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## Bass Metals Confirms Commercial Robustness of Hellyer Gold Project (HGP)

### HIGHLIGHTS:

- A study on tailings treatment options confirms HGP as a robust project utilising the Albion Process to recover gold and silver.
- Initial production forecast to recover **575,000 ounces of gold** and **23 million ounces of silver** over nine years.
- Cash Operating and Total Cash costs estimated at lower end of Australian primary gold production cost curve.
- NPV estimated at **A\$325 million** at current metal price levels.
- Cash flow forecast to reach **A\$91 million per annum** at current metal price levels.
- Company planning to progress detailed study in early 2012.

The Board of **Bass Metals Ltd (ASX:BSM & BSMO)** ("**Bass**" or "**the Company**") is pleased to report that a study on the various gold recovery process options on its Hellyer Gold Project (HGP) in northwest Tasmania has produced strong support for the gold-silver recovery project's commercial development utilising the Albion Process flow sheet.

The outcomes of Bass Metals' recovery study on the 100%-owned HGP has defined it as an emerging large scale, medium to low cost gold-silver project, which is planned to be confirmed with further detailed testwork leading to a definitive feasibility study (DFS).

The study outcomes indicate that the HGP would have:

- An estimated capital cost of \$189 million - which includes a 20% contingency factor.
- An estimated initial project production life of 9 years, producing a total of **575,000 ounces of gold** and **23 million ounces of silver** at a forecast Total Cash Cost of **\$288 per ounce of gold** (after silver credits). On a comparative basis with the Australian Gold industry this would make the HGP one of the lower cost primary gold producers in Australia.
- A robust NPV of A\$325 million (10% discount rate) at current level gold and silver prices.
- A pre-tax net cash flow forecast of approximately A\$91 million per year after assuming debt servicing to cover 50% of the capital costs.
- An estimated annual scale of production at 64,000 ounces of gold and 2.5 million ounces of silver which, on a gold equivalent basis, is comparable to annualised production of 115,000 ounces of gold per year. (Full details are provided in the *Key Findings* section below.)
- A well defined resource that will be further confirmed prior to project development.

# ASX/Media Release



Importantly, Bass Metals has several additional gold rich zones in the region which could significantly increase the life and scale of the gold and silver production at the HGP. Processing of the Hellyer Tails will also ameliorate a significant legacy environmental issue.

The study testwork and compilation was managed by metallurgical consultancy, BatteryLimits. Bass Metals' Managing Director, Mike Rosenstreich, said that while these study results are only a preliminary assessment of the commercial potential of the Hellyer Gold Project, it provides the Company with the confidence to move forward with one of the key planks to its longer term growth plans. "At what is a very competitive cash cost we will be able to generate significant shareholder value from what some people may have described as waste," he added.

"There is tremendous significance in that for Bass Metals, its supporters and the local community as we will be moving to an additional profitable project with a potentially long-term, plus 10 years' lifespan. The significance of that cannot be understated" Mr Rosenstreich said.

The Company is assessing a variety of options to finance this development including a mix of conventional debt and equity, a specialist Bond issue, commodity based loan and / or selling down or farming out a percentage of the Project. Bass has received expressions of interest for all of these options from a variety of local and international financial institutions and resource companies.

The Albion Process emerged ahead of the Pressure Oxidation (POX) option relatively late in the evaluation testwork process and given that there is a large amount of historical testwork data on POX for the Hellyer tails, this would have expedited the feasibility study process. A revised study and development schedule is currently being assessed.

***More detailed summary information is below in Key Findings & Background Sections***  
*A Competent Persons Statement is attached in Background Section also*

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## About Bass Metals Ltd (ASX: BSM)

Bass Metals Ltd is a growth-focused Australian base and precious metal producer with a portfolio of high quality zinc, lead, copper and gold assets in the rich Mt Read Volcanic belt in northwest Tasmania. Listing in 2005, Bass has delivered operating profits for the past three years since 2008 based on its profitable base metals production hub at Que River in Tasmania.

