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# DIGHEMIII SURVEY

# OF THE

# FOUR CORNERS AREA, TIMMINS, ONTARIO

FOR

# CHEVRON CANADA RESOURCES LIMITED

BY

# DIGHEM SURVEYS & PROCESSING INC.

Mississauga, Ontario October, 1984

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#### SUMMARY AND RECOMMENDATIONS

A total of 273 km of survey was flown with the DIGHEMIII system in August 1984, over a property held by Chevron Canada Resources Limited near Timmins, Ontario.

The survey outlined several discrete bedrock conductors associated with areas of low resistivity. They mostly occur on the flanks of well defined, narrow magnetic trends. Only in а few instances the bedrock conductors are also magnetic. Most of these anomalies appear to warrant further investigation using appropriate surface exploration techniques. Areas of interest may be assigned priorities for follow-up work on the basis of supporting geological, geochemical, and other goephysical information.

The area of interest contains at least six anomalous features which are considered to be of high priority as exploration targets.

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LOCATION MAP

Scale 1:250,000

Figure l The Survey Area



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- A. The Flight Record and Path Recovery
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# INTRODUCTION

A DIGHEMIII electromagnetic/resistivity/magnetic survey totalling 273 line-km was flown with a 200 m line-spacing for Chevron Canada Resources Limited, on August 2 and 3, 1984, in the Four Corners area of Ontario (Figure 1).

The Astar C-GNSM turbine helicopter flew at an average airspeed of 119 km/h with an EM bird height of approximately Ancillary equipment consisted of a Sonotek PMH 5010 31 m. magnetometer with its bird at an average height of 46 m, a Sperry radio altimeter, a Geocam sequence camera, an RMS GR33 analog recorder, a Sonotek SDS 1200 digital data acquisition system and a DigiData 1140 9-track 800-bpi magnetic tape recorder. The analog equipment recorded four channels of EM data at approximately 900 Hz, two channels of EM data at approximately 7200 Hz, two ambient EM noise channels (for the coaxial and coplanar receivers), two channels of magnetics (coarse and fine count), and a channel of radio altitude. The digital equipment recorded the above parameters, with the EM data to a sensitivity of 0.20 ppm at 900 Hz and 0.40 ppm at 7200 Hz and the magnetic field to one nT (i.e., one gamma).

Appendix A provides details on the data channels, their respective sensitivities, and the 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.

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

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In areas where magnetite causes the inphase components to become negative, the apparent conductance and depth of EM anomalies may be unreliable.

Areas, in which EM responses are evident only on the quadrature components, indicate zones of poor conductivity. Where these responses are coincident with strong 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. These weak features are evident on the resistivity map but may not be shown on the electromagnetic anomaly map. If it is expected that poorly-conductive sulphides may be associated with magnetite-rich units, some of these weakly anomalous features may be of interest.

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### SECTION I: SURVEY RESULTS

The survey covered an irregularly shaped block of land located about 20 km west of Timmins, Ontario. The survey block, covering the adjacent corners of the Turnbull, Godfrey, Bristol, and Carscallen Townships, was flown in two mutually perpendicular directions. The flight line directions, numbers, and distances flown are indicated below.

Line No.	Line Direction	km
1- 27	NW-SE	139
101-135	NE-SW	134
Total		273

Results of the survey flying are shown on a single map sheet for each parameter. Table I-1 summarizes the EM responses on the map sheet with respect to conductance grade and interpretation.

The resistivity map shows the conductive properties of the survey area. It indicates that the geologic environment

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#### TABLE I-1

## EM ANOMALY STATISTICS OF THE FOUR CORNERS AREA, TIMMINS, ONTARIO

CONDUCTOR GRADE	CONDUCTANCE RANGE	NUMBER OF RESPONSES
6	> 99 MHOS	1
5	50-99 MHOS	1
4	20-49 MHOS	5
3	10-19 MHOS	3
2	5 <b>- 9 M</b> hos	· 8
1	< 5 MHOS	280
х	INDETERMINATE	71
TOTAL		369

CONDUCTOR MODEL	MOST LIKELY SOURCE	NUMBER OF RESPONSES
D	DISCRETE BEDROCK	10
Р	DISCRETE BEDROCK	2
В	DISCRETE BEDROCK	7
Е	BEDROCK OR EDGE EFF	ECT 17
G.	ROCK OR COVER	19
Н	ROCK OR COVER	110
S	COVER	191
L	CULTURE	5
?	QUESTIONABLE	2
(BLANK)		6
TOTAL		369

(SEE EM MAP LEGEND FOR EXPLANATIONS)

is quite resistive, typical resistivity values being in excess of 300 ohm-m. Only a few zones of lower than 300 ohm-m resistivity occur. They reflect bedrock conductors, and near-surface conductive features, e.g., overburden. The high resistivity zones, i.e., areas with values in excess of 3,000 ohm-m, are, in general, confined to magnetic trends and, in some instances, to high ground. Conversely, low resistivity zones occur in the magnetically quiet areas or on the flanks of the magnetic trends, except when the low resistivity is due to a magnetic bedrock conductor, e.g., 113F-115B.

The magnetic field in the survey area varies from about 59,060 nT to more than 59,650 nT. The eastern half of the area displays higher magnetic activity than the western half. Several narrow trends of close to north-south direction occur here which are particularly well defined on the enhanced magnetic map. An east-west striking anomaly is distinguished on the magnetic maps that crosses the other trends and extends east of the intersection of lines 13 and 122.

The west half of the area contains two narrow magnetic anomalies. One, paralleling the north-southerly trends of the eastern half, extends from the intersection of lines 1 and 127 toward the northeast end of line 101. The other cross-cuts the area in a northwesterly direction, extending from the southeast end of line 11 toward the southwest end of line 101. The most conspicuous feature of this anomaly is its offset between lines 103 and 105.

In conclusion, the geophysical data indicates complex structures to occur in the area. It appears to contain the wealth of information the full evaluation of which is, however, beyond the scope of this report.

#### CONDUCTORS IN THE SURVEY AREA

The electromagnetic anomaly map shows 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 for follow-up planning, consult the anomaly listings appended to this report to ensure that none of the conductors are overlooked.

Anomaly 19A-102B These grade 1 anomalies reflect a bedrock conductor which occurs on the flank of a weak magnetic

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anomaly. The EM data suggests that the conductor strikes parallel or at low angle to line 19, where the anomaly appears to be of an H-type while being of dipping sheet type on line 102.

A G? conductor is indicated by this grade 1 anomaly which occurs at the tip of a well defined enhanced magnetic anomaly.

A pair of bedrock conductors is indicated by these grade 1 to 4 anomalies and an x-type response. The main conductor 108B-109C, which is best portrayed by the 900 Hz resistivity, occurs on the flank of the major northwesterly striking magnetic anomaly. It is an attractive target which should be investigated on the ground. The conductor is believed to have been drilled in the past by Conwest Exploration Co. Limited.

Anomaly 23A

Anomalies 108B-109C, 12D-109xB - I-6 -

The other conductor, 12D-109xB, is poorly defined and appears to be secondary in nature.

This grade 1 anomaly, which occurs on the flank of a well developed, enhanced magnetic anomaly, reflects a weak broad conductive feature in the bedrock. It has similar characteristics as 23A.

C, All these anomalies were classified as broad, buried conductive unit responses. They fall on a very poorly defined 7200 Hz resistivity trend which also parallels the general magnetic trend in the area.

> The grade and 4 anomalies 1 113F-115B define one of the most attractive magnetic bedrock conductors in the survey area. The conductor, which has a southwest dip, previously drilled was yielding 5 to 10% disseminated pyrite and pyrrhotite.

Anomaly 23B

Anomalies 111C, 112C, 113E, 17xA

Anomalies 113F-115B, 114xA, 19C

The grade 4 anomaly 19C reflects a separate magnetic bedrock conductor which most likely parallels 113F-115B, extending toward line 115.

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The x-type response 114xA may be merely an edge effect.

Anomaly 116E-19E A non-magnetic bedrock conductor located at the tip of a localized enhanced magnetic anomaly is indicated by these grade 1 and 4 anomalies. The conductor, which had been drilled in the past yielding 2 ft. of pyrrhotite, strikes at a low angle to line 19.

Response 116xC This x-type response, which occurs on the flank of a weak enhanced magnetic anomaly, reflects a geologic conductor of broad conductive unit-type.

This grade 1 anomaly may reflect a weak bedrock conductor or a flat

lying, near-surface conductive material. The EM responses at this location were distorted by a spheric which made a proper evaluation of 117B difficult.

Anomalies 122B, 123xC

This poorly defined grade 1 anomaly and an x-type response, which occur the on flank of the main north-southerly magnetic trend, may geologic have origin. Alternatively, they could reflect edge effects.

Conductor of a geologic origin, i.e., broad conductive unit-type, is indicated this by grade 1 anomaly.

Anomalies 10D, 126B, These grade 1 and 2 anomalies and 9D, 127xA an x-type response are of mixed edge effect/broad conductive unit type. They occur along a north-southerly oriented trend that crosses major, northwesterly a

Anomaly 125B

striking, magnetic anomaly and lies on the flank of a high resistivity zone.

A well defined bedrock conductor, which may strike at a low angle to the flight line, is indicated by this grade 2 anomaly.

Anomaly 132B-11J These građe to 5 anomalies 1 reflect an attractive bedrock conductor which, according to the magnetic patterns, may consist of two parts, i.e., 132B-134B and 135B-11J. It should be investigated on the ground.

> This grade 1 anomaly could reflect a weak bedrock conductor. It is located on the flank of a weak enhanced magnetic trend anđ associated with a 500-600 ohm-m zone of a north-southerly strike.

This grade 1 anomaly and an x-type

Anomaly 129B

Anomaly 133B

Anomalies 134C, 135xA

response occur on the flank of a local magnetic trend. They may have geologic origin. However, their location in a creek valley makes them suspect for being of

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near-surface origin or due to aerodynamic noise.

Anomaly 135C

This grade 1 anomaly, which correlates with a small creek, may reflect a weak bedrock feature or, alternatively, near-surface (e.g., overburden) conductor.

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#### SECTION II: BACKGROUND INFORMATION

#### 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

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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 II-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 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 are divided into six grades of conductance, as shown in Table II-1. The conductance in mhos is the reciprocal of resistance in ohms.

