

**RL APPLICATIONS FOR FLOW – ON TITLES FROM
EL 10/2000 MONARCH FLATS AND EL 12/2000 PIONEER
NORTH EAST TASMANIA**

FOR VAN DIEMAN MINES PTY LTD

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RL APPLICATIONS FOR FLOW-ON TITLES FROM ELS 10/2000 MONARCH FLATS AND 12/2000 PIONEER, NE TASMANIA

1.0 INTRODUCTION

ELs 10, 11 and 12/2000 were applied for by Mineral Holdings Australia Pty Ltd on 5th May 2000 and granted on December 2000. They were subsequently transferred to Van Dieman Mines Pty Ltd under an option agreement exercised on 18th June 2004.

The licences were selected to allow exploration of the alluvial, heavy mineral resources particularly cassiterite, ilmenite, rutile, zircon, monazite, tantalite and gold. Gemstones particularly sapphire are an essential part of the evaluation.

Each licence covers an area of 4 sq km in NE Tasmania (Plan 1) and secures the residual resources in the former alluvial tin mines at Monarch, Endurance and Pioneer.

Desk and field studies of the three deposits over the five years to 2005 have enabled a modern evaluation and recalculation of the remaining resources allowing for pre-stripping the barren overburden resulting in an increase in the grade and volume of the recoverable alluvial resources.

The three exploration licences will reach their expiry date on 8th December 2005. Evaluation has progressed to a stage which has encouraged the company to apply for flow-on titles. EL 11/2000 South Mt Cameron will be replaced by ML 14M/2004 designed to take the Endurance deposit to production. To the north of Gladstone, the Scotia deposit is proceeding to production under ML 15M/2000 which has already been granted. This application seeks to have Retention Licences awarded over the Monarch deposit (EL 10/2000) and the Pioneer deposit (EL 12/2000).

Van Dieman Mines believes that, having regard to its capitalization and debt financing, that it should concentrate on the two MLs at Endurance and Scotia to bring them into production with a resultant cash flow. With a planned 2 years mine life at Endurance, the company can then move onto phasing Pioneer and Monarch into production. Until that time, the company seeks to hold these deposits as Retention Licences while still pursuing studies to bring them up to mining standard.

These areas are an integral part of Van Dieman Mines Ringarooma Project of North Eastern Tasmania which consolidates all of the potential alluvial tin resources in the region and will allow exploration and production to proceed in a coherent manner and with subsequent economies of scale.

2.0 PREVIOUS EXPLORATION

Exploration activities by Mineral Holdings Australia Pty Ltd on these licences in Years 1-3 are featured in the annual reports (Duncan, 2001, 2002 and 2003). The Monarch deposit was bulk sampled and alluvial resources were recalculated at all three deposits leaving out barren overburden. These studies were carried out by Niugini Resources Ltd and are lodged in a series of reports in Mineral Resources

Tasmania (Kinnane, August 2001, December 2001, December 2002, and September 2003).

Years 4 and 5 involved the capturing by Van Dieman Mines of all exploration and resource drilling and grade analyses into a GIS for evaluation of the deposits and presentation in the company prospectus which successfully led to capital raising by the company on the London AIM (VDM Prospectus, October 2004).

3.0 EXPENDITURE

Total exploration expenditure for the duration of the licences to 30th June 2005 amounts to the following-

EL 10/2000	Monarch	\$85,252
EL 11/2000	Sth Mt Cameron	\$151,221
EL 12/2000	Pioneer	\$152,728

Apart from Monarch, all of the work mainly involved desk studies, field inspections and GPS surveying and there was no surface disturbance and no need for rehabilitation. At Monarch following bulk testing, rehabilitation was carried out according to the Exploration Code of Practice.

4.0 RESOURCE INVENTORY

Modern resource figures have been calculated by Niugini Resources Pty Ltd following extensive study of the previous mining and exploration history of the alluvial tin deposits. The study involves the metrification of the old imperial data, the use of modern computer software, the capture of the data into a GIS, the elimination of the barren overburden in the calculations and an appreciation of the geological setting of the deposits. The detailed figures and their basis are contained in the five project reports already lodged in the Department as cited in the Reference section of this application. Relevant details of the resources from previous reports and from the VDM Prospectus are contained in the Appendix.

5.0 MONARCH- EL 10/2000

Tin was first discovered at Monarch in the late 1800s and most initial work was carried out by Chinese miners.

The main mining phase was 1923 to 1935 when 71.5 tons of concentrate were recorded for the duration.

Subsequently, the most important evaluations on the resources including drilling were carried out by BHP (1964), Austminex (1965), BMI in the early 1970s and Amdex in the early 1980s. Test pitting by MHA in June 2001 confirmed the general tenor of the resource in B Lens and allowed estimates of the grades of the accessory minerals zircon, rutile, ilmenite and monazite.

Recent recalculations of the resource by Niugini Resources Pty Ltd (Kinnane, August, 2001) involving the removal of the barren overburden increases average grades by a factor of three and gives-

An Indicated Mineral Resource- A, B and E Lens (at a cut off grade of 200g/BCM) of-

556,751 bank cubic metres (BCM) at an average grade of 1,220g/BCM of 70% Sn concentrate to give 679 tonnes of 70% Sn concentrate-

- **with the estimated accessories of 19g/BCM of zircon as ZrO₂ and 48g/BCM of rutile or ilmenite as TiO₂.**

A fourth lens "D" has the capacity to contribute an additional 8.2 tonnes of concentrate.

Overburden to ore ratios are about 3.5 to 1.

The Monarch ore reserve estimation sheets are reproduced in the Appendix to this report.

The resource blocks including most of "E" Lens are open to the southeast where they escape off the present mineral tenements towards the lower slopes of Mt Cameron with the promise of more alluvials (Plans 2,3 and 4).

The main cassiterite deposits are arranged in a thin basal alluvial wash horizon of coarse sands, grits and conglomerates of granite derivation plus occasional clasts and blocks of Meta? Sandstone resting immediately on a decomposed granite bedrock. The deposits also contain zircon, monazite, ilmenite, rutile and corundum. The basal mineralized zone is overlain by barren, granite-derived clayey sands and sandy clays.

The tin deposits are thought to be Tertiary fluvial deposits derived from Mt Cameron with NW - trending elongate lenses parallel to the present drainage and perhaps modified to the north and west by a marine transgression.

5.1 Mining Strategy and Feasibility

Mining logistics are excellent at Monarch with all weather roads and mains power already as close as several kilometers to the north along the Gladstone-Bridport Road (Plan 4).

Previous mining techniques involved hydraulic monitors, gravel pumps and sluice boxes. BMI introduced a dragline. All methods used to date have resulted in high losses of tin by the failure to remove the barren sticky clay from the treatment circuit and by basement dilution.

The use of modern gravity circuits and mining excavators is expected to improve recoveries of cassiterite and the accessory heavy minerals and sapphire (Kinnane, internal memo).

Only preliminary feasibility studies have been carried out on this deposit.

On the above resource figures and taking the current price of tin metal to be A\$6,000 per tonne the insitu value of the Monarch deposit would be about \$A2,850,000 making no allowance for the accessory heavy minerals or sapphires.

Based on a number of mining techniques such as a single bucket ladder, an overburden stripping and smaller dredge, a double ladder dredge and backhoe mining, the operating costs would be around A\$1.68, \$1.59, \$1.40-1.50 and \$1.44-2.22/cu m respectively.

Kinnane (internal memo) has suggested using other methods such as stripping overburden using scrapers, bulldozers or large hydraulic excavators and mining using conventional backhoe, trucks or gravel pumps or the removal of overburden by dragline and mining of wash by conventional methods. Preliminary estimates suggest that running a 100 cu m/hour alluvial plant with backhoe, bulldozer and jig based gravity plants would cost from \$2.50- \$ 10.00/cu m depending on a number of variables such as overburden to ore ratios, grade, water and labour availability, location, access and infrastructure.

In a specific case, Kinnane has calculated that for a two dredge or pre-stripping operation, the estimated cost would be \$1.70/cu m. It is also expected that similar costs and surplus figures could be achieved using a "dry mining" method. More recently, the estimate of a current dredge operator using modern technology advocated the possibility of getting the costs down close to \$1.00/cu m (Kinnane, pers com).

An appropriate treatment plant circuit is featured in Plan 12 and recognizes the complex assemblage of accessory heavy minerals including gold, sapphire, ilmenite, rutile, zircon and tantalite which substantially increase the value per cubic metre of the alluvial deposits. Preliminary costs suggest an amount of A\$1.25M for the plant although the availability of a second hand plant would reduce this figure substantially.

The treatment plant would be mobile and could either be on site or at a central locality depending on the other sites being mined in the Ringarooma Tin Project.

Environmentally, the old tin mining areas have been disturbed and degraded by operations in the past. However, any new mining operations will have to be subject to the modern planning and environmental provisions. Mineral Resources Tasmania has carried out erosion control and other rehabilitation measures in the area and the mining plan would recognise and preserve these remediation features as far as possible.

A Retention Licence of 4 sq km is required to secure the resource so that VDM can carry out the following-

- convert all old data to modern metric, AMG and digital format,
- commence a full economic assessment of the resource including the value of the accessory minerals,

- complete a pre-mining feasibility study involving mining technique, processing methods and environmental considerations, and
- complete marketing studies and allow time for the metal prices.

6.0 PIONEER- EL 12/2000

Tin was discovered in the Pioneer district by William Bradshaw in 1877 where the present Ringarooma River cut and reworked the Pioneer lead.

A company was formed in 1882 to work the shallow deposits but was not successful and Chinese miners worked on tribute until the late 1890s when their efforts revealed the rich Pioneer deep lead to the west.

The Pioneer Tin Mining Company was restarted in 1900 and carried out the main production of tin concentrates with hydro-electification from 1909 until 1929 when the workings were inundated by the Great Ringarooma Flood. In that period, 9,360 tonnes of tin concentrates were developed from nearly 11 million cu m of wash.

During 1930-46, tributers worked the mine for the Endurance Tin Mining Company which had bought out the Pioneer Company and moved most of the plant to their South Mt Cameron Mine eventually abandoning the Pioneer leases.

In 1967 to 1976, Vern Woods worked the Pioneer initially with sluice boxes and then with a modern jig plant. The Pioneer operations were then acquired by Triako and Buka operating as Kibuka Mines and their associate Amdex Mining continued mining the lead westward.

Total production from the Pioneer Lead up to that time stands at 10,554 tonnes of tin concentrates. The operations ceased in late 1979 following the collapse of the world tin price and the introduction of production quotas. However, before closing the mine, Amdex had carried out an extensive drilling program mainly on the western and southern flanks of the open pit and it is this valuable program which has allowed the recent reassessments of the residual tin resources by Kinnane (December, 2002 and September, 2003) both reports already being in the Department.

The Pioneer Project has undergone further re-assessment and a new resource calculated (VDM Prospectus). Each drill hole in the unmined sections of the deposit was reviewed and all grades above 200g SnO₂/bcm cut-offs for the wash zone only included in the new resource base.

The Measured Mineral Resource on the above basis is-

4,616,000 BCM with an average grade of 872g/BCM containing 4,025 tonnes of SnO₂ concentrate.

A stripping ratio of 4.9:1 is estimated with overburden of 22.73M BCM.

Possible resource extensions occur both within the current tenement outlines and also outside to the west and down palaeoslope towards the centre of the South Mt Cameron basin (Plans 9 and 10). These extensions potentially contain 3.5M cu m at an average grade of 1,000g/cu m of SnO₂ or some 3,500 tonnes of SnO₂ concentrates.

The Pioneer alluvial tin deposits are the best documented in the northeast due to the geological work by Morrison (1980) carried out shortly after the end of mining operations when the pits were still fresh, free from vegetation regrowth and unflooded.

The Tertiary stratigraphy of the deposit revealed in the open cut consisted of two sequences-

- an upper (overburden) sequence, some 30-40m thick of trough cross-bedded sands and granules and large bodies of kaolinite clay, and
- a lower, 6m thick cassiterite-bearing sequence of stratified gravels, tabular cross-bedded sands and gravels, trough cross bedded granules and lenticular bodies of peat and clay.

Reconstruction of the basement topography in the mine area reveals a channel trending north west down palaeoslope. The best cassiterite grades are restricted to this channel and the deposit appears to terminate downstream although the coarse basal gravels are said to persist. This possibility requires further drill investigation.

The geological setting is interpreted as a proximal, braided stream depositional environment with the heavy minerals concentrated in longitudinal bars, transverse bars and channel facies. The bulk of the heavy mineral deposition is thought to take place during the initial stages of waning flow after flooding. The clasts in the basal gravels are mainly cleaved sandstone (63%) and quartzite (23%) with minor quartz (5%), massive sandstone (4%), clay (2%), shale (2%), wacke (0.5%) and conglomerate (0.5%). The source of the sediments was to the east of Pioneer. The origin of the cassiterite is thought to be greisen mineralization such as present in the Anchor Mine on Blue Tier.

The age of the deposit is quite well constrained with pollen from peat units, as lateral facies equivalents of the tin-bearing gravels, being shown to be Late Oligocene- Early Miocene or about 20M years (plus or minus 5M). Both pollens and leaves indicate a temperate rain forest environment. Wood fragments, partially lignitised, are preserved in the gravels adjacent to the peat deposits.

Morrison (1989) went on to classify the major alluvial tin deposits of the Ringarooma Valley- the Arba, Valley, Briseis, Pioneer and Endurance as late Oligocene braidplain deposits. Deposits occupying narrow, sinuous channels north and west of Mt Cameron (Scotia, Lochaber and Scoloch?) were probably older (Eocene). Terrace deposits of the present Ringarooma and Great Musselroe Rivers were probably younger at post – middle Miocene.

6.1 Mining Strategy and Feasibility

Infrastructure and access such as sealed roads, power and water are excellent with the deposit lying adjacent to Pioneer Township (plan 10, Kinnane, December 2002). An old treatment shed and stockpiles are present close to the township but a new mining operation would require a more remote plant site to minimize noise and dust and other adverse impact on the community.

