

30 August 2019

## **ASX ANNOUNCEMENT**

By Electronic Lodgement

### **MORETON RESOURCES GRANITE BELT UPDATE**

Moreton Resources Limited (**ASX:MRV**) (“the Company”) would like to update the market upon the strategy for the Granite Belt Operations, which is currently fully owned and managed by our subsidiary Company in MRV Metals Pty Ltd.

As per the earlier announcement today, the Company has made the decision to cease any advancement of production at the site, whilst it works its way through the Financial Assurance matters before the Queensland Courts, in which MRV Metals Pty Ltd is challenging the determined Financial Assurance by the Department of Environment and Science. The Company is very confident in its legal advice and views upon the matter being determined in favour of MRV Metals Pty Ltd and as such, the Company continues to work toward a production date for the commencement of mining operations in the first month of 2020. We will use the next 4 months for planning and development of the longer term site execution plan.

The Company sees this as a significant milestone, subject to the successful hearings and timely determination of the final Financial Assurance matters before the Department of Environment and Science. For further information on this matter we refer you to today’s earlier announcement on market.

The overall strategy, which will be released in a PowerPoint presentation later today or at the latest prior to trade Monday, is outlined as follows:

#### **Preparation for commencement of Mining**

The Company subject to resolution prior to Christmas of the FA matters, will now commence to engage with and seek to award mining contracts, including drill and blast for the Granite Belt Operations. The Company has in the last 2 years undertaken an additional review of the Mine plan and JORC and has identified an additional increase in the overall recoverable Silver Resources, which has been subject to prior released.

Based upon the successful commissioning, advancement to this point and proof of concept of the site, albeit in the limited footprint constrained by our ability to operate, the Company pending resolution of the Financial Assurance issue, is ready to commence mining operations and move forward into full scale production on site. This also assumes a considerable amount of the FA will be returned to MRV Metals Pty Ltd, as not only has the Company been limited in its ability to operate on site, the Department has also had significant capital locked in bonds, which should have been used by the Company for site advancement to date.

#### **Refurbishment of Processing**

The Company will now within the area of footprint covered by our current plan of operations, seek to commence refurbishment of the plant and equipment ready for full scale production in first quarter 2020, following mining commencing earlier January 2020. This will include a total overhaul of all power generation systems, processing of Silver and review of our off-site transport and refining services and the way in which we operate to maximise the returns to MRV Metals in which is a bullish silver market.

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## Exploration Advancement

As per our announcement earlier today, Exploration of considerable high value targets was outlined in early 2018, which came to a halt due to a Financial Assurance decision early in 2018 by the Department of Environment and Science. Whilst the Company currently is forced to cease production advancement, prior to taking the next significant step in entering mining and production at the site, it will focus now until December 2019, on the follow up of five locations, totalling between 10-15 holes. This will determine prospectivity of key Gold, Zinc, Silver and Copper prospects, to which the Company has awaited full scale production to follow up. This forced delay in the next phase of the operations, will allow the Company now to undertake this drilling, with the results from each location being released between commencement of the program and Christmas this year subject to funding of this program, to which we refer to this morning announcement.

Based upon historic results in the area, to which the Company cannot release due to JORC code requirements, the Company believes each location has high prospectivity however this will be confirmed by drilling each location, which as outlined will be targeting high grade Silver intercepts, Gold, Zinc and Copper.

To assist the market understand the prospectivity of the Granite Belt operations, we have attached the 2017 re-start strategy to allow the market to understand the advancement and factor in the considerable constraints that have been before the Company. What is evident however, is the considerable upside that is presented at the Granite Belt, and pending the successful completion of the current Court action, we expect to move into a highly profitable phase of mining, as over the last 12 months, we have been fortunate enough to enjoy a **43% increase** in the AUD value of Silver sales from the 1 year low of AUD\$19.31 to highs of AUD\$27.50.



Please see attached re-start strategy from 2017 which references and relies upon a number of inter-related releases, and whilst several advancements have been made in the Company's thinking and advancement plans such as potentially in pit crushing, it shows the robust nature of the project ahead. The prior release did not have the over all financials as at that time the mining lease, environmental authority and several other factors had not been released. All of these matters have now been over come and the attached plan, with minor alterations and no material issue, is seen as a viable and achievable 3-8 year outcome for the Granite Belt, with the additional consideration of if the Company should look toward a polymetallic operation, pending upcoming drill results.

- END -

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**MRV Metals Pty Ltd**  
**Granite Belt Project Re-start Strategy**



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# CONTENTS

1.	Introduction .....	3
2.	Project Overview .....	6
3.	Operational Overview .....	11
3.1	Health, Safety, Environmental and Risk Management .....	12
4.	Analysis on Failed Prior Operations and Proven Technology .....	13
5.	Feed Stock, Inventories, resources and exploration targets .....	16
5.1	Production Ponds .....	16
5.2	Heap Leach Pads .....	21
5.3	Former Twin Hills Resources .....	23
5.4	Mt Gunyan Resources .....	24
5.5	Horent Prospect .....	25
5.6	Harrier Prospect .....	25
5.7	Hawker Prospect .....	25
6.	Mining .....	26
7.	Crushing and Screening .....	30
8.	Heap Leach Operations .....	34
9.	Product Refinement .....	40
10.	Environmental & Social Considerations .....	42
10.1	Implementation and Operational Management Systems .....	42
10.2	Environmental Authority Permit .....	43
10.3	Cyanide Management .....	44
11.	Financials of the Project .....	45
12.	Financing of the Project .....	49
13.	Silver Upside Potential .....	51
14.	Copper and Other Potential Mineralisation .....	53
14.1	Horent Prospect .....	53
14.2	Harrier Propsect .....	53
14.3	Hawker Propsect .....	53
15.	Key Risks .....	54
16.	Material Assumptions .....	57

## 1. INTRODUCTION

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MRV Metals Pty Ltd (“MRV Metals”), a fully owned subsidiary of Moreton Resources Limited (“Moreton” or “the Company”), proposes to develop the Granite Belt polymetallic project (“the Project”), near the township of Texas in southern Queensland, as a mining operation potentially comprising of three to five open pit mines feeding an existing central processing facility that consists of crushing, screening, stacking, treatment (Heap Leach) and refinement infrastructure.

The overall strategy is to reverse the traditional mining and processing regime with MRV Metals having the opportunity to begin with the already impregnated silver enriched processing ponds, then working back to in-situ metal inventories within existing heap leaches, followed by crushing of Silver enriched ore stockpiles on the ROM pad, then seeking to mine the former Twin Hills open cut mine, with multiple benches pre-drilled ready for blast and continued operations. This is the first four years of operation coupled with years 5 to 8 which will include the development of the Mt Gunyan resources to round out this initial base case Re-start Strategy at 8 years for approx. 8.5 Million ounces of Silver at C1 cash costs of approx. **AUD\$12.50 average** an ounce.

This opportunity avoids the overlay of significant exploration costs, development costs and mining costs for the first two years, and in years 3 to 8, there is still no exploration and identification expenses required to execute this strategy. This leaves the **first two years of operations with expected profits of approx. AUD \$32,000,000** and the **first two year C1 costs sub AUD\$10.50 per ounce**. However significant investment will be made into further refinement of multiple advanced Copper Explorations Targets, potential Copper refinement options and significant Silver, Copper, Gold, Lead and Zinc targets scattered throughout the approx. 180sqkm of granted Exploration Leases currently called the Granite Belt Exploration Project, 100% held by MRV Metals.

The Granite Belt Mining Lease Application, MLA 100106, has been made in support of the Project under section 234(1)(a) of the Mineral Resources Act 1989 (Qld). The Mining Lease is required for the multiple open pits envisaged within the mining precinct. The MLA has been formulated with close consideration given to the historic mining activity that has taken place in the area and associated environmental issues that require addressing. In order to reduce the Project’s environmental footprint and capital requirements, MRV Metals has adopted a hub-and-spoke concept that will optimise three to five mineral resources within the lease with processing through the centrally located crushing and treatment area. In addition to this, MRV Metals also has several other advanced exploration targets ranging from 1km to 4km from this proposed Mining Lease, all under current tenure.

Key to the overall focus of the 20-year MLA currently being assessed are the following Silver, Gold and Copper resources and targets, all of which are within the MLA boundary and once approved will have fully permitted mining rights, subject to environmental considerations:

- Twin Hills Mine - supported by JORC 2012 resource (*ASX release 19 September 2016*)
- Twin Hills Mine potential extensions - supported by advanced exploration targets
- Mt Gunyan Deposit – supported by JORC 2012 resource (*ASX release 5 October 2016*)
- Mt Gunyan North - potential extension supported by advanced exploration targets
- Harrier - an advanced exploration target (*ASX release 18 July 2016*)
- Apache - possible extension of Harrier which is currently a target

In addition to the resources and targets listed above, a number of other advanced Copper exploration targets have been identified within 1km to 4km of the MLA 100106 boundary on tenements held by MRV Metals:

- Hornet (*ASX release 19 July 2016*)
- Hornet North - believed to be a possible extension to Hornet
- Hawker (*ASX release 18 July 2016*)

This eight year base case Re-start Strategy focuses on the existing open cut mine at Twin Hills and development of Mt Gunyan only. There is upside in the bulk of the existing opportunities for advancement and potential development as listed above. The aim of the base case is to re-start the asset with an initial focus on becoming cashflow positive, which should subsequently allow MRV Metals to develop additional deposits without requiring substantial capital from external sources and engage in a significant review of the processing plant with a view to maximising recoveries. This would in turn reduce overall production costs and allow for the development of a sustainable polymetallic mining operation.

The Granite Belt Project area is located approx 300km from central Brisbane and approx. 7km from the township of Texas (Figure 1), in a rural agriculture area of southern Queensland. The community in the Texas region is highly supportive of the co-existence of mining and agriculture, and specifically supportive of the activities Moreton Resources and MRV Metals have undertaken with respect to restarting mineral production at Twin Hills. This is evident by no objections being lodged through the due process of Mining Lease notification or Environmental Approvals notification, and the significant day to day interaction MRV Metals has in the region.

As significant metal-bearing material remains in place on the Twin Hills heap leach dumps, MRV Metals envisages restarting operation of the already enriched processing ponds and heap leach stocks which will ensure the first 12-18 months of production. In addition to this, whilst commissioning the crushing and screening circuits approx. 0.47Mt of low grade ore will be used as commissioning feedstock, which was stacked on the ROM pad, whilst the former operator pursued only high grade material prior to cessation of the operations.

Traditional mining and processing will commence late in year 2 to 7 tailing off with treatment only for year 8, within this base case Re-start Strategy. Upside potential may result from:

- Superior processing and treatment options (studies currently being undertaken)
- Exploitation of multiple additional resources (studies currently being undertaken)
- Extraction of multi-commodity prospects, including copper specifically (studies currently being undertaken)

These options for improving the value of the Project will be explored thoroughly as the ramp-up to resumption of operations and processing progresses, dependent on final regulatory approvals.

Based on the two JORC resources released to the ASX for the Twin Hills Mine (19 September 2016) and the Mt Gunyan Deposit (5 October 2016), it is believed the Project can support at least 11 years of potential mining operations at a cutoff grade of 26.5g/t Ag.



Figure 1: Project Locality in Southern Darling Downs

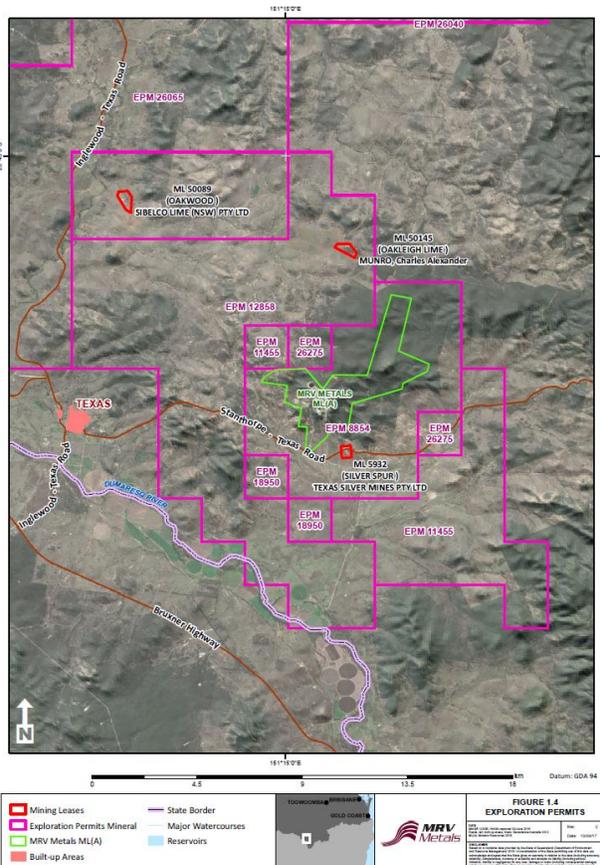


Figure 2: Project Locality of MLA and EPM's



Figure 3: Project Locality in Australia

## 2. PROJECT OVERVIEW

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There are two significant potential advancement opportunities proposed by MRV Metals. The first is the application for the Granite Belt Project under MLA 100106, the subject of this Re-start Strategy, and the second is the Granite Belt Exploration Project, which comprises multiple Minerals Exploration Permits spanning approximately 180sqkm of land that includes the highly prospective MLA and the surrounding area. The Granite Belt Exploration Project is seen as secondary to the initial Re-start Strategy.

The Granite Belt Project consists of a mining precinct which contains multiple potential resources covering a range of metals from Copper, Silver, Lead, Zinc and Gold, and a central processing facility that currently has in-situ crushing, screening, stacking, treatment and refining facilities which are currently subject to final negotiations pertaining to acquisition. The intent is to develop the central processing facility utilising the extensive exploration and development activities already proven, and bring those potential resources into the hub, whereby processing will be undertaken. Should sufficient Copper or alternate metals warrant an upgrade in processing to a polymetallic operation, this existing area is considered suitable for additional infrastructure upon the current footprint. It is expected the crushing and screening plant will process 1-1.5Mt of ore per year, being fed from multiple open cut pits.

The mining precinct contains JORC 2012 compliant Silver and Gold resources contained within the Twin Hills mine; JORC 2012 compliant Silver and Gold resources in the Mt Gunyan area; and the advanced exploration target of Harrier, which is prospective for high grade copper and silver. Equally Mt Gunyan North and Apache offer future potential resource extensions at depth and beyond current strike length modelling of the Mt Gunyan resource and the Harrier exploration target. Given the diverse nature of this area, this mining precinct has been significantly de-risked by the multiple commodities, resources and potential resources.

The central processing facility and existing open pit are located approx. 7km from the township of Texas and sit within the area of EPM 8854 (Figure 2). If the MLA is approved, MRV Metals would commit substantial capital to develop the Project which would provide opportunities for employment, flow-on benefits for local businesses and contribute to government revenues. There are four distinct phases in the ramp-up and optimisation of the Project, being:

- Treatment and remediation in years 1 to 2;
- Reinstatement of mining operations in year 2 and onwards;
- Development of known resources in year 5 and onwards; and
- Exploration and development of smaller satellite resources throughout the development Phases beginning in year 1 for resource definition drilling.

Site environmental and containment considerations are another key aspect of this Re-start Strategy with a focus on lowering MRV Metals' environmental impact, ensuring progressive rehabilitation is undertaken and mitigating current concerns and issues. MRV Metals will focus on improving water balance management and addressing water quality concerns with consideration to how the site is operated.

The Project comprises a central processing area surrounded by five opportunities within the current MLA, however, only Twin Hills and Mt Gunyan resources are included in the base case.



Figure 4: Aerial photo of the Granite Belt Project depicting the layout and infrastructure

Project feasibility studies have been undertaken in parallel with its Environmental Management Plan with forward-looking statements benefiting from considerable historic studies, prior operations and reviews undertaken by multiple parties including former operators, government and consultants. Given the wealth of data including geological, engineering, infrastructure and production inputs there has been very little estimation of unknowns in the development of the base case Re-start Strategy.

If approved, the base case Re-start Strategy will deliver the following;

- Approximately **90,000oz of Silver per month** for the first eight years of operations (including Gold equivalents);
- A total forecast C1 cash cost of **approx. AUD\$12.50/oz**;
- A total forecast all-in cash cost C3 **sub AUD\$14.00/oz**;
- Low capex re-start being sub AUD\$12 million (inclusive of \$5 million in Financial Assurance);
- Expected **profits in the first eight years of AUD\$101.3 million**;
- Initial Rate of Return of less than 6 months on out-laid capital;
- **Total Rate of Return** for eight-year base case over **1800%**
- Employment for 40-60 people during full-scale operations;
- **AUD\$9 million** allocated to **exploration and alternate mineral recovery studies**;

## 2.2 Key Considerations and Risks

MRV Metals believes that each of the required permits and approvals is on track to be received by mid-June 2017, which would allow for potential Ministerial Grant of ML 100106. MRV Metals is not aware of any reasons why these would not be approved, however it must be noted that this is a project risk. A summary of the status of key permits and approvals is listed below

**Figure 5: Permitting and Approvals Status**

Required Permit	Progress	Expected Close Out
MLA 100106 - Restricted Land consents - Compensation Agreements - Objection Period - Grant	All private land holders achieved All private land holders achieved Closed with no objections 80% Complete	Achieved Achieved Achieved TBA
Environmental Authority	Final Draft Issued (20 day statutory period for MRV Metals to object) Grant Date	10 April 2017 12 May 2017
Financial Assurance	Draft Plan of Ops Lodged Final FA to be assessed once MLA is granted	Late May 2017 Possibly June 2017
Native Title	Closed with no registered claimants	Achieved
Cultural Heritage Management Plan	Prior agreements in place and Duty of Care approach to be followed for new disturbance.	N/A
Reserve Land and Government Area Consents	All Local and State Government interested parties working through in a highly collaborative manner.	June 2017

Full consideration has been given to Social, Environmental and Governmental approval processes as they pertain to permitting and required agreements. MRV Metals is satisfied that these factors are within the current framework of compliance and regulatory approvals, including a strong community and social support base, for the Project.

**The information in this Re-Start Strategy is Subject to**

Successful Ministerial Grant of MLA 100106

Successful Acquisition or Compensation Arrangements for the former mining land and access including equipment

Successful Project Funding

**Forward Looking Statements**

The Board of Moreton Resources Limited, being the ASX Listed parent Company of MRV Metals Pty Ltd is fully aware of its obligations pertaining to forward looking statements concerning production, profit and loss, commodities outlook and other factors, to which it is obligated to ensure there are reasonable grounds for such statements. The Board of Moreton Resources Limited endorses this document and its full contents, with the understanding that all statements, forecasts and considerations are fully justifiable, reasonable and of a sound basis to which it is updating and notifying the market of material events and issues, that will have a significant and material effect upon the Companies outlook, subject to the above issues of successful grant of MLA100106, Land Access and Project Funding.

**Study Reliance**

This definitive study has been undertaken by MRV Metals Pty Ltd with the intent of informing the Board of Moreton Resources Limited fully, prior to a final investment decision. It is a highly advanced technical and economic study of the potential viability of the Granite Belt Project within the order of magnitude of 0-10%, based upon the Company being in possession of all actual historic costs for this site and sought independent quotes for contracted service on current market rates and hence the Company has taken the view that this report represents a bankable feasibility study. It is based upon a high level of technical and economic assessment that is sufficient to support estimation of ore reserves, however all ore within this document is referred to as resources and none is declared as reserves. This is a Re-start of a former mine and all resources have previously been reported by prior operators as reserves and the Company see no portability in the expense and time to bring such resources to reserves, as such the Company reissued its resource statements that underpin this document in 2016 and 2017. However as stated all have been reported multiple times by prior operators as reserves and resources since late 2006, however investors should consider this when reviewing this document and ensure any reliance is upon the categories stated within the base case Re-start which rely upon inferred, indicated and measured resources. There will be no further studies or investigative work undertaken prior to an investment decision by the Board of Moreton Resources Limited, which in turn would enable MRV Metals Pty Ltd to advance this asset to production.

Both the Mt Gunyan and former Twin Hills JORC Reports, have relied upon this same mining fleet with a AUD \$25 cut off pit shell, derived upon a 26.5g/t lower cut off grade for pit design and validation work in JORC estimation for economic ore extraction. Of the stated resources in this report the following are the production forecasts derived from the relevant resources statements listed in Section 5 of this report –

Measured Resources from Twin Hills and Mt Gunyan totaling 1,800,000t are fully depleted within the mining schedule and this makes up approx. 30% of the 5.25 year mining production plan. In addition to this, Indicated Resources from Twin Hills and Mt Gunyan JORC's totaling approx. 4,100,000t will be mined and these represent approx. 45% of the total insitu Indicated Resources as stated within those JORC compliant resources as defined by Appendix 5A (JORC Code) and this represents approx. 70% of the production mining schedule for this Re-Start Plan.

There are nil inferred or exploration targets that are utilized within this mining production forecast for the purposes of production or forward looking financials. Of the approx. 12.05Mt represented within those two JORC resources, less than 50% is depleted in this base case restart plan, which based upon indicated resources alone, allows considerable upside.