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Figure <u>∏</u> −1

Typical DIGHEM anomaly shapes

Table	e II-1.	EM	Anomaly	Grades
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Anomaly Grade	Mho Range
6	> 99
5	50 <b>- 99</b>
4	20 - 49
3	10 - 19
2	5 - 9
1	< 5
2	5 – 9 < 5

The conductance value is a geological parameter because it is a characteristic of the conductor alone. It generally is independent of frequency, and of flying height or depth of burial apart from the averaging over a greater portion of the conductor as height increases.<sup>1</sup> 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 are not plotted on the EM maps. However, patchy conductive overburden in otherwise resistive areas

<sup>&</sup>lt;sup>1</sup> This statement is an approximation. DIGHEM, with its short coil separation, tends to yield larger and more accurate conductance values than airborne systems having a larger coil separation.

can yield discrete anomalies with a conductance grade (cf. Table II-1) of 1, or even of 2 for conducting clays which have resistivities as low as 50 ohm-m. In areas where ground resistivities can be 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, G and sometimes E on the map (see EM legend).

For bedrock conductors, the higher anomaly grades indicate increasingly higher conductances. Examples: DIGHEM'S New Insco copper discovery (Noranda, Canada) yielded a grade 4 anomaly, as did the neighbouring copper-zinc Magusi River ore body; Mattabi (copper-zinc, Sturgeon Lake, Canada) and Whistle (nickel, Sudbury, Canada) gave grade 5; and DIGHEM'S Montcalm nickel-copper discovery (Timmins, Canada) yielded a grade 6 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 5 and 6) are characteristic of massive sulfides or graphite. Moderate conductors (grades 3 and 4) typically reflect sulfides of a less massive character or graphite, while weak bedrock conductors

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(grades 1 and 2) can signify poorly connected graphite or heavily disseminated sulfides. Grade 1 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 1 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 and 2). 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 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 guite 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 guadrature channels. Such small anomalies could reflect a weak conductor at the surface or a stronger conductor at depth. The conductance depth estimate illustrates grade and 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 ĩ

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 The symbols can stand alone conductance grade symbols. 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 (see The accuracy is comparable to an interpretation below). 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

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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 anđ conductive earth parameters.

#### X-type electromagnetic responses

DIGHEM maps contain x-type EM responses in addition to EM anomalies. An x-type response is below the noise threshold of 3 ppm, and reflects 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 (The thickness is equal to the conductor width if plane. 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 crescents. 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

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amplitudes are small, or when the resistivity of the environment is below 100 ohm-m.

### Resistivity mapping

of widespread conductivity are Areas 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 The advantage of the resistivity parameter is data. 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 profile (see table in Appendix A) and the resistivity contour map present the apparent resistivity using the so-called pseudo-layer (or buried) half space model defined in Fraser (1978)<sup>2</sup>. This model consists of a resistive layer overlying a conductive half space. The depth channel (see Appendix A) gives the apparent depth below surface of the conductive material. The apparent depth is simply the apparent thickness of the overlying resistive laver. 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

<sup>&</sup>lt;sup>2</sup> Resistivity mapping with an airborne multicoil electromagnetic system: Geophysics, v. 43, p. 144-172.

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

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comparing the EM and resistivity maps, keep in mind the following:

- (a) The resistivity map portrays the absolute value of the earth's resistivity.
  (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<sup>3</sup>. 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.

<sup>3</sup> The gradient analogy is only valid with regard to the identification of anomalous locations.

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### 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. The processing of DIGHEM data, however, produces six channels 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; see table in Appendix A.

The EM difference channels (DIFI and DIFQ) eliminate up to 99% of the response of conductive ground, leaving responses from bedrock conductors, cultural features (e.g., telephone lines, fences, etc.) and edge effects. An edge effect arises when the conductivity of the ground suddenly changes, and this is 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 two resistivity channels (RES). The most favourable situation is where anomalies coincide on all four 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 both 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 í.

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 above 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 response and magnetic permeability response. 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
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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 channel "FEO" (see Appendix A) which displays apparent weight percent magnetite according to a homogeneous half space model.<sup>4</sup> 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 steeply dipping narrow magnetite-rich bands which are 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

<sup>&</sup>lt;sup>4</sup> Refer to Fraser, 1981, Magnetite mapping with a multicoil airborne electromagnetic system: Geophysics, v. 46, p. 1579-1594.

factor of 2 when the magnetite is fairly uniformly distributed. EM magnetite maps can be generated when magnetic permeability is evident as indicated by anomalies

in the magnetite channel FEO.

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. Channels CXS and CPS (see Appendix A) measure 50 and 60 Hz radiation. An anomaly on these channels shows that the conductor is radiating cultural 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.<sup>5</sup> When the flight crosses the cultural line at a high angle of intersection, the amplitude ratio of coaxial/coplanar (e.g., CXI/CPI) is 4. Such an EM anomaly can only be The geologic body which yields caused by a line. 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 1/4. In the absence of geologic bodies of this geometry, the most likely conductor is a metal roof or

<sup>5</sup> See Figure II-1 presented earlier.

small fenced yard.6 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.<sup>6</sup> 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, 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 geologic conductor coincided with the cultural line.

<sup>&</sup>lt;sup>6</sup> It is a characteristic of EM that geometrically identical 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.

6. The above description of anomaly shapes is valid when the culture is not conductively coupled to the In this case, the anomalies arise from environment. 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 channels CXS and CPS, and on the camera film.

## TOTAL FIELD MAGNETICS

The existence of a magnetic correlation with an EM anomaly is indicated directly on the EM map. 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). The digital tape is processed by computer to yield a total field magnetic contour map. When warranted, the magnetic data also may 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 II-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 sensorsource 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 - II-26 -



CYCLES/METRE



Frequency response of magnetic enhancement operator.

AMPLITUDE

•, •

geological structure. It defines the near-surface local 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.

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## MAPS ACCOMPANYING THIS REPORT

Four map sheets accompany this report:

Electromagnetic Anomalies	1	map	sheet
Resistivity	1	map	sheet
Total Field Magnetics	1	map	sheet
Enhanced Magnetics	1	map	sheet

Respectfully submitted, DIGHEM SURVEYS & PROCESSING INC. .

Z. Storiel

Z. Dvorak
Geophysicist

#### STATEMENT OF QUALIFICATIONS

I, Zbynek Dvorak, of the City of Toronto, Province of Ontario, do hereby certify that:

- 1. I am a geophysicist residing at 146 Three Valleys Dr., Don Mills, Ontario.
- 2. I am a graduate of Charles University, Prague, Czechoslovakia with a Graduate Geophysicist degree (M.Sc.) (1961), and of the Czechoslovak Academy of Science with a C.Sc. (Ph.D.) degree (1967) in Geophysics.
- 3. I have been practising my profession since July 1961.
- 4. I have been employed by Dighem Limited since March, 1978, as a geophysicist, and from March 1982 as Vice-President. In August, 1984, I became a consulting geophysicist and in October, 1984, President of Urguhart Dvorak Limited.
- 5. The statements made in this report represent my best opinion and judgment.

Dated at Toronto this 26th day of October, 1984.

Z. Onio/

Zbynek Dvorak

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## APPENDIX A

#### THE FLIGHT RECORD AND PATH RECOVERY

Both analog and digital flight records were produced. The analog profiles were recorded on chart paper in the aircraft during the survey. The digital profiles were generated later by computer and plotted on electrostatic chart paper at a scale of 1:10,000. The digital profiles are listed in Table A-1 and the analog profiles in Table A-2.

In Table A-1, the log resistivity scale of 0.03 decade/mm means that the resistivity changes by an order of magnitude in 33 mm. The resistivities at 0, 33, 67, 100 and 133 mm up from the bottom of the digital flight record are respectively 1, 10, 100, 1,000 and 10,000 ohm-m.

Correlation of geophysical data to ground position is accomplished through the use of a fiducial system, which is an incremental counter updating every two seconds. Each fiducial number is registered on the analog record, the digital recording system, and as an individually numbered camera frame. Recognizable topographic or cultural features are then used to plot fiducials on the base maps to locate the track of the aircraft. The fiducial locations on both the flight records and flight path maps were examined by a computer for unusual helicopter speed changes. Such speed changes may denote an error in flight path recovery. The resulting flight path locations therefore reflect a more stringent checking than is normally provided by manual flight path recovery techniques.

## Table A-1. The Digital Profiles

Chan	Channel Scale												
Name ()	Freq)	Observed parameters	<u>units/mm</u>										
MAG		magnetics	10 nT										
ALT		bird height	3 m										
CXI (	900 Hz)	vertical coaxial coil-pair inphase	1 ppm										
icxo (	900 Hz)	vertical coaxial coil-pair quadrature	1 ppm										
icxs (	900 Hz)	ambient noise monitor (coaxial receiver)	1 ppm										
CPI (	900 Hz)	horizontal coplanar coil-pair inphase	1 ppm										
CPO (	900 Hz)	horizontal coplanar coil-pair quadrature	1 ppm										
CPS (	900 Hz)	ambient noise monitor (coplanar receiver)	1 ppm										
CPI (	7200 Hz)	horizontal coplanar coil-pair inphase	1 ppm										
CPO (	7200 Hz)	horizontal coplanar coil-pair quadrature	1 ppm										
	·												
1		Computed Parameters											
DIFI (	900 Hz)	difference function inphase from CXI and CPI	1 ppm										
DIFO (	900 Hz)	difference function guadrature from CXQ and CPQ	1 ppm										
REC1	,	first anomaly recognition function	1 ppm										
REC2		second anomaly recognition function	1 ppm										
REC3		third anomaly recognition function	1 ppm										
REC4		fourth anomaly recognition function	1 ppm										
CDT		conductance	1 građe										
RES (	900 Hz)	log resistivity	.03 decade										
RES (	7200 Hz)	log resistivity	.03 decade										
DP (	900 Hz)	apparent depth	3 m										
DP (	7200 Hz)	apparent depth	3 m										
FEO% (	900 Hz)	apparent weight percent magnetite	0.25%										

Table A-2. The Analog Profiles

Channel Number	Parameter	Sensitivity per mm	Designation on computer profile
01	coaxial inphase ( 900 Hz)	2.5 ppm	CXI ( 900 Hz)
02	coaxial quad ( 900 Hz)	2.5 ppm	CXQ ( 900 Hz)
03	coplanar inphase ( 900 Hz)	2.5 ppm	CPI ( 900 Hz)
04	coplanar quad ( 900 Hz)	2.5 ppm	CPQ ( 900 Hz)
05	coplanar inphase (7200 Hz)	5.0 ppm	CPI (7200 Hz)
06	coplanar quad (7200 Hz)	5.0 ppm	CPQ (7200 Hz)
07	coaxial monitor ( 900 Hz)	2.5 ppm	CXS ( 900 Hz)
08	coplanar monitor ( 900 Hz)	2.5 ppm	CPS ( 900 Hz)
09	altimeter	3 m	ALT
10	magnetics, coarse	10 nT	MAG
11	magnetics, fine	2 nT	