On the above resource figures and taking the current price of tin metal to be A\$6,000 per tonne, the in-situ value of the Pioneer deposit would be about A\$17M making no allowance for the accessory minerals or sapphires. These accessory minerals have been partially quantified in other deposits in the region of similar mineralogical derivation and could be present in grades in the range 50-200g/ cu m for rutile, ilmenite and zircon; up to 10mg/cu m for gold and rare earths and tantalum minerals in the range 100-200g/cu m and 1-2 g/cu m respectively. Sapphire has been observed in tin shed tailings and grades of 1-5g/ cu m of gem quality stone are possible.

The details of the operating costs, the mining methods and the environmental considerations are as described for Monarch deposit. The 4 sq km retention licence is also required for the same reasons of advanced economic assessment, studies of mining and processing techniques, environmental considerations including revegetated areas and marketing in a fluctuating price regime. It will be necessary to come to an accommodation with RNB Trading Pty Ltd which holds RL 1/1995 for construction materials covering part of the Pioneer deposit and there is also a council lease for the same purpose.

7.0 OUTLOOK

The LME price graph for refined tin metal shows that since VDM applied for mining leases in March 2005 there has been a decrease in the tin price from about US\$ 8,500/tonne to about US\$6,000/tonne.

The stockpiles at the LME remain at record lows with 6,500 tonnes (August, 2005) or only 2% of the estimated world production of 330,000 tonnes in 2004 (Mining Magazine, Nov. 2005).

However, projections are that the tin price will increase to US\$7,500/tonne in 2006 (Mining Journal, Nov 4, 2005) on the basis of increased demand for tin as a lead-free solder and in chemicals resulting in a market of 365,000 tonnes by 2008 (Mining Magazine, as above).

8.0 FORWARD PROGRAM

PIONEER RESOURCE:

The company has expended considerable time and money to compile previous data into a modern GIS supported database. This material has then been used to calculate the various resources quoted by Terence Willstead &

Associates (Competent Person) in the company's Prospectus for admission to the AIM market of the London Stock exchange.

The Prospectus clearly states (See Page 79) that the company proposes that the Pioneer Resource forms part of the "Central Ringarooma Project" comprising this and the Endurance Resource. The company has made application for a Mineral Lease at Endurance preparatory to commencement of mining of that deposit. On page 79 the "Competent Person" reports that the company strategy for the Central Ringarooma project is to commence mining at the Endurance deposit and on completion of mining of that resource move the treatment plant to a new tenement yet to be applied for covering the Pioneer deposit.

The company feels it would not be justified in applying for a Mining Lease at Pioneer at this time given that the completion of mining at Endurance is 2 to 3 years away. Application is being sought for a Retention Licence over this area to allow the company to :

- Complete further GIS work preparatory to
- Completion of further ore resource and mining studies; and
- Completion of environmental studies.

As mining at Endurance nears completion the company would then make the relevant application for a mining lease or leases at Pioneer.

MONARCH RESOURCE:

In August 2001 Mineral Holdings Australia Pty limited reported that EL 10 / 2000 contained an "Indicated Mineral Resource (A, B and E Lens) of some 556,000 bank cubic metres (bcm) of alluvial wash containing 1.22 kg/bcm of 70% Sn concentrate plus rutile, zircon and sapphire. The company conducted some bulk sampling to confirm resource boundaries and grades.

In that report the company recognized that there were possible extensions to the resource to the south, south-east and east.

Following Van Dieman Mines acquisition of the tenement that company embarked on a re-assessment of the Licence and through the application of GIS methodology concluded that it was prudent to apply for ground adjoining EL 10/2000 to secure tenure of the prospective extensions. Recently the company has acquired further old exploration data and would propose over the next two years to conduct testing to establish resource extensions.

In the interim the company proposes to seek a Retention Licence over the area encompassed by EL 10/2000. Reasoning behind this application is:

- The company recognizes that the EL contains a “Resource” which given the high tin grades might be capable of being exploited using a small mobile treatment plant, time is required to conduct feasibility studies;
- This resource may be increased given exploration within the proposed RL and within the surrounding tenement EL 59/2004;
- The company is currently adding old data to its GIS database, that data may alter the size, shape and grade of the current Resource;
- The company would propose to conduct preliminary environmental assessments over the area of the Resource.

9.0 CONCLUSIONS

9.1 Exploration and evaluation by Van Dieman Mines Pty Ltd and Mineral Holdings Australia Pty Ltd of three previously mined alluvial tin deposits in the central Ringarooma Valley over the period 2000-2005 have recalculated and redefined the residual resources under the expiring ELs 10, 11 and 12/2000. The Endurance deposit covered by EL 11/2000 South Mt Cameron is now being developed within ML 14M/2004 which has just been granted. EL 10/2000 Monarch Flats and EL12/2000 Pioneer are the subject of these retention licence applications for flow on titles as a path for development.

9.2 The resources of alluvial tin wash in the deposits are-

**Monarch 556,751BCM at 1,220.00g/BCM of 70% Sn concentrate for
679 tonnes of 70% Sn concentrates
Indicated Mineral Resource**

**Pioneer 4,616,000BCM with an average grade of 872g/BCM
containing 4,025 tonnes of SnO₂ concentrates
Measured Mineral Resource**

9.3 Van Dieman Mines submits that Retention Licences are the appropriate flow-on title for these deposits at this stage on the path to eventual development. The company believes that having regard to its capitalization and debt financing that it should concentrate initially on the two MLs at Endurance and Scotia to bring them into production with a resultant cash flow. With a planned 2 years mine life at Endurance, the company can then move onto phasing Pioneer and Monarch into production. Until that time, the company seeks to hold these deposits as Retention Licences while still pursuing studies to bring them up to mining standard.

9.4 These alluvial resources are an integral part of Van Dieman Mines Ringarooma Tin Project which seeks to explore and develop the cassiterite, associated heavy minerals and sapphire placer deposits of the Ringarooma River Basin including the Great Northern Plains and offshore. The relatively well defined deposits at Monarch, Endurance, Pioneer and Scotia offer the best potential for the first production of tin concentrates from a potential resource of base 100,000 tonnes in a phased mining operation in NE Tasmania.

10.0 REFERENCES

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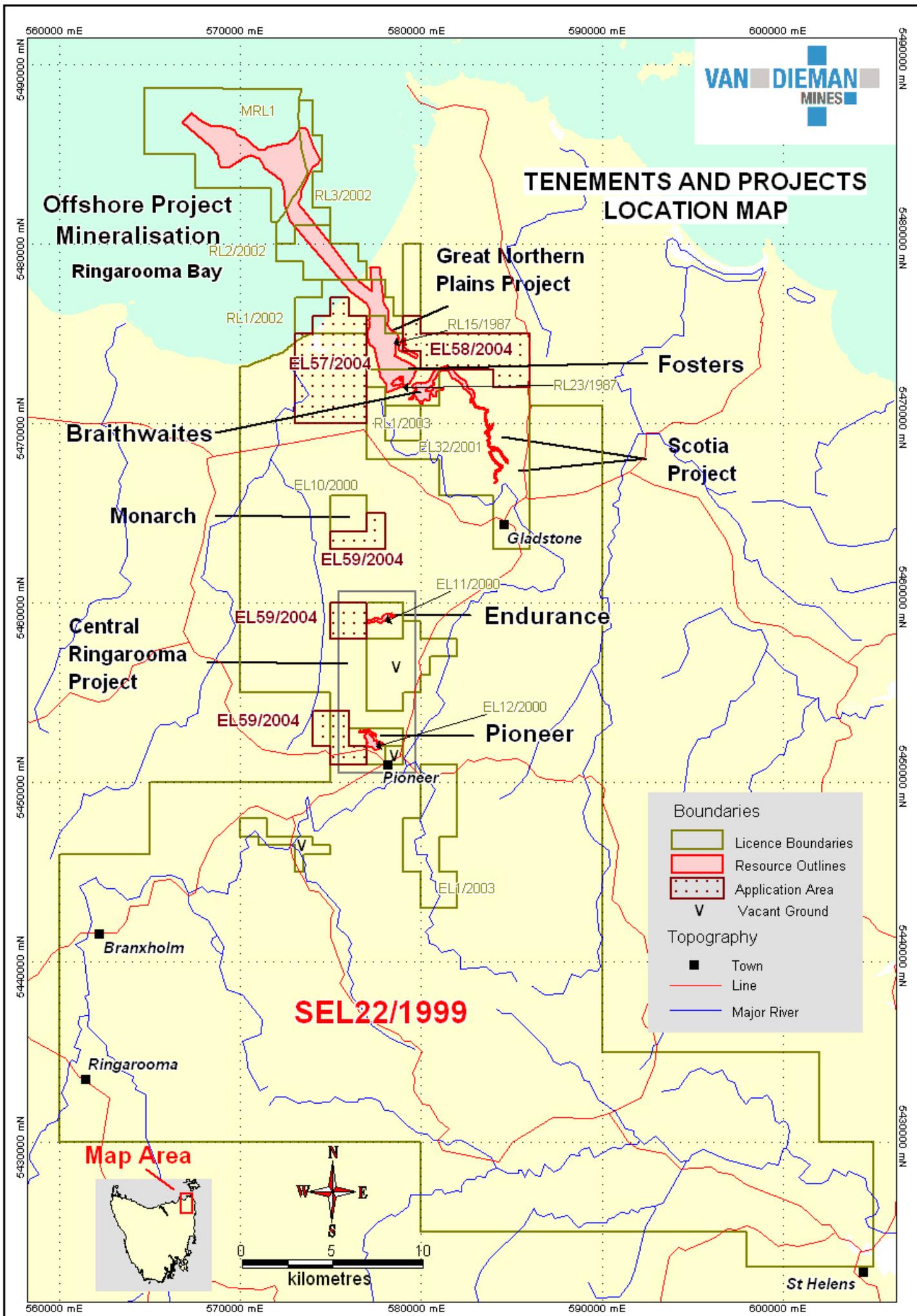
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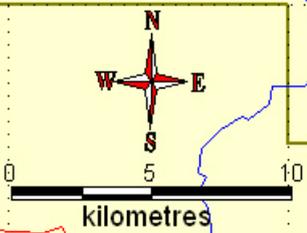
TENEMENTS AND PROJECTS LOCATION MAP



Boundaries	
	Licence Boundaries
	Resource Outlines
	Application Area
	Vacant Ground

