

SPECIAL EXPLORATION LICENCE 22/99

NE TASMANIA

ANNUAL REPORT ON EXPLORATION

OCTOBER 2001 TO SEPTEMBER 2002

For

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

Compiled by

D McP Duncan, McPherson Duncan & Associates

N R Kinnane, Niugini Resources Pty Ltd

L J Rhodes, Consulting Metallurgist

31st October 2002

TABLE OF CONTENTS

ABSTRACT

	Page No
1.0 INTRODUCTION.....	4
2.0 PREVIOUS EXPLORATION.....	4
3.0 CURRENT EXPLORATION.....	5
4.0 RESULTS.....	6
5.0 CONCLUSIONS.....	12
6.0 FUTURE EXPLORATION.....	13
7.0 ENVIRONMENT.....	14
8.0 EXPENDITURE.....	14
REFERENCES.....	14

KEYWORDS

Plan 1 – Regional Geology and Tenement Map, NE Tasmania

Plan 2 – Bulk Sample Localities on the Great Northern Plains

Figures 1, 2 and 3 – Graphs of Metal Contents of Taylors Samples

Table 1 – Alluvial Lithological and Sampling Logs, Taylors Area

Table 2 – Alluvial Sample Results Sheets, Taylors Area

Table 3 – Alluvial Lithological and Sampling Logs, Wanex Area

Table 4 – Alluvial Sample Results Sheets, Wanex Area

Appendix

SEL 22/99 – NE Tasmania - Annual Report, September 2002

ABSTRACT

This report describes the work carried out by Mineral Holdings Australia Pty Ltd on Special Exploration Licence 22/99 for gemstones covering 3856 sq km in NE Tasmania during year two of its tenure. At the end of year one, Great Northern Miming Ltd, the joint venture partner, decided to withdraw and the area was reduced to 2693 sq km.

As part of a larger program, Mineral Holdings carried out bulk sampling of wash horizons on the Great Northern Plains with seven pits excavated at Taylors workings, four dug at the Wanex area to the north of these workings and one from the nearby Dorset Dredge tin shed tailings. The resulting concentrates and screen products from the mobile treatment plant were hand picked and assayed for heavy minerals and sapphires and the results calculated to the grades in the alluvial wash.

At Taylors, the pits show SnO₂ grades in the range 10-794, TiO₂ 2-39, ZrO₂ 1-23 and sapphire 0.1- 0.5 g/LCM. Gold is widespread up to 31 mg/LCM. Tantalum plus niobium pentoxides are in the range 0.05-2.09 g/LCM with the Nb/Ta ratio in the range 2-9 to 1. The average SnO₂ value of the bulk samples at Taylors compares favourably with the resource grade of the Great Northern Plains tin deposit calculated from the drilling as about 200 g/cu m of 70% SnO₂ concentrate.

At Wanex area, the pits encountered mostly brown, indurated dolerite conglomerate but one contained an overlying, siliceous wash horizon with only subdued tin, titanium and zirconium values. Within a modest grade of 0.4 g/LCM was found the largest sapphire of the program- a flat 7mm, light blue stone

No resource figures of wash have been measured at Taylors due to lack of drilling but potential exists for volumes in conjunction with Aberfoyle, MacGregors, Beltz and Wanex which could include 2,500 tonnes of tin concentrate.

Evaluation of several sapphire parcels from NE Tasmania by grading, heat treating and cutting shows that a significant proportion of stones achieve a cornflower blue colour and suggest that Tasmanian sapphire could find a niche in the jewellery industry.

The focus of future exploration is for deposits of larger sapphires with a good content of high quality, light blue stones in enough alluvial wash volumes to make economic extraction feasible with or without tin, gold and other credits.

At the end of year two, the area was further reduced to 1260 sq km.

SEL 22/99- NE Tasmania- Annual Report, September 2002

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 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).

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. GTN Resources tested areas at Priory, Spinel Creek and the Weld River flats without success and then withdrew from the agreement.

On 26th November 2001, some two months after the second year renewal, the area was reduced to 2693 sq km (Duncan, March 2002).

2.0 Previous Exploration

Earlier exploration for year one has been described in last year's annual report to SEL 22/99 by Duncan & Rhodes (September, 2001). The report covers additional sampling on the regional survey of the gem and heavy mineral content of the currently- active sediments in the main river and creek drainages in the NE as well as the tails and middlings of the alluvial tin treatment sites and the residual untreated wash where accessible in the former tin mines.

The report covered the examination of Lloyd's sapphire collection at Priory, further detailed sediment and tailings sampling around the Priory area, an evaluation of the sapphire, tin and gold content of maiden wash at Summers' Mine at South Mt Cameron, sizing studies of several parcels of rough sapphires/corundum from amateur prospectors, dish sampling of potential bulk sampling sites on the Great Northern Plains at Taylors and Wanex and petrological studies of rocks including basalts encountered during the sediment/ tailings sampling program.