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## APPENDIX B

## EM ANOMALY LIST

			CO2 9 (	AXIAL DO HZ	COPI 9(	LANAR Do Hz	COP1 720	LANAR 00 Hz	• VER	fical Ike	. Hori: . Shi	zontal Eet	CONDUC	CTIVE FH
AI FII	NOMAL D/INT	Y/ ERP	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	. COND . MHOS	DEPTH* M	COND MHOS	depth M	RESIS OHM-M	DEPTH M
L	INE	 1	(1	7LIGHT	11)	1			•		•			
A	244	H?	1	2	1	4	10	38	. 1	0	. 1	15	562	0
B	252	H	1	4	0	8	34	68	• 1	1	• 1	18	292	Ŏ
L	 INE	2	(1	T.TGHT	· 11)				•		•			
A	386	H2	3	3	1	7	14	69	. 1	0	. 1	19	619	٥
B	405	S	1	3	Ó	6	12	62	. 1	Õ	. 1	12	644	õ
С	414	S?	1	2	0	3	9	51	. 1	Ū,	. 1	16	1107	Ő
 L-1	 INE	 2	(1	ат.тсни	11				•		•			
A.	505	s	0	6	0	12	29	115	. 1	35	• . 1	59	392	30
B	496	н	Ő	4	ň	6	13	65	. 1	0	. 1	22	625	· 0
c	484	S	1	3	ŏ	7	10	68	. 1	0	. 1	14	687	Ő
 T.1	 NR	 A	/ F	T.TGHT	11				•		•			
Δ	542	s	0 (*	5	0	10	21	96	•	n '	•	12	500	•
B	551	H	0	1	0	3	11	27	• 1	1	· ·	25	542	0
	• ••• •• •• •• •		17						•	•	)			
ניד	LNE 676	7	(1	LTCHL 2	· · · · )	£	16	67	• •	40	•	00	100	
n b	670	11 11	1	3	4	0	10	0/ 54	• 3	40 0		80	120	46
0	620	л 2	5	4	1	9	20	24 11	• 1	8 .		17	410	0
		•	5	U	2	1	5	11	• 130	00	) I )	200	342	90
L]	INE	6	(F	LIGHT	11)						,			
A	730	H	1	2	0	3	12	28	. 1	0	. 1	31	300	3
В	747	S	0	3	<b>O</b>	9	21	65	. 1	0.	. 1	24	234	5
С	760	S	1	4	0	8	20	83	• 1	0.	. 1	14	419	0
D	775	H	0	1	0	2	7	21	. 1	0.	1	23	600	0
	NE		15		4 4 1				•	•	•			
71 1	000	ر د	1) 1	DIGUL	11)	E	10	43	•		•	4 5	60F	•
R	808	о н	1	2	0	5	10	43	• •	2	· I	15	025	U A
c	884	S	ò	2	Ő	4	10	43	. 1	0	1	13	647	0
-									•					
LI	NE	8	(F	LIGHT	11)				•		,			
В	947	S	0	4	0	9	31	77	. 1	Ο.	. 1	14	337	0
С	959	H	2	2	1	2	19	20	• 1	5.	1	30	303	6
D	971	S	1	3	1	4	11	39	• 1	0.	1	19	722	0
ΓI	NE	9	(F	LIGHT	11)				•	•				
A	1116	s	1	5	0	10	42	88	• . 1	0	1	14	212	٥
В	1108	s	3	2	Ő	4	21	43	. 1	0.	1	18	291	0
	•												•	
	•*	ES'	FIMAT	ED DE	PTH M	AY BE	UNRE	LIABL	E BECAU	ISE THE	STRONG	ER PAR	r.	
	•	OF	THE	CONDU	CTOR	MAY B	E DEE	PER O	r to on	IE SIDE	OF THE	FLIGH	r.	

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

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			CO2 91	AXIAL 00 HZ	COPI 9(	LANAR DO HZ	COPI 72(	LANAR DO HZ	• VER	FICAL . IKE .	HORI	zontal Eet	CONDUC	CTIVE TH
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FI	D/INI	ERP	PPM	<b>DDW</b>	PPM	DDM DDM	DDM	QUAD DDM	. COND	DEPTH*.	COND	DEPTH	RESIS	DEPTH
								E E 14	• 11105	M •	MIOS	м	UHM-M	M
L	INE	9	(1	LIGHT	. <b>11</b> )				•	•				
С	1089	H	1	3	0	4	10	25	. 1	6.	1	16	694	0
D	1064	H?	2	2	2	2	15	25	. 8	59.	1	101	483	25
E	1058	G?	1	1	0	2	6	26	• 1	2.	1	32	619	
	** *** *** *** *** ** * * ***								•	•				
ניד	1150	10	1)	LIGHT	' 11) ^	•	~ ~		•	•	-			
R	1159	о ч	1	4	0	9	31	77	• 1	0.	1	16	296	0
c	1199	с 11	י כ	2	0	4	20	33	• 1	υ.	1	27	318	3
ň	1205	E2	1	2	0	4 0	21	54 05	• 1	υ.	1	5	1239	0
Ē	1208	s	1	1	0	3	21	36	• I 1	0.	1	20	606	0
			•	•	Ŭ	5	,	30	• •		1	14	625	U
LI	INE	11	(F	LIGHT	11)				•	•				
Α	1410	H	0	3	0	5	16	52	. 1	0.	1	30	402	6
В	1401	Н	4	2	0	4	12	44	. 1	0.	1	26	460	1
D	1388	H?	0	3	0	5	9	50	• 1	Ο.	1	22	744	O
Е	1356	S	0	5	0	13	17	120	• 1	ο.	1	9	679	Ō
F	1340	Н?	1	2	. 0	5	14	41	• 1	5.	1	36	480	11
G	1330	S	1	15	0	31	68	282	. 1	Ο.	1	8	239	0
J	1310	В	3	1	4	3	15	17	. 12	57.	1	108	155	59
LI	NE	12	(F	T.TGHT	11)				•	٠				
A	1430	H2	2	2	0	2	11	22	• 1	•••	1	24	410	~
В	1437	н	1	1	ñ	2	8	22	• •	0.	1	34	419	5
C	1441	Н	2	1	Õ	3	13	23	. 1	4	1	23	321	7
D	1447	B?	2	4	3	3	14	29		24	2	171	521	124
Е	1487	S	4	4	1	10	14	100	. 1	0.	1	7	775	129
F	1491	H?	3	1	1	3	11	30	. 1	5.	1	31	587	5
G	1500	H	3	- 1	0	1	9	13	. 1	15 .	1	33	546	5
H	1525	G?	1	3	3	8	25	50	1	0.	1	33	267	11
								,	,	•				
	NE	13	(F.	LIGHT	11)	-				٠				
A	1682	S	1	2	0	3	11	42	1	0.	1	18	386	0
а С	10/4	5	0	2	0	4	12	40.	1	0.	1	21	308	. 0
	10/0	н	U c	4	10	7	27	65.	1	1.	1	27	285	6
E	1645	S	0	4 7	19	6	3/	58.	23	30.	6	111	5	93
F	1613	ŝ	2	2	1	8	32	90 . 93	• •	0.	1	12	1404	U
G	1600	s	1	1	ó	ર	11	25	· 1	0.	1	1/	411	0
H	1585	D	5	3	11	8	26	15	13	27	2	101	400	- U
-			-	-	••	•			15		L	101	31	09
LI	NE	14	(F)	LIGHT	10)			•		•				
A	1941	H	0	3	1	2	8	15.	1	11 .	1	28	422	3
	•												•	-
	•*	EST:	IMATI	ED DEP	TH M	Y BE	UNREI	LIABLE	BECAU	se the s	TRONG	ER PAR	r .	
	•	UF !	LHE (		TOR N	AY BE	DEEI	PER OR	TO ONI	E SIDE O	F THE	FLIGH	г.	
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			CO2 9(	AXIAL DO HZ	COPI 91	LANAR DO HZ	COP: 72	LANAR 00 Hz	•	VER! D	TICAL IKE	HORIS Shi	zontal Set	CONDU EAR	CTIVE TH
F	ANOMA ID/IN	LY/ TERP	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	. C	Cond Mos	DEPTH*. M	Cond Mhos	DEPTH M	RESIS OHM-M	DEPTH M
	LINE	14	/ 16	PT.TCH	101				•		•				
1	C 197	05	0	1	10)	2	٥	41	•		•				
	F 199	8 S	3	5	, 0	12	37	41 06	•		υ.	1	12	1166	0
1	H 201	6 H	Ō	1	1	3	10	30	•	1	0.	1	14	378	0
					-	•		55	:		U .	ſ	36	476	8
	LINE	15	(F	LIGHT	11)				•						
1	A 171	6 H	2	2	0	2	9	22	•	1	6.	1	23	349	1
1	3 172	5 H	1	2	0	4	13	43	•	1	ο.	1	28	549	1
(	2 174 175	28	0	2	0	8	17	75	•	1	Ο.	1	16	561	0
1	יכ/ו ל 170 ק	55	1	5	2	14	53	99	•	1	Ο.	1	12	228	Ő
-			I	2	2	4	10	41	•	1	Ο.	1	26	1013	Ō
I	INE	16	(F	LIGHT	11)				•		•				
A	1982	2 S	2	4	0	12	27	104	•	1	•				
E	1969	ЭН	0	5	ŏ	10	30	104	•	4	0.	1	14	331	0
C	: 195	H	0	3	Ō	6	14	17	•	1	22	1	20	314	0
1	1937	15	0	7	Ó	15	57	131	•	1	23 <b>.</b>	1	24	730	0
E	1921	S	0	3	0	8	21	72		;	0.	1	10	181	1
F	1912	? S?	0	3	0	6	8	60	•	1	0	1	150	209 1025	U
H	1902	S	0	3	0	5	11	52		i	0.	1	150	1035	0
1	1876	S	2	2	0	4	9	44	•	1	ů.	1	20	1121	0
-		4.7	/						•		•	-			v
<u>لا</u>	1507	17	(FI	JIGHT	10)	-		•	•		•				
C C	1570	л со	0	3	1	6	21	64 .	•	1	Ο.	1	17	344	0
्र प्र	1573	or C	2	3 F	1	7	14	51	•	1	Ο.	1	20	769	0
ध्यः च	1536	0 บว	0	5	U	12	47	89 .	•	1	Ο.	1	13	166	0
G	1508	H2	0	3	ן ר	2	34	67.	•	1	ο.	1	25	269	4
н	1490	E?	2	2	2	3	11	33.	•	1	0.	1	24	764	0
			-	5	2	5	11	45.	•	1	0.	1	27	1013	0
L	INE	18	(FL	IGHT	10)			•	,		•				
A	1341	S	ò	1	0	3	6	35	•	1	· ·		45		
В	1378	Н	0	3	Ō	5	34	52		1	U.	1	17	1238	0
С	1385	S	0	2	0	3	17	20		1	10	1	25	231	5
D	1392	S	0	1	0	4	5	14		1	0.	1	20	41/	0
E	1394	S	0	1	0	5	15	49 .		1	0.	1	10	1070	U
G	1419	Н	1	3	0	5	17	27 .		1	6.	1	22	464	0
H	1423	S	1	3	0	5	17	41.		1	0.	1	20	602	0 0
 7.1	NP	10	/=	T 01				•			•				~
ע ריד	2020	עו ד	(1°1). 1	IGHT	11)			•			•				
R	2023	n U	4	3	2	4	15	22.		1	0.	1	26	272	2
0	£UJ/	П.	1	4	0	3	10	30.		1	Ο.	1	26	758	0
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	•	OFT	HE CO	ONDUCT	OR M	V RF	DEED	LUDUR		-HUSI	S THE ST	KUNGEI	K PART	•	
	•	LINE	, OR	BECAU	SE OF	A S	IAT.TA		0p 10	OUT	OIDE OF	THE I	LIGHT	٠	
									~*/	~ 4 51	- MULU	ALC LUC	L'D .	•	

