RGC EXPLORATION PTY. LIMITED

449001

E.L. 41/83 - LAKE LEA

RELINQUISHMENT REPORT

90-3171

Report No: T/90/11

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Principal Geologist

August, 1990

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Distribution: Div. Mines & Mineral Resources (1)
RGC Exploration Pty. Ltd. (2)

449002

SUMMARY

The activities planned for E.L. 41/83 at the end of the last reporting period aimed at a definitive appraisal of the potential for an economic gold resource at the Stormont Gold/Bismuth Prospect.

Particular effort was dedicated to the reprocessing and reinterpretation of previously gathered regional geophysical data, in particular the review of aeromagnetic and gravimetric surveys. Of critical importance to the design of a drilling programme in Stormont was the analysis and interpretation of ground magnetometric data obtained over the new grid. The adequate processing and interpretation of this data proved quite demanding, given the enormous magnitude of the anomalies, which together with the large separation between survey lines made computer contouring impractical.

A drilling programme was designed to test the skarns at Stormont, based on the integration of the local geological map and a hand-contoured interpretation of the ground magnetics. A total of 15 holes were diamond drilled, with an average depth of 38m. Skarns were intersected in 13 holes, with an average thickness of approximately 13m. Each hole was fully logged and geologically sampled, and the samples assayed for Au, Bi, As, Cu, Pb, Zn, Ag, W and Sn. The assays failed to reveal any economically relevant Au contents.

Following a full review of the data collected during the tenure, it was decided to relinquish the licence because of other exploration priorities elsewhere in the State.

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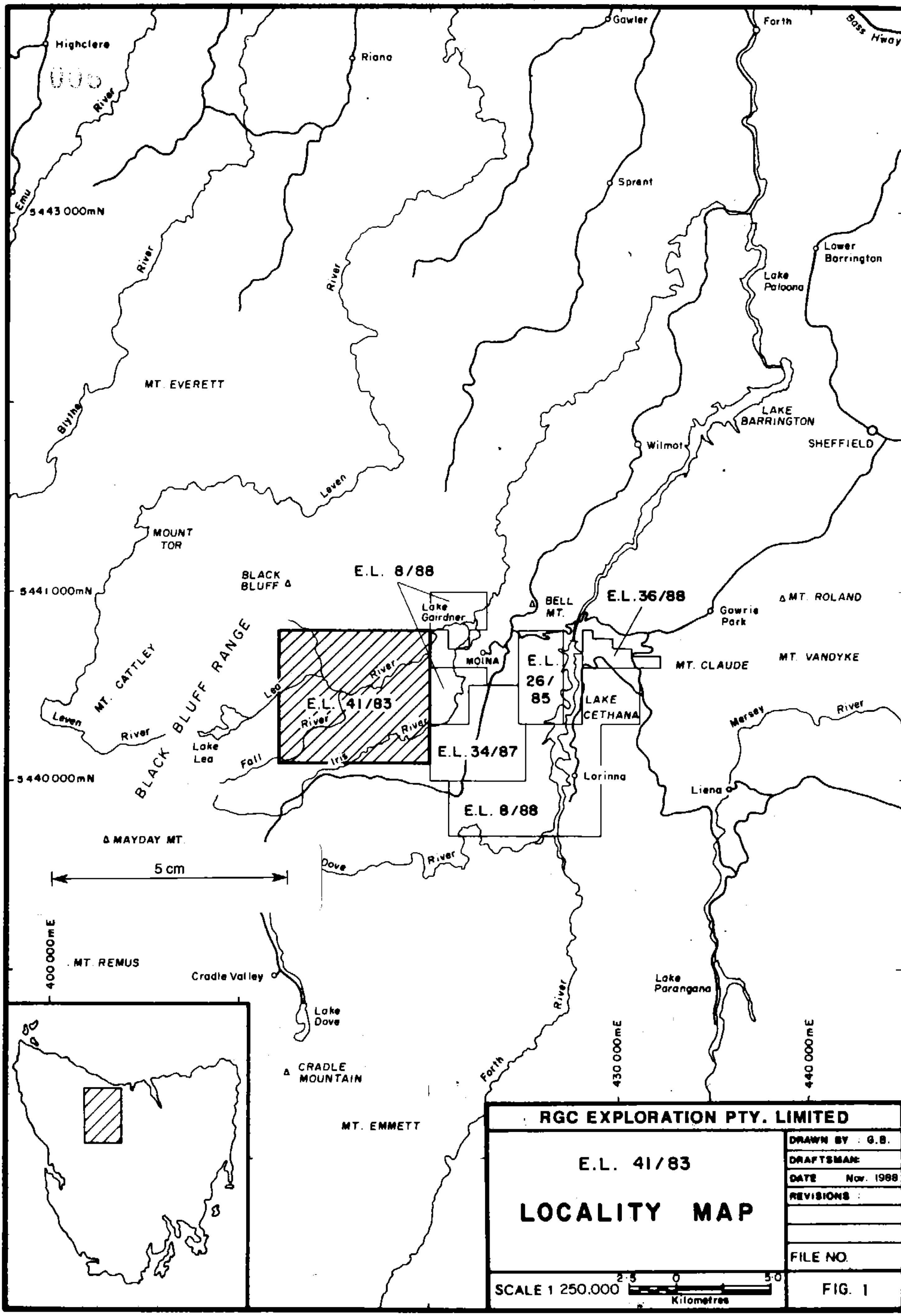
APPENDICES

1. INTRODUCTION

The original application for this tenement was made by RGCE in July 1983, and defined the main exploration targets in the region as hydrothermal deposits associated with the underlying Dolcoath granite, and, as a second priority, its potential for massive base metal sulphides related to the Mount Read Volcanics setting (Newnham, 1983). As old data was reviewed and integrated with the results of further geological work, the attention was focused on the skarn bodies contained by the Ordovician Gordon limestone, particularly in the Stormont-Fletchers Adit sector. These became the prime exploration target, with gold as a main objective.

This report summarizes the work completed in E.L. 41/83 during the period between the last Annual Report and the date of relinquishment, that is 22/11/89 to 31/08/90. The area relinquished is the total of the tenement, and is shown in Fig. 1. The activities described and the documentation submitted in this report relate mainly to the design, implementation and results of a conclusive drilling programme in the Stormont sector, where a new grid had been established (Castro & White, 1989). This final report is also organized as a direct supplement to the above-mentioned last Annual Report on E.L. 41/83.

449007


Highclere
Riana
Gawler
Forth
Bass Hway
River
Emu
5443 000mN
Sprent
Lower Barrington
Lake Paloona
River
River
Blythe
MT. EVERETT
LAKE BARRINGTON
Wilmot
SHEFFIELD
Leven
MOUNT TOR
BLACK BLUFF
E.L. 8/88
5441 000mN
BELL MT.
E.L. 36/88
Gowrie Park
MT. ROLAND
Lake Gairdner
MOINA
E.L. 26/85
MT. CLAUDE
MT. VANDYKE
MT. CATTLEY
BLACK BLUFF RANGE
Lea
River
E.L. 41/83
River
River
LAKE CETHANA
Mersey
River
Leven
River
Lake Lea
Fall
Iris
E.L. 34/87
5440 000mN
Lorinna
Liena
E.L. 8/88
MAYDAY MT.
Dove
River
5 cm
400 000mE
MT. REMUS
Cradle Valley
Lake Dove
River
Lake Parangana
430 000mE
440 000mE
CRADLE MOUNTAIN
Forth
MT. EMMETT
RGC EXPLORATION PTY. LIMITED
E.L. 41/83
LOCALITY MAP
DRAWN BY : G.B.
DRAFTSMAN:
DATE Nov. 1988
REVISIONS :
FILE NO.
SCALE 1 250 000
2·5 0 5·0
Kilometres
FIG. 1

2. EXPENDITURE

Total expenditure on E.L. 41/83 between January 1990 and the end of July 1990 has been $176,326. An additional $2,800 is estimated as expenditure between the end of July and 31/8/90, date of relinquishment, making the total expenditure for this final reporting period $179,406. A detailed breakdown of the amount is presented in Appendix 1.

3. WORK COMPLETED 1989/1990

3.1 Geophysics

This section is largely based on the results of work done for RGCE by consultant geophysicist R. Deakin, and appended in their entirety to this report.

3.1.1 Regional Review

An important project completed during the period was the review of previous results by Leaman (1988) on regional gravity and magnetics, partly described by Fleming, 1988, and subsequently fully documented in Castro & Fleming, 1989. Also of relevance to this project were the results of the modelling and interpretation of selected Lake Lea aeromagnetic anomalies, performed by Mitre Geophysics and with a report by Bishop, 1988 (Appendix 3).

The re-examination of all this regional data was commissioned to Deakin (1990), and a full copy of the report that he produced has been appended to the relinquishment report on E.L. 8/88 and E.L. 36/88 (Castro, 1990). This regional review did not generate very substantial results with respect to the economic potential of the area covered by E.L. 41/83. In general the Stormont area, where the best mineralized skarn rock exists, appears only as a minor aeromagnetic feature and the same is valid for the skarns in the Fletchers Adit sector.

The regional results were conceptualized by Deakin in a 1:50,000 Geophysical Interpretation Plan and in a series of cross sections, of which the more relevant to this tenement is line 419,000 E, which illustrated the geometric setting of the Stormont skarn in relation to the Dolcoath granite. These two plans have been appended to the mentioned relinquishment report on E.L. 8/88 and E.L. 36/88 (Plans 13 and 14 in Castro, 1990).

3.1.2 Ground Magnetics

A preliminary description of the ground magnetometric survey carried out during 1989 was provided in the E.L. 41/83 Annual Report 1988/89 (Castro & White, 1990). Several initial steps to produce a computer-generated contour map of the data proved quite disappointing. The main reasons for this were the large amplitude of the magnetic anomalies (up to 10,000 nT 'relief') generated by the magnetite skarn bodies in relatively short distances, and the large grid-line spacing relative to the high spatial frequency of the anomaly data. A more adequate version of this contour map was achieved by hand-contouring, based directly on a machine-generated map of residual magnetic contours (Plan 1). However, attempts by the interpreter to honour every data point in a very noisy data set resulted in a highly irregular map. A final, significantly improved plan was hand-contoured by Deakin and is appended as Plan 2 of this report.

Deakin's report on the Stormont ground magnetics established an adequate qualitative correlation between the magnetometric results and the interpreted geology. A qualitative approach was treated with caution by Deakin, in view of his suspicion of significant remanence effects, and, to a lesser extent, to the fact that the magnetic profiles are at an approximate angle of 30°-40° to the anomaly strike.

A very detailed treatment of the modelling procedures and specific results obtained on each anomaly is presented in Appendix 2, that reproduces Deakin's report.

3.2 Drilling

3.2.1 Programme Design

An additional drilling programme was planned to assess the Stormont skarn potential for an economic resource of Au. The programme was based on the data obtained from the integration of interpreted geology and ground magnetics, and aimed at intersecting and sampling the main skarn bodies, which contained a few intersections with interesting Au contents (Fleming, 1988).

To concentrate as much drilling as possible on one grid line had obvious operational advantages, and line 5800 N was selected in view of access facilities as well as geological relevance.

The holes were diamond drilled, vertical, with a planned distance between holes of 25 m, and drilling away from the skarn body 'core', until its wedging out. The new drill hole locations are presented on Plan 3, which also shows the geological interpretation. Modifications to the original interpreted boundaries have been made where necessary.

A summary of the drilling statistics is shown in Table 1, indicating the total metreage drilled and its distribution between tricone, HQ, and NQ diameters. The total programme involved the drilling of 571.5 m in 15 holes, during 41 days of operation. Of this total, 91.4 m were triconed, 297.8 m were cut with HQ diameter, and 182.3 m were cut with NQ. The drilling contractor was DDT Pty. Ltd., and the average depth per hole 38m.

TABLE 1

	Metres drilled			
Hole No.	Tricone	HQ	NQ	Total
SD007	6.0	23.0	21.0	50.0
SD008	6.0	22.9	26.1	55.0
SD009	2.0	18.3	26.5	46.8
SD010	0.0	23.7	23.8	47.5
SD011	2.0	18.6	20.9	41.5
SD012	5.5	23.5	12.0	41.0
SD013	2.5	21.0	9.5	33.0
SD014	3.0	30.3	0.0	33.3
SD015	12.9	25.1	0.0	38.0
SD016	19.5	9.4	10.7	39.6
SD017	6.0	14.0	13.0	33.0
SD018	8.0	18.0	10.0	36.0
SD019	15.0	15.0	0.0	30.0
SD020	0.0	32.5	0.0	32.5
SD021	3.0	2.5	8.8	14.3

3.2.2 Logging

The core recovered was logged using the GEOLOG format, adopted as a standard system by RGCE. Before the drilling, a review of the six holes previously drilled in Stormont (Fleming, 1988) was carried out as a necessary step towards familiarization with the subsurface petrology and mineralogy, as well as to tailor a preliminary GEOLOG format for the Stormont skarns. As expected, a considerable number of modifications to the format occurred while logging the new holes, as the knowledge of the petrography and mineralogy gradually increased.

The full log of each hole is reproduced in expanded text or 'english' version in Appendix 4.

3.2.3 Results

3.2.3.1 Stratigraphy

The graphical summary logs represented in Figs. 2 to 16, and the compiled section in Plan 5 provide an overview of the stratigraphy as revealed by the new drilling. A 'composite' stratigraphic column is normal, and reveals these main units (base to top) within the drilled sequence: Ordovician (Moina) sandstone, garnet/magnetite skarns in the Ordovician (Gordon) limestone, Tertiary clays/conglomerate, Tertiary basalt.

In general, the stratigraphy intersected was in very good correspondence with the previous surface/subsurface geology interpretation. Where necessary, minor adjustments were made to the interpreted geology map (Plan 4). A copy of the original factual geology is provided in Plan 6. The skarn rocks, which were the main exploration target, had a total thickness per hole varying between naught (2 holes) to a maximum of 35.2 m, with an average net thickness of about 13m.

449014

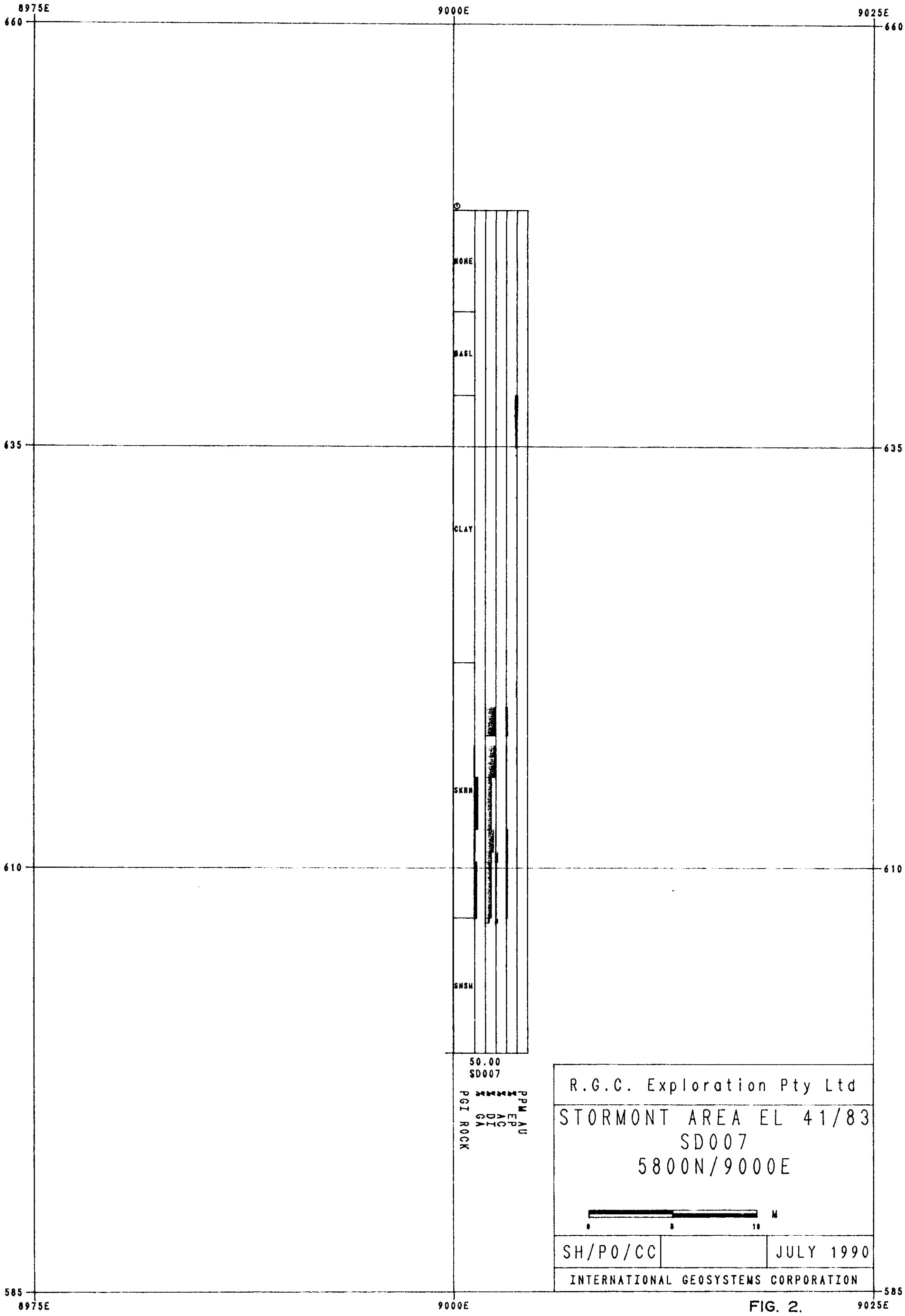
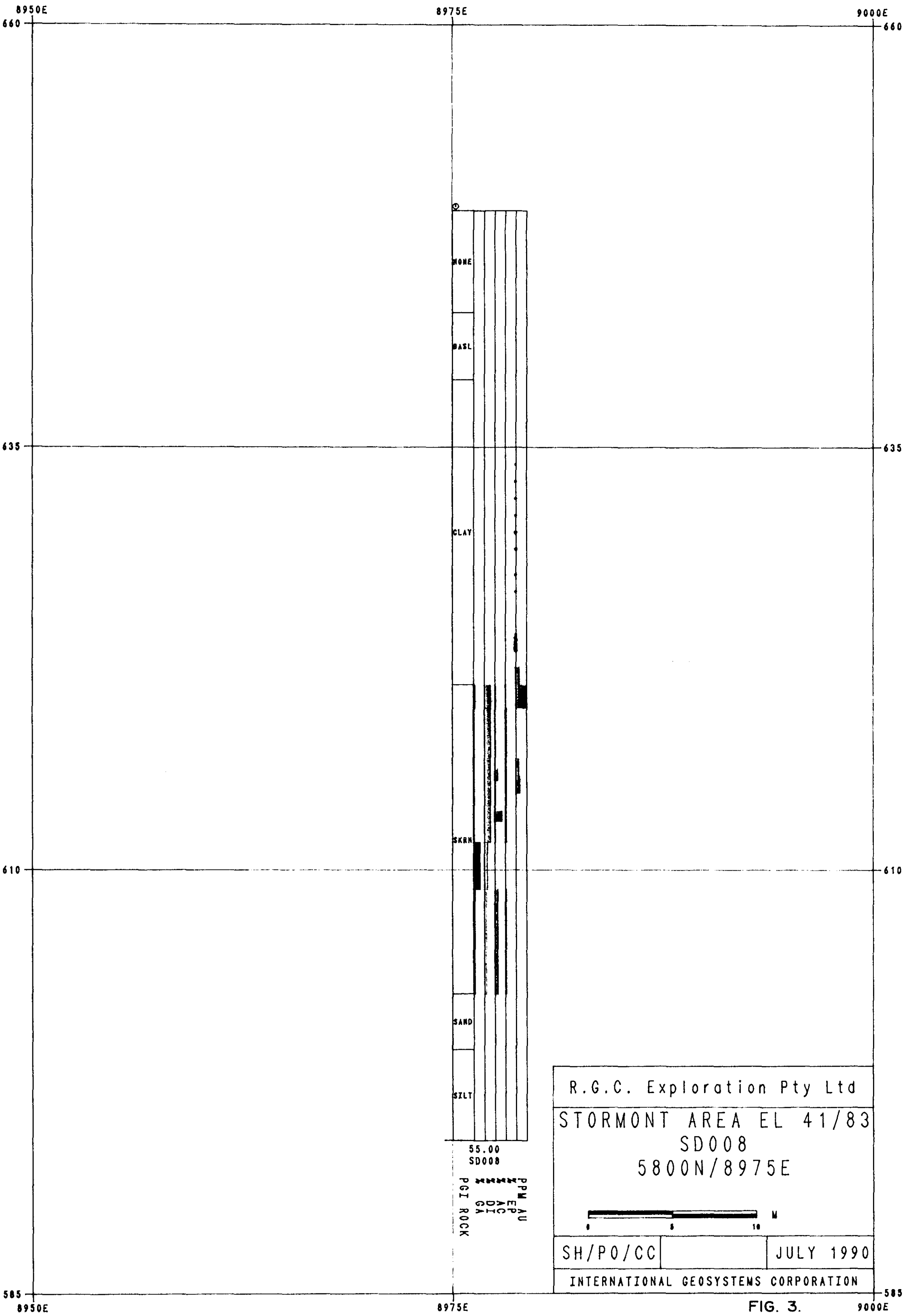


FIG. 2.

5 cm

449015



R.G.C. Exploration Pty Ltd

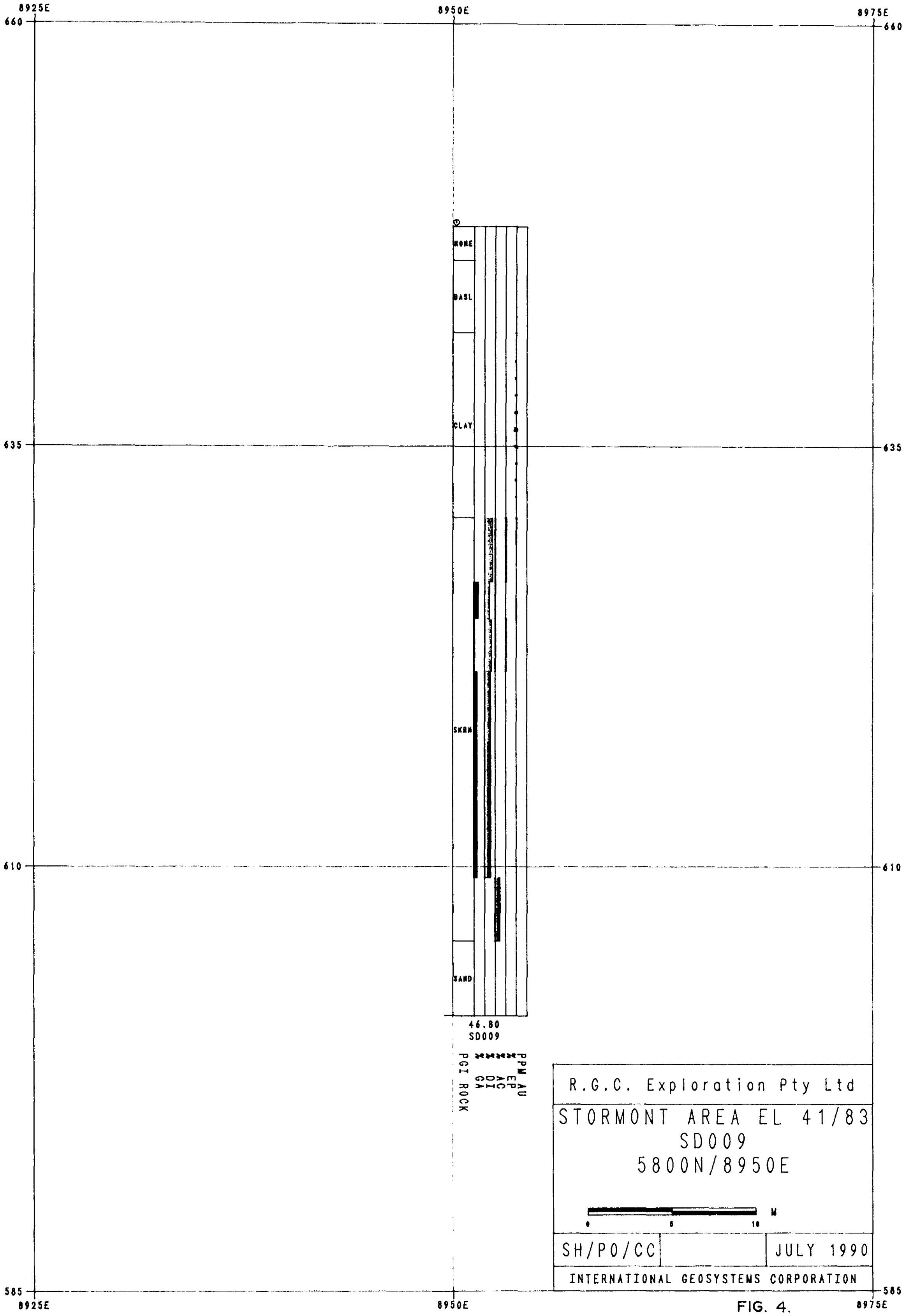
STORMONT AREA EL 41/83
SD008
5800N/8975E

SH/PO/CC		JULY 1990

INTERNATIONAL GEOSYSTEMS CORPORATION

FIG. 3.

5 cm



R.G.C. Exploration Pty Ltd

STORMONT AREA EL 41/83
SD009
5800N/8950E

SH/PO/CC | JULY 1990

INTERNATIONAL GEOSYSTEMS CORPORATION

FIG. 4.

5 cm

449017

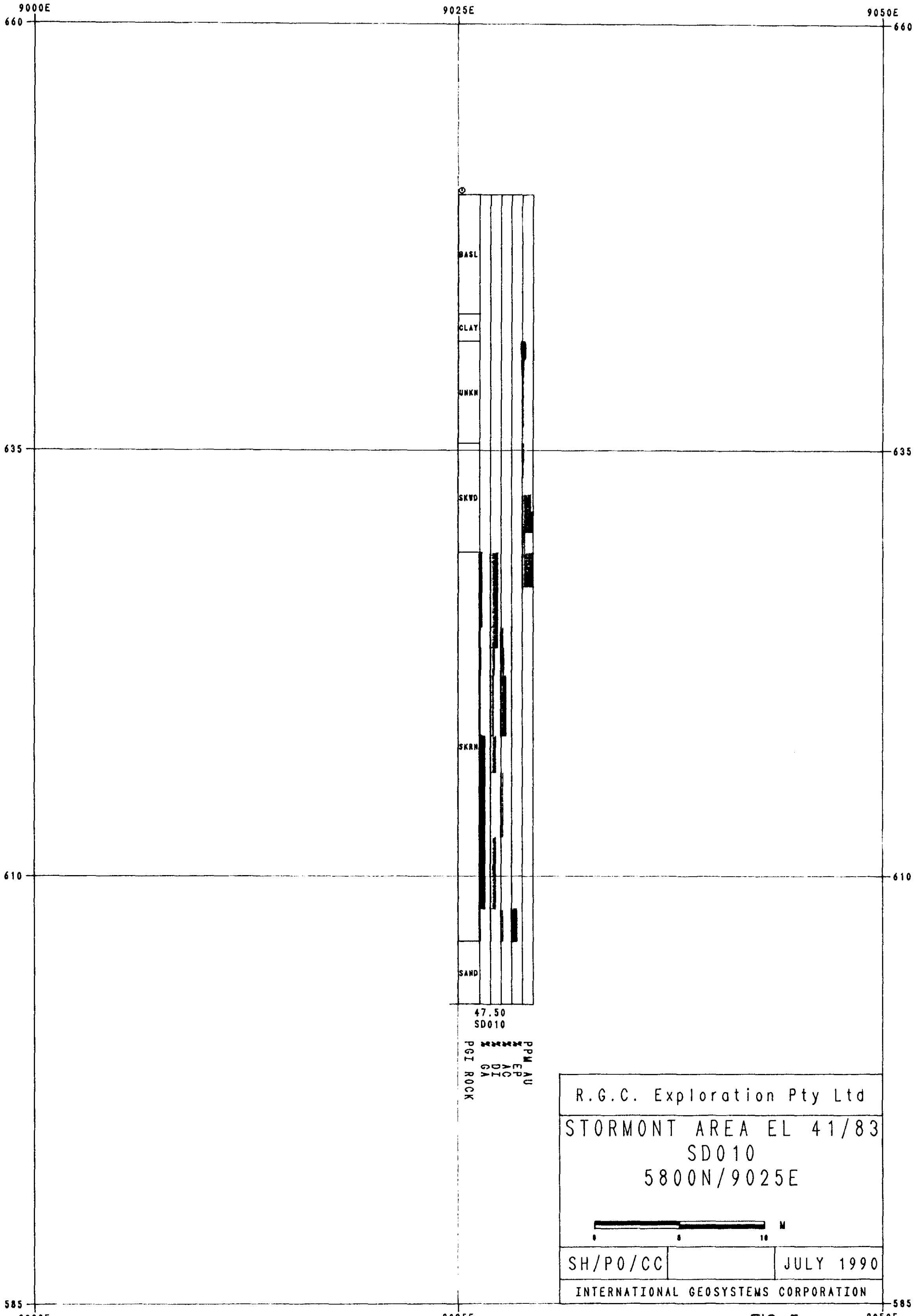
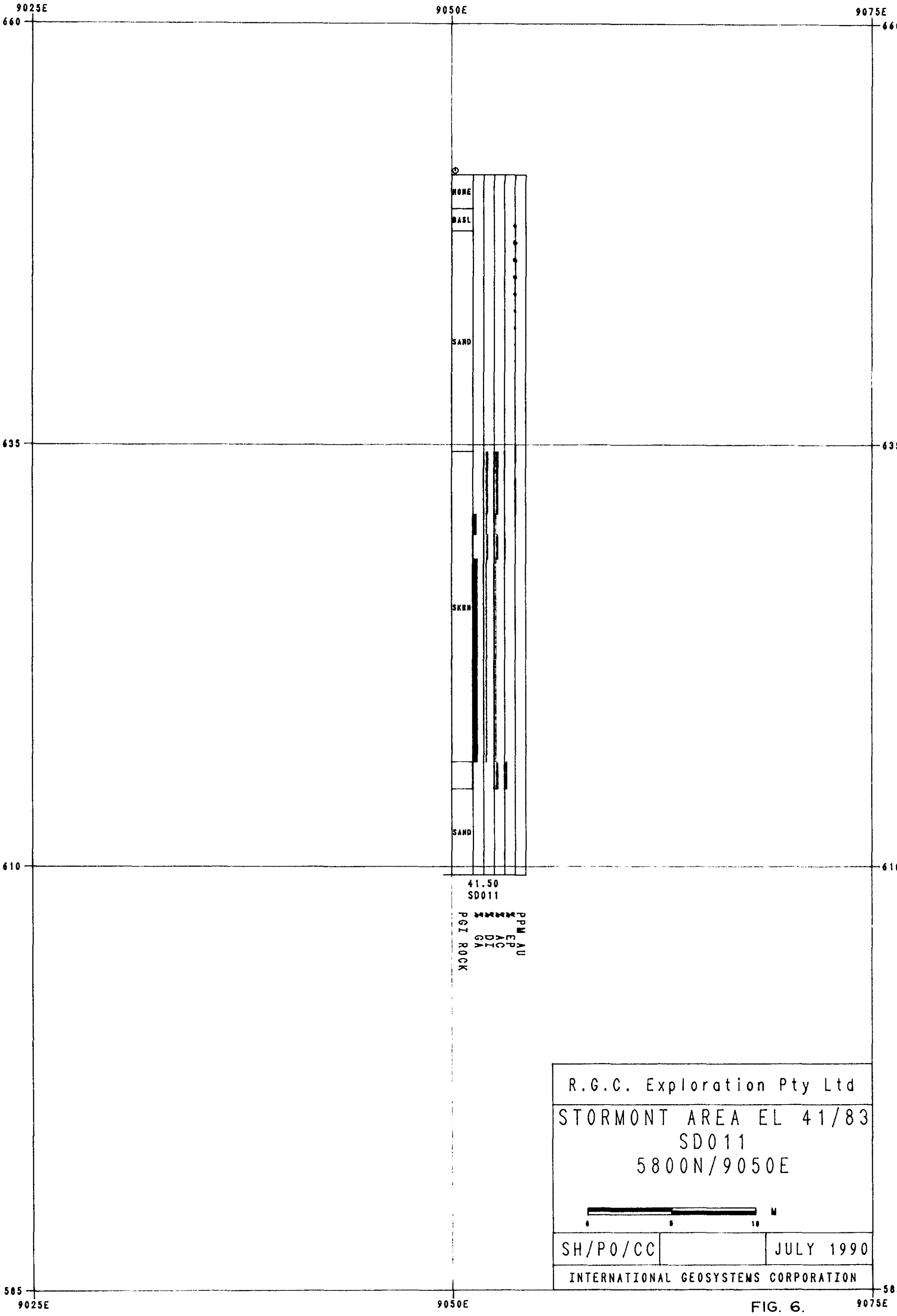


FIG. 5.

5 cm

449018



R.G.C. Exploration Pty Ltd

STORMONT AREA EL 41/83
SD011
5800N/9050E

SH/PO/CC		JULY 1990

INTERNATIONAL GEOSYSTEMS CORPORATION

FIG. 6.

5 cm

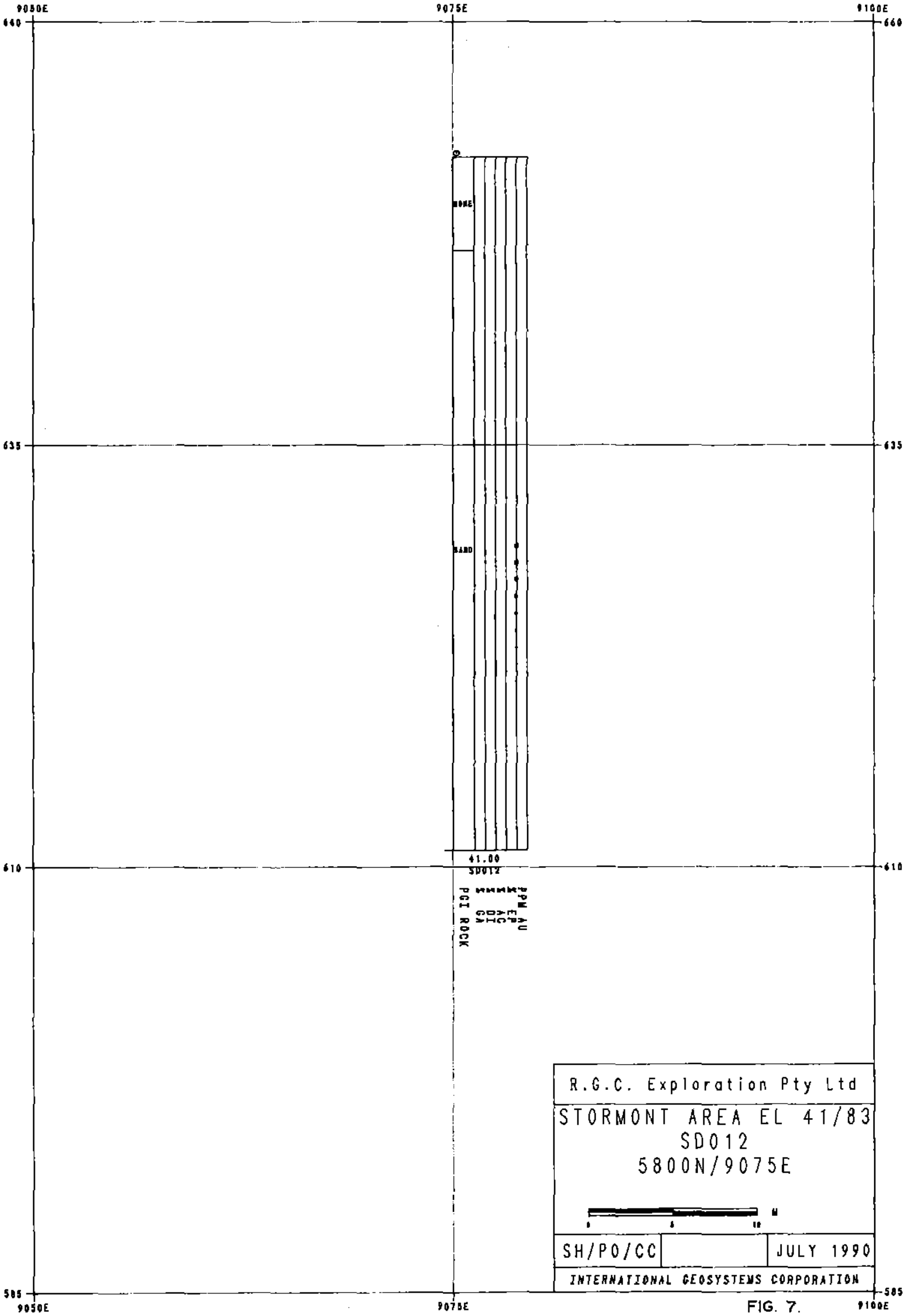

9050E
9075E
9100E
660
635
610
585
NONE
SAND
41.00
SD012
PPM AU
EP
AC
DI
GA
PGI ROCK
R.G.C. Exploration Pty Ltd
STORMONT AREA EL 41/83
SD012
5800N/9075E
SH/PO/CC
JULY 1990
INTERNATIONAL GEOSYSTEMS CORPORATION

FIG. 7.

5 cm

449020

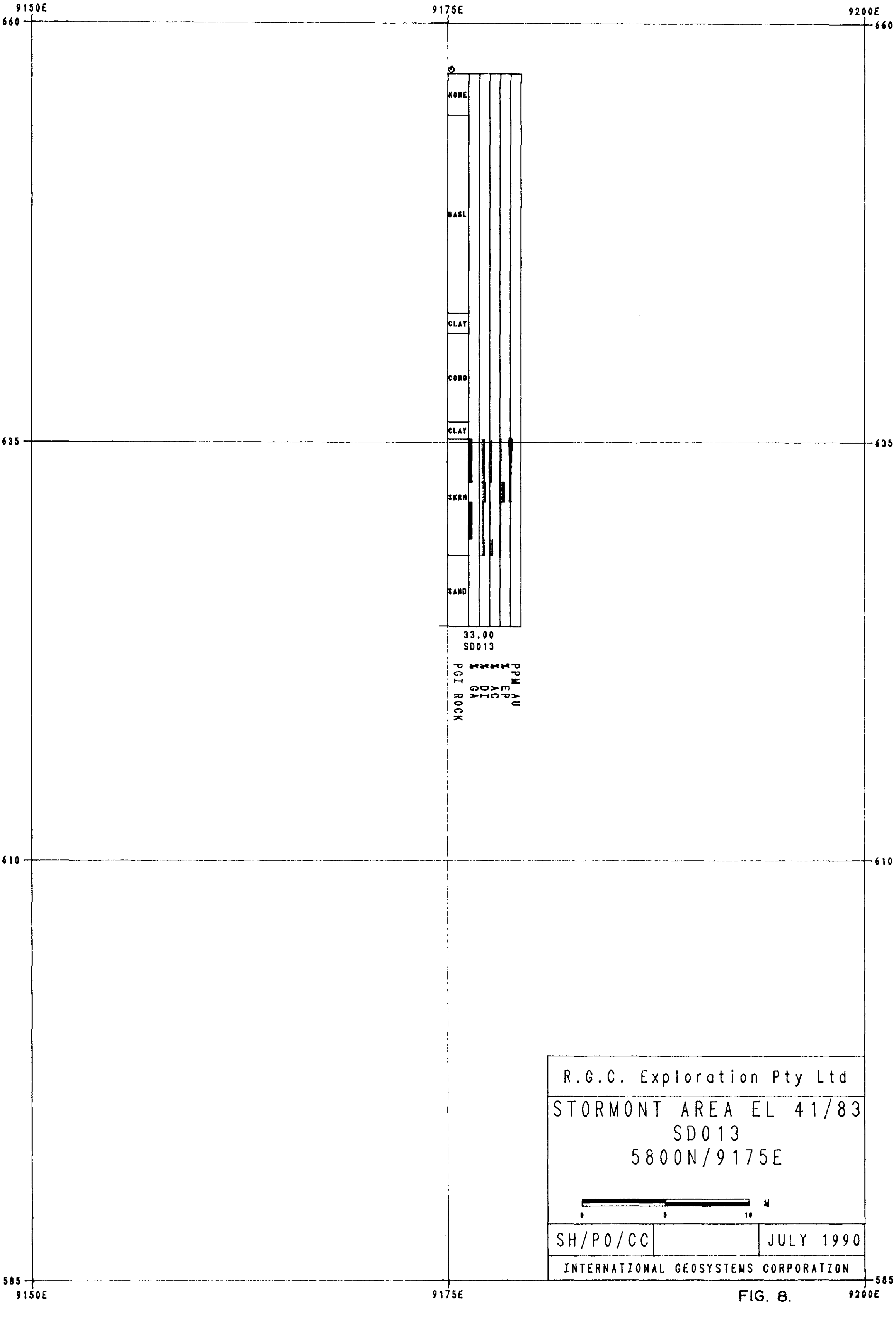
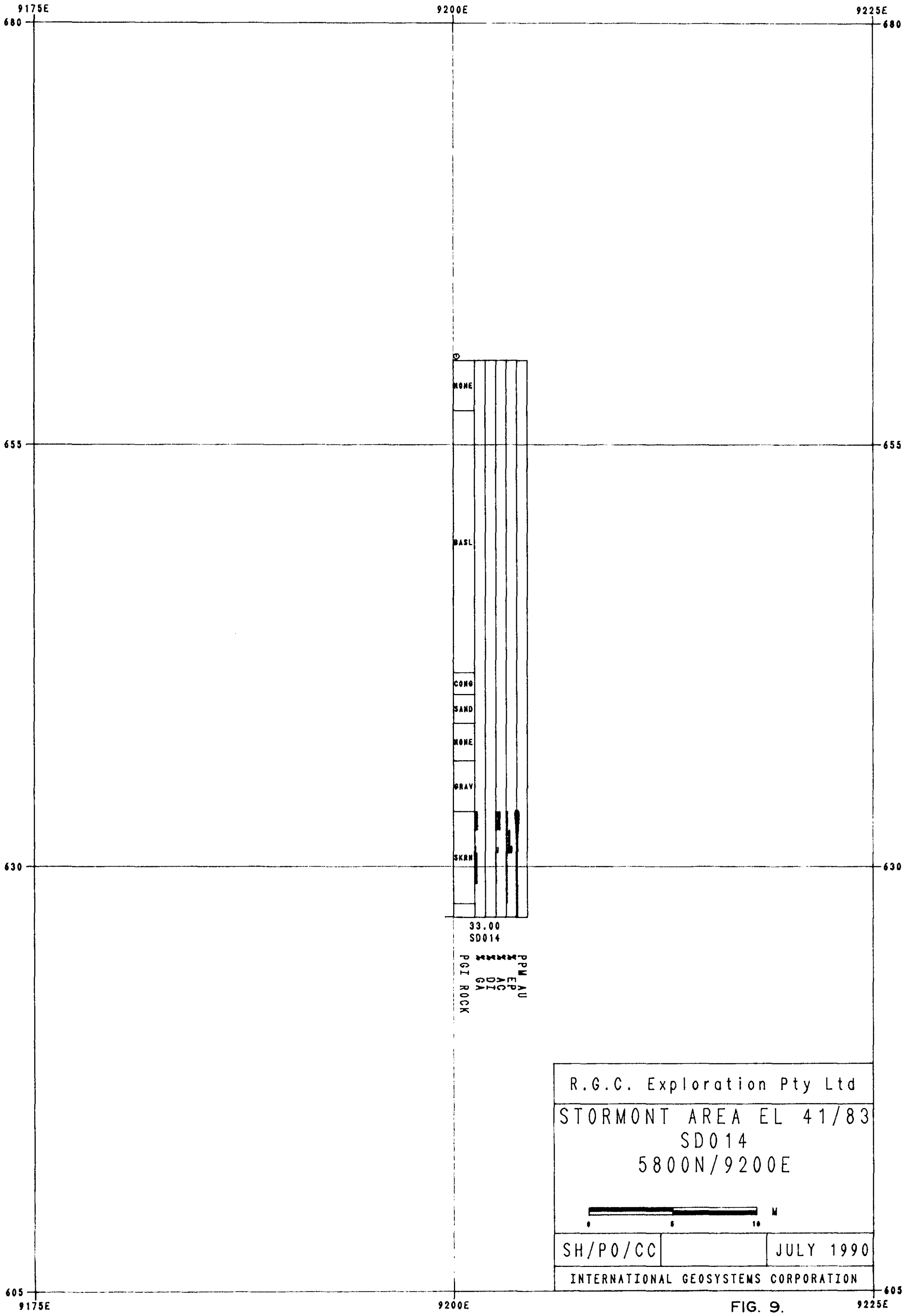


FIG. 8.

