1	5	2	6	19	32	1.3	14	1	50	611	0	0
B 4966S	3	10	2	15	29	100	1.4	13	1	29	537	0	0
C 4946S?	1	16	1	30	48	223	0.6	3	1	13	399	0	17
D 4925S	1	6	1	14	33	68	0.7	2	1	24	535	0	60
E 4892S	2	11	4	14	90	68	1.5	12	1	48	216	12	0
LINE 10511 (FLIGHT 10)													
A 3854S	1	2	1	2	2	4	-	-	-	-	-	-	0
B 3866S	1	2	1	2	2	4	-	-	-	-	-	-	0
C 3879S	1	3	1	6	16	24	1.4	8	1	34	584	0	0
D 3888S	1	8	0	11	25	85	0.5	4	1	32	610	0	0
E 3905S	2	4	1	9	23	39	1.8	11	1	28	486	0	0
F 3939S	4	8	4	14	49	70	2.9	2	1	16	182	0	0
G 3951B?	1	2	1	1	1	4	-	-	-	-	-	-	0
H 3956H	1	2	1	2	2	4	-	-	-	-	-	-	17
I 3964B?	12	13	22	27	48	15	9.2	8	1	30	90	1	0
J 3992S	3	12	1	16	46	113	1.2	6	1	11	393	0	0
K 3998S?	3	12	0	21	45	85	0.8	7	1	14	373	0	0
L 4013S	6	13	4	20	65	68	2.5	6	1	8	439	0	0
M 4022S	4	11	2	15	48	81	1.7	7	1	16	402	0	280
N 4069S	1	13	5	24	54	160	1.0	0	1	2	324	0	0
LINE 10520 (FLIGHT 10)													
A 4965S	0	2	0	2	2	4	-	-	-	-	-	-	0
B 4916S	1	2	1	2	2	4	-	-	-	-	-	-	0
C 4899S	1	8	0	12	26	41	0.5	7	1	38	640	0	0
D 4871S	1	3	1	6	15	32	1.2	14	1	37	580	0	0

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		COAXIAL 900 HZ		COPLANAR 900 HZ		COPLANAR 7200 HZ		VERTICAL DIKE		HORIZONTAL SHEET		CONDUCTIVE EARTH		MAG CORR
ANOMALY/	FID/INTERP	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	COND SIEMEN	DEPTH* M	COND SIEMEN	DEPTH M	RESIS OHM-M	DEPTH M	NT
LINE 10520	(FLIGHT 10)													
E	4859S	2	5	1	10	31	54	1.2	1	1	17	610	0	30
F	4833S	4	11	2	17	64	53	1.8	0	1	7	354	0	0
G	4822B?	8	12	8	22	74	42	4.3	4	1	28	106	0	0
H	4810B	9	21	6	34	99	144	2.9	1	1	30	100	2	0
I	4805B?	1	2	1	2	2	4	-	-	-	-	-	-	0
J	4801B?	7	18	5	31	81	108	2.3	0	1	20	62	0	0
K	4799B	14	13	5	59	156	103	3.9	0	1	21	94	0	0
L	4760S	2	0	3	14	56	12	2.7	19	1	9	284	0	0
M	4726S?	1	30	11	74	219	300	0.9	0	1	18	77	0	0
N	4706S	0	13	7	23	28	144	1.0	4	1	9	351	0	0
O	4686S	2	12	5	22	46	127	1.4	3	1	4	340	0	0
LINE 10530	(FLIGHT 10)													
A	5094S	0	2	0	2	2	4	-	-	-	-	-	-	0
B	5146S	1	5	0	8	29	14	0.5	0	1	18	595	0	0
C	5178S	2	8	0	8	36	72	1.2	11	1	25	558	0	12
D	5212S	3	10	4	16	52	66	1.9	0	1	1	436	0	0
E	5240B?	1	2	1	2	2	4	-	-	-	-	-	-	0