Topography	
	Town
	Line
	Major River

Map Area



QUATERNARY

TERTIARY

ORDOVICIAN TO SILURIAN

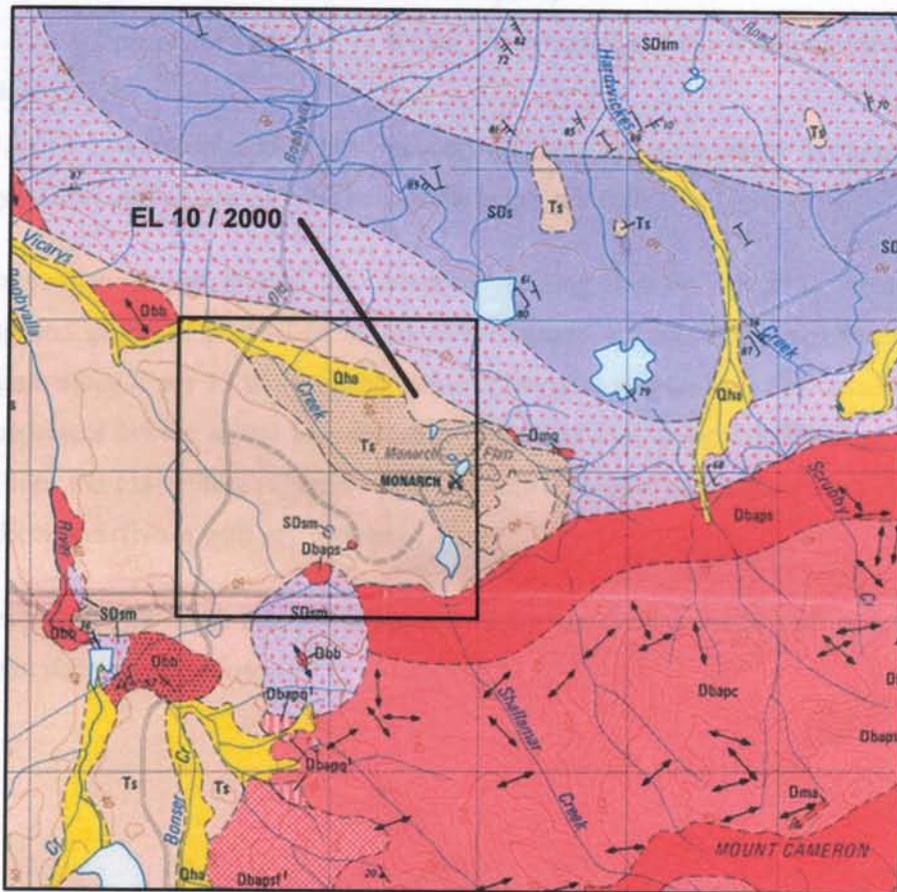
DEVONIAN - CARBONIFEROUS

Quaternary

Undifferentiated

Mathinna Beds

Granitic Intrusives



PLAN 2

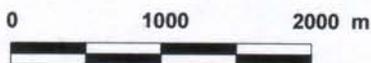
MINERAL HOLDINGS AUSTRALIA P / L

EL 10 / 2000 - MONARCH PROJECT
REGIONAL GEOLOGICAL PLAN

SCALE
1:25,000

PREPARED BY
Niugini Resources P/L

DATE
3 Sept 2001



SCALE



PLAN 3

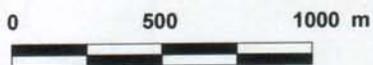
MINERAL HOLDINGS AUSTRALIA P / L

**EL 10 / 2000 - MONARCH PROJECT
AIRPHOTO IMAGE OF THE MONARCH
PROJECT**

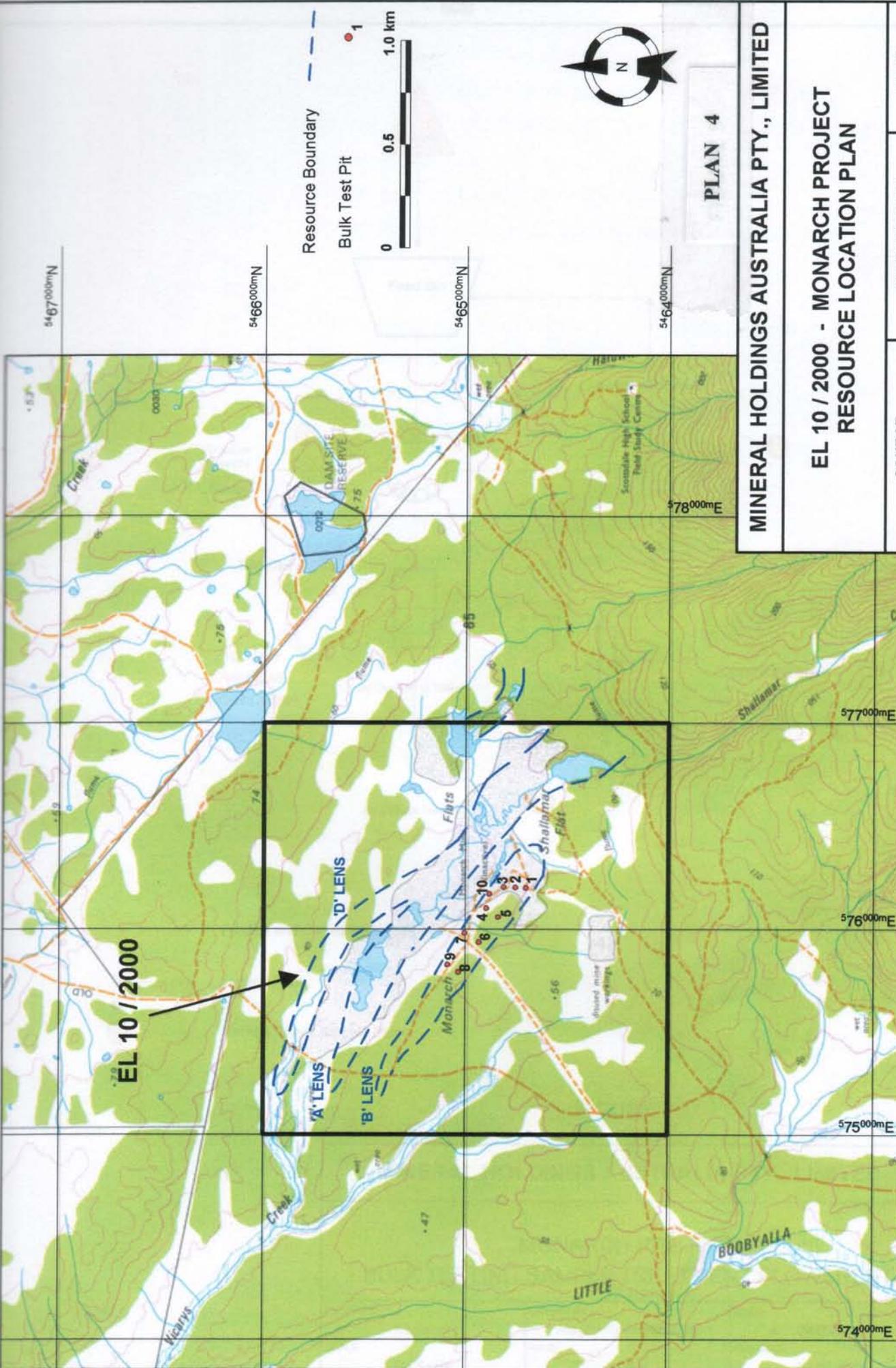
SCALE
1:25,000

PREPARED BY
Niugini Resources P/L

DATE
3 Sept 2001

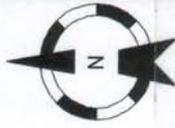


SCALE



Resource Boundary

Bulk Test Pit



PLAN 4

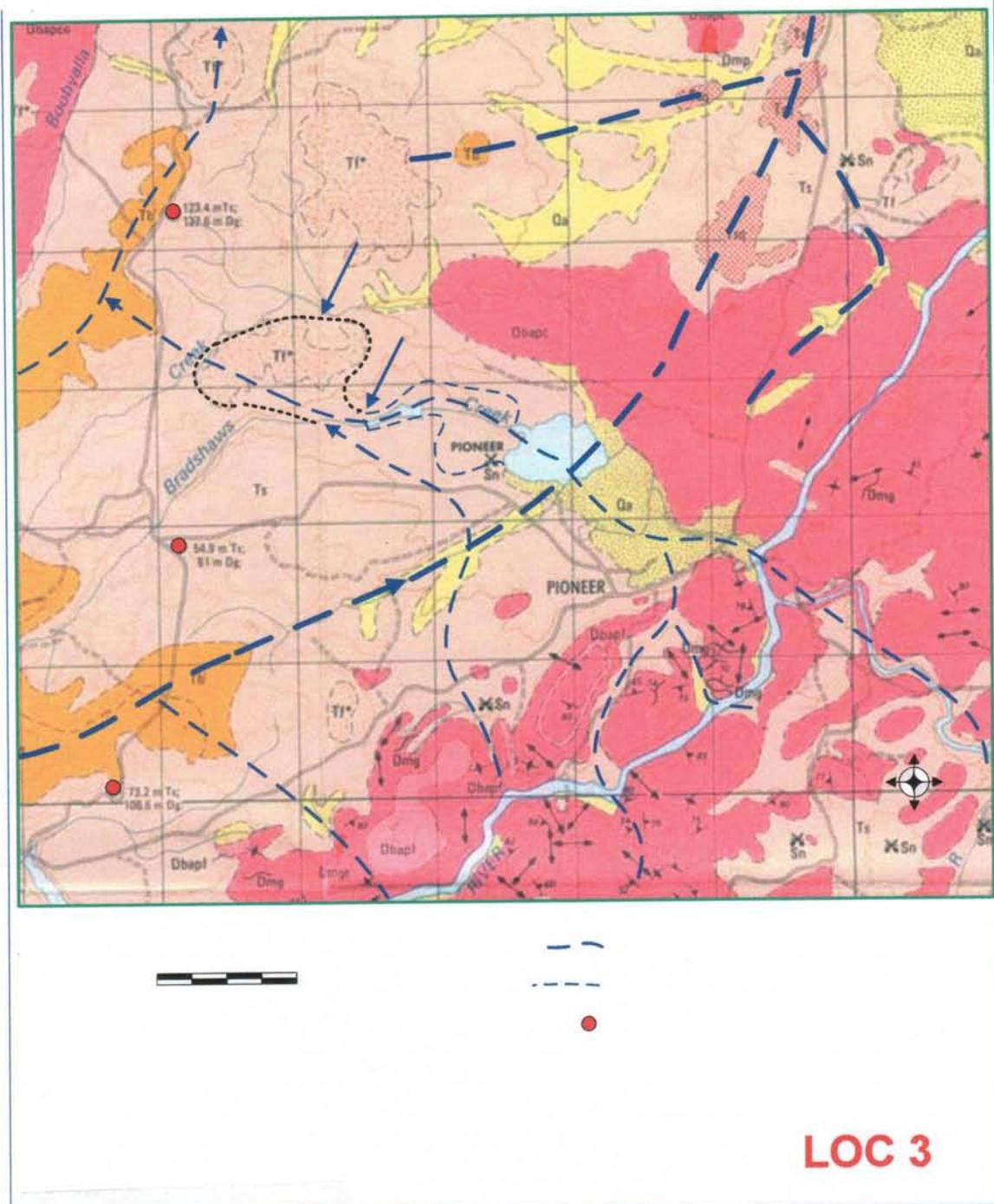
MINERAL HOLDINGS AUSTRALIA PTY., LIMITED

EL 10 / 2000 - MONARCH PROJECT
RESOURCE LOCATION PLAN

SOURCE
Monarch 1:25,000

PREPARED BY
Niugini Resources P/L

DATE
25th July 2001



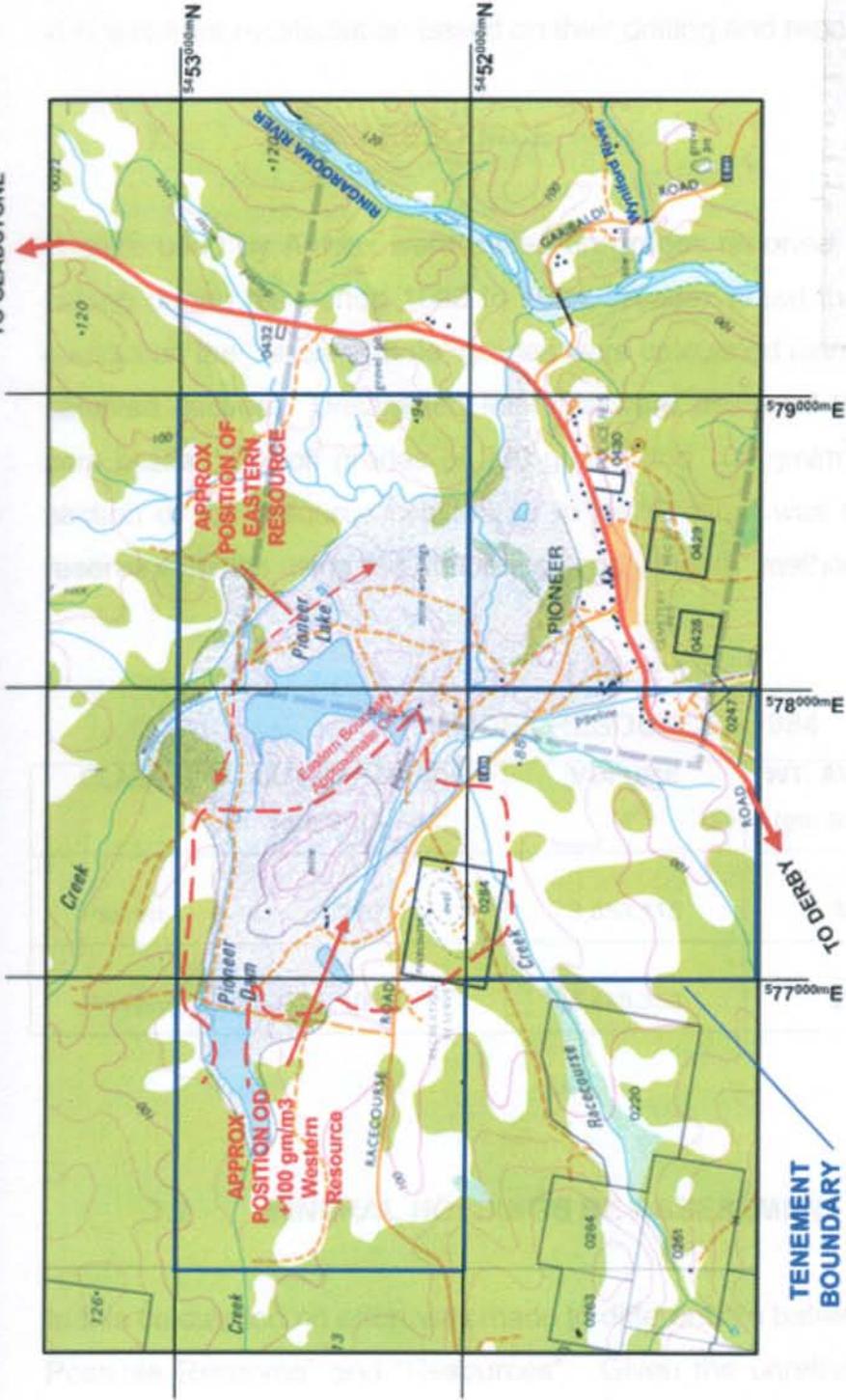
PLAN 9 - GEOLOGICAL PLAN PIONEER DISTRICT

X LOC 5

Deposits such as Arba, Valley, Briseis and Pioneer were worked where exposed along the edge of the basalt flows however many were not fully exploited because of thick basaltic cover.



TO GLADSTONE



PLAN 10

TENEMENT
BOUNDARY
E.L. 12 / 2000

LEGEND

- - - - - Approximate Resource Boundary 100 gm/m³ Cut-off

Control - Australian Metric Grid

MINERAL HOLDINGS AUSTRALIA PTY LIMITED

TITLE

E.L. 12 / 2000 - PIONEER PROJECT
RESOURCE LOCATION PLAN

FILENAME
BASE DRAWING PAGE

DRAWN BY
Mugini Resources P/L

DATE

20/12/2002

SCALE

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PAGE

1 OF 1

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22/12/2002



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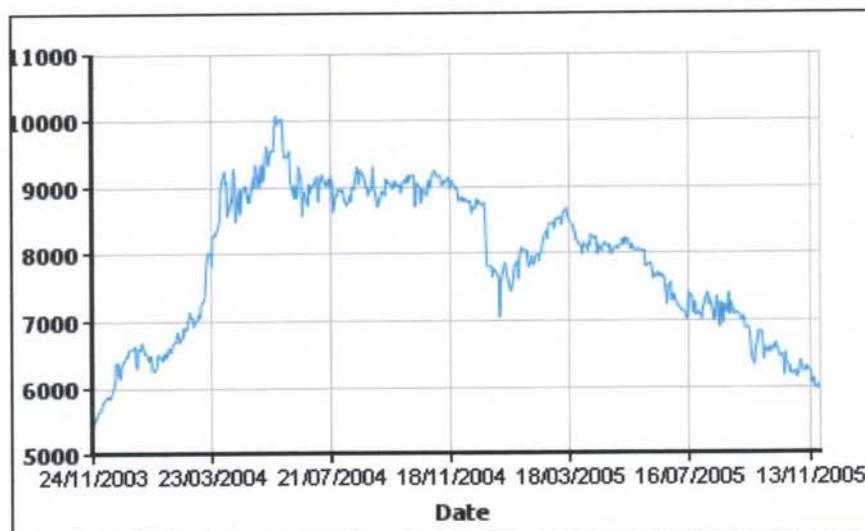
Tin price graph

Please select the start date, end date and contract type for the graph you wish to view. Click on "show" to see the graph results.

