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INTERPRETATION OF AEROMAGNETIC
DATA SOUTH OF SHEPHERD & MURPHY

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[MICROFILMED]

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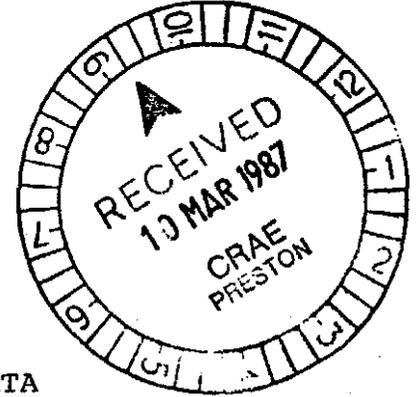
INTERPRETATION OF AEROMAGNETIC DATA

SOUTH OF SHEPHERD & MURPHY

1. INTRODUCTION

The zoning map of the metals found in the Moina area, as drawn by Scott Caithness, drew my attention to the fact that very little information was available to the south west. This is understandable as the area is largely covered by basalt so the early prospectors would have had little joy.

Shell flew an aeromagnetic survey to cover the area and the Mines Department has recently released gravity data west of 425 000E, which covers the basalt area though not the Dolcoath Granite itself. This data supplies some useful information about the area.

2. DISCUSSION

Inspection of the magnetic and gravity data shows evidence that the Dolcoath Granite may well extend up to 10km under the basalt to the southwest. On the accompanying map a small circular area some 2.5 kilometres south of Shepherd & Murphy represents a magnetic low which may be due to a granite cupola. A further seven kilometres southwest is another roughly circular feature which is visible on both gravity and magnetics as a low. Both features are within a broad gravity low which extends to the Dolcoath Granite and also well to the south. The two anomalies occur in areas which are likely to have basalt overlying Ordovician sediments according to the available mapping.

Assuming that the two circular features are similar in
nature to the known granite, which is believed to have
supplied the mineralising fluids for all the mines in the
area, then we might expect similar mineral concentrations
under the basalt. A number of the skarn deposits in the
area - particularly the Shepherd & Murphy skarn - are
characterised by strong magnetic anomalies. If the basalt
is thin, then similar magnetic anomalies should be evident
to the south.

The aeromagnetics show considerable activity within the
basalt covered area. Whilst this is not surprising, the
magnetics generally, do exhibit the high frequency typical
of basalts elsewhere. This leads to either of two
conclusions:

either   1.   The basalt cover is typically thin and highly
                weathered

or   2.   The basalt is of unknown thickness but of
                unusually low magnetic susceptibility.

The second possibility could be checked by traversing the
area and trying to find pieces of fresh basalt for
susceptibility measurements. If none can be found or if
the susceptibility is of a normal level then postulate one
is more likely. In this case, follow-up of the
aeromagnetic anomalies should be considered.

Another point in favour of the first conclusion is the
presence of long, winding strongly negative magnetic
trends. These are interpreted as being due to palaeo-
streams which are filled with reversely magnetised basalt
flows. It is quite common for both positively and
negatively magnetised basalts to be present in one basalt
province so the shallow positive features may still be due
to a slightly later phase of volcanism.

3.   MAGNETIC INTERPRETATION

3.1   Specifications

A data file in Magman format was prepared from the
Shell 1980 NW Tasmania survey.

The survey specifications were:-

1.   Line spacing   250m

2.   Terrain clearance of aircraft   100m
     Magnetometer is bird towed on 30m cable

3.   Data recording interval approximately   36m

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The ground clearance of the bird was actually found to vary from 50m to almost 200m where the topography was most extreme. This may effect the interpretation as in all cases 100 metres has been subtracted from the models depth to give a maximum depth to top. Analogue charts which would allow us to estimate heights are not available to CRAE at this stage.

3.2 Susceptibilities of Rocks

A number of susceptibility measurements of the various rock types were recorded in the Shell reports. Further readings of the basalt susceptibility have been taken by Fred Funnell.

Results are:-

Wrigglite   (15000 - 40000) x 10^6 cgs units
Pyrrhotite Skarns (10000 - 18000) x 10^6 cgs units
Sphalerite Skarns (80 - 500)   x 10^6 cgs units
Garnet Skarns   (1000 - 3000)   x 10^6 cgs units
Diopside Skarns   (10 - 1000)   x 10^6 cgs units
Moina Sandstone   (0 - 30)   x 10^6 cgs units
Gordon Limestone (10 - 60)   x 10^6 cgs units
Basalt   (0 - 300)   x 10^6 cgs units

There is clearly a great variation in magnetic responses possible with the various rock types. In addition to the above there is also the Cambrian volcanics which range in composition from acid to basic and thus similarity in magnetic susceptibility. Given that at first impression it seems that the sphalerite skarn is the most gold rich then this would be expected to produce a poor (magnetisation 10-20) response. However adding only a small amount of magnetite, which occurs in the form of wrigglite around and within the sphalerite skarn, immediately gives a magnetic target.

The magnetisation of 2000 assumed in the magnetic modelling is for a medium value of wrigglite. If the wrigglite is only half as magnetic or only present half the time, then the magnetisation will be decreased a concommitant 50%.

3.3 Interpretation

A total of 44 anomalies were selected as being possibly due to skarns. These included the Shepherd and Murphy anomaly which is known to be due to the skarn, and the magnetic anomaly over the Lawkenlaw tungsten mine which is assumed to be skarn related.

