

Abstract

Mount Dundas, EL 45/92, was granted to Rio Tinto Exploration Pty Ltd. on 16 April 1993. The EL covers an area of 70 km² east of Zeehan, West Tasmania (Tv1070).

Rio Tinto acquired EL 45/92 to explore for stratabound Zn-Pb deposits within the Ordovician Gordon Limestone. Analogies with Irish carbonate hosted base metal deposits were used to assist exploration.

During recent project rationalisation and prioritisation, Rio Tinto Exploration Pty. Limited downgraded priority of this EL.

No exploration was conducted on the licence since the last annual report.

Recommendation for relinquishment in full was made to Mineral Resources Tasmania in March 1998. This report constitutes the final and fifth annual report.

Monitoring and consolidation of all work relating to rehabilitation of drill holes was completed during the reporting period. A final field inspection by Mineral Resources Tasmania will be conducted before clearance of the environmental performance bonds is granted.

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List of Plans

Plan No.	Title	Scale
Tv1070	EL 45/92 Mount Dundas Location Plan	1:100,000

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1. Conclusions and Recommendations

Following a detailed project review, Rio Tinto Exploration Pty. Limited downgraded its western Tasmania zinc programme in Ordovician carbonates.

It was concluded that no further work should be conducted on EL 45/92, Mount Dundas.

Accordingly, recommendation for relinquishment of EL 64/94 was made to Mineral Resources Tasmania in March 1998.

2. Introduction

Mount Dundas, EL 45/92, was granted to Rio Tinto Exploration Pty Limited. on 16 April 1993. The EL covers an area of 70 km² east of Zeehan, West Tasmania (Tv1070).

Rio Tinto acquired EL 45/92 to explore for stratabound Zn-Pb deposits within the Ordovician Gordon Limestone. Analogies with Irish carbonate hosted base metal deposits were used to assist exploration.

During recent project rationalisation and prioritisation, Rio Tinto Exploration Pty. Limited downgraded priority of this EL.

No exploration has been conducted on the licence since the last annual report.

Recommendation for relinquishment was made to Mineral Resources Tasmania in March 1998.

3. Review of Previous Work

3.1 Prior to Current Tenement

A comprehensive summary of previous work carried out within the area encompassed by EL 45/92 Mount Dundas is detailed in Parkinson (1994).

3.2 During Current Tenement Year 1 (Parkinson 1994)

- Reviews of Amoco-CSR open-file data highlighted the Mariposa and Sunny Corner areas as having anomalous surface geochemistry.
- At Mariposa prospect, costeans returned best results of 14m @ 3.0% Zn from the historically exploited upper zone, and 8m @ 6.2% Zn and 395 ppm Ag from the lower zone contact with the Dundas Group.
- Costeans at Sunny Corner produced up to 22m at 3.9% Zn, including 6m at 9.7% Zn and 74 ppm Ag. Percent levels of Zn were also detected in costeans at Blackjacks and Bannockburn.

- Limited drilling by Amoco-CSR failed to locate economic mineralisation, although sub-percent levels of Pb and Zn were common over wide areas, indicating substantial alteration systems.
- Aircore drilling by Rio Tinto during 1993-94 at Mariposa returned significant intersections from the lower zone contact with the Dundas Group including:-

59450N	DM70	10m	@	4.1% Zn	2.5% Pb	19 ppm Ag
59400N	DM13	6m	@	4.1% Zn	1.5% Pb	16 ppm Ag
59350N	DM97	8m	@	5.0% Zn	2.9% Pb	60 ppm Ag
59300N	DM102	8m	@	18.5% Zn	16.9% Pb	231 ppm Ag
59250N	DM118	8m	@	4.6% Zn	6.5% Pb	95 ppm Ag
59150N	DM150	6m	@	3.5% Zn	2.5% Pb	88 ppm Ag
58850N	DM199	8m	@	4.6% Zn	3.2% Pb	185 ppm Ag

- Mineralisation appears to be subvertical and narrow, the widths above being apparent thicknesses.