START ON:

FINISH ON:

CONTRACT TYPE:



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MINERAL HOLDINGS AUSTRALIA PTY., LIMITED

**THE MONARCH PROJECT
MT. CAMERON, GLADSTONE DISTRICT
NORTH EAST TASMANIA**

**GEOLOGICAL ASSESSMENT
AND
ORE RESOURCE STATEMENT**

PREPARED BY:

NIUGINI RESOURCES PTY., LIMITED.

DATE PREPARED:

28TH August 2001

Neil R. Kinnane – Geologist.

Fell.RMIT., Ass.RMIT (Geology).

FAusIMM, CPGeo., MGSAus., MGSAmer.

MAIG., AssGSCanada.

OVERVIEW

Alluvial tin mining is reported to have commenced in the vicinity of the Monarch project area in the late 1800's to early 1900's with first production records appearing in the Annual Report of the Secretary of Mines for the year 1923. Mining activities were sporadic with the largest producer being the Monarch Tin Mining Company during the period 1922 to the early 1930's.

Since early drilling conducted by the "Monarch Company" during the 1930's, there appears to have been little activity in the area until a drilling program conducted by Mr. V. Woods of Pioneer in late 1963. In the following year The Broken Hill Proprietary Company Limited, under an "Option to Purchase" agreement with Woods, conducted an extensive exploration program over the general Monarch Project area. As a result of their work they reported the delineation of the following resource:

2,909,300 cubic yards at an average grade of 5.8 oz / cubic yard of 70% Sn concentrate at a cut-off of 3.0 oz / cubic yard.

This resource was contained in five resource blocks within three elongated channel deposits trending northwest and roughly parallel to the present drainage pattern. It is unclear if the resource quoted details the grade in terms of "Bank" (In-Situ) or "Loose" (after excavation) cubic yards.

A number of groups conducted brief exploration programs over the project. In early 1970 B.M.I (Blue Metal Industries) commenced active mining of the deposit, the operation ceased in 1973. During the period 1977 to 1980, Amdex Mining Limited held the area under exploration title, with individual resources being held under Mining Lease tenure. Amdex recalculated the resource and quoted the following resource figures:

Possible Ore Reserves

1,801,968 m³ at an average grade of 353.0 grams / m³ of 70% Sn concentrate at a cut-off grade of 200 grams / m³. (636 tonnes contained SnO₂)

OR

2,437,032 m³ at an average grade of 296.7 grams / m³ of 70% Sn concentrate at a cut-off grade of 200 grams / m³. (723 tonnes contained SnO₂)

In 2000 Mineral Holdings acquired title to the area as Exploration Licence 10/2000. In early 2001 Niugini Resources, on behalf of Mineral Holdings, conducted a preliminary assessment of the Project being mindful of the changes in mining techniques since the work of Amdex. Results indicated that Amdex, and earlier, BHP, had averaged grades top to bottom of drill holes including barren clay overburden and had at no stage attempted to calculate a resource based on only the higher grade basal intersections.

In June 2001 Mineral Holdings embarked on a 10 hole excavator pitting, bulk sampling and sample processing program aimed at checking the validity of previous work and establishing that the ore grades were contained in basal alluvial layers within the zones outlined by Amdex. Pitting centered on the most south westerly resource area, B Lens, established that the cassiterite is contained in a free running, sandy to gravely, and occasionally bouldery alluvial wash layer lying below a barren, clay rich horizon that extends from near surface. The alluvial profile rests immediately on a strongly decomposed granitic basement.

Recent test work indicates that in addition to cassiterite the resource also contains recoverable quantities of zircon, rutile, ilmenite and monazite. While the Amdex resource figures are still quite valid a recalculation at the same cut-of grades but excluding the barren clay horizon can be quoted as:

Indicated Mineral Resource – A, B & E Lens

(At 200 gm/BCM grade cut-off)

556,751 bank cubic metres (BCM) at an average grade of

1.220 kg/BCM of 70% Sn concentrate

(679 tonnes of 70% Sn concentrate)

and an estimated

19 grams/BCM of Zircon as ZrO_2 .

And

48 grams/BCM of Rutile and Ilmenite as TiO_2

The cassiterite grades used above were derived from the Amdex report and were taken to be "Bank" cubic metres. Titanium and zircon analyses are estimates taken from recent bulk sample results and are also converted to "Bank" cubic metre grades.

This recalculation would indicate that by using modern strip mining techniques, including overburden removal and environmental reclamation the resource could be mined in a shorter period for the same capital outlay but with a far shorter break even period and higher overall profitability.

In addition to this resource the deposit also includes:

Indicated Mineral Resource – D Lens

(At 100 gm/BCM grade cut-off)

59,100 bank cubic metres (BCM) at an average grade of

139 grams/BCM of 70% Sn concentrate

(8.2 tonnes of 70% Sn concentrate)

and an estimated

19 grams/BCM of Zircon as ZrO_2 .

and

48 grams/BCM of Rutile and Ilmenite as TiO_2

2.2 VOLUME CALCULATIONS

Volumes were calculated using the BHP grade intersections and by direct measurement from the plot of those data that appear here as Figure 6. Areas shown by Amdel as having been mined were deleted from the resource volume.

Average ore zone thicknesses were calculated from the BHP data and applied to the four resource lens areas, see Appendix I. Some alterations were made to the outline of the various resource areas in line with re-calculation of grades and application of a 200 grams / m³ cut-off grade. Areas of influence for each drill hole were determined by use of a digital planimeter.

2.3 RESOURCE EXTENSIONS

An inspection of the data would appear to indicate that the resource area is open to the south east, specifically:

- A LENS: The original outline provided by Amdel appears to indicate a swing southward to the old Monarch Company workings. The recalculation of the grades appears to indicate that in fact the resource broadens as indicated by the red outline and in fact trends toward Line 27 (Holes H27, 27G8H and 27G12H). Holes H27 and 27G12H were not sampled.
- B LENS: There is evidence to suggest that the lens narrows to the south-east but continues as a more narrow zone towards the workings near Hole J23. A field inspection in the area has located extensive shallow workings to the south of J23.
- D LENS: Recalculation of grade indicates that D lens is in fact a lower grade section occurring as an offshoot of A lens.
- E LENS: There is strong evidence to suggest that E lens extends further to the east than shown on the accompanying plan and may turn to the south-east along the east bank of Vicary Creek. Further field inspections in this area are required.

4.0 CONCLUSIONS

As a result of the recent bulk sampling and a re-assessment of previous exploration data it can be concluded that:

- i Recent bulk sample work indicates that the cassiterite bearing basal alluvial layer is overlain by a virtually cassiterite deficient sandy clay and clayey sand. Overburden : Ore Ratios are in the order of 3.5:1.
- ii Recent pitting and bulk sampling confirm the general outline and tenor of the resource previously defined by BHP and Amdel.
- iii By removal of the overburden layer from grade calculations it is possible, at a 200 gram / m³ cut-off, to increase average grades from that reported by Amdel of 353 grams/m³ to 1,220 grams/m³, a three fold increase.
- iv In addition to cassiterite the recent sampling also indicates an accessory heavy mineral component consisting of rutile, ilmenite, zircon and rare earth minerals (monazite). Limited information allows only estimated grades to be quoted.
- v The resource is open to the south-east towards the lower slopes of Mt Cameron.
- vi Re-assessment of the previous data and a recalculation of grade has resulted in some variations to the resource outline and increase in resource area.
- vii The Project is now considered to encompass an:

Indicated Mineral Resource – A, B and E Lens

**(At 200 gm/BCM grade cut-off)
556,721 bank cubic metres (BCM) at an average grade of
1.220 kg/BCM of 70% Sn concentrate
(679 tonnes of 70% Sn concentrate)**

**and also containing an estimated but unconfirmed accessory content of
19 grams/BCM of Zircon as ZrO₂ and 48 grams/BCM of Rutile and Ilmenite as TiO₂**

and
Indicated Mineral Resource - D Lens

(At 100 gm/BCM grade cut-off)
59,100 bank cubic metres (BCM) at an average grade of
139 grams/BCM of 70% Sn concentrate
(8.2 tonnes of 70% Sn concentrate)

and an estimated but unconfirmed accessory content of
19 grams/BCM of Zircon as ZrO_2 and 48 grams/BCM of Rutile and Ilmenite as TiO_2

- viii While these volumes are some three times lower than those reported previously the reassessment has resulted in a slight increase in contained Sn concentrates from 636 tonnes to 687 tonnes.
- ix Further exploration around the southern and eastern boundaries of the resource can be expected to further increase the resource figures quoted above.

MONARCH PROJECT
ORE RESERVE ESTIMATION SHEET

LOCATION	HOLE	INTERVAL metres	GRADE gm/LCM	WEIGHTED	AREA m ²	VOLUME m ³
A LENS	F15	1.07	1097.57	1170.89	32800	34991
	F17	1.98	741.60	1469.26	14700	29124
	17F4G	0.76	556.20	422.49	28900	21952
	19F8G	0.46	1668.60	767.56	20000	9200
	F19	0.15	593.28	88.99	10160	1524
	19F4G	0.30	370.80	111.98	9375	2831
	21F8G	0.31	407.88	125.14	15104	4634
	21F10G	0.27	315.18	85.96	16150	4405
	21F14G	2.59	1423.87	3687.83	9500	24605
	G21	0.30	264.38	79.84	2500	755
	G23	0.61	1854.00	1124.27	34000	20618
	23G4H	0.45	444.96	201.83	15625	7088
	23G8H	0.52	2447.28	1279.83	21875	11440
	25G8H	0.76	1093.86	836.58	32161	24597
	25G12H	1.07	741.60	791.44	24400	26040
	H25	0.61	964.08	588.47	56640	34573
TOTALS		12.2		12832.35		258375
AVERAGES		0.76	1050.41			
VOLUMES						258375

LOCATION	HOLE	INTERVAL metres	GRADE gm/LCM	WEIGHTED	AREA m ²	VOLUME m ³
B LENS	13F8G	0.15	248.44	37.86	25,921	3,950
	15F8G	3.23	302.57	976.34	25,921	83,642
	G17	3.05	778.68	2,374.66	25,921	79,049
	17G4H	0.61	322.23	196.56	25,921	15,812
	19G4H	0.21	4,338.36	913.49	25,921	5,458
	19G8H	0.31	3,559.68	1,090.69	25,921	7,942
	21G6H	0.15	222.48	34.44	25,921	4,013
	21G8H	0.61	1,520.28	923.72	25,921	15,750
	21G10H	0.16	74.16	11.57	25,921	4,044
	21G12H	0.61	5,116.67	3,104.79	25,921	15,729
	21G14H	0.30	10,019.02	3,025.74	25,921	7,828
	H21	0.46	990.04	452.25	25,921	11,841
	TOTALS		9.84		13,142.11	176,100
AVERAGES		0.82	1,336			
VOLUMES						255,056

MONARCH PROJECT
ORE RESERVE ESTIMATION SHEET

LOCATION	HOLE	INTERVAL metres	GRADE gm/LCM	WEIGHTED	AREA m ²	VOLUME m ³
E LENS	G27 27G4H	0.91	1,854.00	1,690.11	25921	23630
		0.76	1,186.56	901.31	25921	19690
TOTALS		1.67		2,591.42	51842	43319
AVERAGES		0.84	1,550.63			
VOLUMES						43319

LOCATION	HOLE	INTERVAL metres	GRADE gm/LCM	WEIGHTED	AREA m ²	VOLUME m ³
D LENS	15E4F 17E4F 19E12F	0.30	144.24	43.27	25921	7776
		0.76	142.39	108.21	25921	19700
		1.22	135.71	165.57	25921	31624
TOTALS		2.28		317.06	77763	59100
AVERAGES		1.14	139.06			
VOLUMES						59100

MONARCH PROJECT**ORE RESERVE ESTIMATION SHEET**

LOCATION	GRADE gm/ BCM	VOLUME m³	WEIGHTED
Lens A	1050	258,375	271,400,519
Lens B	1336	255,056	340,656,676
Lens E	1551	43,319	67,172,130
TOTALS	3937	556,751	679,229,324
AVERAGE	1,220	556,751	

PIONEER- APPENDIX 3

TABLE 2
PIONEER PROJECT - RESOURCE DATA
POSSIBLE ORE RESOURCE

CUT-OFF GRADE GM/ M³	N0. HOLE S	DEPTH O/B M	DEPTH WASH M	GRADE GM/M³ SnO₂	AREA M²	VOLUME O/B M³	VOLUME WASH M³	CONTAINED SnO₂ Tonnes
100	114	34.31	7.45	859.96	740,000	25,389,400	5,513,000	4,740
200	111	35.60	5.72	1,164.82	557,000	19,829,200	3,186.040	3,711

For detail of drill hole locations the reader is referred to the Report by Amdex, listed in Section 9.0, Bibliography. An approximate outline of the +100 gm/m³ cut-off resource is provided as Figure 3.

8.1 RESOURCE EXTENSION

An assessment of previous data indicates possible extensions to the resource base by:

- Recalculation of all drill hole data with the removal of overburden sections that, it is felt, will extend the resource boundaries into what now appears to be marginal ground;
- Extension of the resource to the west, south-west and south of the area presently drilled;
- Define by drilling the northern boundary of the resource;
- Locate old drill data relating to the area east of the old Pioneer workings (Austral Malay, Pioneer Tin Mining Company and Storey's Creek Tin) where there appears to be a shallow higher grade resource present

These extensions are considered to have the prospectivity to contain 3.5 million m³ at an average grade of 1,000 gm / m³ of SnO₂ at 70% Sn or 3,500 tonnes of SnO₂.