However it is important to note, that the production target does rely upon the insitu heap leaching circuit which is at the back end of the treatment area. This ore has been reviewed through an extremely rigorous and detailed reconciliation of all ore sitting within the heap leaches ready for treatment that is derived from hole by hole assays in pit, through to assay results from crushing and screening prior to stacking. In saying this, this production area which represents approx. 10% of total Silver production, due to ASX requirements of them having to be JORC Compliant, they have been declared as inferred resources so that this information could be contained within these reports and as such, it is important to note the following as approx. 1.94Mt of ore is classes as Inferred under requirements of Appendix 5A (JORC Code) and as such –

“There is a low level of geological confidence associated with inferred mineral resources and there is no certainty that further exploration work will result in the determination of indicated mineral resources or that the production target itself will be realized.”

Ironically whilst we sort to inform the market of this material metal inventory, and having the ASX state it must be JORC'd and refusing to release until we completed the JORC process, we therefore have to state the above. Of course in practice, not only is it not a production target, it has already been mined, crushed, screened and stacked and is currently sitting within heap leaching inventories in the back end of the treatment area on the site and is well beyond any of the estimation processes used within the JORC process.

All material assumptions on production targets within this report that include but are not limited to mining resources, have been prepared by the relevant Competent Person, named in each of the relevant accompanying JORC announcements that underpin this production forecast and have been prepared by a Competent Person as defined by the requirements in Appendix 5A (JORC Code). A summary of those defined resources within the approved format and meeting the requirements of Appendix 5A (JORC Code) are summarized in section 5 of this Report, titled Resources, Feedstock, Inventories and Exploration Targets and the Company can confirm it is not aware of any material changes or issues that would affect or alter the former release to which this report and these production targets rely upon.

All resources relied upon and material assumptions are contained within this document, and have been collated in accordance with the JORC Code and as such the Company relies upon the JORC releases and Competent person statements from those initial releases, as referred to throughout this document.

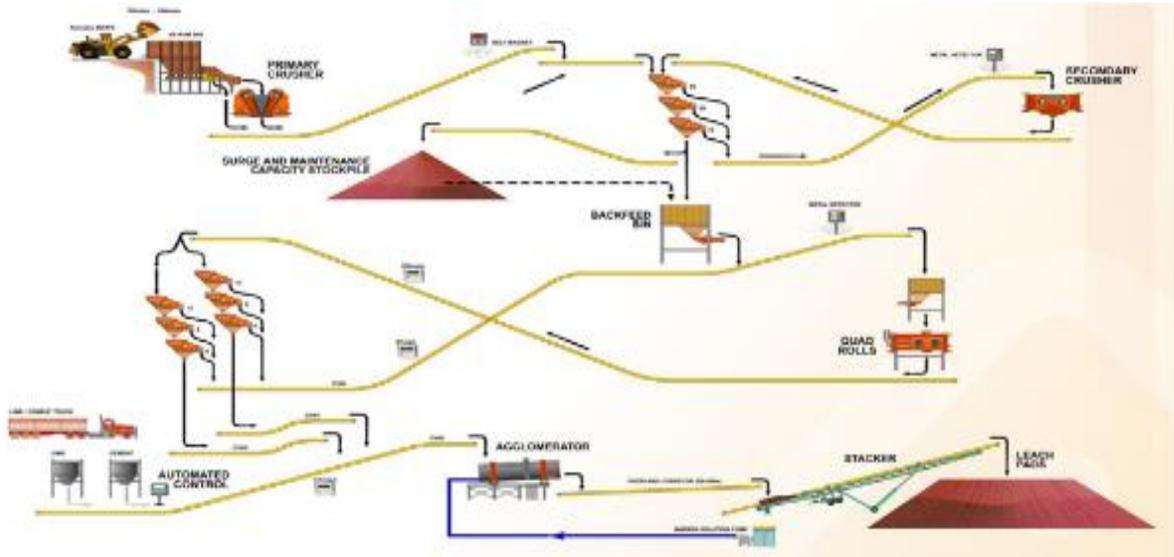
It is also noted that this study is subject to financing and whilst the Company has the view that the position is likely to be funded, there is no guarantee that this will be the case and investors should be cognizant of this. The study does address this aspect for investor consideration. This funding may take the form of a debt facility through to an equity option, which could dilute the shares in Moreton Resources Limited however this is yet to be determined but investors should consider the implications of a dilutive equity financing deal.

Time frames from the granting of the Mining Lease, with the assumption of financing, is mobilization within weeks and production of Silver within the first three months of ML grant and access.

### 3. OPERATIONAL OVERVIEW

The following overview highlights the first eight years of intended operation making up MRV Metals' base case Re-start Strategy which has been significantly de-risked based on known historic operations, achievements and impacts that have been carefully considered and incorporated. There are 10 years of public records and considerable former operator data that have helped MRV Metals to identify the operational areas in need of attention and highlight the likely and proven historic recoveries and achievements across the site.

Whilst significant learning and opportunities for improvement exist, proven traditional mining and processing methods have been adopted. However, by reviewing former operating data it is evident the majority of issues and concerns experienced by previous operators, were in the areas of mining and crushing. Alcyone Resources, as the former operator, identified the need for a more robust and modern mining fleet, along with better strategies around drilling and blasting, plus crushing and screening outcomes.



**Figure 6: Schematic process flow sheet of the Mining, Crushing and Stacking Process**

Figure 6 outlines the process flow of the Mined ore being crushed and sized through to the heaping of the ore product prior to leaching. It is a simple process and to minimise risk for this Re-start Strategy, contractor pricing has been used for forecasting purposes for the mining, mobile crushing and screening. MRV Metals believes further significant savings can be realized by undertaking both mining and crushing and screening as an owner-operator.

Crushing is not required as part of the re-start until late in year 1, while actual mining will not begin until well into year 2. This should lower the restart risk, as final quotes can be sourced from contractors after operations have recommenced. Depending on which option is selected, the contractor and/or owner-operator fleet can then be mobilised to site throughout year 1 of operation. This will allow for a steady, stable and considered re-start that is not mining or crushing-dependent. A "soft start" strategy for both mining and crushing is envisaged, which will allow for 3-6 months of optimisation.

In the first 12 months of operation, the heap leach treatment area at Twin Hills will be the key focus. Within 6-8 weeks of gaining access to site, MRV Metals expects to begin refining of the highly enriched Silver production ponds. As noted in an ASX announcement released on 3 April 2017, substantial amounts of Silver and other metals sit within the processing ponds in the Project area. MRV Metals intends to undertake a re-commissioning of the Merrill Crowe system, which in turn will allow for immediate Silver production whilst environmental remediation and heap leach set-up occurs.

Based on data collected when the former Twin Hills was an operating mine, the heap leach stacks have performed in the range of 55-60% recoveries, taking into account the actual production time of each heap and operational impacts such as leaching and stacking rotations. In preparing its base case scenario, MRV Metals has applied a conservative 58% recovery factor, which is explained and justified in the *Heap Leach Operations* section of this document. MRV Metals intends to operate the Twin Hills heap leach dumps differently to prior owners, however, the basic concept and process will remain the same as heap leaching operations are not complex and the technology is widely and effectively used in mineral processing operations around the world.

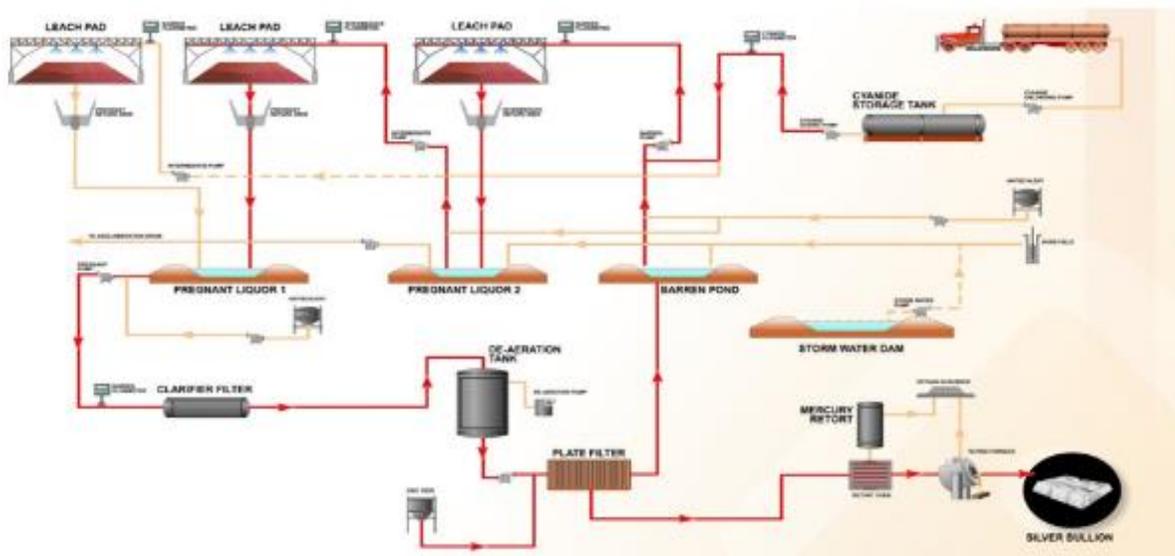


Figure 7: Schematic flow sheet of the Leach Pads, Pregnant & Barren Ponds and Recovery Process

### 3.1 Health, Safety, Environmental and Risk Management

Health, safety, environmental and risk management will be undertaken in accordance with MRV Metals' WHS Policy, Site Risk Register and Significant Risk Standards, which are aligned with relevant legislation. Safe Work Method Statements will be prepared to meet legislative requirements and document controls will be taken from the Significant Risk Standards. Principal Hazard Management Plans / Safe Operating Procedures will be used as the basis for the re-start. JSEAs and Personal Risk Assessments will be used to document the control of risks prior to the undertaking of any task.

Safe operation of the site will be a basic principle followed by MRV Metals as a subsidiary of the Moreton Resources Limited Group of Companies.

## 4. ANALYSIS ON FAILED PRIOR OPERATIONS AND PROVEN TECHNOLOGY

MRV Metals has undertaken significant analysis of the actions of former owners of the Twin Hills Mine, Alcyone Resources and MacMin Limited, to gain a comprehensive understanding of where previous operations failed to establish a profitable mining operation and ensure the development of a more robust and sustainable plan for the Project

The Company's investigations found that several key issues affected the former operators' performance. They were:

- Crushing plant availability and utilisation
- Sub optimal Mining contract and re-occurring drill and blast issues
- Unanticipated heavy rains that affected the stacking strategy for the heaps

Data gathered from ASX releases suggests the heap leach operations undertaken by Alcyone and MacMin actually outperformed the heap leaching curve used for forward planning and financial modelling, whilst under normal leaching cycles. However, production was affected by other problems as the graphs below detail.

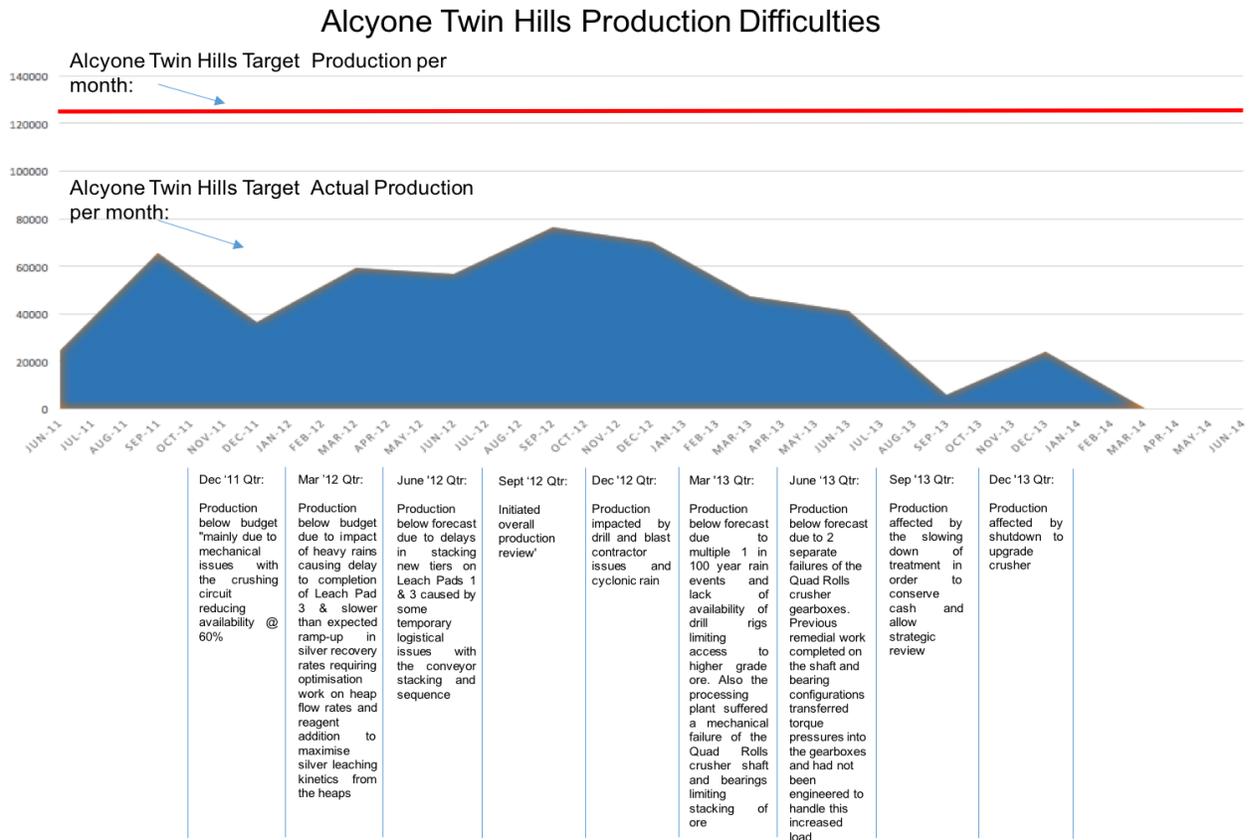
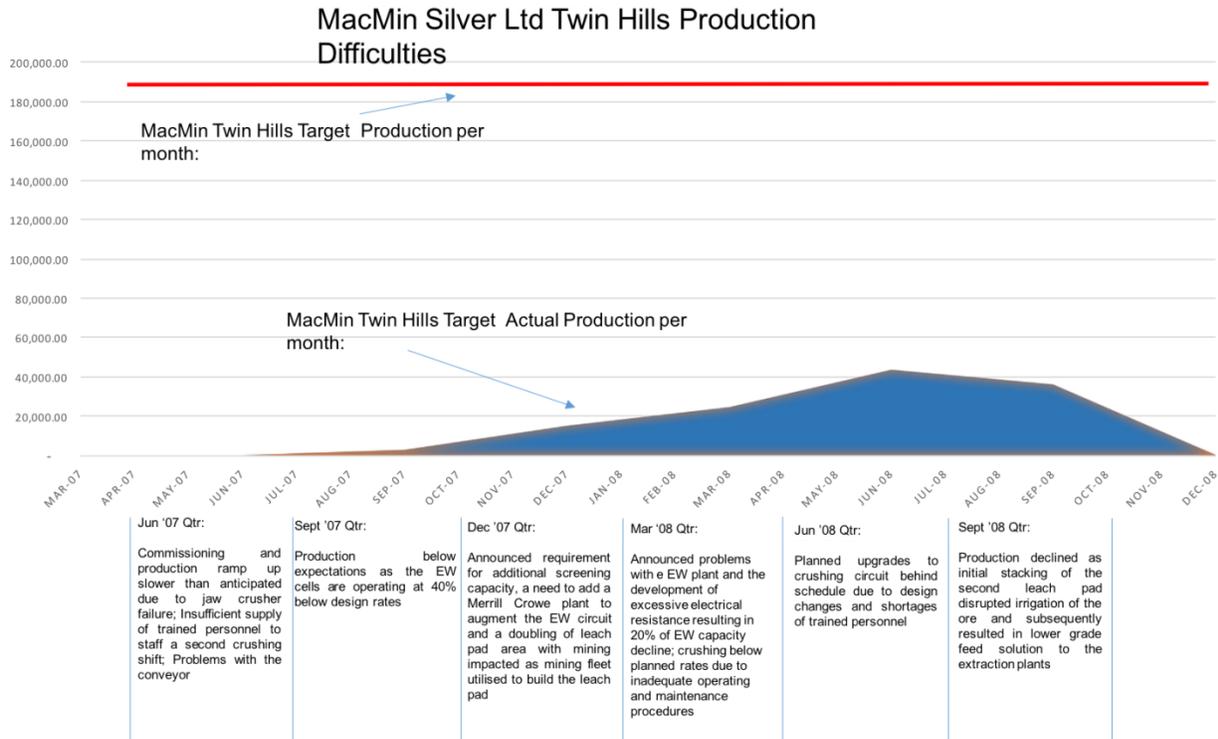


Figure 8: Summary of the Alcyone Twin Hills Production Difficulties



**Figure 9: Summary of the MacMin Twin Hills Production Difficulties**

This analysis clearly demonstrates that mining activities (drill and blast, excavation, haulage and waste rock management) as well as crushing accounted for 80% of the issues affecting overall operational performance – and, as a result, cash generation – at the site. Another important observation is the operation of the heap leaches by Alcyone and MacMin was constantly interrupted due to a lack of cyanide or because irrigation ceased while stacking was taking place. For much of the period while Alcyone operated the site, at least half of heap leach pad 4, which currently contains the highest grade materials, was not in production due to the process of stacking and placement of irrigation channels and systems.

To cater for this, MRV Metals’ financial and operational modeling considers that each heap and section of a heap acts independently. Whilst stacking is taking place, total recoveries cease and do not resume until the pad is properly under irrigation again (usually a time delay of one month).

The crushing throughput and production targets set by MRV Metals are well below those of the former operators. The Company firmly believes steady production of 90,000oz of Silver per month (including Gold equivalents) is achievable based on historic trends at a recovery rate of approx. 58%, which is the basis for all MRV Metals’ forward looking forecasts. Testwork completed by MRV Metals suggests there is the opportunity to improve recoveries by 2-8% through refining operating parameters for the heap leaching process. MRV Metals will seek to avoid interruption of the heap leaching process for at least 12 months and preferably 18 months. However, availability of stacking area and equipment will dictate this in some areas.

Issues such as slower than anticipated ramp-up of mining and consistent failure of crushing and ore placement equipment were a feature of publicly reported information by Alcyone, the most recent former operator, and avoiding these has been a focus in developing this Re-start Strategy.

The first year of production at the Project, as envisaged by MRV Metals, will not require any mining and only limited crushing late in year 1, but primarily in year 2 when processing moves to deplete the existing ore stockpile. This will significantly reduce pressure on these areas until they have been appropriately commissioned and shown to be operating as expected. MRV Metals has sought to engineer sufficient redundancy into its systems so that any unexpected issues can be handled without a material impact on production.

In conducting its due diligence on the Twin Hills asset in 2015, Moreton engaged international metallurgical expert, Mr Guy Butcher who has provided technical advice for some of the largest and most complex heap leaching operations in the world. By attending the site, he assessed the issues raised and identified by Moreton and provided a detailed evaluation, substantial portions of which have been incorporated into this Re-start Strategy.

It is the view of MRV Metals that heap leaching is not overly complex in nature. The following article published by Mining.com provides a good overview of recent advancements in heap leaching and the widespread use of the technology, including by many of the world's biggest mining companies.

<http://www.mining.com/heap-leach-minings-breakthrough-technology>

**Extract only**

**Trends in Heap Leaching**

Due to abovementioned economic benefits, the number of HL operations has experienced an impressive and sustained growth over the last decades, with precious metal operations benefitting the most from the technology.

The recent commodity market downturn has spurred further commissioning of new HL projects throughout the world (Figure 3).

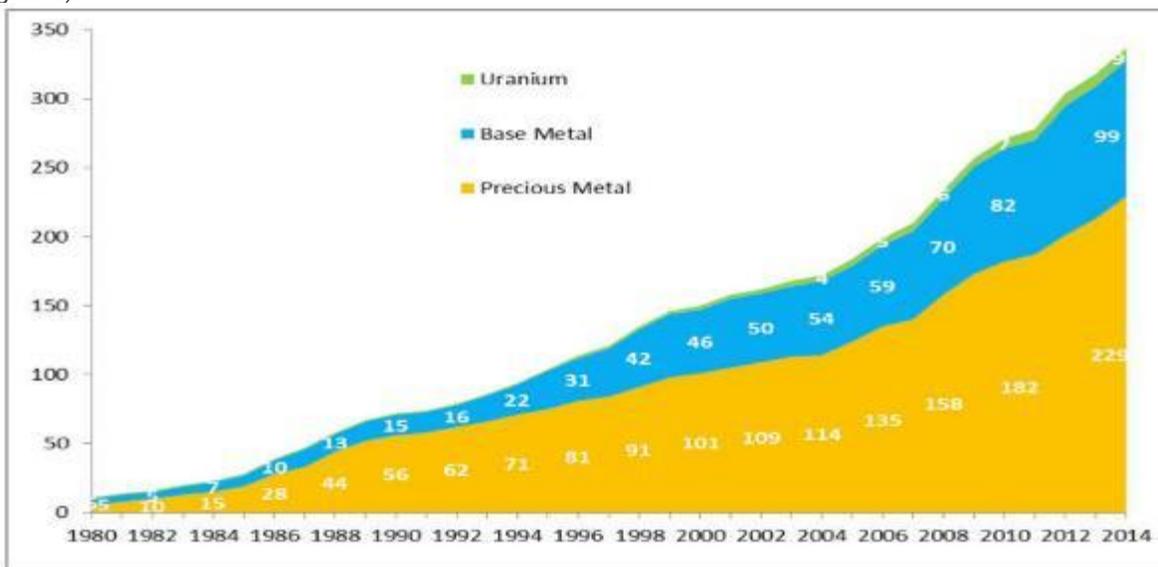


Figure 3. Start-up of currently operating major Heap Leach mines, # mines. Source: [IntelligenceMine](http://IntelligenceMine.com).

