REVIEW OF VAN DIEMAN MINING LTD’S GLADSTONE ALLUVIAL TIN PROJECT

THE TRAFIGURA GROUP

808006
July 2008
EXECUTIVE SUMMARY

AMC Consultants Pty Ltd (AMC) understands that The Trafigura Group (Trafigura), through its wholly owned subsidiary Galena Asset Management, has become a significant investor in Van Diemen Mines Ltd (VDM). VDM is developing an alluvial tin and sapphire mining and processing project at Gladstone in Tasmania, the Scotia Project, and Trafigura has requested AMC to carry out an independent review of VDM’s proposed operations plan for the Scotia Project.

AMC visited the Scotia project and VDM’s office in Sydney and has reviewed information presented during those visits. Discussions were held with VDM management personnel during both visits.

Mining for alluvial tin was carried out in the Scotia area from 1881 until 1908 and the area has been extensively explored for alluvial tin resources periodically since then, most notably by the Tasmanian Mines Department (TMD) during 1935 to 1944.

Many resource estimations have been made during the past fifty years, all based mainly on the TMD drilling, with some having carried out limited verification drilling. The results of these various resource estimations are shown below.

<table>
<thead>
<tr>
<th>Company</th>
<th>Author</th>
<th>Year</th>
<th>Ore Volume million BCM</th>
<th>Average Ore Grade g/BCM SnO₂</th>
<th>Contained SnO₂ tonnes</th>
<th>Stripping Ratio Ore: Overburden</th>
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<td></td>
</tr>
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</table>

Using a base line estimation of 4,000 tonnes of contained cassiterite, the table shows an estimation variation of +/-70% and AMC considers that degree of uncertainty to be a risk to the success of the project. VDM have proposed a drilling and sampling program to verify the resource in the area to be mined initially, and AMC believes that the resource risk will not be reduced to acceptable levels until that program has successfully verified the historical drilling results.

The drilling technique proposed to be used at Scotia has been successfully used to drill placer gold resources in New Zealand and so is likely to be successful at Scotia.
Previous management at Scotia made a number of poor decisions at the project, including:

- Failure to confirm the resource before committing to infrastructure expenditure.
- Commencing mining operations in an area where little information regarding the resource exists.
- Designing and sizing the processing and tin dressing plants without knowledge of the nature of the resource.
- Proposing an unsuitable mining method for the mining conditions likely to be encountered.
- Sourcing a processing plant from overseas that was impractical to operate and did not meet usual Australian safety standards.

Current management has inherited the outcomes of these decisions and is taking appropriate action to rectify them. AMC believes that the currently proposed mining method and modified processing and tin dressing plants should be successful in the operating environment expected to be encountered at Scotia.

However, because of the lack of information about the nature of the resource, there may be a longer than expected commissioning period for the project while the mining method and processing plant is adjusted to enable efficient mining and processing to be achieved.

Current management appears to be realistic and keen to see the project succeed. They work together well as a team but are lacking in knowledge specific to the working of alluvial tin deposits. However, they are compensating for that by engaging appropriately skilled and experienced consultants to guide and advise them.

In general, AMC believes that appropriate action is being taken by current management to rectify the issues they have inherited. Subject to the verification of the resource, AMC believes that the project can be successful, perhaps after a longer than anticipated commissioning period.
The signing of this statement confirms this report has been prepared and checked in accordance with the AMC Peer Review Process. AMC’s Peer Review Policy can be viewed at www.amcconsultants.com.au.

**Project Manager**

Peter Reynolds  
Signed  4th Sept 2008

**Peer Reviewer**

Peter McCarthy  
Signed  4th Sept 2008

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APPENDIX B AMC SCOPE OF WORK
PLATES

Distribution list:
3 copies to Mr Bill Wise, Trafigura Group
1 copy to AMC Adelaide office
1 INTRODUCTION

1.1 Purpose

AMC Consultants Pty Ltd (AMC) understands that The Trafigura Group (Trafigura), through its wholly owned subsidiary Galena Asset Management, has become a significant investor in Van Diemen Mines Ltd (VDM). VDM is developing an alluvial tin and sapphire mining and processing project at Gladstone in Tasmania, the Scotia Project.

As a result of this, Trafigura has requested AMC to carry out an independent review of VDM’s proposed operations plan for the Scotia Project.

1.2 Capability and Independence

This Report has been prepared by AMC, the signatory to this letter. AMC is an independent consulting group offering a broad range of mining engineering, geotechnical, geological and corporate consulting services to the international exploration, mining and financial services industries. AMC has provided independent technical audits and expert assessment reports for mining companies, insurance companies, banks and investors, including the preparation of independent technical reports acceptable to United Kingdom, Canadian and Australian listing authorities.

AMC’s clients include the world’s leading mining and exploration companies, corporate advisors, financial institutions and insurance companies. In 25 years AMC has completed more than 3500 projects in 72 countries providing a unique resource of global data and experience. AMC employs more than 120 mining professionals and completes more than 300 projects in the industry every year, in more than 70 countries.

The author of this report is Peter Reynolds and details of his qualifications and experience are presented in Appendix A attached to this report.

AMC will be paid a fee for the preparation of this Report. Payment of the fee is not conditional on the contents of the report or the success of the Scotia Project or Trafigura’s investment in it.

1.3 Interests

Neither AMC, nor any of its Directors, staff and sub-consultants who have had any involvement in the compilation of this Report have or have had any material interest in Trafigura or VDM, the company’s assets, including those that have been reviewed, or the outcome of its operations.

1.4 Scope of Work

AMC reviewed VDM’s Gladstone assets and project plans in accordance with the scope of work and exclusions and limitations and on the basis of materiality criteria set out in Appendix B attached to this report.
All opinions, findings and conclusions expressed in this report are those of AMC.