GTN Resources prior to withdrawal for the Joint Venture carried out test pitting of alluvial wash for sapphires at several prospects at Priory, Weld River and Spinel Creek. This work, which gave only disappointing results, was reported to the Department in a special project report (Kinnane, 2001).

3.0 Current Exploration

Work carried out by Mineral Holdings consisted of bulk sampling at Taylors and Wanex areas and on the Dorset Dredge Processing Shed tail on the Great Northern Plains, a continuation of the regional survey of stream sediments and mine tails, some petrological work at Priory and the purchase of some rough sapphire parcels from amateur prospectors for evaluation purposes including grading, heat treating and cutting.

3.1 Bulk Sampling of Alluvials

An excavator program was designed to extract basal gravels and concentrate the heavy minerals and the sapphires in a mobile plant in the old exposed faces in the workings at Taylors and in a possible deep lead under the plains to the north where previous drilling by the Wanex company about 1972 had recorded tin-bearing gravels.

The excavator program was carried out in June 2001 at the same time as the adjacent sampling at Aberfoyle and also at the Monarch deposit but not reported previously pending the separation of the heavy minerals and sapphires and the assaying which took some months to achieve.

The excavator was a 35 tonne CAT 350 with a 1.8cu m capacity bucket and the mobile test unit was a 2 cu m/hour Max-I-Weld plant equipped with a trommel and jig. Following extraction, the bulk samples of wash were trucked to a central stockpile site at MacGregors (MR 580,350mE; 5,469,870mN) for processing using water from an old alluvial mine pond. The details of the plant circuit and the processing of the products derived from it have been described in the report on the bulk sampling at the Monarch tin mine (Kinnane, 2001) which was part of this same program and they are not repeated here. Basically, any sapphires were hand picked from the +3mm material on the jig screen and the jig underflow was collected from the sluice and riffles. The heavy mineral concentrates were divided into three by passing through a single disc magnetic separator giving a non-magnetic fraction (assayed for Sn, ZrO₂, TiO₂, Ta and Nb), a magnetic 1 fraction (assayed for TiO₂) and a magnetic 2 fraction (rare earth to storage). Sapphire/corundum was hand picked from the concentrates.

Seven pits (TAY 1-7) were dug in Taylors workings and four (WAX 1-4) in the Wanex area (Plan 2, AMG locations in the Appendix) and the basal gravels extracted for processing with the bulk samples being in the range 0.65- 1.9 LCM (loose cubic metres).

4.0 Results

The results from the exploration activities are presented below.

4.1 Bulk Sampling

4.1.1 Taylors Alluvial Tin Area

At Taylors, the seven pits (TAY 1-7) were dug on the floor of the old alluvial workings (Plan 2) adjacent to the old work faces which ranged in height from 4 to 7 metres being composed of red brown, iron stained sands generally with one or several layers of pebbles. The alluvial sections and sampling details are given in the accompanying graphical and descriptive logs which include the old work faces in the profile (Table 1). Generally only the basal wash was sampled as earlier work showed that the overlying sands and gravels were effectively barren of heavy minerals and this was confirmed in TAY 2 where an upper 2.5m section was sampled as a check (T116) and was processed in the plant.

Grey basal wash layers in the range 0.8-2.0m thick were found overlying a granite basement except for Tay No 6 which encountered a 1.5m thickness of washed tailings overlying slimes. Occasional bands of clay (TAY No 2) or sand (TAY No 1) were also found in association with the wash. The wash was a grey, mainly granite-derived quartz sand and gravel with matrix-supported, rounded to flaky clasts up to 15cm of quartz, quartzite and metasediments including some cleaved sandstone. The gritty matrix contains only minor clay material. Jig screen logs, contained in the Appendix, show about 70% white to glassy quartz pebbles down to granule size many of which are also granitic, 20% rounded metasediment pebbles, various colours and 10% granite clasts, irregular in shape and not obviously transported far.

The assays of metals and sapphire/corundum in the various fractions derived from the bulk samples are given in Table 2 (samples T 114- T 121) and are calculated to grades in the wash as expressed in grams per LCM (loose cubic metres).

The values of the basal wash in the pits were variable in the range as follows-

10.58- 793.98 g/LCM SnO₂ (average 222.53),

2.55-38.67 g/LCM TiO₂ (average 17.88),

0.92 – 22.61 g/LCM ZrO₂ (average 8.78),

0-31.33 mg/LCM gold (average 11.39), and

0.1-0.46 g/LCM sapphire/corundum (average 0.24).