F	5245D	14	18	19	5	99	37	12.8	19	1	24	138	0	0
G	5319B?	9	25	11	49	135	209	2.9	0	1	22	81	0	0
H	5323B?	9	5	8	45	123	192	4.1	8	1	21	106	0	0
LINE 10540	(FLIGHT 10)													
A	5703S	0	2	0	2	2	4	-	-	-	-	-	-	0
B	5683S	2	6	0	9	18	62	0.6	1	1	35	701	0	0
C	5659S	2	9	0	16	51	64	0.6	0	1	13	549	0	0
D	5630S	2	6	0	10	25	50	1.0	13	1	34	630	0	0
E	5592S	6	10	6	17	93	87	3.5	11	1	5	302	0	0
F	5578S?	1	2	1	2	2	4	-	-	-	-	-	-	0
G	5560B?	1	2	1	2	2	3	-	-	-	-	-	-	0
H	5474S	5	10	4	21	62	85	2.5	0	1	28	69	0	0
I	5467S	2	8	6	37	126	146	1.4	0	1	18	100	0	0
LINE 10550	(FLIGHT 10)													
A	5851S	0	2	0	2	2	4	-	-	-	-	-	-	0
B	5873S	1	2	1	2	2	4	-	-	-	-	-	-	40
C	5885S	0	8	1	11	23	77	0.6	2	1	43	713	0	0
D	5926S	2	7	1	14	56	55	1.1	0	1	4	473	0	0
E	5947S	2	9	1	16	51	82	1.2	0	1	8	447	0	0
F	5990B	27	43	27	92	245	89	5.9	0	1	7	60	0	0
G	6031S	1	2	1	2	2	4	-	-	-	-	-	-	0

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ANOMALY/	FID/INTERP	COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 10550	(FLIGHT 10)													
H	6055S	5	10	7	8	41	43	4.2	18	1	31	108	1	0
I	6076S?	11	25	7	53	179	181	2.9	0	1	14	96	0	0
J	6090S	1	2	1	2	2	4	-	-	-	-	-	-	130
LINE 10560	(FLIGHT 10)													
A	6402S	2	6	1	7	27	34	1.6	0	1	18	545	0	0
B	6373S	0	2	1	2	2	4	-	-	-	-	-	-	0
C	6363S	2	8	2	11	23	73	1.6	17	1	38	649	0	0
D	6352S	2	14	0	24	94	135	0.7	0	1	8	403	0	0
E	6326S	2	8	1	13	37	75	0.9	3	1	15	475	0	8
F	6292B	3	11	3	16	49	73	1.6	2	1	14	187	0	0
G	6279B?	11	18	9	37	90	83	4.2	0	1	21	98	0	20
H	6221S	3	5	13	5	68	12	9.4	40	1	21	188	0	90
I	6194H	5	7	2	40	95	149	1.6	3	1	32	77	6	0
J	6185H	10	13	5	23	166	110	4.4	7	1	18	82	0	0
LINE 10570	(FLIGHT 8)													
A	1382S	1	4	1	5	21	36	1.0	0	1	20	649	0	0
B	1256S	1	2	1	2	2	4	-	-	-	-	-	-	0
C	1230S	4	10	5	18	56	46	2.3	0	1	15	178	0	0
D	1198S	5	11	6	23	59	40	2.9	0	1	19	63	0	0
E	1174S?	6	8	9	20	38	34	4.7	0	1	27	70	0	0
F	1097S	1	4	2	10	34	43	1.3	4	1	14	298	0	0
G	1041H	4	10	5	19	32	41	2.4	0	1	46	56	17	0
LINE 10580	(FLIGHT 8)													
A	1753S	0	4	0	6	22	2	0.6	0	1	30	747	0	0
B	1779S	1	6	1	11	25	59	0.7	0	1	34	561	0	0
C	1823S	1	5	1	9	20	51	1.0	0	1	29	374	0	0