HL operations are located in wide variety of geographical conditions, and succeed in all types of climate, from the Arctic Circle to the Tropics.

According to the [IntelligenceMine](http://IntelligenceMine.com)'s database, there are 235 active major HL operations worldwide, as well as 39 projects in development and 133 in evaluation phases (Figure 4).

## 5. RESOURCES, FEEDSTOCK, INVENTORIES AND EXPLORATION TARGETS

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This Re-start Strategy focuses on two of the potential multiple deposits at the Granite Belt Project, which is expected to support mining for 5.25 years at a rate of approx. 1.1Mt of ore per year. The initial deposit has already been partially mined and the existing pit has open benches pre-drilled ready for clean-up and blasting. It also relies upon significant silver enriched processing ponds, heap leaches and feed stock inventories that are ready for processing.

The following resources and potential resources have been included in the overall MLA or have potential to provide ore to the centralised process area, from off lease:

- **Former Twin Hills** Open Pit Mine (Resources – Reserve)
- **Mt Gunyan** Resources (Resources)
- **Harrier** Prospect (Advanced Explorations Target which is a potential resource target)
- Mt Gunyan North as a Target
- **Apache** as a Target
- North Strike zone of Twin Hills as a Target
- **Hawker** (Off Lease) (Early Stage Explorations Target which is a potential resource target)
- **Hornet** Prospect (Off Lease)(Advanced Explorations Target which is a potential resource target)
- **Hornet** North (Off Lease) as a Target

It is important to note that all the above areas excluding Hawker, Hornet and Hornet North are within the boundaries of MLA 100106 (ref Maps Page 5) and upon grant, will be fully permitted under the Mineral Resources Act for development, with advancement only requiring further environmental consideration and approvals. The identified targets of Hawker, Hornet and Hornet North are located within MRV Metals surrounding exploration tenements.

### 5.1 PRODUCTION PONDS

Through its due diligence activities and further investigation, MRV Metals has determined that significant quantities of Silver and other metals are likely to be recoverable from the leachate ponds at Twin Hills. This represents a near-term opportunity for Moreton to generate cashflow. (For further information refer to ASX announcement released 3 April 2017 “*Production Pond Assays Return High Silver Grade*”). The below extract outlines a compelling initial re-start opportunity for MRV Metals from the ponds. The next phase from production ponds is the refining and pouring of Silver, however, final consideration on separation and treatment must be undertaken. MRV Metals has taken a view that the silver in-situ, having already been extracted through the heap leaching process, will likely be 90% recoverable from the production ponds. Alternatively, there is the option to sell the content of the ponds as a concentrate product to a third party.

It is important to note these inventories are in-situ liquids and sludge that are well advanced in the production process and therefore are not quantified as a JORC compliant resources, but are genuine processing inventories that are ready for imminent extraction and sale.

### Extract only

ALS Global therefore attended the site and undertook a water sampling program which entailed 18 main samples and a 90 sub-sample set from an approximate depth of 1 metre. Sludge / slime ("**sediment**") from the bottom of the ponds was sampled and delivered 22 samples. The sampling technique enabled material to be sampled along a 13m reach from the water edge of sample position (see photo for sample positions). Prior testing by Moreton Resources Limited staff returned extremely high results. Therefore, the Company sought to verify these outcomes by utilising the appropriately accredited and competent persons, being ALS Global.

Testing was undertaken by attending the site, and undertaking a boundary approach of the processing ponds which in general are approximately 3m deep, and hold 7920m<sup>3</sup> (59.9 x 23.7m), 5536m<sup>3</sup> (47.0 x 22.0m) and 7668m<sup>3</sup> (54.5 x 23.1m) for the Pregnant, Intermediate and Barren Ponds respectively. Samples were taken at the midpoint of the long sides and at the corners of each pond, which gave approximately 6 sediment samples and 6 main water samples (and 30 sub-samples) per pond. The sample sizes of the sediment were varied between 10 to 15l, from which two homogenised and settled 500ml samples were taken. It was expected that the upper body of water would be barren due to the flocculant agents utilised in separating the metals from the water, in an effort to pump clean water off site, whilst the operations were abandoned.

Furthermore, to support this study, a Bathymetric survey was undertaken to model the layers of metal enriched sediment in each pond for quantification purposes of a potential re-start of the site (subject to Government approvals) which may lend to immediate processing or the sale of a once off bulk product of sludge and slime, to which the Company has been working with a Global third party upon the potential sales and marketing of, to a third-party buyer.

In support of the re-start operations, Moreton Resources Limited in early 2015 also undertook approximately 130 auger samples of the in-situ heap leaches which allowed the Company to make an informed bid upon the former assets prior to liquidation, these results are also key to current considerations, and will be released soon. These results in early 2015, currently in 2017, and further results from late 2016 by the Company, are all key inputs, into the finalisation of the Re-start Strategy due to be released by the Company in the coming weeks.

Please see the Processing Ponds Assay Results below as an indication of the potential mineralisation **that has already been extracted by the leaching process** and is awaiting some form of processing to extract a final product.



**Figure 1:** Photo-plan depicting the position of the Pregnant (far left), Intermediate (middle) and Barren (far right) Ponds respectively. Green broken lines depict the sampling traces (approximately 13 long, along the base of the ponds); the coloured spots indicate the sample reference. Scale: 1: 25.

**Note:** Numbers on Figure 1 serve as reference to assay information in Tables 1 to 3.

Based on the assays of the sediment sampling undertaken at the Twin Hills Mine, Figures 4a and 4b depict an average resident Ag grade in the Pregnant, Intermediate and Barren Ponds of 129 g/t, 521 g/t and 537 g/t respectively. Copper displays average values of 0.29%, 0.12% and 0.31% in the Pregnant, Intermediate and Barren Ponds respectively.

Figure 4a: Twin Hills Ponds: Cu Content (g/t)

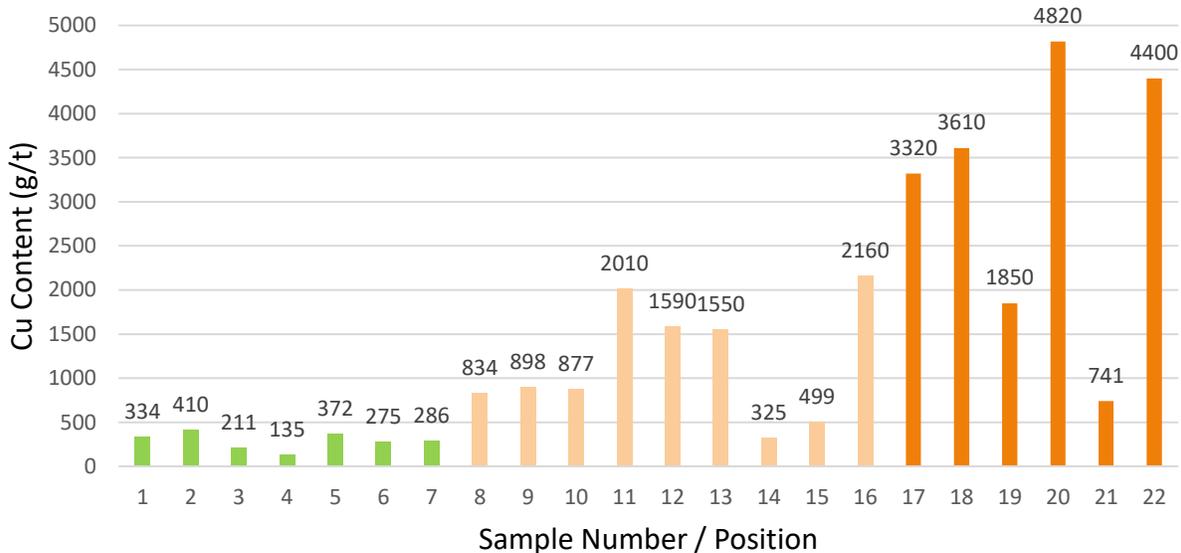
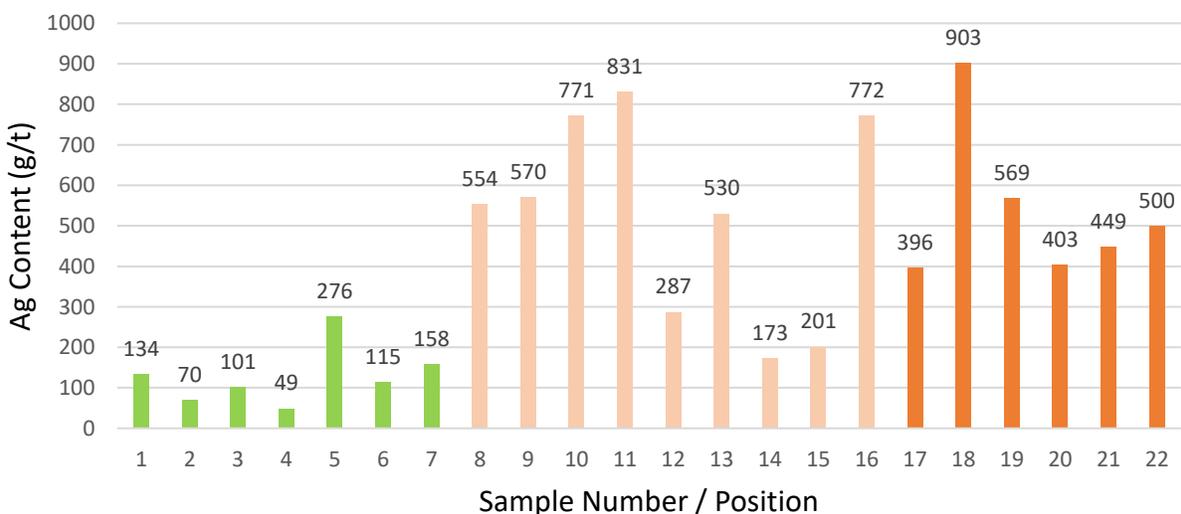


Figure 4b: Twin Hills Ponds: Ag Content (g/t)



Figures 4a and 4b: Graphic display of the Cu and Ag content in the Pregnant Pond (green: samples 1 to 7), Intermediate Pond (Light brown: samples 8 to 16) and Barren Pond (Dark orange: samples 17 to 22). Sample numbers correspond with Figure 1 and Tables 1 to 3.

**Tables 1 to 3:** A summary of analytical data of samples taken of the sediment from the Pregnant, Intermediate and Barren Ponds. The sediment samples were oven dried at 60 °C for 4 hours and homogenized. A subsample (0.2 to 1.0 g) was lixiviated in a microwave digestion system with HNO<sub>3</sub>: HCl (3:9 v:v) following USEPA method 3051 (USEPA, 1997). The extracted solutions diluted to 50 ml with Milli-Q de-ionized water, and the contents of the flasks were transferred to 125 mL high-density polyethylene sample bottles for storage. Metal concentrations in uncontaminated seawater, field blanks, and laboratory blanks were always at or below the respective method detection limits (MDL), and the validity of the analytical procedure was assessed as described before. Trace metal analysis was carried out by ICP-AES following USEPA method 6010C (USEPA, 2007a). The sediment samples were processed in batches, each with a set of QC samples that included a procedural blank, laboratory control sample, matrix spike sample, and sample duplicate.

Element	Unit	1	2	3	4	5	6	7
		SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
		PD-W-001/A	PD-SWW-001/A	PD-SE-001/A	PD-S-001/A	PD-E-001/A	PD-NE-001/A	PD-N-001/A
Aluminium	mg/kg	8730	11600	7970	7250	8220	9400	6310
Cobalt	mg/kg	31	21	21	8	23	22	15
Iron	mg/kg	122000	46100	83700	80600	73800	88000	123000
Manganese	mg/kg	260	176	185	134	157	342	190
Selenium	mg/kg	8	7	6	6	9	7	6
Silver	mg/kg	134	70	101	49	276	115	158
Arsenic	mg/kg	1530	909	1800	1130	1550	1610	3400
Cadmium	mg/kg	2	2	1	1	1	2	2
Chromium	mg/kg	58	27	34	32	35	41	41
Copper	mg/kg	334	410	211	135	372	275	286
Lead	mg/kg	399	213	404	333	389	382	307
Nickel	mg/kg	20	25	17	11	17	20	14
Zinc	mg/kg	541	812	396	325	342	947	492

**Table 1:** Metal analysis of seven (7) sediment samples taken from the Pregnant Pond, Twin Hills Mine.

For personal use only

Element	Unit	8	9	10	11	12	13	14	15	16
		SEDIMENT ID-N-001/A	SEDIMENT ID-W-001/A	SEDIMENT ID-S-001/A	SEDIMENT ID-SSW-001/A	SEDIMENT ID-SE-001A	SEDIMENT ID-E-001/A	SEDIMENT ID-NEE-001/A	SEDIMENT ID-NE-001/A	SEDIMENT ID-SW-001/A
Aluminum	mg/kg	13400	16200	32200	41600	59800	32400	7770	12300	29900
Cobalt	mg/kg	50	40	60	72	112	74	26	39	76
Iron	mg/kg	172000	98700	73200	97700	99600	106000	76200	98600	63300
Manganese	mg/kg	462	322	612	812	858	633	226	304	529
Selenium	mg/kg	20	20	18	24	22	17	9	17	47
Silver	mg/kg	554	570	771	831	287	530	173	201	772
Arsenic	mg/kg	11900	4580	2190	2690	3630	4080	3170	3710	2210
Cadmium	mg/kg	3	2	2	3	3	3	1	2	2
Chromium	mg/kg	55	54	61	86	90	70	39	55	51
Copper	mg/kg	834	898	877	2010	1590	1550	325	499	2160
Lead	mg/kg	282	491	147	222	157	346	451	506	247
Nickel	mg/kg	43	30	65	106	88	72	21	28	56
Zinc	mg/kg	1940	1110	4880	7210	6610	4220	881	1010	2170

**Table 2: Metal analysis of nine (9) sediment samples taken from the Intermediate Pond, Twin Hills Mine.**

Element	Unit	17	18	19	20	21	22
		SEDIMENT BD-S-001/A	SEDIMENT BD-E-001/A	SEDIMENT BD-N-001/A	SEDIMENT BD-W-001/A	SEDIMENT BD-SW-001A	SEDIMENT BD-NE-001/A
Aluminum	mg/kg	13400	36400	15300	12900	6580	18200
Cobalt	mg/kg	22	29	39	25	26	28
Iron	mg/kg	199000	104000	156000	132000	189000	173000
Manganese	mg/kg	280	1280	1440	312	272	345
Selenium	mg/kg	33	27	37	31	24	25
Silver	mg/kg	369	903	569	403	449	500
Arsenic	mg/kg	6240	5540	6080	4970	8300	7100
Cadmium	mg/kg	3	5	4	2	3	3
Chromium	mg/kg	77	52	67	72	67	100
Copper	mg/kg	3320	3610	1850	4820	741	4400
Lead	mg/kg	614	82	130	128	174	152
Nickel	mg/kg	46	59	72	35	25	54
Zinc	mg/kg	1160	3540	6290	1060	655	1470

**Table 3: Metal analysis of six (6) sediment samples taken from the Barren Pond, Twin Hills Mine.**

## 5.2 HEAP LEACH PADS

(ASX Release MRV METALS Re-release of Heap Leach stock Piles Data – 21/04/2017 EXCERPTS)

21 April 2017

### ASX ANNOUNCEMENT

By Electronic Lodgment

#### MRV METALS PTY LTD RE-RELEASE OF HEAP LEACH STOCK PILES DATA

- ❖ Assays results released from heap leach auger sampling program at the Granite Belt Project
- ❖ Results confirm leach pads contain an Inferred Mineral Resource of 1.94Mt of crushed **ore averaging a grade of 38.0g/t silver for 2.37Moz of contained silver**
- ❖ **Reprocessing of heaps will be low cost**, only requiring minor rehandling to promote cyanide leachate process
- ❖ **Expected release of restart strategy within the next week**

Moreton Resources Limited (ASX:MRV) ("Moreton", "the Company") is pleased to announce the above results from Assay's and reconciliation data regarding the Granite Belt Project, which has formed the basis of an Inferred Resource as defined by the JORC Code (2012).

Figure 1: Aerial photo showing the locality of the Heap Leach ponds and the surrounding Heap Leach dumps 1 to 4.



Figure 2: Schematic display of the Heap Leach dump sampling program and sampling locality descriptions.

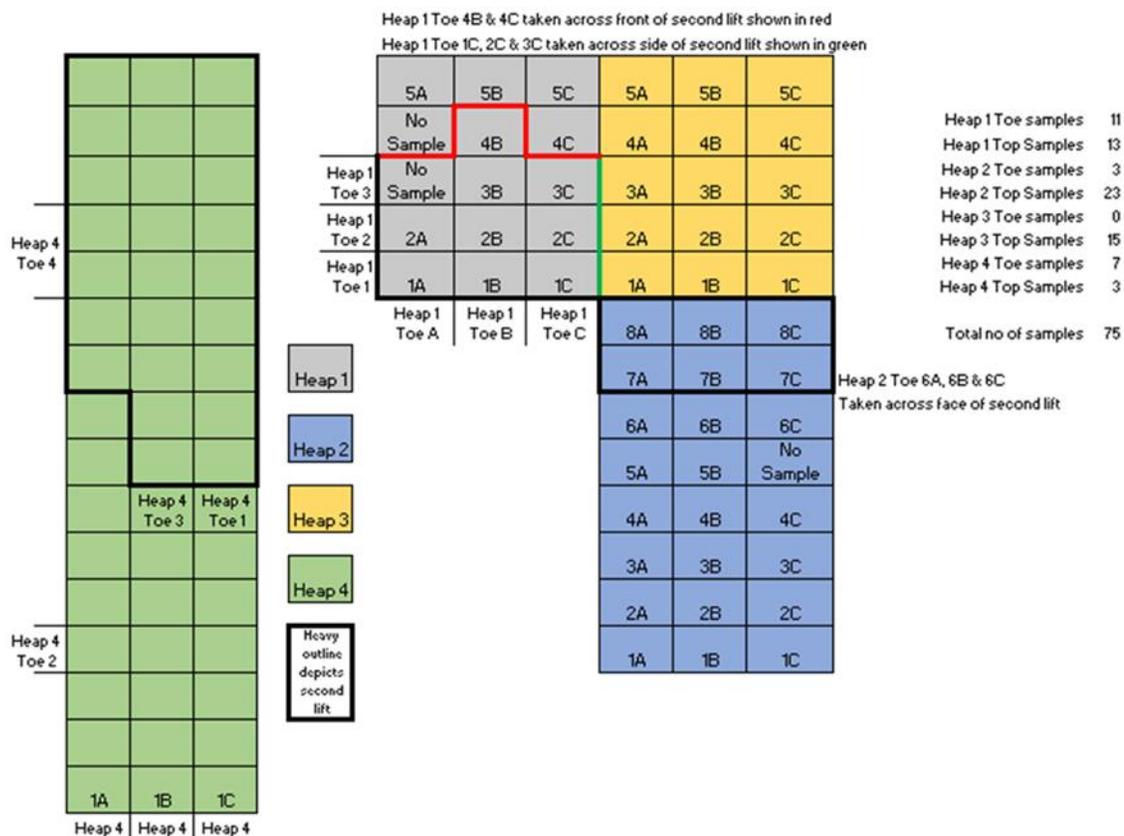


Table 3: Summary of Crushed Material on the Twin Hills Heap Leach Pads 1 to 4

HEAP LEECH PAD	Indicated Mineral Resource			Inferred Mineral Resource			Total Leach Heap Resource		
	t	Ag (g/t)	Ag (oz)	t	Ag (g/t)	Ag (oz)	Mt	Ag (g/t)	Ag (oz)
1				668,000	38.7	831,161	668,000	38.7	831,161
2				371,309	26.3	313,971	371,309	26.3	313,971
3				335,114	29.1	313,533	335,114	29.0	313,533
4				569,782	50.0	915,956	569,782	50.0	915,956
Heap leach / Feed				1,944,205	38.0	2,374,621	1,944,205	38.0	2,374,621

- 1 The Mineral Resources in Table 3 imply that they are economically viability. The estimate of mineral resources as part of an operational extraction process is not deemed to be affected by environmental, permitting, legal, title, taxation, socio-political, marketing or other relevant issues.
- 2 The quantity and grade of reported resources in this estimation are uncertain to the degree that there has been insufficient exploration (i.e. depth of drilling) to verify Alcyone results to define these inferred resources as a Measured Resource.
- 3 Technical and economic studies have shown that economic extraction is justified under realistic conditions.
- 4 Totals in the Table 3 may not sum due to rounding.

