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Annual Report on Exploration April 2000 to March  
2001 - EL38/1997 - Aberfoyle Hill, NE Tasmania  
Mineral Holdings NL\*  
Duncan, D.McP.; Rhodes, L. EL38/1997

**EXPLORATION LICENCE 38/97  
ABERFOYLE HILL  
NE TASMANIA**

**MICROFILMED**  
**FICHE No.015588**

**ANNUAL REPORT ON EXPLORATION  
APRIL 2000 TO MARCH 2001**

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**EL 38/97 - Aberfoyle Hill - Annual Report****ABSTRACT**

This report describes the work carried out on EL 38/97 at Aberfoyle Hill on the evaluation of tin-bearing placers as part of the Ringarooma Alluvial Project of Mineral Holdings Pty Ltd.

A geological inspection and orientation hand sampling program was carried out on the former alluvial tin mines at MacGregors, Aberfoyle, Dry Gut, Taylors, Wanex and Delta as a prelude to possible bulk sampling to quantify the sapphire and heavy mineral content of the residual alluvials and determine the access for excavators.

The fourteen wash samples in the 10-20kg range were processed, handpicked and assayed to reveal their values of tin, sapphire and gold.

Most of the wash samples contained tin which ranged up to 1800g/BCM.

Five of the samples contained sapphire up to 110g/BCM and four contained gold up to 0.18g/BCM.

As a rule, the higher tin values in the wash are associated with higher sapphire and gold values.

This work led to the implementation of a bulk sampling program on the alluvials in the area using an excavator and a mobile treatment plant. This flow on program and the results will be described in the next annual report.

## **EL 38/97 - Aberfoyle Hill - Annual Report**

### **1.0 Introduction**

EL 38/97 was granted to Mineral Holdings Australia Pty Ltd on 6<sup>th</sup> March 1998 for a maximum of 5 years to 6<sup>th</sup> March 2003 over an area of 4sq km at Aberfoyle Hill, near Gladstone, NE Tasmania to search for bentonite clay. The EL is adjacent and to the south of RLs 8715 and 8723 held by the same company covering the Fosters Marshes alluvial tin resources (Plan 1).

The primary target was bentonite clay suitable as a pelletising agent for Savage River iron ore and a wide range of other industrial uses.

A second target was the potential of the tin placers as exposed in the old alluvial tin workings.