D	1834S	3	6	5	14	39	19	2.7	0	1	18	139	0	0
E	1885S	1	4	0	6	19	20	1.2	0	1	37	256	0	0
F	1908S	3	4	3	8	25	22	2.9	4	1	25	205	0	0
G	1941S	1	2	1	2	2	4	-	-	-	-	-	-	0
H	1956S	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 10590	(FLIGHT 8)													
A	2570S	1	6	0	11	17	76	0.5	3	1	48	736	0	0
B	2442S?	1	2	1	2	2	4	-	-	-	-	-	-	0
C	2417B?	6	24	7	24	81	134	2.2	5	1	8	421	0	0
D	2392B?	1	2	1	2	2	4	-	-	-	-	-	-	0
E	2322S?	1	2	1	2	2	4	-	-	-	-	-	-	0

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ANOMALY/ FID/INTERP		COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 10590		(FLIGHT		8)										
F	2309D	9	15	15	24	69	102	5.6	5	1	25	68	0	0
G	2306B?	1	2	1	2	2	4	-	-	-	-	-	-	150
H	2288B?	7	15	5	25	69	51	2.9	0	2	30	32	7	0
I	2272B?	13	19	17	38	92	89	5.5	0	1	25	50	0	0
J	2226S	0	11	1	17	52	96	0.5	1	1	25	241	0	0
K	2199S	1	10	1	18	34	93	0.5	3	1	14	436	0	20
L	2181S?	4	14	2	20	61	79	1.4	2	1	20	242	0	0
LINE 10600		(FLIGHT		8)										
A	2658S	1	5	1	7	22	44	0.7	0	1	36	621	0	0
B	2690S	2	11	1	17	57	80	0.7	0	1	16	545	0	0
C	2724S?	4	7	3	11	36	34	3.3	4	1	25	266	0	0
D	2763S	1	4	0	7	12	34	0.5	0	1	25	562	0	70
E	2781S?	1	2	1	2	2	4	-	-	-	-	-	-	0
F	2787D	7	21	7	40	121	118	2.3	0	2	34	43	8	0
G	2790D	9	20	7	40	121	118	3.0	0	2	21	44	0	260
H	2821H	19	12	2	22	112	55	9.0	5	2	26	24	5	0
I	2842S	2	9	1	16	53	57	1.0	0	1	26	199	0	0
J	2866S	3	7	1	12	38	9	1.5	2	1	26	215	0	0
LINE 10610		(FLIGHT		8)										
A	3367D	5	8	5	9	24	27	4.0	10	1	28	302	0	0
B	3356S?	1	2	1	2	2	4	-	-	-	-	-	-	410
C	3325S?	4	16	2	22	66	99	1.3	0	1	16	302	0	0
D	3282B	13	26	21	18	67	103	6.9	15	1	31	105	5	0
E	3274B?	1	2	1	2	2	4	-	-	-	-	-	-	0
F	3262D	9	34	9	37	156	177	2.7	3	1	30	58	7	0
G	3252B?	6	12	8	23	57	31	3.3	0	2	35	48	9	0
H	3215B?	1	2	1	2	2	4	-	-	-	-	-	-	0
I	3206B?	11	5	25	10	19	14	30.4	15	2	29	32	6	0
J	3179S	0	8	1	14	39	70	0.5	2	1	27	235	0	40
LINE 10620		(FLIGHT		8)										
A	3644S	3	5	0	9	23	33	1.6	8	1	21	628	0	0
B	3653S	2	5	2	8	27	40	1.7	5	1	19	645	0	0
C	3676B?	6	18	2	26	81	88	1.7	0	1	10	322	0	0
D	3725B?	4	7	4	7	15	55	3.8	13	1	33	114	0	0
E	3729B?	1	2	1	2	2	4	-	-	-	-	-	-	0
F	3760B	14	19	31	49	125	68	7.6	0	2	37	38	12	0
