SPECIAL EXPLORATION LICENCE 22/99

NE TASMANIA

RELINQUISHMENT REPORT

MARCH 2002

For

Mineral Holdings Australia Pty Ltd
10th Floor; 100, Collins St
Melbourne Vic 3000

Compiled by

D McP Duncan
McPherson Duncan & Associates
18, Old Summerleas Rd
Kingston Tas 7050

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ABSTRACT

This report outlines the area relinquished by Mineral Holdings Australia Pty Ltd from Special Exploration Licence 22/99 for gemstones covering 3856 sq km in NE Tasmania following year one of its tenure. The licence was the subject of a joint venture with Great Northern Mining Limited (GTN), Sydney, an experienced sapphire miner in NSW and Queensland, which led to bulk testing for sapphires at prospects in the Priory and Weld River areas. At the end of year one, GTN decided to withdraw from the joint venture.

The focus of exploration is for deposits of larger sapphires with a good content of high quality, light blue stones contained in enough alluvial wash volumes to make economic extraction feasible with or without tin, gold and other heavy mineral credits. The targets remain proximal, terraced deposits in narrow valleys close to the presumed Eocene basalt source of the sapphires on the Blue Tier and distal, more sheet like or braided alluvials of the broader valleys and plains.

Some exploration was directed towards the basalts to determine the sources of the sapphires as a guide to their likely distribution and origin rather than to find an economic hardrock deposit.

No work was carried out on the relinquished areas totalling 1163 sq km except for petrographic and analytical work on a nodule-rich basalt from the West Scottsdale quarry.

SEL 22/99- NE Tasmania- Relinquishment Report

1.0 Introduction

Mineral Holdings Australia Pty Ltd has for many years been investigating the potential of alluvial tin deposits in NE Tasmania. In recent years, the company has been able to achieve exploration title to a large area both onshore and offshore covering the major part of the alluvial tin resources of the State. The Ringarooma Alluvial Tin Project has been promoted to the industry both in Australia and overseas in the search for joint venture partners to undertake the high budget evaluation required to bring the resources to development.

In a move to further investigate the value of the placers, Mineral Holdings has concentrated on the documentation of the sapphire content of the tin-bearing alluvials and this has led to the first regional evaluation of the neglected sapphire province of NE Tasmania.

The company applied for a Special Exploration Licence on 14th December 1999 for gems only over a large area of to allow for a comprehensive evaluation. This was awarded on 8th September 2000 as SEL 22/99 covering 3856 sq km and included the three ages of basalts and all known sapphire occurrences in NE Tasmania (Plan 1).

To overcome the objections lodged by the Aboriginal Land Council of Tasmania (ALCT), Mineral Holdings agreed to accept a number of provisions mostly contained in the Aboriginal Relics Act 1975 and to provide the ALCT with a copy of any proposed exploration involving land disturbance and with an overview of activity on the licence on an annual basis.

The company, in anticipation of widespread objections by the fossicking community, defused this issue by announcing in media releases, with the cooperation of Mineral Resources Tasmania, that the search for gems by the public in the customary fashion could continue on the licence as the company was searching for large volume, concealed deposits of substantial commercial value.

Mineral Holdings then formed a joint venture with GTN Resources Ltd, the largest sapphire producer in Australia from mines in New England, NSW and Queensland, to carry out exploration and evaluation of the special licence.

2.0 Exploration Philosophy

Sapphires have been recorded from NE Tasmania since the 1900s being a by-product of alluvial tin mining. They are recorded in numerous Government Geological Survey publications most recently in the “Occurrences of Gemstone Minerals in Tasmania” in the 7th edition published by Mineral Resources Tasmania. Sapphires have been extracted from the current creek and river gravels over the years by local jewellers, amateur fossickers and lapidary club members and by this means have found their way into jewellery settings with no great impact on the Australian gem industry.

In recent years, academic studies most notably by Yim (1991) have shed light on the geological occurrence of sapphires and drawn parallels with the commercial sapphire

fields of New South Wales and Queensland. The gems are now regarded as being part of the zircospilic assemblage- zircon, corundum, spinel and ilmenite- of minerals derived from Tertiary basaltic rocks by erosion and laid down and reworked into alluvial deposits along with other heavy minerals including cassiterite, monazite, rutile and gold derived from other rock types.

Mineral Holdings special licence was designed to cover a large area giving scope to allow a complete regional evaluation leading to the selection of prospect areas.