1.5 Information Sources

The contents of this Report are based on reports and data provided by VDM, a visit to the Scotia Project site and discussions with the management and senior personnel of VDM. The site visit was made in early July 2008 and included inspections of the project site including the existing infrastructure, preliminary mining work and the processing plant. Additional time on site was spent discussing aspects of the project with VDM staff and Directors.

A visit was also made to VDM’s office in Sydney for discussions with staff and Directors and to inspect historical documentation relating to estimations of the Scotia tin and sapphire resource. AMC has also examined the Competent Person Report (CPR) prepared by Terence Willsteed & Associates (Willsteed) in September 2004 and has had discussions with Lindsay Newnham of Newnham Exploration and Mining Services regarding the proposed resource verification drilling program at Scotia.

Where resource or reserve figures are given in the body of this report without qualification the terminology used conforms with that of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code).

AMC has not investigated the legal aspects of VDM’s contracts and agreements. Present and future implications arising from terms and conditions relating to such contacts and agreements have not been investigated. For the purpose of this Report it is assumed that all contracts and agreements necessary for the legal exploitation of the Scotia and other components of VDM’s Gladstone operations and exploration areas are and will remain in good standing and renewals will be completed as required.

AMC assumes that VDM has made full disclosure of all relevant material information in its possession and that to the best of its knowledge and understanding such information is complete, accurate and true. VDM has stated that all the information provided may be presented in the Report and that none of it is regarded as confidential. Trafigura has requested the VDM not be given the opportunity to review the Report for correction of matters of fact and notification of material omissions.

Such information as is available has been utilised to allow an informed appraisal of the physical and mineral assets and all material used in preparation of this Report is judged to be reliable. In instances where significant information has been found to be poorly documented or of doubtful reliability, such circumstances have been noted in the body of the Report.

Metric units of measurement are used throughout this report. All references to dollars are expressed in Australian currency unless otherwise noted.
1.6 Mining Risks

Mining, and in particular alluvial mining and processing, is carried out in an environment where not all events are predictable.

Whilst an effective management team can identify some risks and take measures to mitigate those risks, there is still a possibility for unexpected and unpredictable events to occur. It is therefore not totally possible to remove all risks, or state with certainty that an event that may have a material impact on the operations of the mine, will not occur.
2 LOCATION AND SETTING

2.1 Location

The alluvial resources and project areas of VDM are located in north–eastern Tasmania, approximately 140 km north–east of Launceston. They are located within the north–eastern Tasmanian tin region that extends from the Blue Tier granite massif in the south through to the north and north–east coasts and into offshore Bass Strait.

The region has been a significant contributor to the overall production of tin and precious stones in Tasmania but there has been little or no tin mining carried out during the last two decades due to the collapse of the tin metal price. The current tin metal price increase has seen a revival in the mining industry. In addition to VDM’s project, Kangaroo Metals Ltd (KML) have established an operating alluvial tin mining project in the area.

The tenements comprising the projects are distributed within an area of approximately 1,200 square kilometers arranged around a north to south axis centred on the small town of Gladstone as shown in Plate 1. From north to South the main project areas are:

- Offshore
- Northern Plains
- Scotia
- Endurance
- Pioneer

The initial mining area being developed by VDM, the Scotia project, is located immediately to the north of Gladstone. The associated tin and sapphire dressing shed and administration office is located within the Gladstone town area.

Gladstone is Tasmania’s most north–easterly township and has been in existence since 1870, due to tin ore being discovered in the area. The district now relies on farming and tourism, including bushwalking and fossicking for gemstones such as sapphires, topaz, agate and amethysts. It is on the road to the northern entrance to the Mt William National Park.

2.2 Climate

Rainfall in the area is in excess of a metre per year. Winters are cold and summers are cool. Mean maximum temperature is around 15°C and mean minimum temperature is around 5°C.

2.3 Infrastructure and Services

Launceston provides major regional air access with regular daily flights from Melbourne. From Launceston a network of major bituminised roads provides access to the north–
east region, through Scottsdale to the southern end of VDM’s project area or via Bridport to the northern project area.

Local access is generally excellent. Well formed gravel roads and tracks that are rarely disrupted by bad weather and flooding service all of the planned mining project areas. The Scotia operations site itself is accessed by bitumen sealed road to the mine entrance gate followed by a short gravel road to the site.

Gladstone has a population of around 200 with a hotel that includes a restaurant and a convenience store. An active volunteer fire service is based in the town. Activity in and through the town can be expected to increase if plans to develop world class resorts and golf courses on the coast north of Gladstone are realised. VDM owns two houses and two units in Gladstone.

Grid power is available and water is plentiful due to permanently flowing rivers in the area.

Communications are reasonable but mobile phone reception is not available over the whole project area.

2.4 Right to Work

VDM’s project area is secured by a variety of tenement types. As shown in Plate 1 these are:

- **Mining Lease** (ML in Plate 1)
  Enables mining operations to be carried out.

- **Retention Licence** (RL)
  Enables exploration activities to be carried out and for the licence to be retained where mineralisation has been discovered but economics prevent it from being exploited.

- **Exploration Licence** (EL)
  Enables exploration activities to be carried out.

- **Special Exploration Licence** (SEL)
  Enables exploration activities to be carried out on larger areas, but for only one specific mineral.

The Scotia Project is situated within granted mining lease ML15M/2004.
3 HISTORICAL MINING AND EXPLORATION IN THE PROJECT AREA

Based on:

- Reference 1, pp62 and 63;
- Reference 2

3.1 Mining History

Mining first commenced in the Scotia Project area in 1881, in the area that is now covered by ML15M/2004. In 1901 Scotia became a leading producer, mining a deep lead with a narrow gutter towards its base. The area was worked consistently until 1908 when most production ceased. Production from this mining is uncertain but may have been of the order of 1,000 tonnes, presumably of saleable concentrate.