Samples T 116 and T 120 were omitted from this calculation, as they do not represent basal wash.

Tantalum and niobium were also determined and when expressed as the oxides and added together were in the range 0.05- 2.09 g/LCM (average 0.67) with the ratio of Nb to Ta in the range 2 to 9 (average about 4).

Comparing the average values with those found at the adjacent Aberfoyle alluvial tin area (Duncan et al, 2002) during the same bulk sampling campaign, SnO₂ is greater at Taylors with the TiO₂ and ZrO₂ contents about the same but all are lower than those at Monarch as follows in g/LCM-

ABERFOYLE	16.95- 127.0 SnO ₂ 83.80av	11.19- 28.53 TiO ₂ 21.44av	2.61- 11.32 ZrO ₂ 7.82av
MONARCH	70.9-1417.0 SnO ₂ 433av	4.20-90.0 TiO ₂ 41av	1.40-48.30 ZrO ₂ 16av

In addition, the tantalum plus niobium average content was greater at Taylors by a factor of 2 compared with the content at Aberfoyle (the Monarch contents were not measured) and the niobium to tantalum ratio was also twice as great.

Sapphire/corundum averaging 0.24g/LCM is lower than at Aberfoyle but the average of 1.17g/LCM at the latter locality is biased upwards by one value (of only three samples taken) of 3.28g/LCM. Gold was relatively widespread over the samples at Taylors averaging 11.39 mg/LCM whereas none was recorded at Aberfoyle.

Assay values are graphed in Figures 1, 2 and 3 and show the metal and sapphire distribution between the magnetic and non-magnetic fractions of the samples.

4.1.2 Wanex Alluvial Tin Area

Four pits (WAX 1-4) were dug on the plains about 0.5km north of the alluvial workings at Taylors and Aberfoyle in an area (Plan 2) where drilling by Wanex in 1972 had outlined 1.5M cu m at 135 g Sn/cu m in a channel trending towards the old workings. The area targeted by the pitting was the best and shallowest of the wash intersections in the drilling but the original drill hole positions mostly could not be found on site and the precise area may not have been located. Whereas the drilling results of the holes on a “grade to bottom basis” are available on a map, the logs and assays of the holes can no longer be found.

The pits were dug to between 6 and 9m and were uniformly disappointing in failing to encounter significant amounts of alluvial tin wash. The geological sections recorded mainly sandy clays and other green, grey to brown clays, some of them plastic (Table 3). At base of section, a brown, indurated conglomerate of between 1 and 2 metres thick commonly overlies a metasedimentary basement. The conglomerate is dominated by large cobbles and blocks up to 20cm of weathered dolerite and also contains black metasedimentary clasts and some whiter quartzite clasts. Some of the overlying clays are probably derived from altered dolerite. These lithologies are presumably derived from the adjacent dolerite of Ringarooma Tier to the NE and may be Tertiary or older.

A more typical, yellow to white, siliceous, pebbly alluvial wash some 1.3m thick is found in the most southerly pit (WAX No 3) from 3.0 to 4.3m below surface and is overlain by sandy clays. This contains metasediment boulders to 30cm, both dark quartzite and white quartz pebbles and silcrete cobbles in a medium grained, yellow, clayey matrix. It is presumed that this marks the edge of the palaeochannel which runs through the adjacent alluvial tin mines at Taylors and Aberfoyle.

Only two samples were assayed, one dolerite wash and the siliceous alluvial wash. The dolerite wash (W 111) contained only traces of tin, gold and sapphire whereas the siliceous wash (W 113) produced the largest sapphire in the entire program, a 7mm flat blue stone within a sapphire grade of 0.4 g/LCM, and only subdued tin at 52.11 g/LCM (despite the dish value at 524.1 g/LCM) and even more subdued zircon and titanium oxide values (Table 4).

4.1.3 Dorset Dredge Tailings

During the bulk sampling campaign on the Great Northern Plains, a one cubic metre of Dorset Dredge tin shed tailings was put through the mobile plant. This sample (DT 126) produced a total of 350.3 grams of sapphire in the 1 to 5mm size range for further evaluation (see Kinnane, September 2002).

At the same time, mineralogical studies were carried out on the minus 1.5mm heavy mineral fraction of the jig concentrate. This was magnetically separated to produce three fractions- a magnetics 1 fraction, a magnetic 2 fraction and a non-magnetics fraction. These were analysed by Amdel for their tin, tantalum and niobium contents as below-

Products	Mass g	Sn g/t	Ta g/t	Nb g/t
Mags 1	10,253	750	150	700
Mags 2	372	2.47%	2150	2700
Non-mags	11,303	5.13%	150	< 20

The difference in distribution between the tantalum and niobium suggests that there are at least two minerals carrying these metals. Also, the fact that cassiterite is turning up in the magnetic fractions suggests some locking with magnetic minerals.