5 cm

449021



R.G.C. Exploration Pty Ltd

STORMONT AREA EL 41/83
SD014
5800N/9200E

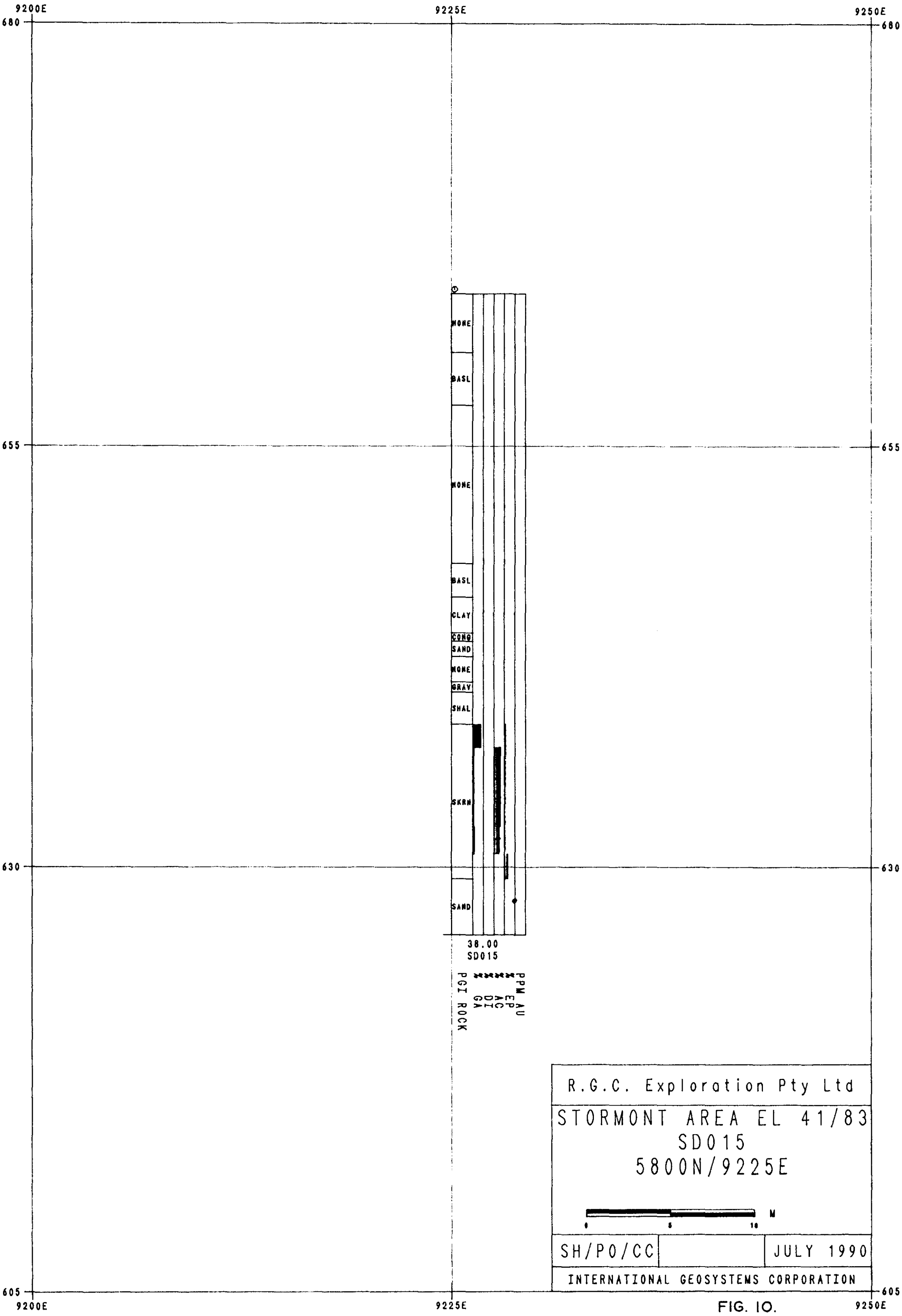
SH/PO/CC		JULY 1990

INTERNATIONAL GEOSYSTEMS CORPORATION

FIG. 9.

5 cm

449022



R.G.C. Exploration Pty Ltd

STORMONT AREA EL 41/83
SD015
5800N/9225E

SH/PO/CC		JULY 1990

INTERNATIONAL GEOSYSTEMS CORPORATION

FIG. 10.

5 cm

449023

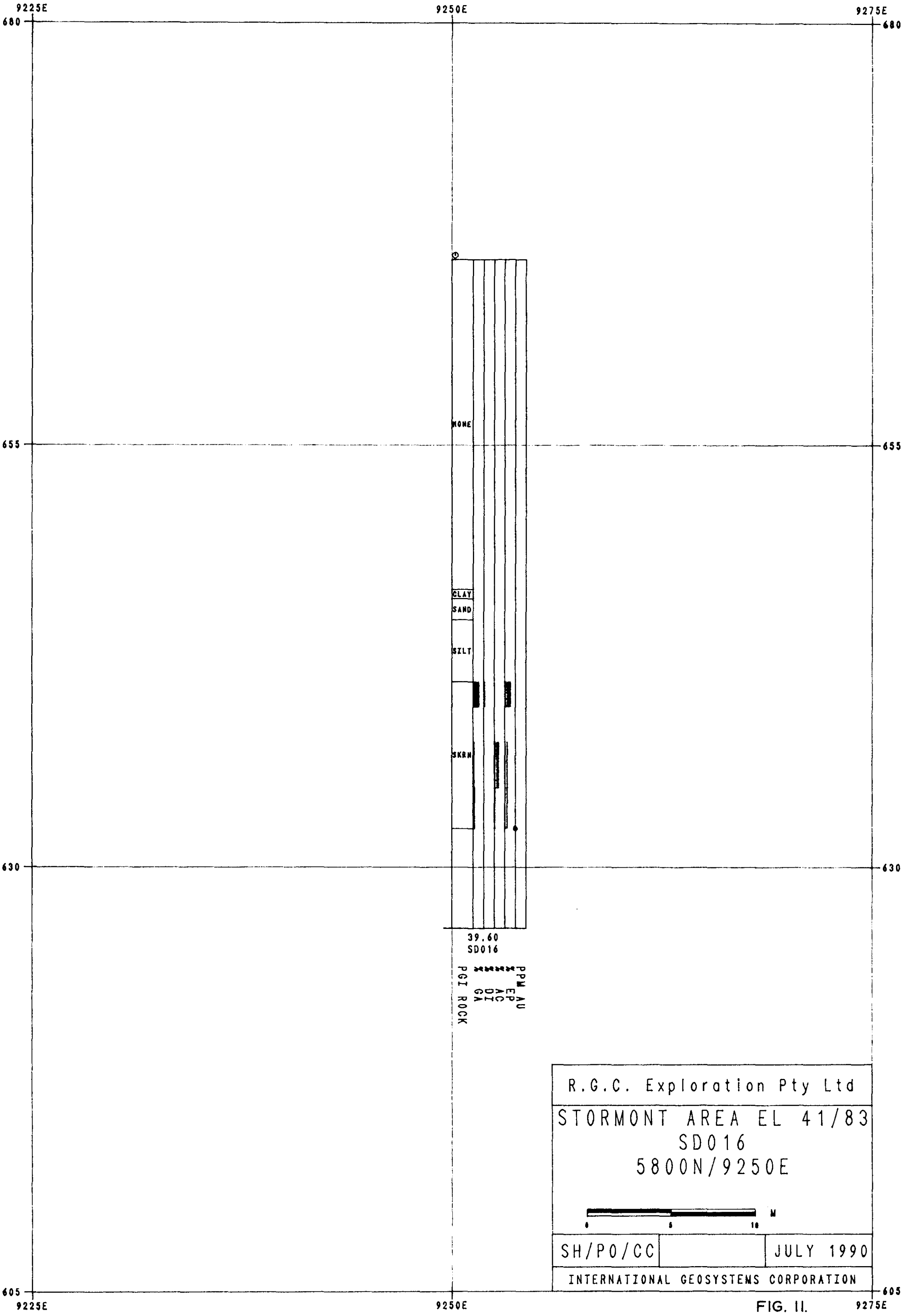
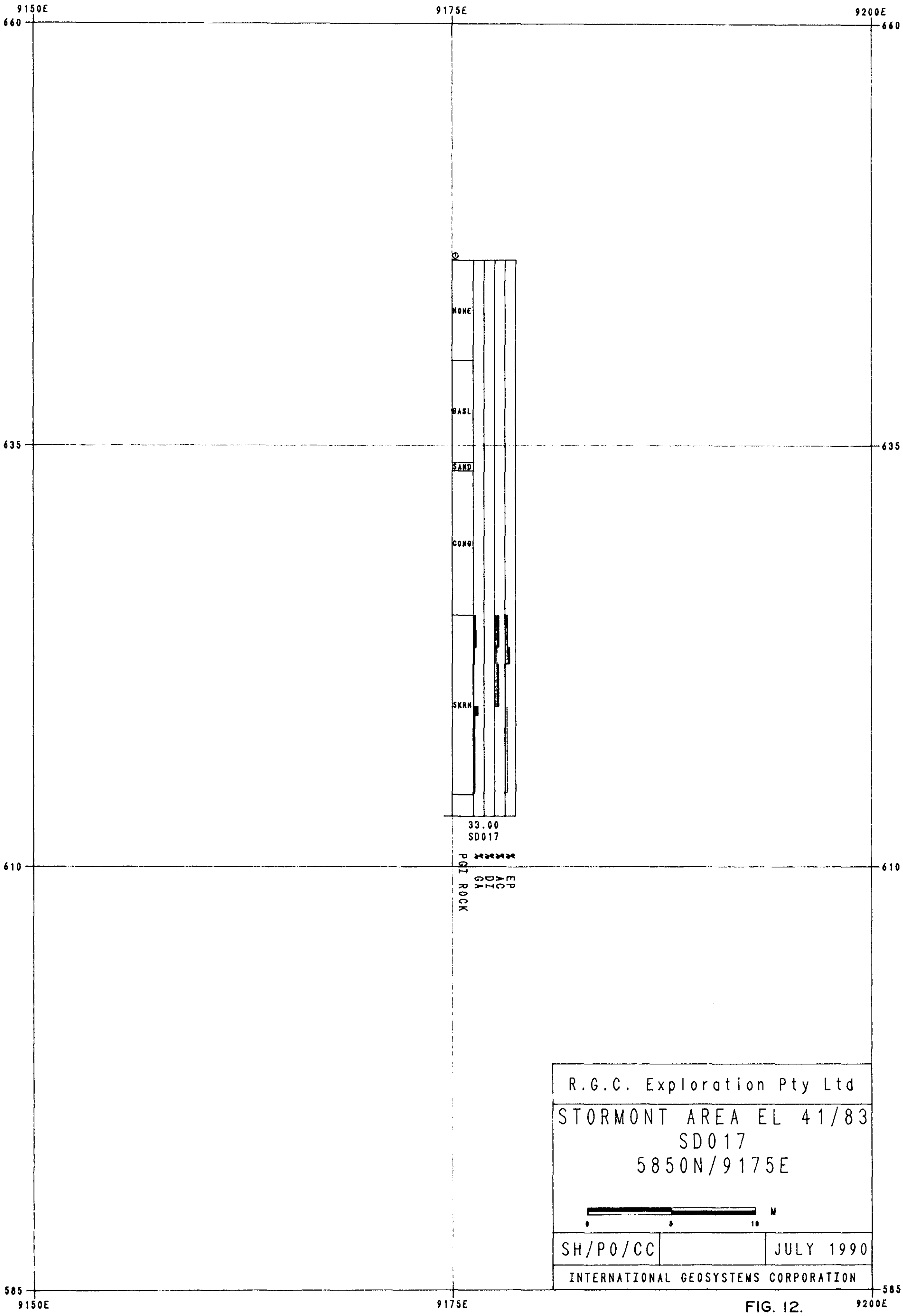


FIG. 11.

5 cm

449024



R.G.C. Exploration Pty Ltd		
STORMONT AREA EL 41/83 SD017 5850N/9175E		
SH/PO/CC		JULY 1990
INTERNATIONAL GEOSYSTEMS CORPORATION		

FIG. 12.

5 cm

449025

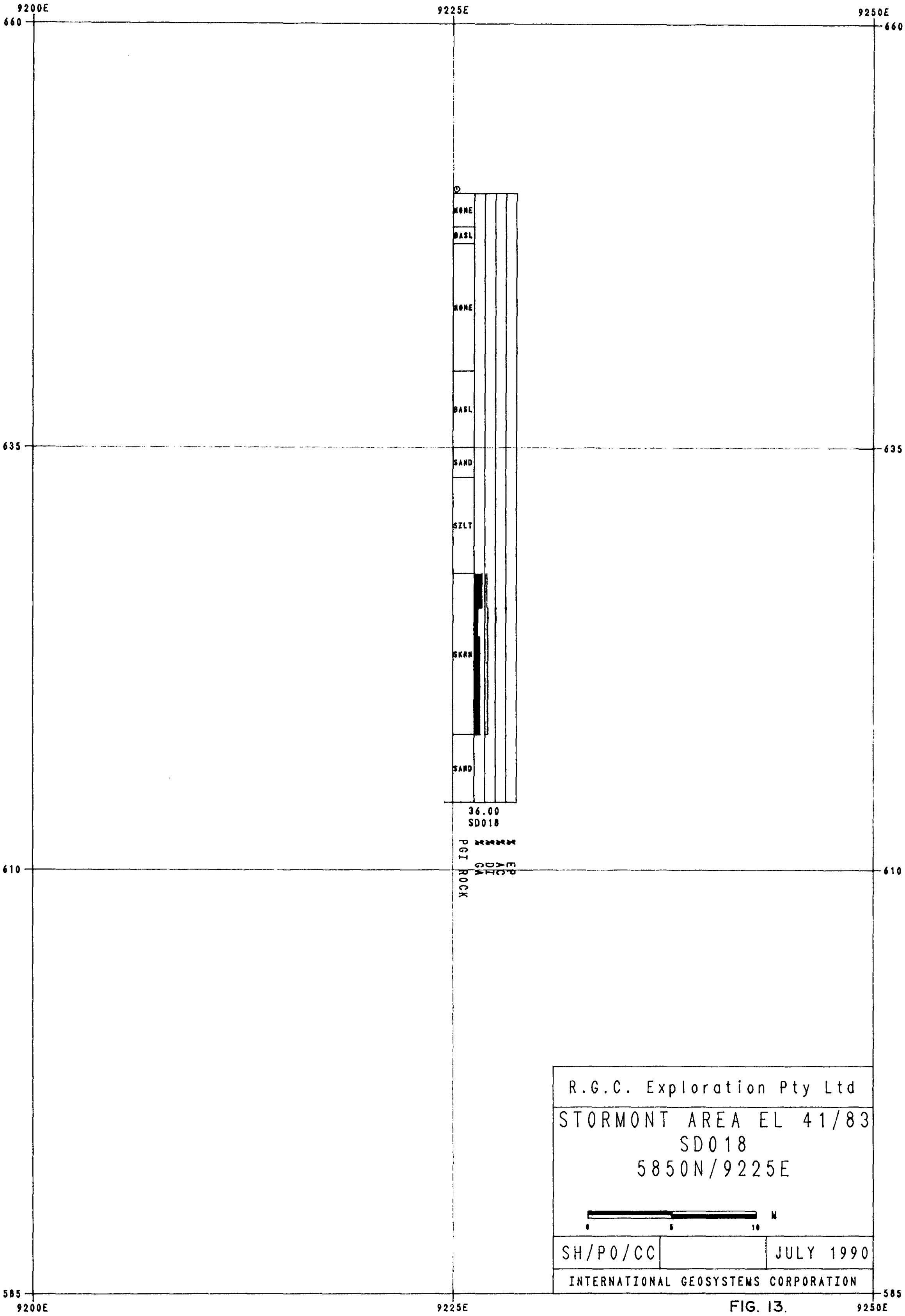
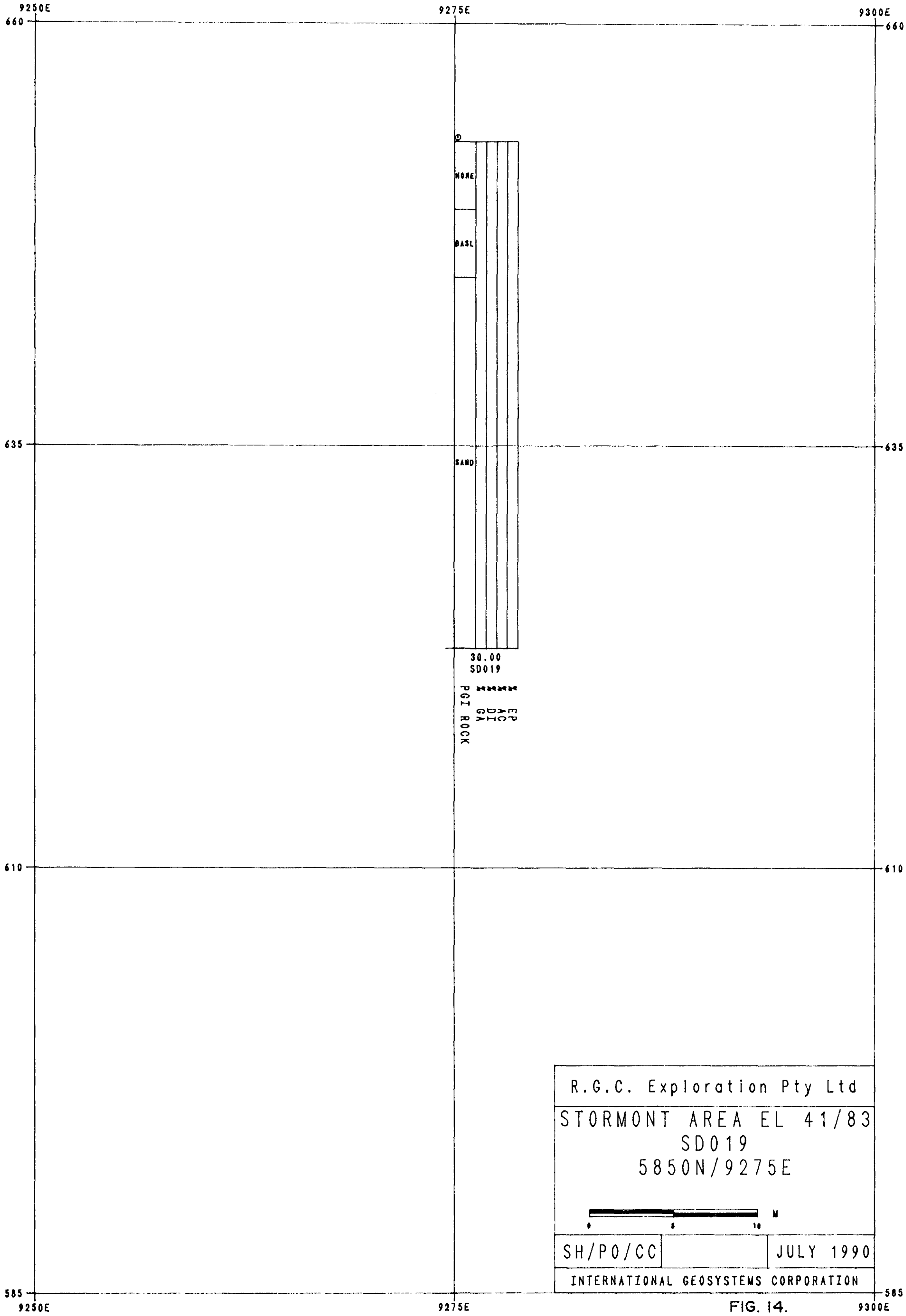


FIG. 13.

5 cm

449026



R.G.C. Exploration Pty Ltd

STORMONT AREA EL 41/83
SD019
5850N/9275E

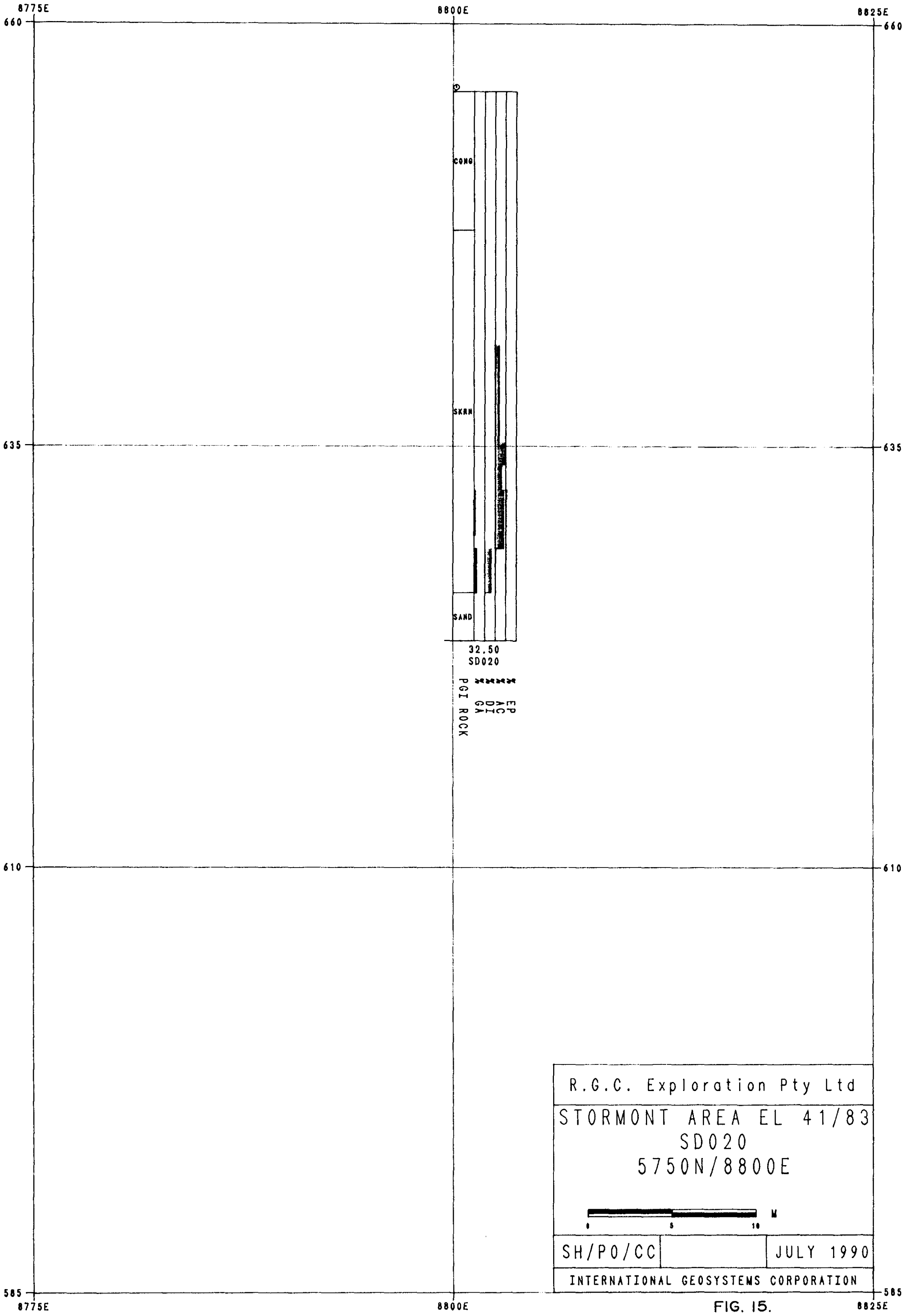
SH/PO/CC | JULY 1990

INTERNATIONAL GEOSYSTEMS CORPORATION

FIG. 14.

5 cm

449027



R.G.C. Exploration Pty Ltd

STORMONT AREA EL 41/83
SD020
5750N/8800E

0 5 10 M

SH/PO/CC		JULY 1990

INTERNATIONAL GEOSYSTEMS CORPORATION

FIG. 15.

5 cm

449028

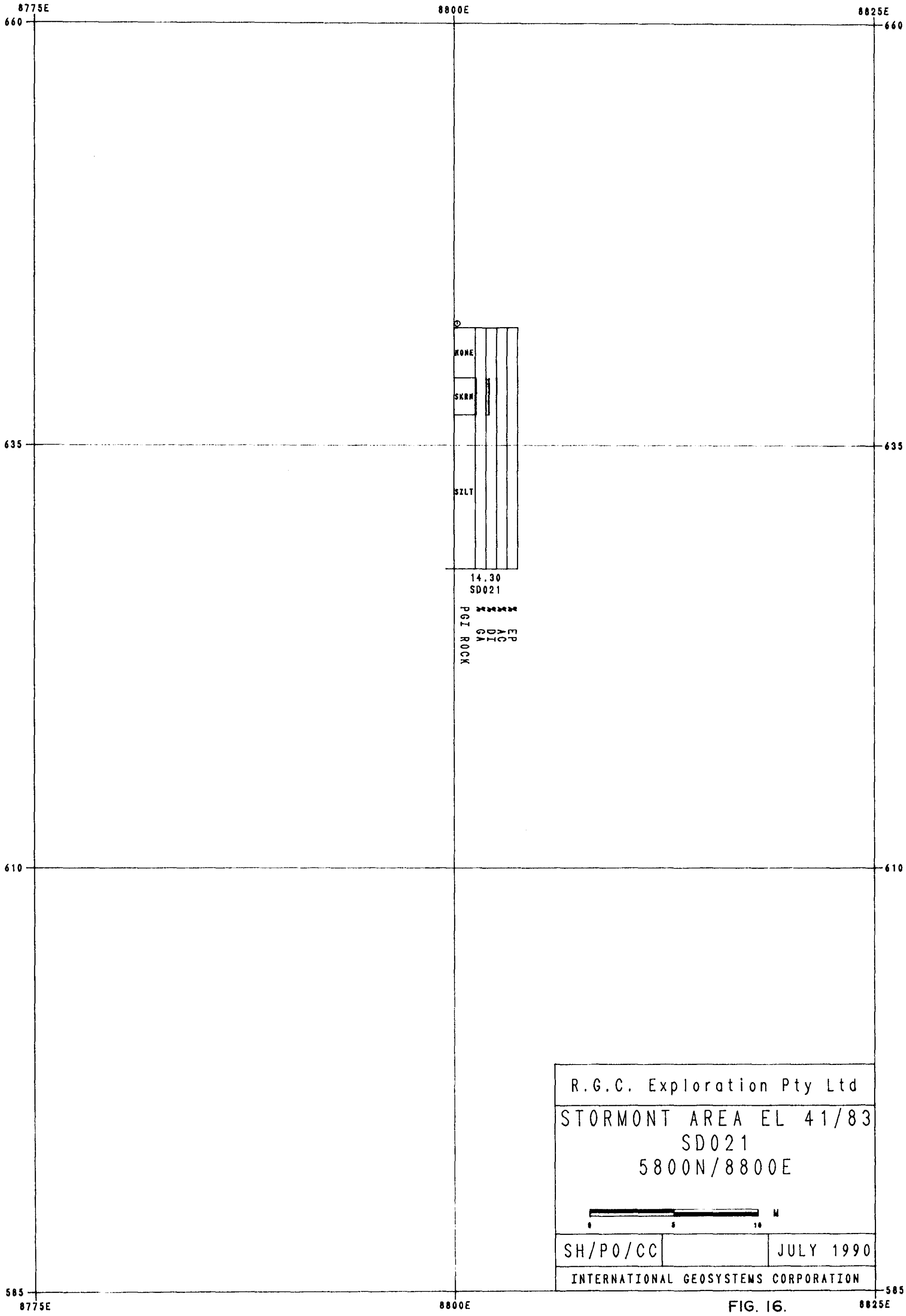


FIG. 16.

5 cm

3.2.3.2 Petrology

The new drilling core was examined macroscopically, and some clear mineralogical assemblages were defined, which typify a skarn paragenesis.

A summary by S. Halley (Appendix 5) points to at least two phases of mineralization that have generated a primary mineral assemblage of garnet, pyroxene and calcite and an overprinting secondary 'retrogressive' metamorphic phase with formation of a lower T mineral assemblage at the expense of the higher grade ones: actinolite, epidote, magnetite, traces of fluorite. A late stage hydrothermal activity phase generated veining with relatively minor quantities of sulphides.

A broad graphic display appears in Plan 5, where the distribution of prograde/retrograde metamorphic mineralogical associations can be clearly seen on cross-section.

A basic microscopic petrographical study was also carried out by Dr. Halley, based on core samples obtained from the holes drilled in 1988 at Stormont (Fleming, 1988). A total of 21 samples were taken from the holes containing some skarn (SD001, SD003, SD005 and SD006), and thin sections prepared for each one. This work (Appendix 6) was instrumental to the design of an adequate GEOLOG format for the Stormont drilling.

3.2.3.3 Assays

The core sampling intervals were geologically defined, each sample interval split in two and one half assayed for its contents of Au, Bi, As, Cu, Pb, Zn, Ag, W, and Sn.

The results obtained in a total of 337 samples revealed a considerably scattered distribution pattern of Au, with a broad Au/Bi correlation. Only four 1m samples contained above 2 ppm Au, three of these were scattered samples from SD010 and the other one in SD007. The maximum assay value obtained was 1m at 6 ppm Au in SD010.

A complete listing of the samples taken, sample interval, and assay values per hole is provided in Appendix 7.

3.3 Surface Petrography

An additional group of 10 specimens taken on the area covered by the new Stormont grid were sent to Dr. D. Mason for a summary petrographic and mineragraphic study, their location is shown on Plan 4. Five samples from this group correspond to different skarn assemblages, either magnetite skarn (T-19748, T-19758), actinolite-garnet assemblage (T-19749, T-19750), or epidote-garnet-diopside (T-19760). The other specimens were skarnified metafelsites and metasediments (T-19756, T-19759), hornfelsic metasediments (T-19757), and sericitic/clay-bearing quartzites (T-19752, T-19755).

Full documentation of Mason's descriptions appear in Appendix 8.

3.4 Site Rehabilitation

An assessment of the environmental situation in EL41/83, especially in the Stormont sector where most of the operations in the more recent period took place was jointly carried out by I. Wood (RGC's Environmental Manager, Tasmania) and I. Rogers (RGCE's Technical Officer, Tasmania).

Prior to this assessment, some minor tasks of immediate necessity were achieved before the start of the winter season. Old drains were reopened, and new ones were established where necessary to prevent water build-up on the access tracks. Branches or logs that ended up hanging over trees as a result of the opening of new access tracks were cut down.

Additional rehabilitation work on the access tracks and drilling sites will be resumed after winter, as the seasonal rains would render these works useless. The further work will include replacement of topsoil, finalisation of permanent drainage lines and selective seeding with indigenous species, as well as fertiliser application.

4. CONCLUSIONS AND RECOMMENDATIONS

(i) The prevailing form of Au present in the skarns at Stormont is native, and intimately associated with bismuthinite.

(ii) The Au distribution in the Stormont skarns is inherently erratic, and the investigations carried out did not indicate a potentially economic resource within current parameters.

(iii) No further work is warranted in EL 41/83 at this stage, as the main exploration objectives set out by RGCE have been achieved.

(iv) In accordance with other RGC priorities, it is recommended that the area of EL 41/83 is relinquished before the next renewal schedule.

5. REFERENCES

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5. Deakin, R.C., 1990(a): A Synopsis of Geophysical Results from the Moina Area, Tasmania. Report for RGC Exploration Pty. Ltd.

6. Deakin, R.C., 1990(b): Interpretation of Surface Magnetics from the Lake Lea (Stormont) Prospect, Northern Tasmania. Report for RGCE Pty. Ltd.

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8. Leaman, D.E., 1988 a, b, c, d and e: Gravity and Magnetic Evaluation of the Moina Region (5 Reports) for RGCE.

9. Newnham, L.A., 1983: EL Application - Lake Lea. RGCE Letter to Director of Mines 21/7/83.

10. Pemberton, J. and Vicary, M.J., 1989: Geology Map of the Winterbrook - Moina Area. 1:25000 scale. Geological Survey of Tasmania - Department of Mines.

APPENDIX 1

Expenditure

APPENDIX 1

E.L. 41/83 LAKE LEA

EXPENDITURE TO 31 AUGUST

Item		Cost ($)
Salaries, Wages & On-costs		52,158
Travel & Accommodation		10,169
Consultants & Contractors		62,432
Sample Prep. & Analysis		8,629
Stores & Supplies		10,965
Vehicle Plant & Equipment		8,737
Land Acquisition & Tenement Costs		-
Computing		-
Miscellaneous		7,206
		160,297
Estimated expenditure, August 1990		2,800
		160,297
Overheads (10%)		16,309
	Total	179,406

APPENDIX 2

Interpretation of Surface Magnetics

Interpretation of Surface Magnetics from the Lake Lea (Stormont) Prospect Northern Tasmania

on Behalf of

R.G.C. Exploration Pty. Ltd.

by

R. Deakin

February 1990

449038

Contents

Plates in Text

Accompanying Plans

038

449039

1. INTRODUCTION

1.1 The Lake Lea prospect consists of a surface grid 500m x 1000m located approximately 4km SW of Lake Gairdner in northern Tasmania. The grid encompasses the now abandoned, Stormont Bismuth mine and is also referred to as the Stormont Prospect or grid.

1.2 Bismuth and gold mineralisation occur within skarns overlying Ordovician, Moina Sandstone. The skarn is the result of hydrothermal alteration by the nearby Dolcoath granite of the Ordovician, Gordon Limestone, which regionally overlies the Moina Sandstone, and locally grades to a hornfels. Strongly magnetic veins and/or zones occur within the skarns and the 'Stormont' skarn is delineated by a small magnetic high in regional aeromagnetic coverage of the area.

1.3 Regional aeromagnetics and gravity data from the Moina region have been interpreted by Leaman (Leaman 1988) and these results together with interpretation of recent image processing of the airborne geophysical data are summarised in an accompanying report (Deakin 1990). The Stormont mine and grid is about 3km north of the interpreted centre of the buried Dolcoath granite and the detailed gravity model of Leaman places Stormont about 700m to 800m from the nearest part of the main granite pluton. Interpretation of the regional, image processed, aeromagnetics places Stormont virtually on a major structural NW-SE lineament which is considered to be a significant conduit for mineralising hydrothermal fluids; hence the assumed mechanism for skarn development.

1.4 The grid geology has been mapped by surface methods and limited drilling. The detailed bedrock lithologies and structure are however principally interpretative because of poor exposure. Approximately 70% of the grid area is covered by Tertiary sediments and basalt.

Three zones of skarn exposure are known. In the west, skarn forms an almost circular outcrop which is considered to be the core of a syncline. Another elongate (NW-SE) skarn zone, about 50m in width occurs a further 100m to the NE and is considered to be truncated by a NW-SE fault. A third narrow (20m wide) zone of skarn, also elongated in a NW-SE direction, occurs a further 150m to the NE. This body is interpreted as a syncline or synform and is covered by Tertiary rocks southwest of about 5950N-9100E. Drill hole SD 6 at approximately 5820N-9200E encountered skarn from 26m to 33m indicating that this zone probably continues SE beneath the Tertiary cover.

1.5 The grid has been covered by a surface magnetometer survey at 50m line spacing and 5m station spacing along grid lines (AMG orientation). The results are shown as contours at

1:1000 scale (Figs. 1 & 2) and are available as preliminary stacked profiles. There is very good agreement between anomalous magnetics and known skarn exposure or subcrop. Very high amplitude anomalies (up to 10,000 n.T. relief) are associated with the skarn, particularly in the western zone.

2. MAGNETIC RESULTS AND INTERPRETATION METHODS

2.1 The western, sub-circular skarn zone is characterised by very high amplitude, positive and negative magnetic anomalies. The overall result is a confusion of doubtfully related highs and lows which individually may be modeled only with shallow point dipole sources. To adequately define and interpret the magnetics for this locality would require magnetometer coverage on a much closer spaced grid (i.e. 20m or 10m line spacing).

The lateral extent of the skarn body here is however well represented by the zone of noisy magnetics and can be interpreted qualitatively from the data. It therefore provides adequate control on proposed drill site locations. The outline of this interpreted magnetic zone or body is denoted as anomaly A on the interpretation plan (Figure 3).

2.2 The other two skarn exposures to the NE are associated with moderate to high amplitude magnetic anomalies. The character and amplitude of these anomalies varies from line to line, indicating a large variability in magnetite content and distribution within the skarn(s). The magnetic properties (susceptibility and remanence) of the skarn(s) from this prospect have not been investigated to date. The very high amplitudes of the anomalies as well as several atypical anomaly shapes suggest that remanent magnetism is a significant physical property.

2.3 Interpretation of the magnetometer results is essentially qualitative. The approximate lateral extent, dip and depth of magnetite skarn has been interpreted from the results with some quantitative input in the form of simple modelling of selected profiles. The use of quantitative modelling methods provides an estimate of the source geometry of the anomalies but has assumed only the existence of induced magnetisation. The authors strong suspicion of significant remanence makes these quantitative results inaccurate or misleading, particularly in terms of the shape and attitude (dip) of causative bodies.

2.4 The majority of the magnetic anomalies are either discontinuous along strike or have a very limited strike extent. Also, anomaly sources are thought to be (from drilling results) thin magnetite zones within a shallow dipping or horizontal (often synclinal) body of skarn. For these two reasons the favored model for quantitative interpretation was the thin sheet or ribbon which has a finite and defined, strike length and down dip extent as well as dip and depth. As this model is assumed to be thin, i.e. the effect of thickness variation is not obtained, the magnetic susceptibility is not resolved although a susceptibility - thickness product can be obtained which, by assuming a finite thickness value, will provide an estimate of magnetic susceptibility.

Two dimensional (2D) models were also used in the interpretation to provide estimates of likely source geometry. These results must however be treated as only rough estimates because the 2D assumption is generally invalid due to the limited strike extent of most anomalies.

A reasonably successful attempt to mimic the effects of remanent magnetism in some instances, was the strategy of altering the orientation (dip & strike) of the Earths magnetic field vector. By invoking this method, model fits to field data were improved, which however does not necessarily provide a more accurate or meaningful result. It does however, provide a form of proof that magnetic remanence is a significant factor and important for reliable quantitative interpretation.

2.5 A further complication arises from the fact that the grid traverses from which the magnetic profiles were taken are oriented at an angle of about 30 deg to 40 deg to the anomaly strike. A simple correction factor (Cos (strike diff.)) was used to correct for this 'anomaly smearing' which however does not necessarily produce the correct across strike anomaly character, particularly when an anomaly is obviously not a 2D phenomenon.

In some instances across-strike profiles were constructed from the magnetic contours, this however was not considered justified where very high spatial frequency anomalies occur on lines at a relatively large separation of 50m.

2.6 A great deal of low amplitude noise (100 n.T. to 300 n.T.) characterizes the data particularly in areas with Tertiary basalt. Separation of shallow spurious geological noise from (interpreted skarn) signal has been an intuitive smoothing operation. Many low amplitude, high frequency anomalies (noise) form coherent trends which are mostly expected to reflect horizons within the Tertiary sequence.

2.7 At least two attempts to machine contour the results were made by the contractor, Geoterrex. These were singularly unsuccessful because of the large line spacing relative to the high spatial frequency of the anomaly data. A hand contoured plan was subsequently produced but provides a confusing picture because the contourer attempted to honor every data point in a data set which is noisy, has an extremely large dynamic range and suffers from the problems mentioned above; namely too large a line spacing and the wrong traverse orientation.

A second, hand contouring, has been carried out by the author with a subjective smoothing of profile data and the honoring of trends known from the geology. This result is presented as Figure 2 and has been used for the construction of two profiles used in the quantitative interpretation.

3. INTERPRETATION

3.1 The western skarn block, anomaly A, has been interpreted only with the approximate outline of the extent of the magnetic unit or units within it. Interpretation of approximate geometry, dip, depth etc. has not been carried out for reasons outlined above.

3.2 The central (or middle) elongate skarn block corresponds to anomaly B (Fig. 3) and is well delineated by magnetic anomalies on lines 5950N, 5900N, 5850N and (possibly) 5800N. Plate 1 illustrates the modelling results for this anomaly on 5950N. For this particular profile, it can be adequately explained by a thin sheet with a dip of about 40 deg to the NE and a limited down dip length of about 30m. The model here, therefore, agrees well with the known and interpreted geology; ie. magnetite at about 20m depth (Drill hole SD 1), 10m SW of the fault, and the body truncated at depth by the fault.

Plate 2 illustrates modelling results for this anomaly on line 5850N. The anomaly here is more complex and has been fitted to a somewhat unrealistic (geologically) geometry. The triangular source solution presented on Plate 2 is by no means the only possible or acceptable solution however it reproduces the assumed shallow dip to the NE and the limited down dip extent due to the (interpreted) fault. The result here may be indicative of magnetite zones within the skarn having a very limited lateral extent and possibly a shallow dip to the NE of the inferred fault.

3.3 The narrow, elongated, skarn block further to the NE produces high amplitude, definitive, magnetic anomalies on lines 6050N and 6000N which constitute anomaly C (Fig. 3). The anomaly character on both lines suggests a very shallow source with remanent magnetism. The double peaked anomaly on 6050N can be (qualitatively) explained in terms of the geologically interpreted, synclinal source with remanent magnetism of different orientations on either limb.

Plate 3 illustrates the results of some quantitative modelling of this anomaly on 6000N. The bulk of the anomaly can be fitted to either a thin sheet with a moderate dip to the NE or a 2D rhomboid shape. Neither model explains the anomaly in detail on the NE flank where the effects of remanence are (therefore) deduced. This somewhat inadequate interpretation does raise the possibility that the skarn block here may be fault controlled rather than being a pendant syncline.

3.4 The geologically interpreted (?) continuation of the eastern skarn body to the SE is not well reflected in the magnetics. A very weak high on line 5950N centred at about 9080E possibly represents the same skarn block with a less magnetic or significantly thinner magnetic horizon. Further to the SE on lines 5900N to 5800N anomalies with a peak amplitude of about 800 n.T. constitute anomaly C1 which is interpreted as the response of the magnetite skarn below the Tertiary cover.

Two profiles, A and B (Fig. 3) were constructed from the smoothed contours (Fig. 2) and interpreted using quantitative modelling methods.

The modelling results for profile A are illustrated on Plate 4. A somewhat inadequate fit to the field data is obtained from the thin sheet model which indicates a depth of about 25m and a moderate dip to the NE. The limited down dip extent of the fitted model again suggests the possibility of control by faulting. An alternative 2D (double) model, also shown on Plate 4, provides an excellent fit to the field data. For these models a change in magnetic field vector orientation was invoked for the second (eastern) body, to approximate remanence (which is expected to alter with body orientation). The result indicates a synclinal body at depths of 25m to 40m.

Plate 5 illustrates 2D modelling results for profile B. The anomaly profile here provides an approximate fit to a synclinal geometry at depths of 35m to 50m. An improved model fit is obtained by the invocation of two 2D bodies with the eastern one having a steeper magnetic field vector to approximate the effect of remanent magnetisation. This result is shown on Plate 5a and again indicates a synclinal source geometry.

3.5 Dipolar shaped, magnetic anomalies occurs at 5900N-9595E 5800N-9525E and 5750N-9490E. These anomalies are interpreted as a continuous feature, anomaly D (Fig. 3). The response however on line 5800N (9530E), has a significantly lower spatial frequency, due probably to an increase in depth (of cover).

Plate 6 illustrates how this response can be explained by a thin sheet model with a very shallow (2m to 3m) depth and a shallow dip to the NE. This anomaly therefore may represent the subcrop of a thin magnetite skarn. Equally however, it may be the response of a thin, subcropping, magnetic, basalt flow. The latter explanation must be favored at this stage considering the proximity of the anomaly D to the mapped basalt edge and its similar, parallel trend. Another similar, one line anomaly, occurs on 5750N at about 9550E. This feature is within 20m of the basalt margin and is assumed to be related to a flat lying basalt flow.

Anomaly D in the east, is correlated with similar anomalies further west on line 5700N (Fig. 3). Plate 7 illustrates a very approximate quantitative 2D interpretation which shows that the magnetic response on line 5700N can be caused by a synclinal structure. As with the same (interpreted) anomaly further to the east, this anomaly is probably a basalt response, it could however be caused by a thin magnetite skarn. The relatively high interpreted magnetic susceptibility does suggest skarn as a possibility.

3.6 Anomaly B1 (Fig. 3) is the moderate to high amplitude magnetic response which occurs immediately SW of anomaly B. This feature occurs where hornfelsed Moina Sandstone has been mapped and may be the response of a magnetic zone or horizon within this rock. The anomaly shape is indicative of a moderate to steep dip assuming only induced magnetisation. This anomaly persists further to the SE than anomaly B and has been interpreted as a possible extension of anomaly D.

The drilling results from SD 5 show skarn at a depth of approximately 30m below alluvium and leached limestone/skarn. The magnetics in this locality suggest a shallow (5m - 10m) source similarly to the other anomaly B responses to the NW. It appears therefore to be a reasonable proposition that the skarn in SD 5 is a down dip extension of anomaly B1.

3.7 Apart from the main magnetic anomalies, discussed above, many other smaller anomalies appear to sometimes form linear or arcuate trends. These are shown on the interpretation plan (Fig. 3). In the eastern half of the grid these trends are generally arcuate and tend to parallel the basalt margin. These therefore are expected to reflect flows or marker horizons within the flat lying Tertiary sequence. Elsewhere they are generally more linear in character with an approximate N-S or NW-SE strike direction. Several possible faults have been interpreted where magnetic trends appear to terminate or alter trend direction (Fig. 3).

4. CONCLUSIONS

4.1 Zones or blocks of known skarn exposure correlate with high amplitude and sometimes complex magnetic anomalies.

The western, sub-circular, skarn occurrence is magnetically the most complex and little additional information has been interpreted from the magnetic data.

The two skarn exposures to the NE of this give magnetic anomalies which can be interpreted with approximate source geometries which in general agree with the geological interpretation. Interpretation of anomaly C, associated with the most easterly skarn, suggests the possibility of NW-SE fault controls similar to the fault interpreted by the geologists for the central skarn block.

4.2 Magnetic anomalies of the order of 800 n.T., with somewhat lower spatial frequencies are found in the central part of the grid, anomaly C1, and are interpreted as the response of a synclinal, magnetite skarn at depths of 25m to 50m below Tertiary cover. This fits well with the results of drill hole SD 6 which encountered magnetite skarn at a depth of 25m in a locality where the interpretation would have a (shallower - 25m approx.) limb of the interpreted syncline.

4.3 The large arcuate magnetic anomaly D is interpreted as possibly a single feature. This anomaly suggests a subcrop of a thin magnetic body in the east and south east with a shallow dip to the north/north east. The most likely cause is subcrop of a thin basalt flow but the possibility of a skarn source should not be totally discounted at this stage.

4.4 Anomaly B1 immediately west of anomaly B is not explained by the geology except as a magnetic zone or body in the hornfelsed sandstone. The magnetic anomaly suggests a relatively steep dip (to the NE ?) and could reflect an unmapped magnetite skarn. This feature could represent the updip, subcrop of skarn encountered in drill hole SD 5.

4.5 Anomalies B1 and D can conceivably represent the same geological feature which in the context of the grid geology and interpretation, suggests the possibility of two separate magnetite skarns or two magnetic units within a (large) skarn. This possible model therefore would have the B1/D anomaly source stratigraphically below the B/C/C1 anomaly source within a gently folded (and faulted ?) synclinorium.

4.6 A certain degree of quantitative modelling has been input into the interpretation to obtain estimates of likely source geometry; dip, depth etc. This exercise however has, in general, provided only approximate solutions and has assumed only induced magnetisation. The anomaly amplitudes and shapes, particularly those in the most westerly skarn block, are indicative of significant remanent magnetism which, if it exists, will vary in direction with changes in source orientation. The effect of remanent magnetisation has been approximated in some instances by altering the orientation of the magnetic field vector. The relevant results have provided better anomaly fits to the field data but without control of this variable do not provide reliable answers. The interpretation therefore is basically qualitative with the interpreted surface and subsurface extent of the skarn(s) and likely dip & depth denoted (Fig. 3.)

5. RECOMMENDATIONS

5.1 The primary objective of the magnetometer survey and its interpretation is delineation of the extent of the skarn bodies which can then be tested for their economic potential by drilling. Two sets of drill targets have been formulated therefore to test magnetic indications.

The first priority set is designed to test the interpreted magnetite skarn associated with anomaly C1. These holes are designed to test the magnetic interpretation below the Tertiary cover at depths of 20m to 50m. The proposed hole locations are shown on Figure 3 and are listed below. All recommended drill holes are vertical as interpreted dips are unreliable and a flat lying, open folded, sequence is assumed.