In 1938 the area was designated as a Special Reserve, exempting the area from mining but allowing exploration to continue. The exemption was lifted in 1965.

The area has been intensively drilled, as demonstrated in Plate 2, by a number of parties using a variety of techniques from traditional Banka type drilling to modern percussion and auger drilling. Some 1,223 holes totalling 31,668m have been drilled but not all records of results from the various drilling programs are currently available and some that are available are relatively rudimentary.

By far the largest proportion of the drilling was carried out by the Tasmanian Department of Mines (TDM) during the years 1935 to 1944. The program was carried out during the depression years with perhaps a primary aim of providing employment in the Gladstone district.

In 1958 Rio Tinto Exploration Australia (Rio Tinto) carried out some drilling and during the tin boom of the late 1960’s to 70’s, various groups including Storey’s Creek Tin, BMI Mining, Anglo Australia and Amdex Mining, undertook work on the deposit, including assessments of previous drilling results. Various estimates of tin resources in the Scotia Project area were made as a result of that work.

Recent resource estimates by VDM have relied on reassessment of this old data. Results from Tasmanian Mines Departmental drilling program form a large proportion of that data and are only available as summaries, but later drilling includes full assay intersection data.

3.2 History of Exploration

The Scotia area has been actively explored since the 1880’s with extensive drilling campaigns being undertaken on the Scotia and Lochaber Leads and on a regional basis. Drill records indicate that total estimated drilling completed between 1902 and 2003 was:

- Cable tool and churn drilling;
  - 26,186m for 2,532 analyses
Percussion and reverse circulation drilling:
  - 989m for 399 analyses.

The TDM program used two “power boring plants” to drill 855 holes to an average depth of 27.7 metres. It therefore constitutes 88% of the total exploration drilling carried out in the Scotia Project area.

In its CPR, Willsteed estimated that some $5.9 million has been spent on exploration of the Scotia Project area.

From the mid 1960’s to early 1980’s, AMDEX Mining, BMI Mining and Anglo American carried out resource and reserve re-assessments and check drilling and assaying. AMDEX carried out a detailed re-assessment and estimated an ore reserve and also estimated associated quantities of overburden. VDM and its predecessor MHAPL have undertaken similar re-assessments in recent years.
4 VDM SCOTIA PROJECT

4.1 Scotia Resource

4.1.1 General Description

The Scotia Project resource is contained in a buried paleochannel that was once part of a larger ancestral stream system that included several tributaries and flowed northwards into the Northern Plains area.

Within the Scotia project area the channel is around 7km long. It has been described as follows:

“The tin is confined to narrow gutters ranging in width from 30 to 80 metres. The richer concentrations are contained in basal beds from 0.3 to 10 metres in thickness overlying slate and sandstone bedrocks. Only a small proportion of the tin occurs in the upper 15 to 25 metres of the deposit.

The basal beds consist of gravels and course grits while the material extending to the surface is largely composed of siliceous sand and grits intermixed with lesser quantities of clay. The average depth of the sediments along the gutters is 33 metres, and with the exception of a thin cemented zone occurring near the surface in a few places the deposit as a whole is unconsolidated.” Reference 2, p 31

A typical cross section is shown in Plate 3.

4.1.2 Resource Definition History

VDM have recently attempted to reconcile the various resource estimates that have been produced for the Scotia area during the last 50 years. The results of the reconciliation are shown in Table 4.1.
Table 4.1: Summary of Published Resource Estimates

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<td></td>
</tr>
</tbody>
</table>

Source: Reference 3

4.1.3 Comparison of Resource Estimations

In carrying out this comparison, VDM noted that:

- All the estimates are based within the 7 km channel in the Scotia Project area.
- Most estimates show an ore grade averaging around 1,300 g/BCM SnO₂.

VDM consider 4,000 tonnes SnO₂ to be a “base line” estimate, and conclude that:

- Based on its research, VDM can only account for half the difference between the Storeys Creek and Kibuka estimates and the base line estimate.
- The BMI estimate of ore volume is very similar to that of Storeys Creek and Kibuka.
- Niugini Mining estimate is 75% higher than the base line estimate. Niugini Mining used the heavily drilled Block 6 and 7 areas, (Plate 2) as being representative of the entire resource. The grade used by Niugini appears to be 1,963 g/BCM SnO₂, and a greater alluvial wash ore depth seems to have been used.
- AMDAD’s estimate is around 30% of the base line estimate, mainly due to a significantly more conservative use of drilling grade information.
- Mincom’s estimate is around 50% of the base line estimate, due to the estimate being made over a 2 km shorter channel length and a significantly shallower alluvial wash ore depth being used.
4.1.4 VDM’s Recent Resource Estimate

VDM re-estimated the resource in May 2008 as being 4,230 tonnes SnO₂. The methodology used was to section the resource area into seven blocks as shown in Plate 4 and then use the drillhole results from within each block to estimate an average alluvial wash ore depth and ore grade within that block. The results of that process are summarised in Table 4.2.

Table 4.2: VDM 2008 Scotia Resource Estimate

<table>
<thead>
<tr>
<th>Block</th>
<th>Channel Area (000m²)</th>
<th>Average Ore Depth (m)</th>
<th>Ore Volume (000m³)</th>
<th>Average Ore Grade (kg/BCM SnO₂)</th>
<th>Contained SnO₂ tonnes</th>
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<tr>
<td>1</td>
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<td>2.0</td>
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<td>TOTAL</td>
<td>630</td>
<td>5.8</td>
<td>3,638</td>
<td>1.3</td>
<td>4,221</td>
</tr>
</tbody>
</table>

Source: Reference 3

4.1.5 Proposed Resource Verification Program

It is apparent that there is considerable variation between the various resource estimations for the Scotia Project. VDM recognises that and has planned a resource verification program.