The remainder of the Mags 2 fraction was then screened on a 300um screen and each of the two size fractions (+ and -300um) magnetically separated to produce three magnetic fractions Mag 2-1, 2-2 and 2-3 with the non-mag fraction being mostly monazite as 2-4.

Some XRD scanning of splits of the magnetic fractions was carried out by Amdel to identify the main minerals and to test for any tantalite peaks but this was not successful as monazite tends to mask out the tantalite response. Results are as follows-

-300um

Mags 2-1	ilmenite, magnetite, monazite
Mags 2-2	ilmenite, quartz
Mags 2-3	spinel, ilmenite, ?xenotime, monazite, cassiterite

-1.5mm- + 300um

Mags 2-1	spinel, cassiterite, ?magnetite
Mags 2-2	black grains selected only- cassiterite and rutile
Mags 2-3	black grains selected only- cassiterite and rutile

A polished section has been made for each concentrate at the Geology Department, University of Tasmania and optical scans under the microscope has not so far revealed any tantalite/niobium minerals. The scans are continuing but the sections will require microprobing to detect or prove any tantalum or niobium either as distinct mineral phase inclusions or as lattice substitutions in other more common minerals.

4.2 Stream Sediment Survey

Sediment sampling of active creek gravels, maiden wash and mine tailings continued to build up a picture of sapphire distribution in the region. Ten to twenty kilogram samples were collected, screened and panned as described in previous reports with the sapphires and gold hand-picked and weighed and the dark mineral sands assayed for tin content.

The results are displayed in Table P-4 of 6 samples mostly around Priory and in Table RC-11 of 7 samples mostly around Branhholm and Winnaleah (see Appendix).

Only two samples contained sapphires namely Frome River and Thureau's lead with good grades of 89.4g/t (41 sapphires) and 23.3g/t (28 sapphires) respectively in the size range 2-4mm. Reasonable grades of cassiterite were also encountered with the sapphires and were more widespread being found also at Banca Mine and Ruby Flat in the range 0.07-0.63% Sn.

During the processing of regional samples 69 and 70 representing the catchments of the North George and South George Rivers respectively, some black, blade-shaped minerals were seen, as separates or sometimes locked with quartz. The samples were passed through the magnetic separator and two magnetic fractions of each sample were sent to IDL, Perth, WA for identification. The results were as follows-

69	Mags 1	> 50% Rock Fragments; gneiss, schist 20-50% Biotite 10-20% Pleonaste 1-10% Amphibole, limonite
----	--------	---

69	Mags 2	20-50% Rock Fragments; as above 20-50% Quartz 1-5 grains Amphibole
70	Mags 1	as in 69 Mags 1
70	Mags 2	as in 69 Mags 2

The black, blade-shaped mineral was identified as an amphibole and not wolframite as suspected.

4.3 Priory Breccia Sample

This sample (630084) of red soil was collected by the local property owner Michael Lloyd during the course of fossicking for sapphires about 2km north of his property at Priory at a location thought to be about MR 599,100mE; 5,432,000mN.

The soil was panned to concentrate the heavy minerals which were identified by L Rhodes as mostly specular hematite. As no cassiterite was present, the sample was not assayed for tin. The middlings are granite-derived quartz grains while the plus 5mm oversize were thought to be brown basalt or lamprophyre.

Petrographic analysis was carried out at Mineral Resources Tasmania and confirmed that the rock chips were alkaline olivine basalt (Appendix). In addition, some features of the rock texture such as the abundant shattered phenocrysts and ultramafic inclusions (lherzolites) suggested the source might be a volcanic rock similar in type to the Weldborough Pass basalt.

The locality should be searched for the presence of a volcanic centre or dyke with possible sapphire potential which may be the source from which the Priory sapphires were derived.

4.4 Assessment of Sapphire Parcels

A range of sapphire parcels from NE Tasmania derived from hand panning and bulk sampling by Mineral Holdings and acquisition from previous tin miners and amateur prospectors were assessed for their marketability after grading, heat-treating and cutting by Coolamon Mining, Queensland. The results, which were generally favourable and showed that Tasmanian sapphire could find a niche in the jewellery industry, are described in an accompanying report by Niugini Resources Pty Ltd (Kinnane, September 2002).

Plans are in place to access the tails of the old Siamese tin shed at the Holloway Property at Priory where a bulk sample of up to 5 cu m will be treated with the mobile plant to recover some of the larger sapphires suspected of being present. It remains possible that all or some of the larger sapphires in the Lloyd collection at Priory were hand picked by his grandfather during the period of recovering tin from alluvial wash in this area.

