

Abstract

EL 56/94, Mackintosh River was granted to Rio Tinto Exploration Pty. Limited on 24 February 1995. The licence covers 165 sq km and is located 50km south of Burnie in the Lake Mackintosh/Lake Lea area.

Rio Tinto acquired EL 56/94 to explore for economic, Irish-style zinc mineralisation in the Ordovician Gordon Group carbonates. Some encouraging zinc intersections from Rio Tinto's Zeehan licences sparked the acquisition of licences over other areas of poorly explored Gordon Group carbonates. The proximity of the Hellyer VHMS ore-body to the Mackintosh River licence area indicates ore-forming processes have been active in the area, at least during the Middle Cambrian.

During recent project rationalisation and prioritisation, Rio Tinto Exploration Pty. Limited concluded that the Ordovician carbonates of western Tasmania are not a priority zinc target. However, Rio Tinto also recognised the potential for fine grained, sediment hosted, sulphide poor gold mineralisation similar to Carlin or Sepon. Using this geological concept, a programme of regional stream sediment sampling was planned.

Work conducted during the reporting period included;

- Collection of 2 -80# stream sediment samples and 2 pan concentrate samples from 2 localities within the licence. This was part of a regional programme conducted primarily on Rio Tinto's neighbouring licences; ELs 30/96, Mersey 1 and 57/94 Mole Creek West. No elevated samples were returned from the samples collected within EL 56/94, Macintosh River.

It was concluded that;

- No further work is warranted on EL 56/94, Macintosh River. A recommendation for relinquishment was submitted to Mineral Resources Tasmania in August 1997. Surrender in full of this licence was granted on 11 November 1997.

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List of Plans

Plan No.	Title	Scale
Tv1125	Mackintosh River EL 56/94 Location Plan	1:100,000
Tv1287	Mackintosh River EL 56/94 Stream sediment and Pan Concentrate Sample Locations	1:100,000

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1. Conclusions and Recommendations

It was concluded that;

- Zinc hosted within Ordovician carbonates in western Tasmania is no longer a priority target for Rio Tinto.
- There is potential for fine grained, sediment hosted, low sulphide gold mineralisation within EL 56/94 Macintosh River.
- No anomalous samples were returned from stream sediment and pan concentrate samples collected within the licence.
- No further work is warranted on EL 56/94 Macintosh River.

It was recommended that;

- EL 56/94 be relinquished in full.

Surrender of the licence was granted by Mineral Resources Tasmania on 11 November 1997.

2. Introduction

The Mackintosh River EL 56/94 was granted to Rio Tinto Exploration Pty. Limited on 24th February 1995. The licence covers 165 sq km and is located 50km south of Burnie in the Lake Mackintosh/Lake Lea area (Plan Tv 1125).

Rio Tinto acquired EL 56/94 to explore for economic, Irish-style zinc mineralisation in the Ordovician Gordon Group carbonates. Some encouraging zinc intersections from Rio Tinto's Zeehan licences sparked the acquisition of licences over other areas of poorly explored Gordon Group carbonates. The proximity of the Hellyer VHMS ore-body to the Mackintosh River licence area indicates ore-forming processes have been active in the area, at least during the Middle Cambrian.

Following disappointing stream sediment sampling results, a decision was made to relinquish EL 56/94 Macintosh River. Surrender in full was granted on 11 November 1997.

This final report details all exploration activities conducted within Mackintosh River EL 56/94 by Rio Tinto Exploration Pty. Limited during the period from 25 January, 1997 to 11 November 1997.

2.1 Geology

The Ordovician Gordon Group forms the valleys of the Mackintosh River (now flooded downstream by the Lake Mackintosh Dam), Brougham River, Mayday Creek, Southwell River, White Hawk Creek and Vale River. Outcrops are discontinuous and the sequence is not accurately

known. From various sections it appears that the carbonate has conformable, gradational boundaries with the underlying Owen Group clastics and the overlying Eldon Group clastics (Collins et al, 1981).

The Gordon Group crops out in two elongate N to NW trending synclines, the southernmost including the Lake Mackintosh-Mackintosh River area, and the northernmost corresponding to the Vale of Belvoir. Extensive Siluro-Devonian Eldon Group clastics are preserved in the core of the southern syncline. Cambro-Ordovician Owen Group clastics and Middle Cambrian Mt Read volcanics crop out on the limbs of both synclines.

Tertiary Basalts obscure a large area of older rocks, including the Gordon Group sequence, NW of Mt Romulus, on the Mayday Plain and in the Vale of Belvoir. Quaternary scree and glacial deposits also obscure large areas of older rocks, particularly the valley-forming Gordon Group carbonates.