The Company's larger transformational Hellyer Mine Project commenced underground production in early 2011 from the Fossey deposit, discovered by Bass in September 2007. The planned ore treatment rate is 350,000 tonnes per annum (tpa), through the Hellyer Mill to produce 46,000 tpa of zinc concentrate, 22,000 tpa of lead concentrates and 3,000 tpa of copper-silver-gold concentrates. Bass has off-take contracts for its lead and zinc concentrates with global multi-metals business, Nyrstar, and for its copper silver concentrates with LN Metals.

The Company also has an active and successful exploration programme which has yielded new discoveries such as Fossey, Fossey East and McKay, as well as new exploration targets through the use of new exploration techniques not previously applied in the district. The Company has significant gold and polymetallic resources and is currently undertaking a feasibility study following on from positive scoping study outcomes indicating the potential to become a long-term, significant scale gold producer.

Bass has differentiated itself through successfully finding high-grade polymetallic resources, strategically and incrementally building up its assets and production profile to now become an emerging mid-tier diversified mining business.

## KEY FINDINGS

### **Ore Source:**

Initially the Hellyer Tails resource, with the reclamation and processing of 8 million tonnes of the 9.5 million tonne resource which grades 2.6 g/t gold and 104 g/t silver (4.7 g/t Au (eq)).

### **Process Route:**

The refractory nature of the feedstock requires a specialist process route to recover the gold and silver. The process selected is the Albion Process, comprising wet fine grinding, leaching at atmospheric pressure with temperature of approximately 95°C, followed by standard cyanide gold/silver recovery.

### **Key Modelling Outcomes: Table 1 – for the 3 selected gold & silver price cases**

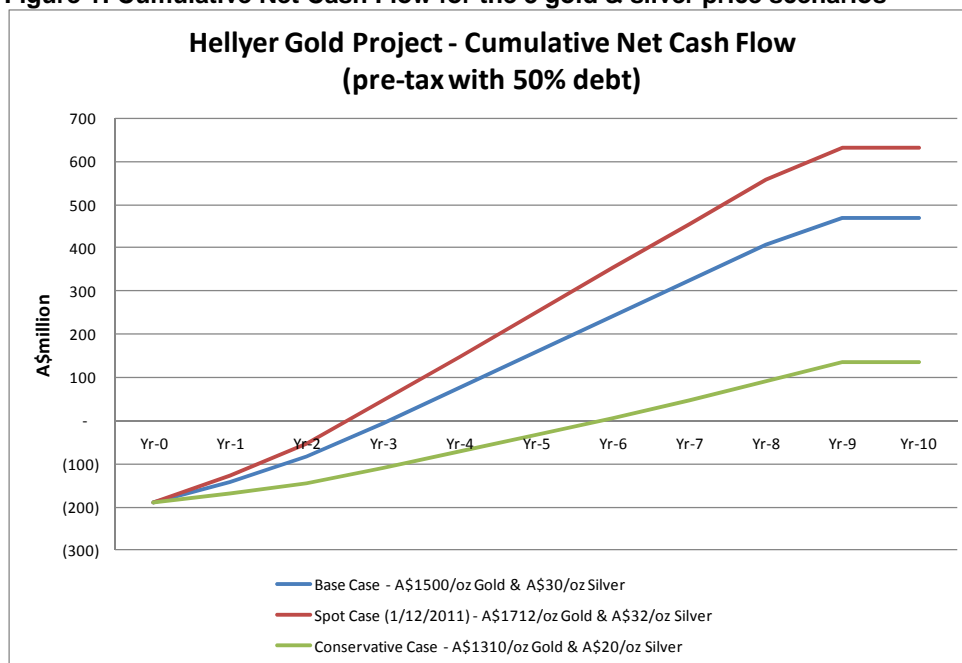
		Spot Case (1/12/2011) Gold: A\$1712/oz Silver: A\$32/oz	Base Case Gold: A\$1500/oz Silver: A\$30/oz	Conservative Case Gold: A\$1310/oz Silver: A\$20/oz
<b>Production</b>				
Gold – project total	oz.	575,000		
Gold – per year (avg.)	oz.	64,000		
Silver – project total	oz.	22,880,000		
Silver – per year (avg.)	oz.	2,500,000		
Gold (eq.) – project total <sup>1</sup>	oz.	1,003,000	1,033,000	925,000
Gold (eq.) – per year (avg.)	oz.	111,000	115,000	103,000
Gold:Silver Price Ratio <sup>2</sup>		54	50	66
<b>Financial Estimates</b>				
Capital Cost (includes 20% contingency) <sup>3</sup>	A\$M	189		
Revenue-Life of Mine <sup>4</sup>	A\$M	1,717	1,549	1,211
Net Cash-Life of Mine <sup>5</sup>	A\$M	631	470	135
NPV (pre-tax/10% discount rate)	A\$M	325	222	8
IRR (pre-tax)	%	42	33	11
Average Net cash per year	A\$M	91	73	36
<b>Cost Estimates</b>				
Cash Operating Cost <sup>6</sup> (after silver credits)	A\$/oz	109	188	586
Total Cash Cost <sup>7</sup> (after silver credits)	A\$/oz	288	350	712
Cash Operating Cost <sup>8</sup> (per ounce gold equivalent)	A\$/oz	792	769	860
Total Cash Cost <sup>9</sup> (per ounce gold equivalent)	A\$/oz	895	859	938
% Revenue from Silver Co-product. <sup>10</sup>	%	43	44	38

