



28 November 2012

The Manager  
Company Announcements Office  
Australian Securities Exchange

Dear Sir/Madam,

## **BARNES HILL PROJECT OPTIMISATION**

### **ADVANCEMENTS**

- **Improvement in nickel and cobalt recovery**
- **Reduction in capital intensity**
- **Reduction of operating costs**
- **Improving environmental stewardship**
- **Identification of low cost sustainable utilities and services**
- **Improvement in project economics**

Metals Finance Limited (the Company, MFC) is in the process of optimising feasibility studies on the Barnes Hill nickel laterite project in Tasmania, under a joint venture with Proto Resources & Investments Ltd (Proto, ASX:PRW), the owner of the tenements. MFC has the right to earn a 50% equity interest in the project through the completion of flow sheet designs, engineering and feasibility studies, in addition to procuring the funding required for implementation of the project and bringing it into production.

### **Optimisation Highlights**

MFC is pleased to provide a progress report on the optimisation phase of the Barnes Hill nickel laterite project in Tasmania. The Company continues to undertake activities targeted at maximising the economic potential and minimising the environmental impact of the Barnes Hill project.

Modelling of the base case parameters for the Barnes Hill project at a long term projected nickel price of US\$10/lb, indicates a project NPV of A\$152m (@ 12.5% discount rate) yielding a 60% IRR. The improvement to the project economics has resulted in a reduction in the projected capital intensity equivalent to \$8/lb<sup>1</sup> annual production and operating costs of \$5.06/lb<sup>1</sup> in the first 5 years, and less than \$6/lb<sup>1</sup> over the total life of 10 years.

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<sup>1</sup> Based on nickel equivalent production that is inclusive of nickel and cobalt

Testing has shown that adopting a saline agitated tank leach circuit, currently in use elsewhere within the nickel industry, will increase recovery and reduce the residence time of the ore in leach. Ongoing optimisation work with Dow Chemical is indicating improvements in the ion exchange circuit, through removal of the need to scavenge copper prior to nickel recovery and development of a cobalt recovery capability.

By altering the upstream leach circuit, MFC can substantially reduce the operational footprint of the project and minimise any potential environmental disturbance. MFC has also identified an alternative water supply thereby avoiding additional operating costs and improving the conditions for permitting.

MFC are encouraged by the advancements made so far in the optimisation phase and believe the project presents an exciting opportunity to MFC shareholders and stakeholders. Further details of the technical and financial advances made are provided in the background information provided overleaf.



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**P.A. Treasure**  
Managing Director

*Information within this announcement which pertains to mineralisation or resources is based on information compiled by Mr Tony Treasure who is a full time employee of Metals Finance Limited and is a Member of the Australasian Institute of Mining and Metallurgy. Mr Treasure has sufficient experience in the fields under consideration 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 and consents to the inclusion of this information in the form and context of which it appears in this report*



## Background

Metals Finance Limited completed feasibility study work on the 500,000 tonnes per annum vat leach and nickel production plant for the Barnes Hill project (Project) in June 2012. The study was completed on the basis of capital and operating cost savings which could be achieved through the use of the nearby 3<sup>rd</sup> party infrastructure and utilities, and vat leaching as the primary recovery methodology.

Since issuing the June 2012 feasibility study, MFC has undertaken further engineering studies aimed at optimising the project economics. A number of opportunities have been identified that are potentially advantageous to the project economics. In addition, MFC has recommended that a stand-alone option be referenced as the base case and hence will be independent of 3<sup>rd</sup> party infrastructure and utilities.

## Process Recovery

Three parameters in the leach circuit have been revised and initial results indicate an increase in metal recovery and a reduction in leach time. The parameters revised were:

- Altering the leach reservoirs from a vat system to an agitated tank system
- Increasing leach temperature from ambient temp to 80°C, and
- Substituting fresh water with saline water from the Tamar River

Applying these parameters, MFC conducted test work on composite ore samples from the northern and southern orebodies. While results from this additional test work indicate that nickel recoveries as high as 95% can be achieved, financial modelling used for the Barnes Hill project use a maximum recovery rate of 90%.