### 5.3 FORMER TWIN HILLS RESOURCES

(ASX Release MRV Metals confirms significant resources in Twin Hills Mine 19/09/2016)

19 September 2016

#### ASX ANNOUNCEMENT

By Electronic Lodgment

#### **MRV METALS PTY LTD CONFIRMS SIGNIFICANT RESOURCES IN TWIN HILLS MINE**

*It is with great pleasure the board of Moreton Resources Limited announces its "Maiden JORC" for the Twin Hills Deposit which is a significant anchor Asset to the Granite Belt Project as previously announced to the ASX.*

*The following are the high level Resource Estimates as provided by Datageo Geological Consultants, whom are our authorised Competent Person for the Twin Hills Asset. The Company is extremely pleased about this validation work and the fact that the former Twin Hills Mines Site contains a significant estimated resource of Silver (Ag) and minor Gold (Au) traces within this cornerstone asset for our advancement plans.*

<b>Twin Hills in situ Mineral Resource above 26.5g/t Ag remaining at end of Feb 2014</b>			
<b>Class</b>	<b>Tonnes</b>	<b>Ag g/t</b>	<b>Au g/t</b>
<b>Measured</b>	1,640,000	75.8	0.10
<b>Indicated</b>	5,586,000	44.1	0.08
<b>Inferred</b>	1,147,000	48.8	0.06
<b>TOTAL</b>	<b>8,373,000</b>	<b>51.0</b>	<b>0.08</b>

*DataGeo whose Principal was the Geology Manager for the former owner and operator of the Twin Hills Mine and estimated the Twin Hills Mineral Resource model, upon which this announcement is based, reviewed the model and depleted it as best as possible for recent production. The resource is reported in the vicinity of ultimate pit design and to the south of the pit, within 100m of the surface.*

*In addition to the releases to the market in July, whereby significant Copper/Silver Exploration Targets in Harrier, Hornet and Hawker were identified, the Company is also currently finalising its review of the Mt Gunyan Resource and we are seeking to release a JORC estimate in the coming weeks. Of interest with this Asset is not only the potential for a significant additional Silver Resource but also we believe it to be highly prospective for a potential Gold Resource. Work is ongoing and as stated, a release to market is expected in the coming weeks.*

*Following this, the Company will be in a position to release the full strategy to the market which makes up the Granite Belt Project. As the market is aware the Company is currently working its way through Mining and Environmental Approvals within the relevant Government Departments. We will certainly update the market upon the progress of these applications as they continue to follow the due process and as outlined, we will put a complete and total picture to the market in the coming weeks of the "Granite Belt Mining Precinct" which is the subject of such approvals.*

*Whilst the former owners of the Assets had released some of this information, and whilst the Company does believe it is material and significant for release, the ASX believes the historical information should be released as if it was being released for the first time, despite it already being within the market and in our view already meeting ASX compliance guidelines. This has caused significant delay upon our ability to keep the market informed, however as outlined we are looking forward to updating the market upon the total potential opportunity this exciting project holds.*

*In addition to this, as per our prior releases to the market, upon the 29<sup>th</sup> of August 2016 the Department of Natural Resources and Mines, confirmed in writing that "on termination of the former mining lease, the land within its external boundaries became part of the EPM 8854 area." That is the Department has now confirmed MRV Metals view, that the prior mining areas in-situ metal assets have, by default of the underlying tenure, fallen to MRV Metals by way of ownership of EPM 8854.*

## 5.4 MT GUNYAN RESOURCES

(ASX Release – MRV METALS PTY LTD CONFIRMS JORC RESOURCE MT GUNYAN 05/10/2016)

04 October 2016

### ASX ANNOUNCEMENT

By Electronic Lodgment

#### **MRV METALS PTY LTD CONFIRMS JORC RESOURCE – MT GUNYAN**

It is with great pleasure the board of Moreton Resources Limited announces it's "Maiden JORC" for the Mt Gunyan Deposit which is a significant prospect, that will support the proposed "Granite Belt Project" as a second phase development opportunity, behind the already announced Twin Hills Mine, to which the Company released its JORC on the 19<sup>th</sup> of September 2016.

This latest advancement, now brings to the potential project precinct, to 2 standalone JORC resources and 3 Advanced Exploration Targets that have all now been announced to market in the last 3 months. (Hawker Advanced Exploration Target is off the Granite Belt Project ML application area, but with potential to be serviced by centralised processing should a minable resources be proven).

These announcements have now culminated in validating the extensive potential of this proposed project as a Silver, Copper, Gold and potentially other base metal resource. To this end, the companies Environmental Approvals are well advanced and working through the due process, and the Mining Licence application as lodged in late July 2016, continues also to work its way through the due process. The Company is expecting to release a project over view to the market, outlining the Granite Belt Projects' potential in the next several days.

Specifically however in regard to the Mt Gunyan Silver, Gold Resource the following are the high level Resource Estimates as provided by Datageo Geological Consultants, whom are our authorised Competent Person for the Mt Gunyan Asset. The Company is extremely pleased about this validation work and the fact that the resource contains an estimated resource of Silver (Ag) and minor Gold (Au), although there has been some significant high grade Gold intercepts that will require follow up in our advancement plans.

<b>Mt Gunyan Mineral Resource above 26.5g/t Ag</b>			
<b>Class</b>	<b>Tonnes</b>	<b>Ag g/t</b>	<b>Au g/t</b>
<b>Measured</b>	160,000	61.0	0.11
<b>Indicated</b>	3,130,000	56.1	0.06
<b>Inferred</b>	399,000	44.7	0.03
<b>TOTAL</b>	<b>3,689,000</b>	<b>55.1</b>	<b>0.06</b>

"The material reported in the table is all material above an RL of 440m at a cut-off to provide an in-situ grade of 55g/t Ag. The RL chosen is the minimum elevation (less 10m) which was indicated in open cut optimization studies conducted by the previous owner on the very similar 2012 model."

Technical Information relating to the Mt Gunyan Mineral Resource Estimate, taken from DataGeo's Report, is included with this announcement.

Datageo Geological Consultants Principal, was the Geology Manager for the former owner and operator of the Twin Hills Mine and estimated the Mt Gunyan Mineral Resource model, upon which this announcement is based.

In addition to the releases to the market in July, whereby significant Copper/Silver Exploration Targets in Harrier, Hornet and Hawker were identified, the Company is also currently finalising its total project over view for release to the market. What has been identified at this stage is that there are significant targets throughout the entire approx. 150sqkm of tenements holding which highlight the potential for Silver, Copper, Zinc, Lead and Gold, which have all been identified through soil sampling and other techniques.

## 5.5 HORENT PROSPECT

(ASX Release – MRV Metals confirms Significant Target at Hornet 19/07/2016)

*The Exploration Target at Hornet is in the range 500,000 to 1,500,000t at 1-2% Copper. The potential quantity and grade of the Hornet Exploration Target is conceptual in nature, as there has been insufficient exploration to estimate a Mineral Resource. It is uncertain if further exploration will result in the estimation of a Mineral Resource. This is the third identified Copper Target for MRV Metals within the Granite Belt mining precinct and will potential complement the project's existing JORC 2012 silver resources.*

### **Previous Exploration and Mining Activity**

*Details of past production history are limited, however, it is reported that between 1906 and 1907, 22t of ore grading 22% Copper were produced.*

*In 1966 Minad reported the occurrence as a 'line of collapsed shafts surrounded by dumps of limonitic gossan, dark coloured cleaved slate and a slag heap representing some 5,000t of smelted ore. There are no outcrops near the mine but to the north and south there are patches of gossanous siliceous ironstone which presumably mark a line of fracturing and mineralisation.' Minad noted that to the east of the mine significant amounts of copper, lead and zinc ore minerals were observed on the dumps of two shallow shafts - Egglestons Prospect (Falcon).*

*Longreach surveyed a grid over the area in 1970 and carried out geological mapping and geochemical soil sampling. No geochemical anomaly was found to be associated with the mine, although a number of Pb-Zn geochemical anomalies were located to the east of the mine.*

*In 1970, a Queensland Department of Mines drilling program was carried out on behalf of Tooliambi Mines Pty Ltd. Three diamond holes were drilled to a total depth of 185m to investigate the potential of the lode beneath the old workings and locate parallel lodes. Minor copper mineralisation was found to occur as joint and fissure fillings up to 0.25m in width in a mudstone-siltstone sequence. The drilling did not intersect any significant mineralisation.*

## 5.6 HARRIER PROSPECT

(ASX Release – MRV Metals confirms Harrier Prospect potential 18/07/2016)

*The Exploration Target at Harrier is in the range of 500,000 to 1,500,000t at 1.5% to 2.5% Copper, and 80 g/t to 120 g/t Silver. The potential quantity and grade of the Harrier Exploration Target is conceptual in nature, as there has been insufficient exploration to estimate a Mineral Resource. It is uncertain if further exploration will result in the estimation of a Mineral Resource.*

*Refer to attachment 008- 2016 Measured Group JORC estimate for Exploration Target with resource potential*

## 5.7 HAWKER PROSPECT

(ASX Release – Hawker Prospect 18/07/2016)

*The Exploration Target at Hawker is in the range of 100,000 to 500,000t at 1.0-1.5% copper and 30g/t to 60g/t silver. The potential quantity and grade of the Hawker Exploration Target is conceptual in nature, as there has been insufficient exploration to estimate a Mineral Resource.*

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**Moreton Resources refers to the relevant ASX announcements for the prior inclusion and reference to Resources and Exploration Targets where relevant. The Company relies on the relevant Competent Persons sign off in the form and intent to which each of those announcements were written and the Company is not aware of any material change, issues or considerations, that would indicate these statements should not be relied on.**

## 6. MINING

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For the purposes of the base case Re-start Strategy, initial mining of high grade material (averaging 83 g/t Silver) has been planned at a total volume of 2.3Mt for an initial 2.25 years, with the addition of mining an amount of lower grade material (averaging 31g/t Silver) at a volume of 0.43Mt per within the same period. In doing this, total material movement will equate to 7.3Mt for the period, with a higher strip ratio in the first year to realign the mine to an overall pit strategy delivering a constant 90,000t per month to the crushing facility. Total strip ratio for the base case Life-of-Mine (including low grade ore) at the former Twin Hills is 1:1.7, then moving to the development of Mt Gunyan.

This is a continuation of the last mining strategy put forward by Alcyone which has a complete block model, fully reconciled pit grades, tonnes and production outcomes up to the last week of operation. The current open cut pit has three benches exposed with full drill and blast patterns ready for clean out, charge and detonation.

The incumbent mining plan relies on three Cat 777 dump trucks, a 150t series excavator, a 15kl water cart, a 12M or 14M grader and several ancillary support vehicles. All fuels, spares, consumables, manning, mobilisation, demob and infrastructure requirements have been fully factored into the budgetary process and MRV Metals is confident that in the current market, these rates are reflective of actual operating costs for contracted services and mining outcomes.

Both the Mt Gunyan and former Twin Hills JORC Reports, have relied upon this same mining fleet with a AUD \$25 cut off pit shell, derived upon a 26.5g/t lower cut off grade for pit design and validation work in JORC estimation for economic ore extraction.

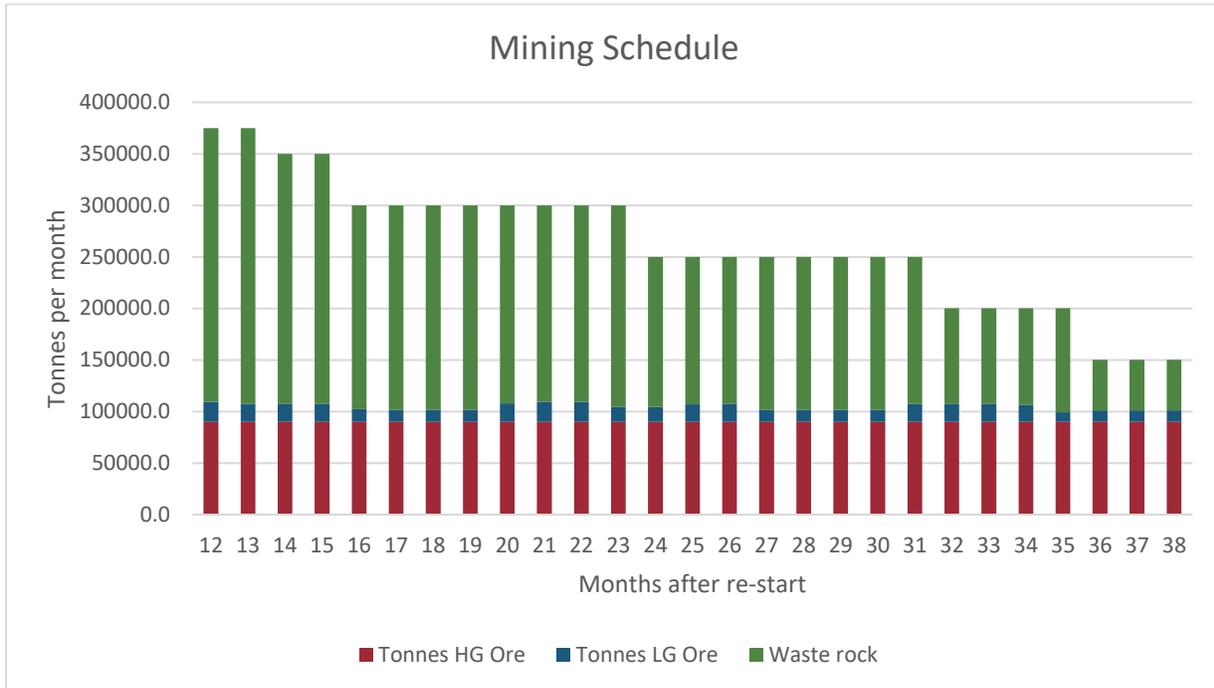
Of the stated resources in this report the following are the production forecasts derived from the relevant resources statements listed in Section 5 of this report –

**Measured Resources** from Twin Hills and Mt Gunyan totaling 1,800,000t are fully depleted within the mining schedule and this makes up approx. 30% of the 5.25 year mining production plan.

**Indicated Resources** from Twin Hills and Mt Gunyan JORC's totaling approx. 4,100,000t will be mined and these represent approx. 45% of the total insitu Indicated Resources as stated within those JORC compliant resources as defined by Appendix 5A (JORC Code) and this represents approx. 70% of the production mining schedule for this Re-Start Plan.

There are **nil inferred or exploration targets** that are utilized within this mining production forecast for the purposes of production or forward looking financials. Of the approx. 12.05Mt represented within those two JORC resources, less than 50% is depleted in this base case restart plan, which based upon indicated resources alone, allows considerable upside.

## Mining Production Profile of the former Twin Hills (Year 2 onwards)



## Mining Schedule for year 2 of operations, estimated Jan-Dec 2018

2018	January	February	March	April	May	June	July	August	September	October	November	December	Total
Grade	68.3	70.4	70.4	70.4	72.0	72.2	72.2	72.2	81.6	83.2	83.2	83.2	74.9
Tonnes HG Ore	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	1,080,000
Tonnes LG Ore	19,274	17,490	17,490	17,490	12,400	11,565	11,565	11,565	17,789	19,379	19,379	14,534	189,919
Waste rock	265,726	267,510	242,510	242,510	197,600	198,435	198,435	198,435	192,211	190,621	190,621	195,466	2,580,081
Strip Ratio	3.4	3.5	3.3	3.3	2.9	3.0	3.0	3.0	2.8	2.7	2.7	2.9	3.0

## Mining Schedule Year 3

2019	January	February	March	April	May	June	July	August	September	October	November	December	Total
Grade	83.2	82.6	82.5	82.5	82.5	82.5	82.5	81.5	81.2	81.2	84.1	90.6	83.1
Tonnes HG Ore	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	1,080,000
Tonnes LG Ore	14,534	16,990	17,385	11,590	11,590	11,590	11,590	17,192	17,132	17,132	16,162	9,179	172,068
Waste rock	145,466	143,010	142,615	148,410	148,410	148,410	148,410	142,808	92,868	92,868	93,838	100,821	1,547,932
Strip Ratio	2.4	2.3	2.3	2.5	2.5	2.5	2.5	2.3	1.9	1.9	1.9	2.0	2.2

## Mining Schedule Year 4

2020	January	February	March	Total
Grade	89.8	84.1	110.4	94.8
Tonnes HG Ore	90,000	90,000	90,000	270,000
Tonnes LG Ore	11,100	11,100	11,100	33,300
Waste rock	48,900	48,900	48,900	146,700
Strip Ratio	1.5	1.5	1.5	1.5

Following on from this, Mt Gunyan will be developed from month 44 and will operate to month 84 of the total planned base case Re-start Strategy. An operation of approx. 3Mt @ 51g/t, utilising a cutoff grade of 26.5 g/t is envisaged. The overall strip ratio for Mt Gunyan is approx. 1.8:1 however the total round trip for haulage increases to approx. 8km round trip.

Mt Gunyan will contribute approx. 2.7-2.8M oz of Silver given the lower operating grade to Twin Hills but is expected to perform equivalent in recoveries and for mining purposes and total cut off, a sales price of AUD\$25 has been used as the optimal pit, however further investigations into a potential Gold resource and other mineralisation has the potential to significantly change the operating parameters and outlook of MT Gunyan and again this should only be considered as a base case scenario, with mid to high level confidence.

Full block models and mining methods have been developed on the Mt Gunyan resource and the base case planning is considered with internal reports obtained by MRV Metals that were generated on 8<sup>th</sup> June 2012, that support this base case assumption.

### Mining Schedule Year 4 (cont)

2020/21	July	August	September	October	November	December	January	February	March	April	May	June	Total
Grade								51	51	51	51	51	51
Tonnes HG Ore								75,000	75,000	75,000	75,000	75,000	375,000
Waste rock								243,750	243,750	243,750	243,750	243,750	1,218,750
Strip Ratio								2.25	2.25	2.25	2.25	2.25	2.25

### Mining Schedule Year 5

2021/22	July	August	September	October	November	December	January	February	March	April	May	June	Total
Grade	51	51	51	51	51	51	51	51	51	51	51	51	51
Tonnes HG Ore	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	900,000
Waste rock	243,750	243,750	243,750	243,750	243,750	243,750	243,750	225,000	225,000	225,000	225,000	225,000	2,831,250
Strip Ratio	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.00	2.00	2.00	2.00	2.00	2.15

### Mining Schedule Year 6

2022/23	July	August	September	October	November	December	January	February	March	April	May	June	Total
Grade	51	51	51	51	51	51	51	51	51	51	51	51	51
Tonnes HG Ore	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	900,000
Waste rock	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	210,000	2,520,000
Strip Ratio	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80

### Mining Schedule Year 7

2023/24	July	August	September	October	November	December	January	February	March	April	May	June	Total
Grade	51	51	51	51	51	51	51	51	51	51	51	51	51
Tonnes HG Ore	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	25,106	850,106
Waste rock	187,500	187,500	187,500	187,500	187,500	187,500	150,000	150,000	150,000	150,000	150,000	50,212	1,925,212
Strip Ratio	1.50	1.50	1.50	1.50	1.50	1.50	1.00	1.00	1.00	1.00	1.00	1.00	1.25

## 6.2 Summary

The above shows MRV Metals production model, which is based on the former operators final high grade strategy, and has allowed for mining and dilution up to the final date of mining operations. The re-start plan of MRV Metals will mirror the final intended outcome of the former operator's base case Re-start Strategy only, and ongoing optimisation and price consideration is being evaluated by MRV Metals and it is likely a superior, more cost effective and productive outcome may be achieved, on both pits.

### Qualified Person Validation

All material assumptions on production targets within this report that include but are not limited to mining resources, have been prepared by the relevant Competent Person, named in each of the relevant accompanying JORC announcements that underpin this production forecast and have been prepared by a Competent Person as defined by the requirements in Appendix 5A (JORC Code). A summary of those defined resources within the approved format and meeting the requirements of Appendix 5A (JORC Code) are summarized in section 5 of this Report, titled Resources, Feedstock, Inventories and Exploration Targets and the Company can confirm it is not aware of any material changes or issues that would affect or alter the former release to which this report and these production targets rely upon.

All mining rates have been collated and factored by an **independent industry expert** by way of **Cameron Foot consulting**, who sourced and priced several contract mining operations including drill and blast, and have provided the total mining cost input. Keeping in mind for budgetary purposes it is expected an owner operator or competitive tender process will potentially further reduce costs

Mining planning including the relevant production block models and advancement plans have been validated by the **qualified mine surveyor** whom developed the current pit design and advancement plans. **Mr Blair Atiken** has confirmed the validity and factual accuracy of the MRV Metals base case restart plan.