The critical issue at present is the grade and volume of the ore that is planned to be mined initially. VDM has employed the services of Lindsay Newnham, a geologist experienced in the Tasmanian tin mining industry, to advise them on its design and implementation.

Lindsay has engaged the services of a drilling company that he is familiar with and is confident of their ability to successfully carry out the proposed drilling program. The drilling technique to be used has been successfully used to drill placer gold deposits in New Zealand and so should be able to produce suitable samples for analysis in the drilling conditions expected to be encountered at Scotia.

4.1.6 Comments and Conclusions

It is apparent that there are large unreconcilable differences between the various historical and recent resource estimates, amounting to +/-70% around VDM’s base line estimate.
Alluvial ore deposits are notoriously difficult to estimate as the deposition of the material has been controlled by natural forces other than geology. In this case, all the resource estimates have the TDM data as their starting point, and the variations are due to the various interpretations placed on that data and degrees of conservatism applied to it.

VDM have gone to considerable lengths to model the paleochannel based on the drill hole data available and the result of this is shown in Plate 5. Additional drilling will more closely define the channel, particularly around the area where the operations are currently being established.

A bigger issue is the confidence in the ore grade as this is critical to the success of the project. Historically some doubts have been raised regarding the validity of the results of the TDM drilling, based around the appropriateness of the drilling techniques and the professionalism of the work done. Due to the passage of time and lack of recorded information regarding the drilling work there has been no opportunity to put those doubts to rest. There have been various attempts to verify the TDM drilling results and various opinions as to their accuracy have been recorded. Some of these are:

- “Amdex has subsequently carried out limited check drilling of holes drilled by the Mines Department and has arrived at the same conclusion as previous workers, i.e. the Mines Department drilling is reliable and able to be used in assessment of reserves” – Reference 2
- “Poorly supervised Government boring is suspect” – Reference 4
- “There appears to be no reason to doubt that the boring and sampling have been carried out in a satisfactory manner and the results obtained should be regarded as dependable. It is a matter of very considerable difficulty to accurately value alluvial ground by means of boring despite every precaution to avoid error. In such a case as that under consideration, if it were decided to take any further action, a number of check bores should be put down in order to confirm the results already obtained.” – Reference 5

More recently, on the positive side, Kangaroo Metals Ltd, at its alluvial tin mining operation to the south of the Scotia project, claims to be achieving actual grades that are twice those predicted by historical drilling in the area.

AMC also notes that VDM does not have any sizing or mineralogical information about the mineral content of the ore material that is to be mined initially. This information is necessary to confirm processing plant and tin dressing shed flowsheet design and to assist in tuning the plants for maximum mineral recovery.

Based on its review of the various documents relating to the Scotia resource, AMC makes the following comments:

- There is a high level of uncertainty regarding the overall volume and grade of the Scotia resource. Any variance may be positive or negative.
- This uncertainty will not reduce to acceptable levels for any area of the deposit until either;
  - A check drilling and sampling program has been completed, or;
The area has been mined.

- Because of this uncertainty, if AMC was reporting the resource none of it would be classified as better than Inferred according to JORC reporting standards until check drilling and sampling has been completed.
- There is little historical drilling information available in the area planned to be initially mined.
- Consequently it is, in AMC’s view, critically urgent that a high quality resource delineation drilling program be carried out as soon as possible in order to;
  - Provide adequate and reliable resource information in the immediate mining area, and;
  - Verify TMD drilling results in the area north of the immediate mining area.
  - Provide sizing and mineralogical information for the alluvial wash material to be mined.

4.2 Mining

4.2.1 Historical Mining Methods

AMC has not seen any description of the mining methods used in the early mining period. Sluicing and dredging were the main mining methods used in the surrounding district.

4.2.2 VDM Originally Proposed Mining Method

VDM originally proposed to strip overburden and mine ore using trucks and loaders. This assumed that a dry mining method would be satisfactory. The proposed method as described in Reference 6, included;

- Removal and stockpiling of topsoil using bulldozers.
- Removal and disposal of overburden material in pit using conveyors.
- Excavation and transport of alluvial wash ore material using loaders and trucks.

When overburden stripping commenced it was discovered that the water table was located close to ground surface, well above the level of the alluvial wash ore surface, indicating that most of the overburden material and the alluvial wash ore would be saturated. In addition, when test pits were sunk below the water table, groundwater flowed into the pits in significant quantities.

This indicated that the use of conveyors, loaders and trucks to move material would most likely be physically impractical and also result in significant losses of tin mineralisation, as with tin being a heavy mineral, attempting to scoop it out of a working area in a moving water environment tends to wash the mineral out of the ore and it then settles to the lowest point in the working area and may not be recovered.
4.2.3 VDM Currently Proposed Mining Method

VDM has now recognised that mining will take place in an environment where the material to be mined is likely to be saturated with groundwater, and that additional groundwater will flow into the mined excavation, perhaps in significant quantities. Their proposed mining method has been modified accordingly.

VDM describes the changes and new mining plan as follows: (Reference 7)

- The D11R dozer that was planned to be used for topsoil and near surface overburden removal has been replaced by the use of a small dozer for topsoil stripping and stockpiling, and trucks and loaders for stripping overburden that will be placed in the mined out area. Dump areas will be kept as close as possible to the mining face.
- The mobile conveyor, radial stacker and in-pit feed conveyor that were intended to be used for overburden removal will be replaced by loaders and trucks.
- Instead of using trucks and loaders to haul the alluvial wash ore from the pit the material will be fed into a skid mounted bin by an excavator. The material will be screened into the bin and then slurried and pumped from the bin to the processing plant.
- Sumps will be cut into the basement rock and water inflows will be pumped from them in order to keep the mining area floor water free. All or some of this water can be used as makeup water in the ore bin.