			COZ	AXIAL	COPI	LANAR	COP	LANAR	٠	VERI	FICAL .	HORI	ZONTAL	CONDUC	CTIVE
			9	00 112	3	00 112	12	00 112	•	101		бп	GET.	EAR	LH
A	NOMAL	Y/ 1	REAL	QUAD	REAL	QUAD	REAL	QUAD	•	COND	DEPTH*.	COND	Depth	RESIS	DEPTH
FI	D/INT	ERP	PPM	PPM	PPM	PPM	PPM	PPM	•	MHOS	м.	MHOS	м	OHMM	М
	 TNF	10		PT TOU					٠		•				
C	2066	B	2	1 IIII	ו ו <i>ו</i> ן ק	, ,	15	2	•	24	30	1	32	207	٥
D	2070	S	2	4	0	5	16	59		1	0.	1	14	303	9
Е	2073	P?	0	3	3	6	23	41		1	1.	1	19	244	ŏ
$\mathbf{F}$	2091	S	0	1	0	3	22	19	•	2	12 .	1	16	267	Ō
G	2097	S	0	5	0	10	25	94	•	1	Ο.	1	13	448	0
H	2108	<b>S</b> ?	1	2	0	4	9	15	•	2	25.	1	142	1035	0
I	2120	S	0	4	0	10	35	85	•	1	ο.	1	19	279	0
		20	/1	21.1010	1 101				٠		•				
A A	1072	H	0	, DIGUI	. 10,	′	R	27	•	1	•	1	30	450	
С	1103	E?	1	2	õ	7	14	17	•	1	21.	1	34	384	-
D	1106	s	Ö	1	Ő	3	7	28	:	1	0.	1	17	369	0
Е	1113	E?	0	2	0	4	13	15	•	1	15.	1	18	552	ŏ
F	1125	S	2	1	0	3	14	23	•	1	8.	- 1	22	299	1
G	1128	S	1	1	0	3	18	25	•	1	9.	1	20	301	Ó
H	1136	S	1	4	0	7	18	73	•	1	Ο.	1	12	326	0
I	1150	H	4	2	0	.4	20	45	•	1	ο.	1	25	399	1
J	1152	н	5	2	0	5	21	60	٠	1	0.	1	24	459	0
 T 1			/1		101				٠		•				
Δ.	1055	2 I S	777		10)	1563	51	66	•	1	•	1	24	200	
В	1029	Н?	0	3	Ó	6	11	57	•	1	0.	1	24 17	200	4
c	1025	S	4	19	2	50	193	391		1	0.	1	9	85	0
D	1012	S	Ō	2	0	6	20	51		1	ŏ.	1	14	449	Ő
Е	1001	S	2	5	0	14	40	111		1	0.	1	12	376	Ő
F	997	S	1	4	1	7	23	48	•	1	5.	1	17	258	0
G	995	S	1	3	0	5	24	39		1	1.	1	13	263	Ō
H	991	S	0	1	0	3	11	44	•	1	ο.	1	16	391	0
I	984	S	0	3	0	5	23	39	•	1	1.	1	14	292	0
J	966	S	0	4	0	7	24	61	•	1	Ο.	1	21	442	0
			/**	1 1010					•		•				
ע דיד	NE 975	22	(F	LIGHT	10)	0	16	27	•	n			4 6	100	•
C	885	s	9 0	0 2	0	0 5	40 17	57	•	4		1	15	189	U
D	899	s	1	8	1	12	33	120	•	1	0.	1	19	222	0
E	903	- H?	4	1	0	5	9	61	•	1	0.	1	29	567	2
F	914	S	1	6	Ō	14	41	117		1	0.	1	14	284	0
G	927	S	0	2	0	3	13	34	•	1	0.	1	13	453	õ
Н	933	S	0	2	1	5	14	26	•	1	75.	1	87	572	63
									•		•				
LI	NE	23	(F	LIGHT	10)	_			٠		•				
A	824	G?	1	1	0	3	11	25	•	1	6.	1	49	404	21
	•	Rem	TMአጣ	ED DE	оти и	מם עע	מסואו	1.1 101	יק	DP/DATI	CP mus 4	סיניסמתי		•	
	•	OF	THE	CONDU	CTOR	MAY R	E DEE	PER O	R		E SIDE (	)F THE	FI.TCH	τ. Τ	
	•	LIN	E, 0	R BEC	AUSE	OFA	SHALL	OW DI	P (	DR OV	ERBURDE	N EFFE	CTS.		
												_	· -	-	

341 #

			CO. 9	AXIAL 00 HZ	COP1 91	LANAR DO HZ	COP: 72	LANAR 00 Hz	•	VER: D	FICAL IKE	. HORI2	zontal Set	CONDU	CTIVE TH
2	ANOMA	LY/	REAL	OUAD	REAL	OUAD	REAL	OUAD	•	COND	ההסמת		DISDUT	55676	
F:	[D/IN	ITERI	PPM	PPM	PPM	PPM	PPM	PPM	•	MHOS	M	• MHOS	DEPTH M	OHM-M	DEPTH M
			•						•			•			••
I I	3 81 3 81	1 G	) (1 2	rlight 2	: 10) 1	· .	-	40	•		-	•			
ā	2 80	1 5		2 1	1	4	10	49	٠	1	0	• 1	39	716	10
r	) 78	1 8	0	16	1	22	18	/3	٠	I	0	• 1	16	524	0
Ē	5 77	6 S	6	5	2	33 Q	00 50	299	٠		0	• 1	8	248	0
F		3 5	Ő	5	1	14	50	22	•	0	33	• 1	7	371	0
Ģ	76	8 S	Ő	8	1	9	53	93	٠	1	1	• 1	11	160	0
I	76	4 S	Ō	6	1	7	31	73	•	1	1	• 1	12	249	0
K	75	0 S	3	5	1	14	37	130	•	1	0	• 1	11	296	0
L	74	3 S	1	5	Ó	10	13	93	•	;	0	• 1	11	369	0
-					-				•	•	v	• !	10	408	0
L	INE	24	(F	LIGHT	11)							•			
A	220	7 S	0	8	o	19	69	119		1	0	. 1	11	171	•
В	218	8 S	1	2	0	2	11	32	•	1	Õ	. 1	15	300	0
С	217	7 H?	0	3	0	5	21	59	•	1	Ō	. 1	58	700	0
-									•		•	•	50	730	U
L	INE	25	(F	LIGHT	10)				•			•			
A	569	H?	2	2	2	5	12	44	•	1	0	• 1	22	898	0
B	550	5 5	4	7	2	18	53	161	٠	1	0	• 1	10	240	Õ
C	55	Н	1	2	0.	3	19	37	•	1	8	• 1	23	244	4
D	540		2	4	2	7	33	64	•	1	0	. 1	13	183	0
E	522	: H?	3	2	2	5	34	43 .	•	1	0	. 1	14	214	Õ
r.	514	115	2	1	0	1	8	16 .	•	1	12	• 1	28	995	0
г. <sup>-</sup>	INE	26	/ FP	LTCHT	111			•	•			•			
A	2294	ŝ	0	5	0		17	70	•			•			
В	2301	S	ર	4	ň	12	10	110		1	0.	1	6	788	0
D	2310	S	õ	5	ñ	11	35	100	•	1	0.		2	770	0
E	2318	S	Ō	8	ñ	8	28	90		1			9	347	0
F	2324	S	Ō	5	õ	12	50	112	)	1	0.		10	239	0
G	2335	S	1	6	ō	10	38	96	•	1	0.	· I	11	147	0
							•••			•	•••	I	12	240	U
LI	NE	27	(FI	LIGHT	10)			•			•				
A	298	S	0	9	0	20	53	181 .		1	47	1	72	266	54
С	287	H	0	3	0	6	13	62 .		1	0.	1	22	673	54
D	262	S	1	1	0	2	8	21.		1	1.	1	13	355	ñ
F	242	S	7	6	6	12	38	101 .		1	0.	1	11	278	0
G	232	H	0	5	0	8	18	77.		1	Ο.	1	18	565	õ
	*** *** *** ***							•			•				•
PT	NE	101	(FL	IGHT	8)			•							
A D	297	H	3	4	1	7	25	80.		1	Ο.	1	22	513	0
D	200	n	1	4	0	8	13	67.		1	Ο.	1	15	478	Ō
	•	EC.	TMአጣ።	יחיפת חי		י דר ד		****				_		•	
	•	05.1	THE O	NIDUC'	ID MA	I BE   NV PP	UNREL	TABLE	BE	CAUS	e the	STRONGE	R PART	•	
	•	T.TNI	E. 0D	BFONT	IOR M	HI BE	DEEP.	ER OR	TO	ONE	SIDE	OF THE I	FLIGHT	•	
	•	1111		DECAL	USE U	r a Si	IALLO	W DIP	OR	OVE	RBURDE	N EFFECT	rs.	•	