Year 2 (Parkinson 1995)

- Diamond drilling at Mariposa consisted of **five holes totalling 554m** and tested the lower sandstone/limestone contact (DM208-DM212). Intersections included:-

58850N	DM209	7.7m	@	2.1% Zn	<0.1% Pb	<5 ppm Ag
59400N	DM210	5.4m	@	1.4% Zn	1.7% Pb	25 ppm Ag
59400N	DM211	1.8m	@	9.8% Zn	6.5% Pb	107 ppm Ag
59200N	DM212	0.7m	@	3.8% Zn	5.4% Pb	45 ppm Ag

- Additional work comprised of mapping, petrological studies and resampling of EZ diamond drillholes.
- Aircore drilling by Rio Tinto during 1994 at Sunny Corner-Bannockburn returned significant intersections from the Upper Zone contact with Crotty Quartzite including:

DS37	6m	@	3.2% Zn	1.8% Pb	23 ppm Ag
DS38	15m	@	3.6% Zn	2.2% Pb	18 ppm Ag
DS53	3m	@	5.4% Zn	4.8% Pb	23 ppm Ag
DS68`	12m	@	1.3% Zn	6.7% Pb	27 ppm Ag

- Aircore drilling by Rio Tinto during 1994 at Blackjacks (109 holes) identified substantial thicknesses of siderite alteration up to 50m wide at the Lower Zone contact with underlying clastics.

- Zinc intercepts were highly anomalous, but generally sub-percent. Better results included:

DB11	14m	@	1.4% Zn	
DB35	3m	@	1.6% Zn	
DB78	3m	@	1.6% Zn	
DB99	3m	@	1.9% Zn	
DB109	1.5m	@	2.2% Zn	(ended in mineralisation)

- Regional reconnaissance and data capture work was completed.

Year 3 (Tear 1996)

- Two diamond drillholes were drilled at Blackjacks.
- **DD95DB110** intersected a >30m thick dolomite breccia with elevated zinc values up to **0.3% Zn over 3.6m**. Siderite alteration and elevated zinc values were also intersected at the upper and lower sandstone/limestone contact.
- **DD95DB111** intersected a sphalerite and calcite breccia zone **0.3m @ 4.46% Zn and 1.89% Pb from 75m**.
- Diamond drilling at Sunny Corner consisted of 2 holes for 584m.
- **DD95DS97** - best intercept of 1.4m @ 1.02% Zn and 6.13% Pb from 182.6m (in dolomite).
- **DD95DS98** - best intercepts were course grained sphalerite associated with the Siltstone Unit of the Gordon Limestone;

0.92m @ 10% Zn from 310.8m

0.82m @ 6.2% Zn from 313m.

- Aircore drilling at King Billy consisted of **99 holes for 2208m**. Results showed minor base-metal intersections:

AC95ZK4	6m	@	0.28%	Zn	0.77%	Pb
AC95ZK46	6m	@	1.3%	Zn	0.2%	Pb
AC95ZK22	3m	@	1.67%	Zn	<0.1%	Pb
AC95ZK39	3m	@	2.64%	Zn	1.3%	Pb

- Aircore drilling at Leatherwood (**53 holes for 456m**) returned disappointing results. Best values were:

AC95DL7	3m	@	0.15%	Zn
AC95DL8	6m	@	0.1%	Zn
AC95DL53	2m	@	0.1%	Zn

- A summary of wacker bedrock sampling is included below:

Prospect	No. of Samples	Depth		Zinc		Lead	
		Range (m)	Average (m)	Max (ppm)	Mean (ppm)	Max (ppm)	Mean (ppm)
King Billy	74	1.5-35	9.1	3050	172	1590	58
Amber Creek	49	0-24	7.2	730	53	2120	73
Sunny Corner	91	0-19.7	4.9	6700	420	16700	618
S Mariposa	26	0.2-8.1	2.5	4420	420	2260	199
Westerway	15	1.1-12.5	5	8860	1564	3210	479
Blackjacks	22	1.5-25	11.6	2790	817	1920	227

- A detailed helimag survey was flown on the basis that mineral related siderite alteration is slightly magnetic. Flight lines were flown perpendicular to the strike of the limestone. Line spacing was approximately 60m with an average flight height of 30m and sampling intervals were approximately every 3-4m.