### **Notes:**

- Gold Equivalent ounces (eq.).** The HGP contains high grade silver credits which testwork indicates are recoverable. For comparative purposes Bass is referring to Gold Equivalent ounces, which is when the silver content is expressed as gold by applying the gold:silver price ratio. This is determined by dividing the gold price by the silver price for each Case presented above. Only gold and silver estimated to be recoverable have been used in this calculation of gold equivalence.
- Gold-silver Price Ratio.** The gold:silver price ratio is important if unit costs (see notes 6 & 7 below) are being expressed per ounce gold (eq.). In the past 12 months, due to major movements in the price of gold and silver, the gold:silver price ratio has been volatile ranging from 64 to 32. The gold:silver price ratio generated for each scenario is tabulated along with the percentage of revenue from silver (refer Note 8).

3. **Capital Costs** comprise a base capital cost of \$157.4 million plus a 20% contingency of A\$31.5 million.
4. **Revenue-Life of Mine** is the gross sales in Australian dollars (A\$) expected to be generated by the sale of gold and silver. Refining costs are included in the operating cost estimates.
5. **Net cash-Life of Mine** comprises revenue less all capital expenditure, site operating costs, refining charges, royalties and debt service and repayment – assuming a 50% debt facility (A\$94.4M), but does not include any corporate tax payments. A summary of cumulative Net Cash Flow for the project is presented in Figure 1, below.
6. **Cash Operating Costs (after silver credits)** have been calculated consistent with standard industry practice in terms of costs included and crediting the silver co-product value. The Australian Gold industry does not have a defined cost reporting standard but there appears to be conformance to the now defunct, US based Gold Institute Gold Standard (2002) by both junior and large scale primary gold producers, which Bass has also adopted and is explained further in the Background section. Herein, Cash Operating Costs include all direct and indirect site operating costs but exclude royalties, taxes and capital development costs. In this calculation, the value of the silver revenue is deducted from the cost base before it is divided by the ounces of gold produced.
7. **Total Cash Costs (after silver credits)** includes Cash Operating Costs plus royalties and production taxes.
8. **Cash Operating Costs (per ounce of gold (eq))**; the cost base is estimated as per Note 6 above, however, instead of crediting the silver revenue value, the cost base is divided by the gold ounces plus silver ounces converted to gold equivalent ounces, which together comprise gold equivalent production. (Refer Notes 1, 2 and 10 also).
9. **Total Cash Costs (per ounce of Gold (eq))** includes Cash Operating Costs plus royalties (refer Note 8).
10. **% Revenue from silver Co-product**; given the percentage of revenue generated from the co-product, silver is clearly very important in the calculation of unit costs to compare to other producers. In the case of the HGP, silver contributes a relatively high proportion to the overall revenue base.