## 7. CRUSHING AND SCREENING



Figure 11: Granite Belt Crushing and Screening Circuit (Subject to final acquisition)

Based on the mining model and method proposed, the provision of contract crushing and screening activities have been reviewed and fully costed by an independent consultant, Cameron Foot Consulting. The independent consultant has knowledge of the site and understands the historic operating parameters, along with the historic challenges of the operations. MRV Metals expects to crush and screen 0.48Mt contained in existing feed stockpiles, in addition to 2.3Mt of ore grading 81g/t Silver and 0.43Mt of ore grading 43g/t Silver from the open cut pit for 2.25 years. An additional 3 years of approx. 1Mt per year, with an average grade of 51g/t of Mt Gunyan ore has also been factored into this Re-start Strategy.

MRV Metals has also assessed and fully costed a refurbishment of the crushing plant and equipment which still exists on site. MRV Metals will decide whether to reinstate the existing plant, opt for a contract provider or utilise a combination of both after Board consideration and a final investment decision on the Project.

### Contract Services

As part of the review of mining activities, Cameron Foot Consulting completed a comprehensive analysis of engaging a contractor to undertake all crushing activities on site up to the agglomeration stage. This has been fully priced on a per tonne basis.

During the period in which Macmin operated Twin Hills, contract crushing services were employed, whereas Alcyone constructed and commissioned a AUD\$10 million crushing facility in 2011. This facility remains at the site but is in a state of disrepair and requires a capital upgrade.

## Existing Crushing and Agglomeration facilities

The crushing facility at Twin Hills was constructed during the first half of 2011 by Alcyone and commissioned in July/August 2011. Considerable works were undertaken over the next 12-18 months on improvements including the addition of a second cone crusher and changes to the screening sizes and fines removal.

It is evident from operational reports that the performance of this equipment was poor, this was compounded by a lack of preventative maintenance and operating the equipment outside of its design parameters. As the facility's original nameplate capacity of 1.15Mtpa was increased by Alcyone, it is now configured well above the MRV Metals base case re-start requirement of 1.08Mtpa.



Figure 12: Crushing and screening plant including agglomerator, cement/lime storage silos



Figure 13: Primary and secondary crushers during installation in 2011.

With any crushing and screening facility, the process is relatively simple: to take large rocks and reduce them until a final product of the desired size is achieved. For the MRV Metals Re-start Strategy this will be a -4mm product.

An important aspect of the mining process is having the correct initial sized material delivered from the pit, as getting this wrong can have considerable implications for throughput, wear and tear and simple design capability, all of which have flow-on effects to down-time and overall availability. MRV Metals will focus on keeping tight controls on drill and blast with an emphasis on powder factors to ensure minimal oversized product is delivered to the crusher. Using this approach will hopefully ensure the primary crusher achieves its designed throughputs. MRV Metals through its due diligence and subsequent investigations has confirmed that issues caused by the crusher was a critical area of underperformance and its mode of operation caused certain issues from a repairs and warranty perspective.

The in-situ system relies on the Quad Rolls crusher producing a -4mm product that is agglomerated with cement/lime. With the exception of the structures, drives and motors, much of the equipment in the crushing circuit – crusher liners, screen cloths and conveyor belts – is consumable. Full provision has been made to completely replace all wear components prior to recommencing operations. Due to the abrasive nature of the ore, a systematic plan has been developed to replace these components at regular intervals based on throughput of ore.

Replacement of these components has been factored into the comprehensive availability calculations and costing completed on the owner-operator crushing option. MRV Metals estimates the cost of crusher consumables required prior to restart is approx. AUD\$115,000 and the annual cost of replacement items for the circuit is approx. AUD\$1.35 million. The cost of replacing other crusher consumables is minor in comparison.

Recommissioning of the crushing circuit would also require control panels and several electric motors to be replaced as they have been inundated with water during the shutdown period. A budget of AUD\$750,000 has been allowed for the full recommissioning of the crushing facility.

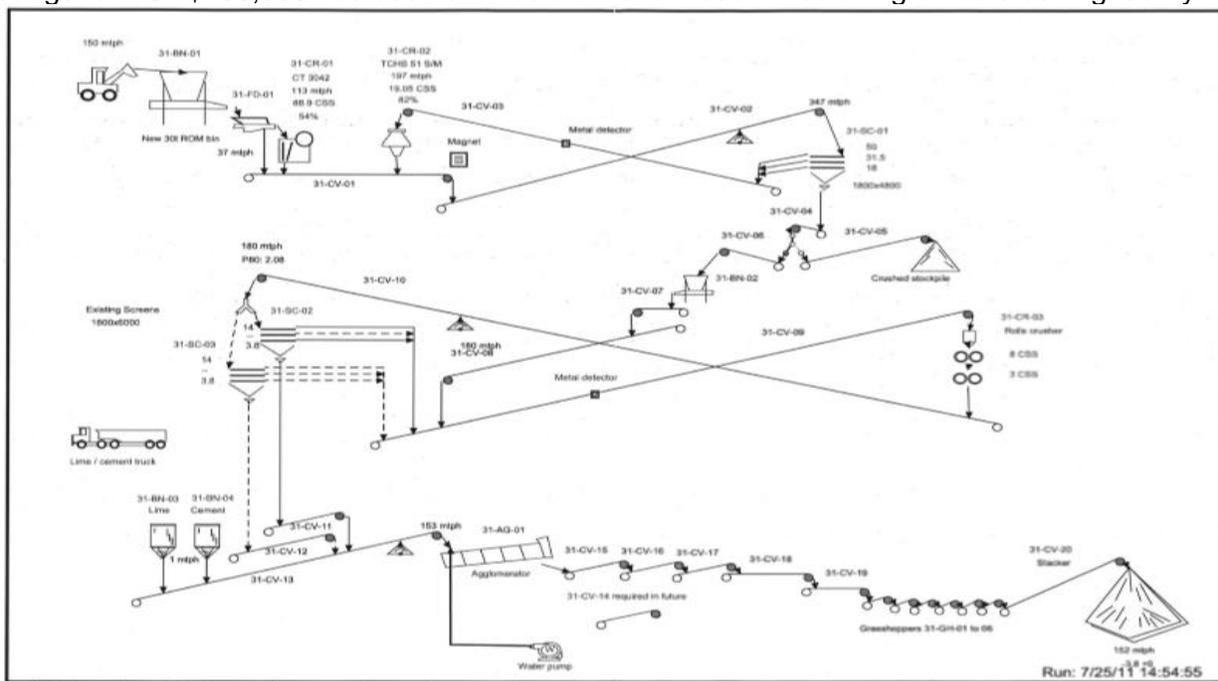


Figure 14: Existing Circuits in-situ

Optimisation work has been undertaken on both the crushing and screening circuits, with potential enhancements and changes to screening and scalping systems as well as better feed profiles into the screens and crushers. Initial reviews suggest an improvement of 10-20% in performance of throughput could be attained by this potential enhancement.

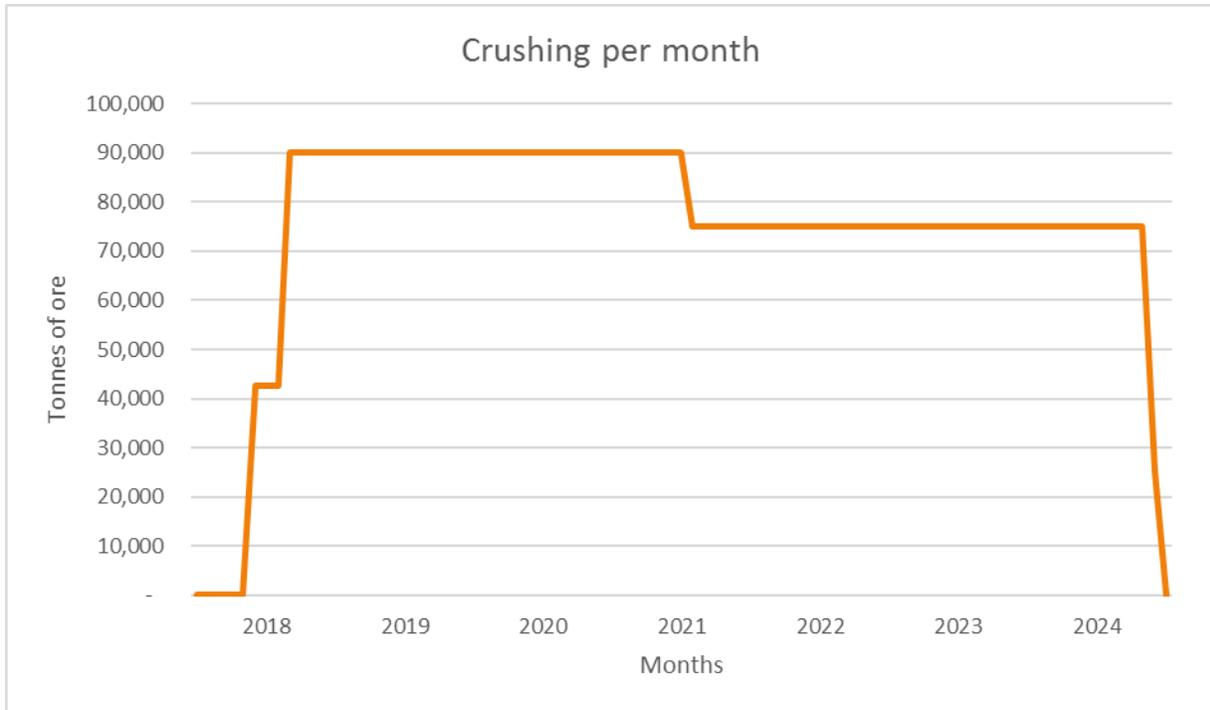


Figure 15: Production Profile of Crushing and Screening

#### Qualified Persons Validation

All crushing and screening rates have been collated and factored by an **independent industry expert** by way of **Cameron Foot Consulting**, who sourced and priced several contract operators for these services and have provided the total mining cost input. Keeping in mind for budgetary purposes it is expected an owner operator or competitive tender process will potentially further reduce costs.

Refurbishment and reinstatement of the former equipment has been validated by MRV Metals Pty Ltd, Mr Nigel Slonker, a qualified Mechanical Engineer who developed the current refurbishment strategy and costing for crushing and screening advancement plans. **Mr Nigel Slonker** has confirmed the validity and factual accuracy of the MRV Metals base case Re-start Strategy.

## 8. HEAP LEACH OPERATIONS

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The MRV Metals review and development of a potential base case Re-start Strategy has been forecast utilising data obtained from former operators Alcyone and MacMin. This in our view assists in de-risking this Re-start Strategy. The proposed leaching outcomes are based on proven recoveries and ore performance from the site.

As outlined in section 4 of this document, the historic performance of the heap leach facility has been closely analysed as part of the MRV Metals Re-start Strategy. At an uninterrupted 15-18 months, the leaching curve has been validated and MRV Metals intends to stop and restart the leaches through a controlled process. This will take them from 15-18 months to closer to 24 months to deplete while running at optimal production.

In MRV Metals' view, the work conducted has significantly reduced the risk of over-budgeting production and will allow for operational impacts and rotation to occur without unforeseen consequences. To gain a better grasp of the issues that plagued Twin Hills historically, MRV Metals undertook a comparison of the production performance of Twin Hills while under Alcyone ownership with its model for production of Silver in solution from the same placed ore.

MRV Metals notes the following points in regard to the comparison:

- Reference Alcyone data was obtained from Monthly Operations reports (except Now 2013).
- Review undertaken by Mr Guy Butcher (International Expert on Heap Leaching) 2015 DD report (2015 Due Diligence Report for Moreton Resources Limited) on Ore recoveries and End of Month Survey data.
- Review of Alcyone commencement of leaching for the existing MacMin Ore 19 May 2011, with the first crushed ore placed on Heap Leach Pad (HLP) 2 in August 2011 by Alcyone.
- Review of changes to HLP volumes, that can be derived from which HLP received ore in any month and at what average grade was.
- A surveyed and reconciliation shows MacMin ore on heaps at the start of the Alcyone operations was 397,746t at an average grade of 45g/t Ag
- Daily and weekly production records from August 2011 to February 2014, show Alcyone placed a total of 1.623Mt of crushed ore on the HLP's
- The last independent survey of the heaps on 1/2/14, reported a total of 1,944,208t of material on the four heaps.
- By reconciling the ore place on heaps, the total is 1,967,892t or within 0.12% of accuracy to production records
- By reconciliation and supporting daily operations logs, the former operator reported 1,276,664t of ore at an average grade of 58.1g/t to deliver 870,108 RECOVERABLE ounces of Ag\*
- *\* During this period, Alcyone, either moved to other heaps (base) or simply stopped accounting metallurgically 685,613t of either spent ore, or low recovery ore.*

For the purposes of the base case Re-start Strategy, MRV Metals has undertaken several verification points to validate the intended re-start position for the heap leaches in-situ which includes the 2014 Independent Survey undertaken in Twin Hills' last month of operation under Alcyone ownership; an internal reconciliation by monthly mining production, crushing and stacking reports for the operation; and MRV Metals' own due diligence by way of site inspection, measurements and sampling. These have helped validate MRV Metals' consideration of metals inventories and potential recovery from the in-situ heap leaches.

While the above validation process accounts for tonnes, MRV Metals has also undertaken several evaluation processes to verify the grade of ore that remains on the HLPs.

- Through the 2015 due diligence process, the Company reviewed the mining, crushing and ore stacking data to reconcile the stacked Assay data for grade and quantity onto the heap leaches. It further reviewed the recovery data and reports of extracted silver which allows for a global view on stacked versus recovered Silver.
- A second validation point was the review of grade and quantities of ore that were individually stacked pad by pad. The most recent treatment data was then reviewed, taking into account what was stacked, what was irrigated and in production and what was awaiting irrigation or being stacked at that time. This was then cross referenced with the global Silver numbers.
- Finally, a review of the assay data undertaken by Moreton in the 2015 due diligence process by auger sampling was completed. This work was followed up in late 2016 with onsite sampling that allowed a further cross-reference verification process on Silver assays and assumed inventories that cross correlated to the two prior processes.

To that end MRV Metals also reviewed the forecasts and assumptions of the prior operators and has taken a more conservative approach, although globally the totals are not materially different. For the purposes of metallurgical accounting, the Company estimates the following metal inventories;

Heap Leach	Tonnes	Grade (g/t Ag)
Heap Leach 1	668,000	39
Heap Leach 2	371,309	26
Heap Leach 3	335,114	29
Heap Leach 4	569,782	50

**Figure 16: Heap Leach Metal Inventories**

However it is important to note, whilst the above is an extremely rigorous and detailed reconciliation of the ore sitting within the heap leaches ready for treatment that is derived from hole by hole assays in pit, through to assay results from crushing and screening prior to stacking, these due to ASX requirements of them having to be JORC Compliant, even though they are in the extractions process within the operations and not the geological mining area and in fact have already been extracted, resources have been declared so that this information could be contained within these reports and as such, it is important to note the following as approx. 1.94Mt of ore is classes as Inferred under requirements of Appendix 5A (JORC Code) which represents approx. 10% of our forecasted Silver production and as such - "There is a low level of geological confidence associated with inferred mineral resources and there is no certainty that further exploration work will result in the determination of indicated mineral resources or that the production target itself will be realized."

Ironically in an attempt to inform the market of this material metal inventory, the ASX has stated it must be JORC'd and refused to release this material inventory until it complied with JORC, which also dictates the above must be declared. Of course in practice, not only is it not a production target, it has already been mined, crushed, screened and stacked and is currently sitting within heap leaching inventories in the back end of the treatment area on the site.

Furthermore, it is apparent that on recommissioning a heap leach, liberated Silver within solution but stranded within the heap leach will be recovered early and is likely to outstrip the recovery curve. Review of the historic recovery and processing data from Twin Hills indicated that this occurred when MacMin heaps were reprocessed. Although MRV Metals notes the potential for higher than anticipated recoveries in the early stages, it is extremely difficult to predict and estimate exactly what the rate might be.

MRV Metals has utilised the same production curve forecast as Alcyone, which is proven and justified by prior test works. What is evident is that already liberated silver, that has not been extracted will remobilise on startup of the leaching process. Oxidization is also an enabler to the Silver liberation this is expected to assist the overall production process. Historical Silver production figures were as follows:

Cumulative Time Line	6 Months	12 Months	18 Months	24 Months	Life 33 Months
<b>Model Forecast</b>	230k	690k	1.25m	1.72m	2.10m
<b>Achieved Alcyone Ag produced</b>	320k	623k	1.2m	1.34m	1.5m
Actual % difference	39%	-10%	-4%	-28%	-40%

**Figure 17: Historical Ag Production**

The table above shows that from initial irrigation, ore placed by MacMin performed better than the model predicts by some 39% over the first six months of leaching under Alcyone ownership. During the 12-15 months of placing fresh ore, actual production compared to the model was within 10%. Given the timing as to when ore was placed and when leaching was turned on or off is unknown, this level of accuracy would seem to show that a leach curve based on the Financial Model (58%) and Alcyone model (56%) is realistic, provided the actual available ore to extract is that which is only under irrigation. What is evident is the broad reviews and assumptions do not consider where heap leaches are under stacking, irrigation set up or other issues.

At 18 months into the project, the model and Alcyone productions are close to equal. However, during the last 15 months of Alcyone's tenure as owner, it is clear that mining, crushing and processing were not performing to forecast. Major breakdowns in the mining and crushing equipment areas were resulting in reduced ore to the HLPs. The last 12 months delivered only 55% ore compared to the previous 12 months, with actual Silver contained in this ore only 45% of the preceding 12-month period.

There are other considerable operational impacts on production that Alcyone faced including dosage issues, availability of reagents and weather events. MRV Metals have reviewed actual performance, lab assays and reports on the Project's metallurgical extraction and is confident the issues that are of greatest risk to recovery profiles have been given appropriate consideration. MRV Metals is also comfortable it has assessed and understands the forward looking operating and cash flow models.

## Historic Production of Heap Leaches and Recovery Curves Predicted and Achieved by Former Operators

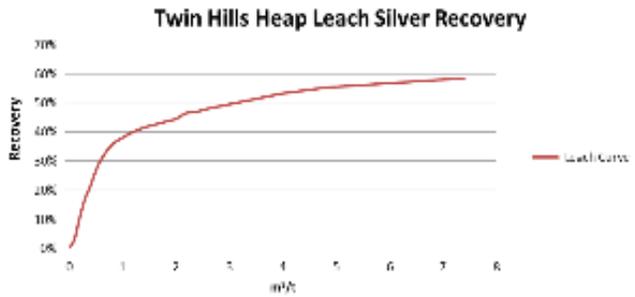
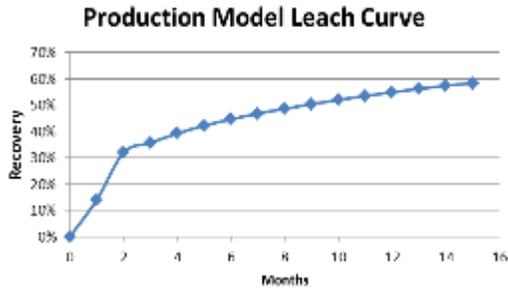
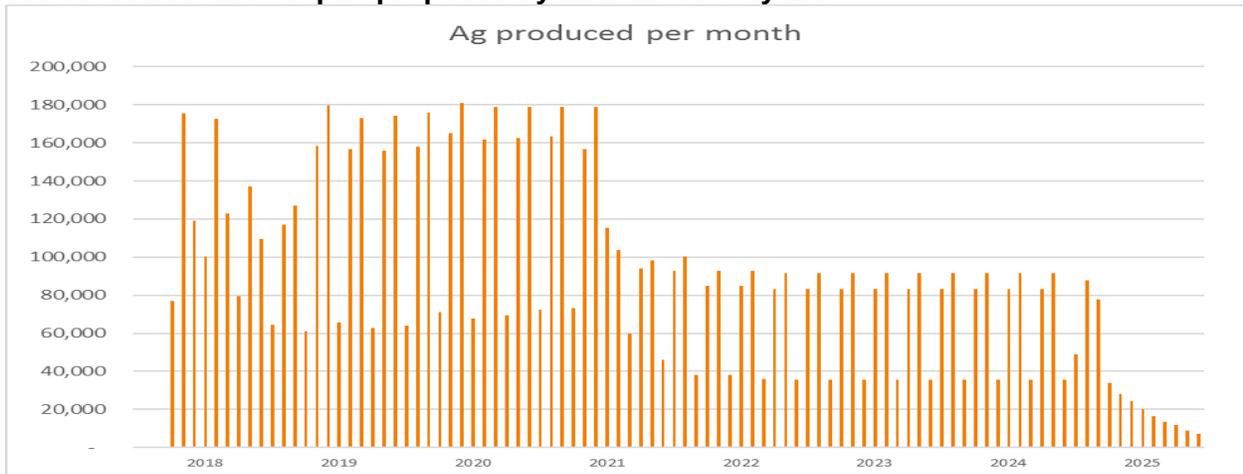
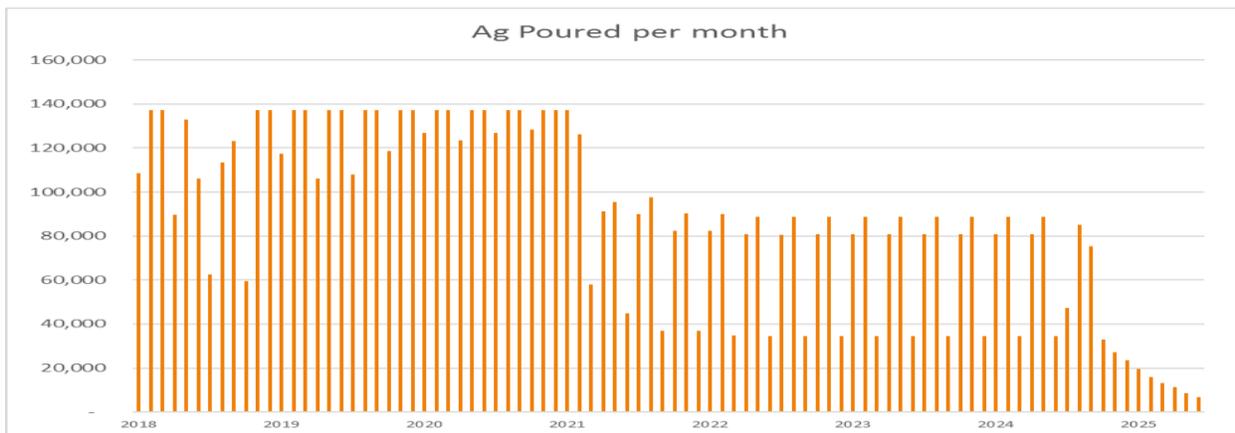