3. Review of Previous Work

3.1 Prior to Current Tenement

A brief review of open-file information shows that previous explorers, including Cominco, Geopeko and Rio Tinto, have explored for VHMS style deposits in the Mt Read Volcanics peripheral to the licence area.

The Gordon Group carbonates in the Mackintosh River licence have only received reconnaissance stream sediment sampling and some rockchip sampling. No exploration for carbonate hosted Zn deposits is known in the licence area. Little gold exploration has been previously undertaken in the area, certainly no systematic work.

3.2 During Current Tenement

The following work has been carried out during the tenure of the current licence;

- Literature review and data compilation.
- *Lake Macintosh* - collection and analysis of 15 rockchip and 15 stream sediment samples.
- *Caverners Creek* - collection and analysis of 6 rockchip, 12 reconnaissance soil and 13 stream sediment samples.
- *Vale of Belvoir* - collection and analysis of 8 rockchip, 2 reconnaissance soil and 15 stream sediment samples.
- *Mayday Gold Workings* - collection and analysis of 5 rockchip and 9 stream sediment samples in an area surrounding an old sluice workings probably established for alluvial gold in the headwaters of Macintosh River.

- *NE Lake Macintosh* - collection and analysis of 13 rockchip and 1 sludge sample to follow up a stream sediment sample collected by Aberfoyle, which returned 82ppm Pb and 500ppm Zn.
- *White Hawk Mine* - a programme of soil sampling and rock sampling was designed to follow up a stream sediment sample which returned 208ppm Pb and 250ppm Zn from an historic programme conducted by Rio Tinto. 3 soil traverses at 25-50m sample spacing and 100m line spacing were completed for 34 soil samples. 5 rockchip and 1 stream sediment sample were collected and analysed. Further stream sediment sampling of the White Hawk Creek and its tributaries was prevented due to flooding.

Further details of this exploration can be found in Rio Tinto Report No. 22223.

4. Exploration Activities Conducted During Period from 25/1/97 to 11/11/97

During recent project rationalisation and prioritisation, Rio Tinto Exploration Pty. Limited concluded that the Ordovician carbonates of western Tasmania are not a priority zinc target. However, Rio Tinto also recognised the potential for fine grained, sediment hosted, sulphide poor gold mineralisation similar to Carlin or Sepon. The stratigraphic units considered prospective are the Ordovician Gordon Limestone and Moina Sandstone. Using this geological concept, a programme of regional stream sediment sampling was planned.

The stream sediment sampling programme was conducted over ELs 56/94 Macintosh River, 30/96 Mersey 1 and 57/94 Mole Creek West. Areas selected for sampling were based on;

- The presence of Moina Sandstone and Gordon Limestone intruded by Devonian granite.
- The compilation of Au geochemistry, geology and magnetics.
- The definition of possible faults or buried granite by magnetics.

2 samples (a -80# stream sediment sample and a pan concentrate sample) were collected from each site. Only 2 sites were samples within the Macintosh River exploration licence, and no elevated values were returned. The majority of samples were collected on Rio Tinto's neighbouring licences; ELs 30/96, Mersey 1 and 57/94 Mole Creek West. Sample sites relevant to the Macintosh River licence are shown on Plan Tv1287.

-80# stream sediment samples were analysed by Amdel, Adelaide, for Au by 50g fire assay (FA3), Ag, As, Bi, Cd, Mo, Pb, Sb, Th, U and W by ICP-MS and Co, Cr, Cu, Fe, Mn, Ni and Zn by ICP-OES (IC3E/M). Pan Concentrate samples were assayed for Au by 50g fire assay (FA3). Sample ledgers and assay results are presented in Appendix 1.

Due to the lack of significant anomalism within the licence, it was considered that no further work was warranted on EL 56/94, and a recommendation for relinquishment was submitted to Mineral Resources Tasmania in August 1997.

Surrender in full of EL 56/94, Macintosh River was granted on 11 November 1997.

5. Rehabilitation

During reconnaissance programmes, the following procedures were implemented to reduce environmental impact and enhance rehabilitation:

- Soil augers and field boots were cleaned prior to entering the area to prevent the introduction of weeds or the vegetation fungus *Phytophthora cinnamomi*.
- Reconnaissance soil geochemical traverses were surveyed using tape and compass and did not involve track cutting.
- Soil auger holes were backfilled.