G	3767H	13	15	41	29	67	22	14.0	5	3	31	18	11	0
H	3771B?	1	2	1	2	2	4	-	-	-	-	-	-	0

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ANOMALY/ FID/INTERP	COAXIAL 900 HZ REAL PPM	COAXIAL 900 HZ QUAD PPM	COPLANAR 900 HZ REAL PPM	COPLANAR 900 HZ QUAD PPM	COPLANAR 7200 HZ REAL PPM	COPLANAR 7200 HZ QUAD PPM	VERTICAL DIKE COND SIEMEN	VERTICAL DIKE DEPTH* M	HORIZONTAL SHEET COND SIEMEN	HORIZONTAL SHEET DEPTH M	CONDUCTIVE EARTH RESIS OHM-M	CONDUCTIVE EARTH DEPTH M	MAG CORR NT
LINE 10620	(FLIGHT		8)										
I 3792S	3	7	3	13	48	30	2.0	0	1	14	150	0	0
J 3827S	3	7	5	13	24	36	2.5	0	1	28	109	0	0
LINE 10630	(FLIGHT		8)										
A 4366S	2	6	1	10	28	52	1.1	0	1	21	471	0	0
B 4321S	0	7	0	11	20	72	1.0	9	1	39	695	0	0
C 4295S	3	10	2	10	72	82	1.7	7	1	28	227	0	0
D 4273B?	5	10	4	11	65	48	3.2	10	1	28	154	0	0
E 4222B?	3	29	7	36	70	244	1.1	0	1	4	294	0	0
F 4211B	7	24	1	44	139	231	1.3	0	1	9	241	0	0
G 4204B?	3	12	5	23	63	79	1.8	0	1	24	125	0	0
H 4199B?	4	7	8	21	52	58	3.5	8	1	38	75	8	0
I 4194B	7	12	7	33	81	78	3.2	0	1	42	70	11	0
J 4187B	5	3	10	21	41	27	5.4	15	2	37	48	10	0
K 4181B?	3	6	11	24	43	35	3.5	8	2	41	41	15	0
L 4178B?	7	1	11	24	98	82	8.1	16	2	58	46	28	0
M 4133B	11	19	12	33	80	96	4.8	2	1	37	51	11	0
N 4122B	1	2	1	2	2	4	-	-	-	-	-	-	0
O 4118B	1	1	1	2	2	4	-	-	-	-	-	-	18
P 4105S?	5	15	7	28	94	92	2.4	0	1	19	141	0	40
Q 4046S	3	10	1	18	56	67	1.2	0	1	17	149	0	90
LINE 10640	(FLIGHT		8)										
A 4473S	2	8	1	14	45	58	1.1	0	1	7	506	0	0
B 4517S	2	7	2	10	26	48	1.3	0	1	22	541	0	40
C 4532S	2	6	2	11	36	11	1.5	0	1	25	253	0	0
D 4552S	5	10	6	20	57	42	2.9	0	1	32	124	0	0
E 4581S?	7	8	9	25	114	54	5.0	12	1	21	117	0	0
F 4600B?	1	2	1	2	2	4	-	-	-	-	-	-	0
G 4629B?	10	11	2	27	72	28	3.7	0	1	35	69	5	0
H 4636B	10	11	1	22	54	89	4.1	4	2	36	40	11	0
I 4670S	4	13	5	26	71	65	2.1	0	1	20	111	0	0
J 4684S	5	15	5	26	75	54	2.1	0	1	22	117	0	0
K 4693S?	3	12	2	18	71	74	1.3	0	1	21	102	0	0
L 4729H	3	7	4	4	31	15	1.0	0	1	39	58	23	0
LINE 10650	(FLIGHT		8)										
A 5354S	1	12	2	24	82	118	0.7	0	1	2	454	0	0
B 5338S	3	14	1	26	89	114	1.0	0	1	17	350	0	0
C 5328S	0	2	1	2	2	4	-	-	-	-	-	-	0