1. Collar 5870N-9165E , Target Depth 40m.
   To test the centre of anomaly C1 at the approximate centre of profile A.

2. Collar 5905N-9180E , Target depth 30m.
   To test the (uncertain) NE limit of the interpreted syncline.

3. Collar 5800N-9250E , Target depth 30m.
   To test the SE margin of anomaly C1.

4. Collar 5845N-9290E , Target depth 50m.
   To test the interpreted syncline near the centre of profile B.

5. Collar 5860N-9230E , Target depth 60m.
   To test the centre of anomaly C1.

The second priority set of recommended drill holes are designed to test magnetic anomalies away from the central interpreted skarn. These anomalies could be related to Tertiary basalt or magnetic zones within sandstone and/or hornfels. They are recommended for testing however because of the possibility of unmapped and possibly concealed skarn development.

1. Collar 5860N-9500E , Target depth 10m.
   To test anomaly D on line 5850N.

2. Collar 5710N-9255E , Target depth 15m.
   To test anomaly D on line 5700E.

3. Collar 5805N-8930E
   This is an inclined hole to the SW to test anomaly B1. The target depth is approximately 30m.

5.2 Several shortcomings of the available data have restricted the extent and accuracy of the interpretation. In summary these are:-

1. The line spacing of 50m is too large to adequately resolve in two dimensions the very high spatial frequency anomalies.

2. The grid line orientation is at 30 deg to 40 deg to the main strike of the skarn related magnetic anomalies. This exacerbates the problem (above) of large line spacings.

3. Magnetic susceptibility and remanence of the magnetite zones or horizons in the skarn(s) is unknown. Quantitative interpretation, assuming induced magnetisation, therefore provides results which can be inaccurate and misleading.

5.3 The first two of the above problems can be overcome by repeating the magnetometer survey with a minimum line spacing of 20m and using the existing grid orientation and data spacing along lines. The problem of the difference in strike and grid directions can be further improved by selected infill lines at a smaller (10m) spacing. Also the possibility of selected, across strike profile traverses should be considered.

The third problem also leads to the recommendation for (a) routine magnetic susceptibility logging of all drill core and (b) Laboratory magnetic analysis of selected magnetic samples with their spatial orientation determined.

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6. REFERENCES

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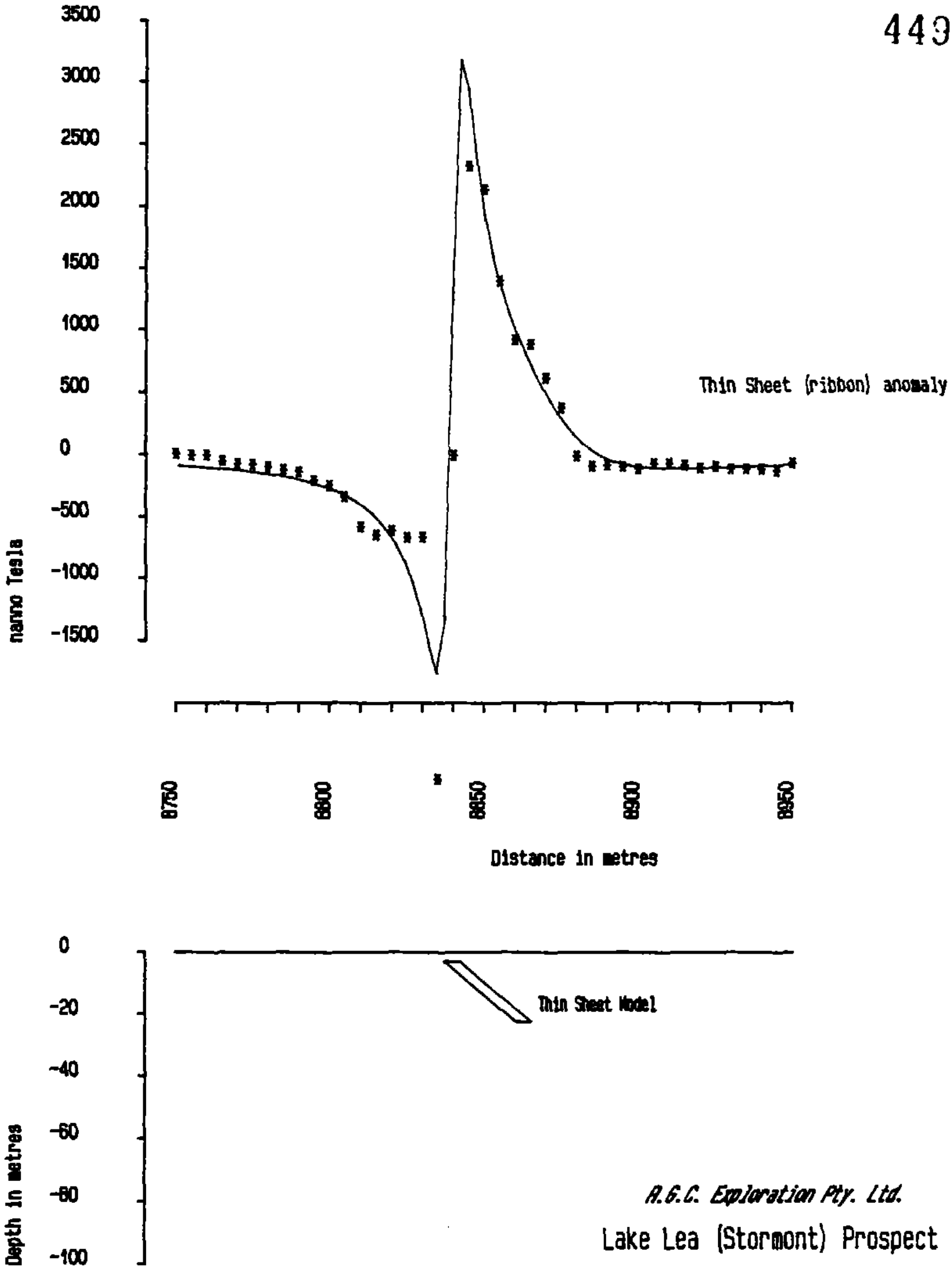
Leaman, D.E., 1988 a,b,c,d and e Five reports entitled :- Gravity and Magnetic Evaluation of the Moina Region No's 1,2,3,4 & 5 for R.G.C. Exploration Pty. Ltd. (August 1988 to December 1988).

440050



A.G.C. Exploration Pty. Ltd.

Lake Lea (Stormont) Prospect

Magnetic Profile - 5950N

Interpretation Section

SCALES HOR. 1 : 200

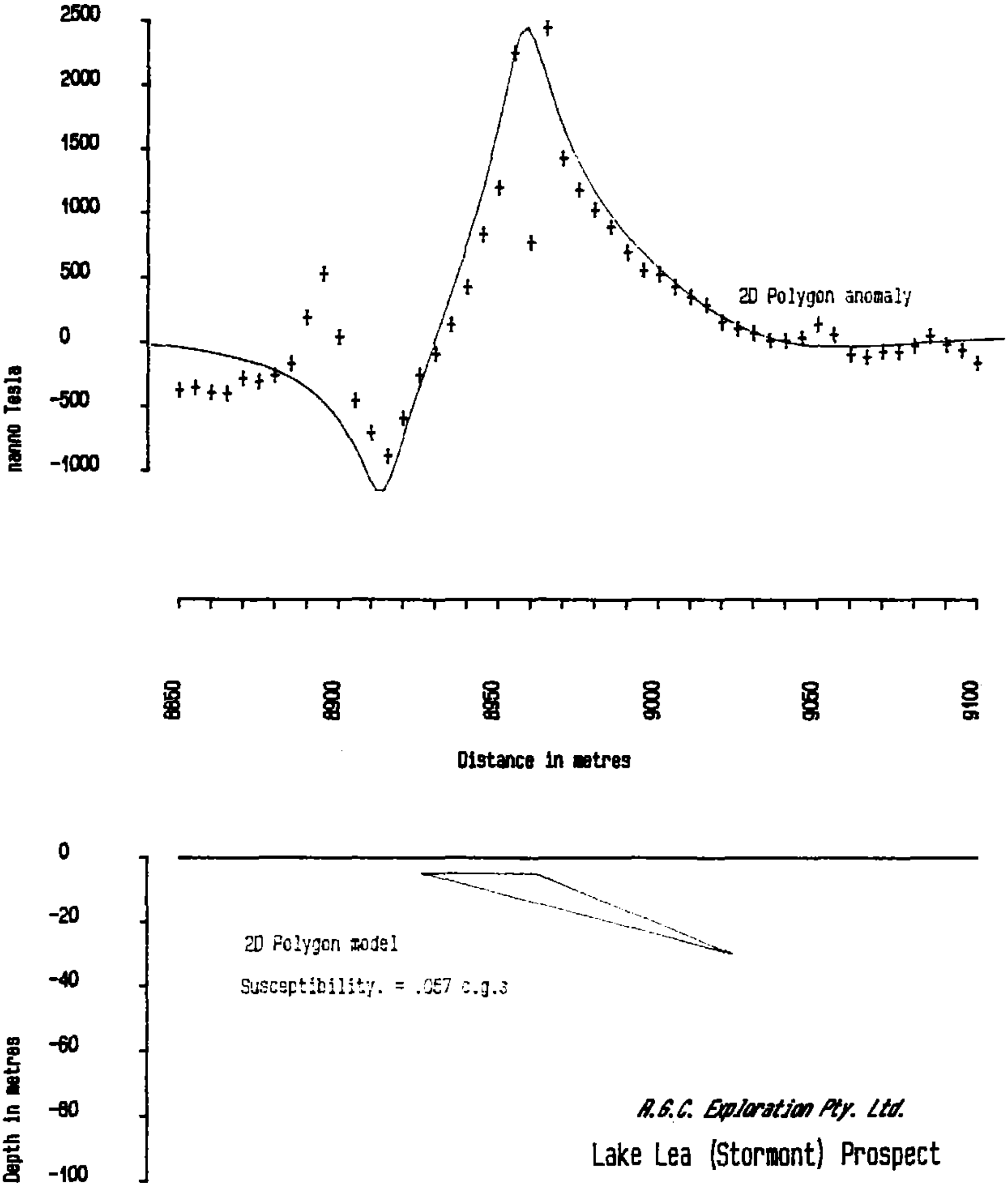
VERT. 1 cm to 20 metres

1 cm to 500 n.T.

5 cm

Plate 1

449051



A.G.C. Exploration Pty. Ltd.

Lake Lea (Stormont) Prospect

Magnetic Profile - 5850N

Interpretation Section

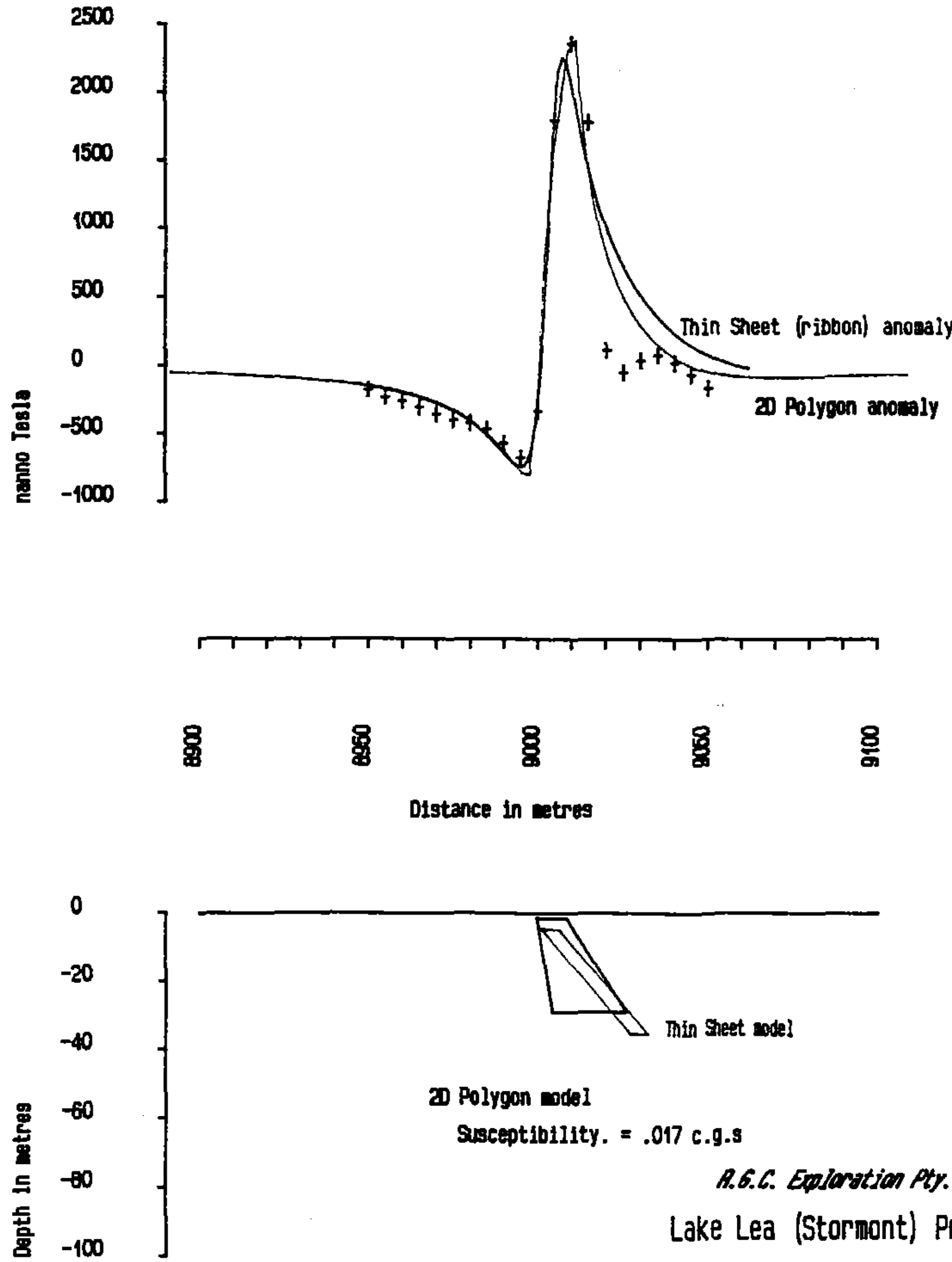
VERT. 1cm to 20 m

1cm to 500 nanno Tesla

5 cm

Plate 2

449052



A.G.C. Exploration Pty. Ltd.

Lake Lea (Stormont) Prospect

Magnetic Profile - 6000N

Interpretation Section

SCALES HOR. 1 : 200

VERT. 1 cm to 20 metres

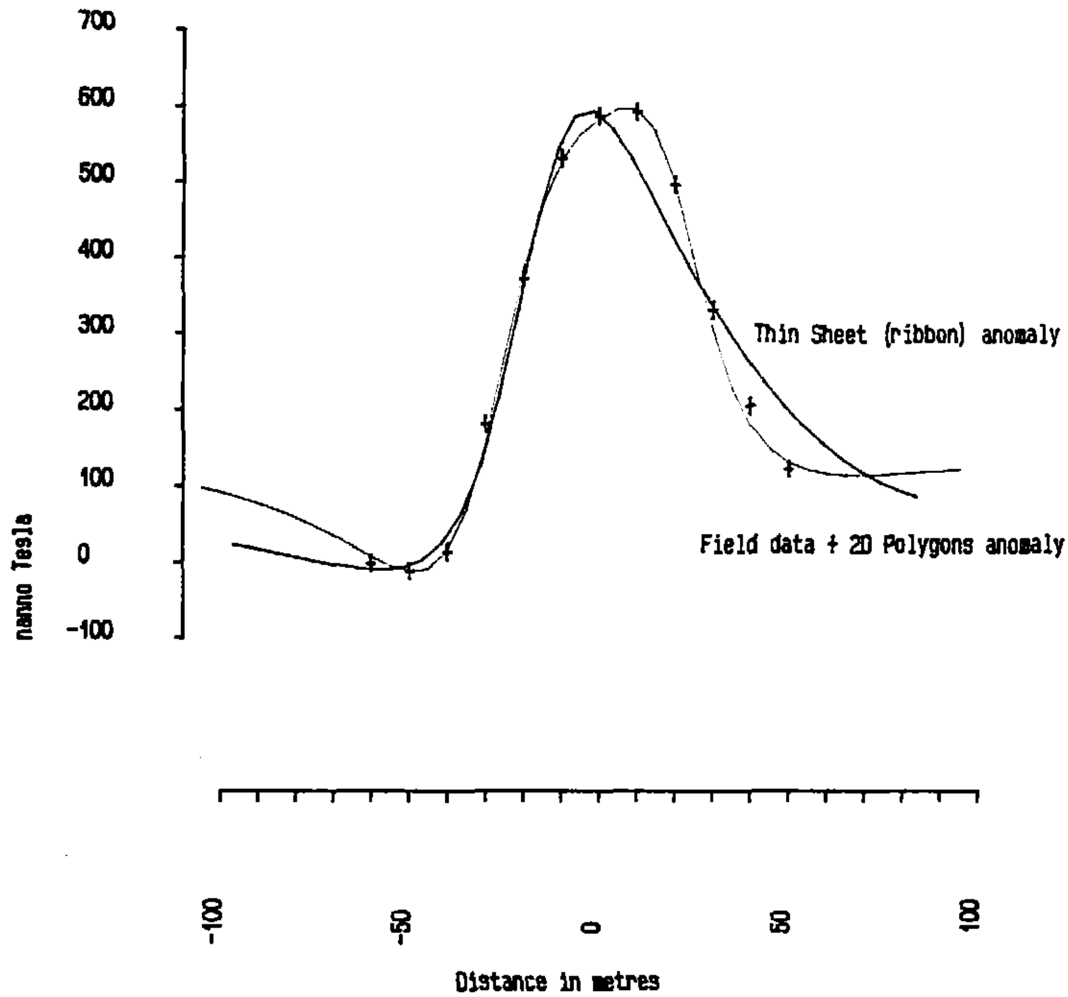
1 cm to 500 n.T.

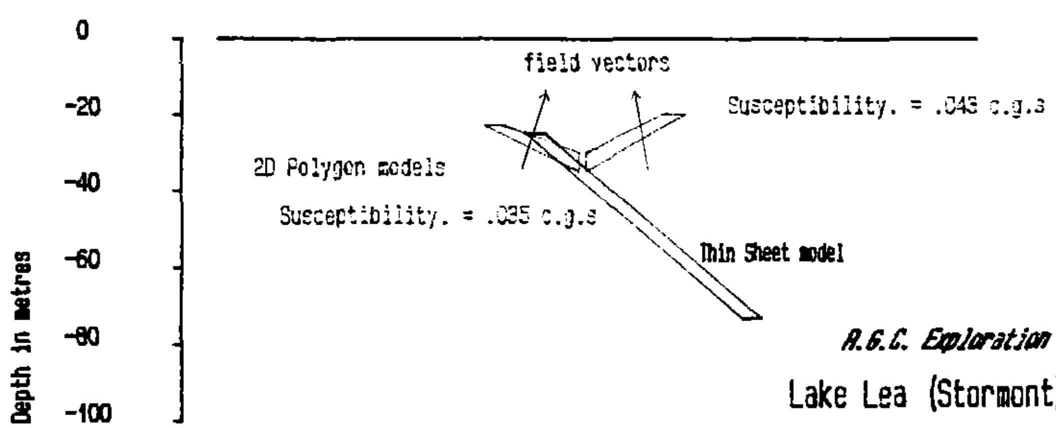
5 cm

Plate 3

052

449053





A.G.C. Exploration Pty. Ltd.

Lake Lea (Stormont) Prospect

Magnetic Profile - A

Interpretation Section

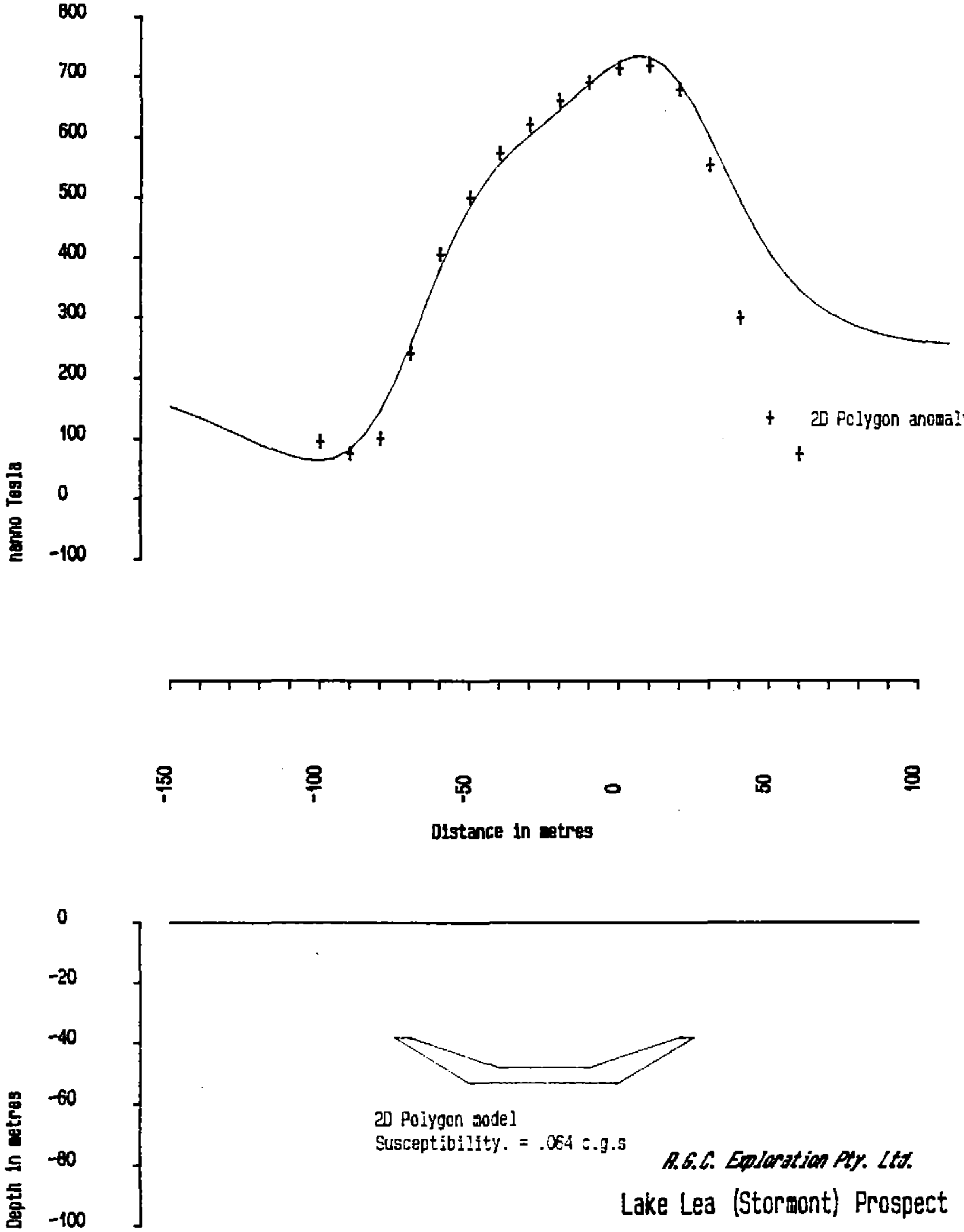
SCALES HOR. 1 : 2000

VERT. 1cm to 20 m

1cm to 100 n.T.

5 cm

Plate 4



R.G.C. Exploration Pty. Ltd.

Lake Lea (Stormont) Prospect

Magnetic Profile - B

Interpretation Section

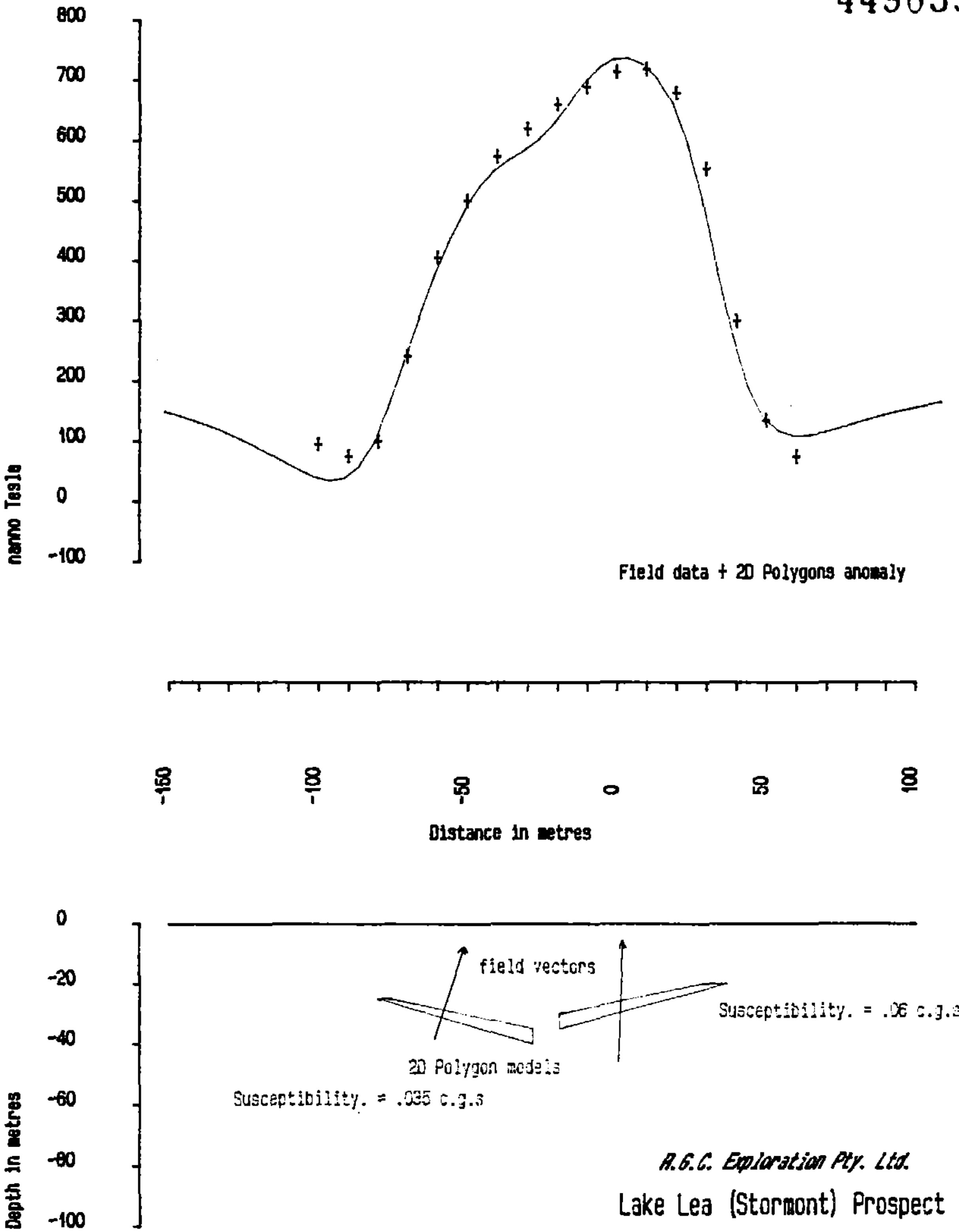
SCALES HOR. 1 : 2000

VERT. 1cm to 20 m

1cm to 100 n.T.

5 cm

449055



A.G.C. Exploration Pty. Ltd.

Lake Lea (Stormont) Prospect

Magnetic Profile - B

Interpretation Section

SCALES HOR. 1 : 2000

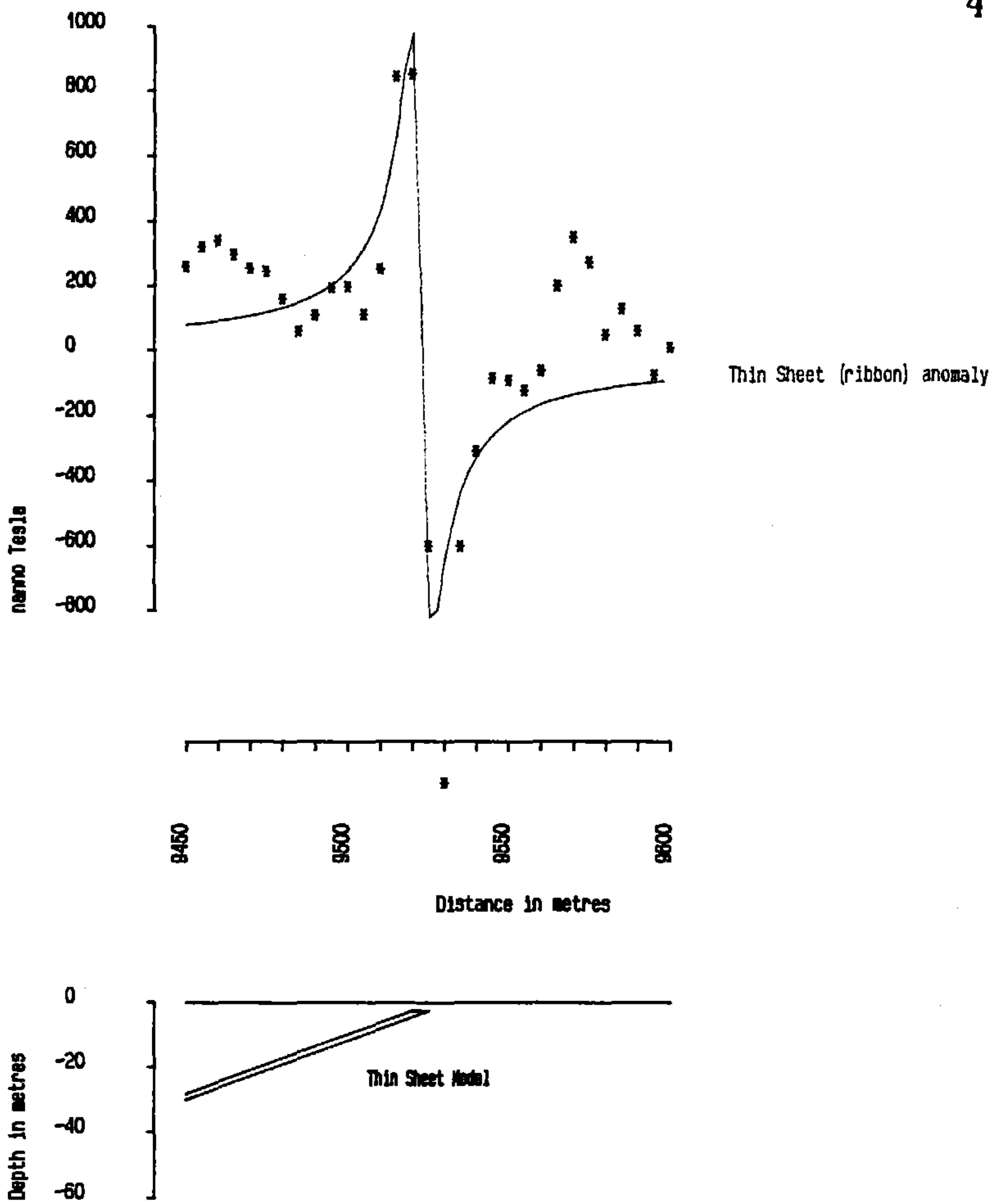
VERT. 1cm to 20 m

1cm to 100 n.T.

5 cm

Plate 5a

449056



A.G.C. Exploration Pty. Ltd.

Lake Lea (Stormont) Prospect

Magnetic Profile - 5850N

Interpretation Section

SCALES HOR. 1 : 200

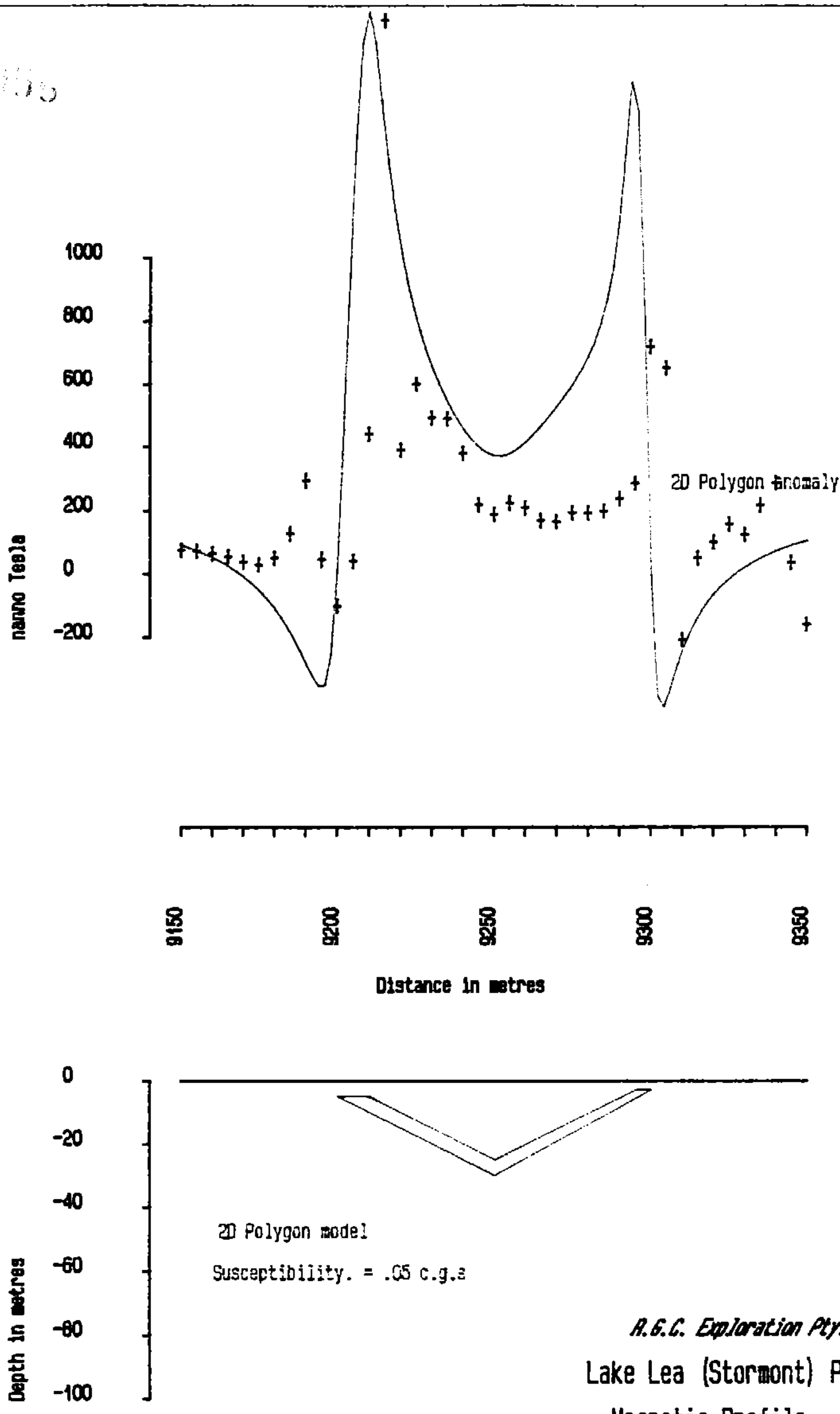
VERT. 1 cm to 20 metres

1 cm to 200 n.T.

5 cm

Plate 6

449057



A.G.C. Exploration Pty. Ltd.

Lake Lea (Stormont) Prospect

Magnetic Profile - 5700N

Interpretation Section

VERT. 1cm to 20 m

1cm to 200 nanno Tesla

5 cm

Plate 7

APPENDIX 3

Modelling of some Lake Lea Aeromagnetic Anomalies

MODELLING OF SOME LAKE LEA AEROMAGNETIC ANOMALIES
(E.L. 41/83)

for

RGC Exploration Pty. Ltd.

by

Mitre Geophysics Pty. Ltd.

RGC/MG88/05
August, 1988

LAKE LEA (E.L. 41/83) AEROMAGNETIC ANOMALIES

RGC is actively exploring for gold in the Lake Lea licence and Mitre Geophysics was asked by RGC to identify any magnetic anomalies in the 'Moina' aeromagnetic data which might be prospective for gold (eg, skarns or 'ironstones'). The Moina survey does not cover all of the licence, but the uncovered portion, in the south-western corner, is considered the least prospective for gold. Those areas covered by basalt were also not examined for this report.

Twenty anomalies were picked from the magnetic contour plan including the response over the old Stormont mine, and some large responses almost certainly due to Cambrian volcanics. After consultation with RGC, two more anomalies were chosen and nine of the twenty two were picked for some preliminary modelling. The aim of the modelling was merely to obtain some idea of the size and depth of the source. Neither geology nor any physical property information was considered during the modelling (including Stormont) and it is emphasised that the resulting profiles are merely an (imperfect) guide for further exploration. Stormont was modelled so that the modelling 'accuracy' could be evaluated using a known source. It is stressed that much better modelling would be produced if more time were devoted and more realistic models would be obtained if I had used some geological input. For the Moina survey, the aircraft flew with a nominal terrain clearance of 100m towing the magnetometer on a 30m cable, thus ~75-80m should be subtracted from the sections to give depth below surface. Note that the scales of the flight line profiles and model sections are set automatically to optimise the data presentation on an A4 sized sheet. Thus the scales may vary from profile to profile and between models.

Figure 1 shows the locations of the 22 anomalies on the 1:25,000 contour plan. Figures 2 to 9 show the flight line profiles of the modelled anomalies, as well as some of the 'rejected' responses. It is instructive to note the relatively small response over the old Stormont mine (Figure 4). In fact a number of subtle anomalies are more noticeable on the profiles and it is clear that 'anomaly hunting' from the contour plan (contoured at a 10nt interval), is only a 'first-pass' exercise. Image processing of the data, using a series of narrow-band passes through the data, would be a more effective way of identifying the responses. It may also be instructive to model some of the picked anomalies initially rejected for being too small.

The model sections are given in Figures 10 to 18. The smaller sources such as #1 and #18 are considered to be the most prospective. However some of the larger bodies would of course be reduced in size if a higher susceptibility value were used. The accompanying table lists the chosen anomalies and gives a brief comment. The more prospective ones are indicated with a '*'.

RGC/MG88/05

J. Bishop
August '88.

Comments on Lake Lea Anomalies

* #1. Small, prospective anomaly.

#2. Not modelled; already covered by ground survey.

#3. Large anomaly, probably caused by Cambrian volcanics.

#4. Along strike extension of #3.

#5. Stormont.

* #6. Shallow (<100m); probably too small for Cambrian volcs.

#7. Very low amplitude response; not modelled.

#8. Very low amplitude response; not modelled.

#8A. Low amplitude response; not modelled.

#9. Very low amplitude response; not modelled.

#10. Very low amplitude response; not modelled.

? #11. Similar to #6, but deeper.

#12. Low amplitude response; not modelled.

#13. Large source; Cambrian volcs likely source.

#14. Offset and deeper extension of Cambrian volcs beneath #3 & #4 (?).

#15. Possible edge effect of basalt.

* #15A. Small source indicated away from mapped edge of basalt.

* #16. Close to edge of basalt, but ground follow up recommended

#17. Covered by earlier ground mag. survey (?).

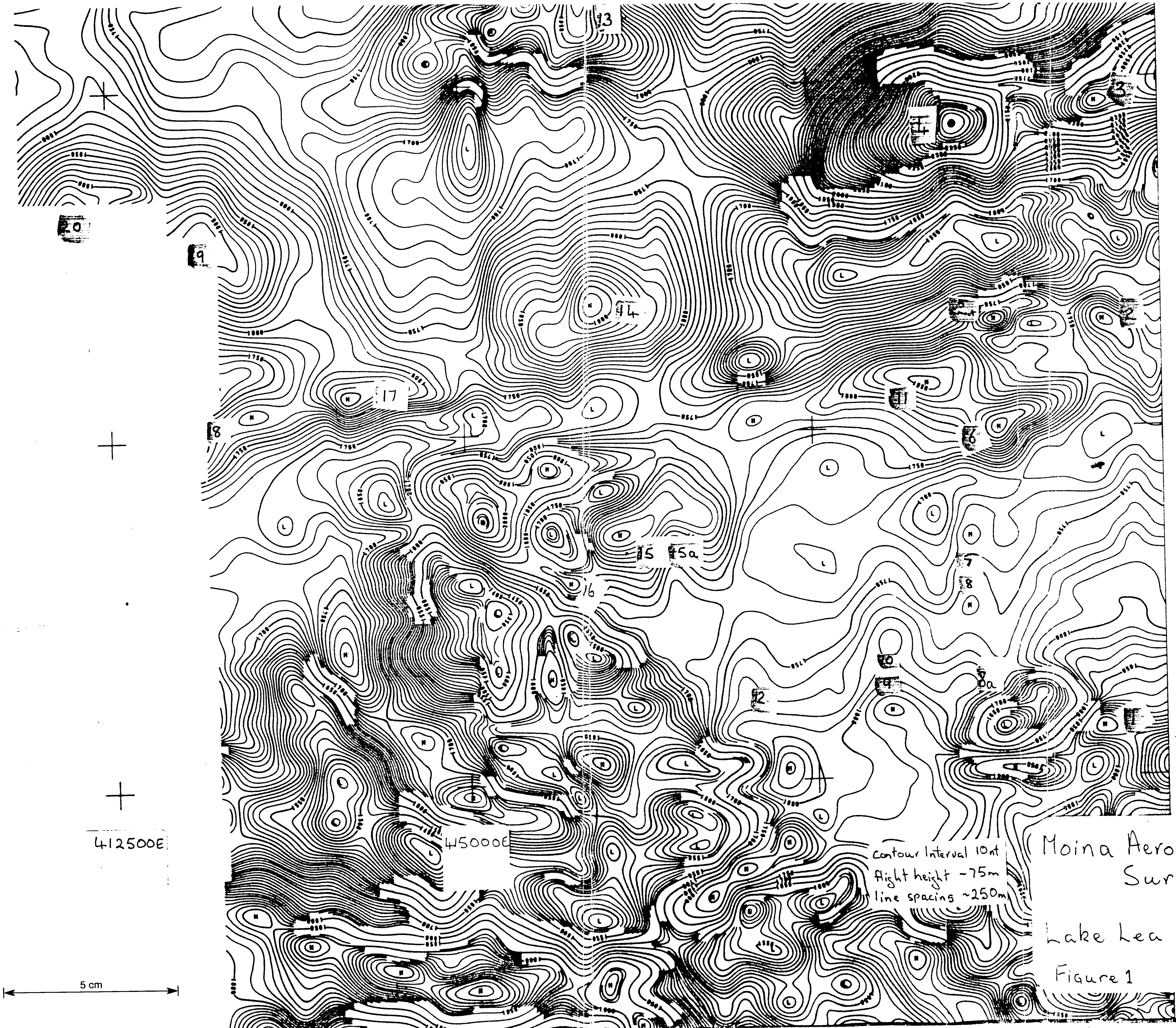
* #18. Located over alluvial cover & possible limestones (ie, good potential for skarn mineralisation).

#19. Large, deep response; Cambrian volcs (?).

#20. On edge of survey, only partially defined. Similar source to #19.

* more prospective anomaly.

449062



Moina Aeromagnetic Survey
Lake Lea Anomalies
Figure 1
JRB
Aug. '88.

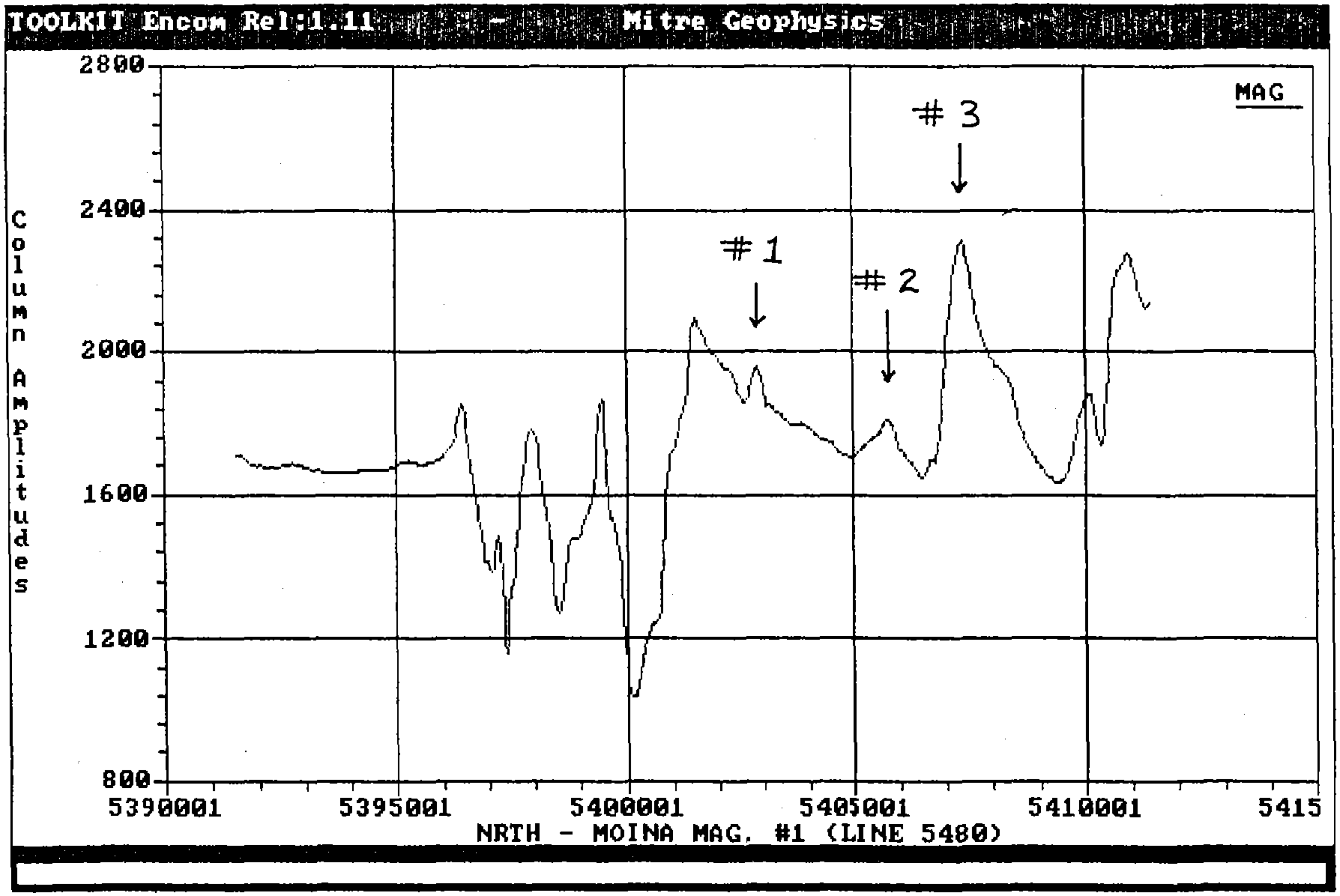


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Figure 2.