Year 4 (Tear & Russell)

- **5 diamond drill holes (totalling 1524m)** were completed at Sunny Corner, Blackjacks and King Billy Prospects. Numerous sulphide occurrences were recorded in the Sunny Corner and Blackjacks drill core, however, no economic base-metal intersections were achieved. A summary of drill hole locations and significant intersections is given below.

Drillhole Summary

DDH	Prospect	East (AMG)	North (AMG)	AMG Zone	Elev (mASL)	Tdepth (m)	Azim (AMG)	Dip	Date Drilled
DD96DS99	Sunny Corner	366069	5357571	55	183	165.9	099	55	24/1/96
DD96DS100	Sunny Corner	366180	5357513	55	148	237.1	102	57	22/2/96
DD96DS101	Sunny Corner	366237	5356795	55	170	380.6	097	51	1/4/96
DD96DB112	Blackjacks	366611	5360766	55	195	342.5	080	50	12/4/96
DD96ZK124	King Billy	317202	5352304	55	175	126	180	60	1/4/96
DD96ZK125	King Billy	317202	5352304	55	175	398.7	180	60	12/4/96

Significant Intercepts

DDH	Prospect	From (m)	Width (m)	Zn (%)	Pb (%)	Ag (ppm)	S (%)	Comments
DD96DS99	Sunny Corner	59.5	33	0.23	0.15	2.2	n/a	Dolomitised limestone and rotted dark grey clays.
DD96DS99	Sunny Corner	114.5	1.6	4.99	0.8	5.7	n/a	Semi massive sphalerite in dolomite.
DD96DS99	Sunny Corner	122.5	1.4	1.36	0.8	3.8	n/a	Disseminated sphalerite and galena in clays.
DD96DS99	Sunny Corner	106.1	17.8	0.8	0.3	2.6	8	Rotted and sheared dolomite.
DD96DS99	Sunny Corner	151.7	2.1	1.38	0.2	1.6	n/a	Brecciated dolomite with sphalerite.
DD96DS100	Sunny Corner	115.2	29.7	0.3	0.1	<2	n/a	Top section of the dolomitised Siltstone Unit.
DD96DS100	Sunny Corner	162	5.4	0.32	<0.1	<0.1	n/a	Lower contact of dolomitised Siltstone Unit.
DD96DS101	Sunny Corner	3	9.2	0.79	3.32	29	n/a	Dark grey clays with galena blebs ?leached sphalerite.
including	Sunny Corner	10.5	1.7	0.36	10.0	82.6	n/a	
DD96DS101	Sunny Corner	121.3	0.2	9.2	9.2	27.3	6	Irish style colloform sphalerite.
DD96DS101	Sunny Corner	303	1.5	0.3	3.8	8.7	n/a	Disseminated galena in dolomitic and sideritic limestone/breccia.
DD96DS101	Sunny Corner	312.7 5	0.75	3.71	5.9	32.5	3.8	Ditto
DD96DB112	Blackjacks	164.3	0.2	2.9	0.1	0.5	2.0	Disseminated pale sphalerite in syn-sedimentary breccia.
DD96DB112	Blackjacks	166.7	0.95	1.1	0.3	16.7	1.5	Dolomitic section with disseminated sphalerite.
DD96DB112	Blackjacks	253	0.9	1.26	<0.1	0.9	2.1	Calcareous dark grey clays.
DD96DB112	Blackjacks	251.2	7.8	0.49	<0.1	<1	n/a	Dolomitised limestones and dark grey clays.
DD96DB112	Blackjacks	331.5	10.7	0.28	<0.1	<0.5	n/a	Siderite and dark grey clay unit. Hole terminated at 242.5m.
DD96ZK124	King Billy	12	1.5	0.13	<0.1	<0.5	n/a	Base of surficial clays.
DD96ZK125	King Billy	321	3	0.13	<0.01	0.6	n/a	Top of the Oolite Unit.
DD96ZK125	King Billy	344.7	3.3	0.16	<0.01	<0.5	n/a	Rotted dolomitised argillaceous bioclastic calcarenite.