3.0 Exploration Program

GTN Resources as joint venture operators carried out the first regional phase of exploration and performed test work on a number of prospects at Priory and Weld River which now lie in the area to be retained. This was reported to Mineral Resources Tasmania in a special project report (Kinnane, 2001). Other regional work by Mineral Holdings was reported in the year one annual report to September 2001 (Duncan & Rhodes, 2001).

At the end of year one of the licence, GTN opted to pull out of the joint venture. Mineral Holdings then decided to reduce the size of the SEL at the first opportunity by dropping off these areas considered less prospective than the core area to be retained. Areas in the west, north and south were relinquished mainly because there were no reasonable areas of Tertiary sediment allowing access to accumulations of alluvial deposits. The Scottsdale basin sediments in the west are considered to be too thick at up to 225m to allow access to the basal alluvials. The relative ages of the sediments and the basalts are poorly known in the Scottsdale area and it is not clear whether any the older basalts such as those at Blue Tier were shedding sapphires into the basal alluvials. The Triassic age basalts in the St Mary's area have not been examined as a possible source for sapphires in this study.

The area to be retained is shown on plan 1 at 2693 sq km. No work was carried out either by GTN or Mineral Holdings on the relinquished area except for petrological and analytical work on a basalt (no 132944) from the West Scottsdale quarry (MR 540,600mE; 5,440,600mN). This basalt contains prolific nodules up to 10cm across rich in olivine with individual peridot grains up to 1cm. Irregular patches of coarse grained ?alteration are also visible. The rock sample contained a large lherzolitic xenolith which was petrographically examined and some minerals subjected to microprobe analysis. The xenolith is olivine-rich (forsterite, Table 4, analysis 18) with lesser pyroxenes (diopside and enstatite, Table 2, analysis 17) and dark brown amoeboid chromian spinel (Table 5, analysis 16).

The results tables are in the Appendix.

4.0 Conclusions

It was decided for future exploration to concentrate on the eastern part of the licence area in the Gladstone- Blue Tier- Weld River- Moorina region where the alluvials are known to contain the core cassiterite-sapphire credits.

5.0 Environment

No substantial work was undertaken on the relinquished area and there was therefore no requirement for rehabilitation.

REFERENCES

Duncan, D McP. and Rhodes, L. J. 2001. SEL 22/99, NE Tasmania. Mineral Holdings Australia Pty Ltd. Annual Report on Exploration to September 2001.

Kinnane, N.R. 2001. Report on Sapphire Bulk Testing Program. SEL 22/1999, NE Tasmania. Great Northern Mining Limited.

