RGC EXPLORATION PTY. LIMITED

503001

E.L. 41/83 - LAKE LEA

ANNUAL REPORT - 1988/89

Report No: T/90/5

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Distribution: Department of Mines (1)
RGC Exploration Pty. Ltd. (2)

SUMMARY

E.L. 41/83 covers an area of 56 sq. km. in Northern Tasmania. RGC Exploration Pty. Ltd. has carried out exploration activities on the licence during the past twelve months, with Au being its principal target.

The area lies within a sequence of Ordovician sediments and Cambrian volcanics which have been extensively covered by Tertiary Basalt. Several old workings occur in the area within the Ordovician sediments. Minor Au-bearing quartz lodes have been worked from Moina Sandstone at Blacks, Devonport & Upper Stormont Workings. Au and Bi have been extracted from the Stormont Bismuth Mine where mineralisation occurs in garnet-actinolite skarn.

Work during the last twelve months has concentrated on the north-eastern part of the Licence mostly around the Stormont Bismuth Mine and Fletchers Adit areas, which are considered to host significant amounts of Au-bearing skarn.

The area was previously gridded and explored by Mt. Lyell Mining and Railway Co. and Comalco. Both Companies carried out geological mapping, ground magnetics, group IP, soil sampling and minor rock chip sampling. Mt. Lyell also included the area in a regional stream sediment survey. The Mt. Lyell and Comalco data has been compiled and assessed.

A considerable amount of stabilisation work was carried out in the Licence, particularly of the tracks which access the Stormont sector, which had to be drained a few times. A new grid consisting of a total of 13 km (13 x 1km lines) was cut in the Stormont area, on which 1:1,000 detailed geological mapping and sampling was completed. A close spaced ground magnetic survey with readings every 5 metres was conducted over this grid, on whose interpretation, together with the geological mapping, a vast drilling programme will be planned for the summer of 1990. Some additional detailed mapping at 1:1,000 was carried out around the Fletchers Adit sector, with a 1:5,000 map being produced to relate this area and Stormont, especially along the exposures on the Lea River bed.

The regional geophysical appraisal with the currently available magnetic and gravity data was completed by Dr. D. Leaman of Leaman Geophysics. He states that known mineral deposits possess observable magnetic signatures; that the Dolcoath Granite's emplacement was structurally controlled; that some of these structures are related to mineralised sites which are exposed; that the basalt is generally thin (<50 metres) and that at least one deep lead is suggested (300 metres deep). Leaman believes he has been able to identify areas that may contain mineralisation. However, drilling is required to provide controls on the interpretation and also to allow further processing of the gravity and magnetic sets of data.

The work planned for 1989/1990 includes combining the regional geophysical appraisal of David Leaman with the close-spaced ground magnetics interpretation (1:1,000), and the geological mapping at the same scale, to generate drill targets in the Stormont area. Outside Stormont, effort will be put in following-up the old workings around Devonport Creek and Blacks Bluff, aiming at a more definitive valuation of the whole Licence.

Expenditure for the year ending 27 December, 1989, was $57,984. Proposed expenditure for the 1989/1990 period is $140,000.

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APPENDICES

Appendix 1 Expenditure - 1988

Appendix 2 Assay Results

For Geophysical Results please see Annual Reports for Lorinna EL 8188.

Reports include:

1. Magnetic Data: Initial Review August 1988
2. Gravity Data: Initial Review October 1988
3. Integration of Initial Reviews November 1988
4. Magnetic Data: Analysis 418-420 000mE
5. Gravity Data: Analysis 418-424 000mE

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LIST OF FIGURES

Figure No.	Title	Scale
1	Locality Map (in text)	1:250,000

LIST OF PLANS

Plan No.	Title	Scale
1	E.L. 41/83 - Lea River/Stormont Area Interpreted Geology	1:1,000
2	E.L. 41/83 - Lea River/Stormont Area Cross Section (Interpretive Geology)	1:1,000