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All the anomalies except for anomalies 12, 21 and 43
which strike north-south along the flight lines were
selected for modelling. Unfortunately the data file
on the computer proved to be somewhat corrupted and
it was only possible to model about half the
anomalies. The remainder will be treated as soon as
the problem can be rectified. The tabular model was
used in all cases as insufficient data was available
for 3D estimates. The initial results were produced
by letting all values float. Following this most of
the anomalies were modelled with the magnetisation
set to a fixed value of 2000 which was considered
reasonable for a wrigglite skarn.

3.4   Results

Anomaly 20
This anomaly was recorded on a flight line crossing
directly over the main wrigglite skarn at Shepherd
and Murphy. The anomaly was modelled at the eastern
end where it appears shallowest. A flight line
crossing the western end was not modellable because
of corrupted data. The derived susceptibility of
9.91×10^{-3} cgs units is one of the highest values
obtained. This indicates a magnetite level of around
3% which seems a little low but these estimates are
notoriously inexact.

A maximum depth to top of 6m and a width of 150m are
reasonable estimates considering the irregular shape
of the skarn.

Anomaly 18
This anomaly is a narrow, well defined east-west
striking feature which appears associated to the
Lawkenlaw mine. The anomaly is bounded by the
Bismuth Creek fault to the west. To the east it
either plunges sharply or just peters out. The
susceptibility of the body is modelled at 1/3 of that
of the Shepherd and Murphy anomaly. The depth is
similar, at 7 metres and the thickness is 55m. The
lower susceptibility may indicate that the anomaly is
due to pyrrhotite rather than magnetite.

Anomaly 1
This feature is a large east-west trending anomaly
southwest of Shepherd and Murphy. To the east is
continues into anomaly four. To the west it appears
bounded by a NNW fault. The magnetisation is only
one sixth of that of the wrigglite skarn. The
maximum depth to top is 111 metres. The dip is 64°N
and the width is 7700m. The most likely source of
this anomaly is a basic volcanic unit underlying the
Moina Sandstone.

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Anomaly 2

This is a narrow winding longitudinal anomaly apparently continuous with anomalies 13 and 14. The area is mapped as basalt and as the depth is only 8 metres it is possible that the anomaly is due to a positively magnetised flow of basalt. The dip is estimated as $80°N$ and the thickness at 80 metres. A ground magnetic survey with or without a bit of auger sampling might be enough for this one. A positive factor for this anomaly is its proximity to the southern intrusive anomaly

Anomaly 3

This is a discrete ENE trending anomaly continuous with anomaly 6. While its magnetisation is fairly low indicating either a pyrrhotite or basic volcanic source rather than the discrete nature of the anomaly makes it interesting. The maximum depth to top is interpreted as being 79 metres. This is likely to put the source well below the mapped basalt cover.

Anomaly 4

This is the continuation of anomaly 1. The depth this time is 114 metres which is well within the bounds of error. The modelled flight line was across one end of the anomaly so a slightly shallower value may have been obtained from the middle of the anomaly. In this case the magnetisation is almost 5 times that of anomaly 1. Ground magnetic surveys should be carried out to accurately define this anomaly.

Anomaly 5

This is a small discrete anomaly south of 4. The amplitude and width of the anomaly are such that it is unlikely to be due to a major skarn. The anomaly lies close to a north-south dislocation. Corruption of the digital data made modelling of this anomaly impossible. This anomaly is the closest to the northernmost proposed granite.

Anomaly 6

Continuation of anomaly 3. Could not be modelled.

Anomaly 7

A small anomaly between anomalies 3 and 21. Data corruption again made modelling impossible but the small size of the anomaly makes it unlikely to be due to a body of large size.

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Anomaly 8
This is a small discrete body of susceptibility comparable with that of the wrigglite. It has a depth to top of 8 metres, a width of 60 metres and a thickness of only 10 metres. The shallow depth and small thickness make it likely that it is due to a basaltic source though skarn is a possibility.

Anomaly 9
This is a discrete anomaly north of 8. It has a modelled susceptibility 3 times that of the wrigglite. The depth of 9m, width of 67 metres and thickness of only 5 metres mean that it is likely to be a basaltic source.

Anomaly 10
A discrete anomaly in the same area as 8 and 9. Its depth of 40 metres, low susceptibility and considerable thickness make it more likely that it is due to a bedrock source than basalt.

Anomaly 11
Possible further extension of 4. Lies near the northern proposed granite intrusion. Could not be modelled.

Anomaly 12
Major north-south anomaly south of the northern intrusion anomaly. As it is north south and basically a one line anomaly it is impossible to model. Inspection of the contour data shows that the anomaly is of similar amplitude to anomaly 1 though probably slightly shallower. Ground magnetic surveys would be required to give usable data.

Anomaly 13
This is an extension of anomalies 2 and 14. The appearance of the contoured anomaly is the same as for anomaly 2 but the modelling shows a considerable discrepancy with a higher magnetisation, a deeper depth (223 metres against 8 metres) and double the width. I place more confidence in the interpretation of anomaly 2 but clearly ground surveys are needed.

Anomaly 14
In between 2 and 13 but not modellable due to data destruction.

Anomaly 15
A north-south one line anomaly along the same dislocation as anomaly 5. Possibly not real. This anomaly may simply be a contouring effect.

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Anomalies 16 and 17
Magnetic highs south of the Moina skarns. In both cases the data was corrupted. These need modelling as soon as the data can be fixed up.