- **388 wacker bedrock samples (totalling 1543m)** were collected from Blackjacks, Westerway, Tom Creek and Pyramid and Mariposa Prospects. A summary of wacker sampling is given below.

Prospect	No. of Samples	Depth		Zinc		Lead	
		Range (m)	Mean (m)	Max (ppm)	Mean (ppm)	Max (ppm)	Mean (ppm)
Blackjacks	107	0.5-20.3	4.35	8270	616	4600	171
Westerway	97	0.5-16.8	2.9	6080	347	2300	107
Tom Creek	137	0.2-22.5	4.5	3160	154	1330	55
Pyramid	41	1.3-14.5	4.4	3690	386	499	105
Mariposa	6	0.8-3.3	2.3	15	3	27	1
Total	388					Total metreage 1544m.	

- A smaller than expected Gordon Limestone outcrop was mapped from wacker sampling at the Westerway Prospect. Elevated zinc values up to 0.61% coincide with an increased thickness of limestone. The best geochemical anomaly (>1000ppm Zn) of over 600m strike length is located within the middle zone of the Gordon Limestone at the Westerway Prospect.
- A basin analysis study was completed using Geosea Consultants (Dr Clive Burrett). Three formations were recognised in the Gordon Limestone corresponding to differing carbonate depositional environments.
- Preliminary results of the helimag data indicated that Gordon Limestone in the Blackjacks-Mariposa and Sunny Corner area tends to be magnetically flat. Minor anomalies were identified, some coincident with known siderite.
- An Honours Project entitled 'Zonation within Mineralisation Phases Around the Heemskirk Granite, Zeehan, Tasmania' was undertaken by Kim Ely from Melbourne University. The major conclusion was that limestone hosted lead-zinc deposits near Zeehan are part of the siderite zone of the zoned mineral field. Mineralisation is most likely related to the intrusion of the Heemskirk Granite in the Late Devonian to Early Carboniferous.

4. Exploration Activities During Period From 16/3/97 To 15/3/98

No work was conducted on EL 45/92, Mount Dundas.

Recommendation for relinquishment was made in March 1998.

5. Rehabilitation

Monitoring and consolidation of all work relating to rehabilitation of drill holes was completed during the reporting period. Table 1 summarises rehabilitation of drill holes within EL 45/92, Mount Dundas.

A final field inspection by Mineral Resources Tasmania will be conducted before clearance of the environmental performance bonds is granted.

Table 1
Summary Table of Rehabilitation Conducted on Drillholes within EL 45/92, Mount Dundas