### **2.0 Previous Exploration**

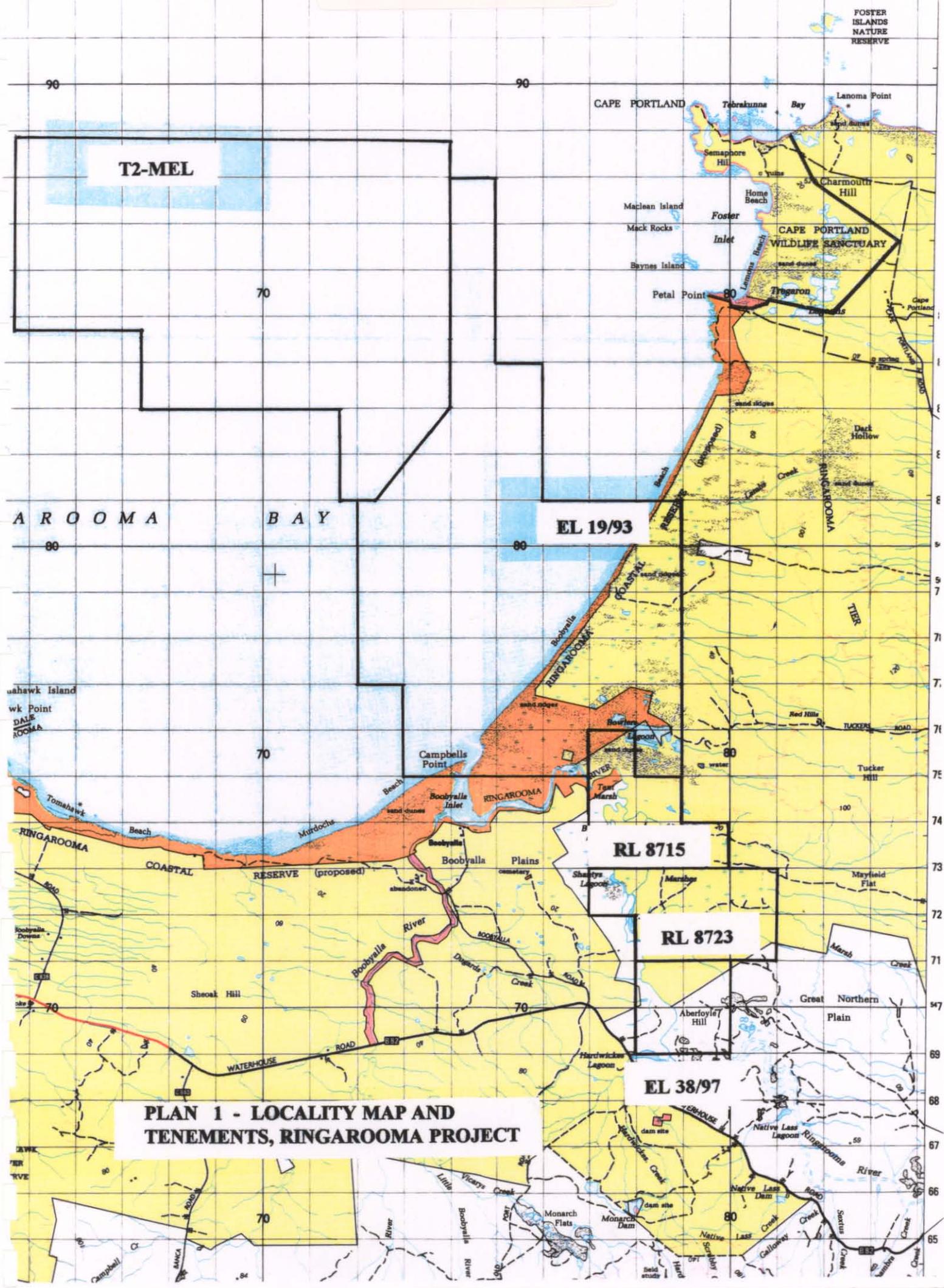
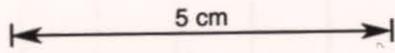
Exploration during the tenure of this licence by Mineral Holdings is described in the two previous annual reports to 1999 and 2000 (Duncan & Rhodes) on EL 38/97.

The exploration has led to the discovery of a clay deposit averaging 6m thick under a sandy overburden 1-2m thick on the western side of the Ringarooma River, adjacent to the old Dry Gut alluvial tin workings.

The deposit has an inferred in situ resource of 2.8 million tonnes of mixed clays. This contains a resource of 200-400,000 cu m of smectite-type clay. Industrial tests on the clay indicate the lower adsorption and swelling properties of beidellites or nontronites rather than higher swelling montmorillonites. Potential applications for the clay are still being considered but its use as a pelletising agent appears out of the question.

### **3.0 Current Exploration**

In the third year of the licence, the focus of investigation was shifted to the evaluation of the sapphire content of the tin-bearing alluvials on the Great Northern Plains as part of a wider study of sapphire distribution both onshore and offshore throughout NE Tasmania as part of the Ringarooma Alluvial Project of Mineral Holdings Australia Pty Ltd (Plan 1). As the alluvials in the Retention Licences are too deep for sampling by any means other than drilling, it was decided to test the more accessible, adjacent alluvials exposed in the old working faces at MacGregors, Aberfoyle, Dry Gut, Taylors, Wanex and Delta alluvial tin mines. The first three fall within EL 38/97 and the last three within SEL 22/99.