Anomaly 19
Sphalerite skarn anomaly. Not modellable.

Anomaly 21
North-south anomaly, possibly related to anomaly 12 with similar characteristics. Not modelled as north south.

Anomaly 22
Small circular anomaly in between Shepherd & Murphy and Stormont. Under basalt but very low susceptibility indicates that a bedrock source is probable.

Anomaly 23
Deep anomaly in area of Ordovician Sandstone overlain by basalt. The anomaly source is at around 200m depth which makes it a difficult exploration target. Otherwise the anomaly has very similar characteristics to the Shepherd and Murphy skarn. Ground magnetic follow-up is definitely warranted.

Anomaly 24
Small anomaly north of Shepherd and Murphy. The data was corrupted so it could not be modelled. It sits on a trend between anomalies 23 and 25.

Anomaly 25
Large anomaly of fairly low susceptibility. Likely to be due to a lithological source rather than a discrete anomaly but it may be due to non-magnetite skarn.

Anomaly 26
Small anomaly east of Shepherd and Murphy. Low magnetisation but otherwise a good candidate. Strong probability of being a low magnetite skarn.

Anomaly 27
Mt Jacob area. Probably basic volcanics. Not modelled due to data corruption.

Anomaly 28
Discrete east-west anomaly southeast of Shepherd and Murphy. It is terminated by the Bismuth Creek fault. Looks a good chance but not modelled due to corrupted data.

Anomaly 29
Possible small skarn. Isolated anomaly on one flight
line. Not modelled due to corrupted data.

Anomaly 30
Western extension of wrigglite skarn, apparently
plunging steeply or faulted down to a depth of 80
metres.

Anomaly 31
Substantial anomaly southwest of the Dalcoath
Granite. The aeromagnetic survey of this anomaly is
not complete so it could not be modelled. A ground
magnetic survey is recommended.

Anomaly 32
A discrete longitudinal magnetic high some distance
south of the Granite. Dipping south at a probable
depth in excess of 50 metres. Not modelled due to
corrupted data.

Anomaly 33
A longitudinal negative anomaly in between 32 and 34.
Possibly an effect of contouring. Ground magnetics
between 32 and 34 would confirm it. Not modelled.
Shell checked this anomaly but results are not known.

Anomaly 34
A very promising anomaly except that there seems to
be no Ordovician present which seems important in the
area. The sou-south east strike of the anomaly makes
it difficult to model from north-south flight line
data but the figures come out quite well. Ground
checking is necessary. Shell have looked at this
one.

Anomaly 35
A long way south of the Granite and poor
magnetisation, both of which downgrade the anomaly.

Anomaly 36
A major magnetic anomaly with the highest value in
the area. The magnetisation is in the right area for
a magnetite skarn and it lies not far from the
Campbells Reward gold mine but the amplitude and
width of the anomaly are such that a basic volcanic
of high magnetite seems a more likely source of
anomaly.

Anomaly 37
High magnetisation on the edge of a basalt field is
suspicious notwithstanding the fact that the contour
map shows the anomaly as an apparent continuation of
36. A basalt source seems likely.

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Anomaly 38
Small anomaly, part of a southwest trending line of
highs. Mapped in Cambrian volcanics but possibly a
small skarn type body.

Anomaly 39
Extension of anomaly 40 though probably due to a
smaller source. Not modelled due to data corruption.

Anomaly 40
Probably due to a basic volcanic source of low
susceptibility.

Anomaly 41
Magnetisation of this anomaly is good but the source
is interpreted as being very narrow. Possibly it is
due to a local thickening of the basalt, a small
piece of which is mapped coincident with the anomaly.

Anomaly 42
A well defined circular anomaly due to a discrete
body.   The susceptibility, depth etc are of a
suitable level.   However, the anomaly is some five
kilometres from the mapped granite margin and is
under basalt.   Thus a possible source is a basalt
feeder pipe.

Anomaly 43
A longitudinal anomaly south of 42.   It is under
basalt and may be a basalt filled palaeochannel. The
trend of the anomaly is north-south so it has not
been modelled.

Anomaly 44
This anomaly lies just west of the wrigglite skarn.
It is very shallow and lies on a basalt margin. Its
low magnetisation means that the source is likely to
be either a low magnetite skarn or a weathered
basalt. Ground inspection is required.

4.   CONCLUSIONS

A total of 44 anomalies have been examined. These lie
within ground held by the Joint Venture and on open
ground.   Anomalies occurring on ground to the west which
is under competitors title have not yet been examined and
will not be until the data is fixed up.

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A number of discrete anomalies have been identified in the area which the gravity and magnetics indicates might be affected by a southwest plunging extension of the granite. Whilst some of these anomalies are likely to be due to basalt, the unexplored nature of the area gives some hope for finding further magnetite/pyrrhotite skarns which may contain gold.

Tables listing the results of modelling are given in Appendices 1 and 2. Anomalies with ratings of 3 and above are recommended for some follow-up.

A large part of the area is at present not under title so we should either take up the ground or rapidly conduct ground magnetic reconnaissance over the magnetic anomalies, with ground Genie EM surveys over those that are found to be close to surface.