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			CO2 91	AXIAL DO HZ	COPI 9(	LANAR DO HZ	COPI 72(	LANAR Do Hz	• VER	FICAL . IKE .	HORI : SHI	zontal Set	CONDUC	CTIVE TH
	_								•	•				
AN	IOMAL	Y/ 1	REAL	QUAD	REAL	QUAD	REAL	QUAD	. COND	DEPTH*.	COND	DEPTH	RESIS	DEPTH
F10	9/ 1NT	ERP	PPM	PPM	PPM	PPM	PPM	PPM	. MHOS	м.	MHOS	м	OHM-M	м
LI	NE	101	(1	7LIGHT	· 8)	I			•	•				
с	281	Н	3	3	2	5	11	62	. 1	0.	1	18	339	٥
D	276	н	0	2	1	5	11	40	. 1	0.	1	19	334	Ő
						,			•	•				
LI	NE	102	(E	FLIGHT	' 8)	_			•	•				
A D	340	н	U 2	3	1	6 10	18	53	• 1	0.	1	18	299	0
	J47		3	4	0	10	32	24	• 4	30.	1	60	159	21
LI	NE	103	(E	LIGHT	8)				•	•				
A	386	Н	1	3	1	6	17	51	. 1	0.	1	18	237	0
В	382	S	2	4	1	7	28	20	. 2	Ο.	1	13	210	0
									•	•				
	NE AA7	104	(1	'LIGHT	8)		4 77		•	•				-
R	44/	н	2	3	0	4	21	45	• 1	U .	1	28	514	0
č	478	н	1	4	1	8	36	53	. 1	70.	1	105	250	84 78
				-	•	•	•••		•		•	100	250	70
LI	NE	105	(F	LIGHT	8)				•	•				
A	543	н	777	3	1	5	15	43	• 1	Ο.	1	24	338	2
B	528	H	1	2	0	3	12	22	• 1	12.	1	22	328	0
C	501	H7	2	2	1	4	17	21	. 1	0.	1	19	371	0
LI	NE	106	(F	'LTGHT	8)				•	•				
A	578	H?	3	0	-1	1	7	17	. 1	0.	1	32	420	5
			-	-	•	-	·	•••	•	•••	•	72	420	5
LI	NE	107	(F	LIGHT	8)				•	•				
A	664	S	3	4	0	7	20	72	. 1	Ο.	1	15	540	0
B	661	H	2	2	1	3	13	33	• 1	0.	1	19	391	0
C D	650	H UO	4	1	1	3	10	23	• 1	6.	1	25	558	0
		nr 	U	1	I	1	o	14	• 1	υ.	1	43	499	12
LI	NE	108	(F	LIGHT	8)				•	•				
A	704	S	2	3	0	6	23	61	• 1	0.	1	12	372	0
В	711	D	4	3	7	6	23	14	. 9	33.	2	126	43	89
C	726	Н	0	2	0	3	5	34	• 1	0.	1	28	1156	0
D	733	H	1	1	0	3	5	33	• 1	0.	1	33	971	4
LI	NE	109	(F	TTGHT	8)			1	•	•				
A	898	s 1	551	2	1	4	9	42	•	0.	1	19	394	0
B	878	S	1	4	1	8	31	53	. 1	0.	1	13	281	Õ
С	869	D	6	2	7	2	14	28	. 39	46.	9	161	3	146
* * *	*****		(1)		~				•	•				
ע דיד	032 032	5	(F 2	PICHL DICHL	8)	7	20	61		•			005	•
		0	£	3	U	'	29	01 4	• 1	υ.	1	14	225	U
	•*	EST	IMAT	ED DEI	PTH M	AY BE	UNRE	LIABLI	e becau	SE THE S	STRONG	ER PAR	т.	
	•	OF	THE	CONDUC	CTOR	MAY B	E DEE	PER OF	R TO ON	E SIDE C	OF THE	FLIGH	т.	
	٠	LIN	Е, О	R BECA	AUSE	of a :	SHALL	OW DIE	OR OV	ERBURDEN	I EFFE	CTS.	•	

			CO	AXIAL	COPI	LANAR	COP	LANAR	• VER		HORI	ZONTAL ZET	CONDUC	CTIVE
				00 112		50 112	120	00 112	• •		, Dill		BAN.	
AN	IOMAL	Y/Y	REAL	QUAD	REAL	QUAD	REAL	QUAD	. COND	DEPTH*.	COND	DEPTH	RESIS	DEPTH
FII	)/INT	ERP	PPM	PPM	PPM	PPM	PPM	PPM	. MHOS	м.	MHOS	м	OHM-M	м
	· · · · · · ·	111			n 01				•	•				
۲.T	.NE 1055	ווו שי	() 1	s PTGUJ	. 0) 0	5	12	47	•	•	•	26	200	
R	1058	л Н	2	3	1	3	10	947 24	• 1	7	· · · · · · · · · · · · · · · · · · ·	20	308	44 う
Ċ	1030	G	2	2	0	ر ۸	10	38	. 1	0.	1	27	739	5
E	1007	S	1552	7	0	14	44	119	. 1	0.	1	10	244	0
									•	•				
۲.T	.NE 1110	112	(1	ertigh. Lighi	: 8,	· .	17	22	•	· ·		24	420	0
A Þ	1120	n u	1	2	· U	4	40	32	• •	0.	1	24	420	0
с С	1149	G	2	3 1	,	. 1	40 2	11	• 1	10	1	22	627	A L
				1	v		0		• •		•		021	-
LI	NE	113	(1	FLIGHI	. 8)	ł			•					
Α	1277	н	2	1	0	2	11	24	. 1	10 .	1	26	323	4
В	1266	S?	2	4	0	9	32	88	. 1	ο.	1	19	300	0
E	1246	G?	7	1	0	6	6	24	. 14	53.	1	96	938	6
F	1237	D	7	8	3	18	49	89	. 4	15 .	1	40	482	0
G	1231	Е	5	7	0	15	45	130	. 2	Ο.	1	68	882	0
Н	1230	H	5	6	0	15	45	141	. 1	Ο.	1	15	251	0
I	1228	S	4	7	0	16	48	146	. 1	0.	1	13	306	0
	· · · · · · · · · · · · · · · · · · ·								•	•				
	NE	114	()	FLIGHT	: 8)	•			•	•			252	
A	1304	5	1	3	0	8	24	50	• 1	2.	1	24	252	4
8	1309	H C	2	3	0	22	33	51 10C	• •	ð. 0	1	22	240	3
	1307	פ ת	20	15	40	24	444	100	• • •	10	2	70	301	0
ע ד	1403	c	30	34	47	50 74	269	583	• 2/	2	3 1	, í	261	•• <i>•</i>
			1	34	ſ	/*	209	505	• •		•	Ŭ	201	U
LI	NE	115	()	FLIGHT	: 8)				•	•				
A	1486	Н	2	4	1	9	29	64	. 1	0.	1	25	253	4
В	1454	D	4	7	6	16	44	48	. 3	18.	1	58	119	23
С	1445	S	2	12	1	29	108	223	. 1	Ο.	1	12	122	0
D	1433	Е	1	3	4	7	16	10	. 2	28.	1	24	557	0
 T T		116	(1		ែណ				•	•				
<u>کر</u> 111	1510	C 110	5	2 CLIGHI	. 0, 0	2	5	22	•	•	1	25	672	٥
R	1513	c c	1		1	3	14	10	• 1	12	1	32	368	7
מ	1565	S	2	4		12	50	81	. 1	0	1	16	222	, 0
E	1574	P	4		Ř	3	19	14	. 25	45	1	73	65	39
F	1578	ŝ	1	3	Ő	5	16	46	. 1	0.	1	14	345	0
			•	•	•				•		•	••	••••	•
LI	NE	117	(1	FLIGHT	. 8)				•					
A	1677	H	Ó	2	0	3	15	18	. 1	19.	1	26	335	3
	•												•	
	•*	ES	TIMA!	FED DE	PTH N	IAY BE	E UNRI	ELIABL	E BECAU	JSE THE	STRONG	SER PAR	т.	
	•	OF	THE	CONDU	ICTOR	MAY I	BE DEI	EPER C	or to or	NE SIDE	OF THE	E FLIGH	т.	
	•	$\mathbf{LI}$	NE, (	OR BEC	AUSE	OF A	SHAL	LOW DI	P OR O	/ERBURDE	n effe	CTS.	•	

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		CO	AXIAL	COPI	LANAR	COPI	LANAR	. VER	TICAL	. HORI	ZONTAL	CONDU	CTIVE
		31	00 112	. 31	JU 112	120	00 112	• •	IVC	• on	661	EAR.	ru -
ANOMAL	Y/	REAL	QUAD	REAL	QUAD	REAL	QUAD	. COND	DEPTH*	. COND	DEPTH	RESIS	DEPTH
FID/INT	ERP	PPM	PPM	PPM	PPM	PPM	PPM	. MHOS	М	. MHOS	М	OHM-M	м
						•		•		•			
LINE	117	(1	FLIGHT	: 8)				•		•			
B 1661	H?	0	1	5	6	6	10	• 1	22	• 1	47	1036	12
D 1648	S	1	4	U	9	41	79	• 1	0	• 1	14	229	0
F 1623	ຮ	3	2	0	3	6	38	. 1	0	• 1	21	959	0
G 1010	0	I	2	U	4	Ø	50	• •	U	• 1	0	1014	U
T.TNE	118	(1	T.TGHI	יא י	1			•		•			
A 1789	s	2	2	. 0, 0	3	12	32	. 1	0	•	14	460	0
B 1794	S	0	3	0	6	20	68	. 1	0	. 1	11	442	õ
C 1812	S	1	3	Ó	4	14	45	. 1	0	. 1	14	557	Ő
D 1821	S	1	1	Ō	4	16	36	. 1	Ő	. 1	20	383	Ŏ
E 1829	S	1	3	0	6	2	61	. 1	0	• 1	17	532	Ő
G 1838	H?	6	3	0	6	24	54	. 7	34	. 1	92	966	0
								•	1	•			
LINE	119	(I	FLIGHT	: 8)				•		•			
A 1935	H?	3	2	0	4	9	52	• 1	0	. 1	20	520	0
B 1930	S	1	3	1	6	19	73	• 1	0	• 1	15	533	0
D 1903	Н	3	5	1	8	42	67	• 1	0	• 1	23	206	4
E 1895	S	4	3	1	8	20	83	• 1	0	• 1	17	490	0
F 1885		4	10	1	23	82	195	• 2	U,	• 1	16	550	Ŭ
LINE	120	/ F	T.TGHT	. 8)				•	I	•			
A 1975	S	2	1	0, 0	1	6	24	•	0	•	10	774	n
B 1988	ŝ	2	2	1	4	8	39	. 1	Ő.		13	971	Ő
C 2009	н	1	4	, 0	7	37	68	. 1	Ő.	. 1	25	265	Ă
D 2013	S	Ó	5	1	10	35	94	. 1	Ő.	. 1	13	410	0
E 2025	S	3	10	1	26	93	208	. 1	0	1	11	154	õ
F 2030	S	4	3	0	4	27	48	. 1	21	. 1	47	382	24
ويت البد البد البو اليو اليو								•		•			
LINE	121	(F	LIGHT	8)				•		•			
B 2114	S	2	1	2	3	6	32	. 1	0	. 1	17	1101	0
D 2102	S	1	3	2	5	12	54	. 1	0,	. 1	11	1064	0
F 2086	H	2	4	1	8	39	85	• 1	0	. 1	25	283	4
G 2081	H	2	0	2	0	11	8	• 2	32	. 1	24	339	2
I 2069	S	5	14	2	34	122	238	• 1	0.	. 1	9	169	0
J 2066	5	4	2	1	21	52	43	• 2	8.	· 1	12	99	0
K 2000	5	4	3	1	8	20	/3	• 1	υ.	, i	15	325	U
LINE	122	(F	LIGHT	11)				•	•				
A 2771	S	0	6	0	12	13	121	. 1	0	. 1	8	1043	0
B 2782	Ĝ	2	3	0	5	13	52	. 1	Ő.	1	27	779	ŏ
C 2799	S	0	2	Ō	4	11	42	. 1	0.	. 1	10	1030	õ
•												•	
.*	ES!	гімат	ED DE	PTH M	AY BE	UNRE	LIABL	e becau	JSE THE	STRONG	ser paf	ат.	
•	OF	THE	CONDU	CTOR	MAY .B	E DEE	PER O	r to or	NE SIDE	OF THE	E FLIGH	IT .	