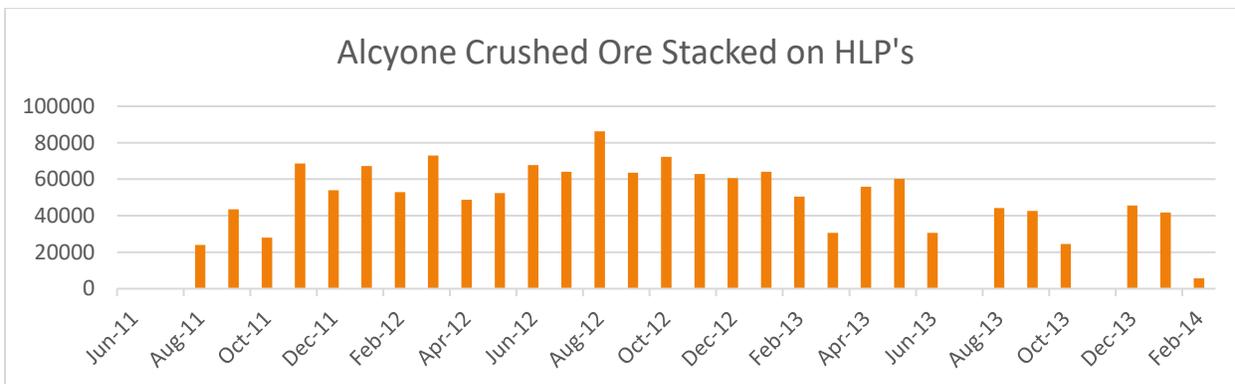
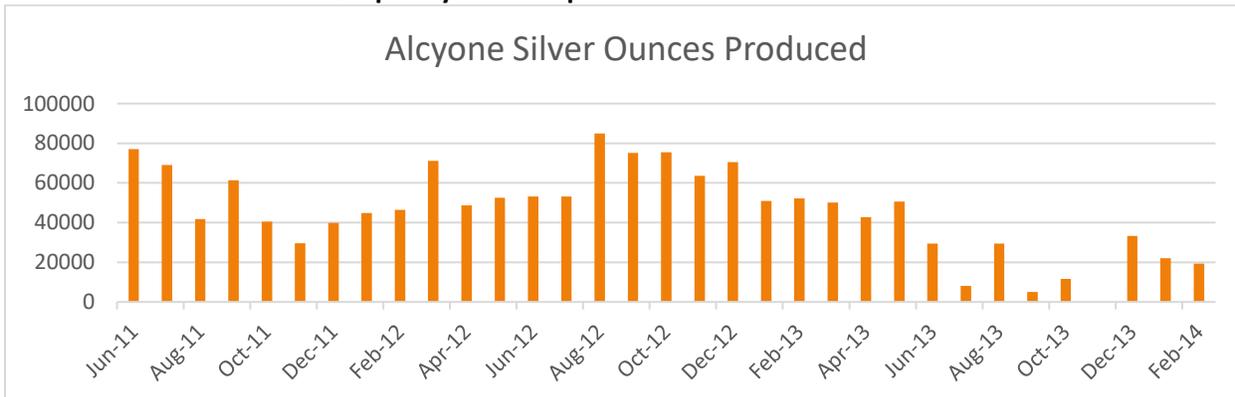
Figure 18: Heap Leach Pad under Irrigation

## Production Profile Graphs proposed by MRV Metals Pty Ltd





### Historic Production Profile Graphs by former operators



### **Qualified Persons**

The skills and expertise used to develop the views expressed in the Metallurgical considerations for this report were a collation of those expressed by numerous qualified people and multiple qualified Laboratory Services and factual operating reports, data and statements. These references are made within the appendix of this document however key Metallurgical consultants were Mr Guy Butcher whom has a bachelors degree in applied chemistry and has worked for Placer Dome as Group Metallurgist for over 20 years and is seen as a leading industry expert upon Heap Leach Operations and management whom undertook a review and recommendations paper in 2015 on behalf of Moreton Resources Limited.

Equally Mr Greg Moore, of Summit Consulting has also provided technical input and assistance on the review and forecasting of the metallurgical considerations. Greg has more than 30 years' experience, holds a degree in metallurgy and is seen as a leading metallurgical expert within the industry. Greg also provided Metallurgical and more broadly site general view, in 2015 as part of the Due Diligence process undertaken by Moreton Resources Limited and more recently has been consulting in regard to our potential re-start activities and time lines.

## 9. PRODUCT REFINEMENT

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**Figure 19: De-aerator and Pressure Filter in-situ at the Granite Belt Project.**

All processing equipment, including the Silver recovery plant or Merrill Crowe unit, remains in-situ. The only refurbishments required are to the furnaces, which were overhauled in May 2013 and again in March 2014, and the pressure clarifier filter. The pumps that recover the Silver solution from the pregnant ponds also require an overhaul.

Considerable consultation has taken place with equipment suppliers and maintenance providers to plan and cost the work required for MRV Metals to bring the site back into production. Following these discussions and planning, MRV Metals is confident that the task of returning the former Twin Hills processing facilities to working order can be completed relatively quickly.



**Figure 20: Silver furnace (x2), dore bar ingots and Merrill Crowe plate filter**



Figure 21 : Pressure filter and aeration tank; Mercury Retort; Merrill Crowe Plate Filter

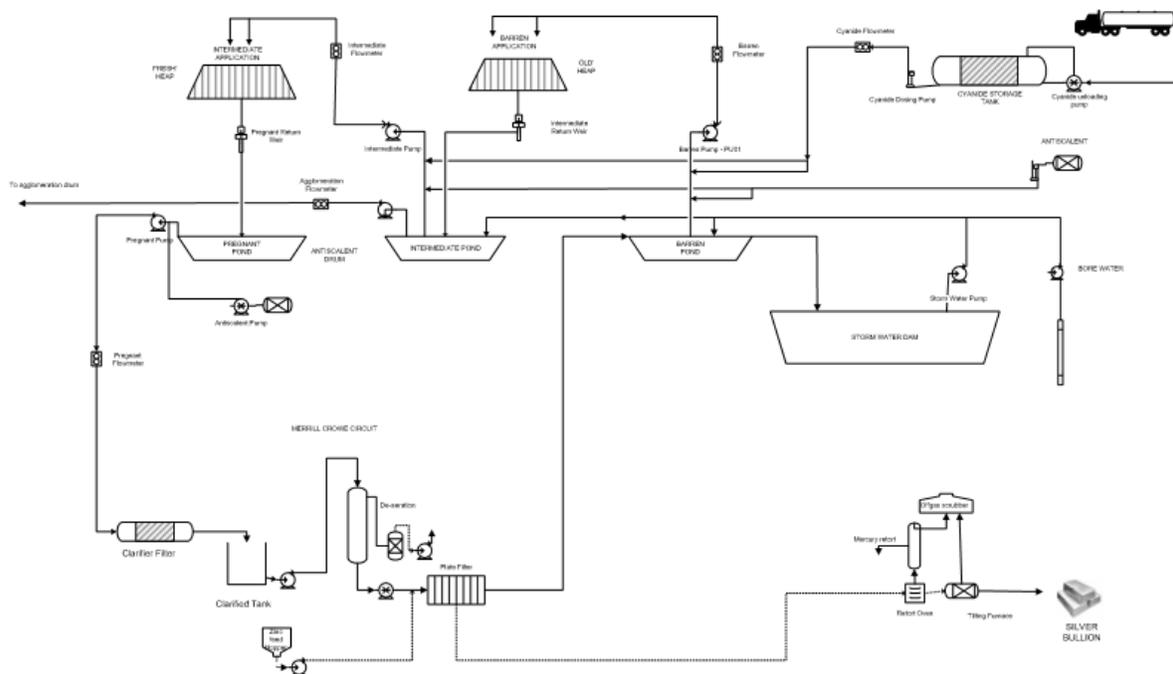


Figure 22: Flow sheet for production of silver dore at the Granite Belt Project

## 10. ENVIRONMENTAL & SOCIAL CONSIDERATIONS

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The resumption of mineral production at the Granite Belt Project is not constrained by any unusual or extraordinary environmental considerations.

Since late 2015, the site has been maintained by the Department of Natural Resources and Mines (DNRM) and the Department of Environment and Heritage Protection (DEHP). Should MRV Metals be granted the MLA, a detailed transition plan would be developed in conjunction with the DNRM's Abandoned Mines Unit.

Engagement with the community and Project stakeholders continues to be positive. There were no objections received during the public notification periods for the ML and Environmental Authority applications, which ran during February and March 2017. The ML and EA applications are now pending completion of compensation agreements and statutory determinations for grant. Multiple community information sessions were held in November 2016, with approximately 100 people attending in total. Some attended more than one session such as their support for and interest in the Project.

No Native Title claims were lodged during the ML application process. The MLA is not constrained by Native Title and no agreements with claimants are required at present. MRV Metals will instigate a Cultural Heritage Management Plan guided by prior agreements and clearances undertaken by traditional owners for the previous mine owners. The 'Duty of Care' approach will be followed in relation to new disturbance areas. MRV Metals has contacted the relevant traditional owners and is seeking to encourage indigenous participation in the Project through employment, training and community capacity building.

### 10.1 Implementation and Operational Management Systems

MRV Metals is committed to developing a safe and environmentally compliant mining operation at the Granite Belt Project. The Project's HSE Management System will provide a systematic process for the implementation of health, safety, environment, risk and social impact management in a qualified and cost effective way.

The WHS Management System aligns with relevant Australian and International Standards including ISO 14001:2015, AS/NZS 4801:2001 and ISO 31000:2009. It will contain procedures to monitor and ensure compliance with the Project's requirements, and for the implementation of reviews, audits and their recommendations. An overview of the system is provided in the figure below.

Responsibilities for delivery of the Management System will be delegated to the Senior Site Executive and Environmental Officer, both based on site.

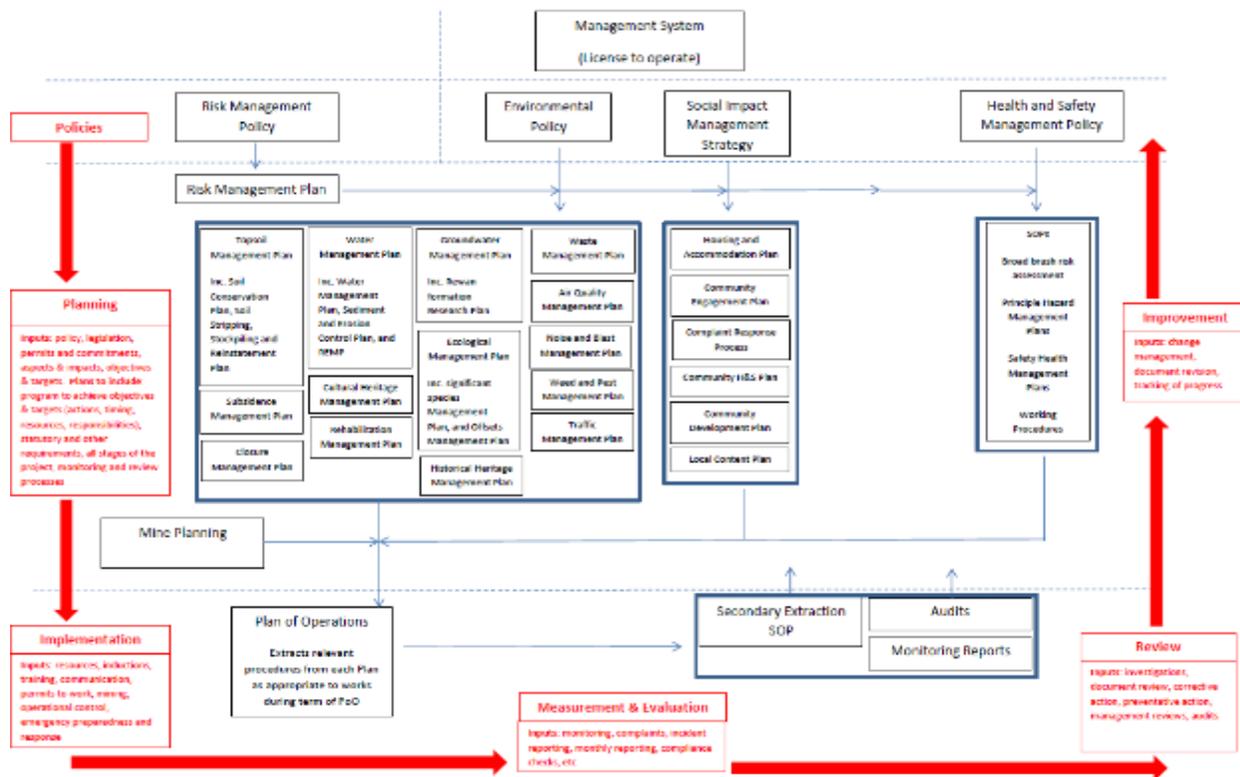


Figure 23: Management System Overview

## 10.2 Environmental Authority Permit

The Project's EA (EPML04238116) is due to be granted prior to 14 May 2017, and take effect as of the date of Mining Lease grant. The conditions follow the Queensland Model Mining Conditions and provide practicable operating parameters to which MRV Metals has no objection. The collaboration with the relevant Queensland Government Departments to reach this point has been extremely positive and MRV Metals believes a strong working relationship has been established.

Once operations begin, MRV Metals has an obligation to produce several Environmental Management Plans. The Plan of Operations has been lodged with the DEHP to demonstrate how the Project will comply with the EA. By lodging the Plan at an early stage, any risk of delays to commencing on site are reduced.

All environmental hazards and risks at the site are well understood by MRV Metals and DEHP based on the review of monitoring and management information dating back to 2005 sourced from the previous operators.

There is some risk that the DEHP may not accept the Management Plans produced by MRV Metals given the history of the site. This risk will be overcome by,

1. Agreeing on an Action Plan to comply with the EA conditions within the Plan of Operations;
2. Reviewing and updating the pre-existing Management Plans used by the previous operator, which were accepted by DEHP for the same hazards;
3. Applying the most recent guidelines and standards; and

4. Using appropriately qualified and experienced persons where necessary.

Pre-existing Management Plans for the topics presented in Figure 23 will be reviewed and updated ahead of the re-start operations.

MRV Metals anticipates that the Rehabilitation Management Plan is likely to be a key concern to DEHP, given the site's recent history as an abandoned mine and the political attention being placed on rehabilitation liabilities across the mining sector. At a high level the rehabilitation requirements of the site were agreed with the DEHP during the draft EA stage and a Financial Assurance (FA) estimate was submitted in April 2017. These go a long way to satisfying the DEHP that rehabilitation is both attainable and sustainable.

Water management is a key focus in this Re-start Strategy, with available water storage at the site at 65ML in early February 2017. The water levels within the terminal storage dam are at the lowest levels since the high rainfall events of December 2015. This risk is further mitigated as MRV Metals will take control in mid-2017, with at least four months on site before the wet season begins. During these four months, water on site will once again be used for operations rather than collected in storages.

Along with a review of water levels, hazard assessment of all water storage sites will be carried out as a priority prior to re-start. This assessment will confirm the integrity and ongoing management appropriate for each storage facility. MRV Metals will also gain control of the water management infrastructure installed on site by the DEHP including pumps, pipes, irrigators and the new dam (north of the existing dam), which will assist with water use, transfers and management during the restart. The existing water storage system at site was identified as being undersized or ineffective at containing contaminated water. MRV Metals intends to rectify this through the development of raises, enhanced water quality treatment and rigorous testing of pipes and HDPE liners for leaks.

### 10.3 Acid and Metalliferous Drainage

The deposit geology at the Granite Belt Project contains sulphidic material which can generate acidic and metalliferous drainage (AMD). Procedures are available to identify, evaluate and manage waste rock materials, as set out in the Plan of Operations and Environmental Management Plan. The re-start is not constrained by the capacity of the existing waste rock dump. Control strategies already tested and implemented on site to control AMD will continue to be applied by MRV Metals. In the short term, this will be liming of the dump. Once mining re-starts, blending of waste rock materials will decrease AMD generation rates. Laboratory tests proving these methods are appropriate were completed by Alcyone. No additional AMD risks are expected by the re-start.

### 10.3 Cyanide Management

A Cyanide Permit application will be lodged with Queensland Health to permit MRV Metals to obtain, store and use cyanide during the re-start. This application is supported with a Cyanide Management Plan, which was based on the one prepared by Alcyone.

## 11. FINANCIALS OF THE PROJECT

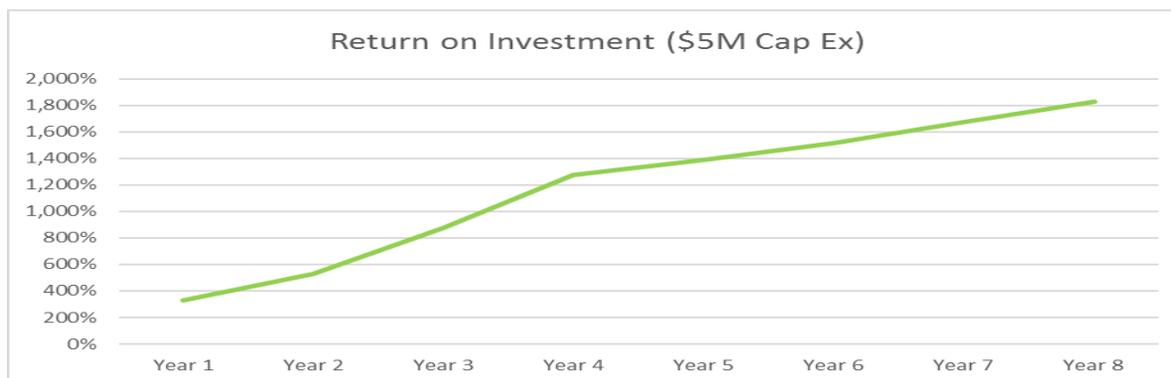
A range of assumptions have been undertaken in the following financial projections on the base case scenario. Several key considerations in the following forecast are Silver recoveries of 58%; average spot pricing of AUD\$24.25 and available Silver inventories, which are explained in the resources area of this report.

Taking this into account, and using historic proven costs of operation and current market pricing comparisons by contractor quotes and costs, consumables and labor imposts, the following is the forecast Re-start Strategy by MRV Metals in regard to cash forecasts, supported by the above forward looking operational and production outcomes.