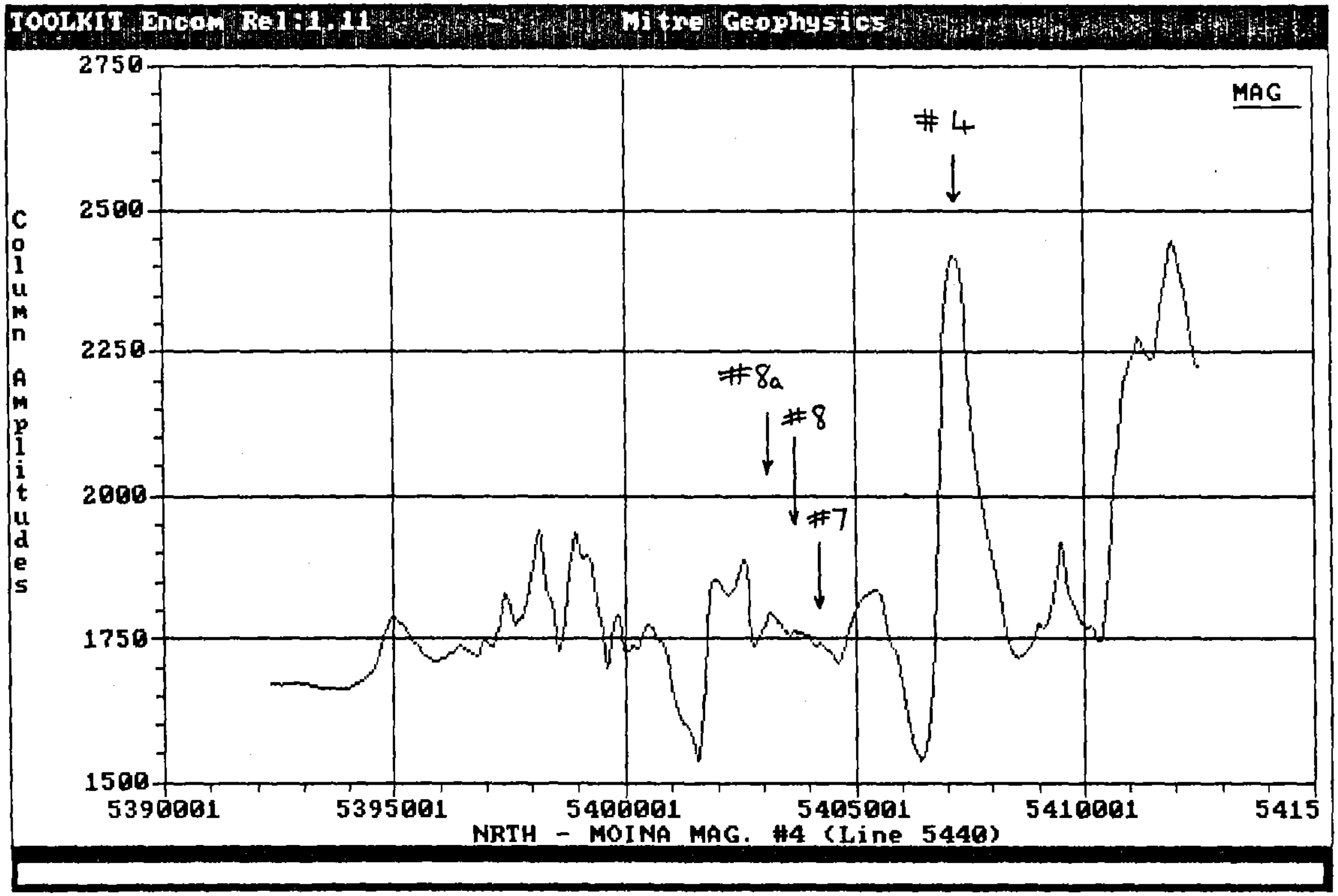

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Figure 3

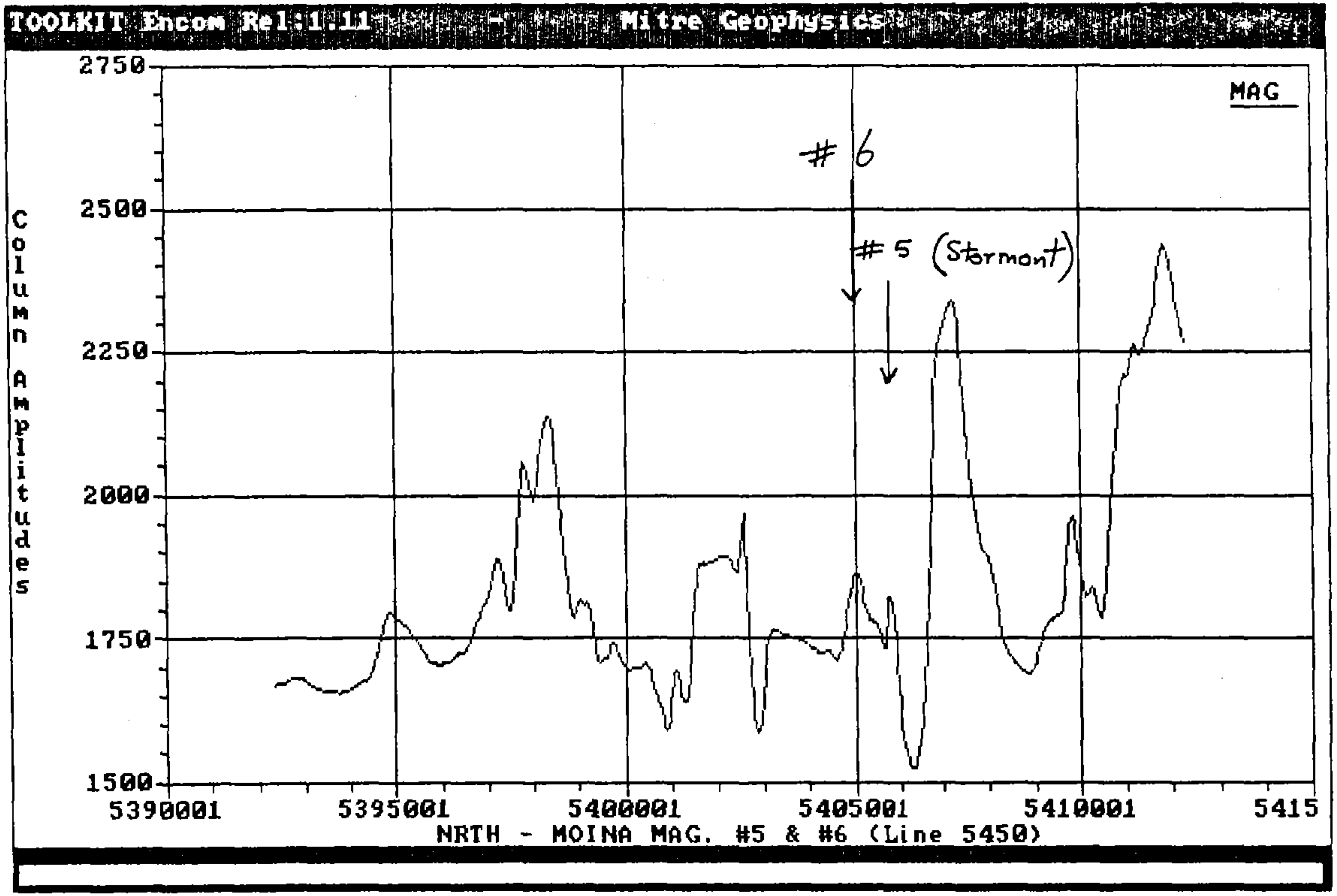

Figure 4.

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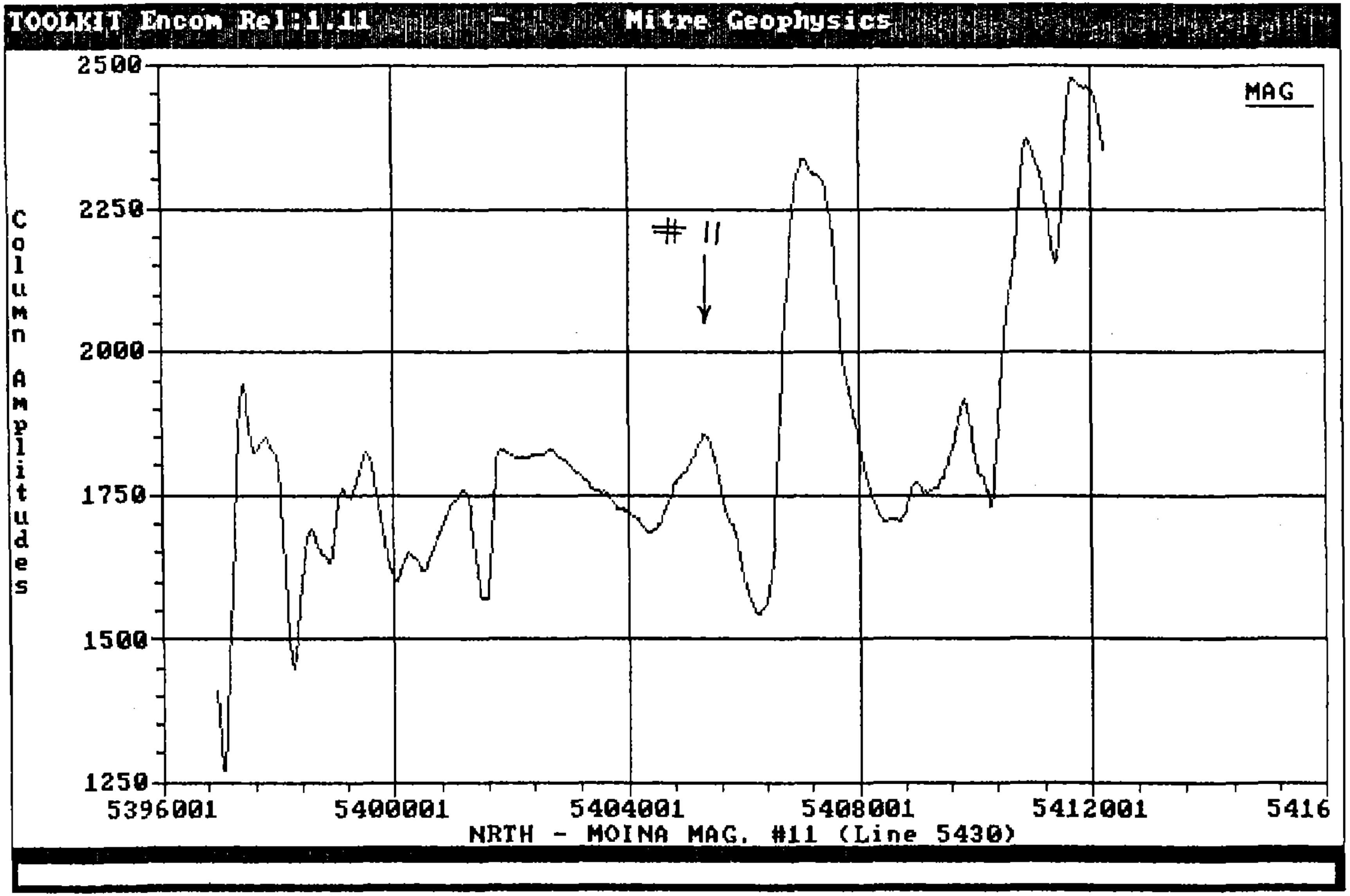

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Figure 5.

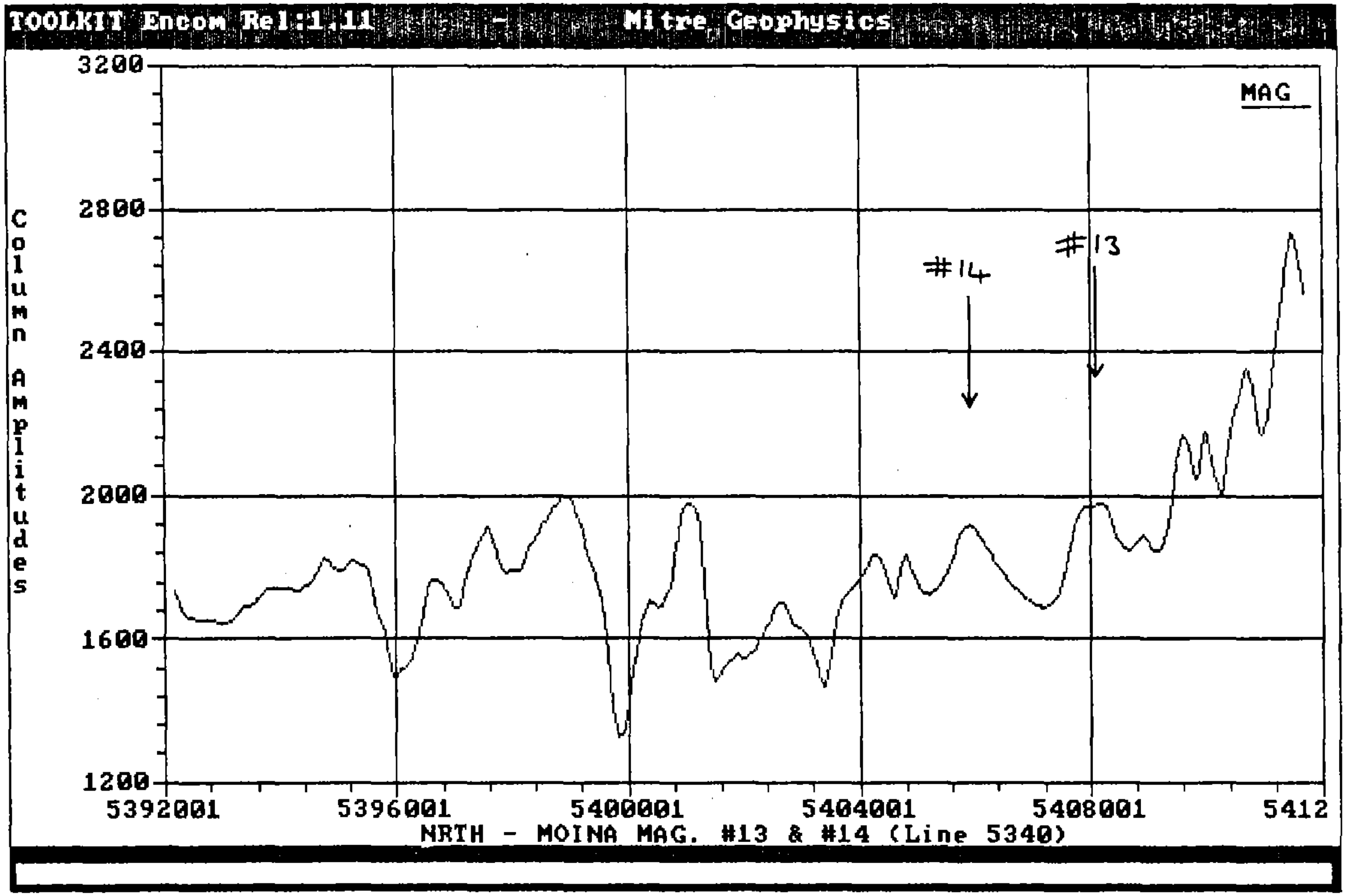

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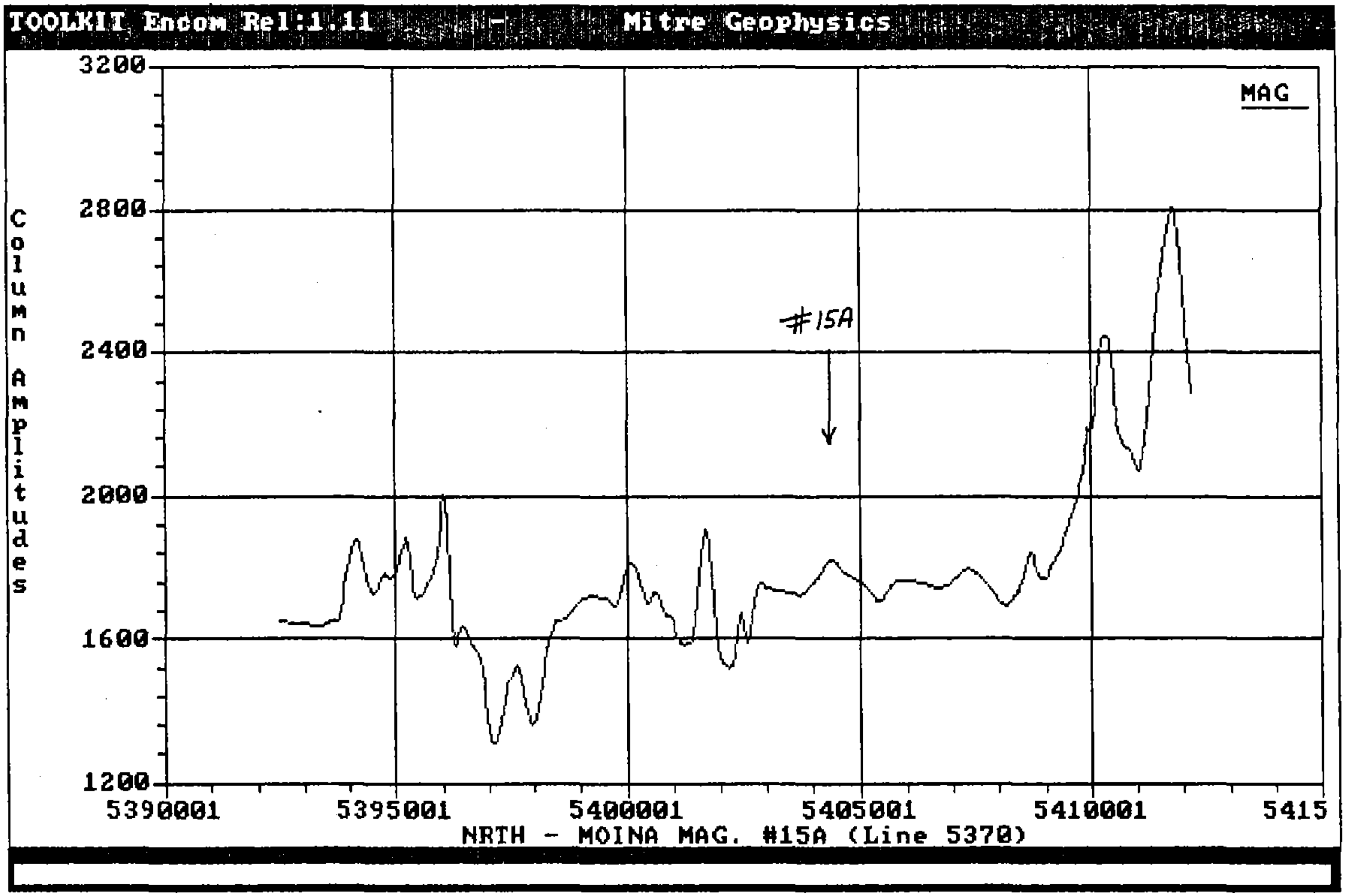
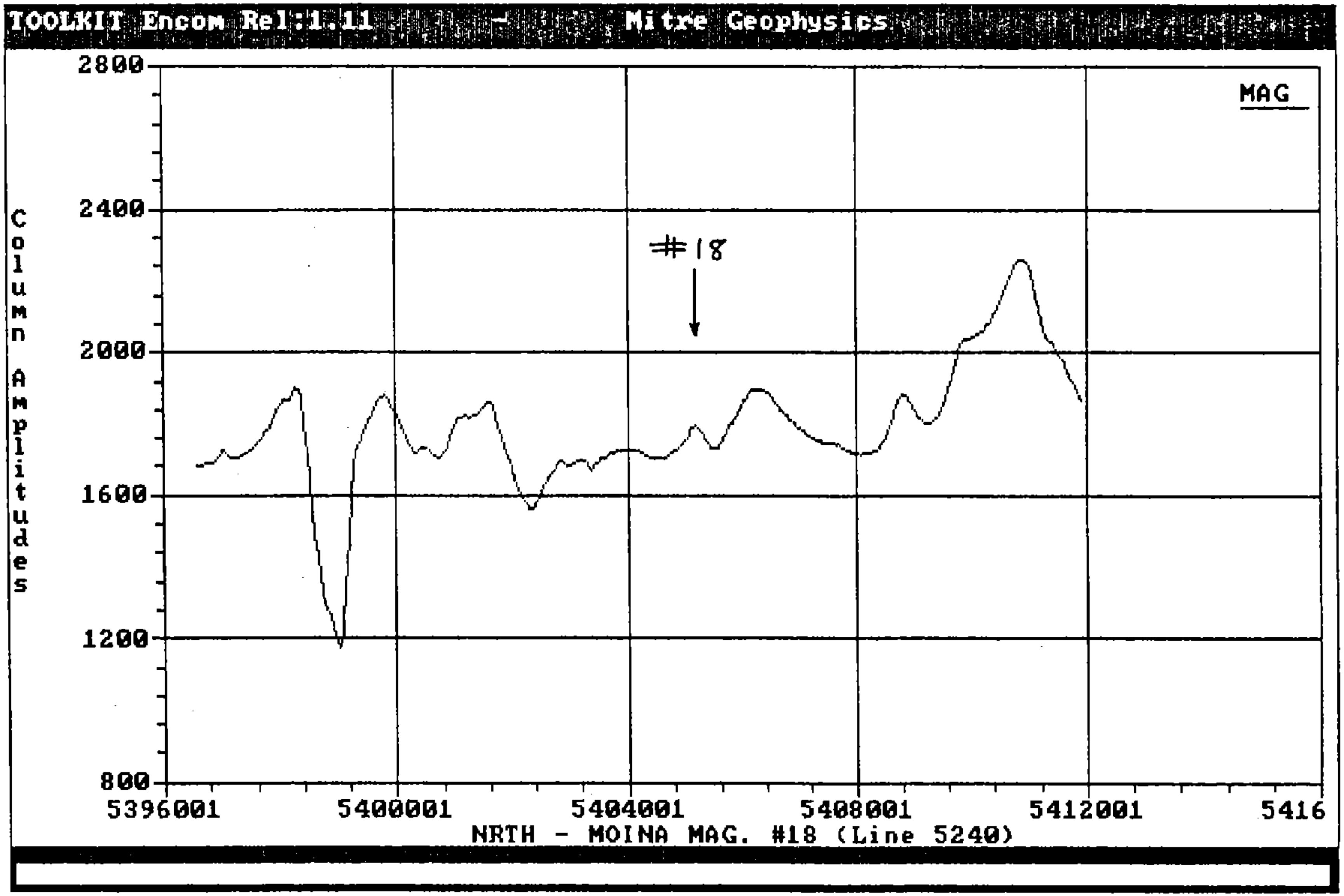
Figure 6.



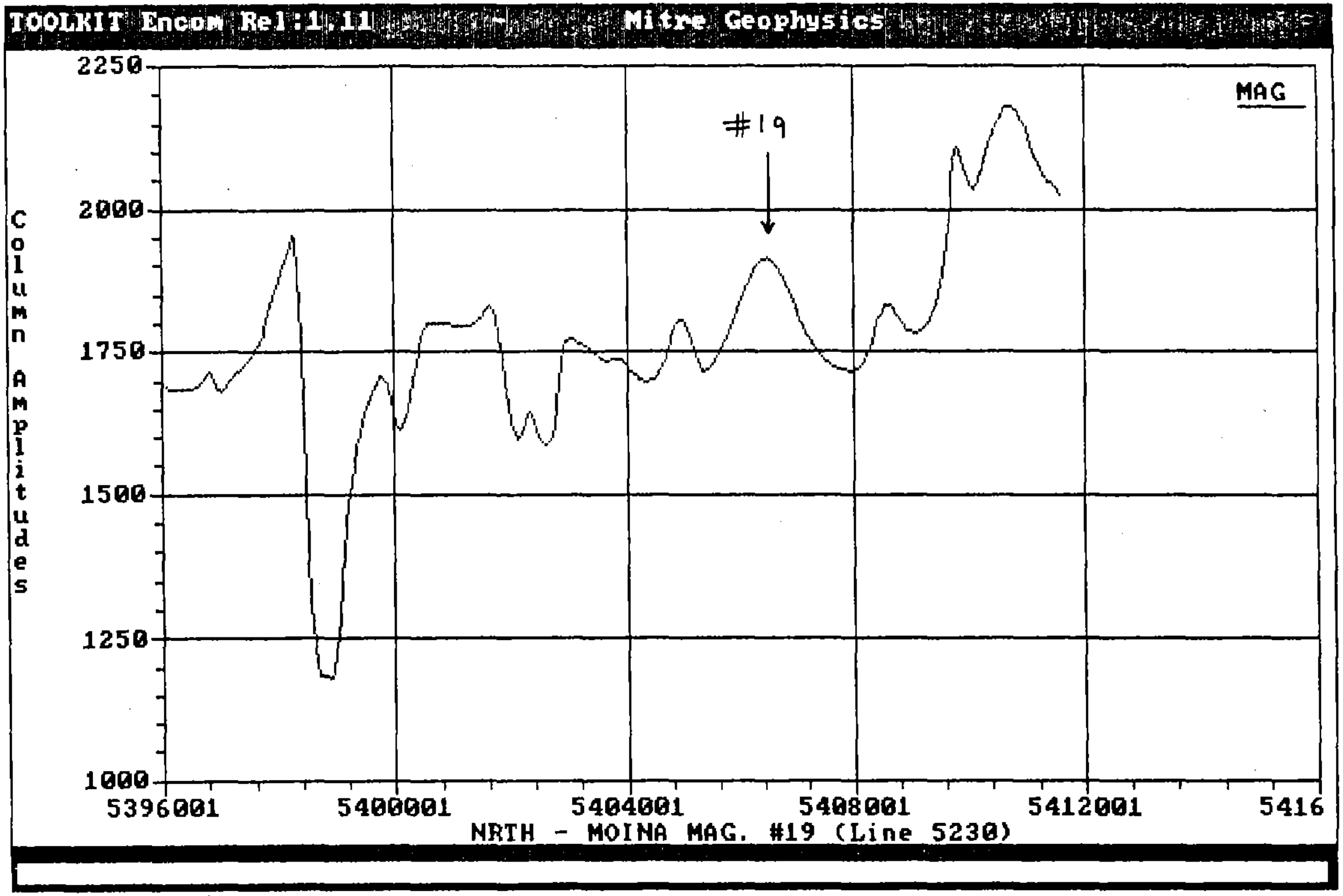
449068

Figure 7.



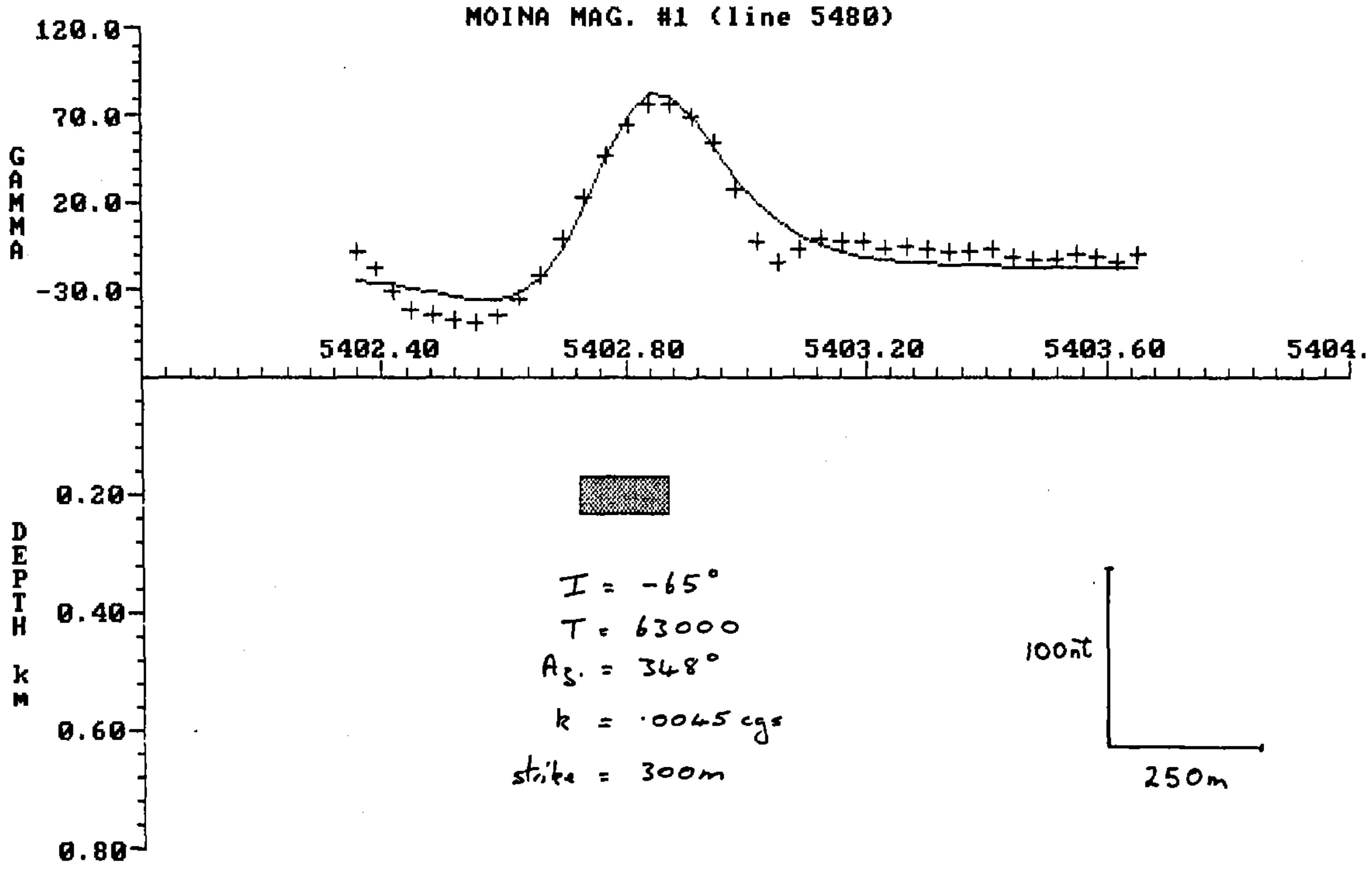
449069

Figure 8



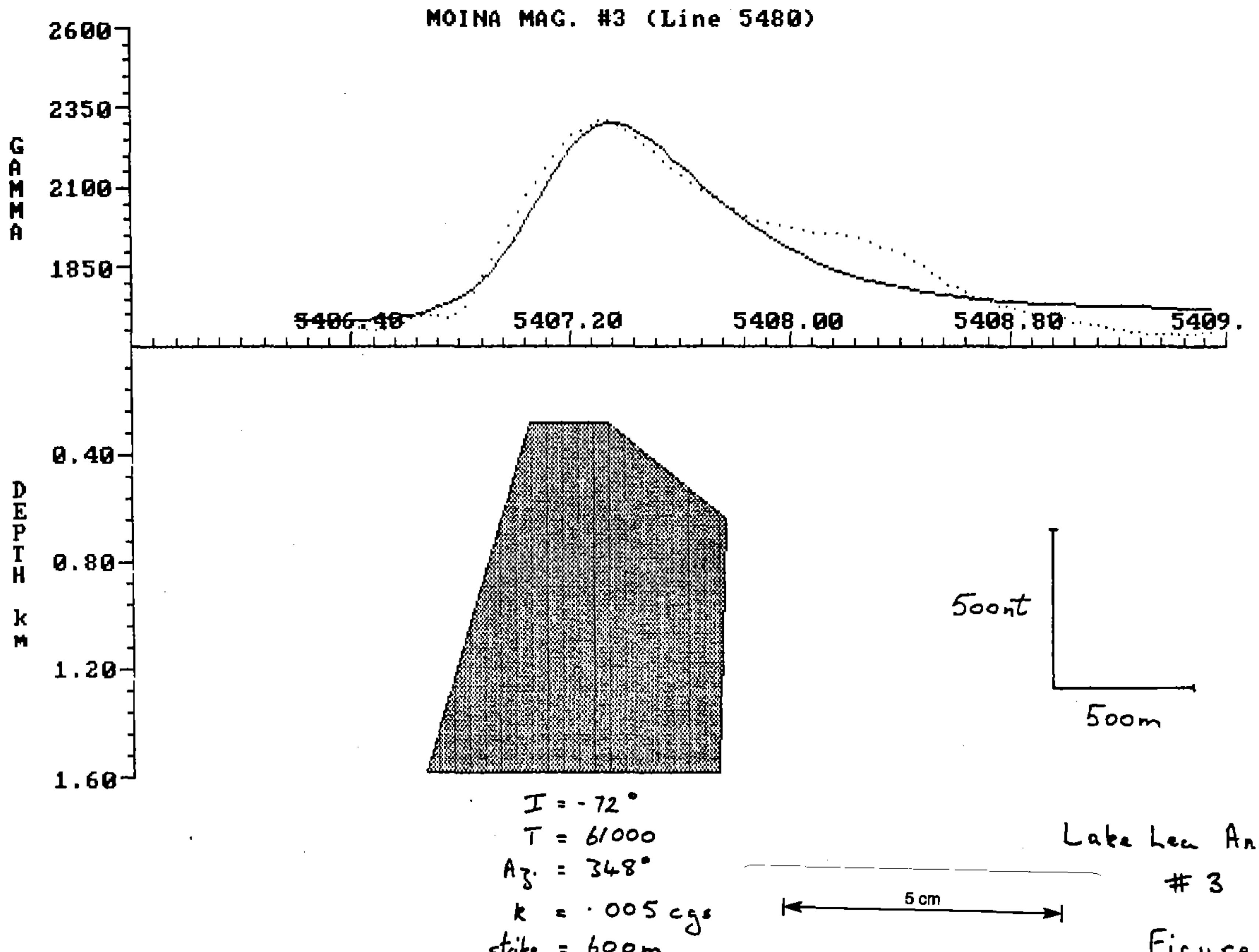
449070

Figure 9.



Lake Lea Anomaly #1.

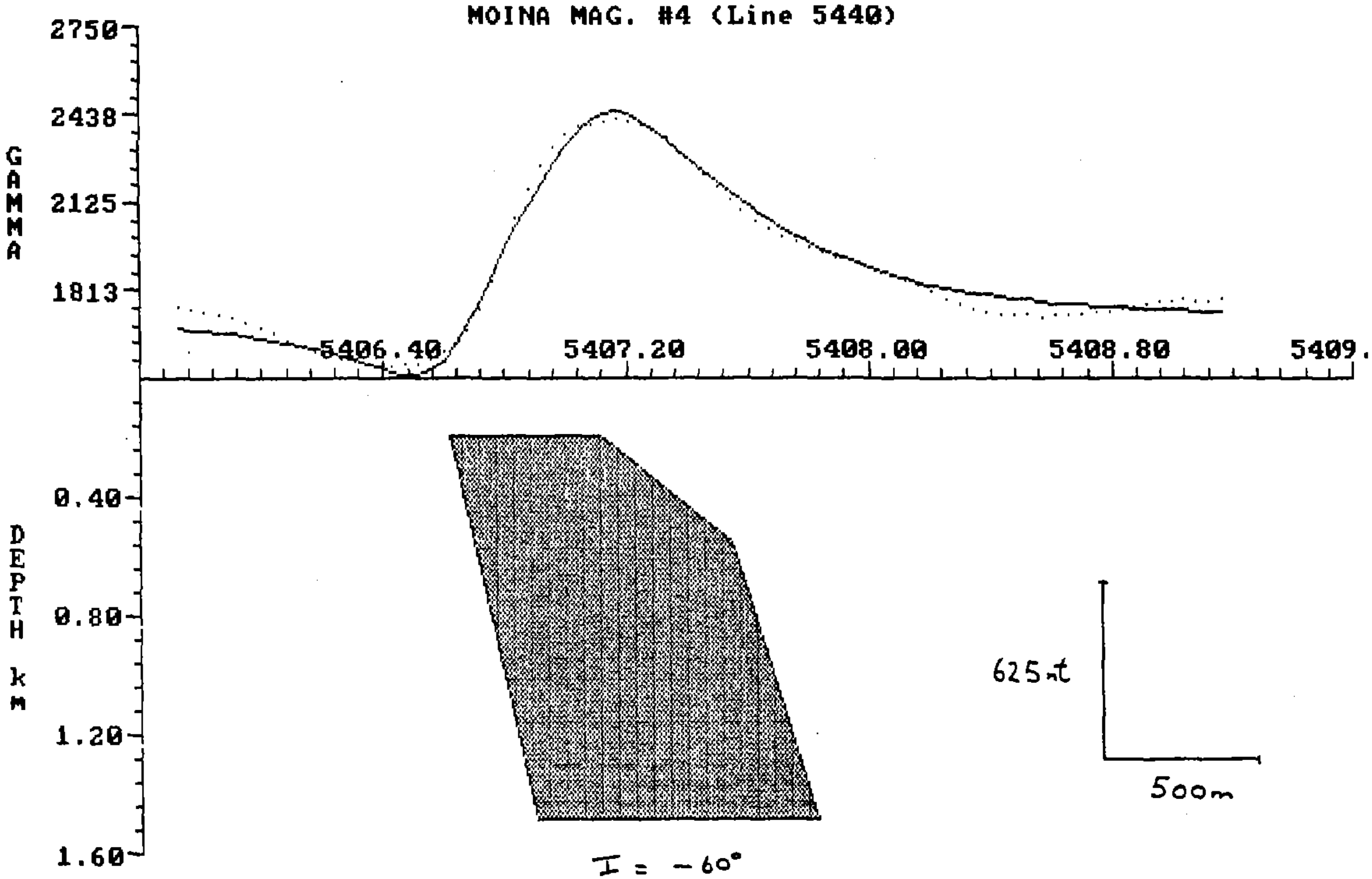
Figure 10



Lake Lea Anomaly
3

Figure 11.

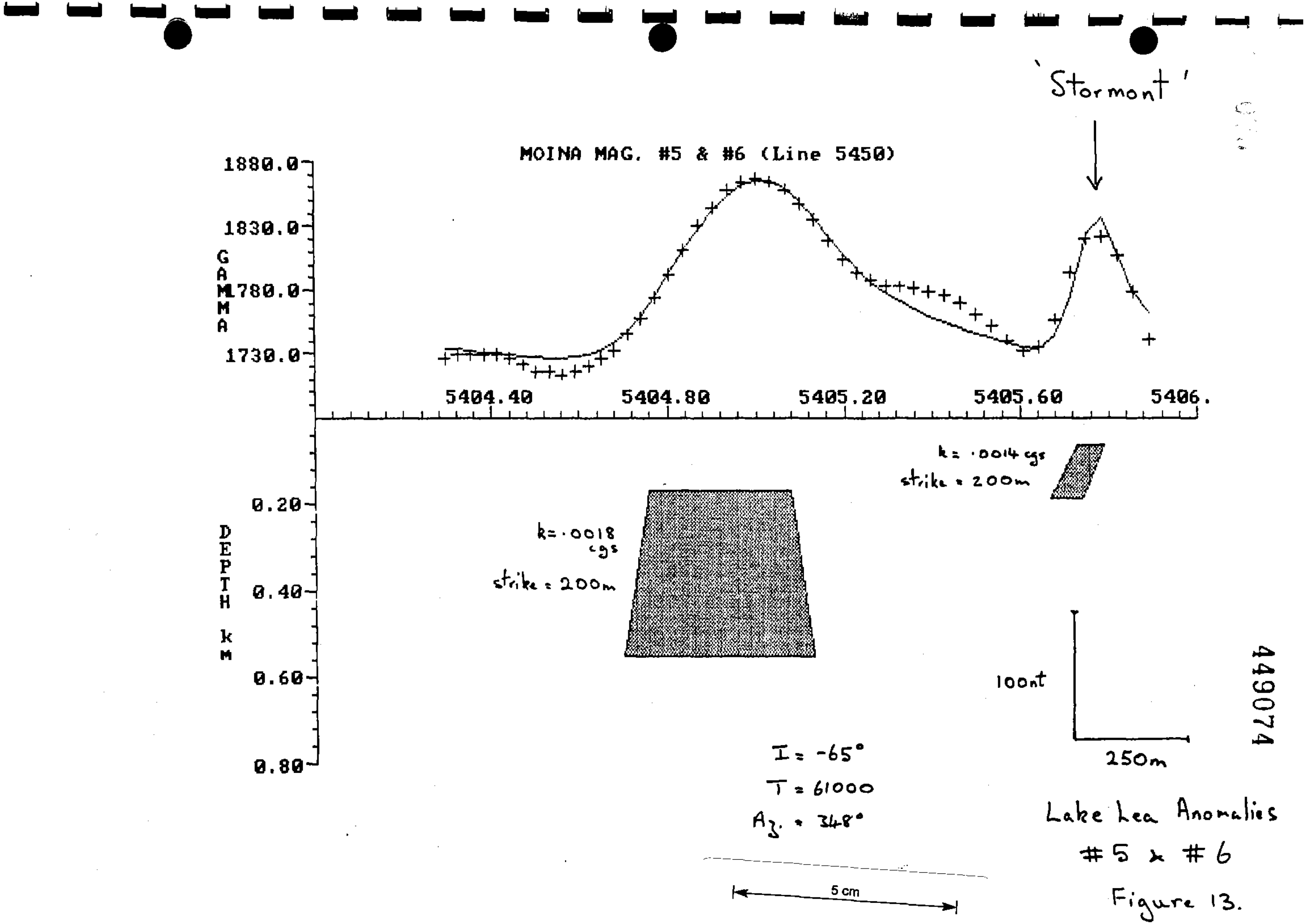
449072



I = −60°
T = 61000
Az. = 348°
k = ·005 cgs
alt. = 600m

5 cm

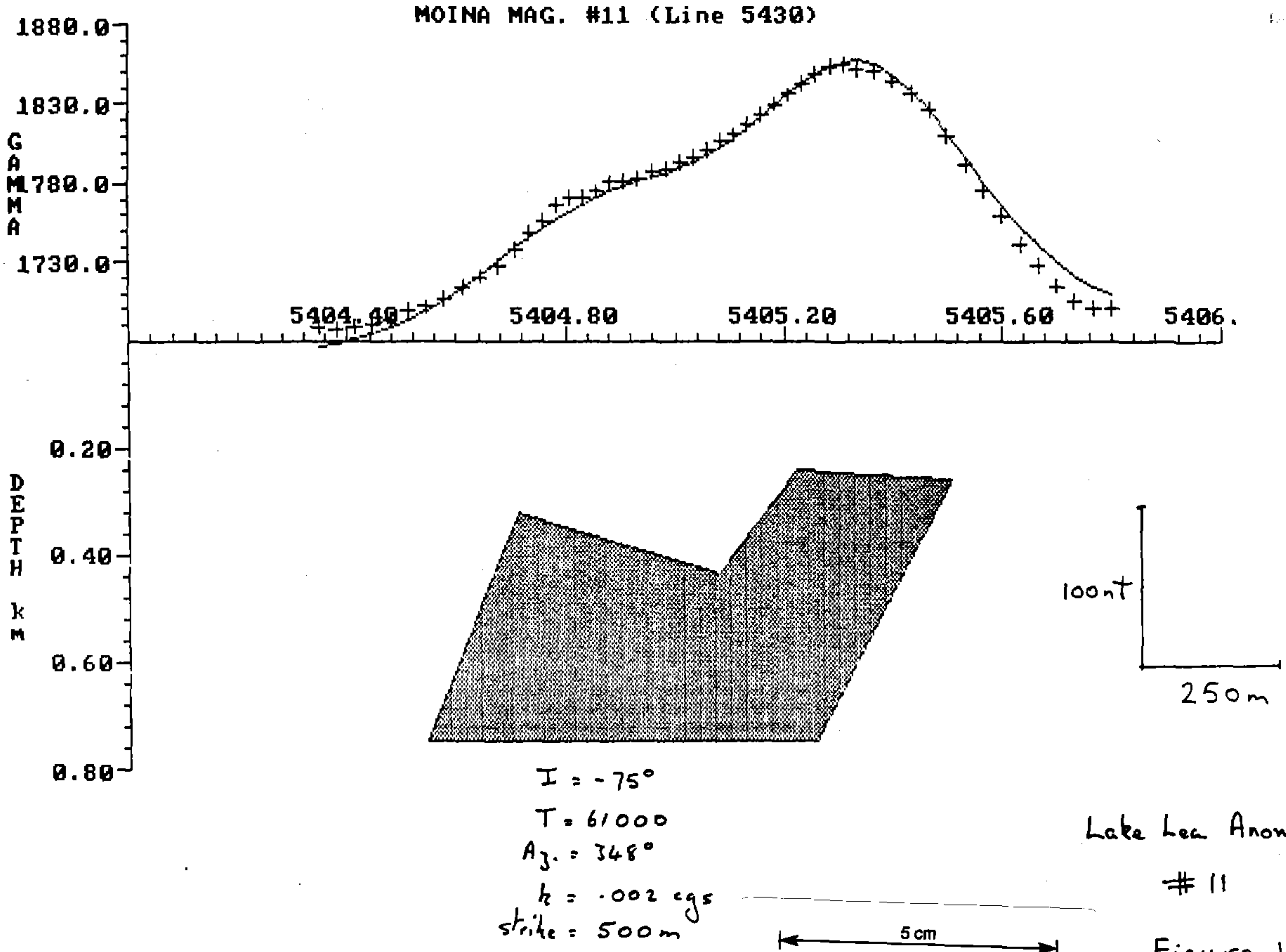
Lake Lee Anomaly
#4
Figure 12



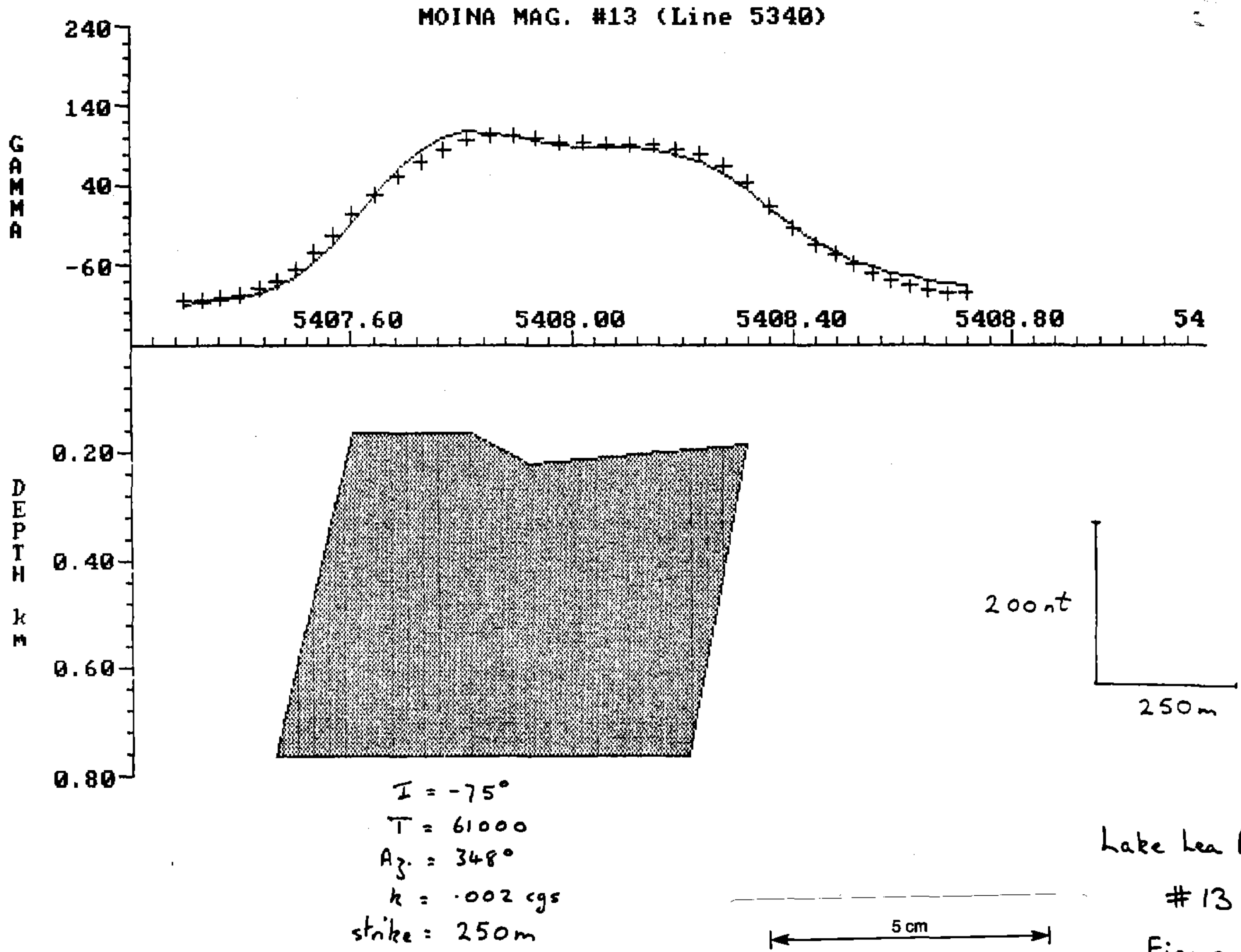
Lake Lea Anomalies #5 & #6

Figure 13.