**Figure 1: Cumulative Net Cash Flow for the 3 gold & silver price scenarios**



## **Cash Flow Modelling Inputs/Assumptions**

1. Mining  
The mining cost assumed is \$2.7/t of ore reclaimed and includes the use of the existing dredge and piping infrastructure already in place. It is assumed that the processing rate will be 1 million tonnes per year. This is based on the previous tailings retreatment process carried out by Intec Ltd from 2006 to 2008.
2. Processing & recoveries  
The preferred option is the Albion Process which extracts the highest percentage of the precious metals (Refer Background Section below).
3. Operating Costs  
The operating costs were estimated from first principles based on the testwork results and recent operating experience where appropriate. The unit cost is estimated to be A\$97/t of ore processed. It includes a 5% contingency and the Company considers that there is scope to reduce this figure through further optimisation work.
4. Capital Costs  
Capital cost estimates totals A\$157.4 million. A contingency of 20% has also been applied (\$31.5M), taking the total capital costs to \$188.9 million.
5. Financial assumptions  
Three gold and silver price scenarios were used;
  - Current Spot case: A\$1712/oz gold and A\$32/oz silver
  - Base case: A\$1,500/oz gold and A\$30/oz silver
  - Conservative case: A\$1310/oz gold and A\$20/oz silver

Funding of capital is assumed within the model as 50% debt and 50% equity. The discount rate used to calculate Net Present value (NPV) is 10% and the interest rate on the debt is also assumed to be 10%.

Royalty rate is assumed at 6% of gross revenue and accounts predominantly for the State production royalty. The financial model is calculated on a Pre tax basis.

### **Operating Cost Calculations:**

Bass Metals has tried to benchmark the HGP against other Australian primary gold producers in terms of production costs. An informal review of the gold industry production reporting indicates a general acceptance of the US Gold Institute standard (2002) as a unit cost reporting basis, despite the USGI no longer existing. This comprises:

- Cash Operating Costs: all direct mining, processing, transport, refining charges and other direct cost less any by-product credits;
- Total Cash Costs: the above plus, production related taxes and royalties; and,
- Total Production Costs: the above plus, depreciation, amortisation and rehabilitation charges.

This is the scheme Bass Metals has adopted for benchmarking the HGP against other gold producers.

A review of the literature, including specialist copyrighted gold survey production publications, broker research reports and specific company reports indicates that with Cash Operating Costs forecast to be between A\$288 and A\$350 per ounce of gold (after silver credits) Bass would be well in the lower 50% of the current Australian gold cost curve.

The Company has not yet completed a cost estimate for the Total Production Cost, but clearly with Bass' high capital cost for the plant this is likely to add A\$328/oz gold produced. However, Bass has very low mining development costs to amortise which should still maintain its place at the lower half of the cost curve.

## BACKGROUND

### *Resource Base*

The Hellyer tailings were produced between 1988 and 2000 as the residue from processing approximately 16 million tonnes of ore from the former Hellyer Mine. They are contained in a purpose built storage facility and submerged beneath water to prevent oxidation and generation of acid mine drainage. The Mineral Resource summarised below is in accordance with the JORC Code. None of the Fossey Tailings (also containing Au and Ag) has been included in the resource quoted above; however that remains an additional potential source of feed material.

**Table 2: Hellyer Tails Mineral Resource Summary**

JORC Classification	Tonnes Mt	Gold (g/t)	Silver (g/t)	Zinc (%)	Lead (%)	Copper (%)
Measured	4.9	2.7	105	2.8	3.1	0.2
Indicated	2.5	2.6	104	2.6	3	0.2
Inferred	2.1	2.4	103	1.7	2.9	0.2
<b>Total</b>	<b>9.5</b>	<b>2.6</b>	<b>104</b>	<b>2.5</b>	<b>3</b>	<b>0.2</b>

Contained Metal (No met. recovery assumed)	Gold Moz	Silver Moz	Zinc kt	Lead kt	Copper kt
Measured	0.4	17	137	152	10
Indicated	0.2	8	65	75	5
Inferred	0.2	7	36	61	4
<b>Total</b>	<b>0.8</b>	<b>32</b>	<b>238</b>	<b>288</b>	<b>19</b>

### *Metallurgical Testwork*

In late 2010, BatteryLimits was engaged by Bass Metals to carry out test work to assess the potential for a variety of process options to maximise the extraction of metals from the refractory Hellyer Tailings. Between November and December 2010, a total of 12 sample locations were identified within the tailings dam and samples collected. A total of 1.4 tonnes of material was collected and sent to Ammtec in Perth for test work.