4.5 Relinquishment of Area

At the end of year two of the licence, Mineral Holdings decided to reduce the size of the SEL to lower the increasing rental costs by dropping these areas considered less prospective than the core area to be retained.

For the present reduction to 1260 sq km at the end of year two, Mineral Holdings has relinquished the lower Musselroe River Basin in the east and the Tomahawk River Catchment in the west. The core area retained is the Ringarooma River catchment in the centre, most of the Boobyalla River catchment to the west and most of the alluvials of the George River east of the divide (Plan 1).

The main emphasis of the reconnaissance stream sediment sampling program has been on the tin-bearing alluvials and in the areas where sapphires have been reported in Mines Department literature and by amateur fossickers. Consequently, the areas dropped have received no real evaluation for gemstones mainly due to lack of positive information to follow up and poor exposure of Tertiary sediments. The Tomahawk River has only remnant Tertiary sediments in the upper catchment and presumed sediments of that age concealed by Quaternary sediments in the lower catchment.

The Musselroe River is reputed to have a sapphire-poor catchment from amateur prospecting and from the limited sampling carried out by Mineral Holdings only 1 small sapphire was found in one of the two sediment samples collected.

Large areas of Tertiary sediments are found east and south of Gladstone. Alluvial tin mines have been worked in the sediments in the area between the Ringarooma and the Musselroe Rivers and historical records and our sampling have shown few sapphires. The relatively large area of sediments to the east of the Musselroe River is poorly exposed and therefore largely unknown but has presumably been subject to historical prospecting for tin-bearing alluvials without success. Because of this lack of positive information, and poor exposure, it was not covered by our drainage sampling for sapphires.

The area to be retained is shown on Plan 1 at 1260 sq km relative to the current area of 2693 sq km. The only work carried out on the relinquished part was some stream sediment or tailings analyses as part of the regional program at the historic Banca alluvial tin mine, at Boobyalla River and Trout Creek near Winnaleah and at Nicks Creek on Reids Road, Binalong Bay.

The results from the relinquished part are contained in this annual report and in the relinquishment report already submitted to the Department (Duncan, September 2002).

5.0 Conclusions

- 5.1 Bulk testing at Taylors workings and the Wanex area, distributed over 7 pits and 4 pits respectively using an excavator and a mobile jig plant, has shown the presence of tin-bearing, basal alluvial wash of variable grade at Taylors but has met with little success at Wanex. As well as arriving at the tin grade, the processing has allowed measurement of the accessory minerals- ilmenite/rutile, zircon, gold and sapphire.
- 5.2 At Taylors, the pits show grades in the range 10-794 (average 223) g/LCM SnO₂ (70%), 2-39 (av 18) g/LCM TiO₂, 1-23 (av 9) g/LCM ZrO₂, 0-31 (av 11)mg/LCM gold, and sapphire 0.1- 0.5 (av 0.24) g/LCM. Tantalum plus niobium pentoxides are in the range 0.05-2.09 (av 0.67) g/LCM with the Nb/Ta ratio in the range 2 to 9 (average 4) to 1.
- 5.3 The average SnO₂ value of the bulk samples at Taylors compares favourably with the average of the Great Northern Plains tin deposit calculated from the drilling as about 200 g/cu m of 70% SnO₂ concentrate. On average, the tin oxide content of the wash is greater at Taylors, and the titanium and zirconium oxide contents about the same, when compared with those at the adjacent Aberfoyle mine and all are lower than those found in the samples from the Monarch Mine.
- 5.4 The tantalum plus niobium pentoxide average content and the Nb/Ta ratio was twice as great at Taylors than at Aberfoyle. On average at Taylors, the sapphire/corundum content of the wash is lower and gold is relatively widespread throughout the samples compared with Aberfoyle where no gold was recorded.
- 5.5 At Wanex area, the pits encountered mostly brown, indurated dolerite conglomerate but one contained an overlying, siliceous wash horizon with only subdued tin, titanium and zirconium values. Within a modest grade of 0.4 g/LCM was found the largest sapphire of the program- a 7mm, flat, light blue stone. It is presumed that this marks the edge of the tin-bearing palaeochannel which runs through the adjacent alluvial mines at Taylors and Aberfoyle.
- 5.6 No resource figures of wash have been measured at Taylors due to lack of drilling but potential exists for volumes in conjunction with Aberfoyle, MacGregors, Beltz and Wanex which could include 2,500 tonnes of tin concentrate (Kinnane, 2001).
- 5.7 Mineralogical studies of the Dorset Dredge tin shed tailings on the Great Northern Plains have not so far revealed any tantalum or niobium minerals but chemical analyses of the magnetic fractions suggest that there are at least two minerals carrying these metals.