Diagrams of the proposed mining method are shown in Plate 6.

4.2.4 Comments and Conclusions

Based on its review of the various documents relating to the proposed mining method at Scotia and discussions with VDM personnel, AMC makes the following comments:

- AMC agrees that the originally proposed dry mining method was unlikely to be successful in the mining environment likely to be encountered at Scotia.
- AMC considers that the revised mining method, incorporating drainage sumps in the mining area floors and the pumping of alluvial wash ore from the mining area to the processing plant, is likely to be successful in handling the expected saturated material to be mined.
- Issues with the mining method may arise if excessive amounts of clay are encountered in the alluvial wash ore. This could lead to ore losses if the clay does not pass through the bin screen, and problems in slurrying the ore if it does.

In general, AMC considers that given time, mining of the alluvial wash ore at Scotia will be successful.
4.3 Processing

4.3.1 Historical Processing Methods

AMC has not seen any description of the ore processing methods used in the early mining period. Sluices and jigs are most likely to have been the processes used to recover the heavy mineral concentrates from the alluvial wash ore.

4.3.2 VDM Originally Proposed Processing and Tin Dressing Plants

The gravity based processing plant at Scotia was supplied by Goldfields Engineering in the USA. As delivered it was designed to handle dry material, with conveyors taking the alluvial wash ore to a trommel. Undersize from the trommel was pumped to the jig plant that was designed to produce tin and sapphire concentrates. These concentrates were to be taken to the tin dressing shed in Gladstone for final processing into saleable concentrates.

The plant consisted of two separate processing lines and had two backup power systems in case the grid power supply failed at any time.

Plate 7 shows the plant as it was originally erected at the project site.

When the nature of the ore became apparent to VDM it was realised that the plant was not suitable for handling saturated ore feed.

VDM also realised that the capacity and design of the tin dressing shed was seriously deficient.

4.3.3 VDM Currently Proposed Processing Plants

VDM have made modifications to the processing plant to allow it to receive slurried ore pumped from the mining area. In addition, it was realised that there were serious safety and operational deficiencies in the plant design. These have also now been rectified for one processing line. Changes that have been made include:

- Removal of conveyors and the trommel from the circuit. The pumped alluvial wash ore will now be directed through a screen with the underflow being pumped to the primary jigs.
- The construction of safe walkways around the plant so that operators can safely reach essential plant performance monitoring points.
- Rearranging the jig circuit to focus on recovery of tin mineralisation.
- Simplification of the backup power supply infrastructure.

Comparison photographs of the modified and unmodified processing lines are shown in Plate 8.

Plans are also in hand to expand the capacity of the tin dressing shed. This is important as a basic principal of any gravity based processing plant is to maximise mineral
recovery by producing a high volume low grade concentrate from the primary plant, and then to maximise mineral recovery from that in the tin dressing shed circuit.

The establishment of infrastructure to service the processing plant and mining operation in general is well advanced; with offices, plant maintenance facilities and process water storage and circuit all being in place. The layout of the processing plant site is shown diagrammatically in Plate 9 and of the operations site as a whole in Plate 10.

4.3.4 Comments and Conclusions

Based on its review of the various documents relating to the proposed processing of alluvial wash ore at Scotia and discussions with VDM personnel, AMC makes the following comments:

• AMC agrees that the original processing plant was unlikely to be successful operationally in processing saturated alluvial wash ore.

• AMC agrees that the tin dressing shed as originally proposed did not have the capacity to efficiently process the quantities of concentrates that the processing plant would be expected to produce. The result of this would have been either:
  – Lower recovery of mineralisation from the concentrate, or;
  – Stockpiles of unprocessed concentrates.

• AMC considers that the changes that have been made to the processing plant should enable it to satisfactorily handle the slurried alluvial wash feed. However, because of the lack of sizing and mineralogical information about the ore feed the plant may require an extended commissioning period before it is tuned appropriately to maximise recovery of the ore’s mineral content.

• The lack of sizing and mineralogical information could also result in issues in the tin dressing shed, which is currently being designed without any knowledge of the quantity or characteristics of the concentrate feed it will receive. Again, this may result in an extended commissioning period and possibly require some equipment changes or additions.

In general, AMC considers that given time, processing of the alluvial wash ore at Scotia will be successful.

4.4 Project Management

4.4.1 Management History

From discussions that AMC has had with the present management team it is apparent that the establishment of the project has not been as efficient as it could have been. AMC is aware that there was a complete change of management in early 2008 and that the current management team has inherited the results of some poor decision making and strategy by the previous management.

Examples of poor decision making in the past include:
• Failure to confirm the resource before committing to infrastructure expenditure.
• Commencing mining operations in an area where little information regarding the resource exists.
• Designing and sizing the processing and tin dressing plants without knowledge of the nature of the resource.
• Proposing an unsuitable mining method for the mining conditions likely to be encountered.
• Sourcing a processing plant from overseas that was impractical to operate and did not meet usual Australian safety standards.

4.4.2 Current Management

Documents such as Reference 7 indicate that the current management team recognise the issues they have inherited and are prepared to address them appropriately.

Discussions with members of the management team confirmed that view. They were quite open about the problems they face and there was no attempt to downplay the significance of them. At the time of AMC’s site visit significant progress had been made in modifying the processing plant and in arranging for more appropriate mining equipment to be used on site. Proposals had been prepared for an improved mining method and for a resource verification drilling and sampling program.

4.4.2.1 Management Structure

VDM’s proposed management structure for the Scotia Project is shown in Figure 4.1.