BatteryLimits has designed, managed and reported on appropriate testwork that has generated more definitive data on the metal recoveries, reagent consumptions and solid-liquid separation requirements for each of several process routes. Based on this data, the capital and operating costs have also been updated in order to reflect the current cost estimates. This information was used to update the financial assessment and project financial performance of the potential projects in terms of NPV and IRR. All of the data and testwork relating to the Albion Process has been estimated to within a range of plus 35% and minus 10%.

The following process routes were investigated:

1. Flotation to produce a bulk concentrate containing the gold, silver and base metal ahead of the extraction treatment;
2. Direct cyanide leaching with cyanide recycling (SART);
3. Partial oxidation by leaching (acidic) at high temperature and pressure followed by base metal recovery ahead of neutralisation and cyanide leaching;
4. Partial oxidation by leaching using the Albion Process (neutral) followed by cyanide leaching;
5. Partial oxidation by leaching using the LeachOx Process (alkaline) followed by cyanide leaching;
6. Partial oxidation by roasting followed by cyanide leaching.

The metal recovery results observed under the most promising conditions for each of these tested options are summarised in Table 3. Particular importance in this selection was given to the recovery of gold and silver from the tailings. The technical results of the various processes considered are shown below:

**Table 3: Summary of metallurgical technical outcomes for process options.**

Process option	Feed	Process steps	P <sub>80</sub> (µm)	Au recovery (%)	Ag recovery (%)
Direct leach	Tailings	Direct cyanidation	64	8	22
	Tailings	Fine grind - Cyanidation	10	9	26
	Concentrate	Fine grind - Cyanidation	10	32	49
Pre-oxidation (Pressure)	Tailings	Pressure oxidation - Cyanidation	64	84	6
	Tailings	Pressure oxidation - Lime Boil - Cyanidation	64	83	18
	Tailings	Fine grind - Pressure oxidation - Cyanidation	10	41	19
	Concentrate	Pressure oxidation - Cyanidation	52	50	43
	Concentrate	Fine grind - Pressure oxidation - Cyanidation	10	46	61
Pre-oxidation (Albion)	Concentrate	Fine grind - Albion process - Cyanidation	8	92	86
	Concentrate	Coarse grind - Albion process - Cyanidation	12	86	86
Pre-oxidation (LeachOx)	Concentrate	Fine grind - LeachOx process - Cyanidation	5	37	36
Pre-oxidation (Roasting)	Concentrate	Roasting - Cyanidation	52	34	31

The Albion Process (coarse and fine grind) showed the lowest unit capital cost and the lowest unit operating cost. Though the finer grind Albion Process (6 micron) has a better recovery than the coarser grind (12 micron), the excessive lime stone requirement for the finer grind process reduces the financial benefit in pursuing that option. However further test work during pilot testing will be carried out to optimise the correct sizing and reagent consumption.

Brisbane based Core Resources is the global agent for the Albion Process and its technical experts will be involved in Bass' ongoing development work. Core Resources will be entitled to a royalty fee for the use of the technology. The process is relatively new, but it has been extensively tested and piloted and there are currently two commercial scale plants under construction. The Albion Process outperformed all other process flow sheets tested, and is considered worthy and robust to further pursue for the Hellyer Tailings.

#### **COMPETENT PERSONS STATEMENT**

The information in this report that relates to Mineral Resource estimates is based on information compiled by Mr Kim Denwer who is a full time employee of Bass Metals. Mr Denwer is a Member of the Australian Institute of Geoscientists. Mr Denwer has sufficient experience which is relevant to the style of mineralisation and type of deposit and to the activities currently being undertaken to qualify as a Competent Person as defined in the JORC Code. Mr Denwer consents to the inclusion in this report of this information in the form and context in which it appears.