D 5300S	3	13	3	25	59	182	1.2	0	1	9	401	0	0

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		COAXIAL 900 HZ		COPLANAR 900 HZ		COPLANAR 7200 HZ		VERTICAL DIKE		HORIZONTAL SHEET		CONDUCTIVE EARTH		MAG CORR
ANOMALY/	FID/INTERP	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	COND SIEMEN	DEPTH* M	COND SIEMEN	DEPTH M	RESIS OHM-M	DEPTH M	NT
LINE 10650		(FLIGHT		8)										
E	5286B?	4	29	4	50	154	231	0.9	0	1	0	292	0	100
F	5270S	3	9	3	19	66	83	1.6	6	1	22	195	0	0
G	5247S?	1	2	1	2	2	4	-	-	-	-	-	-	10
H	5202B?	11	34	9	60	110	118	2.5	0	1	25	98	0	0
I	5190B	7	9	7	15	40	46	5.1	15	1	24	96	0	0
J	5181B	1	2	1	2	2	4	-	-	-	-	-	-	0
K	5173B?	14	18	37	46	77	45	9.4	6	2	23	32	2	0
L	5171B	13	14	37	46	77	141	10.0	0	2	17	39	0	0
M	5160B?	0	20	6	16	40	165	1.1	7	1	12	347	0	190
N	5143S	1	8	1	16	22	112	0.5	4	1	18	472	0	0
O	5102B?	11	6	12	55	135	159	4.7	0	1	25	52	1	0
P	5095B?	1	2	1	2	2	4	-	-	-	-	-	-	0
Q	5090B?	1	2	1	2	2	4	-	-	-	-	-	-	0
R	5048S	4	9	3	16	52	75	2.4	4	1	23	110	0	0
S	5026S	6	20	9	39	114	128	2.4	0	1	17	71	0	17
T	5006B	9	24	9	44	127	145	2.9	0	1	26	62	2	0
U	4978B	1	2	1	2	2	4	-	-	-	-	-	-	0
V	4970B	13	14	8	31	87	112	5.3	2	1	35	53	8	0
W	4910S?	5	27	2	48	103	218	0.9	0	1	14	167	0	0
LINE 10660		(FLIGHT		8)										
A	5412S	1	5	1	11	29	61	0.9	1	1	30	647	0	60
B	5439S?	2	20	2	44	110	265	0.7	0	1	6	305	0	0
C	5447S?	1	2	1	2	2	4	-	-	-	-	-	-	0
D	5457S?	1	6	3	15	35	90	1.3	9	1	15	403	0	7
LINE 10661		(FLIGHT		8)										
A	5668S?	7	19	6	28	100	87	2.4	0	1	8	204	0	0
B	5678S	4	9	4	15	50	70	2.6	13	1	21	250	0	0
C	5701S?	4	8	3	14	41	22	2.2	0	1	32	168	0	0
D	5719S?	0	2	1	2	2	4	-	-	-	-	-	-	200
E	5734S	5	16	2	26	73	88	1.7	0	1	23	88	0	0
LINE 10662		(FLIGHT		8)										
A	5886S	2	7	3	12	31	70	1.6	1	1	13	486	0	0
B	5902S?	14	15	3	60	159	127	3.3	0	1	22	57	0	0
C	5907S?	6	21	13	36	104	59	2.9	0	1	16	115	0	0
D	5927S?	1	2	1	2	2	4	-	-	-	-	-	-	0
E	5930S?	1	2	1	2	2	4	-	-	-	-	-	-	0
F	5974B?	16	4	10	7	95	83	45.2	14	2	33	32	8	0
G	5997B?	1	2	1	2	2	4	-	-	-	-	-	-	0

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. LINE, OR BECAUSE OF A SHALLOW DIP OR OVERBURDEN EFFECTS. .