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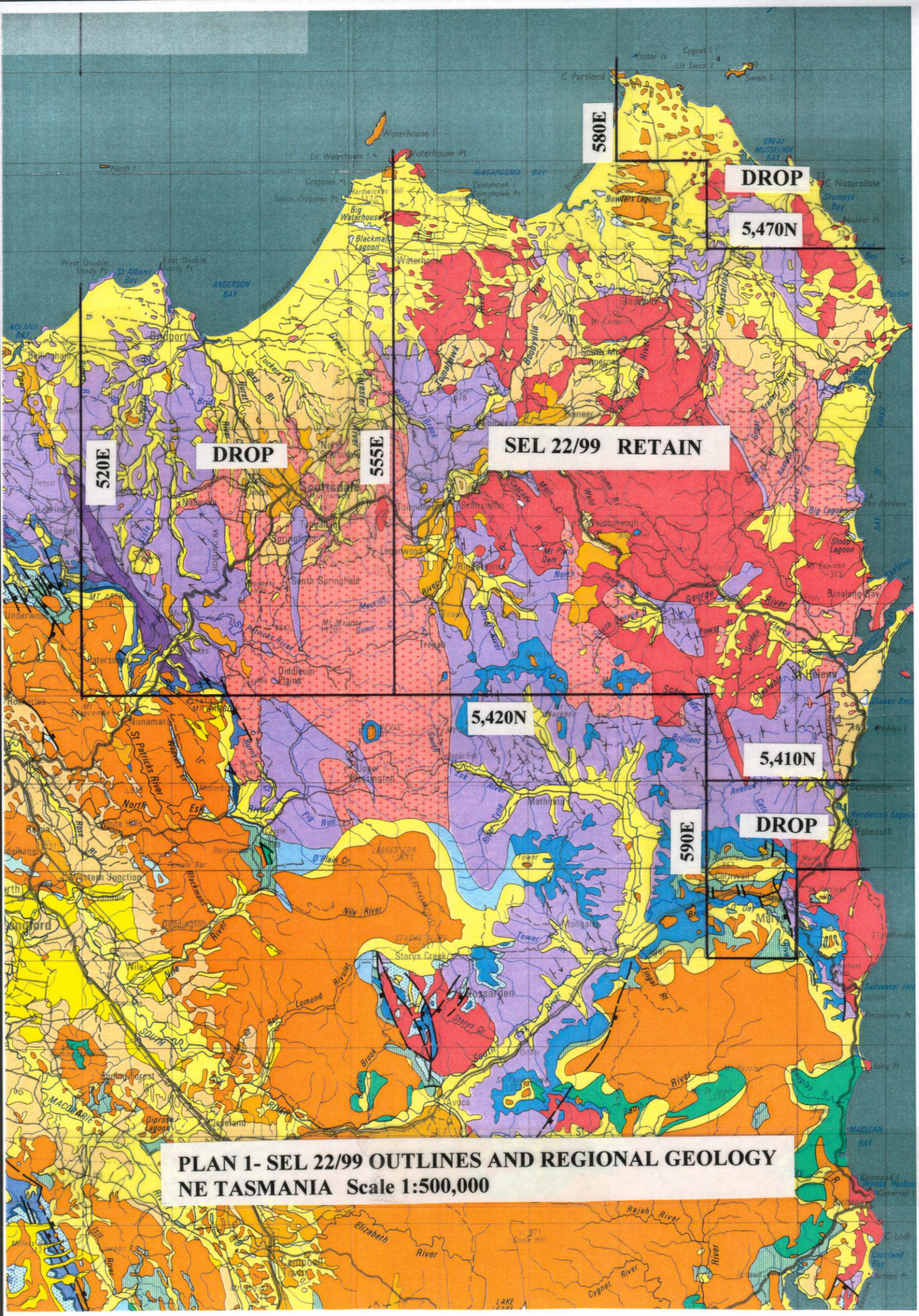

PLAN 1- SEL 22/99 OUTLINES AND REGIONAL GEOLOGY
NE TASMANIA Scale 1:500,000

Table 2: Pyroxene analyses

	Point	#11	#14	#17
Sample		940	940	944
	Label	dd940-opx	dd940-cpx2	dd944-cpx1
SiO2		55.13	52.15	53.55
TiO2		0.10	0.43	0.13
Al2O3		3.80	4.98	3.35
Cr2O3		0.34	0.68	0.48
Fe2O3(c)		0.37	1.95	1.57
FeO(c)		5.84	0.62	1.01
MnO		0.16	0.10	0.13
MgO		33.37	15.66	18.54
CaO		0.41	22.29	20.81
Na2O		0.00	1.20	0.71
K2O		0.00	0.00	0.00
Sum Ox%		99.52	100.05	100.29
Structural formulae				
Si		1.910	1.888	1.922
Al (iv)		0.090	0.112	0.078
sum T		2.000	2.000	2.000
Al (vi)		0.066	0.100	0.064
Cr		0.009	0.019	0.014
Ti		0.002	0.012	0.004
Fe3+		0.010	0.053	0.042
Fe2+		0.169	0.019	0.030
Mg B		0.744	0.797	0.846
sum B		1.000	1.000	1.000
Mg A		0.980	0.048	0.146
Mn2+		0.005	0.003	0.004
Ca		0.015	0.865	0.800
Na		0.000	0.084	0.050
K		0.000	0.000	0.000
Sum A		1.000	1.000	1.000
Sum Cat#		4.000	4.000	4.000
mol% Wo(Ca)		0.795	50.028	43.905
mol% En(Mg)		90.334	48.886	54.430
mol% Fs(Fe2+)		8.871	1.086	1.665
XMg		0.911	0.978	0.970
Mineral		enstatite	diopside	diopside