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

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		CO.	AXIAL	COPI	LANAR	COP	LANAR	٠	VERI	TICAL	. HORI	ZONTAL	CONDU	CTIVE
		9	00 HZ	9(	00 HZ	72	00 HZ	•	DI	IKE	. Shi	eet	EAR!	rh
ANOM	ALY/	REAL	QUAD	REAL	QUAD	REAL	QUAD	. (	COND	DEPTH*	. COND	DEPTH	RESIS	DEPTH
FID/I	NTERI	PPM	PPM	PPM	PPM	PPM	PPM	• 1	MHOS	М	. MHOS	М	OHM-M	М
LINE	122	200	FLIGHT	r 11)				•			•			
D 28	13 н		4	, 0	้ 8	43	32		2	4	. 1	21	256	٥
E 282	21 8	ő	3	õ	8	23	75	•	1	0	. 1	10	284	0
F 283	24 S	õ	5	ŏ	8	29	69	•	1	Ő	. 1	12	400	0
G 28	32 8	2	5	Ő	13	62	91	•	1	ů N	. 1	10	132	ů N
Н 284	41 S	0	3	Ő	6	11	56		1	ŏ	. 1	8	471	ŏ
		•						•			•			
LINE	123	) ()	FLIGHT	r 8)				٠		•	•			_
B 229	93 HZ	, 0	3	0	6	22	66	٠	1	0	• 1	18	529	0
C 22	76 S	2	2	2	4	13	29	٠	1	0	• 1	14	635	0
F 22	59 H	1	3	2	9	34	68	•	1	0	. 1	22	350	0
G 22!	53 S	2	5	2	10	28	41	•	1	5	. 1	17	272	0
I 224	44 S	0	6	1	13	28	94	٠	1	0	• 1	11	232	0
J 224	42 S	5	3	1	8	25	80	٠	5	31	. 1	35	592	0
*****	404							•			•			
LINE	124	i (1	FLIGHI	. 8)	· .			•		-	•			_
B 234	10 G?	' 5	2	0	4	10	44	•	1	0	• 1	36	572	9
C 23	57 S	4	2	0	6	26	54	•	1	0	• 1	21	260	0
D 237	75 S	1	2	2	3	17	39	٠	1	0	• 1	18	624	0
E 238	33 S	0	5	1	10	50	95	•	1	0	. 1	13	188	0
LINE	125		FLIGHI	. 8)							•			
A 258	34 S	1	2	0	5	20	41		1	68	. 1	98	253	76
B 256	51 G	2	ĩ	Ō	2		19		1	8	. 1	43	722	13
C 253	34 H?	2	2	Ō	5	8	52		1	0	. 1	40	497	12
F 25	17 S	ō	1	Ō	2	6	20		1	Ō	. 1	164	1035	0
G 25	11 S	1	5	Ō	11	42	94	-	1	Ő	. 1	11	226	Ő
H 249	2 S	Ō	6	0	12	45	30		3	Õ.	. 1	12	210	Õ
								•			•			
LINE	126	(1	FLIGHI	: 8)				•			•			
A 262	21 S	2	1	1	3	5	28	•	1	0	. 1	25	443	0
B 265	54 E?	6	1	0	4	10	44	•	1	0	. 1	18	588	0
C 268	38 S	3	5	1	12	46	107	•	1	0	. 1	13	229	0
D 269	97 S	0	6	1	12	38	116	•	1	0	. 1	13	432	0
E 27(	)5 S	776	4	2	7	39	51	•	1	0	. 1	13	152	0
TIME	 1 77	/1	71 T <i>C</i> 100	י ס ר				•			•			
D 376	14/	1	c night	. 0)	10	40	100	•		•	•	10	200	•
8 2/3	)  5 	<b>.</b>	0	U	12	40	109	•	1	0		12	290	U
LINE	128	(1	FLIGHT	. 8)				•		•	•			
A 289	)5 S	2	3	2	5	23	50	•	1	0	. 1	19	380	0
B 292	22 S	2	3	1	6	28	50	•	1	0	. 1	14	342	Ő
	,												•	
•	* ES	TIMA	FED DE	PTH M	IAY BE	UNRE	ELIABL	EE	BECAU	SE THE	STRONG	SER PAR	т.	
	, OF	THE	CONDU	ICTOR	MAY E	BE DEB	EPER C	DR 1	ro on	E SIDE	OF THE	E FLIGH	T.	