Drill Hole ID	Prospect	EL	Easting	Northing	Total Depth (m)	Rehabilitation Conducted
DD95DB110 DD95DB111 DD96DB112	Blackjacks	45/92	366520 366311 366550	5360757 5360757 5360792	505 289 342.5	DD95DB110 and 111 were drilled with a LY38 drill rig. The holes were situated on button grass plains. The rig was dragged in and off site with an excavator. Upon completion of the hole, the hole was capped, the sump was back filled and button grass vegetation was pulled over the disturbed area to promote regeneration. DD96DB112 was drilled on an old gravel site next to a major road with a LY44 rig. The hole was capped and buried, and the site was left for natural regeneration.
DD94DM208 DD94DM209 DD94DM210 DD94DM211 DD94DM212	Mariposa	45/92	367617 367646 367463 367494 367579	5358963 5358975 5359492 5359508 5359323	49.2 141.7 62.6 150.6 150	All holes were drilled using a LY38 rig. DD94DM212 required an excavator to drag the rig on and off site. All holes were drilled on old costeans to minimise disturbance. Upon completion of the drillholes, all holes were capped and sumps were backfilled using an excavator.
DD95DS97 DD95DS98 DD96DS99 DD96DS100 DD96DS101	Sunny Corner	45/92	366328 366725 366069 366180 366237	5357810 5357671 5357571 5357513 5356795	239.3 345.7 165.9 237.1 380.6	All sites were drilled using helicopter support. DD96DS99 was drilled on button grass plain, and the remainder were drilled adjacent to old tracks or costeans. All sites used above ground sumps. Drill cuttings and rubbish were collected and rubbish was placed in the Zeehan refuse tip. The holes were capped, and vegetation was dragged over disturbed areas to promote natural regeneration.
DD96ZK124 DD96ZK125	King Billy	45/92	371202 371202	5352304 5352304	126 398	Both these holes were drilled on the same site. DD96ZK125 was drilled due to drilling difficulties in DD96ZK124. A drill site was cleared using chainsaws, and a LY38 drill rig was brought on site using helicopter support. An above ground sump was used and all drill cuttings and rubbish was removed from site and taken to the Zeehan refuse tip. The drill hole was capped and vegetation was dragged over the disturbed area to promote natural regeneration.

6. Expenditure

Expenditure for EL 45/92, Mount Dundas for the 12 month period ending 15 March 1998 is \$20,413. Total expenditure on the licence is \$1,283,022.

7. References

- | | | |
|---------------------------|------|--|
| Parkinson, RG | 1994 | Mount Dundas EL 45/92, Tasmania. Report on Exploration for the First Year of Tenure, 16/4/93 to 15/3/94
<i>Rio Tinto Report Number 19675</i> |
| Parkinson, RG | 1995 | Mount Dundas EL 45/92, Tasmania. Report on Exploration for the Second Year of Tenure, 16/4/94 to 15/3/95
<i>Rio Tinto Report Number 20789</i> |
| Tear, SJ | 1996 | Mount Dundas EL 45/92, Tasmania. Report on Exploration for the Third Year of Tenure, 16/4/95 to 15/3/96
<i>Rio Tinto Report Number 21807</i> |
| Tear, SJ &
Russell SAJ | 1997 | Fourth Annual Report for the Period Ending 15 March 1997, EL 45/92 Mt Dundas, Tasmania
<i>Rio Tinto Report Number 22159</i> |