Table 3: Feldspar analyses

Point	#3	#5	#6
Sample	945	945	945
Label	dd945b-fsp1-crs	dd945b-fsp2	dd945b-fsp3
SiO2	60.02	63.43	56.72
TiO2	0.05	0.17	0.04
Al2O3	24.36	19.78	26.38
Fe2O3	0.12	0.07	0.38
MnO	0.00	0.00	0.00
MgO	0.00	0.00	0.01
CaO	5.24	0.66	7.63
SrO	0.60	0.00	0.68
BaO	0.13	0.00	0.07
Na2O	7.28	3.29	6.17
K2O	1.55	11.81	1.05
Rb2O	-	-	-
P2O5	0.04	0.00	0.07
Sum Ox%	99.38	99.21	99.20
Structural formulae			
Si	2.706	2.923	2.579
P	0.001	0.000	0.003
Ti	0.002	0.006	0.001
Al (iv)	1.294	1.074	1.413
sum T	4.003	4.003	3.996
Fe3+	0.004	0.002	0.013
Mn2+	0.000	0.000	0.000
Mg	0.000	0.000	0.001
Ca	0.253	0.032	0.372
Sr	0.016	0.000	0.018
Ba	0.002	0.000	0.001
Na	0.636	0.294	0.544
K	0.089	0.694	0.061
Rb	-	-	-
sum A	1.000	1.022	1.010
Sum Cat#	5.004	5.027	5.005
Ab	63.88	28.79	54.61
An	25.41	3.18	37.34
Or	8.92	68.03	6.13
Celsian	0.22	0.00	0.12
Rb-Feld	0.00	0.00	0.00
Sr-Feld	1.57	0.00	1.80
Mineral	oligoclase	sanidine	andesine

Table 4: Olivine analyses

Point	#12	#18
Sample	940	944
Label	dd940-ol	dd944-opx on spl1
SiO2	40.56	40.36
TiO2	0.01	0.00
Al2O3	0.02	0.00
Cr2O3	0.00	0.19
FeO	9.60	10.42
MnO	0.17	0.13
MgO	48.26	47.95
CaO	0.03	0.03
NiO	0.38	0.00
Sum Ox%	99.03	99.08
Structural formulae		
Si	1.004	1.001
Ti	0.000	0.000
Al	0.001	0.000
Cr	0.000	0.004
Fe2+	0.199	0.216
Mn2+	0.004	0.003
Mg	1.780	1.773
Ca	0.001	0.001
Ni	0.008	0.000
Sum Cat#	2.996	2.997
Fa	0.100	0.109
Fo	0.900	0.891
Mineral	Forsterite	Forsterite

Table 5: Spinel analyses

Point	#10	#15	#16	#19
Sample	940	940	944	937
Label	dd940-spl	dd940-spl2	dd944-spl1	dd937-ilm1
SiO2	0.03	0.01	0	0.12
TiO2	0.09	0.11	0.05	23.15
Al2O3	56.79	56.18	55.04	4.02
Cr2O3	12.75	13.00	14.67	1.77
Fe2O3(c)	0.05	0.85	0	54.1
FeO	11.07	10.68	11.5	14.68
V2O3	0.05	0.05	0.05	0
MnO	0.00	0.09	0.04	0.74
MgO	19.43	19.73	18.88	2.89
CaO				0.13
ZnO	0.14	0.10	0.16	0.18
NiO	0.50	0.33	0.26	0.1
Sum Ox%	100.90	101.12	100.66	101.93
Structural formulae				
Si	0.001	0	0	0.005
Al (iv)	1.732	1.712	1.696	0.173
Cr	0.261	0.266	0.303	0.051
V	0.001	0.001	0.001	0.000
Fe3+	0.001	0.017	0.000	1.490
Fe2+	0.002	0.002	0.000	0.283
sum tet	1.998	1.998	2.001	2.000
Ti	0.002	0.002	0.001	0.638
Fe2+	0.240	0.231	0.252	0.168
Mn2+	0.000	0.002	0.001	0.023
Mg	0.750	0.761	0.736	0.158
Ca				0.005
Zn	0.003	0.002	0.003	0.005
Ni	0.010	0.007	0.005	0.003
sum oct	1.003	1.003	0.997	0.999
Sum Cat#	3.000	3.000	2.999	3.000
XFe2+	23.93	23.03	25.28	16.78
XMg	74.78	75.87	73.82	15.77
YFe3+	0.05	0.85	0.00	74.48
YCr	13.06	13.31	15.14	2.55
Mineral	spinel	spinel	spinel	ulvospinel

Table 6: Zeolite analysis

Point	#9
	945
Label	dd945a-ze
SiO2	46.83
Al2O3	25.17
Fe2O3	0.07
MgO	0.06
CaO	11.84
Na2O	0.66
K2O	1.36
Sum Ox%	92.59
Structural formulae	
Si	3.061
Al	1.939
Al+Si	5.000
Fe3+	0.004
Mg	0.006
Ca	0.829
Na	0.084
K	0.114
Sum Cat#	1.037
Mineral	?Cowlesite