449074



Lake Lea Anomaly
#11
Figure 14.

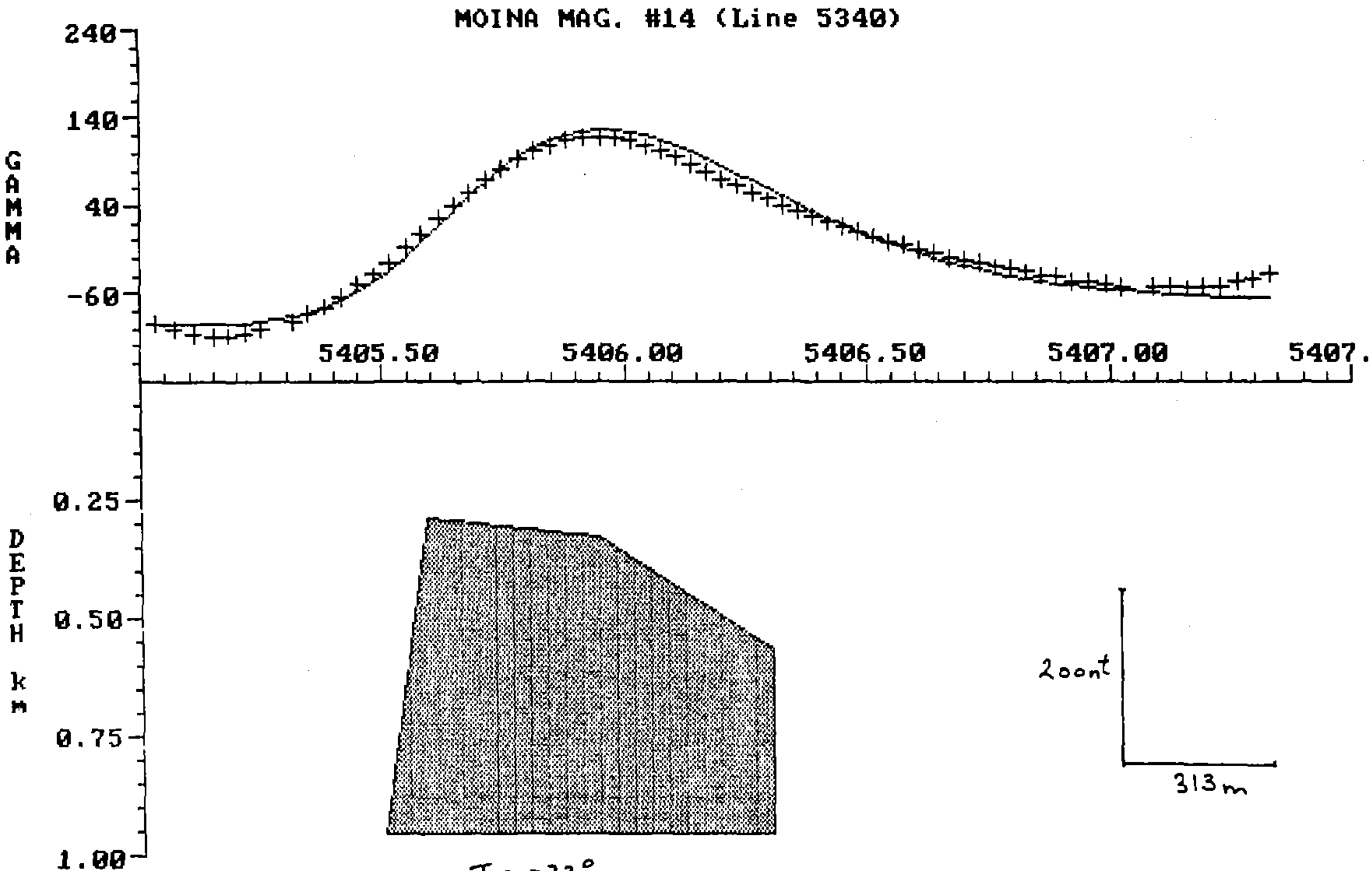


449076

Lake Lea Anom

#13

Figure 15.

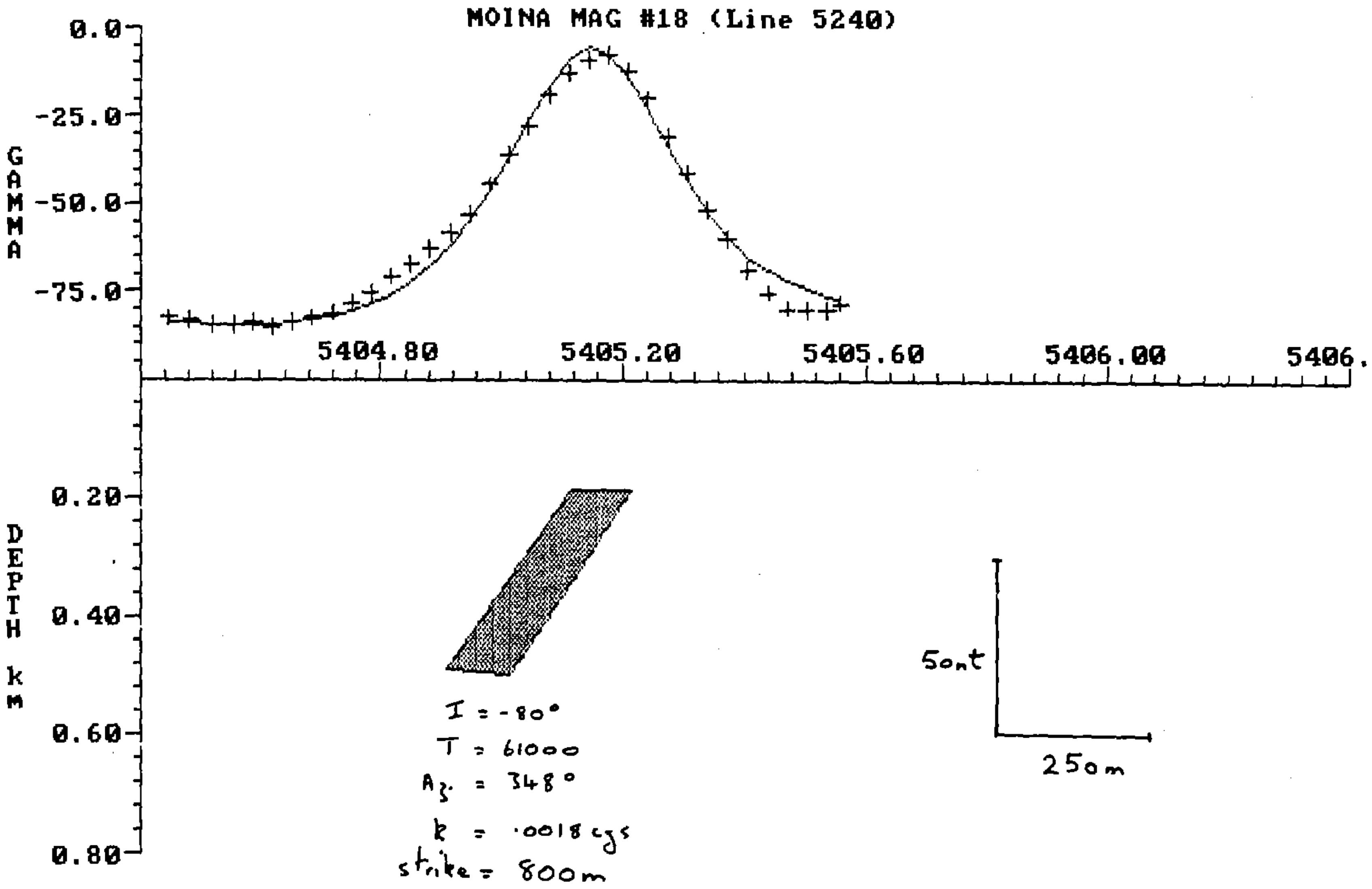


I = -72°
T = 61000
Az. = 348°
k = ·0018 cgs
strike = 1000m

5 cm

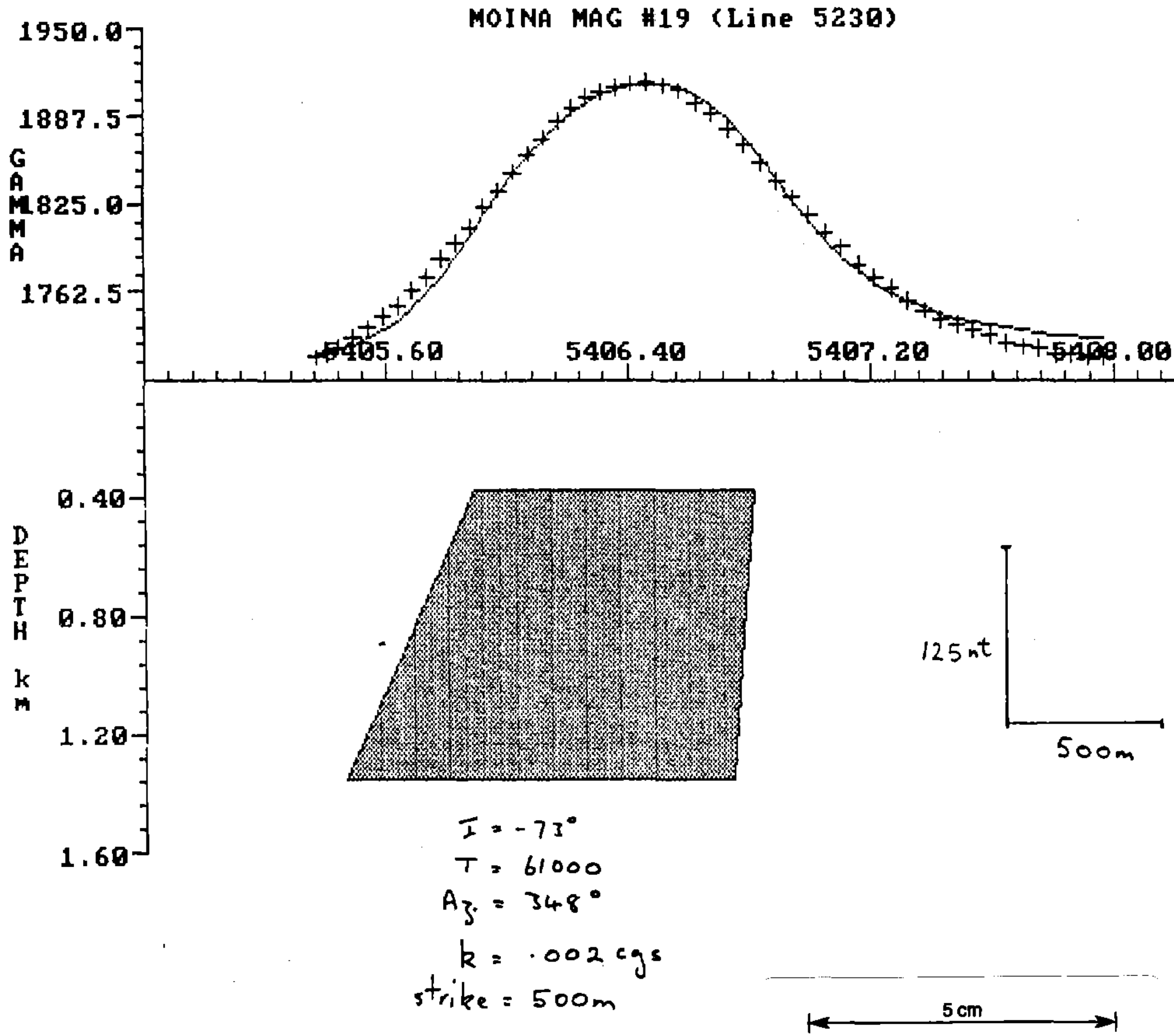
Lake Lea Anomal
#14
Figure 16.

449077



449078

Lake Lea Anoma
18
Figure 17.



Lake Lea Anoma

#19

Figure 18.

APPENDIX 4

Log Descriptions - SD007 to SD021

R.G.C. Exploration Pty Ltd
STORMONT

DIAMOND DRILLHOLE : SD007

PROJECT IDEN : STORMONT
COLLAR NORTHING: 5800.00
DRILLED BY :SHARP

START DATE : 28 FEB 90
COLLAR EASTING : 9000.00
TOTAL LENGTH : 50.00

COMPLETION DATE : 2 MAR 90
COLLAR ELEVATION: 649.00
CORE/HOLE SIZE : NQ

LOGGED BY:CARLOS H. CASTRO
GRID AZIMUTH : 0.00

	- Interval - From (m)	To (m)	Rec. (m)	RQD (m)	Description	Formation
	0.0	6.0			NO CORE RECOVERED.	
	6.0	11.0			BASALT: dark gray.	TERTIARY
	11.0	26.8			TERTIARY CLAY: very dark gray, 10 % shaley fragments, massive, 1.00 % pyrite euhedral crystals.	TERTIARY
R	11.0	26.8			POSSIBLY POORLY CONSOLIDATED TERTIARY SEDIMENTS PRESERVED BY	
R	11.0	26.8			THE BASALT FLOW CAP.	
					11.00- 14.00: 100 % TERTIARY CLAY: light tan.	
					14.00- 14.50: 100 % TERTIARY CLAY: darkest gray.	
					14.50- 17.00: 100 % TERTIARY CLAY: pale gray.	
	26.8	41.9			SKARN: light green, diopside, garnet, epidote, blotchy, 5 % carbonate interstitial, 20 % garnet coarse grained, 70 % diopside pervasive, 2.5 % actinolite slugs, 5 % epidote boxwork.	
R	26.8	41.9			CALCITE OCCURS WITH THE GARNET AGGREGATES AS AN INFILL BETWEEN	
R	26.8	41.9			GARNET CRYSTALS.	
					29.45- 31.15: 100 % SKARN: diopside, epidote, 90 % diopside pervasive, 2.5 % actinolite slugs, 10 % epidote boxwork.	
					31.70- 33.60: 100 % SKARN: diopside, epidote, garnet, 2.5 % garnet coarse grained, 90 % diopside pervasive, 5 % actinolite slugs, 5 % epidote boxwork.	
					33.60- 36.70: 100 % SKARN: diopside, garnet, 10 % carbonate interstitial, 30 % garnet coarse grained, 60 % diopside pervasive, 2.5 % epidote slugs.	
					36.70- 38.05: 100 % SKARN: diopside, epidote, actinolite, 5 % garnet coarse grained, 80 % diopside pervasive, 5 % actinolite veinlets, 10 % epidote veinlets.	
R	38.0	38.6			ROCK APPEARS TO DISPLAY A FRAGMENTAL TEXTURE DEFINED BY A WHITE	
R	38.0	38.6			CALC-SILICATE MINERAL.	
					38.05- 38.65: 100 % SKARN: diopside, actinolite, garnet, massive, fragmental, 1.00 % garnet wisps, 60 % diopside pervasive, 20 % actinolite patches, 10 % epidote blebs.	
					38.65- 41.95: 100 % SKARN: diopside, actinolite, garnet, massive, 5 % magnetite microveins, 20 % garnet patches, 60 % diopside pervasive, 10 % actinolite patches, 10 % epidote microveins.	

449081

R.G.C. Exploration Pty Ltd
STORMONT
DIAMOND DRILLHOLE : SD007 (CONTINUED)

	- Interval - From (m)	To (m)	Rec. (m)	RQD (m)	Description	Formation
	41.9	50.0			INTERBEDDED SANDSTONE AND SHALE.	ORDOVICIAN
R	41.9	42.2			METASEDIMENT SHOWS FINE-SCALE, DISTORTED BANDING DEFINED BY	
R	41.9	42.2			PINK AND WHITE MINERALS (K-FELD? + CALC-SILICATE).	
					41.95- 42.25: 100 % METASEDIMENT: banded, distorted, 40 % diopside pervasive, 20 % actinolite patches.	
					42.25- 43.91: 100 % SANDSTONE: banded, 80 % quartz pervasive, 2.5 % pyrite disseminations.	
					43.91- 44.70: 100 % SHALE: banded.	
					44.70- 47.24: 100 % SANDSTONE: massive, 80 % quartz pervasive, 2.5 % pyrite clots.	
R	47.2	50.0			UNIT CONTAINS THIN SANDY INTERBEDS WHICH HOST MOST OF THE	
R	47.2	50.0			PYRITE.	
					47.24- 50.00: 100 % SHALE: banded, 2.5 % pyrite disseminations.	

R.G.C. Exploration Pty Ltd
STORMONT

DIAMOND DRILLHOLE : SD008

PROJECT IDEN : STORMONT
COLLAR NORTHING: 5800.00
DRILLED BY :SHARP

START DATE : 6 MAR 90
COLLAR EASTING : 8975.00
TOTAL LENGTH : 55.00

COMPLETION DATE : 9 MAR 90
COLLAR ELEVATION: 649.00
CORE/HOLE SIZE : H,NQ

LOGGED BY:SCOTT HALLEY
GRID AZIMUTH : 0.00

	Interval From (m)	Interval To (m)	Rec. (m)	RQD (m)	Description	Formation
	0.0	6.0			NO CORE RECOVERED.	
	6.0	10.0			BASALT.	TERTIARY
	10.0	28.0			TERTIARY CLAY: very dark gray, 10 % shaley fragments, 0.30 % pyrite euhedral crystals.	TERTIARY
R	10.0	28.0			UNCONSOLIDATED TERTIARY SEDIMENTS PRESERVED BY BASALT CAPPING. 10.00- 15.50: 100 % TERTIARY CLAY: pale orange, 40 % sand.	
	28.0	46.4			SKARN: medium green, diopside, garnet, actinolite. 28.05- 29.44: 100 % SKARN: diopside, actinolite, magnetite, 10 % carbonate interstitial, 5 % magnetite bands, 10 % garnet clots, 60 % diopside pervasive, 10 % actinolite pervasive, 2.5 % epidote patches.	
R	29.4	37.3			BANDING PROBABLY REFLECTS ORIGINAL BEDDING IN LIMESTONE. 29.44- 37.35: 100 % SKARN: diopside, actinolite, epidote, indistinct banding, 5 % carbonate veinlets, 2.5 % magnetite selvedges, 5 % garnet clots, 60 % diopside pervasive, 5 % actinolite veinlets, 10 % actinolite bands, 10 % epidote bands.	
R	33.0	36.1			VEINS ARE LATE-STAGE GREISEN VEINS. 33.00- 33.70: 100 % SKARN: vein: angle to core axis is zero to c.a., 30 % carbonate veinlets, 30 % magnetite selvedges, 30 % actinolite selvedges, 10 % epidote veinlets. 35.50- 36.10: 100 % SKARN: vein: angle to core axis is zero to c.a., 20 % carbonate veinlets, 10 % magnetite selvedges, 70 % actinolite veinlets. 37.35- 40.15: 100 % SKARN: garnet, diopside, actinolite, blotchy, 5 % carbonate interstitial, 60 % garnet clots, 30 % diopside pervasive, 2.5 % actinolite patches, 1.00 % epidote patches.	
R	40.1	46.4			ABUNDANT GREISEN VEINS AT HIGH ANGLE TO CORE AXIS CONTAINING	
R	40.1	46.4			MUSCOVITE, FLUORITE AND PYRITE WITH SELVEDGES OF ACTINOLITE AND	
R	40.1	46.4			MAGNETITE.	
R	40.1	46.4			THIS INTERVAL CONTAINS WELL DEVELOPED RETROGRADE ASSEMBLAGES. 40.15- 46.40: 100 % SKARN: actinolite, epidote, magnetite, 10 % magnetite selvedges, 1.00 % pyrite veinlets, 10 % garnet clots, 20 % diopside pervasive, 5 % green mica patches, 1.00 %	

R.G.C. Exploration Pty Ltd
STORMONT
DIAMOND DRILLHOLE : SD008 (CONTINUED)

- Interval - From (m)	To (m)	Rec. (m)	RQD (m)	Description	Formation
				fluorite veinlets, 1.00 % muscovite veinlets, 30 % actinolite pervasive, 10 % epidote pervasive.	
46.4	49.7			SANDSTONE: light gray, bedded, 3 fractures/metre, bedding: at 85 degrees to core axis to c.a., 1.00 % pyrite veinlets, 1.00 % fluorite veinlets, 1.00 % muscovite veinlets.	ORDOVICIAN
49.7	55.0			SILTSTONE: green gray, 20 % sandstone, bedded, bioturbated, 2 fractures/metre, bedding: at 85 degrees to core axis to c.a., 1.00 % pyrite veinlets, 1.00 % fluorite veinlets, 1.00 % muscovite veinlets.	ORDOVICIAN

449084

R.G.C. Exploration Pty Ltd
STORMONT

DIAMOND DRILLHOLE : SD009

PROJECT IDEN : STORMONT
COLLAR NORTHING: 5800.00
DRILLED BY :SHARP
START DATE : 9 MAR 90
COLLAR EASTING : 8950.00
TOTAL LENGTH : 46.80
COMPLETION DATE : 12 MAR 90
COLLAR ELEVATION: 648.00
CORE/HOLE SIZE : H,NQ
LOGGED BY:SCOTT HALLEY
GRID AZIMUTH : 0.00

	Interval From (m)	To (m)	Rec. (m)	RQD (m)	Description	Formation
	0.0	2.0			NO CORE RECOVERED.	
	2.0	6.3			BASALT: 6 fractures/metre.	TERTIARY
	6.3	17.2			TERTIARY CLAY: very dark gray, 5 % shaley fragments, 1.00 % pyrite euhedral crystals.	TERTIARY
R	6.3	17.2			A TRANSITION FROM CLAY TO SOFT SILTSTONE OCCURS AT	
R	6.3	17.2			APPROXIMATELY 9.4m.	
	17.2	42.4			SKARN: diopside, actinolite, garnet. 17.25- 21.10: 100 % SKARN: medium green, diopside, actinolite, epidote, 0.30 % carbonate veinlets, 80 % diopside pervasive, 0.30 % actinolite veinlets, 10 % actinolite pervasive, 10 % epidote clots. 17.25- 18.70: 100 % SKARN: 6 fractures/metre.	
R	21.1	23.2			banding possibly reflects original bedding with garnet	
R	21.1	23.2			preferentially replacing some horizons. 21.10- 23.25: 100 % SKARN: diopside, garnet, banded, banding: at 45 degrees to core axis to c.a., 40 % garnet layers, 50 % diopside layers, 10 % actinolite layers. 23.25- 26.40: 100 % SKARN: diopside, actinolite, epidote, 5 % magnetite patches, 5 % garnet clots, 70 % diopside pervasive, 10 % actinolite patches, 10 % epidote patches. 26.40- 38.65: 100 % SKARN: light tan, diopside, garnet, actinolite, boxwork, 30 % garnet clots, 60 % diopside pervasive.	
R	33.0	35.7			INTERVAL CONTAINS CLASTS OF QUARTZ, AND DISPLAYS A FRAGMENTAL	
R	33.0	35.7			TEXTURE, POSSIBLY A FAULT ZONE. 33.05- 35.70: 100 % SKARN: 2.5 % pyrite euhedral crystals, 2.5 % epidote veinlets.	
R	35.7	42.4			ABUNDANT SMALL GREISEN VEINS CONTAINING FLUORITE AND MAGNETITE. 38.65- 42.40: 100 % SKARN: dark green, actinolite, magnetite, 5 % carbonate patches, 5 % magnetite disseminations, 5 % magnetite veinlets, 20 % green mica pervasive, 50 % actinolite pervasive.	
	42.4	46.8			SANDSTONE: light gray, 30 % siltstone, bedded, bedding: at 60 degrees to core axis to c.a., 0.10 % pyrite disseminations,	ORDOVICIAN

R.G.C. Exploration Pty Ltd
STORMONT
DIAMOND DRILLHOLE : SD009 (CONTINUED)

- Interval - From (m)	To (m)	Rec. (m)	RQD (m)	Description	Formation
				1.00 % pyrite veinlets, 1.00 % chlorite veinlets.	

449086

R.G.C. Exploration Pty Ltd
STORMONT

DIAMOND DRILLHOLE : SD010

PROJECT IDEN : STORMONT
COLLAR NORTHING: 5800.00
DRILLED BY :SHARP

START DATE : 13 MAR 90
COLLAR EASTING : 9025.00
TOTAL LENGTH : 47.50

COMPLETION DATE : 15 MAR 90
COLLAR ELEVATION: 650.00
CORE/HOLE SIZE : H,NQ

LOGGED BY:SCOTT HALLEY
GRID AZIMUTH : 0.00

	- Interval - From (m)	To (m)	Rec. (m)	RQD (m)	Description	Formation
	0.0	7.0			BASALT.	TERTIARY
	7.0	8.6			TERTIARY CLAY: pale brown.	TERTIARY
	8.6	14.6			UNKNOWN/UNCERTAIN ROCK TYPE: pale green.	
R	8.6	14.6			POSSIBLY A HIGHLY WEATHERED PYROXENE SKARN. 10.60- 13.40: 100 % UNKNOWN/UNCERTAIN ROCK TYPE: medium orange, 8 fractures/metre.	
	14.6	21.0			WEATHERED SKARN: medium orange.	
R	14.6	19.8			INTERVAL CONTAINS WEATHERED SKARN WITH RELICT COARSE GARNETS. 14.60- 19.80: 100 % WEATHERED SKARN: garnet.	
R	19.8	21.0			TEXTURES SUGGEST THE ROCK IS A WEATHERED RETROGRADE SKARN. 19.80- 21.00: 100 % WEATHERED SKARN: magnetite, wrigglite.	
	21.0	43.8			SKARN: medium green, diopside, garnet, epidote. 21.00- 25.35: 100 % SKARN: medium green, diopside, garnet, 0.03 % biotite blebs, 5 % carbonate interstitial, 20 % garnet clots, 70 % diopside pervasive. 25.35- 26.55: 100 % SKARN: medium green, diopside, actinolite, epidote, 5 % garnet disseminations, 70 % diopside pervasive, 20 % actinolite patches, 5 % epidote patches. 26.55- 28.20: 100 % SKARN: medium dark green, diopside, garnet, actinolite, banded, 10 % magnetite interstitial, 10 % garnet clots, 40 % diopside pervasive, 30 % actinolite pervasive, 5 % epidote patches. 28.20- 31.75: 100 % SKARN: dark green, actinolite, diopside, magnetite, 4 fractures/metre, 10 % magnetite disseminations, 5 % garnet disseminations, 30 % diopside pervasive, 50 % actinolite pervasive, 2.5 % epidote patches. 31.75- 33.90: 100 % SKARN: medium green, diopside, garnet, blotchy, 2.5 % magnetite selvedges, 50 % garnet clots, 50 % diopside pervasive. 33.90- 37.70: 100 % SKARN: medium dark green, garnet, actinolite, magnetite, blotchy, 0.30 % biotite veinlets, 1.00 % carbonate veinlets, 5 % magnetite disseminations, 0.10 % pyrite veinlets, 50 % garnet bands, 10 % diopside pervasive, 5 % magnetite selvedges, 20 % actinolite pervasive, 1.00 %	

44908

R.G.C. Exploration Pty Ltd
STORMONT
DIAMOND DRILLHOLE : SD010 (CONTINUED)

- Interval - From (m)	To (m)	Rec. (m)	RQD (m)	Description	Formation
				epidote veinlets. 37.70- 41.90: 100 % SKARN: light green, diopside, garnet, blotchy, 4 fractures/metre, 50 % garnet clots, 50 % diopside pervasive, 2.5 % epidote pervasive. 39.40- 40.50: 100 % FAULT: 8 fractures/metre. 41.90- 43.80: 100 % SKARN: light green, epidote, actinolite, 2.5 % carbonate veinlets, 5 % garnet patches, 10 % diopside patches, 10 % green mica patches, 20 % actinolite pervasive, 50 % epidote pervasive.	
43.8	47.5			SANDSTONE: 10 % siltstone, 4 fractures/metre.	ORDOVICIAN

443088

R.G.C. Exploration Pty Ltd
STORMONT

DIAMOND DRILLHOLE : SD011

PROJECT IDEN : STORMONT
COLLAR NORTHING: 5800.00
DRILLED BY :SHARP

START DATE : 16 MAR 90
COLLAR EASTING : 9050.00
TOTAL LENGTH : 41.50

COMPLETION DATE : 19 MAR 90
COLLAR ELEVATION: 651.00
CORE/HOLE SIZE : H,NQ

LOGGED BY:CARLOS H. CASTRO
GRID AZIMUTH : 0.00

	- Interval From (m)	- To (m)	Rec. (m)	RQD (m)	Description	Formation
	0.0	2.0			NO CORE RECOVERED.	
	2.0	3.3			BASALT.	TERTIARY
	3.3	16.4			SANDSTONE: green gray, bioturbated, 6 fractures/metre.	ORDOVICIAN
R	3.3	10.0			SANDSTONE IS HIGHLY WEATHERED, AND IS STRONGLY IRON STAINED. 3.30- 10.00: 100 % SANDSTONE: light brown, 8 fractures/metre. 14.70- 15.30: 100 % QUARTZ VEIN: 5 % green mica fracture infillings.	
	16.4	36.4			SKARN: diopside, garnet, actinolite. 16.40- 20.10: 100 % SKARN: diopside, actinolite, magnetite, massive, 5 % magnetite patches, 40 % diopside pervasive, 40 % actinolite pervasive, 2.5 % epidote patches.	
R	19.8	20.1			a pink siliceous band with a diffuse uipper contact and sharp	
R	19.8	20.1			basal contact separates the diopside-magnetite skarn from	
R	19.8	20.1			stratigraphically lower garnet skarn. This layer probably	
R	19.8	20.1			represents an interbedded sandy horizon. 20.10- 21.30: 100 % SKARN: garnet, diopside, actinolite, spotted, banded, banding: at 60 degrees to core axis to c.a., 2.5 % carbonate patches, 30 % garnet clots, 30 % diopside pervasive, 20 % actinolite pervasive, 5 % epidote microveins. 21.30- 22.75: 100 % SKARN: diopside, actinolite, epidote, 2.5 % carbonate patches, 1.00 % garnet clots, 40 % diopside pervasive, 40 % actinolite patches, 10 % epidote patches.	
R	22.7	34.8			numerous small microfaults offset the greisen veins by 2-3cm at	
R	22.7	34.8			0-5 degrees to core axis. 22.75- 34.80: 100 % SKARN: garnet, diopside, mottled, banded, vein: at 60 degrees to core axis to c.a., banding: at 50 degrees to core axis to c.a., 2.5 % carbonate patches, 2.5 % magnetite microveins, 40 % garnet clots, 30 % diopside pervasive, 1.00 % fluorite microveins, 20 % actinolite patches. 34.80- 36.40: 100 % SKARN: actinolite, magnetite, epidote, veined, vein: at 45 degrees to core axis to c.a., 20 % magnetite microveins, 1.00 % pyrite blebs, 2.5 % garnet fresh, primary rock, 0.03 % chalcopyrite blebs, 1.00 % fluorite microveins, 40 % actinolite pervasive, 20 % epidote patches.	

449089

R.G.C. Exploration Pty Ltd
STORMONT
DIAMOND DRILLHOLE : SD011 (CONTINUED)

- Interval - From (m)	To (m)	Rec. (m)	RQD (m)	Description	Formation
36.4	41.5			SANDSTONE: medium gray, 6 fractures/metre, 0.10 % pyrite euhedral crystals.	ORDOVICIAN

INTERNATIONAL GEOSYSTEMS CORPORATION

PAGE: 1 DATE: 6 AUG 90

R.G.C. Exploration Pty Ltd
STORMONT

DIAMOND DRILLHOLE : SD012

PROJECT IDEN : STORMONT
COLLAR NORTHING: 5800.00
DRILLED BY :SHARP

START DATE : 19 MAR 90
COLLAR EASTING : 9075.00
TOTAL LENGTH : 41.00

COMPLETION DATE : 22 MAR 90
COLLAR ELEVATION: 652.00
CORE/HOLE SIZE : H,NQ

LOGGED BY:CARLOS H. CASTRO
GRID AZIMUTH : 0.00

- Interval - From (m)	To (m)	Rec. (m)	RQD (m)	Description	Formation
0.0	5.5			NO CORE RECOVERED.	
5.5	41.5			SANDSTONE. 5.50- 15.60: 100 % SANDSTONE: orange-brown, bioturbated, 5 fractures/metre, 1.00 % limonite fracture infillings. 13.50- 14.60: 100 % QUARTZ VEIN: 5 fractures/metre. 15.60- 24.00: 100 % SANDSTONE: medium gray, bedded, 4 fractures/metre, bedding: at 90 degrees to core axis to c.a., 0.30 % pyrite disseminations. 24.00- 27.10: 100 % SANDSTONE: green gray, bioturbated, 5 fractures/metre, 2.5 % pyrite patches. 27.10- 41.00: 100 % METASEDIMENT: green gray, bedded, bedding: at 75 degrees to core axis to c.a., 0.30 % magnetite pervasive, 2.5 % pyrite disseminations, 1.00 % pyrite clasts, 5 % pyrrhotite pervasive, 1.00 % actinolite pervasive.	ORDOVICIAN

R.G.C. Exploration Pty Ltd
STORMONT

DIAMOND DRILLHOLE : SD013

PROJECT IDEN : STORMONT
COLLAR NORTHING: 5800.00
DRILLED BY :SHARP

START DATE : 21 MAR 90
COLLAR EASTING : 9175.00
TOTAL LENGTH : 33.00

COMPLETION DATE : 25 MAR 90
COLLAR ELEVATION: 657.00
CORE/HOLE SIZE : H,NQ

LOGGED BY:CARLOS H. CASTRO
GRID AZIMUTH : 0.00

	- Interval - From (m)	To (m)	Rec. (m)	RQD (m)	Description	Formation
	0.0	2.5			NO CORE RECOVERED.	
	2.5	14.3			BASALT.	TERTIARY
	14.3	15.5			TERTIARY CLAY: light orange.	TERTIARY
	15.5	20.8			TERTIARY CONGLOMERATE: 20 % silica pervasive, 5 % limonite patches.	TERTIARY
R	17.3	18.5			LARGE (1.2M) CAVITY ENCOUNTERED WITHIN BLOCKS OF CONGLOMERATE.	
	20.8	21.8			TERTIARY CLAY: dark gray, 0.10 % pyrite disseminations.	TERTIARY
	21.8	28.8			SKARN: diopside, garnet. 21.80- 24.40: 100 % SKARN: diopside, garnet, magnetite, wrigglite, banded, banding: at 80 degrees to core axis to c.a., 0.03 % biotite veinlets, 10 % magnetite bands, 0.10 % pyrite veinlets, 20 % garnet clots, 50 % diopside pervasive, 5 % magnetite microveins, 1.00 % fluorite veinlets, 2.5 % fluorite interstitial, 5 % actinolite patches, 10 % epidote patches. 21.80- 24.40: 30 % WRIGGLITE SKARN: magnetite, garnet, actinolite, 30 % magnetite bands, 30 % garnet bands, 10 % diopside bands, 5 % fluorite interstitial, 20 % actinolite bands. 24.40- 25.60: 100 % SKARN: diopside, massive, 2.5 % magnetite microveins, 60 % diopside pervasive, 0.30 % chlorite microveins, 40 % epidote pervasive. 25.60- 27.80: 100 % SKARN: garnet, diopside, actinolite, banded, banding: at 80 degrees to core axis to c.a., 1.00 % magnetite microveins, 30 % garnet clots, 40 % diopside pervasive, 1.00 % fluorite microveins, 10 % actinolite patches, 10 % epidote patches. 27.80- 28.80: 100 % SKARN: diopside, actinolite, epidote, massive, 1.00 % magnetite microveins, 50 % diopside pervasive, 30 % actinolite patches, 10 % epidote patches.	
	28.8	33.0			SANDSTONE: green gray, 8 fractures/metre, 0.10 % pyrite disseminations.	ORDOVICIAN

449092

R.G.C. Exploration Pty Ltd
STORMONT
DIAMOND DRILLHOLE : SD013 (CONTINUED)

	- Interval - From (m)	To (m)	Rec. (m)	RQD (m)	Description	Formation
R	28.8	29.5			IMMEDIATELY UNDER BASAL SKARN CONTACT IS WEAKLY OXIDISED AND	
R	28.8	29.5			VEINED BY BARREN MILKY QUARTZ VEINS.	

449093

R.G.C. Exploration Pty Ltd
STORMONT

DIAMOND DRILLHOLE : SD014

PROJECT IDEN : STORMONT
COLLAR NORTHING: 5800.00
DRILLED BY :SHARP

START DATE : 26 MAR 90
COLLAR EASTING : 9200.00
TOTAL LENGTH : 33.00

COMPLETION DATE : 29 MAR 90
COLLAR ELEVATION: 660.00
CORE/HOLE SIZE : H,NQ

LOGGED BY:SCOTT HALLEY
GRID AZIMUTH : 0.00

	- Interval From (m)	- To (m)	Rec. (m)	RQD (m)	Description	Formation
	0.0	3.0			NO CORE RECOVERED.	
	3.0	18.5			BASALT. 3.00- 11.50: 100 % TERTIARY CLAY.	TERTIARY
	18.5	19.8			TERTIARY CONGLOMERATE: very pale gray.	TERTIARY
	19.8	21.5			SANDSTONE: light orange.	TERTIARY
	21.5	23.7			NO CORE RECOVERED.	
R	21.5	23.7			PROBABLY UNCONSOLIDATED TERTIARY SAND.	
	23.7	26.7			TERTIARY GRAVELS.	TERTIARY
R	23.7	26.7			UNCONSOLIDATED TERTIARY GRAVELS WITH CLASTS OF VEIN QUARTZ.	
	26.7	32.2			SKARN: medium green, actinolite, garnet, magnetite.	
R	26.7	27.8			WRIGGLITE OVERPRINTED BY MASSIVE ACTINOLITE-EPIDOTE. 26.70- 27.80: 100 % SKARN: dark green, actinolite, magnetite, garnet, wrigglite, banded, 20 % magnetite bands, 10 % garnet clots, 2.5 % fluorite patches, 40 % actinolite pervasive, 10 % epidote patches. 26.70- 27.80: 100 % WRIGGLITE SKARN: magnetite, garnet, actinolite, 40 % magnetite bands, 20 % garnet crystals, 5 % fluorite crystals, 20 % actinolite crystals, 10 % epidote bands.	
R	27.8	28.8			REPLACEMENT OF AN IMPURE LIMESTONE 27.80- 28.80: 100 % SKARN: light green, epidote, actinolite, 5 % actinolite patches, 30 % epidote pervasive. 28.80- 29.20: 100 % SKARN: medium green, epidote, actinolite, magnetite, banded, banding: at 80 degrees to core axis to c.a., 10 % magnetite bands, 5 % garnet clots, 20 % actinolite bands, 50 % epidote bands. 29.20- 31.00: 100 % SKARN: light green, garnet, actinolite, epidote, banded, banding: at 80 degrees to core axis to c.a., 0.10 % pyrite veinlets, 20 % garnet clots, 0.30 % fluorite veinlets, 10 % actinolite clots, 10 % epidote patches. 31.00- 32.20: 100 % SKARN: light green, epidote, actinolite, 0.10 % pyrite veinlets, 5 % actinolite pervasive, 10 % epidote	

443094

R.G.C. Exploration Pty Ltd
STORMONT

DIAMOND DRILLHOLE : SD015

PROJECT IDEN : STORMONT
COLLAR NORTHING: 5800.00
DRILLED BY : SHARP

START DATE : 30 MAR 90
COLLAR EASTING : 9225.00
TOTAL LENGTH : 38.00

COMPLETION DATE : 31 MAR 90
COLLAR ELEVATION: 664.00
CORE/HOLE SIZE : H,NQ

LOGGED BY: SCOTT HALLEY
GRID AZIMUTH : 0.00

	- Interval - From (m)	To (m)	Rec. (m)	RQD (m)	Description	Formation
	0.0	3.5			NO CORE RECOVERED.	
	3.5	6.6			BASALT.	TERTIARY
	6.6	16.0			NO CORE RECOVERED.	
	16.0	18.0			BASALT.	TERTIARY
	18.0	20.1			TERTIARY CLAY: pale gray.	TERTIARY
	20.1	20.6			TERTIARY CONGLOMERATE: very pale gray.	TERTIARY
	20.6	21.5			SANDSTONE: pale orange.	TERTIARY
	21.5	23.0			NO CORE RECOVERED.	
R	21.5	23.0			probably unconsolidated sand	
	23.0	23.6			TERTIARY GRAVELS.	TERTIARY
	23.6	25.5			SHALE: medium gray.	TERTIARY
	25.5	34.7			SKARN: medium dark green, actinolite, magnetite, epidote.	
R	25.5	26.8			garnet-magnetite wrigglite overprinted by epidote.	
					25.50- 26.85: 100 % SKARN: light brown, garnet, magnetite, epidote, wrigglite, 20 % magnetite bands, 70 % garnet bands, 5 % fluorite interstitial, 10 % epidote patches.	
R	26.8	31.5			wrigglite crosscut by massive actinolite bands, epidote later	
R	26.8	31.5			still.	
					26.85- 31.55: 100 % SKARN: medium dark green, actinolite, magnetite, epidote, banded, wrigglite, banding: at 80 degrees to core axis to c.a., 20 % magnetite bands, 10 % pyrite veinlets, 5 % garnet bands, 0.03 % chalcopyrite veinlets, 5 % fluorite interstitial, 1.00 % fluorite veinlets, 60 % actinolite bands, 10 % epidote bands.	
					26.85- 31.55: 100 % WRIGGLITE SKARN: 30 % magnetite bands, 10 % fluorite interstitial, 60 % actinolite bands.	
					31.55- 33.20: 100 % SKARN: medium green, actinolite, garnet, epidote, banded, wrigglite, 5 % magnetite selvedges, 1.00 %	

449095

R.G.C. Exploration Pty Ltd
STORMONT
DIAMOND DRILLHOLE : SD015 (CONTINUED)

	- Interval - From (m)	To (m)	Rec. (m)	RQD (m)	Description	Formation
					pyrite veinlets, 10 % garnet clots, 1.00 % fluorite veinlets, 0.10 % muscovite selvedges, 50 % actinolite pervasive, 10 % epidote patches. 32.26- 32.33: 100 % WRIGGLITE SKARN: 30 % magnetite bands, 2.5 % pyrite crystals, 5 % fluorite interstitial, 60 % actinolite bands. 33.20- 34.70: 100 % SKARN: light green, epidote, actinolite, magnetite, 2.5 % magnetite selvedges, 5 % epidote veinlets, 5 % actinolite patches, 30 % epidote pervasive.	
R	33.4	34.7			skarn replacement of impure limestone with a siciliclastic	
R	33.4	34.7			component.	
	34.7	38.0			SANDSTONE: pale gray, 4 fractures/metre, 0.30 % pyrite fracture infillings.	ORDOVICIAN

R.G.C. Exploration Pty Ltd
STORMONT

DIAMOND DRILLHOLE : SD016

PROJECT IDEN : STORMONT
COLLAR NORTHING: 5800.00
DRILLED BY :SHARP

START DATE : 2 APR 90
COLLAR EASTING : 9250.00
TOTAL LENGTH : 39.60

COMPLETION DATE : 3 MAR 90
COLLAR ELEVATION: 666.00
CORE/HOLE SIZE : H,NQ

LOGGED BY:SCOTT HALLEY
GRID AZIMUTH : 0.00

	- Interval - From (m)	To (m)	Rec. (m)	RQD (m)	Description	Formation
	0.0	19.5			NO CORE RECOVERED.	
	19.5	20.0			TERTIARY CLAY: medium light orange.	TERTIARY
	20.0	21.3			SANDSTONE: medium light orange, 10 % conglomerate.	TERTIARY
	21.3	25.0			SILTSTONE: dark gray, 10 % conglomerate, 0.30 % pyrite euhedral crystals.	TERTIARY
	25.0	33.7			SKARN: dark green, magnetite, epidote, actinolite.	
R	25.0	26.5			GA-DI SKARN OVERPRINTED BY EPIDOTE, THEN LATER VEINED BY	
R	25.0	26.5			SULPHIDES. 25.00- 26.50: 100 % SKARN: garnet, magnetite, epidote, wrigglite, banded, 20 % magnetite bands, 20 % garnet bands, 10 % diopside pervasive, 50 % epidote bands. 25.00- 26.50: 30 % WRIGGLITE SKARN: 50 % magnetite bands, 50 % garnet bands.	
R	28.6	33.7			ABUNDANT NARROW GREISEN VEINS. 28.60- 31.30: 100 % SKARN: dark green, actinolite, magnetite, epidote, banded, 20 % magnetite bands, 5 % garnet patches, 2.5 % magnetite selvedges, 1.00 % fluorite veinlets, 0.10 % chalcopyrite veinlets, 0.30 % pyrrhotite veinlets, 40 % actinolite pervasive, 20 % epidote patches. 31.30- 33.70: 100 % SKARN: light green, epidote, garnet, magnetite, 40 % siltstone, interbedded, stockwork, 0.10 % biotite veinlets, 5 % magnetite selvedges, 1.00 % pyrite veinlets, 10 % garnet clots, 5 % magnetite bands, 0.10 % chalcopyrite veinlets, 1.00 % fluorite veinlets, 10 % actinolite patches, 20 % epidote pervasive.	