No other significant surface disturbing activities were conducted on EL 56/94. An assessment for clearance of the environmental/performance bonds will be carried out by a representative of Mineral Resources Tasmania in December 1997.

6. Expenditure

Expenditure for EL 56/94, Mackintosh River for the period commencing 25 January 1997 and ending 11 November 1997 is \$8,299. Total expenditure on the licence is \$79,179.

7. References

- | | | |
|------------------|------|-------------------------------------------------------------------------------------------------------------------------------------|
| Menpes, SA | 1996 | First Annual Report for the Period Ending 24 January 1996 EL 56/94 Mackintosh River, Tasmania
<i>Rio Tinto Report No. 22223</i> |
| von Strokirch, T | 1997 | Second Annual Report for the Period Ending 24 January 1997 EL 56/94 Mackintosh River, Tasmania
<i>Rio Tinto Report No. 23341</i> |

8. Location

Burnie	SK55-03	1:250,000
Sophia	8014	1:100,000
Inglis	8015	1:100,000
Block	3838	1:25,000
Charter	3839	1:25,000
Lea	4040	1:25,000
Pencil Pine	4039	1:25,000

9. Keywords

Gold * Tasmania * Base Metals * Ordovician * Carbonate Hosted * Literature Review

10. DPO Register

81242 (Refer to table 1)