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

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ANOMALY/ REAL QUAD REAL QUAD         COND DEPTH         COND DEPTH         RESIS DEPTH           PID/INTERP PPM PPM PPM PPM PPM PPM PPM PPM         PM NOS         M         MOS         MOS </th <th></th> <th></th> <th></th> <th>CO) 91</th> <th>AXIAL 00 Hz</th> <th>COPI 9(</th> <th>LANAR DO HZ</th> <th>COP: 72</th> <th>LANAR 00 Hz</th> <th>. VE</th> <th>RTICAL DIKE</th> <th>•</th> <th>HORI : Shi</th> <th>20ntal Set</th> <th>CONDU EAR</th> <th>ctive Th</th>				CO) 91	AXIAL 00 Hz	COPI 9(	LANAR DO HZ	COP: 72	LANAR 00 Hz	. VE	RTICAL DIKE	•	HORI : Shi	20ntal Set	CONDU EAR	ctive Th
PID/INTERP       PPM	_	ANOM	ALY/	REAL	QUAD	REAL	QUAD	REAL	QUAD	. CON	D DEPTH	i*.	COND	DEPTH	RESIS	DEPTH
LINE 128 (FLIGHT 8) C 2929 S 3 2 2 3 18 18 1 5 1 15 337 0 D 2940 S 4 5 2 11 37 96 1 0 1 15 260 0 LINE 129 (FLIGHT 8) B 3051 B 5 4 7 6 41 37 8 22 1 74 83 36 C 3020 S 0 2 1 3 8 43 1 0 1 12 670 0 E 3012 S 0 5 1 11 41 97 1 0 1 19 302 0 F 2984 S 3 1 1 2 13 12 1 6 1 16 470 0 G 2977 S 1 2 1 3 8 29 1 0 1 14 455 0 J 2965 S 0 6 2 12 41 98 1 0 1 14 455 0 J 2965 S 0 6 2 12 41 98 1 0 1 1 14 241 0 LINE 130 (FLIGHT 11) B 2613 S 0 7 0 15 39 139 1 0 1 7 332 0 C 2595 S 0 3 1 5 15 54 1 0 1 7 771 0 D 2563 S 0 4 0 9 12 84 1 0 1 7 771 0 A 3266 S 0 4 0 9 12 84 1 0 1 5 232 0 LINE 131 (FLIGHT 8) A 3266 S 0 4 0 9 12 84 1 0 1 5 891 0 D 3250 S 1 2 0 4 11 37 1 0 1 4 455 0 J 2965 S 1 2 1 5 14 49 1 0 1 7 771 0 D 2563 C 1 0 1 5 39 139 1 0 1 7 844 0 LINE 131 (FLIGHT 8) A 3266 S 0 4 0 9 12 84 1 0 1 5 891 0 D 3250 S 1 2 0 4 11 37 1 0 1 8 991 0 D 3250 S 1 2 0 4 11 37 1 0 1 4 850 0 D 3250 S 1 2 0 4 11 37 1 0 1 4 850 0 D 3250 S 1 2 0 4 11 37 1 0 1 4 478 0 LINE 132 (FLIGHT 6) A 3467 B 6 4 9 13 51 46 8 14 1 76 60 41 D 3381 S 0 4 0 7 22 71 1 0 1 24 29 1610 0 C 3343 S 2 2 0 4 10 55 1 0 1 1 24 538 0 LINE 133 (FLIGHT 8) A 3467 B 6 4 9 13 51 48 8 14 1 76 60 41 D 3381 S 0 4 0 7 22 71 1 0 1 126 414 1 D 3381 S 0 4 0 7 22 71 1 0 1 128 912 10 LINE 133 (FLIGHT 8) A 3467 B 6 4 9 1 3 51 48 8 14 1 76 60 41 D 3381 S 0 4 0 7 22 71 1 0 1 128 912 1 LINE 133 (FLIGHT 8) A 3467 B 6 4 9 1 3 51 48 8 14 1 76 60 41 D 3381 S 0 4 0 7 22 71 1 0 1 128 912 1 LINE 133 (FLIGHT 8) LINE 133 (FLIGHT 8) B 3541 D 4 4 6 10 42 49 1 10 1 35 166 16 C 3443 S 2 2 0 4 10 55 1 0 1 1 8 361 0 LINE 134 (FLIGHT 8) B 3541 D 4 4 4 6 10 42 49 1 10 1 135 166 16 C 3443 S 2 2 0 4 10 55 1 0 1 18 361 0 LINE 134 (FLIGHT 8) B 3541 D 4 4 4 5 10 42 49 1 10 1 18 361 0 LINE 135 (FLIGHT 8) B 3543 D 4 4 4 5 0 42 49 1 10 1 18 361 0 LINE 135 (FLIGHT 8) B 3543 B 3 5 6 8 44 52 1 7 1 3 3 226 12 LINE 135 (FLIGHT 8) B 3623 B 3 5 6 8 44 52 1 7 1 1 3 3 226 12	F.	ID/I	NTERP	PPM	PPM	PPM	PPM	PPM	PPM	. MHO	S N	4.	MHOS	M	OHM-M	M
LINE       128       (F)1GHT       8)         C       2290       S       3       2       2       3       18       16       1       5       1       15       337       0         LINE       129       (FLIGHT       8)       .       .       1       15       260       0         LINE       129       (FLIGHT       8)       .       .       1       15       260       0         C       3020       S       4       7       6       41       37       .       8       22       1       74       83       36         C       3012       S       0       5       1       11       41       97       1       0       1       14       455       0       6       2       12       41       98       1       0       1       7       332       0       2       2595       5       0       6       2       12       41       98       1       0       1       7       332       0       2       252       1       1       4       25       6       12       1       16       17       7332       0										•		٠				
0       2240 S       4       5       2       11       37       96       1       0       1       15       337       0         LINE       129       (FLIGHT       8)       .		LINE LINE	128	(1	LIGHT	' 8)	•			•		•				
D 200 S       4       5       2       11       37       96       1       0       1       15       260       0         LINE       129       (FLIGHT 8)       8)       3       1       37       8       41       37       8       22       1       74       83       36         C 3020 S       0       2       1       3       8       43       1       0       1       12       670       0         F 2984 S       3       1       1       2       13       12       1       6       1       16       470       0         G 2977 S       1       2       1       3       8       29       1       0       1       14       455       0         J 2965 S       0       6       2       12       41       98       1       0       1       7       332       0         LINE       130       (FLIGHT       11)        1       1       4       25       8       6       12       1       5       332       0         LINE       131       (FLIGHT       10       1       5       891       0 <td>1</td> <td>- 29. D 20.</td> <td>29 5 40 C</td> <td>3</td> <td>2</td> <td>2</td> <td>3</td> <td>18</td> <td>18</td> <td>•</td> <td>1 5</td> <td>5.</td> <td>1</td> <td>15</td> <td>337</td> <td>0</td>	1	- 29. D 20.	29 5 40 C	3	2	2	3	18	18	•	1 5	5.	1	15	337	0
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$				4	5	2	11	37	96	•	1 (	).	1	15	260	0
B 3051 B 5 4 7 8 41 37 8 8 22 1 74 83 36 C 3020 S 0 2 1 3 8 43 1 0 1 12 670 0 E 3012 S 0 5 1 11 41 97 1 0 1 19 302 0 F 2984 S 3 1 1 2 13 12 1 6 1 16 470 0 G 2977 S 1 2 1 3 8 29 1 0 1 14 455 0 H 2973 S 1 4 1 5 16 58 1 0 1 14 455 0 H 2973 S 1 4 1 5 16 58 1 0 1 14 455 0 H 2973 S 0 6 2 12 41 98 1 0 1 1 4 241 0 LINE 130 (FLIGHT 11) D 2563 S 0 7 0 15 39 139 1 0 1 7 332 0 C 2595 S 0 6 2 12 41 98 1 0 1 7 771 0 D 2583 S 0 3 0 5 13 51 1 0 1 7 771 0 D 2583 S 0 3 0 5 13 51 1 0 1 7 944 0 E 2572 S 1 1 1 4 25 8 6 12 1 15 232 0 LINE 131 (FLIGHT 8) A 3286 S 0 4 0 9 12 84 1 0 1 7 944 0 E 3268 S 0 1 0 1 5 20 1 0 1 29 1610 0 C 3259 S 1 2 1 5 11 49 1 0 1 1 4 850 0 D 3250 S 1 2 1 5 11 49 1 0 1 4 891 0 LINE 132 (FLIGHT 8) A 3286 S 0 4 0 7 2 12 71 10 1 8 941 0 LINE 133 (FLIGHT 8) A 3286 S 0 4 0 7 2 13 2 70 43 1 145 70 100 C 3372 H 4 2 0 4 17 49 1 0 1 26 414 1 D 3381 S 0 4 0 7 22 71 1 0 1 26 414 1 D 3381 S 0 4 0 7 22 71 1 0 1 23 538 0 LINE 133 (FLIGHT 8) A 3467 B 6 4 9 13 51 48 8 14 1 76 60 411 D 3381 S 0 4 0 7 22 71 1 0 1 24 478 0 LINE 133 (FLIGHT 8) A 3467 B 6 4 9 13 51 48 8 14 1 76 60 411 D 3381 S 0 4 0 7 22 71 1 0 1 1 28 538 0 C 3443 S 2 2 0 4 10 55 1 0 1 1 24 538 0 C 3443 S 2 2 0 4 10 55 1 0 1 1 49 10 0 1 23 538 0 C 3443 S 2 2 0 4 10 55 1 0 1 1 4 614 0 LINE 133 (FLIGHT 8) B 3550 H 2 3 1 5 12 49 1 10 1 1 35 166 16 C 3547 G7 0 2 2 5 5 16 52 1 2 1 2 1 2 48 10 55 1 0 1 14 614 0 LINE 134 (FLIGHT 8) B 3551 H 2 3 5 16 5 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	1	INE	129	(1	71.TCHT	Q \				•		٠				
C 3020 S 0 2 1 3 6 43 1 0 1 0 1 12 670 0 E 3012 S 0 5 1 11 41 97 1 0 1 19 302 0 G 2977 S 1 2 1 3 8 29 1 0 1 14 455 0 H 2973 S 1 4 1 5 16 58 1 0 1 14 455 0 H 2973 S 1 4 1 5 16 58 1 0 1 18 474 0 J 2965 S 0 6 2 12 41 98 1 0 1 1 44 455 0 J 2965 S 0 6 2 12 41 98 1 0 1 7 332 0 C 2595 S 0 3 1 5 15 54 1 0 1 7 771 0 D 2583 S 0 7 0 15 39 139 1 0 1 7 332 0 C 2595 S 0 3 0 5 13 51 1 0 1 7 944 0 E 2572 S 1 1 1 4 2 5 8 6 1 2 1 15 232 0 LINE 131 (FLIGHT 8) A 3286 S 0 4 0 9 12 84 1 0 1 5 891 0 A 3286 S 0 1 0 1 5 20 1 0 1 29 1610 0 C 3259 S 1 2 1 5 11 49 1 0 1 29 1610 0 C 3259 S 1 2 1 5 11 49 1 0 1 1 8 441 0 LINE 132 (FLIGHT 8) LINE 133 (FLIGHT 8) LINE 133 (FLIGHT 8) A 3467 B 6 4 9 13 51 48 8 14 1 76 60 411 D 3381 S 0 4 0 7 22 71 1 0 1 26 414 1 D 3381 S 0 4 0 7 22 71 1 0 1 26 414 1 D 3381 S 0 4 0 7 22 71 1 0 1 28 10 1 14 478 0 LINE 133 (FLIGHT 8) LINE 134 (FLIGHT 8) LINE 135 (FLIGHT 8) B 3554 D 4 4 6 10 42 49 1 10 1 23 538 0 C 3443 S 2 2 0 4 10 55 1 0 1 14 614 0 LINE 133 (FLIGHT 8) B 3554 H 4 3 0 9 22 34 1 3 1 19 330 0 F 3560 H 2 3 1 5 12 49 1 0 1 1 8 361 0 LINE 135 (FLIGHT 8) B 3558 H 4 3 0 9 22 34 1 3 1 19 330 0 F 3560 H 2 3 1 5 12 49 1 0 1 1 8 361 0 LINE 135 (FLIGHT 8) B 3554 D 4 4 4 6 10 42 49 1 1 0 1 1 8 361 0 LINE 135 (FLIGHT 8) B 3554 H 4 3 0 9 22 34 1 3 1 19 330 0 F 3560 H 2 3 1 5 12 49 1 0 0 1 1 8 361 0 LINE 135 (FLIGHT 8) B 3554 B 4 3 3 5 6 8 44 52 1 7 7 1 33 226 12 LINE 135 (FLIGHT 8) B 3550 H 2 3 1 5 12 49 1 0 0 1 18 361 0 LINE 135 (FLIGHT 8) B 3550 H 2 3 1 5 12 49 1 0 0 1 18 361 0 LINE 135 (FLIGHT 8) B 360 H 2 3 1 5 12 49 1 0 0 1 18 361 0 LINE 135 (FLIGHT 8) B 360 H 2 3 1 5 12 49 1 0 0 1 18 361 0 LINE 135 (FLIGHT 8) B 360 H 2 3 1 5 12 49 1 0 0 1 18 361 0 LINE 135 (FLIGHT 8) B 360 H 2 3 1 5 12 49 1 0 0 1 18 361 0 LINE 135 (FLIGHT 8) B 360 H 2 3 1 5 12 49 1 0	1	3 305	51 B	5	4	7	8	41	27	•		•				
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F 2984 S       3       1       1       1       1       1       1       1       1       1       1       4       10       1       14       470       0         G 2977 S       1       2       1       3       8       29       1       0       1       14       455       0         J 2965 S       0       6       2       12       41       98       1       0       1       14       455       0         J 2965 S       0       6       2       12       41       98       1       0       1       14       241       0         LINE 130       (FLIGHT 11)       . </td <td>E</td> <td>E 301</td> <td>12 S</td> <td>Õ</td> <td>5</td> <td>1</td> <td>11</td> <td>41</td> <td>43</td> <td>•</td> <td></td> <td>•</td> <td>1</td> <td>12</td> <td>670</td> <td>0</td>	E	E 301	12 S	Õ	5	1	11	41	43	•		•	1	12	670	0
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ł	298	84 S	3	1	1	2	12	12	•		•	1	19	302	0
H 2973 S 1 4 1 5 16 58 1 0 1 14 455 0 J 2965 S 0 6 2 12 41 98 1 0 1 14 241 0 LINE 130 (FLIGHT 11) B 2613 S 0 7 0 15 39 139 1 0 1 7 332 0 C 2595 S 0 3 1 5 15 54 1 0 1 7 771 0 J 2583 S 0 3 0 5 13 51 1 0 1 7 944 0 E 2572 S 1 1 1 4 25 8 6 1 2 1 15 232 0 LINE 131 (FLIGHT 8) A 3286 S 0 4 0 9 12 84 1 0 1 5 891 0 B 3268 S 0 1 0 1 5 20 1 0 1 29 1610 0 C 3259 S 1 2 1 5 11 49 1 0 1 8 941 0 LINE 132 (FLIGHT 8) LINE 132 (FLIGHT 8) LINE 133 (FLIGHT 8) A 3467 B 6 4 9 13 51 48 8 14 1 76 60 41 D 3351 D 4 0 7 22 71 1 0 1 26 414 1 D 3381 S 0 4 0 7 22 71 1 0 1 23 538 0 LINE 133 (FLIGHT 8) LINE 134 (FLIGHT 8) LINE 135 (FLIGHT 8) LINE 135 (FLIGHT 8) LINE 135 (FLIGHT 8) LINE 135 (FLIGHT 8) B 3621 D 4 4 6 6 10 42 49 1 10 1 35 166 16 C 3443 S 2 2 0 4 40 7 22 34 1 3 1 19 330 0 LINE 135 (FLIGHT 8) B 3621 D 4 4 6 6 10 42 49 1 0 1 18 361 0 LINE 135 (FLIGHT 8) B 3621 D 4 1 4 6 10 42 49 1 0 1 18 361 0 LINE 135 (FLIGHT 8) B 3621 D 5 1 0 1 18 361 0 LINE 135 (FLIGHT 8) B 3621 D 5 1 0 1 18 361 0 LINE 135 (FLIGHT 8) B 3621 D 6 4 84 52 1 7 1 3 3 226 12 LINE 135 (FLIGHT 8) B 3621 D 6 4 84 52 1 7 1 3 3 226 12 LINE 135 (FLIGHT 8) B 3621 D 6 4 84 52 1 7 1 3 3 226 12 LINE 135 (FLIGHT 8) B 3621 D 6 4 84 52 1 7 1 3 3 226 12 LINE 135 (FLIGHT 8) B 3621 D 7 HE CONDUCTOR MAY BE DEEPER OR TO ONE SIDE OF THE FLIGHT . LINE, OR BECAUSE OF A SIBLELIABLE BECAUSE THE STRONGER PART . LINE, OR BECAUSE OF A SIBLELIABLE BECAUSE THE STRONGER PART . LINE, OR BECAUSE OF A SIBLELIABLE BECAUSE	Ģ	3 297	7 S	1	2	1	3	, 5 8	20	•	1 0 1 0	٠	1	16	470	0
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	E	1 297	3 S	1	4	1	5	16	58	•		•	1	14	455	0
LINE 130 (FLIGHT 11) B 2613 S 0 7 0 15 39 139 1 0 1 7 332 0 C 2595 S 0 3 1 5 15 54 1 0 1 7 944 0 E 2572 S 1 1 1 4 25 8 6 1 2 1 15 232 0 LINE 131 (FLIGHT 8) A 3266 S 0 4 0 9 12 64 1 0 1 5 891 0 B 3266 S 0 4 0 9 12 64 1 0 1 5 891 0 B 3266 S 0 1 0 1 5 20 1 0 1 29 1610 0 C 3259 S 1 2 1 5 11 49 1 0 1 1 4 850 0 D 3250 S 1 2 0 4 11 37 1 0 1 8 941 0 LINE 132 (FLIGHT 8) B 3354 D 6 1 5 2 13 2 70 43 1 145 70 100 C 3372 H 4 2 0 4 17 49 1 0 1 26 414 1 D 3381 S 0 4 0 7 22 71 1 0 1 26 414 1 D 3381 S 0 4 0 7 22 71 1 0 1 26 414 1 D 3381 S 0 4 0 7 22 71 1 0 1 26 414 1 LINE 133 (FLIGHT 8) A 3467 B 6 4 9 13 51 48 8 14 1 76 60 41 B 3451 H7 1 2 0 6 18 49 1 0 1 23 538 0 C 3443 S 2 2 0 4 10 55 1 0 1 14 614 0 LINE 134 (FLIGHT 8) B 3541 D 4 4 6 10 42 49 1 10 1 35 166 16 C 3443 S 2 2 0 4 10 55 1 0 1 18 30 0 LINE 134 (FLIGHT 8) B 3541 D 4 4 6 10 42 49 1 10 1 35 166 16 C 3443 S 2 2 0 4 10 55 1 0 1 18 361 0 LINE 134 (FLIGHT 8) B 3541 D 4 4 6 10 42 49 1 10 1 35 166 16 C 3443 S 2 2 0 4 10 55 1 0 1 18 361 0 LINE 134 (FLIGHT 8) B 3541 D 4 4 6 10 42 49 1 10 1 35 166 16 C 3443 S 2 2 0 4 10 55 1 0 1 18 361 0 LINE 135 (FLIGHT 8) B 3541 D 4 4 6 10 42 49 1 10 1 35 166 16 C 3547 G? 0 2 2 2 5 16 52 1 2 1 2 1 28 912 1 B 3558 H 4 3 0 9 22 34 1 3 1 19 330 0 LINE 135 (FLIGHT 8) B 361 0 LINE 135 (FLIGHT 8) B 362 B 3 5 6 8 44 52 1 7 1 3 3 226 12 LINE 135 (FLIGHT 8) B 362 B 3 5 6 8 44 52 1 7 1 3 3 226 12 LINE 135 (FLIGHT 8) B 362 B 3 5 6 8 44 52 1 7 1 3 3 226 12 LINE 135 (FLIGHT 8) B 362 B 3 5 6 8 44 52 1 7 1 3 3 226 12 LINE 135 (FLIGHT 8) B 362 B 3 5 6 8 44 52 1 7 1 3 3 226 12	J	296	5 S	0	6	2	12	41	98	•	ט 1 ח	•	1	18	474	0
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B 2613 S       0       7       0       15       39       139       1       0       1       7       332       0         C 2595 S       0       3       1       5       15       54       1       0       1       7       771       0         D 2583 S       0       3       0       5       13       51       1       0       1       7       771       0         D 2583 S       0       3       0       5       13       51       1       0       1       7       944       0         E 2572 S       1       1       1       4       25       8       6       12       1       15       232       0         LINE 131       (FLIGHT 8)       .       .       .       .       .       1       0       1       5       891       0         A 3266 S       0       1       0       1       5       14       9       1       0       1       14       850       0         D 3250 S       1       2       0       4       17       49       1       0       1       14       850       0 <t< td=""><td>I</td><td>INE</td><td>130</td><td>(F</td><td>LIGHT</td><td>11)</td><td>•</td><td></td><td></td><td>•</td><td></td><td>•</td><td></td><td></td><td></td><td></td></t<>	I	INE	130	(F	LIGHT	11)	•			•		•				
C 2595 S 0 3 1 5 15 54 1 0 1 7 771 0 D 2583 S 0 3 0 5 13 51 1 0 1 7 944 0 E 2572 S 1 1 1 1 4 25 8 6 12 1 15 232 0 LINE 131 (FLIGHT 8) A 3286 S 0 4 0 9 12 84 1 0 1 5 891 0 B 3268 S 0 1 0 1 5 20 1 0 1 29 1610 0 C 3259 S 1 2 1 5 11 49 1 0 1 29 1610 0 D 3250 S 1 2 0 4 11 37 1 0 1 8 941 0 LINE 132 (FLIGHT 8) B 3354 D 6 1 5 2 13 2 70 43 1 145 70 100 C 3372 H 4 2 0 4 17 49 1 0 1 26 414 1 D 3381 S 0 4 0 7 22 71 1 0 1 14 850 LINE 133 (FLIGHT 8) A 3467 B 6 4 9 13 51 48 8 14 1 76 60 41 B 3451 H2 1 2 0 6 18 49 1 0 1 23 538 0 C 3443 S 2 2 0 4 10 55 1 0 1 14 614 0 LINE 134 (FLIGHT 8) B 3541 D 4 4 6 10 42 49 1 0 1 23 538 0 C 3443 S 2 2 0 4 10 55 1 0 1 14 614 0 LINE 134 (FLIGHT 8) B 3514 D 4 4 6 10 42 49 1 0 1 23 538 0 C 3443 S 2 2 0 4 10 55 1 0 1 14 614 0 LINE 134 (FLIGHT 8) B 3550 H 4 3 0 9 22 34 1 3 1 19 330 0 F 3560 H 2 3 1 5 12 49 1 0 1 18 361 0 LINE 135 (FLIGHT 8) B 3623 B 3 5 6 8 44 52 1 7 1 33 226 12 	B	261	3 S	0	7	0	15	39	139	• 1	0		1	7	330	0
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## Chevron Canada Resources Limited Minerals Staff