### 8 YEAR PROFIT AND LOSS

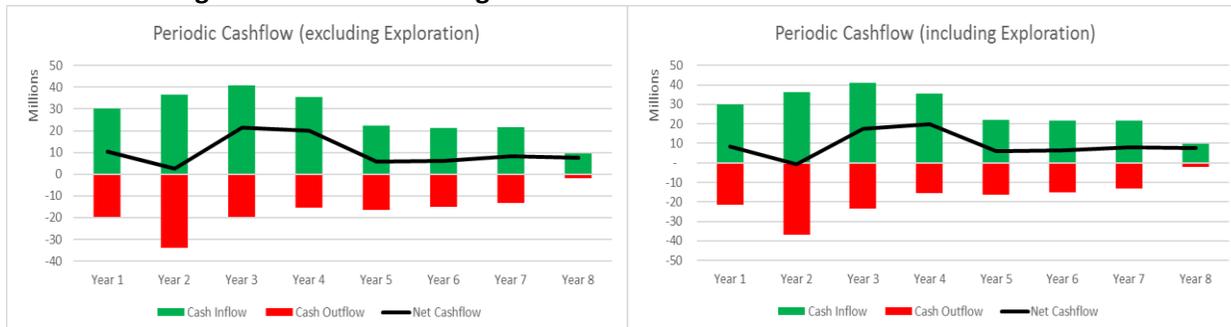
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	LOM
	AUD	AUD	AUD						
Revenue	30,041,746	36,457,837	40,844,131	35,436,921	22,210,699	21,446,555	21,449,100	9,636,690	217,523,679
Processing	6,393,509	4,756,864	4,978,778	4,475,046	3,107,240	2,999,868	2,897,370	1,054,476	30,663,150
Mining	259,764	11,131,584	6,877,870	4,046,891	7,304,625	6,501,600	4,967,047	-	41,089,381
Crushing	2,255,075	4,992,000	4,992,000	4,646,250	4,162,200	4,162,200	3,932,189	13,200	29,155,114
Admin	2,037,287	2,436,092	2,655,407	2,385,046	1,723,735	1,529,528	1,529,655	939,034	15,235,784
Net Operating Profit	19,096,112	13,141,298	21,340,077	19,883,687	5,912,899	6,253,358	8,122,840	7,629,980	101,380,251
Exploration	2,000,000	3,000,000	4,000,000	-	-	-	-	-	9,000,000
Net Operating Profit After Exploration	17,096,112	10,141,298	17,340,077	19,883,687	5,912,899	6,253,358	8,122,840	7,629,980	92,380,251
Interest Expense	701,023	175,000	0	0	0	0	0	0	876,023
Net Profit After Interest	16,395,089	9,966,298	17,340,077	19,883,687	5,912,899	6,253,358	8,122,840	7,629,980	91,504,228
<b>Cash Flows Not Included in Profit</b>									
Loan Repayment	5,000,000	5,000,000	-	-	-	-	-	-	10,000,000
Potential R&D Overpayment	3,000,000	5,500,000	-	-	-	-	-	-	8,500,000

As is clearly indicated by the above eight year profit and loss forecast, the project is exceptionally robust taking into account the assumptions clearly highlighted and articulated throughout this report. MRV Metals believe that these parameters are reasonable and somewhat conservative in nature, and as outlined, this is the base case restart scenario, to which significant upside potential has been articulated throughout this Re-start Strategy.



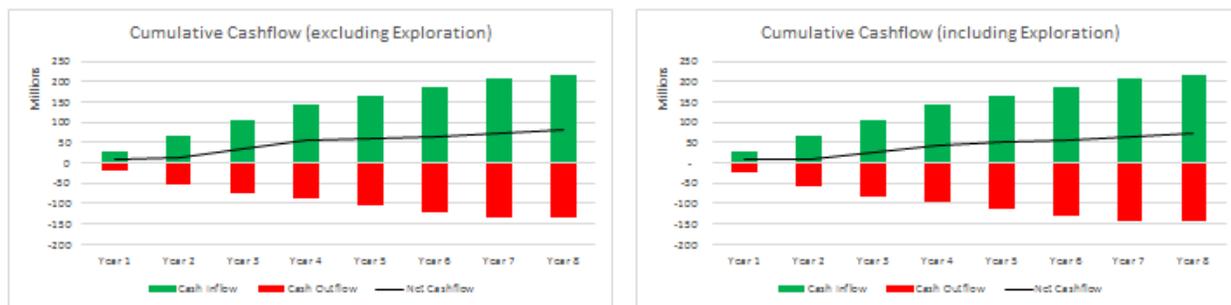
Supported by an ROI in the first year of a less than 6 month payback and a 1800% over all 8 year return on Investment, limited to the base case scenario of development of the Granite Belt Project.

### Forward Looking Forecast Broken in Segments



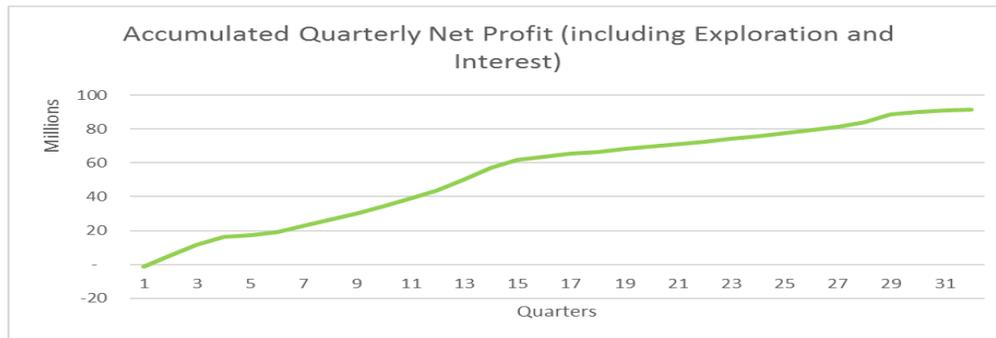
The unique competitive advantage of this project is the compelling start up and production profile, that not only leverages considerable existing infrastructure, but also significant Silver inventories that lie within the production ponds, heap leach pads and the ROM pads, that allow immediate production and cash flow, without engaging the capital and operationally intensive processes of Mining and with only limited crushing and screening. Both of these processes will come on line with a low risk, soft start strategy to limited cash flow risk, and limit production interruption and breakdown, which was a major downfall of prior operators, and which has been managed and in the main mitigated by the MRV Metals Re-start Strategy.

### Investing in Upside Future



The base case scenario takes into account considerable effort and investment into exploiting the full potential of the site. Therefore AUD\$9 million has been allocated for exploration and studies to rapidly advance not only the multiple known opportunities, but also the considerable targets and Greenfields opportunities that the Project offers through 180sqkm of tenement area. Identified areas have considerable Copper exploration potential, which would lead to a total review of strategy, potentially moving to a polymetallic process, that will potentially exploit Copper, Gold, Silver, with some prospect of Zinc and Lead.

## Net Profit After Eight Years of Operation



This is a compelling prospect for a small scale mining operation that requires limited capital intensive processes, but has significant upside potential that has not been factored into the current base case strategy.

### Basis for Financial Assumptions

Base price prediction –

Based upon historic pricing of Silver which has reached highs in 2011 of AUD\$43.36 and in USD\$46.47, it is evident that significant upside is possible. However, in today's terms MRV Metals has opted to use a AUD\$24.25 forecast pricing point, which it believes is a conservative forward looking projection over the life of the base case scenario which is approx. eight years.



<http://silverprice.org/silver-price-history.html>

Of interest in the last 10 years the AUD low of Silver has been \$14.87, on 15 August 2007. In real terms in the last 10 years, using the Reserve Bank Of Australia's inflation calculator **in today's dollars this represents a spot Silver price in AUD of \$18.44**. What is significantly clear and robust about this Re-start Strategy, is the fact that not only C1 operating costs at **AUD\$12.50** but all in cash costs at **AUD\$14.00**, show the stable and strong economics of the base case proposal.

It is noted however that the project is highly susceptible to AUD and Spot Silver Pricing, and based on sensitivities the following is an indication of the potential swing in the Silver pricing market.

**High Level Sensitivities all based in AUD Terms**

SPOT SILVER - 10% +/-

<b>Modeled</b>	<b>\$24.25</b>
Positive	\$26.67
Negative	\$21.82

SPOT SILVER - 20% +/-

<b>Modeled</b>	<b>\$24.25</b>
Positive	\$29.10
Negative	\$19.40

SPOT SILVER - 30% +/-

<b>Modeled</b>	<b>\$24.25</b>
Positive	\$31.52
Negative	\$16.97

In summary of the above, should in real terms the AUD value of Silver reduce to record level lows, greater than any low in the last 10 years, **broadly speaking on a 30% downward swing the gross profit pre-exploration expenses would be \$38 million**, however taking into account the **30% upswing** the forward looking accumulated **net profit pre-exploration would be approx. AUD\$164.5 million.**

As is clearly displayed here, commodity pricing and volatility is the single largest risk to any project, however, taking into account the historical swings and the upside potential, the offering by MRV Metals is significantly de-risked by the overall C1 and C3 cash costs in AUD terms being so compelling.

**Experienced and Qualified Persons**

The skills and expertise used to develop the views expressed in the Financial Forecasting of this document have relied on multiple consultants and internal expertise. Key personnel used for this purpose were –

**Mr Ewan Stoddart** – is a fully qualified accountant. Ewan has worked within public resource companies in the role of CEO, CFO, COO and chairman and has significant experience in the development of operational financial models and matters pertaining to start up operations.

**Mr Nigel Slonker** – CEO of MRV Metals is a qualified Mechanical Engineer and prior to MRV Metals, Nigel was a Mines Inspector in New Zealand, General Manager of OceanaGolds; Reefton Operations, General Manager of CMPL’s CSA copper mine in Cobar and has managed a number of other mines, quarries and tunnel projects in various countries. He has significant operation and commercial experience in running operations.

**Mr Jason Elks** – Has been CEO of Moreton Resources Limited for 3.5 years with his prior 20 years in Senior Management and commercial orientated operation and Human Resource roles. He has significant understanding of the Moreton Resources Business and the former Alcyone Resources business due to the 18 months of due diligence and last 12 months of advancement and permitting.

In addition to this, the Company has had full access to significant historical production, account and business records, including key site personnel whom have assisted qualify and quantify this Re-start Strategy and the financial modeling.

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## 12. FINANCING OF THE PROJECT

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The company has a number of financing options available to it including, but not limited to, traditional debt funding from commercial banks, a capital raising from the existing shareholder base or a placement to “sophisticated investors”, traditional asset based finance, private debt equity or, a pre-sale of the existing Silver and Copper reserves contained in the residual sediment in-situ. A range of AUD \$10-12 Million is forecast as required for restart of operations.

The company may adopt one of the above mentioned financing options or a combination of two or more and as we have stated to the market on a number of occasions and will continue to explore all these options looking for the best possible outcome for MRV Metals and the shareholders of Moreton. At this juncture the company has not made a decision as to which method of financing to adopt as it is still in discussions with various parties however is expected to have this finalised within 4-8 weeks of the release of this base case Re-start Strategy.

The company has received enquiries from parties interested in pre-purchasing the Silver, with copper credits, which is currently contained in the leach pads and processing ponds and this has added a level of complexity to the restart and our considerations, as the potential Copper component is quite a commercial sum, that we are attempting to navigate, however, the key enabler to this project, is the base case restart of a Silver project, as outlined in this Re-start Strategy.

Forecast retained earnings of approx. AUD\$19 million after 12 months of operations gives comfort to prospective investors and/or financiers allowing for a sub 1 year payback with sufficient cashflows to continue not only operations, but also a significant exploration program. However the Company may seek a larger debt facility to expand or rapidly increase its operational options, however the Board will determine this course in the coming weeks.

### Finance Options:

- Pre-sale of existing Silver / Copper
- Commercial Bank Loan
- Placement to High Net Worth Individuals
- Asset Lease
- Private Equity
- Share issue to existing shareholders

The significant cash flows of the project will place the company in a position, whereby the Board will seek to determine a dividend policy and may do so, early given the compelling free cash flow this project will generate, should permitting and final financing be successful.

Moreton, as the 100% owner of MRV Metals in turn will see a transformation of the organisation, its operating parameters and also its fully audited balance sheet pending this migration from explorer to operator.

It is important to note that MRV Metals is a fully owned subsidiary of Moreton and minor debts are owed to the parent company, however, for inter-company purposes and tax purposes the Companies are a Grouped entity and as such it is important to note that the above financial forecasts not only include CPI, Bank borrowings and commercial interest, it also assumes a worst case scenario of repayment of Moreton debts of approx. \$8.5 million should MRV Metals fail in its Administrative Appeals Tribunal case currently awaiting decision.

However, obviously the Company has a belief and legal opinions to support its view that it has high prospects of success and if so, the total revenue would increase by approx. AUD\$8.5 million and a further approx. AUD\$6.5 million in outstanding claims owned by Moreton Resources Limited as the parent Company. This is an additional AUD\$15 million upswing in net cash flow as the total down side has been factored into the above cash flow forecasts.

In addition to this consideration, should Moreton be unsuccessful, any payments would be largely offset by additional tax losses into the Grouped Companies, which a profit generating entity such as MRV Metals would potentially gain the benefit of.

## 13. SILVER UPSIDE POTENTIAL

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Whilst MRV Metals continues to assess prospectivity, the following is an ASX announcement made by the prior operators on 14 November 2013 which indicates the upside potential before MRV Metals within the Silver space across not only the Granite Belt Project, but also the Granite Belt Exploration Project.

### **Alcyone Streamlines Tenements to Focus on Silver Targets**

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#### **Highlights:**

- **Alcyone to reduce tenement base and concentrate on silver heap leach targets.**
  - **Tenement holding costs and exploration expenditure commitments to be reduced by ~\$450,000.**
- 

Queensland silver producer **Alcyone Resources (ASX: AYN)** ("**Alcyone**" or "**Company**") is pleased to advise that the second milestone in reducing operating costs has been achieved with the planned reduction of its tenement base to concentrate on silver heap leach targets.

The Board and management have reviewed the project areas to highlight the locations which have the greatest potential for silver heap leach mineralisation in economic quantities. This has been refined by a more detailed geological work with the resultant exploration targets shown below in Table 1.

As part of its concentration of activities on expanding silver mineral resource inventory in the most prospective areas and reducing costs, Alcyone has identified tenements which are considered the least viable for hosting economic silver mineralisation. Over the coming months, the Company's tenement holding will be reduced and thus its holding costs and commitment to exploration expenditure will be reduced by approximately \$450,000.

#### **Silver Exploration Targeting Models**

The Twin Hills Silver Spur-style mineralised system has been formed by recrystallisation and remobilisation of the original SEDEX-style deposits followed by the concentration of mineralisation into structurally and/or chemically favourable sites. This has identified two targeting models: -

1. The Twin Hills -style mineralisation associated with pervasive silica and/or potassic alteration within the host sedimentary sequence.
2. The Silver Spur-style mineralisation which is a volcanogenic massive sulphide type found in locations adjacent to structural control and within altered sequences.

Using these targeting models Alcyone has identified the areas of greatest silver prospectively and will concentrate its exploration efforts in the following locations all of which are within 10Km of the Twin Hills mine:

- The triangular area between Twin Hills, Mt Gunyan and Silver Spur ("**The Triangle**").
- NW-SE extension from the Triangle following structure sub-parallel to controlling faults at Silver Spur.
- Northern extensions from Mt Gunyan in features potentially sub-parallel to the shear zone observed in the Twin Hills Deposit.

The targets identified in Table 1 are conceptual in nature based on some or all of the following information/assumptions: -

- Preliminary drilling defining some aspects of the target dimensions and grade.
- Surface sampling defining some aspects of the target dimensions, the grade range is applied based on similar targets or existing prospects/deposits.

- Geophysical interpretation; the tonnes and grade are applied based on comparison to better identified targets or existing prospects/deposits in the same or similar geological setting.

These targets do not have sufficient information to quote mineral resources nor is there any guarantee that with additional exploration these targets will become mineral resources. The potential is exclusive of the current mineral resource base for Twin Hills and Mt Gunyan, although there are extensions to both included in Table 1.

**Table 1. Exploration Targets**

Location	Target	Tonnes		Ave Ag		Comments/Justification for Target Size
		Min	Max	Min	Max	
<b>Twin Hills</b>						
Southern Extension	0.6	250,000	500,000	50	70	near surface, strike extent defined by some previous drilling
Deepes	1.0	250,000	500,000	80	150	beneath current planned open pit
<b>Sub-total</b>	<b>1.6</b>					
<b>Mt Gunyan</b>						
Main Deposit	0.5	250,000	500,000	40	50	additional mineral resource from re-estimation
Deepes	1.2	500,000	1,000,000	50	70	depth extension to current mineral resource
South East	0.5	250,000	500,000	40	60	shallow, extent defined by RC and RAB drilling
South West	0.5	250,000	500,000	40	60	shallow, extent defined by some RAB drilling
<b>Sub-total</b>	<b>2.7</b>					
<b>Western and SE Tectonic Corridors</b>						
Tornado	0.6	250,000	500,000	50	70	surface sampling Ag +/- Zn anomaly defines +60m strike depth
Hornet	0.6	250,000	500,000	50	70	transverse occurrences, Ag +/- Cu/Zn, not part of main Cu prospect
Falcon	0.2	100,000	250,000	30	40	ridge line to NE and // to Hornet, similar potential to Hornet Ag
SAM Target1	0.4	250,000	500,000	30	50	additional as yet untested structures defined by SAM and mapping
SAM Target2	0.4	250,000	500,000	30	50	additional as yet untested structures defined by SAM and mapping
Silver Spur S and SE	1.1	750,000	1,500,000	30	50	based on surface geophysics - 3 targets identified
<b>Sub-total</b>	<b>3.2</b>					
<b>Individual Targets</b>						
Tom Cat	1.9	500,000	1,500,000	60	80	Ag/Zn soil anomaly defines strike extent
Silver Spur North	0.2	100,000	250,000	40	80	near surface lodes, strike and width defined in part by RAB drilling
Hawker	1.2	250,000	1,000,000	60	100	Ag soil anomaly, RC drilling extending Ag to 100g/t, strike length of 100m
<b>TOTAL</b>	<b>10.8</b>					

*Note: The Moz figures are rounded and determined by averaging the tonnage and applying the minimum grade.*

**ENDS**

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**David Tasker**  
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**Competent Person Statement**

- The information in this announcement that relates to the assessment of exploration targets has been compiled by Mr Peter Ball who is a Member of the Australian Institute of Mining and Metallurgy and Geology Manager of Alcyone Resources Ltd.
- Mr Ball has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as a "Competent Person" as defined in the 2004 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves".
- Mr Ball consents to the inclusion in this Announcement of the information compiled in the form and context in which it appears.

## 14. COPPER AND OTHER POTENTIAL MINERALISATION

The key factor in regard to the below prospectively is that none of these prospects have been factored into the life of mining, nor any financial forecasting. Each and every potential target and/or commodity is additional upside to this base case Re-start Strategy.

### Macmin Silver LTD, ASX Announcement 23 Feb 2006

#### • Underground Resource

An extensive programme of drilling by Rimfire Pacific Ltd at the historic Silver Spur mine resulted in the definition of the following in-situ resource. At a 7% zinc equivalent cut-off Combined Indicated and Inferred Resources of **369,000 tonnes at 6.47% zinc, 5.79oz/t silver, 2.89% lead and 0.35% copper and 0.26g/t gold.**

**The Silver Spur Mine is not part of the EPM's owned by MRV Metals, it is a stand alone historic ML with an approx. 400m x 500m foot print.**

### Macmin Silver Ltd, ASX Announcement 11 Jan 2005

#### DRILLING AT TULIAMI ENCOUNTERS FURTHER SIGNIFICANT COPPER-SILVER MINERALISATION

Two diamond drill holes (TUD3 and TUD4) were completed in mid-December at Tuliambi following on the previously reported [ASX Release 30 September 2004] high grade intercept of 5m at 6.0% copper, 325g/t silver and 3.4% zinc in hole TUD2.

Holes TUD3 and TUD4 were drilled from a site located approximately 30m south-west of hole TUD2 along the line of old workings. Hole TUD3 intersected **8m (77-85m downhole) at 3.43% copper, 179g/t silver and 1.09% zinc.** Included in this intersection was **1m (78-79m downhole) at 10.1% copper, 531g/t silver and 1.92% zinc.** Hole TUD4 failed to intersect any significant mineralisation as it terminated prior to reaching the target zone.

The Tuliambi Prospect is situated 5km north-east of the mining lease that surrounds the Twin Hills Silver Mine – where mine construction is currently in progress.

**This target area sits now within the MLA application and has been subject to a Exploration Target Release on 18 July 2016**

### Macmin Silver ASX, 30 September 2004

#### MACMIN SILVER INTERSECTS HIGH-GRADE COPPER-SILVER MINERALISATION AT ITS TEXAS SILVER PROJECT INCLUDING 1 METRE AT 10.0% COPPER, 508G/T SILVER AND 6.5% ZINC

#### SUMMARY

A two-hole diamond drilling programme at the Tuliambi copper-silver prospect has encountered significant copper-silver-zinc mineralisation at shallow depth.

Diamond hole TUD1 intersected **9m at 2.5% copper, 98g/t silver and 0.4% zinc between 40m and 49m downhole.** Diamond hole TUD2, drilled more steeply beneath TUD1, intersected **5m at 6.8% copper, 328g/t silver, 3.4% zinc and 0.5% lead between 93m and 98m downhole;** the intersection is equivalent to approx. 1,200g/t silver [a metal value of approx. 5360/tonne].