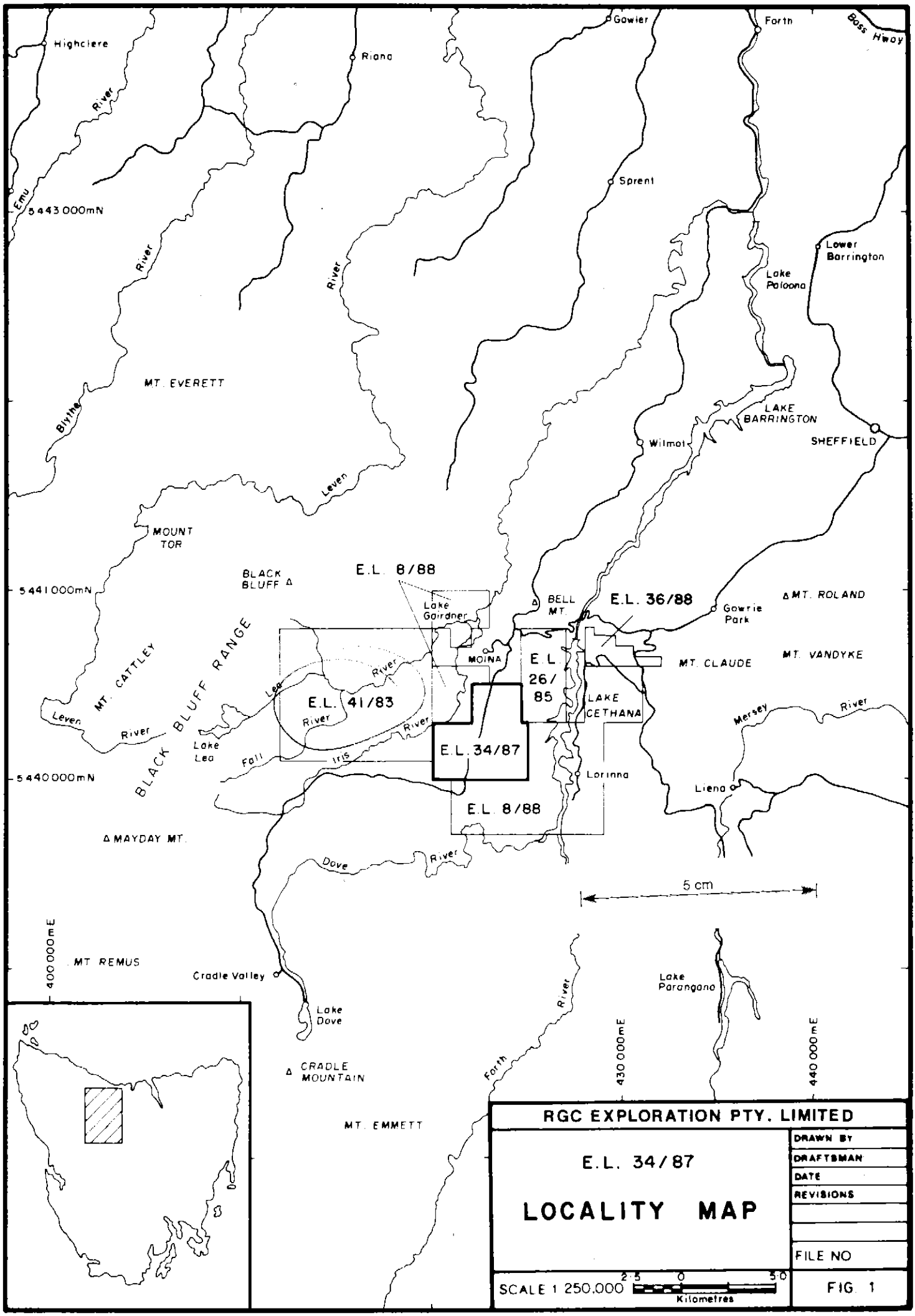
1. INTRODUCTION

E.L. 41/83 covers an area of 56 sq. km. S of Black Bluff in northern Tasmania (Figure 1). Lake Gairdner lies immediately to the NE and Lake Lea to the W. The Lea and Fall Rivers flow through the area. The southern and central part of the Licence are well accessed by logging roads branching off the Cradle Mountain Road. The NE part of the licence is accessed via 4WD tracks to the old Stormont Bismuth Mine and Devonport Mine workings. The Devonport Mine track is washed out just before it reaches the button-grass plains on the foot hills of Black Bluff Range. Vehicular access into the NW part of the licence is not possible.

The Lake Lea licence is at the N end of the Mt. Read volcanic belt where the Cambrian and Ordovician rocks structurally turn E-W around the northern end of the Precambrian Tyennan Block. Cambrian rocks outcrop mainly in the northern and central portions of the licence. They are unconformably overlain by a thick Ordovician sequence consisting of a lower unit of Owen Conglomerate equivalent, a central unit of Moina Sandstone and an upper limit of Gordon Limestone. These lithologies were folded and faulted during the Devonian along E-W and NW trends. Emplacement of the Dolcoath Granite occurred also in the Devonian and outcrops some 5 km east of the licence. Tertiary basalt is widespread. Its distribution suggests the present drainage pattern is similar to that which existed in the Tertiary.