5.8 Fragments of brecciated basalt found in soil north of Priory suggest the possible hidden presence of a volcanic centre which may provide a source for the sapphires at Priory.

5.9 Evaluation of several sapphire parcels from NE Tasmania by grading, heat treating and cutting shows that a significant proportion of stones achieve a cornflower blue colour and suggest that Tasmanian sapphire could find a niche in the jewellery industry.

6.0 Future Exploration

The emphasis of future exploration should be on the location of untreated alluvial wash and its evaluation by bulk sampling and treatment with recovery plants able to process small reconnaissance samples in the range 1-10cu m up to 'run of mine samples' in the range 200 –1,000 cu m.

Gem concentrates would then be subject to standard evaluation including sorting, heat-treating and cutting to evaluate the possibility of niche marketing.

As well as the gemstones, sapphire, zircon, topaz, spinel and quartz, the plants should be capable of recovering the heavy minerals particularly cassiterite, gold, tantalite, ilmenite, rutile and monazite.

Prospect areas to be considered for evaluation will include Priory, Thureau's Lead, Royal Ruby, Trafalgar, the Goshen and Pyengana Flats- all current or previous terraces of the George River on the eastern watershed from the Blue Tier.

Other prospect areas, on the northern or western watershed are the Weld River flats, the Wyniford River area, the Motts Creek area (the only gemstone lease ever granted), the Arba Flats and tails, Ruby Flats near Branxholm and Main Creek (high level) Flats.

The challenge of this exploration is to find deposits of larger sapphires, with good quality blue gemstones with or without tin and gold credits close to the presumed basaltic source areas of the sapphires and in sufficient alluvial wash volumes to make commercial extraction feasible.

On the Great Northern Plains, and offshore in Ringarooma Bay, large volumes of sapphire-bearing, alluvial tin wash exist with as yet unknown bulk sapphire contents along with the tin resources at Monarch, Endurance and Pioneer. These deposits are somewhat removed from the presumed sapphire source but their potentially large volumes of wash make them attractive targets compared with deposits in the mountains.

This licence SEL 22/99 is now part of the Ringarooma Joint Venture being set up by Mineral Holdings and other participants to include all the MHA licences in NE Tasmania. Future exploration on all of the tenements will be conducted by the new entity with the benefit of exercising over

7.0 Environment

Only existing tracks were used for access. As the main access track to the MacGregors area was becoming overgrown particularly in the northern section, marginal vegetation was trimmed using a grader.

Following the extraction of the wash samples, the pits were backfilled immediately with the excavator, the ground compacted and recontoured with the topsoil replaced in the Wanex area. Where the topsoil was absent or skeletal in the previously mined area at Taylors, the disturbed pit area was covered with vegetation slash to reduce the visible effect and to promote natural reseeding.

At the plant site, all stockpiles were processed through the mobile plant. At the end of the program, the oversize gravel and the tailings were smoothed by hand tools. The slimes introduced into the old mining pond by return circulation were left to settle by natural flocculation.

8.0 Expenditure

Expenditure on exploration in the licence area for the twelve months to end September 2002 was \$43,324 bringing the total for the 2 years life of the licence to \$121,776.

REFERENCES

Duncan, D. McP. 2002. SEL 22/99, NE Tasmania. Mineral Holdings Pty Ltd. Relinquishment Report, March 2002.

Duncan, D. McP. 2002. SEL 22/99, NE Tasmania. Mineral Holdings Pty Ltd. Relinquishment Report, September 2002.

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

Duncan, D. McP, Kinnane, N.R and Rhodes, L.J, 2002. EL 38/97, Aberfoyle Hill. Mineral Holdings Australia Pty Ltd. Annual Report on Exploration to March 2002.

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

Kinnane, N. R. 2001. The Monarch Project, Mt Cameron, Gladstone District, North East Tasmania. Geological Assessment and Ore Resource Statement. Niugini Resources Pty Ltd. (August 2001).

Kinnane, N. R. 2001. Assessment Report, Great Northern Plains Project, NE Tasmania. Niugini Resources Pty Ltd.(November 2001).

Kinnane, N. R. 2002. Technical Report. SEL 22/1999, NE Tasmania. Niugini Resources Pty Ltd. (September 2002).