Employing an agitated tank leaching system increases the recovery of nickel and cobalt from the deposit and maximises the value of the Project. This approach further de-risks the Project as nickel and cobalt will now be rapidly recovered in a controlled environment resulting in reduced variability in production volumes and increased supply certainty for customers.

## Reduction in Capital Intensity

MFC continues to optimise the Project by exploring opportunities to reduce capital while maintaining quality and throughput at the Barnes Hill Project. In addition to altering the leach circuit as described above, recent advancements by Dow Chemicals in the field of Ion Exchange (IX) performance has enabled the removal of a copper guard used to pre-treat the solution prior to IX, and an ion exchange route for recovery of cobalt from the leach solution. The net effect of these developments and a reduction in the amount of contingency, currently at 15% of project direct costs, has resulted in an indicated capital intensity of A\$7.91 per lb of annual production.

Area	Total (\$m)
Site General	13.450
Mining and Ore Beneficiation	1.330
Tank Leaching and Tailings	16.120
Tailings Treatment	7.380
Solution Preparation	1.120
Nickel Ion Exchange & Electrowinning	19.470
Reagents	4.580
Services	1.630
Services and Infrastructure	4.050
Total Direct	60.120
Total Indirect	20.930
<b>Total Capital</b>	<b>81.050</b>



## Reduction in Operating Costs

Utilising an agitated saline leach process has enabled the Project to reduce the cost of water supply and has resulted in a 5% reduction in acid consumption. Accounting for nickel and cobalt production, the projected operating costs for the 10 year life of the mine is A\$5.91/lb nickel equivalent. As a result of the higher grade material expected to be treated during the first five years of the operation, equivalent direct operating costs for that period are lower – at an average of A\$5.06/lb Ni equiv.

It is noted that these projected operating costs do not take into account possible savings in operating cost that may be available using the Barrier Bay technology which is under development by Proto.

## Improving Environmental Stewardship

Removing the requirement to construct the vat leach field from the project flowsheet dramatically reduces the footprint of the minesite infrastructure area. The result of this amendment will minimise the environmental disturbance of the Project and maintain the biodiversity in the area.

Proposing to utilise a saline leach process will minimise the fresh water requirement of the Project and reduce the extraction volumes and depletion rates on the existing water table. As a core part of MFC's corporate social responsibility, MFC will continue to pursue options that promote the environment in and around the Project.

## Low cost sustainable services and utilities

MFC has explored the option of sourcing water from the Tamar River as opposed to acquiring fresh water from utility providers and nearby sources, or alternatively harvesting fresh water from ground bore holes. MFC will continue to progress activities that will ensure the Project has a source of cost effective and sustainable water supply.

## Project Economics

Detailed financial engineering and sensitivity analysis are ongoing and will be finalised at the conclusion of the project optimisation phase. The table below summarises the project economics over a range of possible nickel prices and operating cost assumptions.

- Base Case Long-term consensus commodity pricing
- Scenario 2 Mid-term consensus commodity pricing, all other factors constant
- Scenario 3 Current commodity pricing, all other factors remain constant
- Scenario 4 Mid-term commodity price forecast, operating cost increased by 20%
- Scenario 5 Upper range of long term commodity pricing

Barnes Hill Project	Base	2	3	4	5
Capital cost (\$ millions)	81.1	81.1	81.1	81.1	81.1
Project tonnes throughput (million t)	5.93	5.93	5.93	5.93	5.93
Nickel grade first 5 yrs (%)	1.01%	1.01%	1.01%	1.01%	1.01%
Nickel grade second 5 yrs (%)	0.73%	0.73%	0.73%	0.73%	0.73%
Nickel recovery (%)	90%	90%	90%	90%	90%
Long term nickel price US\$/lb	10.00	9.00	7.42	9.00	11.00
Total revenue (\$ millions)	1,081	982	825	982	1,210
<b>Indicated NPV 12.5% (\$ millions)</b>	<b>152</b>	<b>103</b>	<b>28</b>	<b>45</b>	<b>217</b>
<b>Indicated IRR%</b>	<b>60%</b>	<b>46%</b>	<b>24%</b>	<b>31%</b>	<b>77%</b>

Under all scenarios examined, the Barnes Hill nickel laterite project is economically robust with the opportunity to provide favourable returns to investors.