T VON STROKIRCH

Encs (App 1, 2 & 3)

APPENDIX 1

MOINA AREA AEROMAGNETIC MODELLING - ALL PARAMETERS FLOATING

Anomaly	=	MOINA1E	Model Type	=	TABULAR	Std. Dev. Fit=		0.04530
Line Number	=	5540	Magnetization=		110.6	Depth	=	210.9
Central Fid.	=	109676	Position	=	-227.3			
Mean	=	1775.02	Width	=	728.4			
Interp. dx	=	45	Strike	=	90.0	Thickness	=	655.9
Reg. Const.	=	0.000	Dip	=	64.2			
Reg. Grad.	=	0.000						

Anomaly	=	MOINA2A	Model Type	=	TABULAR	Std. Dev. Fit=		0.02630
Line Number	=	5520	Magnetization=		107.0	Depth	=	108.2
Central Fid.	=	110860	Position	=	1.4			
Mean	=	1803.89	Width	=	85.7			
Interp. dx	=	20	Strike	=	80.0	Thickness	=	84.3
Reg. Const.	=	-150.000	Dip	=	79.9			
Reg. Grad.	=	0.050						

Anomaly	=	MOINA3C	Model Type	=	TABULAR	Std. Dev. Fit=		0.00470
Line Number	=	5650	Magnetization=		152.8	Depth	=	178.7
Central Fid.	=	173915	Position	=	-48.8			
Mean	=	1820.60	Width	=	141.8			
Interp. dx	=	20	Strike	=	90.0	Thickness	=	138.8
Reg. Const.	=	0.000	Dip	=	78.2			
Reg. Grad.	=	0.000						

Anomaly	=	MOINA4C	Model Type	=	TABULAR	Std. Dev. Fit=		0.02580
Line Number	=	5570	Magnetization=		497.9	Depth	=	214.2
Central Fid.	=	169360	Position	=	-65.0			
Mean	=	1757.73	Width	=	133.0			
Interp. dx	=	30	Strike	=	75.0	Thickness	=	125.4
Reg. Const.	=	-30.000	Dip	=	70.5			
Reg. Grad.	=	0.250						

Anomaly	=	MOINA8B	Model Type	=	TABULAR	Std. Dev. Fit=		0.01940
Line Number	=	5580	Magnetization=		804.0	Depth	=	107.5
Central Fid.	=	170289	Position	=	66.3			
Mean	=	1739.04	Width	=	59.8			
Interp. dx	=	20	Strike	=	90.0	Thickness	=	9.5
Reg. Const.	=	-200.100	Dip	=	170.9			
Reg. Grad.	=	-0.550						

Anomaly	=	MOINA9C	Model Type	=	TABULAR	Std. Dev. Fit=		0.04030
Line Number	=	5580	Magnetization=		2011.0	Depth	=	108.8
Central Fid.	=	170312	Position	=	27.7			
Mean	=	1739.04	Width	=	66.9			
Interp. dx	=	20	Strike	=	90.0	Thickness	=	4.5
Reg. Const.	=	-80.000	Dip	=	176.1			
Reg. Grad.	=	-0.100						

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Anomaly       = MOINA10A  Model Type  = TABULAR   Std. Dev. Fit=    0.03960
Line Number   =     5560  Magnetization=       86.0 Depth        =      139.6
Central Fid.  =   108643  Position    =       36.8
Mean          =  1754.66  Width       =      312.6
Interp. dx    =       30  Strike      =       90.0 Thickness     =      218.3
Reg. Const.   = -190.000  Dip         =      135.7
Reg. Grad.    =   -0.130


Anomaly       = MOINA13A  Model Type  = TABULAR   Std. Dev. Fit=    0.08000
Line Number   =     5540  Magnetization=      318.9 Depth        =      323.0
Central Fid.  =   109797  Position    =       82.6
Mean          =  1775.02  Width       =      292.4
Interp. dx    =       30  Strike      =      120.0 Thickness     =      227.6
Reg. Const.   = -150.000  Dip         =      128.9
Reg. Grad.    =   -0.100


Anomaly       = MOINA18A  Model Type  = TABULAR   Std. Dev. Fit=    0.01240
Line Number   =     5680  Magnetization=      223.2 Depth        =      107.3
Central Fid.  =   175785  Position    =      -24.8
Mean          =  1841.19  Width       =      133.1
Interp. dx    =       20  Strike      =       90.0 Thickness     =       55.2
Reg. Const.   =    0.000  Dip         =      155.5
Reg. Grad.    =    0.000


Anomaly       = MOINA20A  Model Type  = TABULAR   Std. Dev. Fit=    0.05260
Line Number   =     5630  Magnetization=      615.1 Depth        =      105.9
Central Fid.  =   172760  Position    =      -19.9
Mean          =  1773.01  Width       =      150.0
Interp. dx    =       30  Strike      =       90.0 Thickness     =      142.6
Reg. Const.   =  -95.000  Dip         =      108.1
Reg. Grad.    =    0.000


Anomaly       = MOINA20B  Model Type  = TABULAR   Std. Dev. Fit=    0.05650
Line Number   =     5630  Magnetization=     1096.0 Depth        =      123.8
Central Fid.  =   172760  Position    =      -22.7
Mean          =  1773.01  Width       =       92.0
Interp. dx    =       30  Strike      =       90.0 Thickness     =       88.3
Reg. Const.   =  -95.000  Dip         =      106.3
Reg. Grad.    =    0.000


Anomaly       = MOINA20C  Model Type  = TABULAR   Std. Dev. Fit=    0.11880
Line Number   =     5630  Magnetization=     2704.0 Depth        =      105.1
Central Fid.  =   172760  Position    =       76.8
Mean          =  1773.01  Width       =      201.0
Interp. dx    =       30  Strike      =       90.0 Thickness     =       34.9
Reg. Const.   =  -95.000  Dip         =      170.0
Reg. Grad.    =    0.000