KEY WORDS

Taylor's, Wanex, Aberfoyle, MacGregors, Alluvial Deposits, Cassiterite, Tantalite
Rutile, Ilmenite, Zircon, Monazite, Gold, Sapphire

APPENDIX

Appendix 1 – Location of Bulk Sample Pits

Appendix 2 – Location of Stream Sediment Samples

Appendix 3 – Logs of Oversize from Plant Jig Screen

Appendix 4 – Logs of Oversize from Stream Sediments, Wash and Tails

Appendix 5 – Petrology of Priory Rock Sample

Appendix 6 – Samples from Various Locations around Priory- Table P- 4

**Appendix 7 - Samples from Minesites and Streambeds in the Ringarooma
Catchment- Table RC- 11**

Appendix 8 – Analytical Data of Bulk Samples, Aminya Lab, Burnie

Appendix 9 – Analytical Data of Bulk Samples, Amdel, Adelaide

APPENDIX 1
Location of Bulk Sample Pits (AMG)

TAYLORS

TAY No 1	580,600mE; 5470,220mN
TAY No 2	580,000mE; 5470,220mN
TAY No 3	580,740mE; 5470,240mN
TAY No 4	580,000mE; 5470,240mN
TAY No 5	580,700mE; 5470,200mN
TAY No 6	580,660mE; 5470,170mN
TAY No 7	580,650mE; 5470,120mN

WANEX

WAX No 1	580,440mE; 5470,720mN
WAX No2	580,490mE; 5470,640mN
WAX No 3	580,540mE; 5470,570mN
WAX No 4	580,570mE; 5470,640mN

APPENDIX 2
Location of Stream Sediment Samples (AMG)

132962	Ratray Creek	604,000mE; 5429,800mN
132963	Fetchells Creek	604,300mE; 5429,800mN
132964	Nicks Creek	605,100mE; 5430,000mN
132965	Crothers Creek	569,600mE; 5453,400mN
132966	Trout Creek	567,900mE; 5453,400mN
132967	Boobyalla River	568,800mE; 5457,100mN
132968	Banca Mine Race	567,300mE; 5457,700mN
132970	Ruby Flat	563,140mE; 5439,080mN

132971	Ruby Flat	563,140mE; 5439,080mN
132972	Frome River	573,800mE; 5446,200mN
132974	Thureau's Lead	598,550mE; 5428,850mN
132975	Creek, nr Goulds Country	588,400mE; 5433,980mN
132976	Chapples', Priory	601,100mE; 5429,020mN

**APPENDIX 3
LOGS OF OVERSIZE (+3mm) FROM JIG SCREEN FROM BULK
SAMPLING**

Taylor's Mine Samples

T 114	4.9- 5.9m	30% pebbles of metasediment, various colours 70% white to glassy, quartz pebbles down to granule size
T 115	7.0- 7.8m	Same as above, with some of granules being granitic
T 116	1.0- 3.5m	As above
T 117	6.4- 8.4m	70% white to glassy, quartz pebbles down to granule size 20% metasediment pebbles, various colours 10% irregular granite fragments, possibly greisenised down to granules
T 118	3.0- 4.0m	As above, metasediments also include angular and flakey clasts
T 119	2.2- 3.2m	As above, metasediment clasts mostly rounded
T 120	0- 1.5m	As above
T 121	7.0- 8.7m	

As above

Wanex Area Samples

W 111	4.0-5.4m	40% ferruginous, altered dolerite; irregular fragments 40% white to glassy, rounded/ subrounded quartz pebbles to granule size 20% rounded to blocky clasts of metasediment, various colours
W 112	7.2- 8.3m	80% ferruginous, altered dolerite; as above 15% quartz, as above 5% metasediments, as above
W 113	3.0- 3.5m	80% quartz as above 20% metasediment pebbles, various colours trace ferruginous, altered dolerite

APPENDIX 4 LOGS OF OVERSIZE (+5mm) FROM STREAM SEDIMENTS, WASH AND TAILS

Sample No

132962	Ratray Creek sediment 100% cg granite, granules to 2cm, including quartz and feldspar grains as well as composites
132963	Fetchells Creek sediment 100% cg granite, angular to subrounded granules and clasts up to 6cm, and derived quartz and feldspar grains
1332964	Nicks Creek sediment 90% cg granite, angular flakes to 9cm down to granules of quartz and feldspar 6% metasediment; grey angular clasts to 6cm 4% white quartz, angular clasts to 5cm
132965	Crothers Creek sediment not logged
132966	Trout Creek sediment