Not all of the positions shown in Figure 4.1 had been filled by VDM at the time of AMC’s site visit. AMC was able have discussions on site with:

- Mr Ron Goodman Operations Director
- Mr Jim Semmens Mine Manager
- Mr Adrian Medwin Security Consultant

The Scotia project was discussed by phone with Mr Lindsay Newnham, Consultant Geologist.

In VDM’s Sydney office discussions were held with:

- Mr Ken Frey Managing Director
- Mr Graeme McIntyre Exploration Manager
- Mr Bill Steinhauser Financial Controller

AMC considers this structure to be suitable for the proposed operation.
Figure 4.1: VDM's Proposed Management Structure for the Scotia Project
4.4.2.2 Management Expertise

Without exception, all the VDM staff appeared to be satisfactory for the positions they were occupying. All seemed to be keen for the Scotia Project to proceed and to be working together as a team in order to achieve that.

In general, however, there was a lack of alluvial mining, and more specifically, alluvial tin mining, expertise in the management team, and probably in the workforce on site. Alluvial mining and the efficient delineation and recovery of heavy minerals in an alluvial environment is a specialised activity and required particular expertise and experience for it to be assured of success. VDM acknowledged that and their lack of that expertise, and are taking the following steps to improve the situation:

- Consultants with the required expertise are being utilised to initially provide the expertise and over time to transfer it to the site personnel. An example of that is the use of Lindsay Newnham to provide advice on geology and resource delineation issues.
- Hiring of specialist staff. VDM have arranged for Mr Peter Campbell, who is very experienced in the design, construction and operation of alluvial tin recovery processing plants, to join their on site staff as Process Superintendent.

4.4.3 Project Strategy

VDM have a simple strategy at present, to bring the Scotia Project into operation. AMC agrees with this strategy, which should be followed without distraction.

However, there is a risk to the project's initial success in the location that has been chosen to commence mining, in that there is little information available about the resource in that location, as illustrated in Plate 5. AMC considers that it would be prudent to develop a second mining area to the north, in the area that has been comprehensively drilled, as insurance should the current mining area not produce expected quantities and grades of ore.

4.4.4 Comments and Conclusions

Based on AMC’s observations during its site visit and visit to VDM’s Sydney office and discussions with VDM personnel, AMC makes the following comments regarding the management of the Scotia Project:

- AMC considers that previous management made a number of poor decisions relating to the management and strategy of the Scotia Project.
- Current management has inherited the outcome of those decisions. They are fully aware of them and have commenced a program to overcome them.
- VDM have proposed a management structure for the Project that appears to be appropriate.
- Current management appear to be suitable for the positions they occupy, focussed on the success of the project and working together as a productive team.
However, the management team and workforce are generally lacking skills and experience in operating alluvial tin mining operations. VDM is compensating for that in the short term by utilising consultants with appropriate skills and experience and using them to guide and train their own personnel.
5 KANGAROO METALS LTD OPERATIONS

Kangaroo Metals Limited (KML) is the owner and operator of the Riverside alluvial tin at South Mount Cameron, to the south of the Scotia project. AMC visited the operation accompanied by VDM management.

KML have installed a 250m$^3$/h semi mobile processing plant using a trommel and jigs to produce a concentrate that is cleaned up at a tin dressing plant. The material being processed appeared to be near surface reworked alluvial material.

In June 2008 KML performed due diligence on the property and reported the following results:

“Bulk sampling results across the 18Ha tested show;

- Average Grade: 449 g/m$^3$ (range: 225.7-825.0 g/m$^3$)
- JORC-Compliant Indicated Resource: 240 tonnes of SnO$_2$ over 10.6Ha
- JORC-Compliant Inferred Resource: 127 tonnes of SnO$_2$ over 6.55Ha
- Uneconomic Ground: 0.85Ha

Additional test mining at the site has confirmed the average grade through processing an additional 1000m$^3$ panel, with over two tonnes of saleable concentrate already extracted during the due diligence process.

Significant investment in the region by VDM, who are reopening the Endurance and Scotia Mines to the direct north of our ground and Macquarie Harbour who are advancing land immediately east of our ground, shows the prospectivity and confidence in the region held by KML is heavily supported by other serious operators. (Reference 8)

Later in the month KML stated that “trial mining of a small area of the indicated resource has confirmed the grades found during bulk sampling

Production costs, derived from trial mining of 2,000m$^3$, are estimated at $3.34 per cubic metre (mined and processed for shipping).” (Reference 9).

KML are also investigating the possibility of selling up to 165,000m$^3$/yr of pebble by-products to the landscaping and construction industries.

KML have indicated that the grade results they have achieved through plant trials have exceeded those predicted by historical drilling, stating that “data acquired through the due diligence process at Riverside has highlighted the shortfalls in the historic drill results indicating significant underestimates of grade.” (Reference 10). KML site management claimed that the actual grades were twice those predicted by historical drilling.
6 PROJECT EXPANSION OPPORTUNITIES

6.1 Scotia Project

6.1.1 Sapphire Production

Terence Willsteed & Associates have reported the occurrence of sapphires at the Scotia and other of VDM’s project sites as follows:

“Recent research on the tin deposits at Monarch, Pioneer, Endurance, Scotia and the GNP indicates that sapphire is known to be a minor component after cassiterite in the basal zone resources and that if recovered the sapphire component will enhance the economic viability of those particular projects.