Anomaly       = MOINA22A  Model Type  = TABULAR   Std. Dev. Fit=    0.02240
Line Number   =     5530  Magnetization=       52.7 Depth        =      106.5
Central Fid.  =   110414  Position    =       -1.3
Mean          =  1865.51  Width       =      167.8
Interp. dx    =       20  Strike      =       90.0 Thickness     =      167.6
Reg. Const.   = -160.000  Dip         =       92.2
Reg. Grad.    =    0.000
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Anomaly         = MOINA23B   Model Type    = TABULAR   Std. Dev. Fit=    0.02880
Line Number     =      5520  Magnetization=     2346.0 Depth          =     370.3
Central Fid.    =    110666  Position      =       96.2
Mean            =   1803.89  Width         =      186.4
Interp. dx      =        40  Strike        =       90.0 Thickness      =     115.8
Reg. Const.     =  -180.000  Dip .         =      141.6
Reg. Grad.      =    -0.100

Anomaly         = MOINA23C   Model Type    = TABULAR   Std. Dev. Fit=    0.01040
Line Number     =      5530  Magnetization=      851.9 Depth          =     257.0
Central Fid.    =    110444  Position      =      -62.0
Mean            =   1865.51  Width         =      248.8
Interp. dx      =        40  Strike        =       75.0 Thickness      =     241.3
Reg. Const.     =  -210.000  Dip           =      104.1
Reg. Grad.      =     0.280

Anomaly         = MOINA25A   Model Type    = TABULAR   Std. Dev. Fit=    0.01120
Line Number     =      5620  Magnetization=      168.4 Depth          =     261.0
Central Fid.    =    172549  Position      =      -64.1
Mean            =   1673.81  Width         =      123.6
Interp. dx      =        20  Strike        =       90.0 Thickness      =     114.4
Reg. Const.     =   260.000  Dip           =      112.2
Reg. Grad.      =     0.220

Anomaly         = MOINA25B   Model Type    = TABULAR   Std. Dev. Fit=    0.02230
Line Number     =      5620  Magnetization=      150.0 Depth          =     332.7
Central Fid.    =    172549  Position      =     -226.9
Mean            =   1673.81  Width         =      320.4
Interp. dx      =        40  Strike        =       90.0 Thickness      =     265.0
Reg. Const.     =   100.000  Dip           =       55.8
Reg. Grad.      =     0.160

Anomaly         = MOINA26A   Model Type    = TABULAR   Std. Dev. Fit=    0.02760
Line Number     =      5660  Magnetization=       83.0 Depth          =     102.5
Central Fid.    =    174656  Position      =       10.9
Mean            =   1810.04  Width         =      200.2
Interp. dx      =        20  Strike        =       75.0 Thickness      =      43.7
Reg. Const.     =     0.000  Dip           =      167.4
Reg. Grad.      =     0.100

Anomaly         = MOINA30A   Model Type    = TABULAR   Std. Dev. Fit=    0.00480
Line Number     =      5600  Magnetization=      227.8 Depth          =     179.6
Central Fid.    =    171433  Position      =      -35.2
Mean            =   1682.94  Width         =      211.4
Interp. dx      =        20  Strike        =       95.0 Thickness      =     149.5
Reg. Const.     =   -50.000  Dip           =      135.0
Reg. Grad.      =     0.050

Anomaly         = MOINA34A   Model Type    = TABULAR   Std. Dev. Fit=    0.13950
Line Number     =      5750  Magnetization=      495.2 Depth          =     106.0
Central Fid.    =    179246  Position      =      204.6
Mean            =   1722.12  Width         =       71.5
Interp. dx      =        30  Strike        =      -45.0 Thickness      =      67.1
Reg. Const.     =   300.000  Dip           =       69.7
Reg. Grad.      =     0.350
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Anomaly        = MOINA35A   Model Type  = TABULAR   Std. Dev. Fit=    0.04560
Line Number    =     5730   Magnetization=    3414.0 Depth       =       120.4
Central Fid.   =   178410   Position    =     115.7
Mean           =  1950.70   Width       =      58.0
Interp. dx     =       20   Strike      =      90.0  Thickness    =         3.9
Reg. Const.    =   50.000   Dip         =     176.1
Reg. Grad.     =    0.000


Anomaly        = MOINA36A   Model Type  = TABULAR   Std. Dev. Fit=    0.02450
Line Number    =     5800   Magnetization=    1073.0 Depth       =       156.9
Central Fid.   =   180716   Position    =     216.5
Mean           =  2036.79   Width       =     762.4
Interp. dx     =       40   Strike      =      90.0  Thickness    =       308.9
Reg. Const.    = -260.000   Dip         =     156.1
Reg. Grad.     =   -0.030


Anomaly        = MOINA36B   Model Type  = TABULAR   Std. Dev. Fit=    0.02000
Line Number    =     5810   Magnetization=     566.2 Depth       =       220.5
Central Fid.   =   181242   Position    =    -250.2
Mean           =  2015.57   Width       =     638.2
Interp. dx     =       40   Strike      =      95.0  Thickness    =       624.5
Reg. Const.    = -100.000   Dip         =     101.9
Reg. Grad.     =    0.100