- 70% brown-stained mica sandstone clasts, angular to subrounded to 6cm,
25% quartz clasts down to granule size, some granitic
5% brown quartz grits, ferruginous cemented, to 5cm irregular shapes
- 132967 Boobyalla River mine tailings
no oversize
- 132968 Banca Mine race sediment
40% cg granite from 5cm down to granule size
40% fg granite, angular clasts to 6cm
15% white quartz, angular to subrounded clasts to 6 cm
5% quartz grit to 4 cm, angular to irregular clasts
- 132970 Ruby Flat solid maiden wash
99% cg granite, mainly granule size, one subrounded clast to 12cm
1% white quartz, irregular fragments to 3cm
- 132971 Ruby Flat mine tailings
60% brown quartz grit and other fg ?Tertiary sediment
20% mica sandstone plus other metasediment flakes
20% white to glassy quartz, angular to 9 cm
trace quartz granules
- 132972 Frome River sediment
50% cg granite, brownish, from 8cm rounded clasts down to granule size,
40% white to yellow quartz, rounded from 6cm down to granules
10% quartzite, some banded and cherty, rounded to 9 cm
trace quartz grit and ?Dev. dolerite
- 132974 Thureau's Lead tailings
70% white quartz, rounded from granules to 6cm clasts, some glassy, some with tourmaline
30% cg granite granule
trace quartz grit, quartzite
- 132975 Un-named Creek, (Goulds Country) sediment
97% mg granite (greisenised?), brown to grey, angular to irregular clasts to 8cm
3% quartz, white, angular fragments to 7cm
- 132976 Chapple's Property wash
85% quartzite, sandstone, rounded to 6cm, colours are yellow, grey, brown, pale white
15% white quartz, irregular or subrounded from 5cm down to granule size

APPENDIX 5

Petrology of some rock samples, Priory, NE Tasmania

An unpublished report for Mineral Holdings Pty Ltd
R.S. Bottrill, Mineral Resources Tasmania, 4/11/02

Introduction

One thin section of three rock fragments, plus the rock samples, of basalt from near Priory, northeast Tasmania, were submitted for the analysis and identification.

The sample submitted was:

Sample No.	Identification
084	Basalt, Priory (Michael Lloyd, +5mm soil)

The sample was examined by stereo and polarised light microscopy and the results presented below.

This rock is mafic, fine grained and porphyritic, with moderate alteration. It is a seriate-textured basalt composed mostly of fine to coarse grained phenocrysts of plagioclase, pyroxene and olivine, ranging from euhedral to rounded and angular, in an intersertal to intergranular matrix of the same minerals (less than 30 μm in size). The phenocrysts (~30 % of the rock; augite, enstatite, plagioclase, opaques and olivine.) are from 0.2 mm to 3 mm in size. The main pyroxene appears to be an augite, and commonly has a pink titaniferous rim. Orthopyroxene is partly altered to fine grained clinopyroxenes on the rims. The pyroxenes and olivine are commonly intergrown, grading into small xenoliths (up to ~3 mm diameter) of lherzolite, probably the source of most of the "phenocrysts". The olivine is partly altered to clays/iddingsite and there are minor vesicles filled with clays and zeolites. The matrix is also partly variably altered to clays.

This rock is a microporphyritic alkaline olivine basalt, similar to that at Weldborough Pass. The varied and abundant subhedral (shattered) phenocrysts and xenoliths suggests a source close to volcanic vent.

R S Bottrill
MINERALOGIST-PETROLOGIST

APPENDIX 6

TABLE P-4

SAMPLES FROM VARIOUS LOCATIONS AROUND PRIORY

Sample No.	Site	Sn g/t	Sapphires		Gold	
			number	mass g	head value g/t	number mass g
962	Rattray Creek	*				
963	Fetchells Creek	23				
964	Nicks Creek	123				
974	Thureau's lead near Tasman Highway	0.24%	28	0.3280	23.3	
975	Creek near Goulds Country church	267				
976	Under pine trees at Chappell's property at Priory	80				

* No cassiterite – not worth assaying

Sapphires in sample 974 were distributed in size as follows:-

	2mm	3mm	Total
Number	25	3	28
Mass g	0.2457	0.0823	0.3280

APPENDIX 7

TABLE RC-11

SAMPLES FROM MINESITES AND STREAMBEDS IN THE RINGAROOMA CATCHMENT

Sample No. Gold	Site	Sn g/t	Sapphires		
			number	mass g	head value g/t
965	Crothers Creek	*			
966	Trout Creek (Wagner's property)	*			
967	Boobyalla River (mine tailings)	*			
968	Banca Mine race (under road)	0.63%			
970	Ruby Flat (solid maiden wash)	0.18%			
971	Ruby Flat (mine tailings)	667	#		
972	Frome River	634	41	1.5056	89.4

* No cassiterite – not worth assaying

Sample contained a quartz/cassiterite composite about 20mm in size that contained a nice crystal of cassiterite. If this is included in the recovered grade, the estimated head value is increased from 667g/t to 840g/t. In a mining operation the piece would be discarded in the feed screen oversize.

Sapphires in sample 972 were distributed in size as follows:-

	2mm	3mm	4mm	Total
Number	18	18	5	41
Mass g	0.3725	0.7618	0.3713	1.5056