44009?

R.G.C. Exploration Pty Ltd
STORMONT

DIAMOND DRILLHOLE : SD017

PROJECT IDEN : STORMONT
COLLAR NORTHING: 5850.00
DRILLED BY :SHARP

START DATE : 5 APR 90
COLLAR EASTING : 9175.00
TOTAL LENGTH : 33.00

COMPLETION DATE : 6 APR 90
COLLAR ELEVATION: 646.00
CORE/HOLE SIZE : H,NQ

LOGGED BY:CARLOS H. CASTRO
GRID AZIMUTH : 0.00

	Interval From (m)	Interval To (m)	Rec. (m)	RQD (m)	Description	Formation
	0.0	6.0			NO CORE RECOVERED.	
	6.0	12.0			BASALT.	TERTIARY
	12.0	12.5			SANDSTONE.	TERTIARY
	12.5	21.1			TERTIARY CONGLOMERATE.	TERTIARY
	21.1	31.7			SKARN: actinolite, epidote, garnet, 20 % sandstone.	
R	21.1	31.7			SKARN IS UNCONFORMABLY OVERLAIN BY TERTIARY SEDIMENTS, AND HAS	
R	21.1	31.7			A GRADATIONAL BASAL CONTACT WITH MOINA SANDSTONE.	
					21.10- 23.00: 100 % SKARN: actinolite, epidote, garnet, 10 % magnetite bands, 20 % garnet clots, 40 % actinolite pervasive, 20 % epidote patches.	
					23.00- 24.00: 100 % SKARN: epidote, actinolite, magnetite, wrigglite, 20 % magnetite bands, 5 % garnet patches, 20 % actinolite pervasive, 40 % epidote patches.	
					24.00- 26.50: 100 % SKARN: actinolite, magnetite, epidote, wrigglite, 10 % magnetite massive, 0.10 % pyrite veinlets, 2.5 % garnet clots, 20 % magnetite bands, 0.10 % sphalerite fracture infillings, 1.00 % chlorite fracture infillings, 40 % actinolite pervasive, 10 % epidote patches.	
					26.50- 27.00: 100 % SKARN: garnet, magnetite, epidote, banded, 0.30 % quartz fracture infillings, 40 % magnetite bands, 40 % garnet clots, 20 % epidote pervasive.	
R	27.0	31.6			THIS INTERVAL PROBABLY REPRESENTS METASOMATISED IMPURE	
R	27.0	31.6			LIMESTONE.	
					27.00- 31.60: 100 % SKARN: epidote, garnet, 50 % sandstone, 1.00 % magnetite veinlets, 0.10 % pyrite euhedral crystals, 10 % garnet clots, 0.30 % green mica patches, 20 % epidote pervasive.	

44909

R.G.C. Exploration Pty Ltd
STORMONT

DIAMOND DRILLHOLE : SD018

PROJECT IDEN : STORMONT
COLLAR NORTHING: 5850.00
DRILLED BY :SHARP

START DATE : 7 APR 90
COLLAR EASTING : 9225.00
TOTAL LENGTH : 36.00

COMPLETION DATE : 9 APR 90
COLLAR ELEVATION: 650.00
CORE/HOLE SIZE : H,NQ

LOGGED BY:SCOTT HALLEY
GRID AZIMUTH : 0.00

	- Interval From (m)	- To (m)	Rec. (m)	RQD (m)	Description	Formation
	0.0	2.0			NO CORE RECOVERED.	
	2.0	3.0			BASALT.	TERTIARY
	3.0	10.5			NO CORE RECOVERED.	
	10.5	15.0			BASALT.	TERTIARY
	15.0	16.8			SANDSTONE: white.	TERTIARY
	16.8	22.5			SILTSTONE: very dark gray, bedded, 0.30 % pyrite euhedral crystals.	TERTIARY
	22.5	32.0			SKARN: light green, garnet, diopside, magnetite. 22.50- 24.50: 100 % SKARN: light brown, garnet, diopside, magnetite, banded, wrigglite, 10 % magnetite bands, 70 % garnet bands, 20 % diopside bands. 23.40- 23.60: 90 % WRIGGLITE SKARN: garnet, magnetite, wrigglite, 50 % magnetite bands, 50 % garnet bands. 24.50- 26.20: 100 % SKARN: medium green, garnet, diopside, magnetite, 2.5 % carbonate veinlets, 10 % magnetite patches, 0.30 % pyrite veinlets, 30 % garnet clots, 30 % diopside pervasive, 5 % magnetite selvedges, 1.00 % fluorite veinlets, 5 % epidote patches, 2.5 % muscovite selvedges, 10 % actinolite patches, 5 % epidote veinlets.	
R	25.5	32.0			abundant narrow fl-mu-mg greisen veins. 26.20- 32.00: 100 % SKARN: medium green, garnet, diopside, magnetite, 5 % magnetite selvedges, 0.30 % pyrite veinlets, 50 % garnet pervasive, 30 % diopside pervasive, 2.5 % fluorite veinlets, 0.03 % chalcopyrite veinlets, 2.5 % muscovite selvedges, 5 % actinolite patches.	
	32.0	36.0			SANDSTONE: light gray, 2.5 % actinolite bands.	ORDOVICIAN

44099

R.G.C. Exploration Pty Ltd
STORMONT

DIAMOND DRILLHOLE : SD019

PROJECT IDEN : STORMONT
COLLAR NORTHING: 5850.00
DRILLED BY :SHARP

START DATE : 10 APR 90
COLLAR EASTING : 9275.00
TOTAL LENGTH : 30.00

COMPLETION DATE : 17 APR 90
COLLAR ELEVATION: 653.00
CORE/HOLE SIZE : HQ

LOGGED BY:SCOTT HALLEY
GRID AZIMUTH : 0.00

- Interval - From (m)	To (m)	Rec. (m)	RQD (m)	Description	Formation
0.0	4.0			NO CORE RECOVERED.	
4.0	8.0			BASALT.	TERTIARY
8.0	30.0			SANDSTONE. 8.00- 30.00: 100 % SANDSTONE: 90 % quartz macroveins.	

449100

R.G.C. Exploration Pty Ltd
STORMONT

DIAMOND DRILLHOLE : SD020

PROJECT IDEN : STORMONT
COLLAR NORTHING: 5750.00
DRILLED BY :SHARP

START DATE : 18 APR 90
COLLAR EASTING : 8800.00
TOTAL LENGTH : 32.50

COMPLETION DATE : 19 APR 90
COLLAR ELEVATION: 656.00
CORE/HOLE SIZE : HQ

LOGGED BY:SCOTT HALLEY
GRID AZIMUTH : 0.00

	- Interval - From (m)	To (m)	Rec. (m)	RQD (m)	Description	Formation
	0.0	8.2			TERTIARY CONGLOMERATE: very pale gray.	TERTIARY
	8.2	29.7			SKARN: medium dark green, actinolite, 100 % actinolite massive. 15.00- 20.80: 100 % SKARN: medium dark gray, actinolite, magnetite, 50 % siltstone, 5 fractures/metre, 10 % magnetite patches, 40 % actinolite pervasive. 20.80- 22.10: 100 % SKARN: medium dark green, actinolite, 100 % actinolite massive. 22.10- 23.60: 60 % WRIGGLITE SKARN: dark green, actinolite, magnetite, wrigglite, 30 % magnetite bands, 5 % fluorite interstitial, 1.00 % fluorite veinlets, 1.00 % muscovite veinlets, 60 % actinolite bands. 23.60- 26.30: 100 % SKARN: medium dark green, actinolite, epidote, magnetite, 0.03 % biotite veinlets, 5 % magnetite disseminations, 5 % garnet disseminations, 0.30 % muscovite veinlets, 80 % actinolite pervasive, 10 % epidote patches. 26.30- 27.10: 100 % SKARN: dark green, actinolite, epidote, 5 % pyrite euhedral crystals, 80 % actinolite pervasive, 10 % epidote patches. 27.10- 29.70: 100 % SKARN: medium light orange, diopside, garnet, epidote, 1.00 % pyrite euhedral crystals, 20 % garnet clots, 60 % diopside pervasive, 10 % actinolite patches, 10 % epidote patches.	
	29.7	32.5			SANDSTONE: pale gray, 0.30 % pyrite veinlets, 2.5 % muscovite veinlets.	ORDOVICIAN
R	29.7	32.5			GREISEN VEINS ALONG BEDDING FRACTURES.	

4491101

R.G.C. Exploration Pty Ltd
STORMONT

DIAMOND DRILLHOLE : SD021

PROJECT IDEN : STORMONT
COLLAR NORTHING: 5800.00
DRILLED BY :SHARP

START DATE : 20 APR 90
COLLAR EASTING : 8800.00
TOTAL LENGTH : 14.30

COMPLETION DATE : 23 APR 90
COLLAR ELEVATION: 642.00
CORE/HOLE SIZE : H,NQ

LOGGED BY:SCOTT HALLEY
GRID AZIMUTH : 0.00

- Interval - From (m)	To (m)	Rec. (m)	RQD (m)	Description	Formation
0.0	3.0			NO CORE RECOVERED.	
3.0	5.2			SKARN: medium dark green, diopside, garnet, magnetite, 40 % siltstone, 5 % magnetite selvedges, 5 % garnet clots, 30 % diopside pervasive, 1.00 % fluorite veinlets, 5 % actinolite patches. 3.00- 5.20: 100 % SKARN: medium dark green, diopside, garnet, magnetite, 40 % siltstone, 5 % magnetite selvedges, 5 % garnet clots, 30 % diopside pervasive, fluorite 1.00 % veinlets, 5 % actinolite patches.	
5.2	14.3			SILTSTONE: 30 % sandstone, bedded, bioturbated, bedding: at 90 degrees to core axis to c.a.. 5.20- 7.50: 100 % SILTSTONE: 0.01 % biotite veinlets, 1.00 % magnetite selvedges, 0.01 % pyrite veinlets, 0.30 % fluorite veinlets.	ORDOVICIAN

449102

APPENDIX 5

Stormont, Skarn Paragenesis and Mineralization

Stormont, Skarn Paragenesis and Mineralization - S.W. Halley

The Stormont deposit shows a typical skarn paragenesis. It has a primary skarn assemblage of garnet + pyroxene, with variable amounts of interstitial calcite. This has been overprinted by a retrograde assemblage of hydrous minerals, namely actinolite + epidote along with magnetite and minor fluorite. In turn, this stage has been overprinted by late stage veining which contains minor amounts of sulphides.

The primary skarn contains clots of coarse-grained reddish-brown garnet within massive fine-grained olive-green diopside. Short intervals of skarn may be mono-mineralic. In places the skarn exhibits a distinct banding, with bands of garnet contained within massive diopside. This banding may reflect relict bedding although it is not clear whether it is controlled by variations in original composition or permeability within the limestone. Primary skarns commonly show a zonation outwards from the granite contact or fluid feeder, from garnet to pyroxene to marble. However, no such zonation is evident at Stormont.

During the retrograde overprint, diopside was the least stable and most easily altered mineral, being replaced by actinolite with minor calcite. During the early stages of retrograde alteration, garnet + actinolite appears to have been a stable assemblage. The retrograde skarn generally occurs as a massive replacement of the primary skarn by actinolite, epidote and calcite. The retrograde skarn is best developed, although not exclusively, at the base of the skarn unit. In many places, the entire thickness of primary skarn is overprinted.

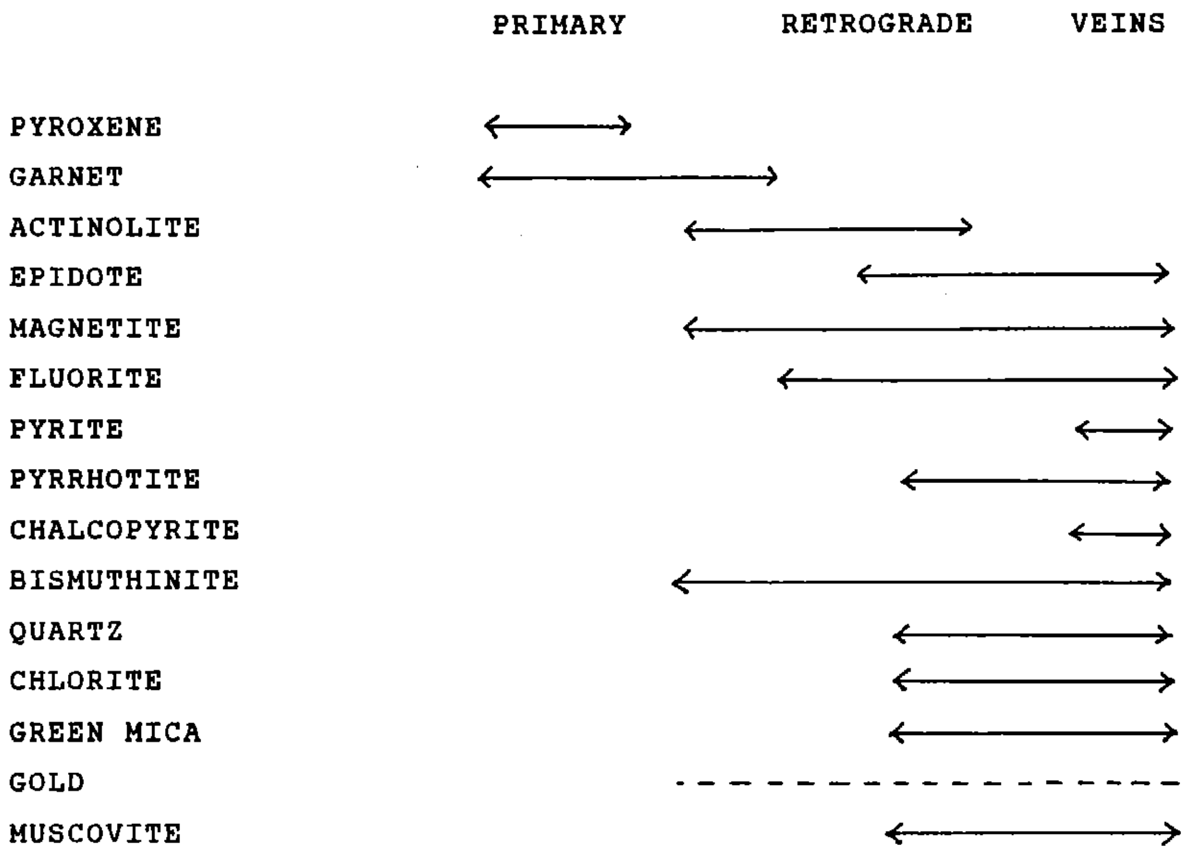
Magnetite shows a very patchy distribution through the retrograde skarn, with contents locally up to 50%. It occurs from spotty disseminations to thick bands. Much of the magnetite occurs in intricately banded wrigglite. Two types of wrigglite occur, a relatively early formed magnetite-garnet wrigglite, and a later magnetite-actinolite wrigglite. Occasionally, fluorite was observed in the magnetite-actinolite wrigglite, but generally it is too fine-grained to detect. Known examples of wrigglite skarns have more than 10% F e.g. Moina, Mt. Bischoff, Mt. Garnet (Qld.), and Lost River (Alaska), and the Stormont wrigglite most probably is also fluorine-rich. Without thin-section work, it is impossible to be sure of its mineralogy, but it may well also contain minerals such as Fe-Mg micas and vesuvianite. The actinolite-magnetite wrigglite is cut by later bands of actinolite or epidote.

Magnetite rich rocks, particularly those with abundant veinlets, commonly show overprinting of actinolite by a later assemblage of quartz + magnetite with chlorite or with green mica. These rocks are difficult to distinguish macroscopically from the actinolite assemblage as both are dark green and fine-grained.

Abundant, late-stage, thin "greisen" veins cross cut the skarn, particularly the retrograde skarn. These veins contain fluorite and quartz, with conspicuous selvedges of coarse-grained muscovite, and have haloes of magnetite in the adjacent wallrock. They also contain minor amounts of pyrite, pyrrhotite, chalcopyrite sphalerite and bismuthinite. Late fractures, without veins, also contain alteration envelopes of magnetite. Epidote + calcite + fluorite veins also occur in places.

Assay results indicate a very good correlation between bismuth and gold. Bismuthinite has three main occurrences. Assays indicate Bi levels of 400 to 1000 ppm Bi in the wrigglites, although it is usually too fine-grained to detect visually. Visible bismuthinite commonly occurs in the late-stage greisen veins. The third and relatively limited occurrence, is in garnet-pyroxene skarn with incipient alteration of pyroxene to actinolite. This is the type of mineralization that occurs in the Stormont Bismuth Mine, where relatively good gold grades are associated with coarse-grained bismuthinite.

RGC EXPLORATION PTY. LIMITED



APPENDIX 6

Brief thin-section descriptions

of the Stormont skarn

RGC EXPLORATION PTY. LIMITED

449108

T17874 SD001 4.79-4.83m.

Handspecimen: Massive rock with a dull olive green colour with pinkish-brown clots of garnet.

Thin section

pyroxene	60%
calcite	20%
garnet	15%
quartz	1%
actinolite	5%

Pyroxene forms an interlocking mosaic, commonly with an elongated bladed form. The pyroxene is commonly corroded and replaced by carbonate around the grain boundaries. The garnets are strongly anisotropic, compositionally zoned and are very irregular in form, being intergrown with pyroxene and carbonate. Cross-cutting veinlets contain calcite, garnets, quartz and bladed actinolite. Coarse actinolite also occurs where there has been extensive replacement of pyroxene by carbonate.

T 17875 SD001 8.80-8.83m

Handspecimen: Massive rock, with mottled yellow-green and dark green.

Thin Section

epidote	40%
actinolite	20%
calcite	35%
quartz	5%

Epidote occurs as coarse euhedral crystals with minor interstitial quartz and calcite. These are the yellow-green areas. The dark green areas contain relicts of epidote but are strongly overprinted by calcite and actinolite in radiating aggregates. The section contains traces of bissmuthinite and other opaques intergrown with the actinolite-calcite.

RGC EXPLORATION PTY. LIMITED

449110

T 17876 SD001 10.15-10.18m

Handspecimen: This rock contains areas of dull olive green and clots of pinkish-brown garnet. It has 2% coarse visible bismuthinite.

Thin Section:

garnet	30%
actinolite	30%
calcite	30%
quartz	5%

The green areas of this rock are composed of very fine shears of actinolite with calcite intimately intergrown with the actinolite needles. There is also a small amount of interstitial quartz. The garnets are coarse, commonly euhedral, isotropic and growth zones. Very coarse blades of actinolite occur with the garnets. The actinolite is set within a matrix of interstitial calcite, quartz and bismuthinite. Fractures within the garnets are infilled by carbonate, quartz and opaques.

T 17877 SD001 23.30-23.33m

Handspecimen: Dark green rock with black bands of magnetite.

Thin Section:

epidote	30%
quartz	20%
carbonate	30%
magnetite	10%
chlorite	10%

Epidote occurs as coarse euhedral grains but the euhedra are dissected and replaced along fractures by quartz or by carbonate + chlorite. This partial replacement commonly leaves relict islands of epidote within a quartz or carbonate matrix. Intergrowths of carbonate and chlorite commonly have a linear needle texture indicating that they have replaced actinolite. Chlorite is very commonly associated with magnetite and again the chlorite textures suggest replacement of actinolite.

T 17878 SD001 24.48-24.51m

Hand specimen: This is a distinctly banded rock with thin dark green bands cutting a medium green coloured rock.

Thin Section:

actinolite	40%
epidote	5%
quartz	1%
magnetite	2%
calcite	50%

The dark green bands are composed of coarse blades of actinolite set in a matrix of interstitial calcite. The mass of the rock is composed of fine-grained sheaves of actinolite set in a matrix of and partly replaced by calcite. Minor interstitial quartz and magnetite also occurs here. Epidote occurs in the coarser-grained bands, dissected and partly replaced by carbonate and quartz.

RGC EXPLORATION PTY. LIMITED

T 17879 SD001 25.36-25.40

Hand specimen: Fine grained, massive, dark green rock with paler, cross-cutting coarse grained bands.

Thin Section:

actinolite	90%
calcite	5%
epidote	5%
apatite	trace

The fine-grained dark green mass of the rock is composed entirely of a mosaic of interlocking blades of pleochroic actinolite. It also contains isolated crystals and aggregates of apatite. The cross-cutting bands contain coarse blades of actinolite and stubby euhedral prisms of epidote enveloped in an interstitial matrix of coarse-grained calcite.

T 17880 SD001 27.45-27.48m

Hand specimen: Spots of pinkish-brown garnet set in a dark green homogeneous matrix.

Thin Section:

actinolite	60%
garnet	30%
calcite	3%
quartz	5%
opaques (magnetite?)	2%

The dark green part of the rock contains a mosaic of actinolite blades and in places has minor interstitial quartz and opaques. The garnets are anisotropic, are commonly twinned and less commonly compositionally zones. The garnet grains are subhedral, with actinolite grains impinging on their outer margins. The garnets contain inclusions of actinolite and calcite.

T 17881 SD001 29.16-29.19m

Hand specimen: Massive dark green rock with some brownish coloured patches, crosscut by conspicuous magnetite lined fractures.

Thin Section:

actinolite	30%
green mica	15%
quartz	40%
carbonate	8%
magnetite	7%

The dark green areas of the rock are composed mainly of actinolite with interstitial quartz. The quartz has flooded the rock and partially replaced the actinolite, as indicated by the abundant inclusions of actinolite in quartz rich areas. In places the actinolite is replaced by carbonate (the brownish coloured areas) and in the strongly silicified areas it may be replaced by green mica, particularly around the quartz veinlets. Magnetite occurs as disseminations and clusters in the wallrocks adjacent to the veinlets.

T 17882 SD003 19.90-19.94

Hand specimen: This is a massive pale dull green rock with fracture linings and flecks of dark green.

Thin Section:

pyroxene	65%
carbonate	15%
actinolite	10%
garnet	10%
quartz	2%

The groundmass of this rock is composed of a mosaic of pyroxene grains. In places the pyroxene is partly replaced by calcite flooding. In other places the pyroxene is intergrown with euhedral anisotropic, growth zones garnet. The dark green specks are coarse grains of actinolite and the fractures are filled with coarse actinolite, garnet carbonate and quartz.

T 17883 SD003 22.83-22.90m

Hand specimen: This is a pale brown coloured rock with dark green bands and fractures.

Thin section:

garnet	60%
actinolite	20%
epidote	5%
carbonate	15%

The pale brown groundmass of this rock is comprised mainly of irregular masses of anisotropic garnet and cloudy irregular masses of carbonate. The texture of the carbonate suggests that it is replacing pyroxene or actinolite. Some relicts of actinolite occur with the carbonate along with coarser grains of fresh actinolite. The dark green portions of the rock contain very coarse matted actinolite and euhedral grains of epidote. The epidote is dissected and partly replaced by calcite. Epidote + calcite tend to occur towards the edges of the green patches, with actinolite in the centre.

T 17884 SD 003 29.95-30.00m

Hand specimen: This is a pale pinkish-brown rock with an irregular dark green band running through it.

Thin Section:

garnet	60%
pyroxene	15%
actinolite	15%
calcite	8%
quartz	2%

The pale brown areas of the rock are composed of intergrowths of very fine-grained garnet and pyroxene. The garnet is anisotropic and sometimes growth zoned. The fine pyroxene grains occur in little clusters. The dark green area is composed of coarse bladed actinolite in a matrix of interstitial calcite. Very coarse, euhedral, growth zoned garnets rim the actinolite patch. Quartz is interstitial to the garnets.

T 17885 SD003 32.32-32.36m

Hand specimen: This is a pale greenish grey rock with dark green specks scattered through it.

Thin Section:

Pyroxene	85%
Actinolite	10%
Quartz	5%
Carbonate	2%

This rock is composed primarily of pyroxene which occurs in coarse reaidating sheaves. Scattered through this are interlocking aggregates of actinolite blades. The quartz is reasonably coarse-grained but is interstitial to the pyroxene. The calcite is also interstitial to pyroxene.

T 17886 SD003 33.64-33.68m

Hand specimen: Dark green rock containing spots and aggregates of pale pinkish-brown garnet.

Thin Section:

Garnet	65%
Actinolite	30%
Carbonate	2%
Magnetite	5%

This rock has a groundmass of fine-grained, euhedral, twinned garnet. It is intergrown with patchy strongly pleochroic green actinolite which in places is dominant. The actinolite has probably replaced pyroxene. Disseminated magnetite occurs with the actinolite. Irregular masses of carbonate occur through the garnet and are possibly replacing it.

T 17887 SD003 36-38-36.44m

Hand specimen: This is a hard dark green rock with abundant disseminated magnetite.

Thin Section:

Quartz	65%
Green Mica	25%
Magnetite	10%
Actinolite	1%

The green mica is quite similar in appearance to actinolite but occur as platelets rather than blades, has weaker pleochroism and slightly more pastel shades of birefringence. There are patches of a darker green, more strongly pleochroic mineral which are probably relicts of actinolite. An irregular mosaic of fine-grained quartz has partially replaced the mica and relict inclusions of mica are scattered through the quartz. Magnetite occurs as disseminated euhedra and clusters are evenly distributed through the section.

T 17888 SD005 29.45-29.50m

Hand specimen: This is a dull olive green rock with spots and clusters of pinkish-brown garnet scattered through it.

Thin Section:

Pyroxene	5%
Actinolite	60%
Garnet	30%
Calcite	5%
Magnetite	1%

The green areas of this rock were originally pyroxene but are now strongly to completely overprinted by actinolite. The completely overprinted areas are highlighted by the deep green pleochroism of the actinolite. In other areas, pyroxene is replaced by murky intergrowths of calcite and actinolite. In some places, the only evidence of the pyroxenes are the pseudomorphs formed predominantly by calcite, with minor actinolite. The garnets are anisotropic, twinned and have prominent zoning. Calcite and actinolite impinge on the margins and prevent the development of euhedral outlines.

T 17889 SD005 34.8-34.85m

Handspecimen: This is a dull olive green rock with fractures filled by coarse yellow-green epidote.

Thin Section:

Actinolite	50%
Epidote	25%
Calcite	25%
Quartz	1%

This is a relatively coarse grained rock with a matrix of actinolite and calcite. These two minerals are intimately intergrown, so that the calcite is never clear, but has fine needles of actinolite through it, imposing its sheaf-like crystal form on the calcite. Coarse euhedral grains of epidote occur throughout the section. Very coarse epidote also fills fractures, along with calcite, actinolite and minor quartz.

RGC EXPLORATION PTY. LIMITED

449124

T 17890 SD 005 40.25-40.30m

Hand specimen: This is a dark green rock with paler green-brown spots and a black selvedge of magnetite adjacent to a fracture.

Thin section:

Actinolite	50%
Calcite	20%
Garnet	10%
Magnetite	5%
Quartz	1%
Epidote	15%

Actinolite occurs throughout the section in intimate matted intergrowths with calcite. Coarse, but irregular grains of epidote occur throughout the section also and these appear to be partially replaced by calcite plus actinolite. The light coloured patches are garnets in various stages of replacement by calcite. Some calcite pseudomorph shapes are reminiscent of pyroxene grains. As well as a thick band of magnetite grains adjacent to a fracture, it occurs as disseminated clusters associated mainly with actinolite.

T 17891 SD 005 41.25-41.30m

Hand specimen: This is a dark greyish-green rock cut by a pink vein with a conspicuous envelope of magnetite in the rock adjacent to the vein.

Thin Section:

	Actinolite	50%
	Epidote	30%
	Quartz	5%
	Magnetite	10%
	Chlorite	5%
<u>vein</u>	feldspar	30%
	quartz	40%
	calcite	20%
	fluorite	5%
	muscovite	2%
	chlorite	2%

The matrix of this rock is composed of a mosaic of irregular actinolite and epidote grains. In places these minerals are partially replaced by quartz. A band of magnetite + chlorite + quartz forms a border to the vein. There is an early quartz vein which has a concentration of muscovite and chlorite along its margins and coarse fluorite filling the centre of the vein. This is cut by a calcite vein and a feldspar vein.

T 17892 SD005 43.35-43.40m

Hand specimen: This is a blotchy dark-green and yellow-green rock cut by a 'greisen" vein.

Thin Section:

	Actinolite	45%
	Epidote	25%
	Quartz	15%
	Magnetite	10%
	Chlorite	5%
vein:	Quartz	50%
	Fluorite	25%
	Sericite	5%
	Green Mica	2%
	Magnetite	10%
	Bismuthinite	2%
	Chlorite	5%

This rock is composed of areas of massive bladed dark green actinolite and areas of yellow-green coarse-grained epidote. Quartz occurs as an interstitial mineral and in places has begun to overprint the actinolite. Magnetite is disseminated through the actinolite patches. Adjacent to the vein, these assemblages are replaced by a band of magnetite + quartz + chlorite. The vein quartz contains abundant inclusions of chlorite, sericite and green mica, particularly near the margins of the vein. It also has bands of magnetite and coarse-grained fluorite. Small lathe-shaped opaque grains are possibly bismuthinite.

RGC EXPLORATION PTY. LIMITED

T 17893 SD006 26.85-26.90

Handspecimen: This is a hard fine-grained dark green rock with obvious patches of yellow-green epidote. It is cut by a quartz veinlet.

Thin section:

	Actinolite	50%
	Green mica	10%
	Chlorite	5%
	Quartz	20%
	Magnetite	5%
	Epidote	10%
vein:	Quartz	60%
	Fluorite	25%
	Muscovite	10%
	Green mica	5%

This rock has a matrix composed of fine-grained actinolite, with disseminated magnetite and interstitial quartz. In places this assemblage has been replaced by quartz and green mica. Alternatively, the dominant sheet silicate may be chlorite. Some patches of relatively coarse quartz and green mica are rimmed by coarse epidote. The vein contains white and green mica, quartz and fluorite.

RGC EXPLORATION PTY. LIMITED

449128

T17894 SD006 27.18-27.21

Hand specimen: This is a pale buff coloured rock with dark green patches and cross cutting fractures.

Thin section:

Garnet	50%
Actinolite	15%
Quartz	15%
Magnetite	5%
Green mica	10%
Epidote	5%
Fluorite	4%
Chlorite	4%
Carbonate	2%

This rock contains abundant coarse-grained growth zoned garnet. Some of the garnet contains prisms of carbonate as inclusions, possibly from the alteration of pyroxene. It also contains inclusions of actinolite. Dark green patches of actinolite associated with magnetite occur through the section. Irregular coarse grains of epidote are found with the actinolite. The actinolite is partly replaced by quartz with green mica or chlorite and rare fluorite.

APPENDIX 7

Core Assay Results - SD007 to SD021

RGC EXPLORATION PTY.LTD.   DATA SHEET

PROJECT: STORMONT   *SD-007*

SAMPLE NUMBER	DEPTHF metres	DEPTHT metres	SN PPM	CU PPM	PB PPM	ZN PPM	AG PPM	BI PPM	AU PPM	AS PPM	W PPM
T 23701	11.0	14.0	20	20	20	170	-0.5	20	0.015	28	-20
T 23702	14.0	14.5	11	25	15	40	-0.5	-10	-0.008	2	-20
T 23703	14.5	17.0	6	25	35	50	-0.5	-10	-0.008	2	-20
T 23704	17.0	18.0	7	25	45	130	-0.5	10	-0.008	38	-20
T 23705	18.0	19.0	10	30	85	155	-0.5	-10	-0.008	15	-20
T 23706	19.0	20.0	8	45	20	130	-0.5	-10	-0.008	2	-20
T 23707	20.0	21.0	5	20	45	95	-0.5	-10	-0.008	2	-20
T 23708	21.0	22.0	8	20	60	410	-0.5	-10	-0.008	10	-20
T 23709	22.0	23.0	8	25	50	195	-0.5	-10	-0.008	23	-20
T 23710	23.0	24.0	3	25	55	260	-0.5	-10	-0.008	14	-20
T 23712	24.0	25.0	6	25	85	230	-0.5	-10	-0.008	9	-20
T 23713	25.0	26.0	13	30	60	120	-0.5	-10	-0.008	12	21
T 23714	26.0	26.8	13	25	105	250	-0.5	-10	-0.008	39	-20
T 23715	26.8	27.8	22	5	15	245	-0.5	-10	-0.008	12	-20
T 23716	27.8	28.8	13	5	10	100	-0.5	-10	0.012	1	-20
T 23717	28.8	29.8	25	5	25	105	-0.5	-10	-0.008	2	-20
T 23718	29.8	30.8	53	5	15	50	-0.5	-10	-0.008	2	-20
T 23719	30.8	31.8	41	5	5	70	-0.5	-10	-0.008	1	-20
T 23720	31.8	32.8	51	5	10	60	-0.5	-10	0.013	1	-20
T 23721	32.8	33.8	106	5	5	100	-0.5	-10	-0.008	2	-20
T 23722	33.8	34.8	35	5	55	55	-0.5	-10	0.010	2	-20
T 23724	34.8	35.8	34	10	-5	60	-0.5	-10	-0.008	3	-20
T 23725	35.8	36.8	85	10	15	80	-0.5	-10	0.010	2	-20
T 23726	36.8	37.8	148	5	10	125	-0.5	-10	-0.008	4	-20
T 23727	37.8	38.8	47	5	10	80	-0.5	50	0.022	4	-20
T 23728	38.8	39.8	157	5	-5	60	-0.5	-10	0.010	3	-20
T 23729	39.8	40.8	82	5	5	50	-0.5	-10	-0.008	4	-20
T 23730	40.8	41.8	17	5	15	85	-0.5	-10	-0.008	3	-20
T 23731	41.8	42.8	20	55	35	95	-0.5	-10	-0.008	10	-20
T 23732	42.8	43.8	21	20	45	120	-0.5	-10	-0.008	6	-20
T 23733	43.8	44.8	63	10	25	50	-0.5	-10	-0.008	4	21

	SN	CU	PB	ZN	AG	BI	AU	AS	W
Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Method :	401	101	101	101	101	101	309	114	401
Det. Limit:	3.000	5.000	5.000	5.000	0.500	10.000	0.008	1.000	20.000

RGC EXPLORATION PTY.LTD. DATA SHEET

PROJECT: STORMONT SD-008

SAMPLE NUMBER	DEPTHF metres	DEPTHT metres	SN PPM	CU PPM	PB PPM	ZN PPM	AG PPM	BI PPM	AU PPM	AS PPM	W PPM
T 23735	15.0	16.0	6	15	35	40	-0.5	-10	-0.008	15	-20
T 23736	61.0	17.0	7	15	15	20	-0.5	-10	-0.008	7	-20
T 23737	17.0	18.0	8	15	15	30	-0.5	-10	-0.008	10	-20
T 23738	18.0	19.0	5	15	40	235	-0.5	-10	-0.008	12	-20
T 23739	19.0	20.0	7	20	55	295	-0.5	-10	-0.008	14	-20
T 23741	20.0	21.5	8	25	100	390	-0.5	-10	-0.008	20	-20
T 23742	21.5	22.5	10	25	85	245	-0.5	-10	-0.008	37	-20
T 23743	22.5	25.0	10	20	55	180	-0.5	-10	-0.008	100	21
T 23744	25.0	26.0	10	25	65	260	-0.5	-10	0.039	21	20
T 23745	26.0	27.0	7	20	55	160	-0.5	-10	-0.008	8	41
T 23746	27.0	28.1	122	140	175	390	2.0	350	0.344	46	55
T 23747	28.1	29.4	72	10	25	205	1.0	200	2.990	35	26
T 23748	29.4	30.4	31	5	-5	100	-0.5	20	0.069	5	-20
T 23749	30.4	31.4	43	5	15	115	-0.5	20	0.024	3	-20
T 23750	31.4	42.4	32	5	-5	140	-0.5	-10	0.037	3	-20
T 23751	32.4	33.4	66	5	45	95	1.5	130	0.276	3	120
T 23752	33.5	34.4	113	5	35	90	1.0	50	0.372	3	36
T 23753	34.4	35.4	85	5	5	70	-0.5	-10	0.018	5	-20
T 23754	35.4	36.4	95	5	5	90	-0.5	-10	0.015	3	-20
T 23755	36.4	37.4	82	5	5	75	-0.5	-10	0.010	3	-20
T 23756	37.4	38.4	56	5	5	60	1.0	-10	0.010	3	-20
T 23757	38.4	39.4	625	5	10	60	1.0	-10	0.012	5	-20
T 23758	39.4	40.4	185	5	-5	60	0.5	-10	-0.008	5	-20
T 23759	40.4	41.2	74	5	-5	85	1.0	70	-0.008	5	-20
T 23761	41.2	42.2	127	30	15	140	0.5	130	-0.008	5	-20
T 23762	42.2	43.2	155	25	30	150	0.5	90	0.010	7	-20
T 23763	43.2	44.2	160	15	10	125	0.5	160	0.010	11	-20
T 23764	44.2	45.2	166	15	35	145	0.5	280	0.009	5	78
T 23765	45.2	46.4	115	45	10	165	0.5	330	-0.008	5	33
T 23766	46.6	47.4	55	10	-5	60	-0.5	30	-0.008	6	-20
T 23767	47.4	48.4	89	10	10	40	-0.5	-10	-0.008	4	-20
T 23768	48.4	49.4	47	15	10	95	-0.5	50	-0.008	8	-20
T 23769	49.4	50.4	45	20	35	175	-0.5	90	0.012	8	23

	SN	CU	PB	ZN	AG	BI	AU	AS	W
Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Method :	401	101	101	101	101	101	309	114	401
Det. Limit:	3.000	5.000	5.000	5.000	0.500	10.000	0.008	1.000	20.000

449131

RGC EXPLORATION PTY.LTD. DATA SHEET

PROJECT: STORMONT SD-009

SAMPLE NUMBER	DEPTHF metres	DEPTHT metres	SN PPM	CU PPM	PB PPM	ZN PPM	AG PPM	BI PPM	AU PPM	AS PPM	W PPM
T 23770	6.3	8.0	11	40	160	150	-0.5	-10	-0.008	38	-20
T 23771	8.0	9.0	10	30	240	140	-0.5	10	-0.008	33	-20
T 23772	9.0	10.0	10	35	395	145	1.0	10	-0.008	38	21
T 23773	10.0	11.0	11	25	110	105	0.5	-10	-0.008	12	26
T 23774	11.0	12.0	8	30	75	245	-0.5	-10	-0.008	26	-20
T 23775	12.0	13.0	7	30	65	150	-0.5	-10	-0.008	80	46
T 23776	13.0	14.0	9	40	80	165	0.5	-10	-0.008	81	45
T 23777	14.0	15.0	12	30	80	210	0.5	-10	-0.008	44	36
T 23778	15.0	16.0	6	25	45	1150	0.5	10	-0.008	9	49
T 23779	16.0	17.3	11	30	50	465	1.0	10	-0.008	15	42
T 23781	17.3	18.7	94	10	30	620	0.5	10	0.103	10	27
T 23782	18.7	20.0	32	10	5	90	0.5	-10	-0.008	1	-20
T 23783	20.0	21.1	36	5	10	75	-0.5	10	-0.008	1	-20
T 23784	21.1	22.1	40	10	15	75	-0.5	10	-0.008	7	-20
T 23785	22.1	23.3	51	10	20	270	0.5	10	0.096	7	-20
T 23786	23.3	24.4	58	10	10	190	-0.5	-10	0.013	5	-20
T 23787	24.4	25.4	60	10	20	120	0.5	-10	0.009	2	-20
T 23788	25.4	26.4	61	5	15	350	-0.5	-10	-0.008	4	-20
T 23789	26.4	27.0	33	10	20	290	-0.5	-10	0.054	2	26
T 23790	27.0	28.0	96	10	50	255	1.0	-10	-0.008	5	39
T 23791	28.0	29.0	90	10	30	145	0.5	10	-0.008	2	43
T 23792	29.0	30.0	74	10	35	350	-0.5	-10	-0.008	3	27
T 23793	30.0	31.0	115	10	50	255	-0.5	30	-0.008	3	40
T 23794	31.0	32.0	137	10	55	4000	1.0	20	-0.008	44	80
T 23795	32.0	33.0	119	15	50	1600	0.5	20	-0.008	51	54
T 23796	33.0	34.0	130	10	80	965	1.5	40	-0.008	84	62
T 23797	34.0	35.0	121	10	40	705	1.0	20	-0.008	11	62
T 23798	35.0	36.0	45	10	15	760	0.5	-10	-0.008	4	25
T 23799	36.0	37.0	126	10	15	470	-0.5	-10	-0.008	3	-20
T 23801	37.0	38.0	178	10	5	360	-0.5	10	-0.008	3	25
T 23802	38.0	38.7	391	10	15	235	-0.5	10	-0.008	5	27
T 23803	38.7	39.4	277	10	15	265	0.5	140	-0.008	3	-20
T 23804	39.0	40.4	184	10	20	345	-0.5	230	0.029	2	20
T 23805	40.4	41.4	233	10	15	220	-0.5	150	0.030	2	37
T 23806	41.4	42.4	146	20	35	200	0.5	360	0.022	6	54
Laboratory:			ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Method :			401	101	101	101	101	101	309	114	401
Det. Limit:			3.000	5.000	5.000	5.000	0.500	10.000	0.008	1.000	20.000

449132

RGC EXPLORATION PTY.LTD. DATA SHEET

PROJECT: STORMONT SD-009

SAMPLE NUMBER	DEPTHF metres	DEPTHT metres	SN PPM	CU PPM	PB PPM	ZN PPM	AG PPM	BI PPM	AU PPM	AS PPM	W PPM
T 23807	42.4	43.4	63	95	20	100	-0.5	170	-0.008	3	46
T 23808	43.4	44.4	106	20	-5	35	-0.5	40	-0.008	2	31
T 23809	44.4	45.4	76	15	5	35	-0.5	30	-0.008	7	23
T 23810	45.4	46.8	69	10	-5	45	-0.5	50	-0.008	7	-20

Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Method :	401	101	101	101	101	101	309	114	401
Det. Limit:	3.000	5.000	5.000	5.000	0.500	10.000	0.008	1.000	20.000

449133

RGC EXPLORATION PTY.LTD. DATA SHEET

PROJECT: STORMONT SD-010

SAMPLE NUMBER	DEPTHF metres	DEPTHT metres	SN PPM	CU PPM	PB PPM	ZN PPM	AG PPM	BI PPM	AU PPM	AS PPM	W PPM
T 23811	8.6	9.6	150	-5	125	640	1.5	250	0.239	5	-20
T 23812	9.6	10.6	140	-5	185	1300	2.0	180	0.122	25	-20
T 23813	10.6	12.0	70	-5	50	1450	1.0	170	0.094	15	-20
T 23814	12.0	13.6	75	-5	190	1650	1.5	510	0.120	8	-20
T 23815	13.6	14.6	60	-5	780	700	2.5	1100	0.055	7	-20
T 23816	14.6	15.6	30	5	1200	1250	2.5	2200	0.161	12	20
T 23817	15.6	16.6	50	-5	850	720	2.0	2500	0.117	5	-20
T 23818	16.6	17.6	80	-5	-5	255	1.0	30	0.028	3	-20
T 23819	17.6	18.6	190	-5	150	235	1.5	490	0.792	11	-20
T 23821	18.6	19.8	280	5	175	295	1.5	1300	2.510	4	40
T 23822	19.8	21.0	320	20	70	680	1.5	950	0.223	20	-20
T 23823	21.0	22.0	75	-5	395	115	4.5	1500	6.030	3	-20
T 23824	22.0	23.0	25	-5	280	65	6.0	620	3.380	1	-20
T 23825	23.0	24.0	35	-5	-5	60	0.5	30	0.067	-1	-20
T 23826	24.0	25.4	35	-5	5	95	1.0	30	0.041	1	-20
T 23827	25.4	26.6	45	-5	25	125	1.0	60	0.050	1	-20
T 23828	26.6	28.2	50	-5	-5	120	0.5	30	-0.008	-1	-20
T 23829	28.2	29.3	95	-5	20	165	1.0	200	-0.008	-1	55
T 23830	29.3	30.4	160	-5	-5	175	0.5	60	-0.008	-1	-20
T 23831	30.4	31.8	240	-5	30	170	1.0	340	-0.008	1	30
T 23832	31.8	32.9	150	-5	-5	125	1.5	50	-0.008	3	-20
T 23833	32.9	33.9	140	-5	45	125	1.0	160	-0.008	2	30
T 23834	33.9	34.9	160	-5	80	140	1.0	140	-0.008	1	50
T 23835	34.9	35.9	220	30	55	120	1.0	390	-0.008	1	70
T 23836	35.9	36.9	300	50	15	135	0.5	380	-0.008	2	55
T 23837	36.7	37.7	160	30	25	110	1.5	170	0.020	3	-20
T 23838	37.7	38.7	85	-5	-5	100	1.0	20	-0.008	2	-20
T 23839	38.7	40.7	140	-5	-5	165	1.0	10	0.020	21	-20
T 23841	40.7	41.9	260	-5	-5	200	1.0	10	-0.008	4	-20
T 23842	41.9	42.9	75	-5	-5	140	0.5	10	0.010	4	-20
T 23843	42.9	43.8	90	-5	-5	170	1.0	10	0.017	4	-20
T 23844	43.8	45.0	15	65	25	100	1.0	40	-0.008	12	-20
T 23845	45.0	46.0	15	15	25	100	0.5	30	-0.008	2	-20
T 23846	46.0	47.5	25	10	15	110	1.5	50	-0.008	4	-20

	SN	CU	PB	ZN	AG	BI	AU	AS	W
Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Method :	401	101	101	101	101	101	309	114	401
Det. Limit:	3.000	5.000	5.000	5.000	0.500	10.000	0.008	1.000	20.000