Several old workings occur within EL 41/83. Most were prospecting Au, at grades better than 10 g/t, but tonnages were very low. The largest production was out of the Stormont Bismuth Mine with 6.3 tons of bismuth concentrate being produced grading 63% Bi and 450 g/t Au. This mineralisation occurred with skarn.

Several companies have carried out modern exploration in the area since 1961, but little emphasis was given to the region's Au potential. E.L. 41/83 was originally 112 sq. km. Mapping by R.A. Poltock allowed the area to be reduced by 50% (Roberts, 1985). During 1985/86 data compilation and a regional mapping/stream sediment survey were completed (Roberts, 1986). Several areas of interest were delineated. In 1987 work concentrated on the NE part of the licence around the Stormont Bismuth Mine & Fletcher's Adit areas (Roberts, 1987).


Highclere
Riana
Gowrie
Forth
Boss Hway
Sprent
Emu River
5443000mN
Lower Barrington
Lake Paloona
MT. EVERETT
Blythe River
LAKE BARRINGTON
Wilmot
SHEFFIELD
Leven River
MOUNT TOR
BLACK BLUFF Δ
E.L. 8/88
5441000mN
Lake Gairdner
Δ BELL MT.
E.L. 36/88
Gowrie Park
Δ MT. ROLAND
MOINA
E.L. 26/85
MT. CLAUDE
MT. VANDYKE
BLACK BLUFF RANGE
MT. CATTLEY
E.L. 41/83
Lea River
Leven River
Lake Lea
Fall
Iris
River
E.L. 34/87
LAKE CETHANA
Mersey River
5440000mN
Lorinna
Liena
E.L. 8/88
Δ MAYDAY MT.
Dove River
5 cm
400000mE
MT. REMUS
Cradle Valley
Lake Dove
Lake Parangana
Forth River
430000mE
440000mE
Δ CRADLE MOUNTAIN
MT. EMMETT
RGC EXPLORATION PTY. LIMITED
E.L. 34/87
LOCALITY MAP
DRAWN BY
DRAFTSMAN
DATE
REVISIONS
FILE NO
SCALE 1 250.000
2·5 0 5·0
Kilometres
FIG. 1

2. LAND TENURE

E.L. 41/83 was granted on 21st December, 1983, to Renison Ltd., a wholly owned subsidiary of Renison Goldfields Consolidated (RGC). The licence was originally 112 sq. km., being reduced to 56 sq. km. in November 1985. Exploration is being carried out by RGC Exploration Pty. Limited (RGCE).

There are two current Stone Leases (1M/83 and 2M/82) within the Licence held by Gunns Holdings Pty. Limited.

Six land parcels fall within or encroach upon the licence (Figure 4). They are

1. Land parcel 1883 - freehold land owned by Mr. K.A. Charleston.

2. Land parcels 1056, 2010 & 2011 - Crown Land leased by W.G. Wright Pty. Ltd.

3. Land parcel 2035 - Crown Land leased by J. & T. Gunn Property Holdings Ltd.

4. Land parcel 2036 - Crown Land leased by Mr. K.J. Cook.

3. EXPENDITURE

Expenditure on E.L. 41/83 since the previous renewal to the 27 December, 1989 has been $57,984. A breakdown of this amount is presented in Appendix 1.

4. WORK UNDERTAKEN 1988/89 LEA RIVER AREA

4.1 Aims

The main aims of this project were:

1) To produce accurate, detailed factual and interpretive geological maps of the new grid area.

2) To locate the position and distribution of the skarn horizons using all current and previous geological data.

3) To locate possible skarn extensions and other possible skarn bodies under the Tertiary cover via ground magnetic surveying.

The work done this year will be used to generate drill targets for a systematic drilling programme planned for early 1990.

4.2 Previous Exploration Work

The Stormont Bi-Au-Ag mine and surrounding areas have been the subject of much exploration in past years. Excellent, and comprehensive reviews on the exploration work carried out have been compiled in the last three R.G.C. Annual Reports on Lake Lea E.L. 41/83. All available data was researched by the authors and some time was spent examining diamond drill core from holes SD1 to SD6, drilled during 1988.