Several conclusions have been drawn as a result of those studies:

- Sapphire has a dominant blue hue and responds well to conventional heat treatment to enhance clarity and value;
- Size varies from 1mm through to pieces of more than 25mm;
- Sapphire is recoverable from the basal sections of almost all Tertiary and Quaternary alluvial deposits in the north east;
- It is unlikely that any stand alone sapphire deposits will be located, however sapphire can be economically recovered along with the cassiterite;
- Parcels of Tasmanian cut sapphire have been accepted by established sapphire marketing groups who compare their quality and colour to the best small to medium size Sri Lankan gems.” (Reference 1, p 70)

Based on this AMC concludes that sapphire production may enhance the economics of the Scotia project in the longer term, but given the complexities of the sapphire market it should not be allowed to distract from the effort to establish economic levels of tin concentrate production in the short term.

6.1.2 Gold Production

Terence Willsteed & Associates have reported the occurrence of gold in the Scotia Project area as follows:

“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.” (Reference 1, p 77).
It is unlikely that gold will be recovered in significant quantities at Scotia. However, some simple mechanisms may be able to be put in place in the processing or tin dressing plants to capture some gold at negligible cost.

6.2 Additional Projects

VDM have a number of other potential project sites in the Scotia area. In particular, the Endurance and Pioneer projects to the south of Scotia may be similar in nature to the Scotia Project, and so the lessons learned and operating techniques developed at Scotia may be able to be applied to those projects.

The project areas to the north of Scotia are likely to be of a different nature with higher volumes of lower grade material, perhaps better suited to recovery by dredging operations. In fact, dredging should not be ruled out as an opportunity to enhance the economics of some or all of the Scotia and other projects in VDM’s portfolio.

However, the first task for VDM must be to establish Scotia as an economically viable entity. That must be the immediate focus, but once that has been achieved there is no doubt that VDM has other attractive projects that should be able to be progressed in an orderly manner, based on experience gained at Scotia.
7 COMMENTS AND CONCLUSIONS

7.1 General

Based on the information that has been presented to AMC, it is considered that the project development strategy followed by the previous management of VDM’s Scotia Project was flawed in the following areas:

- The location, volume, grade and nature of the project’s estimated resource was not verified.
- The mining method selected was not appropriate for the mining conditions that could have been expected to be encountered.
- The processing plants were not physically appropriate to handle the type of ore material that could have been expected to be mined, nor had they been properly designed to efficiently extract the mineral content of the ore.

The current management is well aware of these deficiencies and is taking appropriate action to address them.

7.2 Resource

The majority of the Scotia Project resource estimation is based on drilling results from Tasmanian Mines Department drilling campaigns carried out between 1935 and 1944. These results have in some estimations been regarded as suspect (Reference 4) due to:

- Suspect drilling and sampling processes.
- Poor supervision. At least some of the programs were established to provide employment during the Depression years.
- Natural vagaries (patchiness and localisation) of alluvial ground.

Because of this, the resource estimates that have been carried out during the past 40 years have varied over a considerable range, depending on the degree of optimism or conservatism applied to the estimate. VDM’s estimates are at the upper end of the range, but it should be noted that the manager of an alluvial tin mining operation in the Gladstone area that was visited by AMC claimed that his ore grade was double that predicted by historical drilling.

It is therefore AMC’s opinion that the risk associated with the location, volume, grade and nature of the Scotia Project’s estimated resource will not be reduced to acceptable limits until drilling and bulk sampling programs have verified historical drilling results.

It should also be noted that previous management have sited the processing plant and commenced mining in an area where minimal historical resource drilling has been carried out. AMC considers that it would be prudent to develop a second mining front into an area to the north of the processing plant, where extensive historical drilling has identified significant volumes of tin bearing material.
7.3 Mining Method

Previous management proposed that a dry mining method, using mobile equipment to load ore into trucks for delivery to the processing plant be utilised. It has since been shown that the water table in at least the initial mining area is above the ore horizon. Consequently, water has flowed into trenches cut into the ore horizon.

Current management has proposed a mining method that allows for the ore to be saturated, by:

- Dewatering the mining area by sinking sumps below the ore floor level and pumping water inflows from them, and
- Delivering ore to an inpit hopper and pumping the ore to the processing plant.

AMC considers that this style of mining can be made to work in the anticipated mining conditions.

7.4 Ore Processing

Previous management imported a jig plant from the United States. It had a number of important deficiencies, including:

- Being set up to process dry ore.
- Not allowing operators easy access to critical equipment operating points.
- Not meeting acceptable safety standards.

The tin dressing shed design was not adequate to ensure efficient extraction of mineral from the jig plant product.

Current management have extensively modified the plant to enable it to process wet ore and allow operators to safely access critical operating points in the jig plant. They have redesigned the tin dressing shed to increase its processing capacity.

AMC considers that the processing plant and tin dressing shed can be made to work. However, without knowing the nature of the ore material that will be fed to it, it is possible that an extended commissioning period will be necessary, with perhaps some significant plant adjustments being required during that time, before the plants will be able to efficiently extract the mineral content from the actual mined ore feed.

7.5 Project Management

The current management team recognises the issues that it has inherited at the Project and has proposed appropriate strategies to address them.

Management also recognises that it is deficient in specialist alluvial tin mining skills and experience and is prepared to utilize the resources of specialists to initially advise them and, over time, to transfer those necessary skills to them.
7.6 Conclusion

The current project team has inherited significant problems with the development of the Scotia Project. It recognises the issues involved and has developed, with the help of appropriate specialists, suitable strategies to address them.

AMC is confident that the proposed mining method and processing plants can be made to work, although an extended commissioning period would not be unexpected.

The major risk to the project lies with the location, volume, grade and nature of the project’s estimated resource. Normally, ensuring confidence in the resource is the first priority of any project, but it is unfortunate that in the case of Scotia suspect historical resource parameters were accepted without verification and development of infrastructure was prematurely advanced based on those assumptions.

A suitable verification drilling program is now planned to commence in September, and stripping of overburden to expose the resource in the proposed mining area has been commenced.