ALLUVIAL DRILL HOLE RESULT SUMMARY - 100 gm CUT-OFF

PROJECT: Pioneer

TENEMENT: E.L 12/2000

DATE: 18/12/02

RECALCULATION

WESTERN RESOURCE

SHEET 1

HOLE NUMBER	COLLAR R.L m	B/MENT R.L m	DEPTH BASEMENT	DEPTHS			
				O/B m	WASH m	GRADE g/m ³	WEIGHTED W X G
K19	81.00	49.61	31.39	24.38	7.62	496.80	3785.62
K20	83.25	49.11	34.14	28.96	7.62	713.00	5433.06
K21	84.72	44.78	39.93	28.95	10.67	616.71	6580.30
K23	86.98	43.09	43.89	28.96	16.76	930.73	15599.03
K24	87.35	46.20	41.15	32.00	9.14	272.00	2486.08
K25	86.38	47.66	38.71	32.00	7.62	415.40	3165.35
K28	77.85	52.10	25.76	19.81	6.10	570.00	3477.00
K31	85.20	49.50	35.66	27.43	8.23	161.85	1332.03
K32	81.78	49.17	32.61	27.43	6.10	268.75	1639.38
K33	83.25	49.10	34.14	27.43	6.71	143.14	960.47
K34	85.90	46.25	39.62	30.48	9.14	850.33	7772.02
K36	89.75	45.24	44.50	41.15	4.57	185.33	846.96
K37	89.72	45.21	44.50	38.10	6.10	234.75	1431.98
K38	85.54	44.23	41.30	33.53	1.52	103.00	156.56
K39	88.81	44.00	44.81	35.05	10.67	457.57	4882.27
K40	90.12	46.93	43.28	38.10	5.18	302.53	1567.11
K41	83.30	51.30	32.00	30.00	3.00	287.33	861.99
K42	73.48	49.73	23.75	12.00	13.00	1324.38	17216.94
K43	80.83	47.40	33.50	28.00	6.00	1038.67	6232.02
K44	74.39	47.90	26.50	18.00	9.00	304.30	2738.70
K45	73.20	45.70	27.50	18.00	10.00	340.00	3400.00
K48	84.05	51.55	32.50	28.00	4.00	236.50	946.00
K50	88.24	49.00	39.25	36.00	4.00	223.00	892.00
K51	82.83	47.83	35.00	22.00	13.00	450.92	5861.96
K52	75.48	51.00	24.50	16.00	9.50	376.68	3578.46
K53	85.72	49.47	36.25	30.00	7.00	4184.14	29288.98
K54	86.70	50.20	36.50	32.00	6.00	865.00	5190.00
K55	84.70	48.50	36.20	30.00	7.00	1196.43	8375.01
K57	88.18	46.43	41.75	32.00	10.00	556.60	5566.00
K58	86.04	44.04	42.00	30.00	13.00	2649.23	34439.99
K59	87.68	44.30	43.38	34.00	8.00	993.25	7946.00
K60	84.72	47.92	36.80	30.00	8.00	715.00	5720.00
K61	84.97	47.77	37.20	30.00	6.00	215.67	1294.02
K62	84.84	44.34	40.50	32.00	11.50	1895.57	21799.06
K63	86.16	44.66	41.50	32.00	11.00	365.45	4019.95
K64	86.52	46.02	40.50	24.00	21.00	651.14	13673.94
K65	85.64	47.45	38.20	34.00	4.00	209.00	836.00
K66	83.57	46.67	36.90	24.00	14.00	218.86	3064.04
K68	87.70	44.70	43.00	26.00	18.00	161.78	2912.04
K69	90.00	48.80	41.20	38.00	4.00	104.00	416.00
K70	84.57	44.67	39.90	34.00	2.00	101.00	202.00
K72	85.3	46.3	39.00	32.00	9.00	1393.67	12,543.03
K73	84.82	46.82	38.00	32.00	6.00	230.33	1,381.98
K74	83.87	44.37	39.50	30.00	2.00	154.00	308.00
K75	93.14	49.64	43.50	42.00	4.00	369.00	1,476.00
K76	88.53	44.03	44.50	34.00	12.00	1402.25	16,827.00
K77	93.67	48.62	45.00	42.00	4.00	444.00	1,776.00
K78	91.87	47.17	44.70	40.00	6.00	499.67	2,998.02
K80	90.45	44.95	45.50	40.00	9.00	947.89	8,531.01

ALLUVIAL DRILL HOLE RESULT SUMMARY - 100 gm CUT-OFF

PROJECT: Pioneer

TENEMENT: E.L 12/2000

DATE: 18/12/02

RECALCULATION

WESTERN RESOURCE

SHEET 2

HOLE NUMBER	COLLAR R.L m	B/MENT R.L m	DEPTH BASEMENT	DEPTHS			
				O/B m	WASH m	GRADE g/m ³	WEIGHTED W X G
K81	91.06	46.36	44.70	40.00	8.00	2,385.25	19,082.00
K82	89.94	44.44	45.50	42.00	7.00	1,598.57	11,189.99
K83	88.66	48.26	40.40	38.00	4.00	1,137.50	4,550.00
K84	91.38	45.88	45.50	40.00	9.00	850.44	7,653.96
K86	90.99	48.99	42.00	38.00	8.00	704.50	5,636.00
K88	92.69	52.49	40.20	38.00	4.00	197.00	788.00
K89	89.89	44.89	45.00	40.00	4.00	223.50	894.00
K90	89.36	49.36	40.00	36.00	6.00	245.33	1,471.98
K92	89.30	47.50	41.70	38.00	4.00	597.00	2,388.00
K94	89.60	48.40	41.20	38.00	6.00	386.00	2,316.00
K95	81.35	47.65	33.70	28.00	6.00	325.00	1,950.00
K98	91.43	50.43	41.00	38.00	6.00	181.67	1,090.02
K99	83.41	47.61	35.80	24.00	12.00	386.67	4,640.04
K101	99.40	49.00	50.46	46.00	8.00	624.25	4,994.00
K102	101.18	47.38	53.80	46.00	10.00	212.20	2,122.00
K103	95.38	47.38	48.00	42.00	8.00	708.25	5,666.00
K104	90.89	46.59	44.30	42.00	4.00	171.50	686.00
K108	98.19	50.49	47.70	46.00	4.00	216.50	866.00
K109	99.24	51.54	47.70	44.00	7.00	809.71	5,667.97
K110	92.49	51.49	41.00	34.00	12.00	698.00	8,376.00
K111	98.19	48.69	49.50	44.00	10.00	1,734.30	17,343.00
K112	100.84	50.64	50.10	48.00	7.00	899.43	6,296.01
K113	97.12	48.12	49.00	42.00	9.00	302.89	2,726.01
K114	97.46	50.56	46.90	40.00	10.00	573.00	5,730.00
K115	94.80	50.30	44.50	38.00	10.00	882.10	8,821.00
K116	99.23	53.33	45.80	42.00	6.00	448.33	2,689.98
K117	91.80	55.39	36.50	34.00	8.00	247.88	1,983.04
K118	94.59	51.59	43.00	40.00	4.00	126.50	506.00
K119	95.83	49.83	46.00	42.00	7.00	1,781.29	12,469.03
K120	93.80	46.90	46.90	36.00	12.00	171.33	2,055.96
K121	95.38	49.38	46.00	42.00	6.00	342.00	2,052.00
K122	85.28	50.28	35.00	30.00	7.00	1,165.29	8,157.03
K123	82.10	50.10	29.32	26.00	10.00	936.90	9,369.00
K124	85.43	51.63	33.80	26.00	10.00	778.41	7,784.10
K125	94.30	51.50	42.80	38.00	7.00	453.39	3,173.73
K126	90.98	51.48	39.50	36.00	7.00	813.93	5,697.51
K127	84.53	53.23	31.30	30.00	4.00	384.93	1,539.72
K129	91.25	53.45	37.80	34.00	5.00	381.56	1,907.80
K132	83.30	55.30	28.00	20.00	4.00	122.70	490.80
K133	88.03	53.63	34.40	32.00	4.00	190.40	761.60
K134	93.74	45.25	48.50	40.00	10.00	1,281.20	12,812.00
K139	92.01	49.51	42.50	38.00	4.00	181.67	726.68
K140	92.11	49.11	43.00	38.00	9.00	508.79	4,579.11
K141	90.85	49.35	41.50	36.00	6.00	364.00	2,184.00
K142	97.89	51.89	46.00	40.00	15.00	1,093.14	16,397.10
K143	92.41	49.91	42.50	38.00	5.00	952.62	4,763.10
K144	95.64	48.44	47.20	46.00	3.00	288.70	866.10
K145	92.67	49.67	43.00	38.00	10.00	2,408.87	24,088.70

ALLUVIAL DRILL HOLE RESULT SUMMARY - 100 gm CUT-OFF

PROJECT: Pioneer

TENEMENT: E.L 12/2000

DATE: 18/12/02

RECALCULATION

WESTERN RESOURCE

SHEET 3

HOLE NUMBER	COLLAR R.L m	B/MENT R.L m	DEPTH BASEMENT	DEPTHS			
				O/B m	WASH m	GRADE g/m ³	WEIGHTED W X G
K150	98.19	47.19	51.00	42.00	12.00	1,298.28	15,579.36
K150R	98.19	47.19	51.00	44.00	8.00	1,987.00	15,896.00
K151	92.49	50.49	41.00	38.00	10.00	5,406.80	54,068.00
K152	94.51		40.00	36.00	4.00	133.50	534.00
K153	91.06	46.06	45.00	40.00	8.00	2,923.25	23,386.00
K165	96.98	52.58	44.00	40.00	8.00	1,446.40	11,571.20
K166	98.25	52.25	46.00	48.00	4.00	126.85	507.40
K202	89.60	45.60	44.00	39.00	4.00	1,522.78	6,091.12
K206	95.2	39.70	55.50	47.00	2.00	265.60	531.20
K237	47.70	39.20	39.20	38.00	2.00	228.80	457.60
K238	87.10	47.70	39.30	38.00	4.00	1,182.90	4,731.60
K239	86.00	52.00	34.00	30.00	6.00	699.52	4,197.12
K240	89.80	53.00	36.80	34.00	6.00	1,002.07	6,012.42
K241	85.50	57.50	28.00	24.00	8.00	2,493.75	19,950.00
K242	87.20	53.20	34.00	32.00	4.00	939.43	3,757.72
K247	83.00	53.60	29.40	26.00	7.00	865.19	6,056.33
K249	79.10	55.30	23.80	18.00	9.00	444.63	4,001.67

		HOLE			
TOTAL	SHEET 1	49	1,485.76	397.75	293,427.33
	SHEET 2	48	1,812.00	346.00	259,998.07
	SHEET 3	17	614.00	106.00	177,328.74
		114	3,911.76	849.75	730,754.14

AVERAGES **34.31** **7.45** **859.96**

STRIPPING RATIO **4.61 : 1**

ALLUVIAL DRILL HOLE RESULT SUMMARY - 200 gm CUT-OFF

PROJECT: Pioneer

TENEMENT: E.L 12/2000

DATE: 18/12/02

RECALCULATION

WESTERN RESOURCE

SHEET 4

HOLE NUMBER	COLLAR R.L m	B/MENT R.L m	DEPTH BASEMENT	DEPTHS			
				O/B m	WASH m	GRADE g/m ³	WEIGHTED W X G
K19	81.00	49.61	31.39	25.90	6.10	592.25	3612.73
K20	83.25	49.11	34.14	30.48	4.57	1,110.00	5072.70
K21	84.72	44.78	39.93	28.95	10.67	616.71	6580.30
K23	86.98	43.09	43.89	28.96	16.76	930.73	15599.03
K24	87.35	46.20	41.15	32.00	4.57	380.00	1736.60
K25	86.38	47.66	38.71	33.53	6.10	475.25	2899.03
K28	77.85	52.10	25.76	19.81	6.10	570.00	3477.00
K32	81.78	49.17	32.61	27.43	4.57	315.67	1442.61
K33	83.25	49.10	34.14	32.00	1.52	244.00	370.88
K34	85.90	46.25	39.62	30.48	9.14	850.33	7772.02
K36	89.75	45.24	44.50	42.67	1.52	280.00	425.60
K37	89.72	45.21	44.50	39.62	3.05	319.50	974.48
K38	85.54	44.23	41.30	33.53	1.52	103.00	156.56
K39	88.81	44.00	44.81	35.05	10.67	457.57	4882.27
K40	90.12	46.93	43.28	41.14	2.13	611.14	1301.73
K41	83.30	51.30	32.00	30.00	3.00	287.33	861.99
K42	73.48	49.73	23.75	12.00	13.00	1,324.38	17216.94
K43	80.83	47.40	33.50	28.00	6.00	1,038.67	6232.02
K44	74.39	47.90	26.50	20.00	4.00	531.00	2124.00
K45	73.20	45.70	27.50	20.00	8.00	394.00	3152.00
K48	84.05	51.55	32.50	30.00	2.00	366.00	732.00
K50	88.24	49.00	39.25	38.00	2.00	320.00	640.00
K51	82.83	47.83	35.00	26.00	9.00	581.33	5231.97
K52	75.48	51.00	24.50	20.00	5.50	569.54	3132.47
K53	85.72	49.47	36.25	30.00	7.00	4,184.14	29288.98
K54	86.70	50.20	36.50	32.00	6.00	865.00	5190.00
K55	84.70	48.50	36.20	30.00	7.00	1,196.43	8375.01
K57	88.18	46.43	41.75	34.00	8.00	667.50	5340.00
K58	86.04	44.04	42.00	32.00	11.00	3,111.45	34225.95
K59	87.68	44.30	43.38	34.00	8.00	993.25	7946.00
K60	84.72	47.92	36.80	30.00	8.00	715.00	5720.00
K61	84.97	47.77	37.20	32.00	2.00	286.00	572.00
K62	84.84	44.34	40.50	32.00	11.50	1,895.57	21799.06
K63	86.16	44.66	41.50	38.00	4.00	806.50	3226.00
K64	86.52	46.02	40.50	32.00	12.00	1,072.17	12866.04
K65	85.64	47.45	38.20	34.00	2.00	248.00	496.00
K66	83.57	46.67	36.90	34.00	4.00	381.00	1524.00
K68	87.70	44.70	43.00	40.00	4.00	376.50	1506.00
K72	85.3	46.3	39.00	32.00	8.00	1,546.00	12,368.00
K73	84.82	46.82	38.00	36.00	2.00	446.00	892.00
K75	93.14	49.64	43.50	42.00	4.00	369.00	1,476.00
K76	88.53	44.03	44.50	34.00	12.00	1,402.25	16,827.00
K77	93.67	48.62	45.00	42.00	4.00	444.00	1,776.00
K78	91.87	47.17	44.70	40.00	6.00	499.67	2,998.02
K80	90.45	44.95	45.50	42.00	6.00	1,345.33	8,071.98
K81	91.06	46.36	44.70	40.00	8.00	2,385.25	19,082.00
K82	89.94	44.44	45.50	42.00	6.00	1,846.33	11,077.98
K83	88.66	48.26	40.40	38.00	4.00	1,137.50	4,550.00
K84	91.38	45.88	45.50	40.00	8.00	941.75	7,534.00