4.3 Gridding

A new grid was established during September/October 1989 covering the area of the Stormont Bi-Au-Ag mine and extending well to the E and S over the Tertiary cover. Thirteen grid lines, each 1km. long, were cut at 50m spacing, running E-W (AMG), and with grid pegs spaced every 25m. The grid was tape/compass surveyed and a base plan was drafted at 1:1,000 scale for further work. (Plan 1 of this report).

4.4 Ground Magnetics

A detailed ground magnetic survey was carried out during October 1989. Readings were taken every 5 metres along each line.
The line profiles produced show extremely large variances over very short distances on some parts of the grid lines, which relate to the magnetic intensity of magnetite skarns and pyrrhotitic hornfelsic rocks, and caused initial problems in contouring the data in plan view, which will have to be interpreted and probably hand-contoured. However, the very preliminary contoured magnetic plans prepared show an acceptable correlation with the geology. Intense magnetic highs and lows correlate with the skarn bodies interpreted from mapping.
Some relatively low-intensity magnetic areas with typical "bullseye" patterns are present over the Tertiary basalt country.

Areas of Tertiary Greybilly and Moina Sandstone show a more homogenous, lower intensity magnetic signature. This survey has helped to show that skarn bodies may extend further than previously thought under the Tertiary cover. (Plan 1).

4.5 Geological Mapping

The new grid was mapped during November 1989, at a 1:1,000 scale. The western portion of the grid has been previously mapped by R. Roberts at 1:1,000 scale on a North-South trending grid. This map was examined during the mapping, and the previous legend was largely used to maintain consistency and so that previous geological data could be used to aid geological interpretations. Some minor changes were made within the hornfelsic group of rocks. Most of the grid involved mapping of rock float, however, a few good outcrops were located mainly in the creeks.

4.5.1 Lithotypes

The geological mapping outlined a relatively simple stratigraphic sequence:

Quaternary	- Alluvium
Tertiary	- Basalt
	- Greybilly
Ordovician	- Skarn (Gordon Limestone)
	- Hornfels (Transitional rocks)
	- Moina Sandstone

The distribution of the above geological units is shown on the geological interpretation map (Plan 1) and cross-section. (Plan 2, this report).

Quaternary - Alluvium covers much of the grid and is typically a sandy soil profile.

Tertiary - Basalt is black/grey in colour, glassy, intersectal-textured and contains olivine phenocrysts. It is also slightly magnetic and extremely hard, and occurs as float, soil and minor outcrops over the eastern portion of the grid.

Greybilly is a light-grey, sugary-textured siliceous gravel deposit which can resemble Ordovician siliceous sandstone and quartzite but lacks the systematic jointing present in the sandstone unit. Greybilly covers much of the southern portion of the grid.

Ordovician Skarn rocks are metasomatised Gordon Limestone Formation. Three main types of skarn dominate. The first is a garnet skarn and is exposed in the open-cut of the Stormont Bi-Au-Ag mine. It is green in colour, and contains variable amounts of brown garnet, actinolite, diopside, epidote, calcite and up to 5% bismuthinite (?). Encouraging Au grades were received from previous channel sampling in the open cut of this rock type.

The second type of skarn has a similar mineralogy and appearance, except that it is darker green in colour and contains no garnet. It can contain some magnetite and/or pyrite and is referred to as calc-silicate skarn.

The third type of skarn is a magnetite skarn. Visible magnetite is present greater than 10% and up to 70%, and occurs as veinlets and/or bands within a calc-silicate rich matrix. The inter-relationship of the three different skarns is complex, and more sub-surface data is required to attempt a correlation between them. Distribution of the skarn bodies, and their interpreted extension is shown in Plans 1 and 2 of this report.

Hornfels rocks are situated at the contact between metasomatised limestone (skarn) and the underlying Moina Sandstone. Previous interpretations suggest that the contact is a wide unit of hornfelsic shale. The dominant hornfelsic rock is a fine-grained strongly siliceous banded rock, containing minor amounts of calc-silicate minerals that give it a distinct, light green-brown colour and contains up to 5% pyrrhotite in places. Hornfelsic sandstones and shales were also observed and have similar alteration styles.

Moina Sandstone Formation rocks are dominated by a quartz rich sandstone, often containing tubicolar bioturbation structures. This unit is weakly to strongly silicified (quartzite), weakly sericitic in places and weakly limonitic/hematitic on weathered surfaces. Minor shale and laminated siltstone beds are also present.