PROJECT: STORMONT SD-011

SAMPLE NUMBER	DEPTHF metres	DEPTHT metres	SN PPM	CU PPM	PB PPM	ZN PPM	AG PPM	BI PPM	AU PPM	AS PPM	W PPM
T 23847	3.0	4.0	10	15	5	10	-0.5	-10	-0.008	8	-20
T 23848	4.0	5.0	12	20	20	15	-0.5	10	0.009	6	-20
T 23849	5.0	6.0	12	30	30	45	-0.5	10	-0.008	3	-20
T 23850	6.0	7.0	12	20	10	25	-0.5	40	-0.008	4	-20
T 23851	7.0	8.0	24	40	35	40	-0.5	40	-0.008	3	-20
T 23852	8.0	9.0	20	25	5	30	-0.5	20	-0.008	3	-20
T 23853	9.0	10.0	23	40	-5	40	-0.5	20	-0.008	3	-20
T 23854	10.0	11.0	9	15	-5	40	-0.5	-10	-0.008	3	-20
T 23855	11.0	12.0	16	20	-5	35	-0.5	30	-0.008	3	-20
T 23856	12.0	13.0	8	10	-5	35	-0.5	10	-0.008	2	24
T 23857	13.0	14.0	24	20	-5	35	-0.5	10	-0.008	1	-20
T 23858	14.0	15.0	32	30	-5	80	-0.5	20	-0.008	7	-20
T 23859	15.0	16.0	29	35	-5	45	-0.5	30	-0.008	5	-20
T 23861	16.0	17.0	171	110	-5	80	-0.5	280	0.066	12	-20
T 23862	17.0	18.0	129	20	-5	205	-0.5	90	0.030	2	-20
T 23863	18.0	19.0	85	820	-5	290	-0.5	320	0.077	5	-20
T 23864	18.0	20.1	144	15	-5	170	0.5	70	0.092	10	-20
T 23865	20.1	21.1	135	15	-5	70	-0.5	-10	-0.008	4	-20
T 23866	21.1	22.0	139	10	-5	50	-0.5	-10	-0.008	2	-20
T 23867	22.0	23.0	167	5	-5	80	-0.5	-10	-0.008	4	-20
T 23868	23.0	24.0	62	5	-5	80	-0.5	10	0.010	14	-20
T 23869	24.0	25.0	71	5	-5	70	-0.5	-10	-0.008	4	-20
T 23870	25.0	26.0	114	30	-5	110	-0.5	70	0.016	3	-20
T 23871	26.0	27.0	138	15	5	90	-0.5	80	0.013	2	-20
T 23872	27.0	28.0	185	15	5	75	-0.5	100	0.010	2	-20
T 23873	28.0	29.0	163	10	-5	60	-0.5	90	-0.008	2	-20
T 23874	29.0	30.0	80	25	10	90	-0.5	240	-0.008	2	-20
T 23875	30.0	31.0	125	15	10	85	-0.5	60	0.012	4	-20
T 23876	31.0	32.0	178	25	20	115	-0.5	90	0.016	2	-20
T 23877	32.0	33.0	200	15	5	75	-0.5	80	-0.008	4	-20
T 23878	33.0	34.0	176	20	25	235	0.5	90	-0.008	7	-20
T 23879	34.0	35.0	97	150	40	155	-0.5	120	-0.008	11	-20
T 23881	35.0	36.0	121	55	20	110	-0.5	100	-0.008	4	-20
T 23882	36.0	36.5	73	40	15	225	-0.5	50	-0.008	3	21
T 23883	36.5	38.0	76	105	50	205	-0.5	210	-0.008	7	23

	SN	CU	PB	ZN	AG	BI	AU	AS	W
Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Method :	401	101	101	101	101	101	309	114	401
Det. Limit:	3.000	5.000	5.000	5.000	0.500	10.000	0.008	1.000	20.000

RGC EXPLORATION PTY.LTD. DATA SHEET

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PROJECT: STORMONT SD-011

SAMPLE NUMBER	DEPTHF metres	DEPTHT metres	SN PPM	CU PPM	PB PPM	ZN PPM	AG PPM	BI PPM	AU PPM	AS PPM	W PPM
T 23884	38.0	39.6	22	50	45	100	-0.5	20	-0.008	3	-20
T 23885	39.6	41.5	36	45	40	80	-0.5	30	-0.008	6	-20

Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Method :	401	101	101	101	101	101	309	114	401
Det. Limit:	3.000	5.000	5.000	5.000	0.500	10.000	0.008	1.000	20.000

449136

RGC EXPLORATION PTY.LTD. DATA SHEET

PROJECT: STORMONT SD-012

SAMPLE NUMBER	DEPTHF metres	DEPTHT metres	SN PPM	CU PPM	PB PPM	ZN PPM	AG PPM	BI PPM	AU PPM	AS PPM	W PPM
T 23886	23.0	24.0	31	30	-5	35	-0.5	10	-0.008	3	-20
T 23887	24.0	25.0	11	50	-5	40	-0.5	-10	-0.008	11	-20
T 23888	25.0	26.0	21	100	-5	75	-0.5	40	-0.008	8	-20
T 23889	26.0	27.0	12	20	-5	30	-0.5	-10	-0.008	4	-20
T 23890	27.0	28.0	36	40	-5	155	-0.5	10	-0.008	6	30
T 23891	28.0	29.0	50	30	-5	190	-0.5	-10	-0.008	4	-20
T 23892	29.0	30.0	18	45	5	115	-0.5	-10	-0.008	5	-20
T 23893	30.0	31.0	46	85	-5	115	-0.5	10	-0.008	7	-20
T 23894	31.0	32.0	23	60	-5	70	-0.5	-10	-0.008	13	-20
T 23895	32.0	36.0	10	70	-5	75	-0.5	-10	-0.008	11	-20
T 23896	36.0	27.0	6	25	-5	30	-0.5	-10	-0.008	6	-20
T 23897	37.0	38.0	8	25	-5	65	-0.5	-10	-0.008	7	-20
T 23898	38.0	39.0	18	75	-5	60	-0.5	10	-0.008	10	-20
T 23899	39.0	40.0	24	75	-5	35	-0.5	20	-0.008	15	-20
T 23901			11	30	20	35	-0.5	-10	-0.008	15	-20
T 29001	40.0	41.0									

	SN	CU	PB	ZN	AG	BI	AU	AS	W
Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Method :	401	101	101	101	101	101	309	114	401
Det. Limit:	3.000	5.000	5.000	5.000	0.500	10.000	0.008	1.000	20.000

449137

RGC EXPLORATION PTY.LTD. DATA SHEET

PROJECT: STORMONT SD-013

SAMPLE NUMBER	DEPTHF metres	DEPTHT metres	SN PPM	CU PPM	PB PPM	ZN PPM	AG PPM	BI PPM	AU PPM	AS PPM	W PPM
T 29002	21.8	22.8	135	60	5	505	-0.5	40	0.013	14	45
T 29003	22.8	23.8	158	15	130	110	0.5	330	0.050	7	148
T 29004	23.8	24.4	282	120	55	150	0.5	750	0.040	12	98
T 29005	24.4	25.6	80	85	40	160	-0.5	240	0.013	5	-20
T 29006	25.6	26.6	132	10	50	120	-0.5	90	-0.008	10	-20
T 29007	26.6	27.8	131	20	5	110	-0.5	120	-0.008	15	-20
T 29008	27.8	28.8	42	5	10	160	-0.5	60	-0.008	6	-20
T 29009	28.8	30.0	29	25	20	210	-0.5	10	-0.008	10	-20
T 29010	30.0	30.5	20	40	35	310	-0.5	10	0.012	14	-20
T 29011	30.5	31.4	27	25	55	125	1.0	20	-0.008	10	23

Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Method :	401	101	101	101	101	101	309	114	401
Det. Limit:	3.000	5.000	5.000	5.000	0.500	10.000	0.008	1.000	20.000

449138

RGC EXPLORATION PTY.LTD. DATA SHEET

PROJECT: STORMONT SD-014

SAMPLE NUMBER	DEPTHF metres	DEPTHT metres	SN PPM	CU PPM	PB PPM	ZN PPM	AG PPM	BI PPM	AU PPM	AS PPM	W PPM
T 29012	26.7	27.8	324	30	130	295	-0.5	510	0.064	7	38
T 29013	27.8	28.8	100	100	45	220	-0.5	190	0.025	6	24
T 29014	28.8	29.2	293	45	55	165	-0.5	180	0.027	10	-20
T 29015	29.2	30.2	93	20	15	190	-0.5	30	0.020	5	-20
T 29016	30.2	31.2	90	15	10	120	-0.5	20	0.018	5	-20
T 29017	31.2	32.2	33	5	40	115	-0.5	50	0.019	4	-20
T 29018	32.2	33.3	45	80	45	220	-0.5	20	0.018	11	-20

449130

	SN	CU	PB	ZN	AG	BI	AU	AS	W
Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Method :	401	101	101	101	101	101	309	114	401
Det. Limit:	3.000	5.000	5.000	5.000	0.500	10.000	0.008	1.000	20.000

RGC EXPLORATION PTY.LTD. DATA SHEET

PROJECT: STORMONT SD-015

SAMPLE NUMBER	DEPTHF metres	DEPTHT metres	SN PPM	CU PPM	PB PPM	ZN PPM	AG PPM	BI PPM	AU PPM	AS PPM	W PPM
T 29019	25.5	26.9	212	15	40	85	1.0	410	0.333	11	40
T 29021	26.9	27.9	232	30	5	135	1.0	450	0.105	7	136
T 29022	27.9	28.9	162	105	10	130	1.0	460	0.070	6	253
T 29023	28.9	29.9	399	485	30	185	1.0	900	0.105	7	122
T 29024	29.9	30.9	220	35	10	190	1.0	530	0.087	5	30
T 29025	30.9	31.6	377	160	30	160	0.5	670	0.041	6	33
T 29026	31.6	32.2	182	120	45	110	1.0	340	0.018	13	-20
T 29027	32.2	33.2	154	100	15	130	0.5	300	0.013	7	29
T 29028	33.2	34.2	97	20	60	150	1.0	400	0.015	20	28
T 29029	34.2	34.7	111	195	60	125	1.5	80	0.012	5	-20
T 29030	34.7	36.0	58	20	20	65	0.5	50	0.015	5	35
T 29031	36.0	37.0	44	10	10	60	0.5	45	-0.008	1	32
T 29032	37.0	38.0	44	10	9	65	-0.5	35	0.012	1	-20

	SN	CU	PB	ZN	AG	BI	AU	AS	W
Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Method :	401	101	101	101	101	101	309	114	401
Det. Limit:	3.000	5.000	5.000	5.000	0.500	10.000	0.008	1.000	20.000

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RGC EXPLORATION PTY.LTD. DATA SHEET

PROJECT: STORMONT SD-016

SAMPLE NUMBER	DEPTHF metres	DEPTHT metres	SN PPM	CU PPM	PB PPM	ZN PPM	AG PPM	BI PPM	AU PPM	AS PPM	W PPM
T 29033	24.0	25.0	38	115	35	360	0.5	80	-0.008	57	23
T 29034	25.0	26.5	159	55	85	145	1.0	440	0.095	6	23
T 29035	26.5	27.5	336	340	5	160	1.0	770	0.195	17	32
T 29036	27.5	28.6	340	380	15	165	1.0	600	0.051	16	84
T 29037	28.6	29.6	361	415	20	190	1.0	630	0.028	7	94
T 29038	29.6	30.6	288	340	25	150	1.0	650	0.039	10	93
T 29039	30.6	31.3	324	115	20	160	1.5	670	-0.008	21	-20
T 29041	32.5	33.7	244	100	50	112	1.0	840	-0.008	12	90
T 29042	33.7	35.3	202	40	15	180	1.0	220	-0.008	15	37
T 29043	35.3	26.3	82	95	15	80	1.0	150	-0.008	6	-20
T 29044	35.3	36.3	48	20	30	60	1.0	100	-0.008	7	48

	SN	CU	PB	ZN	AG	BI	AU	AS	W
Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Method :	401	101	101	101	101	101	309	114	401
Det. Limit:	3.000	5.000	5.000	5.000	0.500	10.000	0.008	1.000	20.000

449141

RGC EXPLORATION PTY.LTD.   DATA SHEET

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PROJECT: STORMONT   SD-017

SAMPLE NUMBER	DEPTHF metres	DEPTHT metres	SN PPM	CU PPM	PB PPM	ZN PPM	AG PPM	BI PPM	AU PPM	AS PPM	W PPM
T 29045	21.1	22.1	108	40	100	240	1.0	40	0.071	26	22
T 29046	22.1	23.0	172	15	395	115	7.0	620	0.241	6	20
T 29047	23.0	24.0	212	35	2225	205	22.0	1770	0.550	10	70
T 29048	24.0	25.0	135	110	715	290	20.0	1150	0.153	11	144
T 29049	25.0	26.5	217	50	335	300	5.0	760	0.105	6	84
T 29050	26.5	27.0	199	15	145	235	1.0	250	0.060	11	20
T 29051	27.0	28.0	48	30	100	340	0.5	150	0.044	5	40
T 29052	28.0	29.0	120	35	35	470	-0.5	60	0.042	4	32
T 29053	29.0	30.0	109	-5	15	160	-0.5	50	0.023	4	25
T 29054	30.0	31.0	80	15	40	205	-0.5	50	0.015	8	61
T 29055	31.0	31.6	54	10	215	135	-0.5	50	0.016	7	30
T 29056	31.6	33.0	37	85	40	110	-0.5	50	0.012	12	23

	SN	CU	PB	ZN	AG	BI	AU	AS	W
Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Method :	401	101	101	101	101	101	309	114	401
Det. Limit:	3.000	5.000	5.000	5.000	0.500	10.000	0.008	1.000	20.000

RGC EXPLORATION PTY.LTD. DATA SHEET

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PROJECT: STORMONT SD-018

SAMPLE NUMBER	DEPTHF metres	DEPTHT metres	SN PPM	CU PPM	PB PPM	ZN PPM	AG PPM	BI PPM	AU PPM	AS PPM	W PPM
T 29057	21.5	22.5	14	25	65	505	-0.5	-10	0.029	55	48
T 29058	22.5	23.5	158	-5	60	155	0.5	80	0.031	12	-20
T 29059	23.5	24.5	141	-5	410	95	3.0	770	0.483	16	22
T 29061	24.5	25.5	208	10	105	125	1.5	310	0.335	5	82
T 29062	25.5	26.2	245	15	30	120	0.5	300	0.075	5	80
T 29063	26.2	27.0	232	35	20	125	-0.5	240	0.023	8	27
T 29064	27.0	28.0	206	25	40	150	0.5	210	0.021	7	-20
T 29065	28.0	29.0	198	40	40	135	0.5	160	0.013	7	47
T 29066	29.0	30.0	156	30	105	115	-0.5	450	0.010	4	20
T 29067	30.0	31.0	132	15	30	65	-0.5	50	0.011	4	-20
T 29068	31.0	32.0	67	30	50	90	-0.5	100	-0.008	5	31
T 29069	32.0	33.0	46	45	35	120	0.5	120	-0.008	7	-20
T 29070	33.0	34.0	59	85	30	65	0.5	130	-0.008	7	-20

449143

Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Method :	401	101	101	101	101	101	309	114	401
Det. Limit:	3.000	5.000	5.000	5.000	0.500	10.000	0.008	1.000	20.000

RGC EXPLORATION PTY.LTD. DATA SHEET

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PROJECT: STORMONT SD-019

SAMPLE NUMBER	DEPTHF metres	DEPTHT metres	SN PPM	CU PPM	PB PPM	ZN PPM	AG PPM	BI PPM	AU PPM	AS PPM	W PPM
T 29071	19.0	19.3	25	10	10	50	-0.5	20	0.451	10	36
T 29072	19.3	20.0	55	115	55	90	0.5	50	0.010	17	-20
T 29073	20.0	21.0	22	15	20	55	-0.5	-10	-0.008	8	-20
T 29074	21.0	22.0	50	15	20	65	-0.5	20	0.017	5	-20

	SN	CU	PB	ZN	AG	BI	AU	AS	W
Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Method :	401	101	101	101	101	101	309	114	401
Det. Limit:	3.000	5.000	5.000	5.000	0.500	10.000	0.008	1.000	20.000

RGC EXPLORATION PTY.LTD. DATA SHEET

PROJECT: STORMONT SD-020

SAMPLE NUMBER	DEPTHF metres	DEPTHT metres	SN PPM	CU PPM	PB PPM	ZN PPM	AG PPM	BI PPM	AU PPM	AS PPM	W PPM
T 29075	8.2	9.0	56	50	25	575	1.0	20	0.061	5	66
T 29076	9.0	10.0	51	15	10	370	1.0	-10	0.115	2	63
T 29077	10.0	11.0	56	-5	15	260	0.5	-10	0.177	4	-20
T 29078	11.0	12.0	124	-5	20	310	0.5	30	0.940	4	-20
T 29079	12.0	13.0	101	5	25	195	0.5	-10	0.837	11	57
T 29081	13.0	14.0	123	5	25	250	0.5	10	0.250	2	-20
T 29082	14.0	15.0	175	5	30	215	0.5	10	0.316	5	25
T 29083	15.0	17.0	20	10	20	165	-0.5	-10	0.031	58	-20
T 29084	17.0	19.0	55	15	35	420	-0.5	-10	0.047	43	-20
T 29085	19.0	20.8	154	10	5	315	-0.5	20	0.025	11	27
T 29086	20.8	22.1	156	15	10	220	-0.5	-10	0.043	5	45
T 29087	22.1	23.0	104	5	85	270	1.0	470	0.238	6	137
T 29088	23.0	23.6	111	25	35	245	0.5	740	0.068	3	47
T 29089	23.6	24.6	98	15	55	355	0.5	70	0.024	2	-20
T 29090	24.6	25.6	138	10	70	155	0.5	300	0.043	5	77
T 29091	25.6	26.3	110	5	110	160	1.5	200	0.057	72	30
T 29092	26.3	27.1	116	35	200	430	3.5	250	0.315	600	105
T 29093	27.1	28.0	66	20	60	175	1.0	100	0.077	33	31
T 29094	28.0	29.0	65	15	40	365	-0.5	50	0.023	3	19
T 29095	29.0	29.7	89	95	55	240	0.5	100	0.023	9	57
T 29096	29.7	30.5	102	80	15	110	-0.5	140	0.028	12	60
T 29097	30.5	31.5	90	15	5	65	-0.5	70	0.017	14	44
T 29098	31.5	32.5	58	10	5	70	-0.5	40	-0.008	2	24

	SN	CU	PB	ZN	AG	BI	AU	AS	W
Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Method :	401	101	101	101	101	101	309	114	401
Det. Limit:	3.000	5.000	5.000	5.000	0.500	10.000	0.008	1.000	20.000

449145

RGC EXPLORATION PTY.LTD. DATA SHEET

PROJECT: STORMONT SD-O21

SAMPLE NUMBER	DEPTHF metres	DEPTHT metres	SN PPM	CU PPM	PB PPM	ZN PPM	AG PPM	BI PPM	AU PPM	AS PPM	W PPM
T 29099	3.0	4.0	165	25	50	190	-0.5	70	0.027	16	52
T 29115	4.0	5.2	73	40	90	165	-0.5	180	0.027	3	72
T 29116	5.2	6.0	28	55	220	195	-0.5	40	0.010	5	32
T 29117	6.0	7.0	22	60	40	70	-0.5	-10	-0.008	17	-20
T 29118	7.0	8.0	21	35	20	65	-0.5	-10	0.018	8	-20
T 29119	8.0	9.0	17	35	20	65	-0.5	-10	0.013	14	-20
T 29121	9.0	10.0	13	30	30	95	-0.5	-10	0.012	12	-20

Laboratory:	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Method :	401	101	101	101	101	101	309	114	401
Det. Limit:	3.000	5.000	5.000	5.000	0.500	10.000	0.008	1.000	20.000

APPENDIX 8

Petrological study of Rock Samples from the Lea River Area

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PETROLOGICAL STUDIES OF FIFTEEN ROCK SAMPLES FROM THE MOINA - LEA RIVER AREA, TASMANIA

SUMMARY

1. Fifteen rock samples have been studied, using petrographic, mineragraphic and some X-ray diffraction procedures.

2. A summary of rock samples and their names is given below:

Sample No.	Rock Name
T-08690	Quartzite breccia
T-11906	Pyritic quartzite
T-11907	Pyritic quartzite; sericitic quartzite
T-11908	Sericitic quartzite with sulphide veinlets and patches
T-11909	Weathered sericitic quartzite
T19748	Magnetite skarn
T19749	Actinolite-garnet-quartz-magnetite skarn
T19750	Gold-bearing garnet(-actinolite) skarn
T19752	Sericitic quartzite
T19755	Clay-bearing quartzite
T19756	Skarnified meta-felsite (?acid lava)
T19757	Hornfelsic meta-siltstone
T19758	Magnetite(-pyrite-chalcopyrite-bismuthinite) skarn
T19759	Skarnified silty meta-sediment
T19760	Epidote-garnet-diopside skarn

3. The mineralogy and microtextures of the samples provide a coherent geological history. Deposition of calcareous and quartz-rich sediments (sands and silts) was followed by deep burial and lithification. Hydrothermal alteration caused extensive alteration of the rock sequence. Arenaceous rocks developed granoblastic textures and newly crystallised sericite, sulphides, and less commonly actinolite. Calcareous rocks were extensively metasomatised to produce skarn assemblages composed of amphibole, garnet, epidote, magnetite, diopside, and various sulphides (pyrrhotite, pyrite, bismuthinite, chalcopyrite).

4. Native gold was observed in skarn sample T19750, where it occurs as small inclusions within bismuthinite and as discrete grains near bismuthinite. The close association between native gold and bismuthinite indicates that the gold was introduced during the principal mineralisation/alteration event.

5. The nature of the alteration event, and origin of the hydrothermal fluids involved in the alteration, is unclear. However, several features are consistent with a magmatic origin from a nearby intrusive granitoid rock body:

   i) All rocks display non-directional recrystallisation textures. Dynamic regional forces were therefore not involved.

   ii) One sample (T19757, hornfelsic meta-siltstone) contains poorly-crystallised biotite aggregates, typical of contact metamorphic recrystallisation textures. Accessory fluorite is present in sample T19758.

   iii) The metallic components of the alteration minerals (abundant Fe, with minor Cu, Zn, Bi and native gold) are consistent with derivation from hydrothermal fluids of acid magmatic origin.

PETROLOGICAL STUDIES OF FIFTEEN ROCK SAMPLES FROM THE MOINA - LEA RIVER AREA, TASMANIA

1. INTRODUCTION

A suite of rock samples was received from Mr. Carlos Castro (Senior Geologist, RGC Exploration Pty. Ltd., Hobart, Tasmania) on December 18, 1989.

The suite comprised five rock samples from the Moina area provided by Mr. Castro, and ten rock samples from the Moina - Lea River area provided by Mr. Matthew White.

The five samples from the Moina area were labelled as follows: T-08690, T-11906, T-11907, T-11908, T-11909. Brief geological notes were provided as background information for each sample.

The ten samples from the Moina - Lea River area were labelled as follows: T19748, T19749, T19750, T19752, T19755, T19756, T19757, T19758, T19759, T19760. Background geological notes were provided for each sample, as well as a brief regional geological overview.

Specific requirements were:

1. To prepare a thin section (or, where relevant, a polished thin section) for each sample.
2. To prepare a petrographic description for each sample.
3. To send the completed report and remnant materials to Mr. Castro.

This report presents the full results of this work.

2. METHODS

All samples were examined in hand specimen, and section lines were drawn. Conventional thin sections or polished thin sections were prepared: the latter type was prepared if a significant proportion of opaque minerals were identifiable in hand specimen, or if the geological notes provided with the samples suggested the presence of opaque minerals. Samples, type of section prepared, and thin section numbers are given in Table 1.

Petrographic descriptions were prepared using transmitted polarised light. In addition, mineragraphic observations were recorded for polished thin sections using reflected polarised light.

Owing to very fine grain-sizes, mineral identification by X-ray diffraction procedures was carried out for samples T-19749, T-19756, and T-19758 in order to confirm the optical identifications. The results are summarised in Table 2.

3. RESULTS

The petrographic descriptions are presented in following pages.

SAMPLE: T-08690 :TSC52515

Rock Name:
Quartzite breccia

Hand Specimen:
The large rock sample is composed of abundant, closely packed, angular lithic fragments of variable size (average ~1 cm) and cream in colour. The fragments lie with random orientation in a fine-grained, mauvish-brown matrix.

Petrography:

Mineral	**Vol.%**	**Origin**
Lithic fragments (quartzite) (75%)		
Quartz	94	recrystallised clastic grains
Leucoxene	1	recrystallised clastic grains
Tourmaline	<1	clastic grains
Monazite	Tr	clastic grains
Sericite	5	metamorphic
Opaques (?pyrite)	Tr	metamorphic
Matrix (25%)		
Quartz	60	recrystallised clastic grains
Sericite	10	metamorphic
Iron oxides (?goethite)	30	weathering

In thin section, this sample displays a breccia structure and metamorphic granoblastic microtextures.

The abundant lithic fragments are composed essentially of quartz, which forms a granoblastic mosaic (average grain size ~0.2 mm, but ranging from <0.1 mm to ~0.5 mm). A significant proportion of quartz grains retain their primary clastic particle shapes, but many grains have experienced grain boundary migration and suturing in response to regional metamorphism. Sericite is present in minor amount as minute flakes, commonly located around quartz grain boundaries. Accessory clastic phases include anhedral leucoxene grains, rounded grains of green and bluish green tourmaline, and subrounded equant grains of monazite. Accessory fine-grained opaque cubes and aggregates of cubic grains are sparsely disseminated through the rock, and most likely represents minor pyrite of metamorphic origin.

The matrix is composed is abundant quartz, similar in its granoblastic texture to the quartz of the lithic fragments. It is accompanied by lesser very fine-grained reddish brown iron oxide (most likely goethite), and mats of fine-grained sericite.

The lithic fragments represent mature, well-sorted quartzose sandstone that has experienced regional metamorphism of moderate grade to produce a quartzite. Granoblastic texture in the matrix indicates that the matrix was present prior to regional metamorphism. Close interlocking of some angular lithic fragments suggests that they represent *in situ* incipiently fragmented massive quartzose sandstone. Integration of the microtextural and structural features allows the following interpretation:

1. Deposition of well-sorted, quartzose detrital particles at a considerable distance from source.

2. Lithification of the rock sequence. Tectonism at this time may have been responsible for fragmentation of the massive quartzose sandstone.

3. Regional metamorphism of the rock sequence. This caused recrystallisation of quartz, and also generated disseminated sericite and ?pyrite. These mineralogical and textural features are shared by the lithic fragments and the matrix.

4. Uplift and erosion, with subsequent oxidation of the more permeable matrix, producing significant iron oxides (?goethite).

SAMPLE: T-11906 :PTSC52516

Rock Name:
<u>Pyritic quartzite</u>

Hand Specimen:
The large rock sample is fine-grained, pale grey, competent and quite hard. It is massive, with no obvious layering. Scattered through the rock are round, white, quartzose fragments.

Petrography:

Mineral	**Vol.%**	**Origin**
Quartz	90	detrital (recrystallised)
Tourmaline	Tr	detrital
Leucoxene	Tr	detrital (recrystallised)
Rutile	Tr	detrital
Zircon	Tr	detrital
Spinel (?chromite)	Tr	detrital
Sericite	8	metamorphic
Pyrite	2	metamorphic

In polished thin section, this sample displays a relict arenaceous sedimentary texture that has been modified by partial recrystallisation in response to regional metamorphism.

Quartz completely dominates the rock. It occurs as relict detrital grains of average size ~0.3 mm. Grains that touch have been modified by grain boundary migration and suturing. Most grains are strained, but little recrystallisation has occurred.

A significant amount of sericite occurs as very fine-grained flakes that are confined to interparticle pore regions.

A minor amount of sulphide (pyrite) occurs as very small cubes (2-20 μm in size) and aggregates of cubes up to ~0.2 mm in size. In reflected light, the pyrite displays its characteristic yellowish white colour and isotropic optical behaviour. Most of the sulphide is concentrated within the interparticle pore regions, but some grains have crystallised within quartz particles.

Other accessory phases represent relict detrital phases. Leucoxene forms subhedral grains, rutile occurs as subhedral grains, zircon and tourmaline form rounded particles, and a deep red spinel (?chromite) forms rare rounded particles.

The sample represents a well-sorted, mature, quartzose sandstone that has experienced regional metamorphism of moderate grade to generate a quartzite. The principal affect of metamorphism was to generate fine-grained sericite + pyrite within interparticle pore areas, and to cause partial recrystallisation of adjacent quartz grains.

SAMPLE: T-11907 :PTSC52517

Rock Name:
Pyritic quartzite, sericitic quartzite

Hand Specimen:
The sample comprises several rock fragments, most of which are fine-grained, grey, hard rocks with phyllitic sheen on broken surfaces. Patches of fine-grained sulphide are disseminated. Some fine-grained, hard rock fragments are creamish to greenish white in colour.

Petrography:

Mineral	Vol.%	Origin
Pyritic quartzite		
Quartz	73	detrital (recrystallised)
Pyrite	12	metamorphic
Sericite	15	metamorphic
Rutile	Tr	detrital
Zircon	Tr	detrital
Tourmaline	Tr	detrital
Sericitised quartzite		
Quartz	94	relict detrital/metamorphic
Leucoxene	1	relict detrital
Zircon	Tr	detrital
Sericite	5	metamorphic
Pyrite	Tr	metamorphic

In thin section, the sample is represented by two rock types. Both display a partly recrystallised, granoblastic metamorphic texture that retains its detrital sedimentary parentage.

Pyritic quartzite is composed of abundant particles of strained quartz that range in size from <0.1 mm to ~1 mm. Impinging quartz grains have been sutured by grain boundary migration and partial recrystallisation. Accessory detrital particles include rounded dark reddish brown rutile, rounded zircon, and rounded greenish brown tourmaline. The detrital particles lie in a matrix composed of very fine-grained sericite, and scattered patches of pyrite that forms small cubes (~10-20 μm in average grain size). The mineralisation is cut by a set of microfractures which appear to have associated sericite.

Sericitised quartzite is composed largely of granoblastic quartz grains of average size ~0.2 mm, but ranging from ~0.1 mm to 0.5 mm. Throughout most of the rock, the relict detrital arenaceous texture is evident. Relict accessory detrital phases include leucoxene and zircon. The quartz particles lie in a very fine-grained matrix of randomly oriented sericite and traces of small, creamish white pyrite cubes. Cutting the rock are thin (0.2-0.5 mm) veinlets of quartz, which in turn have been cut by microfractures with associated very fine-grained sericite.

Although containing different proportions of pyrite and sericite, both these rocks have evolved through a similar geological history:

1. Deposition of poorly-sorted, relatively immature quartzose sandstone with possible clay-rich matrix.

2. Burial, lithification, and regional metamorphism at moderate grade. The assemblage sericite + pyrite developed in clay-rich matrix areas. The considerable abundance of pyrite in the pyritic quartzite indicates that significant Fe and S were introduced by the metamorphic fluids. The sulphide is therefore considered to be hydrothermal (in the sense that metamorphic fluids are of hydrothermal nature), rather than syngenetic.

3. Deformation occurred subsequent to the peak of metamorphism, generating microfractures and causing deformation and partial recrystallisation of metamorphic quartz and metamorphic vein quartz.

SAMPLE: T-11908 :PTSC52518

Rock Name:
Sericitic quartzite with sulphide veinlets and patches

Hand Specimen:
The large rock sample is composed of uniformly fine-grained, pale grey meta-sedimentary rock with veinlets and patches rich in sulphide.

Petrography:

Mineral	Vol.%	Origin
Quartz	67	detrital/metamorphic
Sericite (incl. clays)	10	metamorphic (weathering)
Pyrite	12	metamorphic
Arsenopyrite	8	metamorphic
Chalcopyrite	<1	metamorphic
?Bismuthinite	Tr	metamorphic
Pyrrhotite	Tr	metamorphic
Covellite	Tr	supergene
Iron oxides	3	weathering

In polished thin section, this sample is composed of fine-grained, granoblastic quartzite with patches and veinlets of relatively coarse-grained sulphide.

Granoblastic quartz dominates the rock. It builds an even-grained, granoblastic mosaic of average grain size ~0.1 mm. Most of the grains represent detrital particles, but grain boundary suturing has occurred pervasively in response to metamorphism.

Very fine-grained sericite has crystallised in the interparticle pores. Weathering has caused partial replacement by clays.

Sulphides are abundant, forming patches and veinlets up to ~5 mm wide. Pyrite is the dominant sulphide. It occurs as relatively large (up to ~1 mm) grains that tend to define discontinuous veinlets, and also as irregularly shaped veinlets and patches of variable size. Arsenopyrite builds smaller (average size ~0.1 mm), euhedral, white prisms that are commonly closely associated with larger pyrite grains. Chalcopyrite forms anhedral patches up to ~0.5 mm in size, intergrown with pyrite and arsenopyrite. Possible ?bismuthinite occurs as small (~0.1 mm) bleb-like, pale bluish-grey inclusions within pyrite. Pyrrhotite forms very small inclusions within pyrite. The occurrence of sulphides as intergrowths throughout the granoblastic quartzite suggests that they were introduced during the metamorphic recrystallisation of the rock body.

The mineralogical and microtextural features of the rock may be integrated as follows:

1. Deposition of mature, well-sorted quartzose sandstone.

2. Burial and lithification of the sedimentary sequence.

3. Regional metamorphism of moderate grade. This caused partial recrystallisation of the quartzose sandstone to a sericitic quartzite. Sulphides were introduced from an external source at this time, forming discontinuous veinlets and disseminated patches of pyrite + arsenopyrite + minor chalcopyrite + accessory pyrrhotite and ?bismuthinite.

4. Uplift and erosion allowed partial supergene alteration of the chalcopyrite to covellite. Near-surface weathering resulted in the introduction of hydrated iron oxides (?goethite) and partial alteration of sericite to clays.

SAMPLE: T19748 :PTSC52520

Rock Name:
Magnetite skarn

Hand Specimen:
The large rock sample is composed of fine-grained, thin (mm-wide) laminae, alternately black and greenish grey. The laminae display open folding, and the rock is strongly magnetic.

Petrography:

Mineral	Vol.%	Origin
Magnetite	45	metamorphic
Quartz	8	metamorphic
Green mica	25	metamorphic
Garnet	2	metamorphic
Pyrite	Tr	metamorphic
Chalcopyrite	Tr	metamorphic
Hematite	20	relict metamorphic

In polished thin section, this sample displays a banded metamorphic texture. Poorly-defined laminae of mm width are composed of variable proportions of iron oxides and quartz + mica.

Iron oxides dominate the mineralogy of the rock. They form very fine-grained aggregates (average grain size ~10 μm), but in places build laths and prisms up to ~0.4 mm long. Most of the iron oxide is brownish grey magnetite, but it is intimately intergrown with very fine-grained streaks and patches of white hematite. The crystal forms displayed suggest that hematite was the primary phase, and was subsequently replaced by magnetite.

Very fine-grained, pale green mica forms mats in poorly-defined laminae. It is accompanied by minor quartz, which builds relatively coarse-grained granoblastic aggregates. Accessory isotropic colourless garnet in places is associated with the quartz.

Accessory phases include pyrite and chalcopyrite, both of which form very small (micron-sized) inclusions within iron oxide grains, and also subrounded grains disseminated through quartz and mica.

Cutting the laminae is a thin (0.4 mm wide) veinlet that is rimmed by very fine-grained green mica and filled by colourless garnet and minor quartz.

The rock represents a skarn. It has formed by complete replacement of a precursor sedimentary rock, producing the metamorphic assemblage hematite + mica + quartz + minor garnet + accessory pyrite + chalcopyrite. A change in redox conditions caused extensive replacement of hematite by magnetite. The thin laminae most likely reflect primary lamination in a thinly-bedded sediment.

SAMPLE: T19749 :TSC52521

Rock Name:
Actinolite-garnet-quartz-magnetite skarn

Hand Specimen:
The large rock sample is fine-grained, massive, and dark green in colour. On the sawn surface it displays vague layering defined by varying grain size and mineral distribution. The sample responds strongly to the hand magnet. Weathering has caused pervasive and fracture-controlled staining by hydrated iron oxides (?goethite).

Petrography:

Mineral	Vol.%	Origin
Actinolite	71	metamorphic
Garnet	15	metamorphic
Quartz	5	metamorphic
Opaques (?magnetite)	4	metamorphic
Iron oxides (goethite)	5	weathering

In thin section, this sample displays a granoblastic metamorphic texture, partly modified by weathering.

Actinolitic amphibole is the most abundant mineral. It occurs as dense mats and patches of interlocking, subhedral to anhedral, pleochroic green to greenish brown grains (average grain size ~0.2 mm).

Garnet forms anhedral patches of colourless grains. Much of the garnet is weakly anisotropic. It is irregularly distributed throughout the rock, and in places tends to form coarser-grained patches intergrown with quartz.

Quartz occurs as anhedral, clear patches that are irregularly scattered through the rock.

Small aggregates (~0.1 mm in size) of opaque grains (~10-30 μm in size) are scattered throughout the rock, and tend to be concentrated in particular areas. The cubic form of the opaque grains, together with the magnetic response of the hand sample, suggests that the opaque is largely magnetite.

Near-surface weathering has caused partial alteration of the rock by reddish brown iron oxides (goethite), which occurs as pervasive staining and fracture filling material.

The mineralogy and texture of this sample is consistent with an origin by metasomatic alteration of a calc-silicate precursor rock, possibly an impure limestone. It is likely that considerable Fe, and perhaps other components, have been introduced by the hydrothermal fluids responsible for the alteration of the precursor rock.

SAMPLE: T19750 :PTSC52522

Rock Name:
Gold-bearing garnet(-actinolite) skarn

Hand Specimen:
The large rock sample contains an irregular distribution of fine-grained green actinolite, and fine-grained fawnish brown mineral (?andraditic garnet). Scattered through the rock are minor patches of silvery grey, bladed sulphide. The rock is non-magnetic, and weathering has generated brownish iron oxide staining along fractures and pervasively.

The thin section represents a portion of the rock dominated by the fawnish brown garnet.

Petrography:

Mineral	Vol.%	Origin
Garnet	82	metamorphic
Quartz	5	metamorphic
Actinolite	5	metamorphic
Bismuthinite	2	metamorphic
?Sphalerite	1	metamorphic
Native gold	Tr	metamorphic
Iron oxides (goethite)	5	weathering

In polished thin section, this sample displays a massive, crystalline, metamorphic texture of variable grain size.

Garnet completely dominates the thin section. It occurs as pale yellowish brown, subhedral intergrown grains of variable grain size (up to ~0.5 mm). Most of the garnet is anisotropic in optical behaviour.

Quartz is present in minor amount. It forms angular, clear, interstitial patches.

Actinolite occurs as subhedral prisms and elongate, acicular grains, commonly intergrown within quartz patches and as scattered, fine-grained aggregates.

Bismuthinite is present in minor amount. It occurs as rare, large anhedral patches up to ~2 mm in size, but more commonly occurs as smaller angular interstitial patches down to micron size. It displays its characteristic bright greyish white colour in reflected light, and anisotropic optical behaviour.

?Sphalerite forms similar angular interstitial patches up to ~0.2 mm in size. It is brownish grey and isotropic in reflected light. Small angular inclusions of bismuthinite are commonly present.

Native gold has been observed as rare grains. One grain (~40x20 μm) occurs as a rounded inclusion with bismuthinite, and others (up to ~20x10 μm) occurs as small anhedral blebs adjacent to a microfracture partly filled by bismuthinite.

The rock represents a skarn that has formed by metasomatic replacement of an unidentified precursor rock, most probably of calcareous nature. The ore mineralogy is bismuthinite + ?sphalerite + native gold. The occurrence of the native gold within bismuthinite indicates that it was introduced during the principal metasomatic event.

SAMPLE: T19752 :TSC52523

Rock Name:
Sericitic quartzite

Hand Specimen:
The large rock sample is a massive, creamish, meta-sedimentary rock. No layering is evident. Weathering has caused pervasive and fracture-controlled staining by brown iron oxides.

Petrography:

Mineral	**Vol.%**	**Origin**
Quartz	90	relict detrital/metamorphic
Tourmaline	Tr	detrital
Leucoxene	Tr	detrital
Zircon	Tr	detrital
Sericite (incl. clays)	10	metamorphic
Opaques (?pyrite)	Tr	metamorphic

In thin section, this sample displays a relict arenaceous sedimentary texture that has been modified by metamorphic recrystallisation and pervasive weathering.

Quartz completely dominates the mineralogy. It occurs as subrounded, relict detrital grains (average size ~0.3 mm) which display grain boundary migration and suturing where in contact.

Sericite is moderately abundant, occurring as very small flakes that are concentrated in interparticle matrix areas. Much of the sericite has been stained a yellow colour by incipient weathering to clays.

Accessory detrital phases include greenish brown rounded tourmaline, small zircon grains, and anhedral leucoxene grains. A trace amount of opaque granules up to ~0.1 mm in size are composed of numerous small cubic grains, possibly pyrite.

The mineralogy and texture of this sample is consistent with a history involving initial deposition of a well-sorted, quartz-rich sand with minor clay matrix. Subsequent lithification was followed by regional alteration that caused partial recrystallisation and suturing of quartz particles, and growth of sericite + ?pyrite in interparticle matrix areas. Near-surface weathering has caused pervasive partial alteration to hydrated iron oxides.

SAMPLE: T19755 :TSC52524

Rock Name:
Clay-bearing quartzite

Hand Specimen:
The rock sample is a pale, creamish grey sandy rock that contains discontinuous, cream-coloured, subparallel lamellae that appear to define primary lamination.

Petrography:

Mineral	Vol.%	Origin
Quartz	85	relict detrital/metamorphic
Leucoxene	Tr	detrital
Zircon	Tr	detrital
Monazite	Tr	detrital
Clays (?kaolinite)	15	alteration

In thin section, this sample displays a granoblastic metamorphic texture, with relict contorted clay-rich lensoidal patches.

Quartz dominates the mineralogy. It forms an interlocking granoblastic mosaic throughout the rock. In many places, outlines of detrital grains are preserved, indicating that the sandy sediment had an average grain size ~0.2 mm. Grain boundary migration and suturing has partly obscured the sedimentary texture in places.

Accessory detrital phases include anhedral leucoxene, and rounded zircon and monazite.

Irregularly distributed through the rock are patches and discontinuous lensoidal patches composed of microcrystalline colourless clays and detrital quartz particles. The clay-rich patches are interpreted to be a relict primary feature, indicating that a muddy component was deposited at irregular intervals during deposition of the well-sorted quartz sand. Following deposition, regional metamorphism caused suturing of quartz grains to produce the granoblastic mosaic that dominates the rock, but the muddy patches recrystallised to clays that are likely to have been partly affected by near-surface weathering processes.

SAMPLE: T19756 :PTSC52525

Rock Name:
Skarnified meta-felsite (?acid lava)

Hand Specimen:
The rock sample is fine-grained and variably pale brown to pale grey in colour. Thin (mm-wide) dark laminae form a subparallel set that appear to define primary layering. Sparsely scattered through the rock are round to subangular patches up to ~5 mm in size containing fine-grained sulphide. The rock is non-magnetic.

Petrography:

Mineral	Vol.%	Origin
Feldspar	68	metamorphic
Actinolite	20	metamorphic
?Diopside	5	metamorphic
Calcite	Tr	metamorphic
Leucoxene	3	metamorphic
Pyrrhotite	3	metamorphic
Pyrite	1	metamorphic
Chalcopyrite	Tr	metamorphic

In polished thin section, this sample displays a very fine-grained granular texture, in places with granoblastic mats of actinolite.

Much of the rock is composed of a microcrystalline, massive mosaic composed of feldspar, with uniformly disseminated microgranular aggregates of leucoxene. Cutting the rock are thin, widely-spaced laminae composed of intergrown actinolite that has pervasively replaced adjacent host rock for distances of several mm away from the lamina. Pale green actinolite also occurs as radiating aggregates forming rims around subrounded to angular coarser-grained structures.

?Diopsidic clinopyroxene forms euhedral prisms up to 3 mm in length. They occur exclusively within the subrounded structures referred to above, and are accompanied rarely by calcite.

Pyrrhotite forms anhedral patches and subhedral prismatic grains, commonly within the subrounded structures. It also occurs as smaller disseminated patches throughout the rock.

Pyrite is minor in abundance. It forms small aggregates (~1 mm in size) composed of numerous small cubic grains (<0.1 mm in size).

Chalcopyrite is rare, occurring as anhedral angular patches, commonly in close association with pyrrhotite.

The primary nature of the rock is unclear, owing to its very fine-grained abundant matrix and lack of identifying structures. However, two features suggest that the precursor rock may have been a felsic rock, perhaps an acid lava:

i) Two ovoid structures, several mm in size and weakly aligned, may represent amygdales (infilled vesicles). The zonal distribution of minerals that fill the structures, with marginal radiating actinolite sheaves and central ?diopside prisms and angular sulphide grains, further supports this suggestion.

ii) The presence of uniformly disseminated microgranular aggregates of leucoxene indicates that the precursor rock was moderately rich in Ti, supporting a volcanic origin.

iii) The abundance of K-feldspar (confirmed by X-ray diffraction) also supports an acid volcanic origin.

Skarn alteration of the precursor rock has caused pervasive recrystallisation and alteration of the felsic matrix and infilling of the ?amygdaloidal structures.

SAMPLE: T19757 :TSC52526

Rock Name:
<u>Hornfelsic meta-siltstone</u>

Hand Specimen:
The large meta-sedimentary rock sample is massive, grey, fine-grained and lacks layering.

Petrography:

Mineral	Vol.%	Origin
Quartz	73	relict detrital
Biotite (incl. sericite)	25	metamorphic
Tourmaline	Tr	detrital/metamorphic
Leucoxene	Tr	detrital
Zircon	Tr	detrital
Opaques (sulphides)	2	metamorphic

In thin section, this sample displays a relict silty sedimentary texture, modified by metamorphic recrystallisation.

Quartz is abundant, occurring as angular grains of uniform size (~0.1 mm).

Sericite occurs as very fine flakes that are confined to the matrix areas between quartz grains. In places, patches and discontinuous lensoidal laminae are composed of abundant sericite, some biotite, minor particles of quartz, and rare small euhedral tourmaline prisms.

Biotite forms poorly crystallised, brown patches up to ~0.2 mm in size within the matrix material.

Accessory detrital phases include subrounded tourmaline grains, angular leucoxene grains, and rounded zircon grains.

Opaques are disseminated in minor amount through the rock. Most has cubic morphology and builds small aggregates up to ~0.1 mm in size, suggesting they represent pyrite. Elsewhere, accessory anhedral patches of opaque material may represent a different sulphide, possibly pyrrhotite.

The rock represents a quartzose silty sediment that contained muddy patches and discontinuous laminae. Regional metamorphism generated much sericite in the matrix. Toward the end of regional metamorphism, or in response to localised hydrothermal (contact) metamorphism, biotite began to form poorly-crystallised disseminated aggregates, in association with disseminated sulphides (?pyrite + ?pyrrhotite).