ALLUVIAL DRILL HOLE RESULT SUMMARY - 200 gm CUT-OFF

PROJECT: Pioneer

TENEMENT: E.L 12/2000

DATE: 18/12/02

RECALCULATION

WESTERN RESOURCE

SHEET 5

HOLE NUMBER	COLLAR R.L m	B/MENT R.L m	DEPTH BASEMENT	DEPTHS			
				O/B m	WASH m	GRADE g/m ³	WEIGHTED W X G
K86	90.99	48.99	42.00	40.00	6.00	896.67	5,380.02
K88	92.69	52.49	40.20	40.00	2.00	240.00	480.00
K89	89.89	44.89	45.00	40.00	4.00	223.50	894.00
K90	89.36	49.36	40.00	38.00	2.00	479.00	958.00
K92	89.30	47.50	41.70	38.00	4.00	597.00	2,388.00
K94	89.60	48.40	41.20	40.00	4.00	514.00	2,056.00
K95	81.35	47.65	33.70	30.00	4.00	393.00	1,572.00
K98	91.43	50.43	41.00	40.00	2.00	317.00	634.00
K99	83.41	47.61	35.80	32.00	4.00	1,006.00	4,024.00
K101	99.40	49.00	50.46	46.00	6.00	794.33	4,765.98
K102	101.18	47.38	53.80	50.00	2.00	403.00	806.00
K103	95.38	47.38	48.00	42.00	8.00	708.25	5,666.00
K108	98.19	50.49	47.70	46.00	2.00	321.00	642.00
K109	99.24	51.54	47.70	44.00	6.00	921.67	5,530.02
K110	92.49	51.49	41.00	36.00	6.00	1,250.67	7,504.02
K111	98.19	48.69	49.50	44.00	8.00	2,123.25	16,986.00
K112	100.84	50.64	50.10	48.00	6.00	1,030.83	6,184.98
K113	97.12	48.12	49.00	44.00	6.00	391.00	2,346.00
K114	97.46	50.56	46.90	42.00	8.00	675.50	5,404.00
K115	94.80	50.30	44.50	40.00	7.00	1,163.00	8,141.00
K116	99.23	53.33	45.80	44.00	3.00	719.33	2,157.99
K117	91.80	55.39	36.50	34.00	4.00	385.50	1,542.00
K119	95.83	49.83	46.00	44.00	4.00	3,037.25	12,149.00
K121	95.38	49.38	46.00	44.00	3.00	511.97	1,535.91
K122	85.28	50.28	35.00	33.00	3.00	2,538.33	7,614.99
K123	82.10	50.10	29.32	26.00	9.00	1,028.38	9,255.42
K124	85.43	51.63	33.80	26.00	9.00	850.48	7,654.32
K125	94.30	51.50	42.80	40.00	4.00	707.75	2,831.00
K126	90.98	51.48	39.50	36.00	5.00	1,091.98	5,459.90
K127	84.53	53.23	31.30	30.00	3.00	459.83	1,379.49
K129	91.25	53.45	37.80	34.00	4.00	431.85	1,727.40
K134	93.74	45.25	48.50	42.00	8.00	1,556.75	12,454.00
K140	92.11	49.11	43.00	40.00	6.00	687.17	4,123.02
K141	90.85	49.35	41.50	38.00	4.00	460.00	1,840.00
K142	97.89	51.89	46.00	40.00	15.00	1,093.14	16,397.10
K143	92.41	49.91	42.50	38.00	5.00	952.62	4,763.10
K144	95.64	48.44	47.20	46.00	2.00	372.90	745.80
K145	92.67	49.67	43.00	38.00	10.00	2,408.87	24,088.70
K150	98.19	47.19	51.00	42.00	10.00	1,529.38	15,293.80
K150R	98.19	47.19	51.00	46.00	4.00	3,812.00	15,248.00
K151	92.49	50.49	41.00	38.00	4.00	9,044.00	36,176.00
K153	91.06	46.06	45.00	40.00	8.00	2,923.25	23,386.00
K165	96.98	52.58	44.00	40.00	8.00	1,446.40	11,571.20
K202	89.60	45.60	44.00	39.00	4.00	1,522.78	6,091.12
K206	95.2	39.70	55.50	49.00	1.00	401.30	401.30
K237	47.70	39.20	39.20	38.00	2.00	228.80	457.60
K238	87.10	47.70	39.30	38.00	4.00	1,182.90	4,731.60
K239	86.00	52.00	34.00	30.00	6.00	699.52	4,197.12

ALLUVIAL DRILL HOLE RESULT SUMMARY - 200 gm CUT-OFF

PROJECT: Pioneer

TENEMENT: E.L 12/2000

DATE: 18/12/02

RECALCULATION

WESTERN RESOURCE

SHEET 6

HOLE MEMBER	COLLAR R.L m	B/MENT R.L m	DEPTH BASEMENT	DEPTHS			
				O/B m	WASH m	GRADE g/m ³	WEIGHTED W X G
K240	89.80	53.00	36.80	35.00	5.00	1,167.72	5,838.60
K241	85.50	57.50	28.00	24.00	8.00	2,493.75	19,950.00
K247	83.00	53.60	29.40	26.00	6.00	980.92	5,885.52
K249	79.10	55.30	23.80	20.00	6.00	598.57	3,591.42

		HOLES				
TOTAL	SHEET 1	49	1,597.55	303.99		320,354.93
	SHEET 2	48	1,893.00	249.00		317,634.90
	SHEET 3	4	105.00	25.00		35,265.54
		101	3,595.55	577.99		673,255.37

AVERAGES **35.60** **5.72** **1,164.82**

STRIPPING RATIO **6.22 : 1**

The Company will secure debt funding for the mining plant and equipment, and offers have been received for contract hire of the mining equipment and for lease funding from suppliers of the treatment plants. It is the intention of the Company to provide operators and consumables.

The location of the Scotia, Endurance and Pioneer resources shown on the map above demonstrates their close proximity to established infrastructure services such as roads, electricity, communications and townships. This ensures ready access to and from the mining sites for equipment and finished product and minimal delays in establishing the planned mining operations.

Project Summaries

Previous exploration and mining activity in the licence areas has defined substantial mineral resources. Those mineral resources have been quantified by Van Dieman Australia's consultants and checked and confirmed in the Competent Persons' Report by Terence Willsted & Associates for Van Dieman Australia, classified to JORC Code requirements.

Table 1: Mineral resources

<i>Tenement</i>	<i>Volume (million m3)</i>		<i>Grade (kg SnO₂ / m³)</i>	<i>Total SnO₂ (tonnes)</i>	<i>Resource Classification</i>	<i>Strip ratio</i>
	<i>Ore</i>	<i>Overburden</i>				
<i>Central Ringarooma</i>						
Endurance	1.57	8.94	1.065	1,674	Measured and	5.7
	2.40		0.972	2,330	Inferred	
Pioneer	4.62	22.73	0.872	4,027	Measured and	4.9
	3.50 ⁽¹⁾				Inferred	
<i>Scotia</i>						
	5.32	24.90	1.300	6,913	Measured and	4.7
	21.35		0.348	7,430	Inferred	
<i>Gt. Northern Plains</i>						
Fosters Marsh	34.10	77.40	0.260	8,878	Measured	2.3
Braithwaites	5.16	14.46	0.282	1,416	Measured	2.8
Peripheral Resource Areas	39.7		0.100 to 0.300		Inferred	2.3 to 2.8

Source – Competent Persons Report by Terence Willsted & Associates dated 21 September 2004

(1) This figure is not JORC compliant, no grade quoted

Reliance has been placed on a substantial and detailed database available from previous exploration which was derived from tin exploration and sampling. Limited analysis has been carried out on the sapphire, gold and heavy mineral mineralisation and the content of these minerals cannot be included in the measured resource categories.

The Company has determined that the extraction of the defined measured resources provides viable economic returns at the assumed metal prices as stated in the Competent Persons Report. The inclusion of the by-product minerals is expected to further enhance the financial returns from tin concentrate production in all of the project areas. The Company has therefore decided that, on this basis, within the context of the JORC Code the currently estimated measured resources can reasonably be accepted as proved reserves.

The Company has estimated the possible content of the associated mineralisation, based on preliminary site testing and historical production records, to be as set out in the following tabulation. These estimates are not confirmed to meet JORC Code requirements in the Competent Persons Report.

The following summarises the key conclusions arising from this review.

Mineral Resources

The resource estimates prepared by consultants for VDM for each project have been examined by TWA. These are summarised in the following table:

Resources

Project	Measured Mineral Resources		Inferred Mineral Resources	
	Million bcm	g/bcm	Million bcm	g/bcm
Pioneer	4.616	872	3.5	
Endurance	1.57	1065	2.4	972
Scotia	5.318	1300	21.35	348
Great Northern Plains			39.7	100 to 300
Foster Marshes	34.1	260		
Braithwaites	5.16	282		

Resources have been estimated by VDM Consultants whose reports are listed in the bibliography who are competent persons as defined by the JORC Code and the sampling and analytical methodology and resource estimation procedures have been independently checked by Dr Bryce L Wood for TWA. TWA's review has confirmed that the overall resource estimates for all projects have been correctly carried out. Grade is quoted as grams (g) of cassiterite (SnO₂), with a tin content of 70% Sn, per bcm, and is based on tin analysis procedures and recovery estimation criteria as have been normally used in Tasmanian tin mining practice.

TWA confirms that there are sufficient tin mineral resources to meet the VDM plans outlined in the AIM Admission Document, as well as to provide for long term planning. The geological and structural conditions at each of the resource projects are such that they can be operated successfully, and no significant geotechnical problems are indicated.

Significant sapphire and by-product gold and heavy mineral content occurs within the resource areas but their content is insufficiently defined at this stage to be included in resource estimates. These heavy minerals occur in tin concentrate samples but are not included in the cassiterite grade estimates because of the tin analysis procedures used.

Project Operations

The Central Ringarooma resources occur in two discrete deposits, Endurance and Pioneer, while the Scotia, Great Northern Plains and Offshore deposits are linked together, such that they each form one part of a major resource. The strategy proposed by VDM is to simultaneously mine the Scotia and Central Ringarooma deposits and to undertake exploration programmes to confirm the Great Northern Plains and Offshore mineralisation profitability.

The mining methods to exploit these deposits are determined by a number of factors, some of which are specific to individual deposits. The techniques planned to mine the deposits are as follows;

- Scotia* – Conventional dry mining using a combination of excavators, trucks, scrapers and bulldozers
- Central Ringarooma* – A combination of conventional dry machine mining as for Scotia, and gravel pumping of the pay zone.

The mining of Central Ringarooma area will commence with Endurance, and then move to the Pioneer deposits when Endurance is mined out. Dual unit treatment plants will be located at the Scotia and Central Ringarooma operation, each dual unit processing a total of 300 bcm/hour of ore on a 10 hour day/6 days per week basis. This equates with due allowance for maintenance and down time, to the treatment of 775,750 bcm per dual treatment plant per annum.

Marketing

Tin concentrates are sold directly to smelting organisations. The mineral concentrate is nominally produced at a grade of +70% Sn. The tin concentrates from the VDM tenements would be shipped to Malaysia or Thailand. Tin prices are quoted on the London Metals exchange in \$US/t Sn metal.

be accepted for project planning purposes but should not be accepted as Proved Ore Reserves until the by-product values are quantified.

VDM consultant has carried out preliminary stand-alone optimisation analyses of the project areas on the basis of tin price alone, allowing for the normal economic parameters, but not allowing for VDM's overall strategic aims. In this case, higher grade resources can be defined as Proved Ore Reserves based on selected on-going tin price projections, from within each project's Measured Mineral Resources. Part of these upgraded Reserves would be available for initial production if necessary to allow early payback of capital investment. At this stage the higher grade tin resources are not categorised by TWA for project reserves until the possible effect of by-product revenue on project viability can also be assessed.

The estimated resources are outlined in this Report, for each of the VDM projects.

3.0 THE PIONEER PROJECT

The Pioneer Project area covered by EL 12/2000 of 4 sq km is located in the south central section of the extensive Ringarooma River alluvial tinfield, a mineralised province that has historically produced in excess of 40,000 t of tin from operations varying from small scale hand mining through to large scale dredging.

The Pioneer alluvial deposits are considered to be the outfall of the Wyniford Lead into the ancestral Ringarooma River floodplain. Tin is predominantly derived from the Wyniford Lead that sources its sediment load from the mineralised Blue Tier Batholith and in part from the upper sections of the ancestral Ringarooma River toward Branxholm and Derby. The resource is contained within a deep basin that extends northwards from the current Ringarooma River and then swings westward around the northern edge of Pioneer Township.