**PLAN 1 - LOCALITY MAP AND TENEMENTS, RINGAROOMA PROJECT**



Sapphire has been detected in earlier reconnaissance sampling by Mineral Holdings of the old tin workings above as reported in the annual report to 2000 (Duncan and Rhodes) on EL 19/93 and T2-MEL. Sapphire is also plentiful in the tails at the Dorset Dredge Tin Plant Site near MacGregors where alluvials were treated by the dredge working on the terraces of the Ringarooma River where tailings material from the up slope tin mines had also collected. The relationship between the broad blanket alluvials contained in the RLs and the more restricted and channelised placers represented by MacGregors, Aberfoyle and Delta is not completely clear. Presumably, the former are contemporaneous or younger than the latter.

A brief survey of the old tin workings above was carried out to pick possible positions for access to tin wash for bulk sampling. The survey was not comprehensive and the sample positions were chosen to allow ready access by excavator with minimum impact on the mature trees in the floor of the old workings. By way of orientation, sixteen samples of gravel and sand in the 10-20kg range were dug with a shovel by retired tin miner, Mr Ron Lawry in the old working faces as near as possible to basal wash (Plan 2).

The samples were then processed by Mr L Rhodes by screening and the minus 5mm to plus 1.5mm fraction handpicked for sapphire under a binocular microscope. The sapphires were weighed and grade calculated as grams per tonne of the sediment head grade.

The results are expressed in a series of four tables, MW-2 to MW-5, in the Appendix along with the tin concentration from assay and the weight of gold grains all expressed in grams per tonne. The results are summarised in Table 1 where the values are converted to grams per BCM (bank cubic metres) using a specific gravity factor of 1.8.

TABLE 1- SUMMARY OF WASH SAMPLE RESULTS

Sample No Prefix 630-	Sapphire		Tin		Gold	
	g/t	g/BCM	g/t	g/BCM	g/t	g/BCM
<b>MacGregors</b>						
059	0	0	-2	-3.6	0	0
060	0	0	68	122	0	0
<b>Aberfoyle Central</b>						
061	61	110	1000	1800	*	*
062	0	0	74	133	0	0
065	0.9	1.6	78	140	0	0
066	0	0	5	9	0	0
<b>Aberfoyle East</b>						
063	0	0	140	252	0	0
064	3.3	5.9	115	207	0	0
<b>Dry Gut</b>						
067,068,069	0.3	0.54	239	430	0.01	0.018
<b>Delta</b>						
070	0	0	166	299	0.02	0.036
071	4.9	8.8	571	1028	0.1	0.18
072	0	0	13	23	0	0
<b>Wanex</b>						
080	0	0	0	0	0	0
081	0	0	7	13	0	0

\* gold particle lost in transfer

#### 4.0 Results

Of the fourteen samples analysed (the three Dry Gut samples were treated as one), sapphires were found in five with the numbers mostly in the range from 1 to 5 grains with the richest being 97 grains giving grades in the wash of between 0.3 and 61g/t (0.54- 110 g/BCM).

Tin grades varied from less than 2 to 1000 g/t (-3.6-1800 g/BCM).

Four samples contained gold grains, ranging in number from 1 to 14 and grades of between 0.01 and 0.1 g/t Au (0.018-0.18g/BCM).

At MacGregors, the westernmost workings at the south end were sampled (059,060) but contained very little tin and no sapphires or gold. No basement was obvious here.

Aberfoyle Central, at the southern end (the Boomerang face), produced the best tin and sapphire content (061) at 1000g/t (1800g/BCM) and 61g/t (110g/BCM) respectively and one gold grain with the wash sampled from right on the granite basement. An adjacent sample of surface wash (062) produced minor tin. At the north end (the Sea Shell face), a sample of a 2m pebbly wash face (065) produced one sapphire and minor cassiterite. On an adjacent hill, some pebbly wash on surface near an old water race suggested a shallow wash layer but the sample (066) returned very little and may have been tailings.