AMC considers that risk associated with the resource will not be at an acceptable level until:

- The planned drilling program can demonstrate verification of historically reported drill results, and;
- A significant bulk sample of ore has been successfully mined and passed through the processing plant and tin dressing shed to produce an economically viable tin concentrate.

VDM is confident it can enhance the economics of the Scotia Project by recovering sapphires from processed material to supplement tin concentrate sales. It is also possible that small quantities of gold bullion can be recovered for sale.

In addition to the Scotia Project VDM also has prospective projects at Endeavour and Great Northern Plains. Experience gained by management at Scotia will be relevant to those projects and should enable them to proceed in an orderly manner.
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5. General Superintendent; Gladstone Tin, The Mount Lyell Mining & Railway Company Limited, June 1939


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8. Teale B, KML Progresses To Acquire Tasmanian Alluvial Tin Mine And Prospects, Kangaroo Metals Ltd, ASX release June 2008


APPENDIX A

P J REYNOLDS QUALIFICATIONS AND EXPERIENCE
PETER REYNOLDS
PRINCIPAL CONSULTANT
MEP, BBus, BAppSc,
MAusIMM, CIM, ASA

EXPERTISE
Peter’s primary expertise is in technical expert reporting, developing and managing feasibility studies and infrastructure projects, business improvement strategies, operations planning optimisation, change management, underground mine planning and evaluation and review of management systems and procedures. He has broad experience in most aspects of the mining industry.

SUMMARY OF EXPERIENCE
Peter commenced his mining career in 1971 at Broken Hill where he gained technical and operating experience in the underground Zinc Corporation and NBHC base metals mines over a five-year period. He then joined Aberfoyle Ltd for five years and worked at their Ardlethan open cut tin mine, Melbourne head office and Aberfoyle underground tin mine as mine superintendent.

In 1980 Peter moved to North Queensland for twelve years where experience included management of underground and open cut mines, dimension stone and aggregate quarries and alluvial gold mines. He established a consulting office for James Askew Associates Pty Ltd and managed it for five years, carrying out due diligence and feasibility work.

Peter then joined Normandy Mining Ltd for ten years. During this time he managed the Big Bell mine through its sale and subsequent expansion by developing open cuts to supplement underground production, was project director for the design and development of the Callie underground mine and managed projects to change from contractor to owner operator mining at both Pajingo and Bronzewing mines. He also worked as mining manager at the Golden Grove and Pajingo mines.

In 2002 Peter became General Manager of Marlborough Resources NL's Ardlethan alluvial tin mine and became Managing Director a year later. In April 2004 he returned to Adelaide and worked at Olympic Dam Operations as Manager of Mine Operations Planning and Business Improvement until he joined AMC in January 2006.

Since joining AMC, Peter has successfully established and grown the London office whilst managing many projects in Central Asia, Europe and Australia. In late 2007 he relocated to Adelaide, South Australia, to open an office for AMC there.

Peter holds Mine Manager’s Certificates in New South Wales, Tasmania, Queensland and Western Australia and has degrees in mining engineering and accountancy and a Masters degree in engineering practice. He is a member of the Board of Examiners for Mine Managers in South Australia.
APPENDIX B

AMC SCOPE OF WORK
SCOPE OF WORK

AMC’s understands that VDM has been working in North Eastern Tasmania on alluvial tin and sapphire deposits since June 2004 and that the project has reached precommissioning stage at the Scotia deposit. The project has been subject to delays and doubts have now arisen regarding:

- The validity of the resource estimates.
- The appropriateness of the proposed mining method.
- The ability of the processing plant to efficiently handle the ore feed.

VDM has proposed actions to address the above issues.

AMC proposes to conduct due diligence on the VDM North Eastern Tasmania operations by:

- Visiting the operations sites.
- Collecting relevant data and information during the site visit.
- Discussing issues identified during the due diligence with VDM Directors, management and site personnel wherever possible.
- Discussing issues with Trafigura personnel as appropriate.

AMC will not carry out due diligence in regard to taxation, titles nor legal matters. To the extent that these matters impact on operational and technical factors AMC will rely on information supplied by Trafigura and VDM to assess their impact.

INFORMATION TO BE SUPPLIED BY TRAFIGURA AND VDM

In order for the due diligence to be successful, AMC expects Trafigura to arrange free and unrestricted access for AMC to VDM’s operations, personnel and relevant information.
PLATES
Source: VDM

PLATE 1: VDM TENURE AND SCOTIA PROJECT LOCATION
PLATE 2: VDM SCOTIA PROJECT RESOURCE AREA
PLATE 3: TYPICAL CROSS SECTION THROUGH THE SCOTIA PALEOCHANNEL

Source: VDM
PLATE 4: VDM 2008 RESOURCE ESTIMATION BLOCKS

Source: Reference 3
Source: VDM

PLATE 5: SCOTIA PROJECT HISTORICAL DRILLING AND INTERPRETED PALEOCHANNEL
Diagrammatic Section Through Typical Mining Area

Diagrammatic Plan View of Typical Mining Area

Source: Reference 7

PLATE 6: DIAGRAMMATIC REPRESENTATION OF VDM’S PROPOSED REVISED MINING METHOD
PLATE 7: SCOTIA PROCESSING PLANT AS ORIGINALLY ERECTED

Source: VDM website
PLATE 8: COMPARISON OF THE MODIFIED AND UNMODIFIED PROCESSING PLANT LINES AT SCOTIA
PLATE 9: DIAGRAMMATIC VIEW OF THE SCOTIA PROJECT PROCESSING PLANT AREA
PLATE 10: SCOTIA PROJECT SITE LAYOUT

Source: VDM
PLATE 11: KML's RIVERSIDE ALLUVIAL TIN MINING AND PROCESSING OPERATION