	COAXIAL 900 HZ		COPLANAR 900 HZ		COPLANAR 7200 HZ		VERTICAL DIKE		HORIZONTAL SHEET		CONDUCTIVE EARTH		MAG CORR
ANOMALY/ FID/INTERP	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	COND SIEMEN	DEPTH* M	COND SIEMEN	DEPTH M	RESIS OHM-M	DEPTH M	NT
LINE 10670 (FLIGHT 8)													
A 6384H	2	7	3	15	43	40	1.6	9	1	40	116	8	80
B 6341S	5	4	11	29	76	38	4.5	2	1	28	85	0	0
C 6296S?	1	14	7	24	35	155	1.3	5	1	12	388	0	0
D 6253B	11	16	14	24	79	200	6.2	18	1	29	81	4	7
E 6251B	10	6	2	24	79	152	4.9	19	1	34	62	9	0
F 6244B	20	24	3	47	124	94	4.8	0	1	22	67	0	0
G 6224S?	0	2	0	2	2	4	-	-	-	-	-	-	0
H 6209H	5	8	9	1	48	33	1.0	0	1	29	61	14	0
I 6152H	1	2	1	2	2	4	-	-	-	-	-	-	0
J 6123B	11	8	18	1	5	16	28.7	15	2	38	45	10	0
K 6085B?	9	14	16	31	116	30	5.6	20	1	32	92	6	0
LINE 10671 (FLIGHT 9)													
A 2017S	3	1	4	25	54	92	2.8	19	1	32	195	0	0
B 1983S	1	2	1	2	2	4	-	-	-	-	-	-	20
LINE 10680 (FLIGHT 9)													
A 2141S	2	7	2	12	41	42	1.7	2	1	22	293	0	0
B 2152S	4	12	4	18	53	70	2.1	0	1	22	238	0	0
C 2166H	5	7	10	14	35	46	5.3	8	1	32	84	1	0
D 2184S	4	8	6	16	28	83	3.1	9	1	13	514	0	230
E 2198S?	7	14	2	16	72	47	2.9	0	1	33	84	2	0
F 2233H	3	10	4	16	57	15	1.9	1	1	35	79	6	0
G 2241B?	5	12	4	18	58	79	2.4	0	1	23	67	0	80
H 2249D	14	14	20	29	94	111	9.2	7	1	37	70	8	0
LINE 10681 (FLIGHT 9)													
A 2438B?	10	10	16	8	24	115	13.5	10	1	39	64	9	0
B 2464H	7	15	13	17	53	38	5.4	19	1	41	60	15	0
C 2479H	7	6	13	12	28	56	10.4	16	1	30	63	2	0
D 2503B?	8	12	10	15	113	107	5.8	9	2	34	28	11	0
E 2509D	13	11	28	39	68	47	9.7	21	1	46	65	19	0
F 2532H	5	10	8	0	48	66	6.5	42	2	60	39	34	0
LINE 10690 (FLIGHT 9)													
A 2915S	3	19	5	35	103	168	1.3	0	1	27	178	0	0
B 2885H	10	5	7	6	105	56	17.9	34	1	28	54	4	0
C 2866S	2	10	3	19	48	92	1.1	6	1	22	307	0	20
D 2832B	1	2	1	2	2	4	-	-	-	-	-	-	40
E 2809S	0	2	0	2	2	4	-	-	-	-	-	-	0
F 2777S	4	7	9	12	26	93	4.7	28	1	42	165	9	0

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LINE 10690	(FLIGHT	9)											
G 2757B	6	23	12	52	111	177	2.4	0	1	23	88	0	0
H 2754B	1	2	1	2	2	4	-	-	-	-	-	-	0
I 2750D	12	10	1	2	10	29	10.5	10	1	30	68	0	0
J 2710S	7	15	7	35	108	107	2.8	0	1	23	101	0	0
K 2687H	6	31	17	60	172	229	2.5	0	1	31	59	6	0
L 2670H	1	2	1	2	2	4	-	-	-	-	-	-	0
M 2659H	1	2	1	2	2	4	-	-	-	-	-	-	14
N 2653D	15	13	11	11	29	94	11.3	24	1	49	59	21	0
O 2632B	13	28	4	48	148	136	3.0	6	1	39	62	14	0
P 2625B	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 10700	(FLIGHT	9)											
A 2966S?	7	26	10	48	144	216	2.4	0	1	14	179	0	0