Anomaly        = MOINA37A   Model Type  = TABULAR   Std. Dev. Fit=    0.01140
Line Number    =     5820   Magnetization=    2011.0 Depth       =       304.6
Central Fid.   =   181480   Position    =     259.1
Mean           =  1898.88   Width       =     635.6
Interp. dx     =       40   Strike      =      90.0  Thickness    =       134.3
Reg. Const.    =  100.000   Dip         =     167.8
Reg. Grad.     =    0.000


Anomaly        = MOINA38C   Model Type  = TABULAR   Std. Dev. Fit=    0.02750
Line Number    =     5820   Magnetization=     142.5 Depth       =       100.2
Central Fid.   =   181425   Position    =     -28.1
Mean           =  1898.88   Width       =      94.4
Interp. dx     =       20   Strike      =      80.0  Thickness    =        66.1
Reg. Const.    =  105.000   Dip         =      44.5
Reg. Grad.     =    0.000


Anomaly        = MOINA40A   Model Type  = TABULAR   Std. Dev. Fit=    0.05370
Line Number    =     5830   Magnetization=     136.6 Depth       =       141.8
Central Fid.   =   182070   Position    =      82.3
Mean           =  1795.07   Width       =     438.0
Interp. dx     =       40   Strike      =      95.0  Thickness    =       299.8
Reg. Const.    =   85.000   Dip         =     136.8
Reg. Grad.     =    0.100


Anomaly        = MOINA41A   Model Type  = TABULAR   Std. Dev. Fit=    0.03770
Line Number    =     5850   Magnetization=     542.7 Depth       =       104.6
Central Fid.   =   182972   Position    =      -4.6
Mean           =  1903.23   Width       =      19.7
Interp. dx     =       20   Strike      =      80.0  Thickness    =        19.0
Reg. Const.    =   30.000   Dip         =      75.0
Reg. Grad.     =    0.450
```

```
Anomaly       = MOINA42A  Model Type   = TABULAR   Std. Dev. Fit=    0.02920
Line Number   =     5870  Magnetization=    1496.0  Depth        =      174.1
Central Fid.  =   184496  Position     =   -153.2
Mean          =  1959.13  Width        =      70.0
Interp. dx    =       20  Strike       =      90.0  Thickness    =       69.2
Reg. Const.   =    0.000  Dip          =      98.3
Reg. Grad.    =    0.600

Anomaly       = MOINA42B  Model Type   = TABULAR   Std. Dev. Fit=    0.02480
Line Number   =     5870  Magnetization=     491.0  Depth        =      109.3
Central Fid.  =   184498  Position     =   -139.2
Mean          =  1959.13  Width        =     171.7
Interp. dx    =       20  Strike       =      90.0  Thickness    =      133.7
Reg. Const.   =  110.000  Dip          =      51.1
Reg. Grad.    =    0.750

Anomaly       = MOINA44A  Model Type   = TABULAR   Std. Dev. Fit=    0.01680
Line Number   =     5570  Magnetization=     126.2  Depth        =      102.4
Central Fid.  =   169396  Position     =       4.7
Mean          =  1764.39  Width        =      46.0
Interp. dx    =       20  Strike       =      90.0  Thickness    =       45.1
Reg. Const.   =  -95.000  Dip          =     101.8
Reg. Grad.    =   -0.150
```

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APPENDIX 2

MOINA AREA AEROMAGNETIC MODELLING - SUSCEPTIBILITY FIXED

```
Anomaly        = MOINA1F    Model Type   = TABULAR   Std. Dev. Fit=    0.09310
Line Number    =      5540  Magnetization=     2000.0 Depth         =     487.5
Central Fid.   =    109676  Position     =     -123.0
Mean           =   1775.02  Width        =       61.7
Interp. dx     =        45  Strike       =       90.0 Thickness     =      61.6
Reg. Const.    =     0.000  Dip          =       87.9
Reg. Grad.     =     0.000
```

```
Anomaly        = MOINA2B    Model Type   = TABULAR   Std. Dev. Fit=    0.09760
Line Number    =      5520  Magnetization=     2000.0 Depth         =     177.4
Central Fid.   =    110860  Position     =      -52.9
Mean           =   1803.89  Width        =       18.5
Interp. dx     =        20  Strike       =       80.0 Thickness     =      11.6
Reg. Const.    =  -150.000  Dip          =       38.6
Reg. Grad.     =     0.050
```

```
Anomaly        = MOINA4D    Model Type   = TABULAR   Std. Dev. Fit=    0.02570
Line Number    =      5570  Magnetization=     2000.0 Depth         =     228.0
Central Fid.   =    169360  Position     =      -66.7
Mean           =   1757.73  Width        =       35.3
Interp. dx     =        30  Strike       =       75.0 Thickness     =      33.1
Reg. Const.    =   -30.000  Dip          =       69.8
Reg. Grad.     =     0.250
```

```
Anomaly        = MOINA8C    Model Type   = TABULAR   Std. Dev. Fit=    0.04980
Line Number    =      5580  Magnetization=     2000.0 Depth         =     186.1
Central Fid.   =    170289  Position     =      -75.4
Mean           =   1739.04  Width        =       16.6
Interp. dx     =        20  Strike       =       90.0 Thickness     =      11.5
Reg. Const.    =  -200.100  Dip          =       44.0
Reg. Grad.     =    -0.550
```