5493000 mN

5492500 mN

5492000 mN

577000 mE

577500 mE

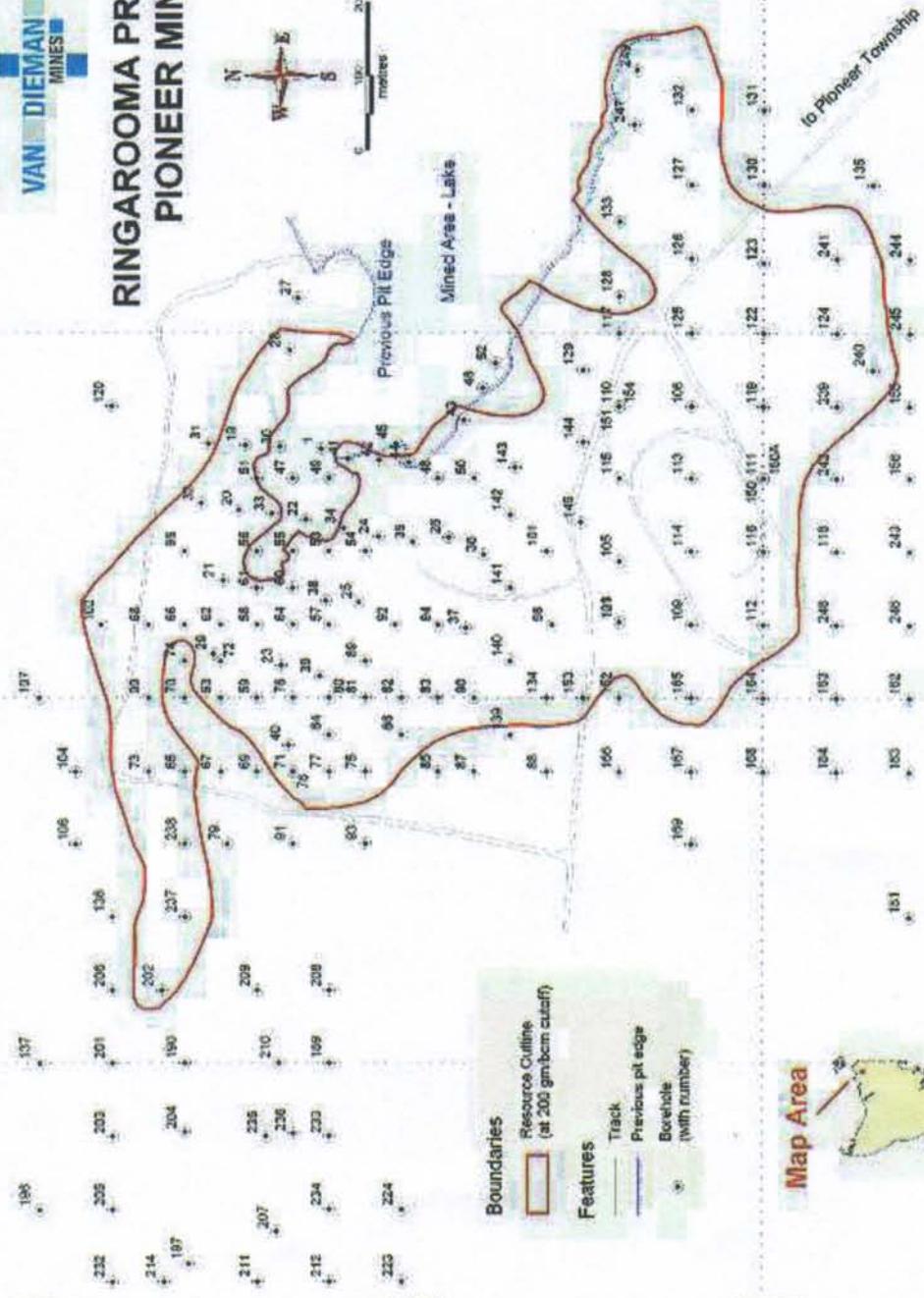
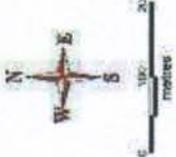
578000 mE

578500 mE

579000 mE

VAN DIEMAN MINES

RINGAROOMA PROJECT PIONEER MINE



- Boundaries**
- Resource Outline (at 200 g/m3 cut-off)
- Features**
- Track
 - Previous pit edge
 - Borehole (with number)



Produced by **enoom**
578000 mE

Prepared by Van Dieman Mines Pty. Ltd. for Tenement 11/1042-2. Associated with the Prospect

The principal cassiterite deposits are concentrated in a basal alluvial horizon resting immediately on granitic bedrock. The deposit consists of coarse, granite-derived sands with a high felspathic component, often difficult to distinguish from weathered basement, and erratically distributed gravel, pebble, cobble and boulder size horizons derived from granite and metamorphic sources, some ferruginous cement has been observed.

Basement palaeo-topography controls deposition and grade of the deposit. The basin-like lead appears to have been deposited in a zone where change in elevation and thus a slowing of the ancestral Wyniford River resulted in the formation of a heavy mineral-rich deposit. This is mirrored by present topography where the Wyniford River enters a steep gorge close to its junction with the Ringarooma River.

The bulk of the cassiterite is medium to fine grained, < 2.0mm. Accessory mineral content is high, including rutile, zircon, ilmenite and the rare-earth minerals monazite and possibly xenotime.

Gold (Au) is reported as a regular component of the tin concentrates and old records seem to indicate that the SnO₂:Au ratio is in the order of 600 to 650:1. Sapphire and corundum were regularly observed and abundant 2 to 3 mm sapphire was a problem component of the tin concentrates. Old records indicate that alluvium of the Wyniford River section of the lead contained abundant sapphires, of sizes varying from 2mm to 10mm, and of fine blue and yellow colours.

The abundance of these accessory minerals varies depending on the position of the deposits in relation to both gradient and source. For example, the sediment related to the Wyniford Lead had a higher sapphire component while the Ringarooma River sediments had less sapphire and higher gold.

Previous resource calculations have included both the cassiterite bearing basal wash and the barren overburden or drift of the old miners. By application of a 200 g/bcm cut-off grade and exclusion of the barren overburden it can be shown that the areal extent of the resource can be increased, which in turn results in an increase frequently greater than 100% in contained tin concentrates. Furthermore the resource remains open to the west, and additional drilling in that region would be expected to also increase the resource base.

3.1 History of Exploration

The most recent definitive work is that of Amdex Mining during the early 1980's. The reserve area was intensively drilled by using conventional alluvial churn drilling with cable tool machine and by reverse circulation, totalling 10,278m for 2,900 analyses. Based on this drilling and on associated exploration and a current operating mine scenario AMDEX Mining Limited carried out a re-assessment of the Project in 1980.

Mineral Holdings Australia carried out a further re-assessment in 2001, this included conversion of all old data from Imperial to metric, plotting of cross sections and recalculation of reserve into Overburden and Ore.

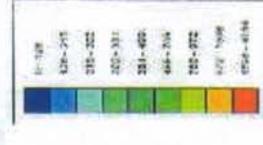
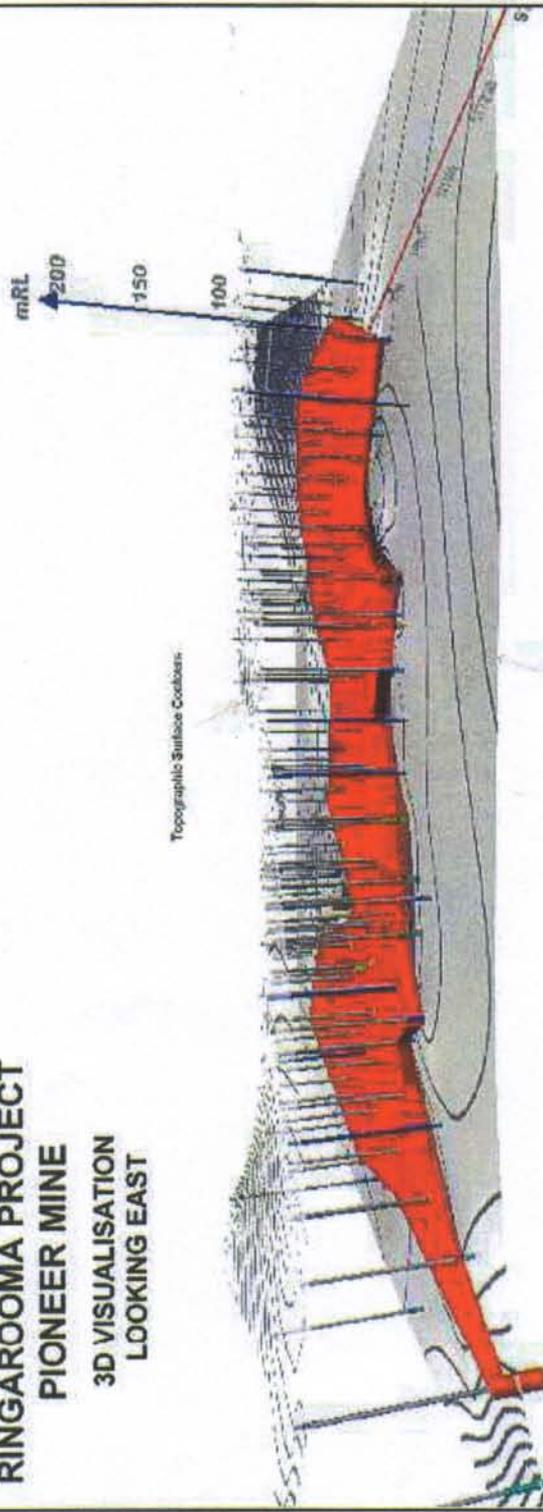
Estimated expenditure totals about \$1.94 million. Overall, a total of 356 holes were drilled, totalling 13,420m.

3.2 Resources

Grades used by Amdex were based on grades reported in holes drilled by Amdex Mining during the period 1980 to 1984. Amdex noted that in order to conduct the evaluation the whole of hole grades were calculated using only the grades from the sampled section. Unsampled intervals were assigned theoretical volumes with a zero grade. Cut-off grades of 200 g/bcm and 100 g/bcm were used and only that section of the resource considered to be Proved was quoted. Amdex calculated reserve volumes using the Influence Area- Depth method. There has been no reconciliation recorded between these estimates and the actual production performance at that time.



**RINGAROOMA PROJECT
PIONEER MINE
3D VISUALISATION
LOOKING EAST**



Basement Contour Interval (m) = 1
 Surface Contour Interval (m) = 1
 Resource Zone (at 200 gmt/bm cutoff)



Produced by **encom**

Prepared by Van Dieman Mines Pty Ltd for Encom Resources & Associates, for submission to the Regulator.

Amdex Resource – 1984

<i>Class</i>	<i>Cut-off Grade (g SnO₂/bcm)</i>	<i>Volume bcm</i>	<i>Wt. Av. Grade (g SnO₂/bcm)</i>	<i>Tonnes Contained SnO₂</i>
Proved	200	3,833,000	333.6	1,279
Proved	100	5,448,353	279.6	1,523

3.3 Current Re-Assessment

An inspection of the Pioneer data indicated that the Amdex resource was based on drill hole grades averaged Top to Bottom of all holes so that the resource included a substantial volume of barren overburden. Removing this barren material as overburden from the resource calculation made it possible to increase the areal extent of the resource and also increase the volume of contained tin concentrate.

The Pioneer Project has undergone further re-assessment and a new resource base was calculated by VDM. As a basis for this work each drill hole in the unmined sections of the Project was reviewed and all grades above 200 g SnO₂/bcm cut-offs for the wash zone only included in the new resource base. In this calculation the deposit is considered to have Measured Mineral Resource status. The resource data, based on a 200 g/bcm SnO₂ cut-off for the wash zone only is 4,616,000 bcm with an average grade of 872 g/bcm, containing 4,025 t of SnO₂ concentrate. A stripping ratio of 4.9:1 is estimated with overburden of 22.73 million bcm.

An assessment of previous data indicates possible extensions to the resource base by:

- Recalculation of all drill hole data with the removal of overburden sections which, it is felt, will extend the resource boundaries into what now appears to be marginal ground;
- Extension of the resource to the west, south-west and south of the area presently drilled;
- Defining by drilling the northern boundary of the resource;

Locating old drill data relating to the area east of the old Pioneer workings (Austral Malay, Pioneer Tin Mining Company and Storey's Creek Tin) where there appears to be a shallow higher grade resource present.

These extensions are estimated by VDM to comprise an Inferred Mineral Resource of 3.5 million bcm, but an estimate of average grade of 1000 g/bcm SnO₂ by VDM cannot be confirmed at this stage.

Pit Optimisation studies indicate a possible range of recoveries contingent on price variations. At current tin prices, an initial high grade Proved Ore Reserve of 466,000 bcm containing 1310m/bcm has been estimated from optimisation studies, from within the Measured Mineral Resources.

3.4 Conclusions

Following a reassessment of the previous data the recalculation of the resource base by VDM has included the following:

- The removal of barren overburden from the grade calculation of each drill hole;
- Application of the removal of overburden from grade calculations in holes marginal to the resource,
- Inclusion of drilling previously not included in resource calculations.

Further exploration including shallow seismic or GPR surveys followed by drilling in areas to the west and south-west may also further expand the resource base. Effort should also be directed to locating old drill results for the area of the deposit lying east of the old Pioneer workings.

In reviewing the resource estimates it is not possible to quantify the content of valuable accessory minerals present in the basal wash zone. Although these minerals have been quantified in other resources in the region that have the same mineralogical derivation as the alluvials at Pioneer, their contents at the Pioneer Mine remain conjectural. Evidence suggests that rutile, zircon and ilmenite may occur in grades of 50 to 200 g/bcm, gold at 10 milligram (mg)/bcm, rare earth minerals monazite and xenotime, in the order of 100 to 200 g/bcm, and tantalite-columbite minerals in the order of 1 to 2 g/bcm. Sapphire has been observed in tin shed tailings and grades of 1 to 5 g/bcm of gem quality stone are possible.