B 2985H	7	20	15	37	98	100	3.4	8	1	38	65	12	0
C 3011S	1	10	4	16	34	81	1.0	2	1	17	495	0	0
LINE 10701	(FLIGHT	9)											
A 3197S	4	12	4	23	42	70	2.0	4	1	34	222	0	160
B 3242H	2	8	5	14	36	48	2.2	1	1	38	74	7	17
C 3260B	4	6	19	9	19	19	11.9	3	1	35	56	5	0
D 3264B	12	18	19	28	93	88	6.6	1	1	30	75	2	0
E 3292S	2	14	6	25	83	138	1.3	0	1	14	212	0	0
F 3316S	1	2	1	2	2	4	-	-	-	-	-	-	0
G 3333H	1	2	1	2	2	4	-	-	-	-	-	-	0
H 3336B?	6	15	4	24	69	91	2.4	0	1	29	55	3	4
I 3340B	12	18	1	18	54	28	4.0	3	1	29	62	3	0
J 3362H	1	2	1	2	2	4	-	-	-	-	-	-	0
LINE 10710	(FLIGHT	9)											
A 3718S	3	7	5	20	64	43	2.6	1	1	23	140	0	0
B 3658S?	0	17	4	31	21	141	0.6	0	1	9	390	0	330
C 3599H	12	9	18	55	63	154	5.6	7	1	26	53	3	0
D 3586H	5	23	11	43	130	157	2.3	0	1	27	51	3	0
E 3583B?	5	23	11	43	130	157	2.2	0	1	19	83	0	220
F 3574B?	3	15	21	22	83	34	4.5	4	1	33	58	6	0
G 3555S	0	13	0	23	51	134	0.5	6	1	3	312	0	0
H 3545S	1	16	3	30	62	207	0.6	0	1	3	333	0	0
I 3499S	3	12	6	25	61	64	2.1	0	1	25	86	0	0
J 3482B?	1	2	1	2	2	4	-	-	-	-	-	-	0
K 3475B?	5	12	4	34	94	146	2.0	0	1	33	55	7	0
L 3454B?	8	9	4	0	26	9	8.5	35	2	51	48	24	0

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LINE 10710	(FLIGHT 9)												
M 3426H	7	22	10	39	97	121	2.6	0	1	28	48	5	0
LINE 10720	(FLIGHT 9)												
A 3820S?	1	2	1	2	2	4	-	-	-	-	-	-	0
B 3840S	2	11	5	2	56	100	0.9	0	1	29	78	13	130
C 3862S	0	9	0	13	38	71	0.5	3	1	21	530	0	0
D 3885S?	4	14	10	18	53	54	3.1	15	1	42	153	10	150
E 3929S?	0	12	0	13	68	147	4.7	33	1	17	340	1	0
F 3942H	11	7	21	35	131	31	8.8	16	1	29	69	4	0
G 3957H	1	2	1	2	2	4	-	-	-	-	-	-	0
H 3967H	13	47	22	94	260	193	3.1	0	1	22	51	1	0
I 3992S	1	12	4	15	41	97	1.0	0	1	17	355	0	0
J 4011S?	2	10	2	19	56	48	0.8	1	1	28	392	0	80
K 4031S?	0	2	1	2	2	4	-	-	-	-	-	-	280
L 4036H	1	2	1	2	2	4	-	-	-	-	-	-	0
M 4054S	2	18	3	34	102	137	0.8	0	1	19	102	0	0
N 4064H	6	19	2	36	80	96	1.6	0	1	26	67	0	0
O 4088H	4	7	7	12	36	28	4.2	22	1	54	65	24	0
LINE 10730	(FLIGHT 9)												
A 4498H	1	2	1	2	2	4	-	-	-	-	-	-	0
B 4473H	5	16	5	18	82	114	2.3	8	1	30	120	2	0
C 4390H	1	2	1	2	2	4	-	-	-	-	-	-	0
D 4365B	15	33	12	52	140	140	3.9	0	1	27	53	3	0
E 4342S?	3	15	7	18	41	135	2.0	3	1	30	198	0	0
F 4328B?	1	2	1	2	2	4	-	-	-	-	-	-	220
G 4324S?	1	23	0	42	134	244	0.6	0	1	5	375	0	0
H 4281H	1	2	1	2	2	4	-	-	-	-	-	-	0
I 4228H	10	10	9	3	100	178	12.3	30	1	30	55	6	0
J 4227B?	11	7	9	3	100	8	20.0	34	1	33	64	7	0
LINE 10740	(FLIGHT 9)												
A 4558S?	2	21	7	28	68	145	1.1	0	1	15	287	0	0