Table 1

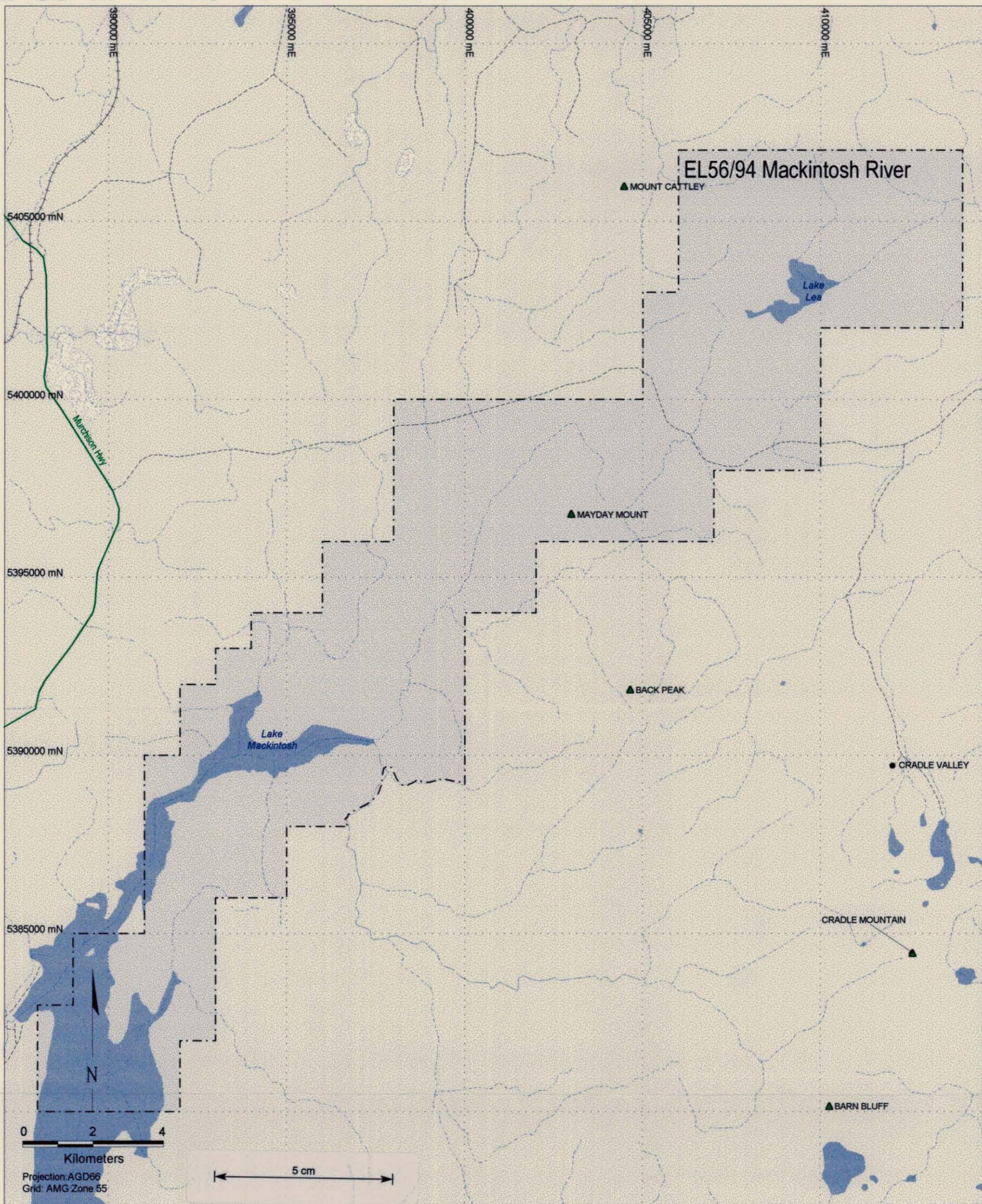
Mackintosh River EL 56/94
DPO Register

DPO Number	LAB Batch Number	Lab Name	Lab Location	Office Date	Geologist	Tenement Number	Tenement Name	Sample Type	Number of Samples	250,000 Map Sheet
81242	7AD0292	Amdel	Adelaide	10/2/97	MJ Donnelly	56/94 30/96 57/94	Macintosh River Mersey 1 Mole Creek West	Rock -80# Stream Sed, Pancon	20 50 50	Burnie SK55-03

Table 2

**Mackintosh River EL 56/94
Expenditure Statement**

	1/2/97 - 11/11/97	Total Licence Expenditure
Drilling	0	0
Contractors	0	65
Laboratory	0	3,981
Rent & Property	606	2,081
Payroll & Benefits	2,572	22,217
Field & Transport	493	14,248
Travel & Accommodation	0	1,652
Computer Services	328	1,235
Professional	0	503
Office & Miscellaneous	1,370	2,539
District Administration	1,236	11,386
Regional Costs	1,604	7,865
Tenements	90	11,408
TOTAL	8,299	79,180



Location Diagram

SK55-20 NW-Tas		
Arthur River 7915	Hellyer 8015	Forth 8115
SK55-22 SW-Tas		

Mapsheet Reference

Legend

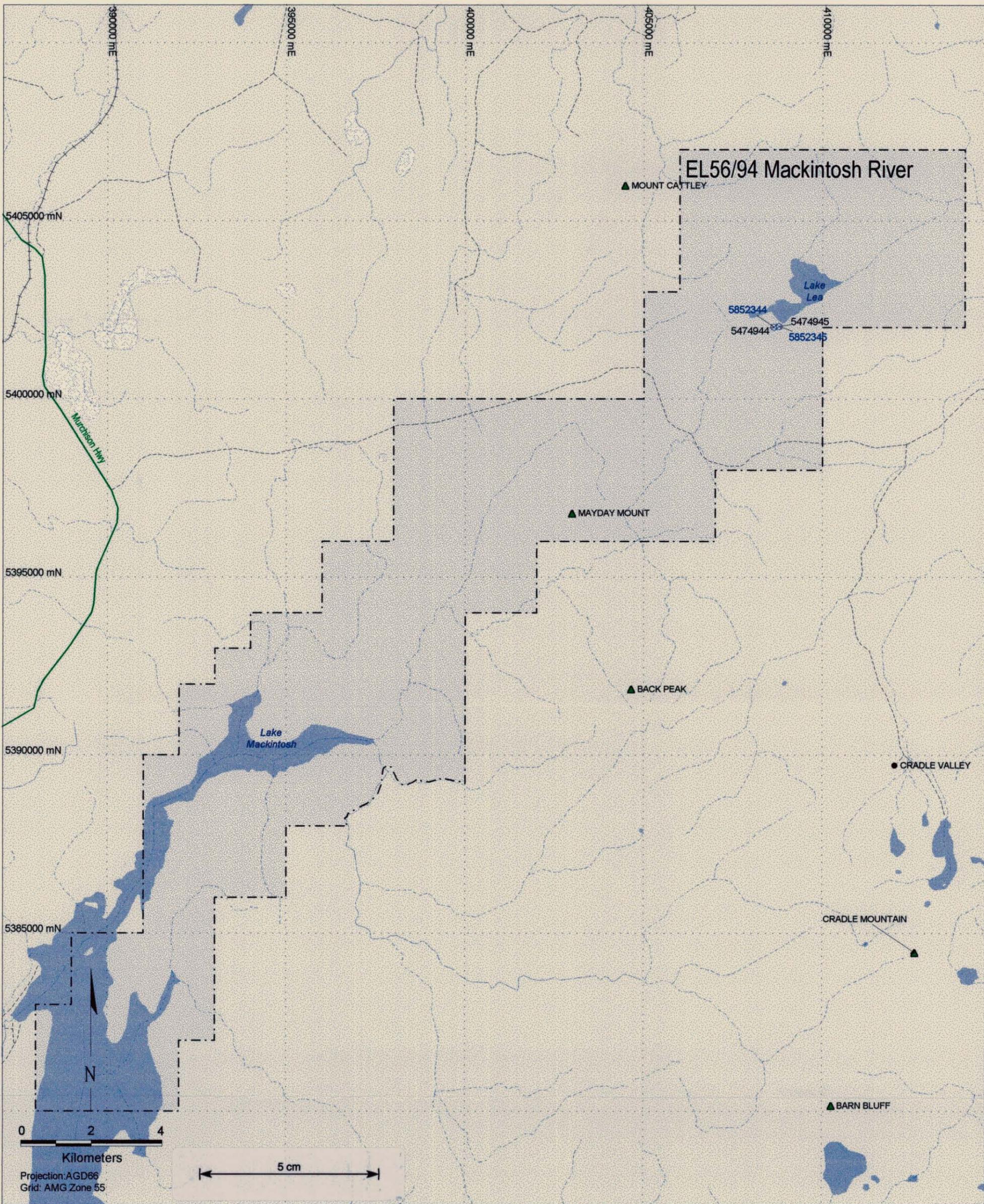
- Town
- ▲ Mountain
- - - EL Boundary
- Perennial Drainage
- - - Non-Perennial Drainage
- Highway
- - - Secondary Road
- - - Minor Road
- - - Track
- - - Railway
- Lake
- Swamp
- Urban