The Dolcoath Granite intrusion situated at depth is the source of metasomatic fluids which has resulted in the alteration and mineralisation of the overlying Ordovician sedimentary strata. Timing of the Au-mineralisation event may be syn or post granite intrustion.

4.5.2 Structural Geology

Some structural data was collected during mapping and used in addition to other structural data collected previously by R. Roberts, to aid geological interpretations. The structural model proposed follows that of R. Roberts (1987) and is briefly summarised below. The present distribution of Ordovician sediments has resulted from the combination of two main periods of folding. A regional E-W synclinal folding episode is overprinted by smaller scale NW-SW folding. This has exposed lenticular bodies of skarn parallel to the hinge lines of the synclines of the NW-SW folds.

Faulting/shearing has also occurred sub-parallel to the axial trends of the NW-SE folding. A major dip-slip fault striking at approximately 135 degrees and dippping approximately 66 degrees to the SW has exposed a block of skarn in the area of the Stormont Bi-Au-Ag mine workings. The fault probably provided a permeable path for metasomatic fluids that produced the Bi-Au-Ag bearing skarn.

4.6 Gold Geochemistry

Extensive geochemical sampling has been undertaken in previous years, therefore sampling was limited to 18 rock chip and rock float samples taken during mapping, to use with previous results for interpretation and to identify which lithotypes are geochemically anomalous. High Au concentrations (up to 48.5 g/t) were received from previous sampling of the Garnet Skarn in the Stormont Bi-Au-Ag open cut. Lower levels of Au concentration (less than 1.0 g/t) are present in the magnetite and calc-silicate skarns. Extremely low concentrations of Au (less than 0.01 g/t) are present in the hornfelsic rocks except for one sample of black hornfelsic shale which recorded 0.2 g/t Au.

All rock assays are here included as Appendix 2, and sample location is documented in Plan 1 of this report.

5. WORK PLANNED 1989/1990

(i) Further interpretation to integrate David Leaman's regional gravity/magnetic study with the more local scale geological mapping and ground magnetics must be followed up. This will allow to propose drilling targets in the Stormont/Bismuth sector.

(ii) Drilling of approximately 1,200m. of core in the skarn/sandstone sequence, aiming at evaluating the Au potential of the Stormont/Bismuth sector.

(iii) Further geological mapping to geologically link the Stormont, Fletchers Adit and Ti-Tree skarn sectors.

(iv) Detailed petro/geochemical study of the Stormont/Fletchers Adit exposures.

(v) Detailed follow-up of old workings in the Devonport Creek and Black Bluff (Geopeko's Mariner Grids) as well as other target areas defined by RGC.

6. REFERENCES

Fleming, M.J. (1988) — E.L. 41/83 - Lake Lea. Annual Report - 1988. RGC Exploration Pty. Limited.

Roberts, R.H. (1986) — E.L. 41/83 - Lake Lea Area. Annual Report - 1985/86. GFEL

Roberts, R.H. (1987) — E.L. 41/83 - Lake Lea Area. Annual Report - 1987. GFEL

APPENDIX 1

Expenditure - 1988

RGC EXPLORATION PTY. LIMITED

503018

LAKE LEA - E.L. 41/83

RGCE EXPENDITURE FROM JANUARY 1989 TO OCTOBER 1989

Item	Cost
Salaries, Wages & Oncosts	27,629
Travel & Accommodation	4,590
Consultants & Contractors	17,314
Drilling	606
Stores & Supplies	1,969
Vehicles, Plant & Equipment	1,218
Office Costs	3,058
Land Acquisition	1,600
	57,984
Overheads @ 10%	$5,798
GRAND TOTAL	$63,782