A previous sample (81) taken here in a probable tailrace went 981g/t (1766g/BCM) tin and gave three sapphires at 2.3g/t (4.1g/BCM). For the previous sampling quoted here and below see the annual report for the Ringarooma Alluvial Project (Duncan and Rhodes, 2000).

At the northern end of Aberfoyle East workings, narrow gullies expose 1-2m thick wash on a granite bedrock. Two samples (063,064) gave over 100g/t (180g/BCM) tin and one of them (064) contained 4 sapphires at a grade of 3.3g/t (5.9g/BCM).

On the Wanex area to the north east of MacGregors, two samples of surface wash were taken, one near a silcrete hill (080) and one at an old water race (081). Both results were negative. The latter, composed mainly of quartz pebbles to granules and smaller, was investigated as a source of frac sand. Assays and sizing information are given in the Appendix.

The Dry Gut workings on the western side of the Ringarooma River were also sampled (067-069) at a 0.5m coarse wash layer on an altered dolerite bedrock. The three samples treated as one gave 239g/t tin (430g/BCM) with one sapphire giving 0.3g/t (0.54g/BCM) and eight gold grains at 0.01g/t Au (0.018 g/BCM). The cassiterite was seen to be coarse from a pan concentrate.

A previous reconnaissance sample (12) at this locality gave 494g/t (889g/BCM) tin and one sapphire at 1.3g/t (2.3g/BCM).

Further north, the Delta workings were accessed and sampled. A pile of untreated wash (071) gave the best values in this area with 571g/t tin (1028 g/BCM), 5 sapphires at 4.9g/t (8.8g/BCM) and 14 gold grains at 0.10g/t Au (0.18g/BCM). The two face samples (070,072) had no sapphires but the southern one gave 166 g/t (299g/BCM) tin and 3 gold grains at 0.02g/t (0.036g/BCM) Au.

Previous reconnaissance sampling (samples 8 and 9 respectively) gave 187g/t (337g/BCM) tin and 395 g/t (711g/BCM) tin with 5 sapphires in the former at 3.2g/t (5.76g/BCM) and gold recorded.

## **5.0 Conclusions**

Sapphires have been confirmed in insitu wash from Aberfoyle, Dry Gut and Delta former alluvial tin mines.

Sapphires were found in five of fourteen samples taken and the grades measured range from 0.54 to 110 g/BCM with an average over the five samples of 25.4g/BCM.

Tin and gold have also been quantified in the samples. Six of the samples had tin contents over 180 g/BCM with the range 207-1800 giving an average of 668.5g/BCM. Gold was recorded from 4 samples giving an average of 0.078g/BCM.

The best sample (061) was found directly on the granite basement at the Boomerang face of Aberfoyle Central. It contained 1800g/BCM tin and 110g/BCM sapphire with one gold grain. In general in the samples, the higher tin contents are associated with the higher sapphire and gold contents.

## **6.0 Future Exploration**

These hand sampling results and the geological inspections of the workings were used in selecting likely areas of wash amenable to excavator access for bulk sampling and heavy mineral concentration through a mobile treatment plant.

This program was carried out in June and the results, which are just coming to hand, will be reported in the next annual report.

## **7.0 Environment**

The exploration was restricted to geological inspection using existing tracks and hand tool sampling only in a disturbed area of old tin mines so no rehabilitation was necessary.

## **8.0 Expenditure**

Expenditure on exploration in the licence for the twelve months to March 2001 was \$11,221.

**REFERENCES**

Duncan, D. McP. 1999. EL 38/97- Aberfoyle Hill. Annual Report on Exploration- March 1998 to March 1999.

Duncan, D. McP. 2000. EL 38/97- Aberfoyle Hill. Annual Report on Exploration- April 1999 to March 2000.