SAMPLE: T19758 :PTSC52527

Rock Name:
Magnetite(-pyrite-chalcopyrite-bismuthinite) skarn

Hand Specimen:
The rock sample is composed of subparallel, contorted, discontinuous patches that are fine-grained, green or yellowish green. Fine-grained lensoidal patches of magnetite are present, and silvery sulphide (pyrite) forms coarser-grained disseminated patches. The rock is strongly magnetic.

Petrography:

Mineral	**Vol.%**	**Origin**
Mica (biotite)	26	metamorphic
Epidote (zoisite)	5	metamorphic
Quartz	15	metamorphic
Magnetite	30	metamorphic
Chlorite	10	metamorphic
Fluorite	4	metamorphic
Pyrite	10	metamorphic
Chalcopyrite	<1	metamorphic
Bismuthinite	Tr	metamorphic

In polished thin section, this sample displays a fine-grained, crystalline metamorphic texture.

Green mica, pleochroic to pale brown, is moderately abundant. It occurs as subhedral, pleochroic green laths in radiating intergrowths and mats. Many of the mats are very fine-grained.

Green chlorite flakes are intergrown with the mica.

Quartz occurs as anhedral clear patches, commonly interstitial to amphibole.

Epidote occurs as pleochroic yellowish subhedral grains, sparsely scattered through the rock.

Isotropic fluorite (confirmed by X-ray diffraction) is present as colourless anhedral patches.

Magnetite is abundant. It occurs as patches and lamellar concentrations of subhedral cubic grains (average size ~0.2 mm). It also occurs as very fine-grained disseminations.

Pyrite occurs as creamy white aggregates, several millimetres in size, composed of cubic grains up to ~0.2 mm in size. Most of the pyrite contains numerous minute inclusions, as well as inclusions of magnetite.

Chalcopyrite is present in very small amount. It form anhedral patches up to ~0.5 mm in size, commonly closely associated with other opaque phases.

Bismuthinite is present as characteristically anisotropic, pale bluish grey grains. It occurs as lath-like and blebby inclusions within pyrite, within magnetite, and also as discrete anhedral interstitial patches within amphibole.

The rock represents a magnetite-rich skarn that has formed by hydrothermal replacement of a calcareous precursor. Whether the alteration fluids were of regional metamorphic or contact metasomatic origin is not apparent at this level of study, but the presence of accessory fluorite supports a contact metasomatic origin. Microtextural relationships between the different minerals suggest that a single metasomatic alteration event was responsible for generation of the skarn rock.

SAMPLE: T19759 :TSC52528

Rock Name:
Skarnified silty meta-sediment

Hand Specimen:
The large rock sample is composed of laminae on the millimetre to centimetre scale. Most are fine-grained and pale grey to green in colour. The rock is hard, competent, and non-magnetic. Weathering has generated pervasive brownish iron oxide staining.

Petrography:

Mineral	Vol.%	Origin
Quartz	79	relict detrital/metamorphic
Actinolitic amphibole	20	metamorphic
Zircon	Tr	detrital
Tourmaline	Tr	detrital
Leucoxene	Tr	detrital
Opaques (?pyrite)	1	metamorphic

In thin section, this sample displays a relict sedimentary texture modified by metamorphic recrystallisation.

Quartz dominates the rock. It occurs as well-sorted (average size ~0.1 mm) detrital grains that have been partly sutured along grain boundaries to form a granoblastic mosaic.

Accessory detrital phases include anhedral granular leucoxene grains, rounded zircon grains, and greenish brown rounded tourmaline grains.

Disseminated through the rock are subhedral cubic opaque crystals (up to ~0.1 mm in size), and small aggregates of grains. The form suggests that the opaque phase is pyrite.

Actinolitic amphibole occurs as very pale green, optically continuous, anhedral plates that appear to have crystallised preferentially in interparticle matrix.

The rock represents a well-sorted quartzose siltstone with muddy patches that has suffered recrystallisation and skarn alteration to cause recrystallisation of quartz particles and the crystallisation of a significant amount of actinolite.

SAMPLE: T19760 :PTSC52529

Rock Name:
Epidote-garnet-diopside skarn

Hand Specimen:
The rock sample is fine-grained, massive, and greenish in colour. A ferruginous weathering rind is present.

Petrography:

Mineral	Vol.%	Origin
Epidote (clinozoisite)	25	metamorphic
Garnet	30	metamorphic
Diopside	25	metamorphic
Goethite	20	weathering

In polished thin section, this sample displays a crystalline metamorphic texture.

Epidote forms intergrowths of subhedral, pleochroic yellowish crystals up to ~0.4 mm in size. In places it forms massive mats of intergrown crystals, and elsewhere it is more uniformly dispersed through garnet.

Garnet forms anhedral, colourless, poikiloblastic grains up to ~1 mm in size, commonly containing numerous smaller crystals of other phases. It is anisotropic, revealing fine growth zoning.

Diopsidic clinopyroxene forms euhedral small colourless prisms (average size ~0.1 mm). It is unevenly distributed through the rock.

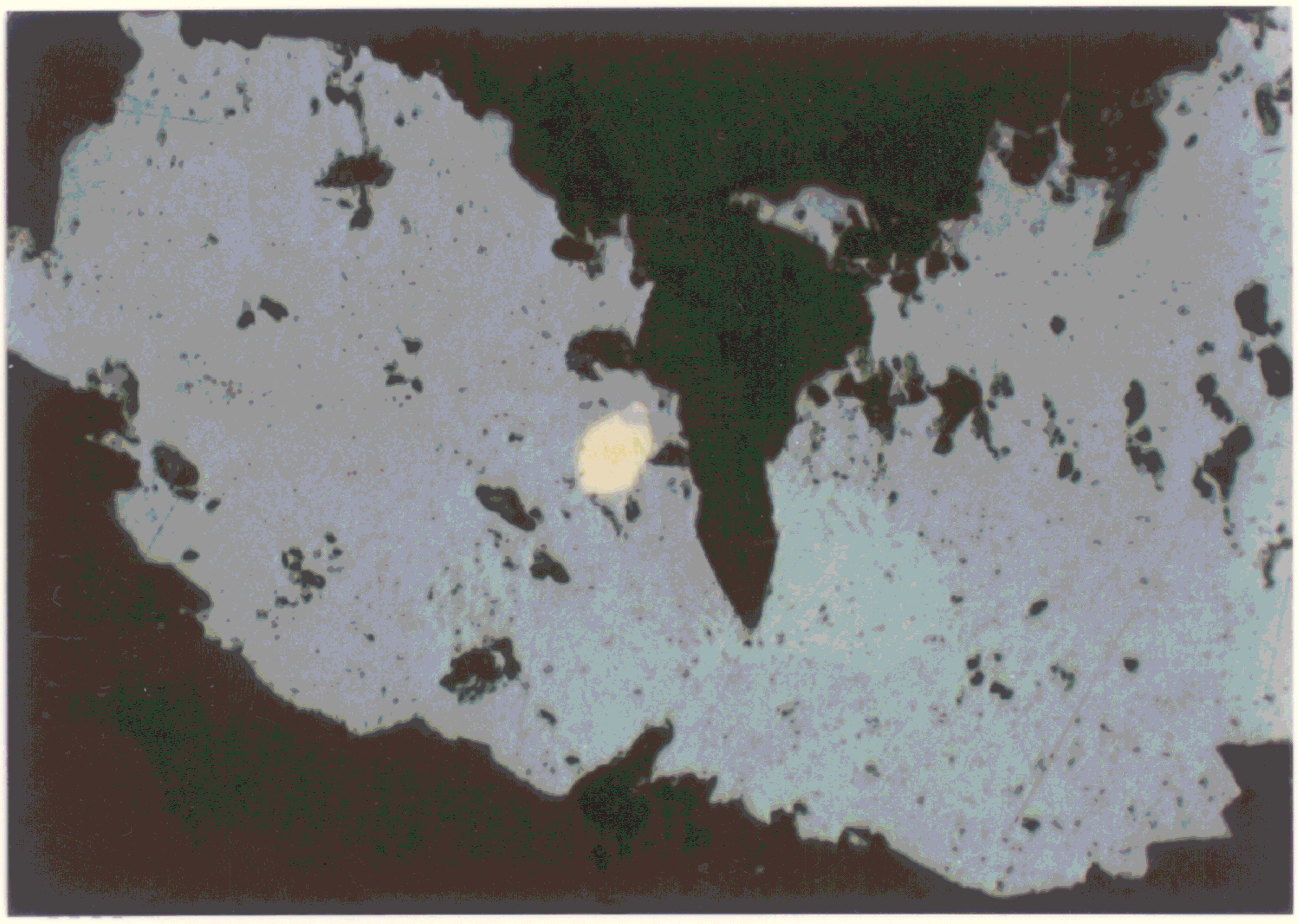
Weathering has caused pervasive alteration by reddish brown, fine-grained goethite. It has preferentially replaced the pyroxene, and also fills fractures.

The rock represents a calcareous precursor that has suffered extensive hydrothermal metasomatic alteration to produce the assemblage epidote + garnet + diopside.

TABLE 1: DETAILS OF THIN SECTIONS AND POLISHED THIN SECTIONS

Sample No.	Type of section	No.
Samples provided by Mr. Carlos Castro:		
T-08690	Thin section	C52515
T-11906	Polished thin section	C52516
T-11907	Polished thin section	C52517
T-11908	Polished thin section	C52518
T-11909	Thin section	C52519
Samples provided by Mr. Matthew White:		
T19748	Polished thin section	C52520
T19749	Thin section	C52521
T19750	Polished thin section	C52522
T19752	Thin section	C52523
T19755	Thin section	C52524
T19756	Polished thin section	C52525
T19757	Thin section	C52526
T19758	Polished thin section	C52527
T19759	Thin section	C52528
T19760	Polished thin section	C52529

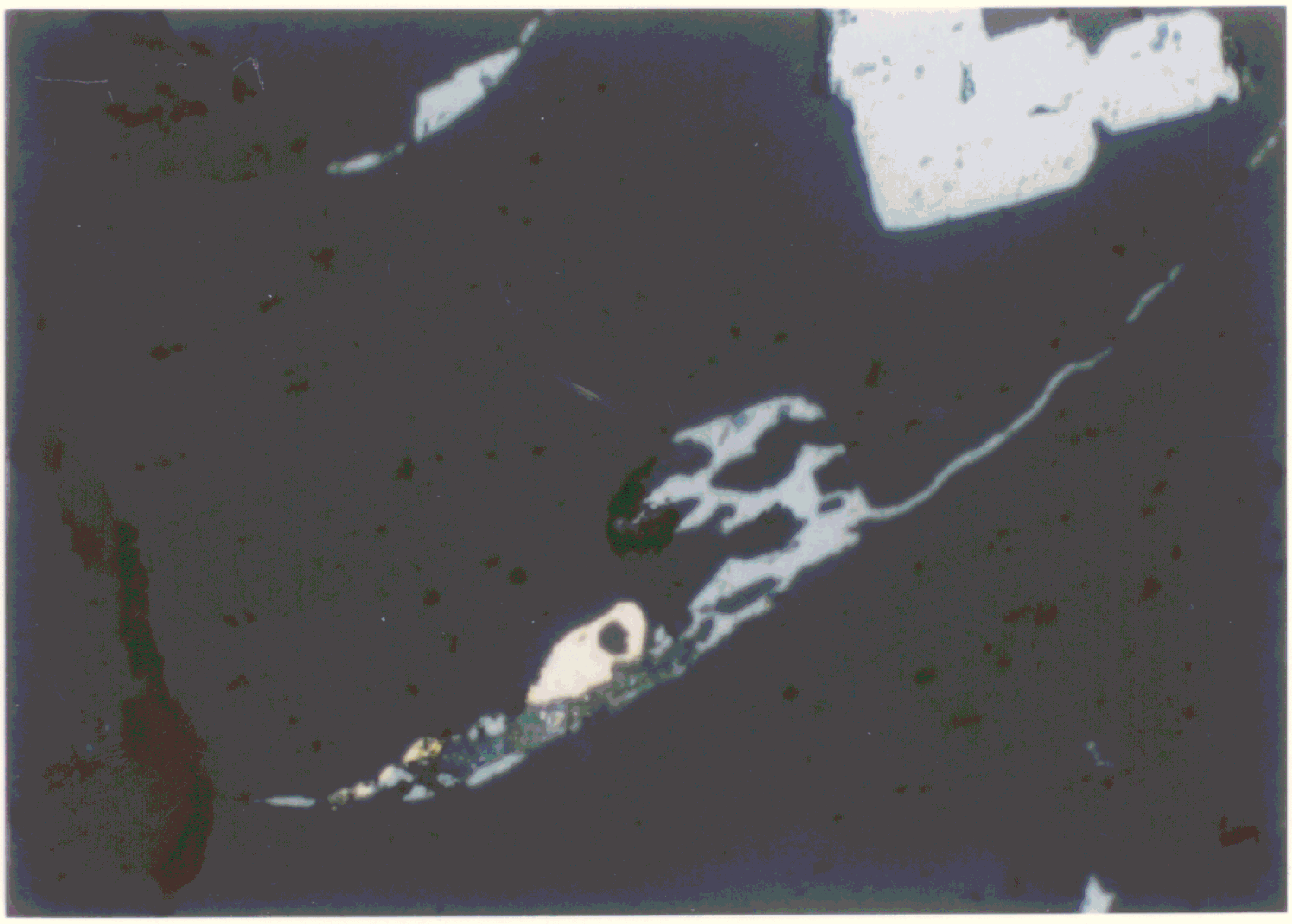
PLATE 1: NATIVE GOLD IN SAMPLE T19750



100 μm

a) Plane polarised reflected light (20, 7/1)

Native gold (bright yellow) lies within polycrystalline aggregate of bismuthinite (pale grey).



500 μm

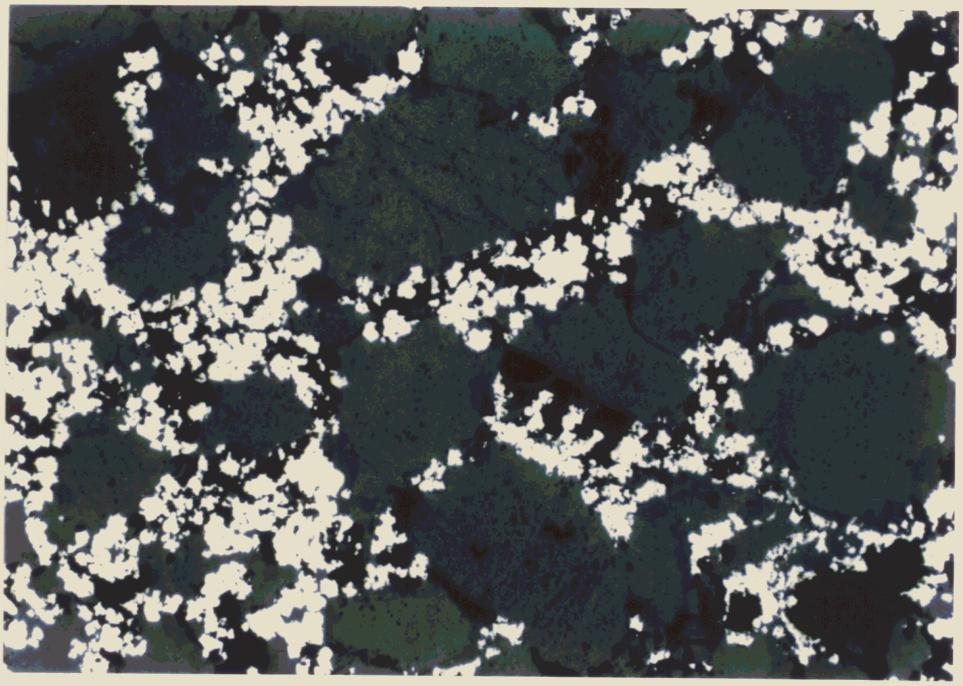
b) Plane polarised reflected light (50, 8/1)

Small grains of native gold (bright yellow) are intimately associated with bismuthinite (pale grey) near a microfracture.

5 cm

449174

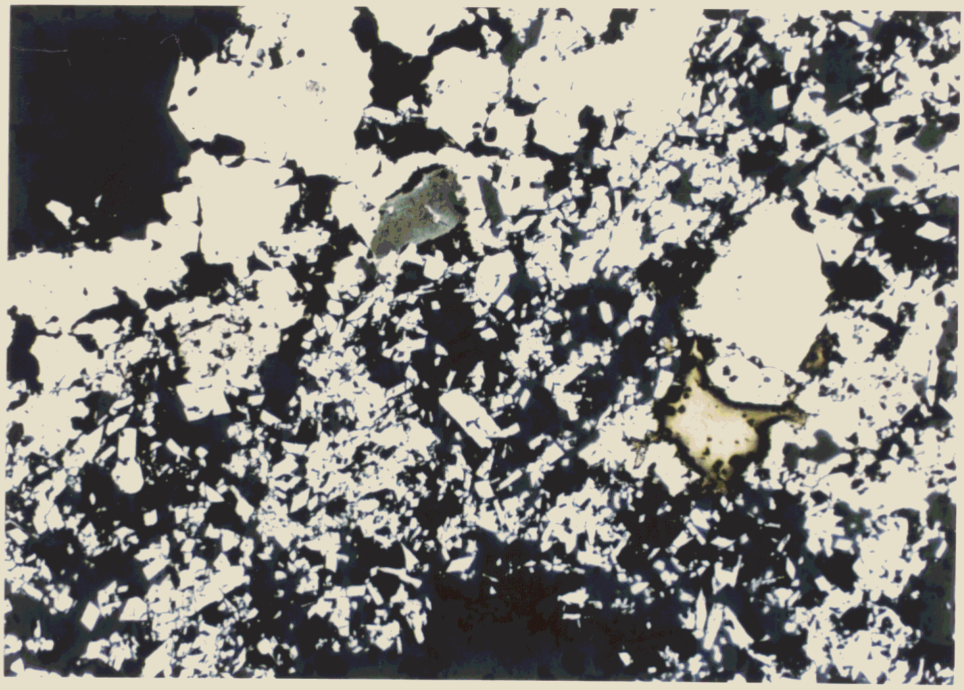
PLATE 2: GENERAL VIEW OF ORE MINERALS



500 μm

a) Sample T11907 (Plane polarised reflected light) (5, 3/1)

Fine-grained pyrite (white) has preferentially replaced matrix interstitial to relict detrital quartz particles.



500 μm

b) Sample T11908 (Plane polarised reflected light) (5, 4/1)

The intimately intergrown ore minerals are pyrite (creamish-white), arsenopyrite (small white euhedral crystals), and minor chalcopyrite (yellow).

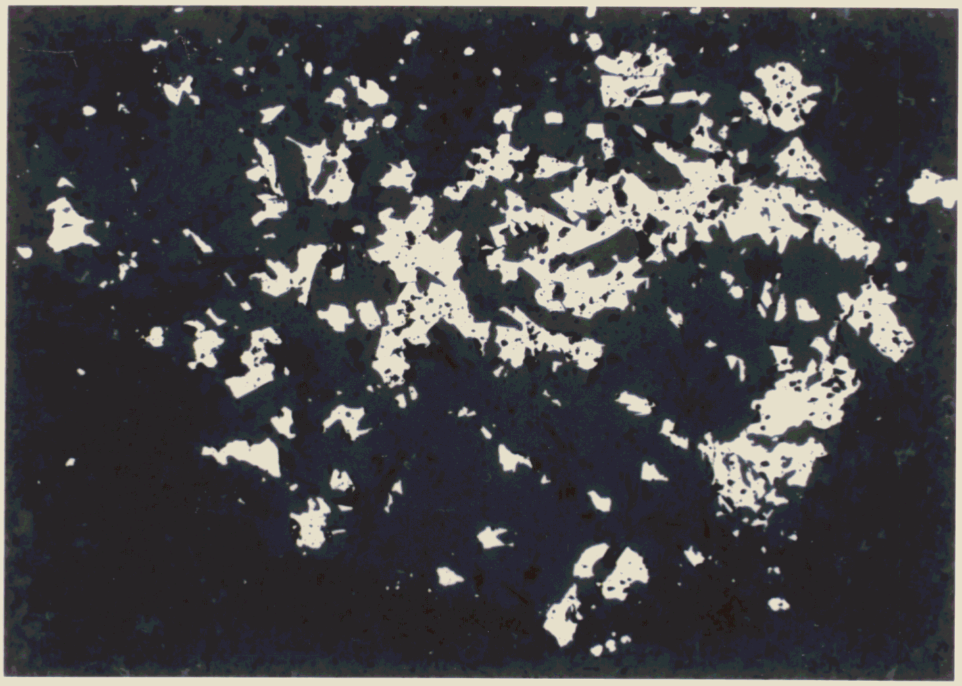
5 cm

PLATE 3: GENERAL VIEWS OF ORE MINERALS (CONTD.)

200 μm

a) Sample T11908 (Plane polarised reflected light) (10, 6/1)

Euhedral pyrite crystals (pale greyish-white) contain irregularly shaped inclusions of galena (grey) that may contain characteristic triangular cleavage plucks (larger inclusion at upper left).



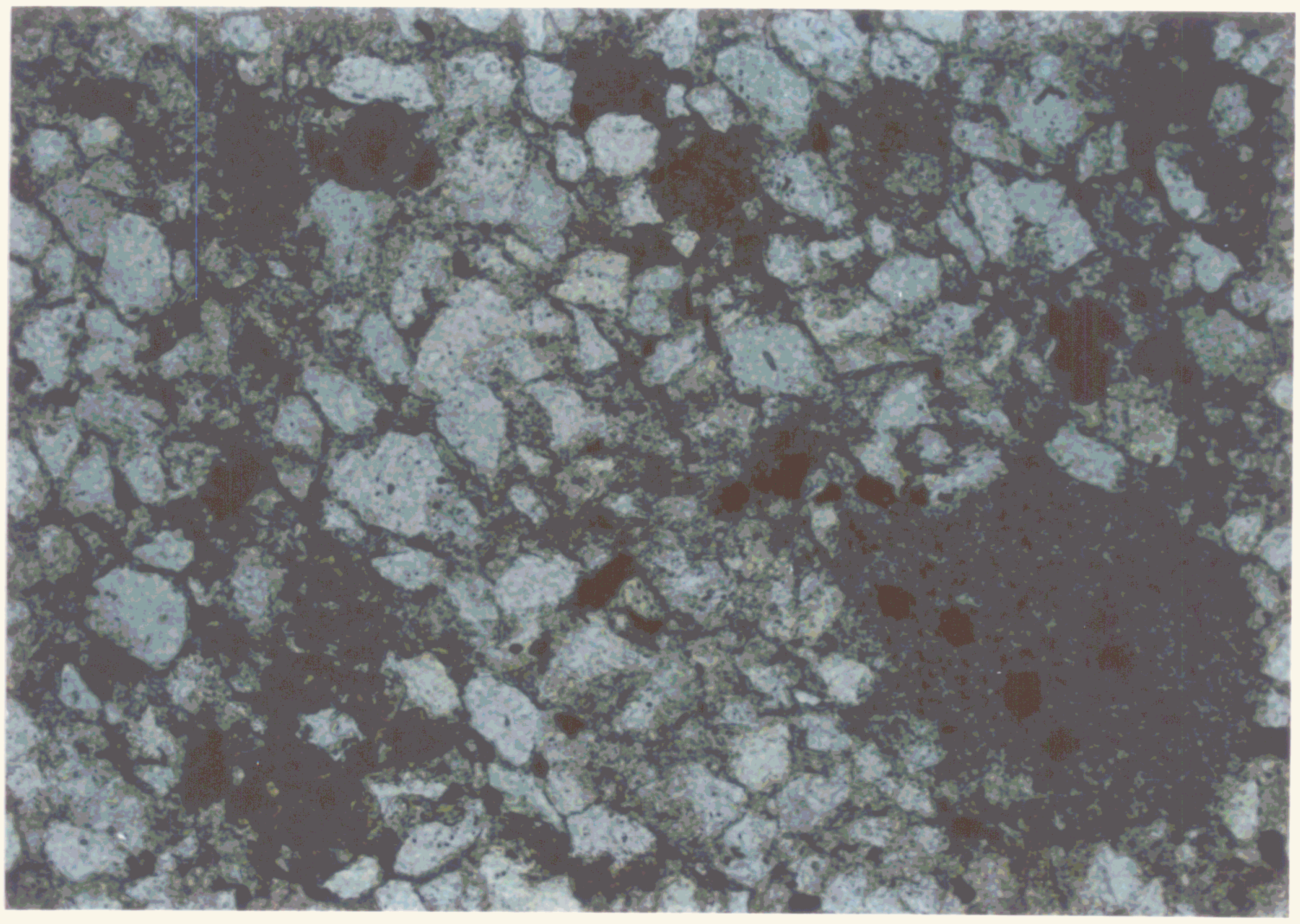
500 μm

b) Sample T19756 (Plane polarised reflected light) (5, 11/1)

Ovoid amygdaloidal structure is filled by pyrrhotite (creamish-white), minor chalcopyrite (yellow, upper centre), and actinolitic amphibole (dull grey).

5 cm

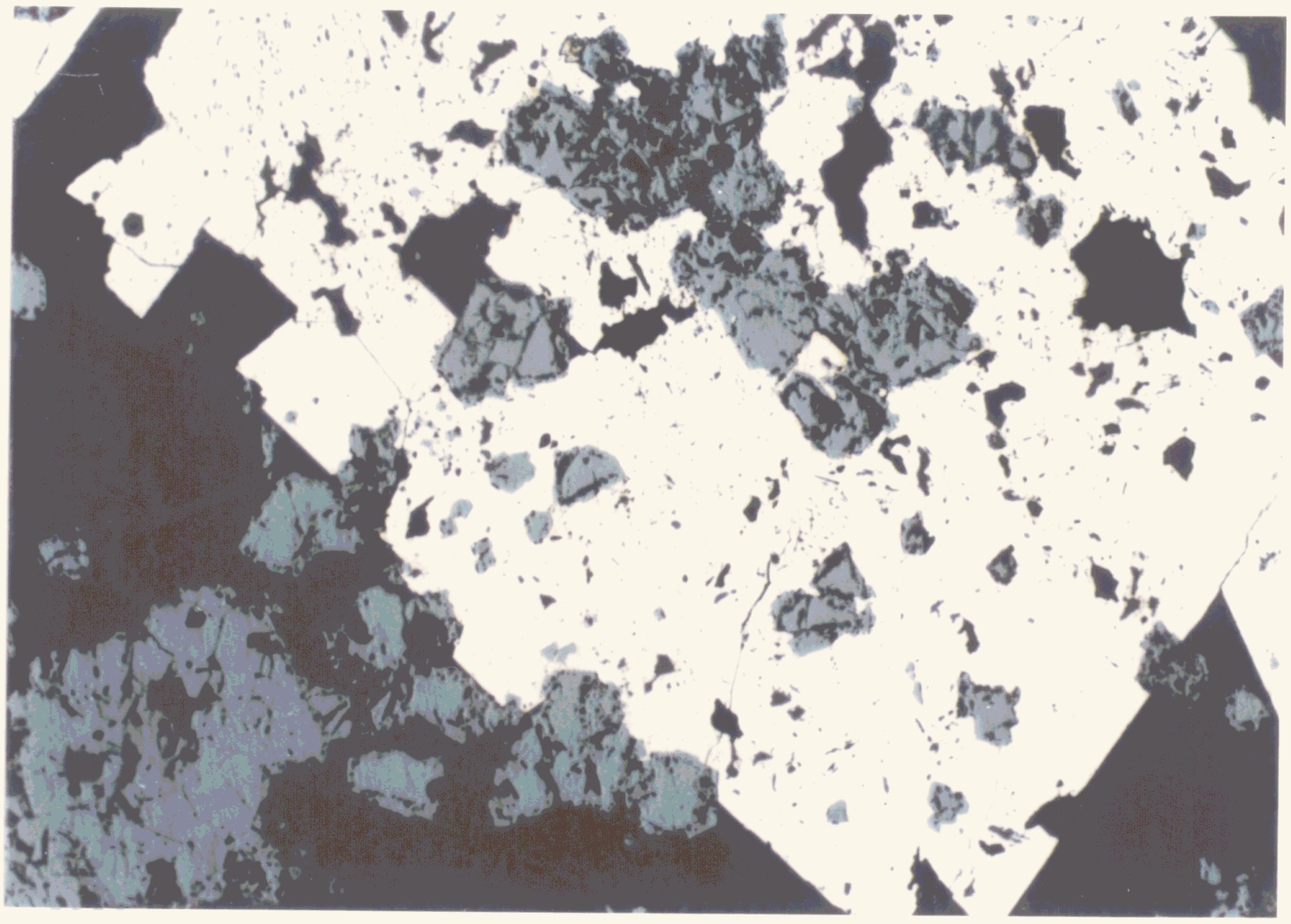
PLATE 4: GENERAL VIEWS OF ORE MINERALS (CONTD.)



200 μm

a) Sample T19757 (Plane polarised transmitted light) (10, 12/1)

This hornfelsed meta-sediment contains relict angular detrital quartz particles (clear), poorly crystallised metamorphic biotite (brown patches), and disseminated pyrite (opaque grains).



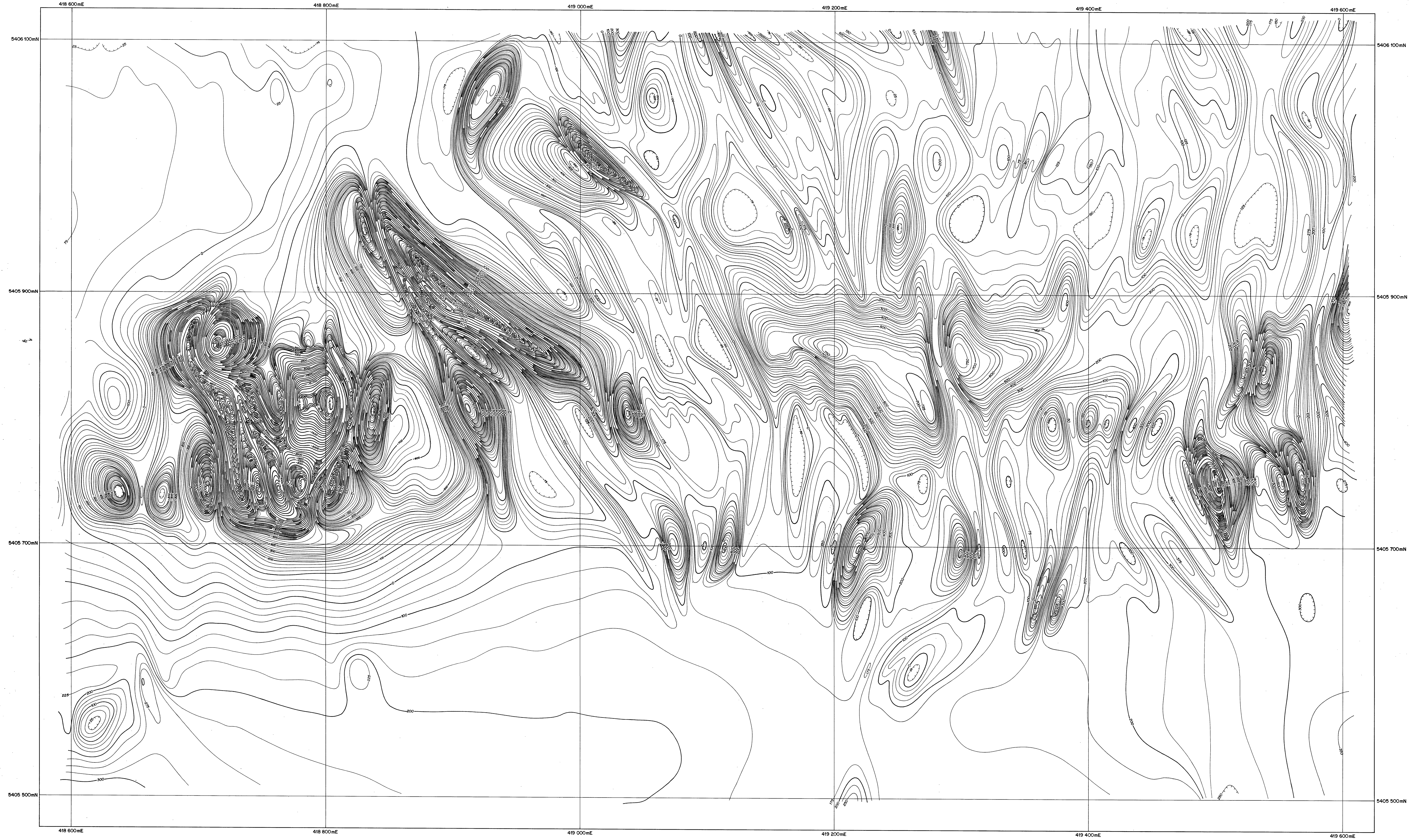
500 μm

b) Sample T19758 (Plane polarised reflected light) (5, 13/1)

Pyrite (creamish-white) and magnetite (medium grey) are intimately intergrown.

5 cm

9788

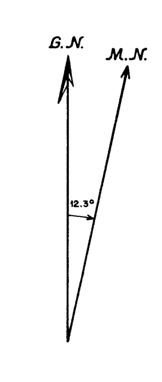


GROUND SURVEY SPECIFICATIONS

MAGNETOMETER:	GSM-18 PROTON PRECESSION SENSITIVITY: 0.1 nT
STATION SPACING:	5.0 METRES
DATA RECORDING:	DIGITALLY WITHIN THE MAGNETOMETER
LINE SPACING:	50.0 METRES
BASE STATION:	GSM-18 PROTON PRECESSION SENSITIVITY: 0.1 nT
DATA RECORDING:	DIGITALLY WITHIN THE MAGNETOMETER EVERY 15.0 SECONDS

RESIDUAL MAGNETIC CONTOURS

GRID NOTATION REFERS TO AUSTRALIAN MAP GRID ZONE 55
PROFILE FILTER: 3 POINT TRIANGULAR
CONTOUR INTERVAL: 25 nT



5 cm

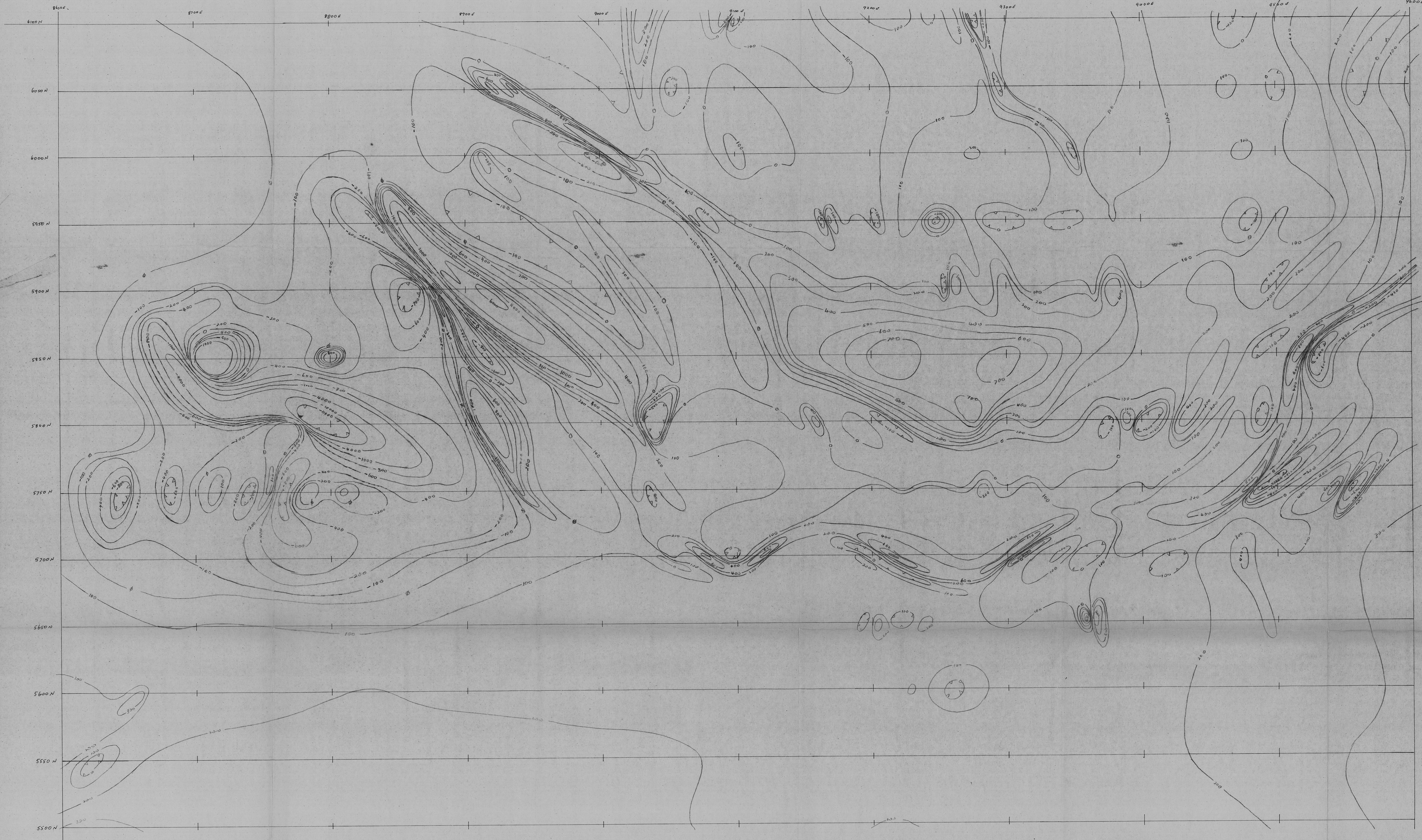
90-3171.

RGC EXPLORATION PTY. LIMITED
Incorporated in New South Wales

COMPILED:	GEOTERREX	E.L. 41/83 - TASMANIA
DRAWN	D.E.K.A.	449177
DATE	NOV., 1989	STORMONT GRID
CHECKED	S.T.M.	RESIDUAL MAGNETIC CONTOURS
1:250 000 REFERENCE		

BASE PLAN NO 5513/007	SCALE 1:1000	0 10 20 40 60 80 m.	PLAN 1
OVERLAY PLAN NO			

9789



90-3171.1

R.G.C. EXPLORATION Pty. Ltd.

LAKE LEA (STORMONT) PROSPECT

Surface Magnetometer Survey

Smoothed data Contours. (TMI)

Contour Interval:
100 n.T. accept where shown.

Scale 1:1000

5513/002

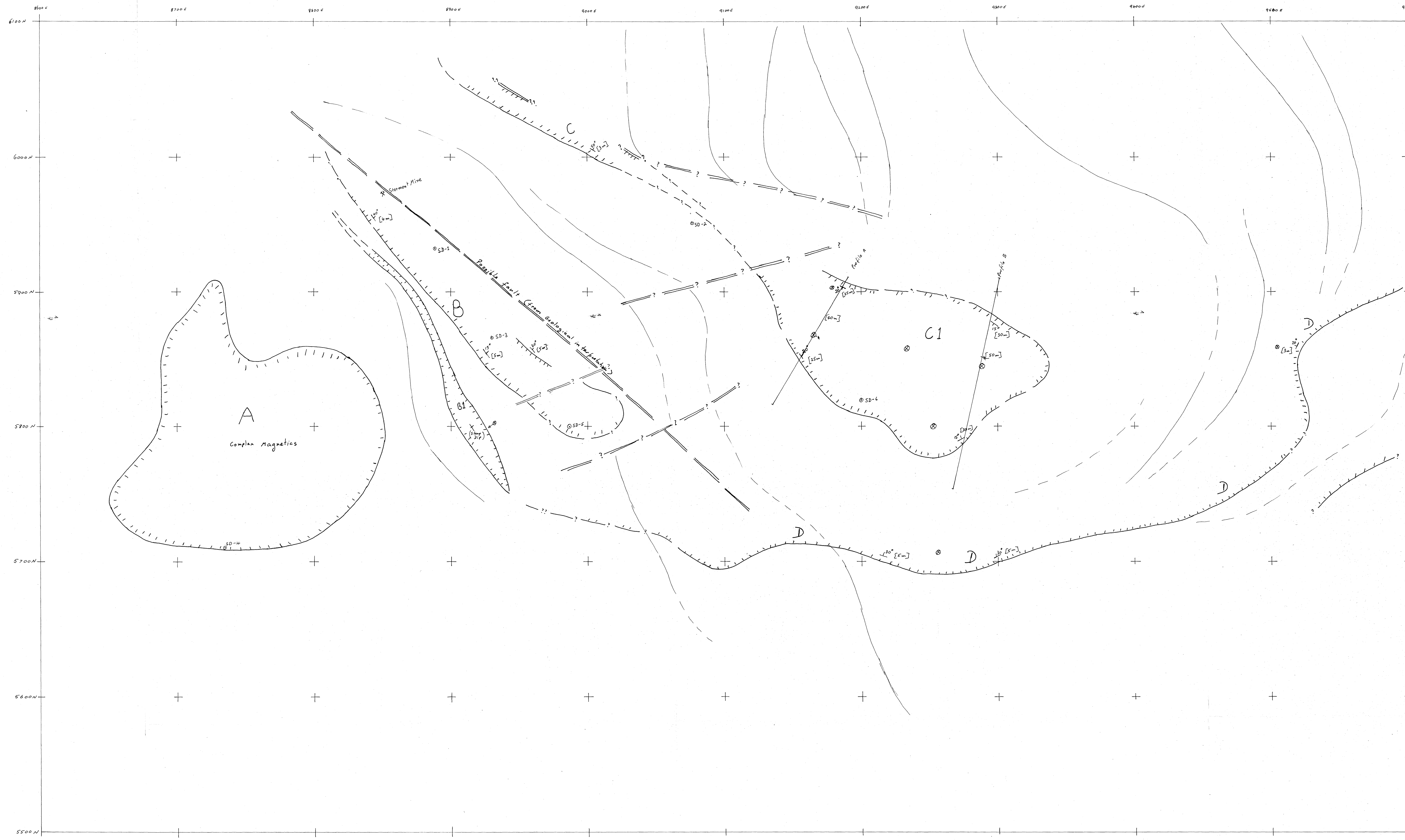
Figure 2.

PLAN 2.

5 cm

449178

8790



Reference

- ⚒ Mine
- ⊙ SD-4 Drill Hole
- ⋎10° Dip interpreted from magnetics } Approximate!
- [10m] Depth " " " } Approximate!
- ⊗ Recommended drill hole Location
- magnetic trend/continuation
- E Magnetic anomaly or zone (interpreted)
- ═?═ Possible fault
- Profile x Magnetic profile from contours.

R.G.C. Exploration Pty. Ltd.

LAKE LEA (STORMONT) PROSPECT

GEOPHYSICAL INTERPRETATION PLAN

Scale 1:1000

5513/001

Figure 3.

PLAN 3.

5 cm

449179

90-3171.

LEGEND

QUATERNARY	Qa	Alluvium/Soil
TERTIARY	Tb	Basalt
	Tg	Greybilly
ORDOVICIAN	Osk	Skarn (Gordon Limestone)
	Ohf	Hornfels (Transitional Rocks)
	Om	Moina Sandstone
	Q	Massive white quartz

- Approximate geological boundary
- ? Inferred geological boundary
- 66° Fault - Strike/Dip
- Inferred Fault
- Fold axis - Syncline
- Fold axis - anticline
- SD1 (Osk) Diamond Drill Hole and Downhole Geology
- SD 001 DIAMOND DRILL HOLE DRILLED 1990
- Sample Location

GN TN MN
GRID CONVERGENCE 0.65'
GRID/MAGNETIC 12.3'

RGC EXPLORATION PTY. LIMITED
(INC. IN N.S.W.)

COMPILED:	M.W.
DRAWN:	M.O.W.
DATE:	DEC. 1989
CHECKED:	
1:25,000 REFERENCE:	LEA

LEA RIVER AREA

INTERPRETED GEOLOGY

E.L. 41/83

BASE PLAN No.	OVERLAY PLAN No.		FIGURE No.
5513/004		40 0 40 80 200 SCALE 1:1,000	PLAN 4.

N.W. Coast Computer Aided Drafting Centre. Phone (004 354315) Fax. (004 354495)

449130 90-3171.

5 cm


LEGEND
GA : GARNET 0 - 100 %
DI : DIOPSITE 0 - 100 %
AC : ACTINOLITE 0 - 100 %
EP : APIDOTE 0 - 100 %
AU : GOLD 0.01 - 1.00 PPM
90-3171.
R.G.C. Exploration Pty Ltd
STORMONT AREA EL 41/83
CROSS SECTION 5800N
SCALE 1:500
SH/PO/CC
JULY 1990
INTERNATIONAL GEOSYSTEMS CORPORATION
PLAN 5.
449131
5 cm

9793

TERTIARY	Tb	Basalt
	Tg	Greybilly

ORDOVICIAN

Skarn Rocks (Gordon Limestone)

Ocs	Calc silicate hornfels/skarn, ± magnetite ± pyrite
Oms	Magnetite skarn
Oga	Garnet actinolite skarn

Transitional Rocks

Ohf/sh	Hornfelsic shale
Ohf/st	Hornfelsic sandstone
Ohf	Hornfels light-green to grey silicified ± pyrrhotite ± pyrite

ORDOVICIAN

Moina Sandstone

Ost	Weakly Limonitic, silicified quartz sandstone
Oqt	Quartzite, (intense silicification of Ost)
Ost/Oqt	Moderately intense silicification of Ost)
Ots	Tubicolar quartz sandstone (contains sub-vertical worm burrows)
Osh	Shale

Other Rocks

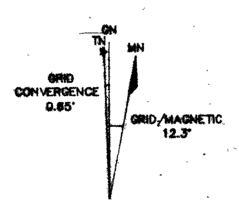
Q	Massive milky white "bucky" quartz

Alteration/Mineralisation

(LI) - Limonitic
(MS) - Sericitic
(HE) - Hematitic
(PR) - Pyrrhotite
(PY) - Pyrite
(MG) - Magnetite

LEGEND

Rock outcrop boundary
Rock sub-outcrop boundary
Rock float
Creek
Shaft
Strike/Dip, bedding
Strike/Dip, prominent jointing
+ Rock-chip (outcrop) sample
⊕ Dump, composite sample
⊙ Rock float sample
(Sample Numbers T19712 - T19730)
T19754 Specimen Sample
SD1 Previous Diamond Drill Hole



RGC EXPLORATION PTY. LIMITED
(INC. IN N.S.W.)

COMPILED:	M.W.
DRAWN:	M.O.W.
DATE:	DEC. 1989
CHECKED:	
1:25,000 REFERENCE:	LEA

LEA RIVER AREA

FACTUAL GEOLOGY

5 cm

SCALE 1:1,000 (40 0 40 80 200)

BASE PLAN No.	OVERLAY PLAN No.	PLAN.
5513/004		6

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90-3171.

449182