In the opinion of TWA the Pioneer Project:

- contains the resources summarised above in accordance with the JORC code.
- constitutes a viable operation in the current economic conditions.
- warrants further exploration to up-grade and increase the resource.
- further work should include testing for valuable accessory minerals.

An exploration proposal for the Pioneer Project has been outlined by VDM, which is considered to be warranted at this stage, including:

- Define edges of existing Measured Resource.
- Fence drill western 2 lines of 6 holes each.
- Reconnaissance drilling towards the Ringarooma source channel.

4.0 THE ENDURANCE PROJECT

Following the discovery of tin in the Endurance district in 1875, the deposits have had a long and productive history of which only sporadic records remain. Early production grades of 2,000 to 3,000 g/bcm were encountered in the tributary stream deposits on the southern slopes of Mt Cameron above the main Endurance deep lead. In later years, production grades in the main lead ranged from 528 g/bcm in 1937 to 237 g/bcm by 1968. In 1978 the Triako-Amdex Mining Group acquired the tenements and continued shallow mining and exploration until the early 1980's. Since then the deposit has remained idle, and the resource quoted by Amdex remains largely intact.

The Endurance Project is covered by EL 11/2000 of 4 sq km. The Endurance Lead initially developed in a relatively narrow, very active stream, depositing high-grade tin bearing basal gravels onto a highly decomposed granitic basement. The stream gradient profile was in the main west trending at shallow angles, but in a few places faulting of the bedrock caused major diversions to the system and resulted in restrictions and sharp changes to the gradient.

Where these bends or diversions occurred they caused partial damming of the stream, above the diversions the stream usually occupied a broad valley, below it usually discharged into a deep high grade pool that gradually opened out as the gradient lessened and the stream slowed down.

The unexploited section of the resource typifies this scenario. A broad shallow valley occupies the western section, grades diminish slightly east to west, and a small island of barren wash occurs immediately east of the fault where the stream system appears to become somewhat braided. West of the fault the tin bearing sequence thickens and the valley narrows. High-grade tin bearing gravels were deposited in a deep pool immediately adjacent to, and downstream of the fault.

Ilmenite:

Ilmenite is the most abundant of the titanium bearing minerals. Field observations indicate that ilmenite content substantially exceeds that of rutile. Much of the ilmenite is traditionally lost to tailings and no effort has been made to quantify content.

Gold:

Gold is a regular component of the heavy mineral suite. Traditionally gold has been recovered as a by-product of all the alluvial tin operations and the Dorset Dredge recovered sufficient gold from its operation to meet part of its annual cost. The gold grade averaged around 30 mg/bcm and this appears to agree with the general reported recoveries from other operations. Gold was also recovered from the Monarch, Pioneer and Endurance Mines and high grades were reported to have been recovered from the Lochaber lead north of Gladstone. Concentrates obtained by MHAPL as part of its recent testing all contained fine gold and the deposits tested around the fringe of the Great Northern Plain all contain visible free gold.

Tantalite/Columbite:

There is evidence that the heavy mineral fraction also contains one of the tantalite-columbite series minerals. Testwork has indicated that at least some of the Ta + Nb occurs within the cassiterite as well as in discrete fine grains of the heavy mineral fraction.

Rare Earth Oxides:

Tin shed tailings from Pioneer, Endurance and the Dorset Dredge are all observed to contain appreciable rare earth oxides (REO), principally in monazite-xenotime. These minerals report to the magnetic fraction of the heavy mineral concentrate and comprise between 0.2 to 5% by weight of the concentrate.

Topaz:

Gem quality topaz, some of considerable size and excellent blue colour occurs throughout the project area.

Peridot (Olivine):

Gem quality green olivine is abundant in the Younger Tertiary Basalts particularly in the vicinity of the Briseis Mine at Derby. Grains of bright apple green olivine have been reported from most of the alluvial deposits.

8.0 MINING AND TREATMENT PROGRAMME**8.1 Mining Proposals**

The mining methods proposed for the projects involve standard proven alluvial mining technology, using modern mobile excavation and haulage equipment, allowing for the following factors:

- The environmental conditions, including the type of topsoil, vegetation and degree of water saturation at surface;
- Subsurface conditions including problems such as the presence of boggy peat or silcrete / ferricrete horizons;
- The nature of the overburden to be pre-stripped and possible problems such as the presence of hard compact sandy clays, puggy and soft clay horizons and lignite/wood bearing horizons;
- The nature of the pay zone, such as whether it is water saturated, bouldery or bedrock enriched; and
- The availability and location of open pit areas from previous mining operations which can be used for the dumping of stripped overburden.

The Department of Mineral Resources require a high standard of restoration and reclamation of mine sites. It is planned that mining of the projects will involve the standard reclamation/restoration procedures which meet these requirements.

The Scotia Project is the most variable deposit as it encompasses a number of environments from open dry surface heathland and scrub to the swampy conditions observed in the Scoloch section of the Lead. The Endurance Project deposit is similar to Scotia but is more confined in area and tends

to be less variable at the surface. Pioneer Project is located in open scrubland on elevated ground and differs from the other deposits both in depth and at surface.

8.2 Mining Project Operations

Two proposed mining methods are suggested for the VDM projects planned for development:

- Conventional dry machine mining using a combination of excavators, trucks, scrapers and bulldozers;
- A combination of conventional dry machine mining with gravel pumping of the pay zone.

The Scotia Project

It is proposed to commence mining at the Scotia deposit at the southern or headwaters end of the Leads. At this location advantage can be taken of previous mine open cuts as disposal areas for treatment plant tailings and as initial sites into which overburden fill can be deposited. The presence of puggy clay and pug zones preclude the selection of power scrapers for overburden removal. The mining plan for the Scotia Lead proposes the following programme.

The treatment plant would be located in a position where tailings can be discharged into old working pits and allowance made for settling and decanting of settled waters. The development of two working faces, one at Lochaber and the other at Scotia are both adjacent to old workings, enabling efficient dumping of overburden into pre-mine cuts. Removal of surface vegetation to vegetation stockpiles and of the topsoil to stockpiles will provide for subsequent rehabilitation. Surface silcrete/ferricrete horizon will be dozed into separate stockpiles and the 2m to 5m overburden layer will be dozed to old mine cuts. The overburden will be excavated and trucked to pit side stockpiles for later reclamation and the pay zone will be excavated and trucked to the processing plant.

It is proposed to run the two operations concurrently, so that while the bulldozer is performing pre-stripping at one site, the excavators are working at the other excavating overburden and wash.

The Endurance Project

Previous mining of this area has been carried out using high pressure water monitors, gravel pumps and Californian Lift elevators. During the 1970's Amdex attempted to work the deposit using scrapers to remove overburden, which proved unsuccessful due to high clay content in the overburden zones. Their final operation at Endurance used a combination of bulldozing and gravel pumping.

It is proposed to use a similar mining technique, in the new operations including:

- Excavation of drains to assist in removal of surface water;
- Removal of vegetation to stockpile;
- Removal of surface peaty topsoil and peat to stockpile;
- Removal of 1 to 6m depths of overburden using bulldozer and removal of remaining overburden using excavator and trucks; after adequate drainage.
- Removal of pay zone by monitors and gravel pumps.

The Department of Mineral Resources has indicated that as part of the reclamation process it requires restoration of least part of the previous worked areas including filling with tailings the large lake adjoining the resource.

The Pioneer Project

This deposit is at a more elevated position than at Endurance. It should prove possible to remove a large proportion of the sandy gravely gritty overburden by scraper. Clayey seams are not common at Pioneer.

It is proposed to use a similar mining technique to that proposed for Endurance.

8.3 Treatment

It is proposed to use conventional gravity recovery plants with a 300 bcm/hour treatment circuit. Gravel and sand pumps will be utilised for process circulation.

Goldfield Engineering USA have proposed a plant utilising their standard Alaskan 200 (150 bcm/hour capacity) model screening circuit combined with sets of Goldfield Placer Jigs. They have proposed using a common feed unit that will split the 300 bcm/hour feed to two Alaskan 200 wash and gravity

plants running in parallel. The proposed treatment plant layout will consist of modular units for ease of transport and installation which will permit the movement of the plants to strategic, locations relative to the mining plan as mining progresses.

This circuit will produce a +74% Sn concentrate, gold dore, a sapphire gem component and a black sand product containing zircon, titanium oxides and tantalite. The modular nature of the circuit will enable simple and effective maintenance and replacement of worn items.

8.4 Project Production Parameters

It is proposed to mine both the Scotia resource and the Central Ringarooma resources simultaneously. The mining of Central Ringarooma area would commence with Endurance, and then move to the Pioneer deposits when Endurance is mined out. Two identical dual unit treatment plants will be located, one at each mine site, each dual unit processing, a total of 300 bcm/hour of ore on a 10 hour day/6 days per week basis. This equates with due allowance for maintenance and down time, to the treatment of 775,750 bcm per dual treatment plant per annum.

Projected mine life is for planning purposes estimated on the basis of the Measured Mineral Resource contained within the VDM production programme. VDMÆs long-term projected mine life also provides for recovery from the Inferred Mineral Resources, which cannot be confirmed in this CPR to meet the requirements of the JORC Code. The following production parameters are estimated:

Project	Production bcm pa	Measured Mineral Resource (bcm)	Grade g/bcm	Contained Tonnes SnO ₂	Forecast Mine Life (Years)	SnO ₂ tpa	Overburden		Ratio
							Million bcm	Million bcm pa	
Scotia	775,750	5,318,000	1300	6913	6.9	1008	24.86	3.6	4.7
Central Ringarooma									
Endurance	775,750	1,571,000	1065	1674	2.0	713	8.94	3.964	5.7
Pioneer		4,616,000	872	4027	6.0		22.734		4.9
	<u>1,550,000</u>	<u>11,505,000</u>	<u>1096</u>	<u>12614</u>		<u>1721</u>	<u>56.53</u>	<u>7.56</u>	

8.5 Site Logistics And Infrastructure

Supporting logistics and infrastructure at the project sites are as follows:

Access

Access to the project sites is available by good gravelled tracks connecting to the regional main road system. At Scotia, it will be necessary to replace the current bridge over the Lochaber Tailings with a new structure as the current bridge will not support heavy machinery.

Water Supply

Water supply is abundant through the project sites.

Power

Mains electric power is available along the main roads adjacent to the proposed Treatment Plant Sites.

Communications

Telstra cabling is located at main roads and local cables can be run along access tracks to the plant sites.

Personnel Accommodation and Community Facilities

The sites are adjacent to local townships. It is not envisaged that it will be necessary to house staff and employees either on site or in the township as personnel will be drawn from the regional labour pool.

Maintenance and Supplies

The project region is within 50 km of the city Launceston and its adjacent industrial areas, which will provide a full range of service and supply facilities.

Treatment Plant Sites

The sites will be located central to the resource areas and adjoining old mining areas for tailings disposal.

8.6 Environmental

VDM have reviewed with the Department of Mineral Resources and the Department of Primary Industries, Water and Environment, the projected development of the resources in north east Tasmania. No issues of concern have arisen out of those discussions however the company is aware of some matters that it must address in future environmental planning. These are:

- A RAMSAR site has been established in the Lower Ringarooma River Floodplain that encompasses part of the Great Northern Plains and Scotia resource areas. RAMSAR sites are administered by the Commonwealth under the Environment Protection and Biodiversity Conservation Act 1999. Provision exists for Application for development within such sites, VDM intends to make such application as required.
- The Lochaber Fossil Flora Site (Place File No: 6/03/056/0019) is located at the southern end of the Scotia resource. This site, 2.5 hectares (ha) in area, is included in the Register of the National Estate and is subject to the Australian Heritage Commission Act 1975. This is a small site that will not impact on proposed development.
- Current water discharge from the old Endurance workings is acidic. The Department is aware of this problem and is conducting remedial work. VDM has commenced a background water quality testing programme and will take acid water discharge into account during mine planning. VDM has agreed to assist the Department in its remedial efforts at Endurance.
- No significant Aboriginal issues have been recognized and an excellent relationship is already in place with local aboriginal councils, with the company in agreement to co-operate and liaise with local tribal groups.

Prior to commencing mining operations VDM would apply for and be issued with mining lease by Mineral Resources Tasmania (MRT). The Department Mining Inspector provides recommendations in regard to lease conditions and the level of a rehabilitation bond based on what is proposed to be carried out. VDM is preparing Environmental Impact Information to the standard format required by MRT.

In addition, planning and environmental approval is required through the Dorset Regional Council. The operations require licensing through the Environment Division of the Department of Primary Industry, Water and Environment (Environment). The application is lodged with the Council who refer it to Environment, who may accept the MRT Environmental Impact Information form as being sufficient for the initial operations at Scotia and Central Ringarooma but the projects generally will require completion of a Development and Environmental Management Plan (DEMP).

The planning approval process includes a public advertisement and rights of objection. The process is likely to take between four and twelve months depending on what level of interest is generated. The DEMP will address the question of RAMSAR sites and effects on migratory birds, applicable to the lower reaches of the Ringarooma River.

8.7 Marketing and Sales

Tin:

The mineral cassiterite (SnO_2), is conventionally sold directly to smelting organizations such as the Malaysian Smelting Corporation (MSC), in Butterworth, Malaysia or Thaisarco in southern Thailand and preliminary negotiations have commenced with MSC on delivery and contract terms. The mineral concentrate is nominally produced at a grade of +70%. Penalties apply for impurities such as lead, zinc and antimony and bonus payments are made for concentrate with grades in excess of 74% Sn. No penalties are indicated for Ta and Nb content. The tin concentrates from the VDM tenements will be packed in 1 tonne bulk bags and shipped to Malaysia from the port of Bell Bay near Launceston.

Tin prices are quoted on the London Metals exchange in \$US/t Sn metal.