Duncan, D. McP. and Rhodes, L. J. 2000. EL 19/93 and T2-MEL- Ringarooma Bay, Tasmania. Annual Report on Exploration- May 1999 to June 2000.

**APPENDIX****LOGS AND LOCALITIES OF OVERSIZE (+5mm) FROM WASH SAMPLING, GREAT NORTHERN PLAINS**

## Sample No

- 630059 MacGregors Mine, 2m down face (579,800mE; 5,470,150mN)  
50% metasediment; pale yellow to dark grey, rounded clasts to 6cm  
40% quartz; granules to pebbles, to 3cm  
10% grit fragments to 10cm
- 630060 Macgregors Mine, 3m down face (579,800mE; 5,470,150mN)  
95% quartz and quartz-feldspar granules to 1cm  
5% ferruginous cemented quartz grits to 2cm  
occ. sandstone pebble to 1cm
- 630061 Aberfoyle Central Mine, on basement (579,300mE; 5,468,800mN)  
70% white quartz clasts, rounded to 9cm, some glassy down to quartz  
and granite granules  
30% metasediment, pale grey mainly, rounded clasts to 10cm
- 630062 Aberfoyle Central Mine, top of wash layer (579,300mE; 5,468,800mN)  
80% white quartz clasts, both angular and rounded to 8cm  
20% pale metasediment quartzite clasts to 6cm  
one citrene fragment with rounded end termination
- 630063 Aberfoyle East Mine, 2m wash on granite (579,850mE; 5,469,200mN)  
95% grey metasediment, some black, granules and pebbles to 8cm  
5% white quartz, some yellow, granules and pebbles to 5cm
- 630064 Aberfoyle East Mine, 1m wash on granite (579,850mE; 5,469,200mN)  
70% grey metasediment, granules and pebbles to 8cm

- 20% white quartz, granules and pebbles to 6cm, some glassy  
10% mg-cg granite, irregular fragments to 4cm
- 630065 Aberfoyle Central Mine, in 2m face (579,500mE; 5,469,200mN)  
80% pale brown metasediment clasts, rounded to 8cm  
20% pale quartz clasts, rounded to 3cm, down to quartz and granite granules
- 630066 Aberfoyle Central Mine, shallow on hill (579,550mE; 5,469,250mN)  
70% quartz clasts, rounded to blocky to 8cm down to granule size  
30% metasediment clasts to 6cm, pale grey to red to black
- 630067-069 Dry Gut Mine, basal wash on dolerite (578,400mE; 5,469,950mN)  
65% light grey metasediment, granules, pebbles and cobbles to 10cm, some cleaved  
30% quartz and granite granules  
5% white to glassy quartz pebbles to 9cm
- 630070 Delta Mine, basal? wash in 2m face (577,750mE; 5,471,200mN)  
95% brown metasediment clasts to 9cm, inc mg-cg sandstone, rounded, also some fractured and angular  
5% quartz granules to 2cm
- 630071 Delta Mine, untreated wash (577,700mE; 5,471,250mN)  
50% pale metasediment clasts to 7cm, rounded  
50% rounded quartz clasts to 8cm, right down to granule size
- 630072 Delta Mine, wash in sandy layer (577,700mE; 5,471,250mN)  
50% metasediment, quartzite, sandstone and pelite, rounded to blocky clasts to 12cm  
50% quartz clasts, rounded to 8cm
- 630080 Wanex, surface wash (580,900mE; 5,470,600mN)  
near silcrete or siliceous grit outcrop/hill (Tertiary?)  
sample not logged- mainly limonitic accretions
- 630081 Wanex, surface wash (580,300mE; 5,470,850mN)  
sample not logged- mainly quartz granules to pebbles  
see size fraction and assay information in Appendix