**These results relate to the area know by MRV Metals as Harrier as per Exploration Target Release 18 July 2016**

### Macmin Silver Ltd, ASX Announcement 25 Sept 2007

Re-assaying of MGD1 (drilled in 2002) on a ½ core basis highlights the potential to find areas rich in silver-gold mineralisation below the central section of known mineralisation, with MGD1 returning the following result:

**MGD1 1m (152-153) at 592g/t silver and 172g/t gold**

**This area is known as the Mt Gungan and Mt Gungan Nth Deposits currently on the MLA area**

Figure 24: MRV's OWN Announcements

### 14.1 HORENT PROSPECT

(ASX Release – MRV Metals confirms Significant Target at Hornet 19/07/2016)

*The Exploration Target at Hornet is in the range **500,000 to 1,500,000t at 1-2% Copper.** The potential quantity and grade of the Hornet Exploration Target is conceptual in nature, as there has been insufficient exploration to estimate a Mineral Resource. It is uncertain if further exploration will result in the estimation of a Mineral Resource. This is the third identified Copper Target for MRV Metals within the Granite Belt mining precinct and will potential complement the project's existing JORC 2012 silver resources.*

### 14.2 HARRIER PROSPECT

(ASX Release – MRV Metals confirms Harrier Prospect potential 18/07/2016)

*The Exploration Target at Harrier is in the range of **500,000 to 1,500,000t at 1.5% to 2.5% Copper, and 80 g/t to 120 g/t Silver.** The potential quantity and grade of the Harrier Exploration Target is conceptual in nature, as there has been insufficient exploration to estimate a Mineral Resource. It is uncertain if further exploration will result in the estimation of a Mineral Resource.*

*Refer to attachment 008- 2016 Measured Group JORC estimate for Exploration Target with resource potential*

### 14.3 HAWKER PROSPECT

(ASX Release – Hawker Prospect 18/07/2016)

*The Exploration Target at Hawker is in the range of **100,000 to 500,000t at 1.0-1.5% Copper and 30g/t to 60g/t Silver.** The potential quantity and grade of the Hawker Exploration Target is conceptual in nature, as there has been insufficient exploration to estimate a Mineral Resource.*

## 15. KEY RISKS

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### **Title Risk**

The Company's mining and exploration activities are dependent upon the maintenance (including renewal) of the tenements in which the Company has or acquires an interest.

Maintenance of the Company's tenements is dependent on, among other things, the Company's ability to meet the licence conditions imposed by relevant authorities including minimum annual expenditure requirements which, in turn, is dependent on the Company being sufficiently funded to meet those expenditure requirements. Although the Company has no reason to think that the tenements in which it currently has an interest will not be renewed, there is no assurance that such renewals will be given as a matter of course and there is no assurance that new conditions will not be imposed by the relevant granting authority. **EPM 8854, EPM 12858, EPM 26275, EPM 11455 and EPM 18950** are all currently granted and none are subject to current renewal.

### **Environmental Risk**

The Granite Belt Project and the Granite Belt Exploration Project are subject to Queensland and Federal Government regulations regarding environmental matters. The Governments and other authorities that administer and enforce environmental laws determine these requirements. As with all exploration projects and mining operations, the Company's activities are expected to have an impact on the environment, particularly if mine development proceeds. The cost and complexity of complying with the applicable environmental laws and regulations may prevent the Company from being able to develop potentially economically viable mineral deposits.

At present, the Company's new environmental authority has been publicly notified with no objections and issued by the Queensland Government as a draft for MRV Metals review. An existing environmental authority exists for the Granite Belt Exploration Project.

#### **Delay or Difficulty in Maintaining and Restarting the Granite Belt Project Plant**

A delay or difficulty (including any material cost overruns) encountered in refurbishing, maintaining and restarting operations at the Granite Belt Plant are unlikely to affect the viability and progress of the project as a soft start for all areas is factored in, with the treatment area being the key but most intact and operationally sound for restart.

### **Commodity Price Volatility**

As early revenues will primarily be derived from the sale of silver, any future earnings will be closely related to the price of silver. Commodity prices fluctuate and are affected by numerous factors beyond the control of the Company. These factors include world demand for silver, forward selling by producers, and production cost levels in major silver producing regions. Moreover, commodity prices are also affected by macroeconomic factors such as expectations regarding inflation, interest rates and global and regional demand for, and supply of, the commodity as well as general global economic conditions. These factors may

have an adverse effect on the Company's exploration, development and production activities, as well as on its ability to fund those activities.

The Company has however clearly declared through its exploration and development budget and intent to seek to move to a polymetallic operation by way of Copper and alternate metals, and should this be successful it is seen as a significant hedging opportunity, to de-risk a sole Silver play on commodities. A strong focus upon the development of resources in Copper, Gold, Zinc and Lead will lead the exploration program agenda, along with increasing silver resources and minable ounces.

### **Currency Volatility**

International prices of various commodities, including silver, are denominated in US\$, whereas the income and expenditure of the Company are and will be taken in account in Australian dollars, consequently exposing the Company to fluctuations and volatility of the rate of exchange between the US\$ and A\$ as determined by the international markets. In saying this the AUD target of \$24.25 is seen as a conservative bench mark moving forward for the price of Silver however significant fluctuations both positively and negatively can and could occur.

### **Exploitation, Exploration & Mining License**

The Company's mining exploration activities are dependent upon the grant, or as the case may be, the maintenance of appropriate licenses, which may be withdrawn or made subject to limitations. The maintaining of licenses, obtaining renewals, or getting licenses granted often depends on the Company being successful in obtaining required statutory approvals for its proposed activities and that the licenses, tenements, leases, permits or consents it holds will be renewed as and when required. There is no assurance that such renewals will be given as a matter of course and there is no assurance that new conditions will not be imposed in connection therewith.

### **Mineral Resource Estimates & Classification**

The Mineral Resource estimates for the Granite Belt Project are estimates only and no assurances can be given that any particular level of recovery of silver will in fact be realised. Mineral Resource estimates are expressions of judgement based on knowledge, experience and industry practice. Estimates which are valid when originally calculated may change significantly when new information or techniques become available. In addition, by their very nature, resource estimates are necessarily imprecise and depend to some extent on interpretations, which may prove to be inaccurate.

### **Nature of Mineral Exploration & Mining**

The business of mineral exploration, development and production is subject to risk by its nature. The success of the business depends, inter alia, on successful exploration and/or acquisition of reserves, securing and maintaining title to tenements and consents, successful design, construction, commissioning and operating of mining and processing facilities, successful development and production in accordance with forecasts and successful management of the operations. Exploration and mining are speculative undertakings which may be hampered by force majeure circumstances, land claims and unforeseen mining problems. Increased costs, lower output or high operating costs may all contribute to make a project less profitable than

expected at the time of the development decision. There is no assurance that the Company's attempts to exploit its exploration activities will be successful.

### **Liquidity Risk**

On completion of the Offer, and assuming the Offer is fully subscribed, the existing Shareholders will hold 75.2% of the total issued Share capital of the Company (assuming Minimum Subscription and existing Shareholders do not participate in the Offer). Under Chapter 9 of the Listing Rules, a number of the Shares held by the existing Shareholders will be subject to escrow periods which may cause a liquidity risk, as some of these shares may not be traded for up to a period of 24 months. Furthermore, there is no guarantee that there will be an ongoing liquid market for Shares. If illiquidity arises, there is a real risk that Shareholders will be unable to realise their investment in the Company.

### **Aus-Industry Dispute**

It is important to note the Morton Resources Limited is currently awaiting a decision from the Administrative Appeals Tribunal. The Company through the R&D Tax Incentive Scheme has for the last approx. 10 years sort to gain registration and then subsequent claims for R&D undertaken pertaining to the former UCG Operation at Kingaroy. In late 2015 Ausindustry notified the Company it disagreed with the Company's registrations and therefore sort to remove the registrations the Company held.

In turn this triggered an over payment issue with the ATO. The ATO has claimed from Moreton Resources Limited to repay the shortfall amounts from years 2012, 2013 and 2014 however all parties are in agreement that no enforcement of these funds will be forthcoming until the AAT action is completed and all avenues are finalized to ensure the ultimate decision is determined on if such payments are or are not due to the ATO. As a consequence parties must be sure to inform themselves upon these matters and the Company have taken the steps to include the short fall amounts in our forward looking cash flows, although we dispute that these will be owing, as we believe our registrations will be reinstated by virtue of a positive AAT outcome.

## 16. MATERIAL ASSUMPTIONS

<b>Exploration</b>		
1	EPM 8854	Whilst EPM 8854 is the underlying tenure, it has no bearing upon the base case Re-start Strategy. However data to consider; Granted on 8 July 2016; 100% owned by MRV Metals Pty Ltd; 2 year term; 17 sub-blocks; Site-specific Exploration EA EPPR04190216 granted 11 November 2016; Covers the highly prospective Hornet target.
2	EPM 11455	This tenement has no bearing upon the base case Re-start Strategy, however; Granted on 23 May 2016; 100% owned by MRV Metals Pty Ltd; 5 year term; 14 sub-blocks; Site-specific Exploration EA EPPR04190216 granted 11 November 2016; includes the highly perspective Hawker Target.
3	EPM 12858	This tenement has no bearing upon the base case Re-start Strategy, however; Granted on 10 August 2016; 100% owned by MRV Metals Pty Ltd; 2 year term; 34 sub-blocks; Site-specific Exploration EA EPPR04190216 granted 11 November 2016.
4	EPM 18950	This tenement has no bearing upon the base case Re-start Strategy, however; Granted on 31 May 2016; 100% owned by MRV Metals Pty Ltd; 5 year term; 2 sub-blocks; Site-specific Exploration EA EPPR04190216 granted 11 November 2016.
5	EPM 26275	This tenement has no bearing upon the base case Re-start Strategy, however; Granted on 27 February 2017; 100% owned by MRV Metals Pty Ltd; 5 year term; 2 sub-blocks; Site-specific Exploration EA EPPR04190216 granted 11 November 2016.
<b>Leases, Approvals and Permits</b>		
6	Land Access	Restricted Land consents and surface area compensation agreed with all private land holders
7	Environmental Approval	Draft EA EPML04238116 issued 10 April 2017 by Queensland Government for MRV review; Final EA to be issued 12 May 2017; EA takes effect on grant of MLA 100106
8	Mining Approval	MLA 100106 publicly notification completed 10 March 2017; No objections lodged; awaiting referral to Minister for determination upon grant
9	Secondary Approvals	Plan of Operations and Financial Assurance estimate been reviewed by DEHP in March 2017 and final submission in preparation; Cyanide Permit application to be lodged; Existing water licenses for bores to be transferred to MRV as landholder in application process; Need for underground Water License not considered necessary; No other secondary permits required i.e. SCL, vegetation, offsets, etc. for restart
10	Other	No there material consideration
<b>Inventories, Feedstock, Resources and Exploration Targets</b>		
11	Inventories	1.944Mt of average 38g/t Ag ore in heap leach stockpiles to which based upon financial forecasting 58% recoveries are forecast utilizing, however further dilution and loss is accounted for in the processing and refining steps
12	Inventories	Based upon significant analysis the company has quantified the silver inventories currently suspended in liquid or contained within the sludge at the bottom of the processing ponds. For this purpose the company has used a highly conservative 100,000oz recoverable for budgeting and forecasting purposes.
13	Feed Stock	470,000t of low grade ore currently sitting on ROM pad for commission feedstock. Financial calculations have relied upon a greater than <31g/t Ag derived from records pertaining to production and feedstock dumps that did not suite the 80g/t plus high grade strategy. The company has therefore made an estimate for budgetary purposes which it believes is highly conservative and it not material to the financial forecasts.
14	Resources	Material Assumptions have been used for this Re-start Strategy based upon the declared JORC's and relevant announcements. A cut off grade of 26.5g/t has been used for the JORC resources, however as stated in this report, a high grade recovery strategy has been undertaken for financial and forecasting purposes.
<b>Mining</b>		
15	Tonnes	Ore tonnes driven by crushing requirements which will require higher total movements in year 1 then in the subsequent period due to reducing strip ratios.
16	Grade	Ore grade varies from >26g/t to <150g/t Ag

17	Fleet	Cat 777 size ridged body trucks or equivalent 150t excavator size machine matched to trucks, ancillary fleet such as front end dozers, water carts, graders and other equipment have been factored in.
18	Dilution	5% dilution from mining forecasting and recoveries purposes.
19	Drill and Blast	Use of contractor to provide both drilling and blasting under the direction of pit manager. Options to use either emulsion or ANFO produced on site.
20	Consumables	Diesel, explosives, drilling consumables, wear items for mobile fleet, tyres are fully costed into all contracted rates used for the financial forecasting of this Re-start Strategy.
<b>Crushing and Screening</b>		
21	Tonnes	Rate of 90,000 tonnes per month which is within the existing plants name plate capacity
22	Grade	Will vary depending on ore source and include low grade stockpiles
23	Dilution	Nil, as this is Run Of Mine
24	Plant and Equipment	Options of refurbishing existing plant or utilizing the services of a mobile crushing unit on a per tonne basis. Both options are being fully evaluated
25	Consumables	Mainly wear plates for the three stages of crushing and screen decks
26	Contracts	None in place
27	Ancillary Plant & Equipment	Front end loader to feed ROM stocks into primary crusher is required
<b>Stacking and Heap Leaching</b>		
28	Tonnes	Stacking at same rate as crushing circuit
29	Grade	Will vary on a daily/ weekly basis, but average will meet or exceed grade in this document
30	Recoveries	Ag 57% recoveries of existing HLP. 58% minimum recoveries of all additional placed ore. Au recoveries are estimated at 45 and 55%. Significant test work pertaining to 2008, 2010, 2012 and 2015 supports these metallurgical recoveries, however the strongest validation of these estimates is gained from factual recoveries data pertaining to Alcyone not only when in full operation but when reconstituting the former MacMin heaps, which appears metallurgically to have benefited from the oxidization process
31	Plant and Equipment	Stacking conveyors are 70% complete, these are relocatable depending on which heap is being stacked. Some extra conveyor structure will be required. All pumps and major pipes remain in place. Small diameter pipes to tops and side of heaps will be sourced
32	Consumables	Cyanide, Hydrated lime and Cement, all of which are available from multiple suppliers and there is limited risk seen to the supply of these goods.
33	Contracts	None currently in place, but negotiations underway with critical lead time items
34	Ancillary Plant & Equipment	Light weight/ low pressure dozer will be required to trip material heaped on the leach pads as will a myriad of low cost, readily available light plant and equipment.
<b>Treatment and Recoveries</b>		
35	Recoveries	Recoveries to silver leachate is as described above +57%, recoveries. 1% actual loss of silver in the Merrill Crowe process (not recovery through the MC process). Silver remains suspended in solution in ponds until recovered. 2% losses in pouring of Ag dore bars to slag (which is re-crushed). Has been factored as losses, however as indicated these metals are recirculated through the process so upside is envisaged by this dilutionary factoring.
36	Plant and Equipment	Merrill Crowe process including retort and 2 furnaces are all in place at the facility.
37	Consumables	Main use if zinc powder and Soda Ash, all readily available
38	Contracts	None in place, but in negotiations with suppliers of Merrill Crowe equipment, pressure filter and furnace/ retort suppliers
39	Ancillary Plant & Equipment	Water/ leachate testing equipment will be required to be replaced before processing recommences but this is readily available in QLD
<b>Transport, Sales and Marketing</b>		
40	Security	Discussion underway with three transport and security companies for dore bars. Existing Chubb strong room on site for short term storage or silver bars
41	Transportation	Silver Dore bars will be transported by a security transport provider
42	Refinement	Discussions underway with five providers of refining services in QLD, NSW and WA

Financial Assumptions		
43	Financing	A expected debt facility has been factored in for budgetary purposes as can be seen from the financial forecasts within this document. (Commercial in confidence)
44	CPI	For the purposes of costs has been factored through the costs basis with year on year inflationary increases
45	Spot Price	A spot price of AUD \$24.25 has been selected as the average ongoing price for the next 8 years of silver sales. No uplift in CPI has been allocated for figures as today's real terms dollar value will carry forward and not be adjusted for inflationary impacts.

## Supporting References and Notes

These are a representative sample of the documents sourced, reviewed and relied upon in assisting develop and refine this Re-start Strategy. Some 900,000 data files from Geological modeling through to Sales of product have been reviewed by Moreton and MRV Metals since January 2015, including significant works undertaken and validations studies on behalf of the Company since January 2015 to February 2017. The information contained in this study is based upon factual and actual operating results.

No	Location	Type	Title
1	ASX	Market Announcement	Granite Belt Heap Leach Inventories – 21.04.2017
2	ASX	Market Announcement	Notice of intention to Grant Environmental Authority – 10.04.2017
3	ASX	Market Announcement	Production Assay's Return High Silver Grade – 03.04.2017
4	ASX	Market Announcement	Moreton Resources renewal and additional EPM grant 10.03.2017
5	ASX	Market Announcement	AAT Progress Report – 21.02.2017
6	ASX	Market Announcement	MRV Metals maintains significant exploration portfolio 22.11.2016
7	ASX	Market Announcement	MRV Metals Pty Ltd confirms JORC Resources Mt Gunyan – 05.10.2016
8	ASX	Market Announcement	MRV Metals confirms significant resources in Twin Hills Mine – 19.09.2016
9	ASX	Market Announcement	MRV Metals confirms Significant Target at Hornet – 19.07.2016
10	ASX	Market Announcement	MRV Metals confirms Harrier Prospect potential – 18.07.2016
11	ASX	Market Announcement	Hawker Prospect – 18.07.2017
12	ASX	Market Announcement	MRV Metals Pty Ltd acquires highly prospective metals portfolio – 20.06.2016
13	ASX	Market Announcement	Alcyone Streamlines Tenements to Focus on Silver Targets – 14.11.2013
14	ASX	Market Announcement	South Burnett Project Pre-Feasibility Exceeds Expectations – 21.12.2015
15	Internal	Report	Alcyone Resources 2010 Heap Leach Stability Assessment
16	Internal	Report	AMMTEC Limited Metallurgical Report 12358 , Oct 2010
17	Internal	Report	Twin Hills LOM Production Update, dated 23 January 2014
18	Internal	Report	Ore Processing Review Twin Hills Heap Leach Operations, Texas Silver Project, dated January 2015;
19	Internal	Report	ALS Metallurgical Test Work Report A16476, dated April 2015
20	Internal	Report	Heap Leach 4 Leaching Model 171212
21	Internal	Report	Survey_EOM_Report_2013_2014 by Alcyone
22	Internal	Data and Model	Production Model of Alcyone Resources Pty Ltd
23	Internal	Report and Data	DataGeo Geological Report dated January 2010, titled "Alcyone Resource Ltd Heap Leach Pad Sampling Test Work Program, Twin Hills".
24	Internal	Data and Reports	HLP's 1 to 4, reference is made to Alcyone Monthly reports (March 2011 to March 2014
25	Internal	Report and Data	Guy Butcher's report on the Ore Recoveries and End of Month Survey (2014)
26	Internal	Block model, support data	<i>Twin Hills LOM Prodn Update 23Jan15</i>
27	Internal	Data and reporting	<i>Copy of Monthly report Table 5 – Available Ounces</i>
28	Internal	Reports	<i>Alcyone Ore per month</i>
29	Internal	Report	<i>Heap Leach 4 Leaching Model 171212</i>
30	Internal	Report	Summit Consulting DD Report 2015
31	Internal	Report	Mechanical Inspection Report 2015
32	Internal		
33	Market	ASX Announcements	MacMin 2002 - 2008
34	Market	ASX Announcements	Alcyone 2008 – 2015
35	Internal	Data Room	Alcyone Receivers 2015
36	Internal	Validation Statement	Statement on Mine Planning Mr Blair Aitken 2017
37	Internal	Various Data Sheets	Alcyone Production Data 2012-2014

38	Internal	Various Data Sheets	Alcyone Crushing and Screening daily, weekly and monthly logs and reports 2012-2014
39	Internal	Geological Block Models, Optimization workings, Assays	All MacMin and Alcyone projected workings from Assays, Geological Modeling, Mine planning through to price sensitivities and optimization models
40	Internal	Geological Data Base	All Alcyone Geological Data Base, Assays, Models, Reports and interpretation
41	Internal	Geological Data Set	All reports, logs, data pertaining to tenement history and works undertaken since 1960's
42	Internal	Metallurgical Test Work	Column leach tests, column residue QECSCAN Mineralogy Report, Diagnostic Leach Test, Final Reports, Grab Samples 2009, HPGR Test Work, Physical Test Work, Rolls Crusher Testing, Texas Water analysis, VAT Leaching studies and test work
43	Internal	Project Work Cyanide Supply	All plans, workings, designs, concepts pertaining to Cyanidation supply, build and commissioning
44	Internal	Project Work Power Supply	All plans, quotes, designs, concepts and workings pertaining to potential capital infrastructure upgrade in power supply
45	Internal	Met Accounting Area	Budgets, Bullion pours, Met Accounting models, Daily reports, Forecasts, Heap Leach Met Accounting, Heap Leach Models, Month End reports, Reagents reports use and supply
46	Internal	MRV Assays	Moreton Resources Limited 2015 Assays, Test Work, ALS Global Met Recoveries Test Work
47		MRV Assays	MRV 2016, 2017 test work,

#### **Experienced and Qualified Person**

The skills and expertise used to develop the views expressed in each section of this report have been declared through each section of this report and the ultimate owner and author of this report is the CEO of MRV Metals Pty Ltd, Mr Nigel Slonker whom is a qualified Mechanical Engineer and prior to MRV Metals, Nigel was a Mines Inspector in New Zealand, General Manager of OceanaGolds; Reefion Operations, General Manager of CMPL's CSA copper mine in Cobar and has managed a number of other mines, quarries and tunnel projects in various countries. He has significant operation and commercial experience in running operations. Nigel have well over 20 years operation, commissioning and start up mining experience and is qualified and competent to be the author of this report on behalf of the Company.