8. Location

Queenstown	SK 55-5	1:250 000
Pieman	7914	1:100,000
Zeehan	7914-S	1:50,000

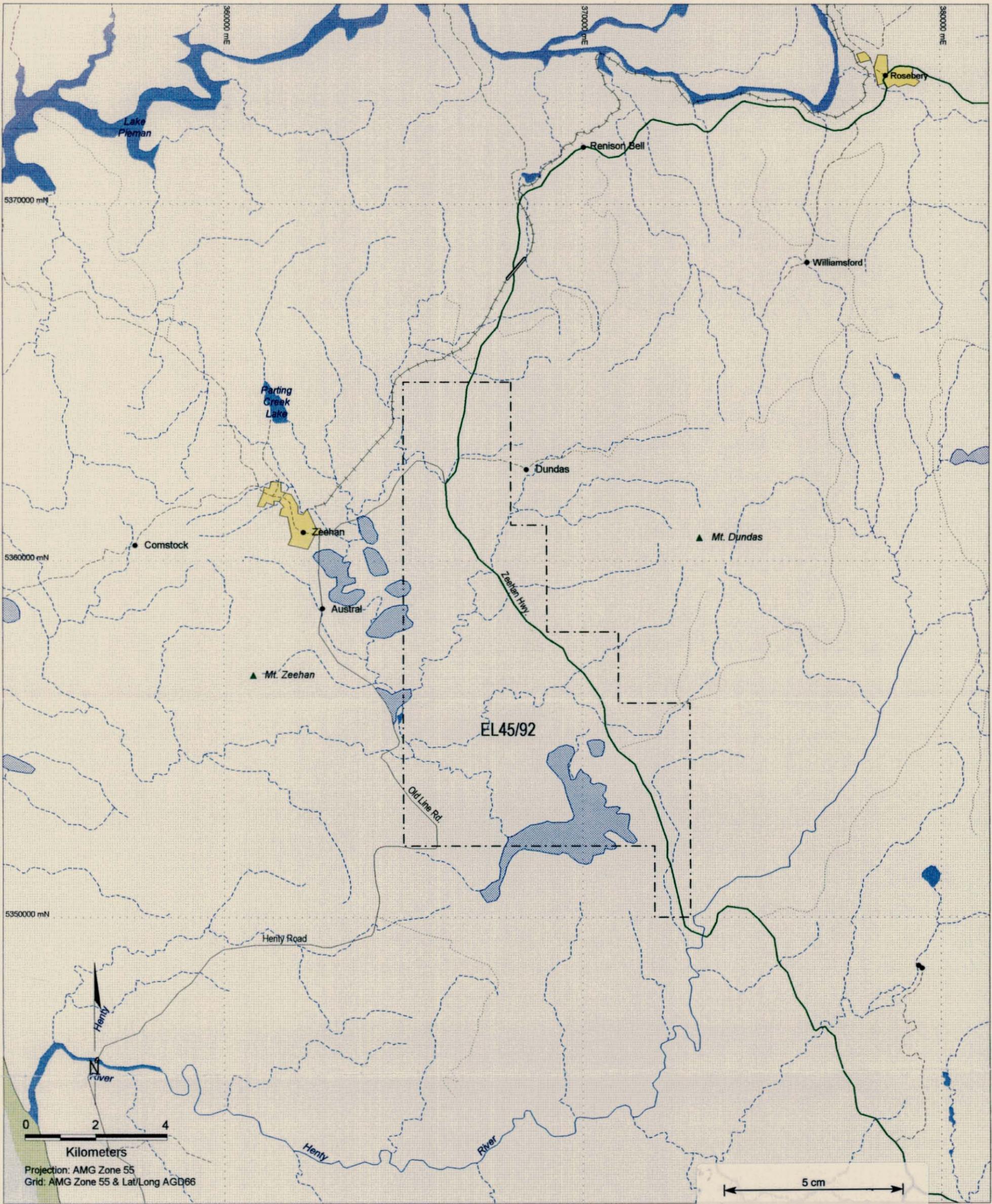
9. Keywords

Tasmania, Ordovician, Carbonate-hosted, Gordon Limestone, Diamond Drilling, Wacker Bedrock Sampling, Zinc, Helicopter-borne Magnetics, Siderite, Dolomite, Basin Analysis, Syn-sedimentary faults.

Table 2

**Expenditure Statement for EL 45/92 Mount Dundas
for Period 16/3/97 to 15/3/98**

	1/4/97 - 15/3/98	TOTAL
Drilling	0	587,114
Contractors	386	135,093
Laboratory	0	93,858
Rent & Property	64	17,484
Payroll & Benefits	9,919	189,587
Field & Transport	567	100,715
Travel & Accommodation	0	21,574
Computer Services	384	4,398
Professional	0	3,336
Office & Miscellaneous	1,598	7,295
District Administration	3,205	45,292
Regional Costs	4,250	68,959
Tenements	40	8,317
TOTAL	\$20,413	\$1,283,022



Projection: AMG Zone 55
Grid: AMG Zone 55 & Lat/Long AGD66

5 cm



Location Diagram

SK55-20 NW-Tas		
Conical Rocks 7814	Pieman 7914	Sophia 8014
	Cape Sorell 7913	Franklin 8013
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

CRA EXPLORATION PTY. LIMITED	
EL 45/92 Mount Dundas Location Plan	
246015	
Author: Simon Tear	Reference: SW Tasmania SK55-22
Drawn: Tony Sargeant	File Name: Tv1070.wor
Date: June 1996	Report No: 23722
Scale: 1:100,000	Plan No: Tv1070