```
Anomaly        = MOINA10B   Model Type   = TABULAR   Std. Dev. Fit=    0.04940
Line Number    =      5560  Magnetization=     2000.0 Depth         =     240.2
Central Fid.   =    108643  Position     =       29.0
Mean           =   1754.66  Width        =       19.5
Interp. dx     =        30  Strike       =       90.0 Thickness     =      14.4
Reg. Const.    =  -190.000  Dip          =      132.4
Reg. Grad.     =    -0.130
```

```
Anomaly        = MOINA13B   Model Type   = TABULAR   Std. Dev. Fit=    0.08140
Line Number    =      5540  Magnetization=     2000.0 Depth         =     418.3
Central Fid.   =    109797  Position     =       35.9
Mean           =   1775.02  Width        =       58.4
Interp. dx     =        30  Strike       =      120.0 Thickness     =      54.9
Reg. Const.    =  -150.000  Dip          =      109.9
Reg. Grad.     =    -0.100
```

```
Anomaly        = MOINA18B  Model Type   = TABULAR    Std. Dev. Fit=      0.11450
Line Number    =     5680  Magnetization=     2000.0  Depth          =       269.9
Central Fid.   =   175785  Position     =     -107.4
Mean           =  1841.19  Width        =       41.0
Interp. dx     =       20  Strike       =       90.0  Thickness      =        32.2
Reg. Const.    =    0.000  Dip          =      128.2
Reg. Grad.     =    0.000


Anomaly        = MOINA22B  Model Type   = TABULAR    Std. Dev. Fit=      0.04970
Line Number    =     5530  Magnetization=     2000.0  Depth          =       200.5
Central Fid.   =   110414  Position     =      -65.2
Mean           =  1865.51  Width        =       18.5
Interp. dx     =       20  Strike       =       90.0  Thickness      =        12.8
Reg. Const.    = -160.000  Dip          =       43.6
Reg. Grad.     =    0.000


Anomaly        = MOINA23C  Model Type   = TABULAR    Std. Dev. Fit=      0.02890
Line Number    =     5520  Magnetization=     2000.0  Depth          =       365.3
Central Fid.   =   110666  Position     =       95.3
Mean           =  1803.89  Width        =      215.2
Interp. dx     =       40  Strike       =       90.0  Thickness      =       134.3
Reg. Const.    = -180.000  Dip          =      141.4
Reg. Grad.     =   -0.100


Anomaly        = MOINA25B  Model Type   = TABULAR    Std. Dev. Fit=      0.05000
Line Number    =     5620  Magnetization=     2000.0  Depth          =       525.5
Central Fid.   =   172549  Position     =     -165.1
Mean           =  1673.81  Width        =       48.2
Interp. dx     =       20  Strike       =       90.0  Thickness      =        48.0
Reg. Const.    =  260.000  Dip          =       95.4
Reg. Grad.     =    0.220


Anomaly        = MOINA26B  Model Type   = TABULAR    Std. Dev. Fit=      0.16200
Line Number    =     5660  Magnetization=     2000.0  Depth          =       661.9
Central Fid.   =   174656  Position     =     -134.2
Mean           =  1810.04  Width        =       71.7
Interp. dx     =       20  Strike       =       75.0  Thickness      =        71.7
Reg. Const.    =    0.000  Dip          =       89.3
Reg. Grad.     =    0.100


Anomaly        = MOINA30B  Model Type   = TABULAR    Std. Dev. Fit=      0.00790
Line Number    =     5600  Magnetization=     2000.0  Depth          =       232.2
Central Fid.   =   171433  Position     =      -26.9
Mean           =  1682.94  Width        =       35.5
Interp. dx     =       20  Strike       =       95.0  Thickness      =        22.5
Reg. Const.    =  -50.000  Dip          =      140.7
Reg. Grad.     =    0.050


Anomaly        = MOINA34B  Model Type   = TABULAR    Std. Dev. Fit=      0.19310
Line Number    =     5750  Magnetization=     2000.0  Depth          =       189.4
Central Fid.   =   179246  Position     =      357.3
Mean           =  1722.12  Width        =       59.6
Interp. dx     =       30  Strike       =      -45.0  Thickness      =        55.9
Reg. Const.    =  300.000  Dip          =      110.4
Reg. Grad.     =    0.350
```

```
Anomaly          = MOINA35B   Model Type    = TABULAR     Std. Dev. Fit=      0.04990
Line Number      =      5730  Magnetization=      2000.0  Depth         =       126.4
Central Fid.     =    178410  Position      =       109.0
Mean             =   1950.70  Width         =        40.2
Interp. dx       =        20  Strike        =        90.0  Thickness     =         7.1
Reg. Const.      =    50.000  Dip           =       169.8
Reg. Grad.       =     0.000

Anomaly          = MOINA36C   Model Type    = TABULAR     Std. Dev. Fit=      0.04920
Line Number      =      5810  Magnetization=      2000.0  Depth         =       404.6
Central Fid.     =    181242  Position      =      -224.2
Mean             =   2015.57  Width         =       280.2
Interp. dx       =        40  Strike        =        95.0  Thickness     =       263.1
Reg. Const.      =  -100.000  Dip           =       110.1
Reg. Grad.       =     0.100

Anomaly          = MOINA37B   Model Type    = TABULAR     Std. Dev. Fit=      0.01140
Line Number      =      5820  Magnetization=      2000.0  Depth         =       304.5
Central Fid.     =    181480  Position      =       258.8
Mean             =   1898.88  Width         =       635.8
Interp. dx       =        40  Strike        =        90.0  Thickness     =       135.4
Reg. Const.      =   100.000  Dip           =       167.7
Reg. Grad.       =     0.000