251012

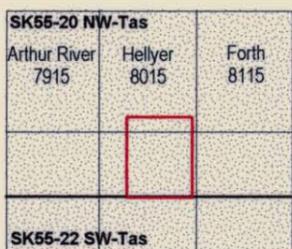
CRA EXPLORATION PTY. LIMITED

EL56/94 Mackintosh River
Location Plan

Author: Sandy Menpes	Reference: NW Tasmania SK55-20
Drawn: Tony Sargeant	File Name: Tv1125.wor
Date: July 1996	Report No: 22223
Scale: 1:100,000	Plan No: Tv1125



Location Diagram



Mapsheet Reference

Legend

- Town
- ▲ Mountain
- Pan Concentrate Sample
- × Stream Sediment Sample
- - - EL Boundary
- Perennial Drainage
- - - Non-Perennial Drainage
- Highway
- Secondary Road
- - - Minor Road
- - - Track
- Railway
- Lake
- Swamp
- Urban

251013

CRA EXPLORATION PTY. LIMITED	
EL56/94 Mackintosh River Stream Sediment & Pan Concentrate Sample Locations	
Author: Sarah Russell	Reference: NW Tasmania SK55-20
Drawn: Colin Pike	File Name: Tv1287.wor
Date: Jan 1998	Report No: 23638
Scale: 1:100,000	Plan No: Tv1287

Appendix 1

Pan Concentrate and Stream Sediment

Sample Ledgers and Assay Results

SAMPLE NO	EL NAME	EL NUMBER	DPO	SAMPLE TYPE	CATEGORY	AMG EAST	AMG NORTH	ZONE	DOMINANT LITH	Au	Au Dp1	Co	Cr	Cu	Fe	Mn	Ni	Zn	Ag	As	Bi	Cd	Mo	Pb	Sb	Th	U	W
5852344	MAKTSH RVR	56/94	81242	-80#SS	SS	408850	5402020	55	Sss	<1	<1	<2	44	5	5100	30	4	7	0.2	1	<0.1	<0.1	0.2	9.5	<0.5	6	0.95	0.7
5852345	MAKTSH RVR	56/94	81242	-80#SS	SS	408790	5402040	55	W, Sss	<1		<2	43	3	1850	10	<2	5	0.2	1	<0.1	<0.1	<0.1	5.5	<0.5	5.5	1.55	0.6

251015

SAMPLE NO	EL NAME	EL NUMBER	DPO	SAMPLE TYPE	CATEGORY	AMG EAST	AMG NORTH	ZONE	GOLD COUNT	DOMINANT HM	AMOUNT	OTHER HM	TRAP SITE	Au ppm
5474944	MAKTSH RVR	56/94	81242	PANCON	HM	408650	5402020	55	0	magnetite	trace		poor	0.001
5474945	MAKTSH RVR	56/94	81242	PANCON	HM	408790	5402040	55	0	magnetite	abundant		poor	-0.001