APPENDIX 2

Assay Results

019

RGC EXPLORATION PTY. LTD. DATA SHEET

PROJECT: STORMONT

SAMPLE NUMBER	AU PPM	AUCHK PPM	CU PPM	PB PPM	ZN PPM	AG PPM	SN PPM	BI PPM	AS PPM
T 19712	-0.008	-0.008	10	25	180	-0.5	-3	1	83
T 19713	0.010		15	25	210	-0.5	313	97	4
T 19714	-0.008		10	35	170	-0.5	282	70	2
T 19715	-0.008		15	20	115	0.4	6	2	2
T 19716	-0.008	-0.008	15	30	155	0.7	4	1	2
T 19717	0.308		15	1100	105	2.8	98	2600	1
T 19718	0.009		40	30	110	-0.5	149	397	24
T 19719	-0.008		65	35	125	-0.5	130	214	5
T 19720	0.591								
T 19721	0.042		60	25	125	-0.5	104	191	16
T 19722	0.042		250	50	600	-0.5	206	555	27
T 19723	-0.008		15	125	125	-0.5	7	7	17
T 19724	-0.008		30	115	105	0.3	8	38	76
T 19725	0.201		5	5	80	0.4	5	-1	41
T 19726	-0.008		10	40	125	0.6	8	1	15
T 19727	-0.008		5	-5	20	0.6	4	-1	-1
T 19728	-0.008		15	15	130	0.3	6	-1	100
T 19729	-0.008		10	25	75	0.6	7	2	15
T 19730	-0.008		10	25	75	-0.5	59	17	17

Laboratory	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB	ANALAB
Method	309	309	101	101	101	101	401	102	114
Det. Limit	0.008	0.008	5.000	5.000	5.000	0.500	3.000	1.000	1.000

503320

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
- ● 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

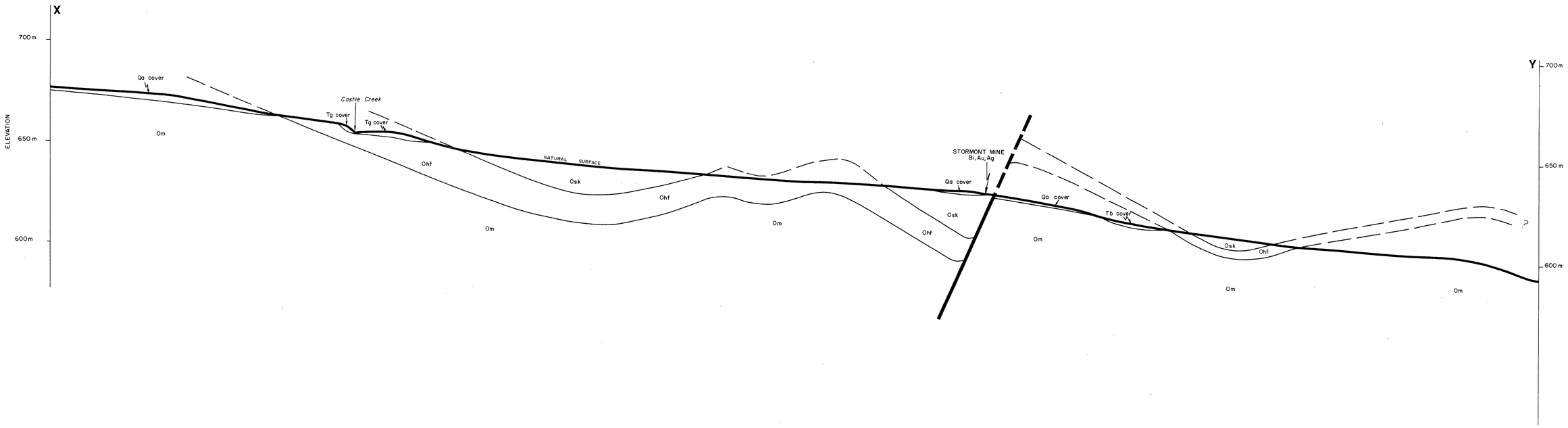
INTERPRETED GEOLOGY

E.L. 41/83 503021

BASE PLAN No.	OVERLAY PLAN No.	SCALE 1:1,000 (40 0 40 80 200)	FIGURE No.
			1

90-3110

9143



LEGEND

QUATERNARY	Qa	Alluvium
TERTIARY	Tb	Basalt
	Tg	Greybilly
ORDOVICIAN	Osk	Skarn (Gordon Limestone)
	Ohf	Hornfels (Transitional Rocks)
	Om	Moina Sandstone

Fault

Inferred geological boundary

90-3110

5 cm

RGC EXPLORATION PTY. LIMITED
INCORPORATED IN NEW SOUTH WALES

COMPILED	M.J.W	LEA RIVER AREA - STORMONT
DRAWN	M.O.W.	**X-Y CROSS SECTION**
DATE	DEC 1989	
CHECKED		**INTERPRETED GEOLOGY**
1:250,000 REFERENCE		

BASE PLAN No.
OVERLAY PLAN No.
SCALE 1:1000
2

503022