Anomaly          = MOINA38D   Model Type    = TABULAR     Std. Dev. Fit=      0.04810
Line Number      =      5820  Magnetization=      2000.0  Depth         =       137.4
Central Fid.     =    181425  Position      =       -48.8
Mean             =   1898.88  Width         =        17.5
Interp. dx       =        20  Strike        =        80.0  Thickness     =         8.1
Reg. Const.      =   105.000  Dip           =        27.5
Reg. Grad.       =     0.000

Anomaly          = MOINA40B   Model Type    = TABULAR     Std. Dev. Fit=      0.08120
Line Number      =      5830  Magnetization=      2000.0  Depth         =       264.5
Central Fid.     =    182070  Position      =        46.6
Mean             =   1795.07  Width         =        35.1
Interp. dx       =        40  Strike        =        95.0  Thickness     =        28.5
Reg. Const.      =    85.000  Dip           =       125.8
Reg. Grad.       =     0.100

Anomaly          = MOINA41B   Model Type    = TABULAR     Std. Dev. Fit=      0.12220
Line Number      =      5850  Magnetization=      2000.0  Depth         =       161.3
Central Fid.     =    182972  Position      =       -50.7
Mean             =   1903.23  Width         =        19.6
Interp. dx       =        20  Strike        =        80.0  Thickness     =        12.1
Reg. Const.      =    30.000  Dip           =        38.2
Reg. Grad.       =     0.450

Anomaly          = MOINA44B   Model Type    = TABULAR     Std. Dev. Fit=      0.09680
Line Number      =      5570  Magnetization=      2000.0  Depth         =       169.3
Central Fid.     =    169396  Position      =       -79.0
Mean             =   1764.39  Width         =        18.3
Interp. dx       =        20  Strike        =        90.0  Thickness     =         8.8
Reg. Const.      =   -95.000  Dip           =        28.7
Reg. Grad.       =    -0.150
```

APPENDIX 3

TABLE OF ANOMALIES, AMG POSITION OF MODEL AND RATING

Anomaly	Easting	Northing	Modelled (Y,N)	Rating
1	421061	5405315	Y	1
2	420583	5401305	Y	3
3	423601	5402325	Y	3
4	421806	5405136	Y	2
5	–	–	N	
6	–	–	N	
7	–	–	N	
8	422051	5401896	Y	4
9	421984	5402720	Y	3
10	421671	5402182	Y	3
11	–	–	N	
12	–	–	N	
13	421068	5401247	Y	2
14	–	–	N	
15	–	–	N	
16	–	–	N	
17	–	–	N	
18	424292	5405511	Y	6
19	–	–	N	
20	423303	5406424	Y	6
21	–	–	N	
22	420699	5406300	Y	3
23	420562	5407583	Y	3
24	–	–	N	2
25	422978	5409366	Y	4
26	423894	5406637	Y	5

27	–	–	N	1
28	–	–	N	4
29	–	–	N	4
30	422528	5406617	Y	6
31	–	–	N	3
32	–	–	N	3
33	–	–	N	2
34	426220	5402933	Y	4
35	425746	5401917	Y	3
36	427861	5402248	Y	3
37	428215	5402027	Y	2
38	428133	5404039	Y	3
39	–	–	N	2
40	428366	5404332	Y	3
41	429000	5404641	Y	2
42	429193	5401079	Y	4
43	–	–	N	1
44	421734	5406721	Y	3

888021

425 000mE

430 000mE

5 410 000mN

Au,Pb,Ag

Wilmot
Ag,Pb,(Cu,Au)

Au

Bell Mount
Au

Au,Ag,Pb
Devonport

West Mt.Claude
Ag,Pb

Round Hill
Western Ag,Pb

Round Hill Central
Ag,Pb

Narrawa Reward
Au,Ag

Poveys W,Mo

Squib
W,Bi,Mo,Sn

Sayers
W,Bi,Sn,Mo

Hidden
Treasure
Mo,Bi,W

Ashworths
Sn

Round Hill
Ag,Pb,Au

Higgs
Au

Princess
W,Bi

Dolcoath
W,Bi,Mo

Shepherd
& Murphy
Bi,Wo,Mo,Sn,Fe

Fletchers
Bi,W

Goreys/Duffs Sn

Stormont
Bi,Au,Ag,Fe

All Nations W,Mo,Bi

Pachina
W,Bi

Sn,W,Au

Premier
W,Mo,Bi,Fe

Round Hill
Extended
Ag,Pb,Zn

Lawkamlaw
W

Ddcgr

Tin
Spur
Sn,Au

Iris
Sn,W,Bi

Yorks
Sn,W

Pig & Whistle
W,Bi,Sn

Gossan

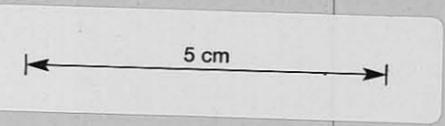5 405 000mN

Devonian
Ag,Pb,Au

Gossan

Eqbp

Campbells
Reward Ag,Au

5 400 000mN

415 000mE

420 000mE

5 cm

CRA EXPLORATION PTY. LIMITED

87-2700

MOINA E.L. 7/74
MOINA AREA
METAL ZONING

REF.	SK55 - 3	(8014 - 8114 - 8115)
SCALE	1 : 50 000	DRAWN R.T.
AUTHOR	S.J.C.	REPORT No.
DATE	14 - 10 - 1986	PLAN No. TASh 3171