167B Wilson Ave., Timmins, Ontario P4N 2T2 Phone (705) 264-2291

n cristo

ARR 05 100

Manuel Maria Signian

## November 19, 1984.

Mining Lands Section, Ontario Ministry of Natural Resources, Room 6610 Whitney Block, Queen's Park, Toronto, Ontario. M7A 1W3

Attention: Mr. Fred Matthews

Dear Mr. Matthews:

I am submitting two copies of DIGHEM III airborne surveys and claim maps covering our Four Corners, Ontario, project area.

The property surrounds the four contiguous corners of Turnbull, Carscallen, Godfrey and Bristol Townships. The claims covered are P 641560 et al as listed in the attached copies of our Reports of Work.

Yours truly,

Lavilo

Leslie A. Tihor

LAT/cs Enclosures



## Mining Lands Section

File No 2.7423

Control Sheet



## MINING LANDS COMMENTS:

LhD

L

Signature of Assessor

1/10/84

Date



## LEGEND



LOCATED CLAIM POST

CLAIM POST - ASSUMED POSITION

LAND WITHIN PROPERTY BOUNDARY NOT HELD BY CHEVRON







LOCATION MAP



# DIGHEM<sup>III</sup> SURVEY









Scale 1:250,000

#### ISOMAGNETIC LINES DIGHEM<sup>III</sup> SURVEY (enhanced field) Flight Line 5.000 nT 1.000 nT FOUR CORNERS AREA - Fiducial 2120 (Not recovered from film) ------ Fiducial 2118 (Recovered from film) --- 200 200 nT TIMMINS ONTARIO 100 nT . . ..... . . .... magnetic depression ENHANCED MAGNETICS (\_\_\_\_ **▲** ------ Fiducial 2110 (Not recovered from film) FOR ------ Fiducial 2104 (Recovered from film) CHEVRON CANADA RESOURCES LTD. REJECT Line number and 0.112.2 Elight direction ACCE TTTIIIIAAAAAAA 10.4 10.3 10.2 Cycles/metre Frequency response of Scale 1:10,000 magnetic operator 12 1 2 0 1 Kilometres



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LOCATION MAP





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