B 4586H	1	2	1	2	2	4	-	-	-	-	-	-	0
C 4676B	15	42	22	48	129	169	4.6	1	1	27	55	4	70
D 4710B?	1	2	1	2	2	4	-	-	-	-	-	-	110
E 4713B?	5	24	5	41	119	218	1.5	0	1	0	332	0	0
F 4765H	2	10	0	17	13	93	0.6	0	1	23	94	0	0
G 4773B?	5	1	6	29	8	25	3.5	22	1	39	102	10	0
LINE 10750	(FLIGHT 11)												
A 2344S	4	12	7	15	58	71	2.7	9	1	23	152	0	0

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LINE 10750 (FLIGHT 11)													
B 2322S	5	12	5	12	78	38	2.9	16	1	28	224	0	0
C 2304S	2	9	3	7	38	74	1.6	0	1	21	235	0	0
D 2244B?	11	27	18	49	162	172	4.1	0	1	22	83	0	130
E 2237B?	1	2	1	2	2	4	-	-	-	-	-	-	0
F 2195S	0	9	0	14	22	91	0.5	3	1	19	504	0	0
G 2178S	1	8	2	13	22	84	0.9	4	1	19	514	0	0
H 2135H	1	2	1	2	2	4	-	-	-	-	-	-	0
I 2119H	1	2	1	2	2	4	-	-	-	-	-	-	0
J 2097H	1	9	9	19	42	46	1.9	7	2	50	46	23	0
LINE 10760 (FLIGHT 11)													
A 2390S?	5	9	9	14	46	41	4.6	5	1	28	110	0	0
B 2409S	3	8	3	15	51	7	2.1	0	1	23	230	0	0
C 2430H	3	10	5	17	46	49	2.1	7	1	45	162	10	580
D 2470B	8	12	7	7	51	17	6.2	0	1	29	74	0	110
E 2483B?	10	13	18	40	70	99	5.5	0	1	23	59	0	0
F 2489B	14	8	26	17	49	37	21.4	13	1	31	56	5	80
G 2504S?	3	10	6	13	30	60	2.5	4	1	43	112	9	0
H 2541S	3	7	5	12	38	44	2.7	0	1	16	371	0	0
I 2592H	2	10	2	17	41	56	1.0	0	1	39	55	12	0
LINE 10770 (FLIGHT 11)													
A 2927H	6	30	8	53	161	190	1.7	0	1	27	101	1	270
B 2903S?	7	21	8	33	113	141	2.8	0	1	17	162	0	0
C 2816B?	11	16	8	33	118	77	4.1	3	1	26	65	1	0
D 2804B	3	26	10	45	115	284	1.5	0	1	12	177	0	0
E 2798B	9	18	5	28	83	199	3.1	9	1	34	77	8	0
F 2764S	4	6	2	7	25	71	2.9	20	1	19	485	0	0
G 2733S	3	7	2	6	39	39	2.5	21	1	27	480	0	0
H 2715H	2	8	4	13	36	64	1.7	15	1	38	286	4	0
I 2700H	5	8	5	17	58	53	3.0	13	1	42	164	8	0
J 2671H	5	21	10	27	68	113	2.4	0	1	29	57	4	0
K 2656H	10	9	18	19	41	51	10.6	19	1	32	57	7	0
LINE 19010 (FLIGHT 11)													
A 3244H	3	13	5	26	73	79	1.7	4	1	33	124	4	0
B 3300S?	3	14	6	29	61	119	1.5	0	1	11	440	0	0
C 3308S?	0	26	4	49	134	251	0.6	4	1	12	455	0	0
D 3335S	0	2	1	2	2	4	-	-	-	-	-	-	0
E 3454S	1	2	1	2	2	4	-	-	-	-	-	-	0
F 3506S	5	10	8	21	42	56	3.3	4	1	28	116	0	0

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LINE 19020	(FLIGHT	11)											
A 4162H	7	8	10	16	39	42	5.9	21	2	48	33	24	0
B 4149H	1	2	1	2	2	4	-	-	-	-	-	-	0
C 4114H	2	6	3	7	29	42	2.3	15	2	57	49	27	0
D 4091H	5	14	1	26	66	63	1.6	0	2	35	40	11	0
E 4022H	2	7	0	12	32	71	0.7	0	1	32	147	0	0
F 3991S	2	7	2	8	19	47	1.2	0	1	36	211	0	0
G 3952S	1	2	1	2	2	4	-	-	-	-	-	-	0

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