TABLE MW-2

## WASH SAMPLES FROM MINESITES IN THE RINGAROOMA BASIN

## Great Northern Plains

Sample No.	Site	Sn g/t	Sapphires		Gold	
			number	mass head g value g/t	number	mass head g value g/t
063	Aberfoyle East mine north bank	140				
064	Aberfoyle East mine south bank	115	4	0.0577 3.3		
067 to 069	Dry Gut mine	239	1	0.0081 0.3	8	0.0003 0.01
071	Delta mine – pile of untreated wash	571	5	0.0453 4.9	14	0.0009 0.10

## TABLE MW-3

## WASH SAMPLES FROM MINESITES IN THE RINGAROOMA BASIN

## Great Northern Plains

Sample No.	Site	Sn g/t	Sapphires		Gold	
			number	mass head g value g/t	number	mass head g value g/t
059	MacGregors mine pebbly wash layer 2m down face	<2				

This sample seemed to me to be a sample of tailings

TABLE MW-4

## WASH SAMPLES FROM MINESITES IN THE RINGAROOMA BASIN

## Great Northern Plains

Sample No.	Site	Sn g/t	Sapphires			Gold		
			number	mass g	head value g/t	number	mass g	head value g/t
060	MacGregors mine grit layer 3m down face	68						
061	Aberfoyle Central mine pebbly wash layer exposed in face	0.10%	97	1.0638	61	1	*	
062	Aberfoyle Central mine top of wash layer	74						
065	Aberfoyle Central mine pebbly wash layer in 2m face (S'shell)	78	1	0.0106	0.9			
066	Aberfoyle Central mine pebbly wash layer shallow surface	5						#

\* gold particle was lost when trying to transfer it to a crucible

# This sample seemed to me to be a sample of tailings. The cassiterite that was present was very fine.

TABLE MW-5

## WASH SAMPLES FROM MINESITES IN THE RINGAROOMA BASIN

## Great Northern Plains

Sample No.	Site	Sn g/t	Sapphires		Gold			
			number	mass g	head value g/t	number	mass g	head value g/t
070	Delta mine basal? pebbly wash layer in 2m face	166				3	0.0002	0.02
072	Delta mine pebbly wash layer above sand	13						
080	Wanex area GNP wash on surface							*
081	Wanex area GNP wash on surface	7						#

\* This sample consisted of accretions containing an iron mineral (limonite?). There was no cassiterite so the sample was not assayed for tin.

# This sample seemed to me to be a sample of tailings. The cassiterite that was present was very fine.

Lawry Rhodes

(B. Tech., Adelaide) MAIMM.

Consulting Metallurgist

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July 3rd, 2001

Mr. Neil Thomas,  
C/- Mineral Holdings Australia Pty. Ltd.,  
10th. Floor,  
100 Collins Street,  
Melbourne, Victoria. 3000

Dear Neil,

The results of the silica analyses carried out by Temco on the +5mm and -5mm pan tails from sample no. 081 taken from the Wanex area are as follows:-

	SiO2%	Al2O3%	TiO2%	Fe2O3%
081 + 5mm	98.63	0.54	0.04	0.24
081 -5mm pan tail	98.49	0.26	0.21	0.07

Each of these samples was subjected to a screen analysis by Temco and I have calculated a screen analysis for the total sample, making allowance for the sample of -5mm pan tail that was removed and given to Robert Diprose of Gradall Constructions. The analysis is as follows:-

Size fraction mm	Mass%	Cumulative Mass%
+ 37.5	4.1	4.1
- 37.5 + 30	5.3	9.4
- 30 + 25	7.4	16.8
- 25 + 20	7.0	23.8
- 20 + 12.5	14.7	38.5
- 12.5 + 10	4.1	42.6
- 10 + 8	3.4	46.0
- 8 + 6.7	2.2	48.2
- 6.7 + 5	3.9	52.1
- 5 + 3.35	10.5	62.6
- 3.35 + 2	1.9	64.5
- 2 + 1	1.9	66.4
- 1	33.6	100.0