

## **SIGNIFICANT VALUE IN SULPHURIC ACID PROJECT, STUDY FINDS**

**An independent, detailed business model completed on Broken Hill Prospecting Ltd's (ASX code BPL) extensive cobalt pyrite deposits near Broken Hill, western NSW, has identified a potentially viable, stand-alone sulphuric acid project.**

**A two-million-tonnes-per-year facility could operate for 20 years or more by roasting cobalt-pyrite at Broken Hill mined from BPL's nearby Thackaringa resource. Sulphuric acid is in strong demand domestically by major industries including mineral processing and fertiliser production. Australia currently imports large amounts of the chemical.**

### **Highlights**

The main findings of the new study include:

- **CAPEX; AUD768.5m (includes mining, concentrate plant, freight, roast/acid plant)**
- **Sale price; AUD186/t sulphuric acid**
- **Revenue per year; AUD381.5 million**
- **Profit margin; 30%**
- **Cost estimates; ±50%**
- **Sensitivity analyses show an opportunity for significant value creation when cost estimates are reduced by 40% from base case cost assumptions.**

In addition to revenues from sulphuric acid, the project's cobalt value would be considerable because of cobalt contained in the ore. Mining and processing costs prior to cobalt recovery were included in the cost structure for sulphuric acid production.

Based on a cobalt price of USD27,450 per tonne, the model estimated that an additional value of the contained cobalt within the deposits could be between US\$822 million to US\$1.3 billion.

### **Study**

The three-month team study, entitled *Strategic Evaluation of Sulphuric Acid Production*, was completed by Alexia Combet, Tushar Gupta, Aristotle Solomon and Rico Xiong as a partial requirement of the Australian Graduate School of Management's MBA graduate course.

The study incorporated details of the 2012 GHD scoping study report undertaken for BPL, and added new research undertaken by the AGMS team. Three locations for producing and selling sulphuric acid were reviewed; Broken Hill, central west NSW, Tennant Creek. The group determined that the optimal economic parameters were likely to be from producing sulphuric acid at Broken Hill where new industries to process titanium sand products (ilmenite, leucosene) could provide a large and long-term (plus 20 years) customer for the acid.

The analysis included capital and operating estimates for mining, concentration of the cobalt-pyrite ore, transport and roasting of concentrate to produce sulphuric acid.

Cobalt extracted from the ash residue following pyrite roasting and acid production was not considered in the model. Future metallurgical studies are required to determine the costs and

### **Broken Hill Prospecting Limited**

ARBN: 003 453 503

Level 14, 52 Phillip Street, Sydney NSW 2000 Box 3486 GPO, Sydney NSW 2001

P: +61 2 9252 5300 F: +61 2 9252 8400 E: info@bhpl.biz W: [www.bhpl.biz](http://www.bhpl.biz)

recovery parameters of this process. It may be reasonable to assume that future production of between 5,000 - 6,000 tonnes of cobalt metal per year is possible and this could add considerable value to the project (cobalt metal traded on the London Metal Exchange between USD28,000 – USD31,200 during March 2014). Extraction of cobalt and hematite from ash residue will form the basis of future metallurgical studies by BPL.

**Comment**

Managing Director Dr Ian Pringle commented:

*“BPL was fortunate to have the input of this skilled research team at the AGSM. They have undertaken an in-depth assessment of the sulphuric acid market in eastern Australia, with focus on the viability of a stand-alone sulphuric acid business based on BPL’s large, near-surface cobalt-pyrite resources.”*

*“The MBA business model for sulphuric acid production has provided the basis for new commercial opportunities. It has shown that sulphuric acid production using BPL’s cobalt-pyrite ore near Broken Hill can be viable, even without the input of substantial cobalt credit. Cobalt contained in pyrite concentrate could be recovered independently from the residue following acid production and would make an important economic contribution to the project.”*

*“BPL is well positioned to take advantage of an increasing local demand for sulphuric acid which is an essential ingredient for many mineral processing and chemical industries. The company is seeking a partner to help progress the opportunities this unique deposit offers.”*

**Background**

BPL is evaluating large, near-surface cobalt-pyrite deposits located 25km south-west of Broken Hill. The mineralisation has the potential to provide feedstock for long term sulphuric acid production as well as cobalt supply for a growing international market.

In late 2012, BPL commissioned GHD Engineering to complete scoping studies that detailed robust economics for the production of pyrite concentrate to manufacture sulphuric acid. The work highlighted the increasing Australian and world demand for sulphuric acid and suggested that a chemical industry based on sulphuric acid production could add considerable project value.

In 2007, UNSW’s faculty of Commerce and Economics merged with the Australian Graduate School of Management (AGSM) to form the Australian School of Business (ASB). The graduate MBA Program is undertaken by the AGSM and has gained a high international standing over more than 30 years.

Yours faithfully,



Ian J Pringle  
(Managing Director)

***For further information contact;***

*Dr Ian Pringle, Managing Director, Broken Hill Prospecting Ltd (tel +61 408 548 767)  
Australian media - Alan Deans, Partner, Last Word Corporate Communications (tel +61 427 490 99)*

**Broken Hill Prospecting Limited**

ARBN: 003 453 503

Level 14, 52 Phillip Street, Sydney NSW 2000 Box 3486 GPO, Sydney NSW 2001

P: +61 2 9252 5300 F: +61 2 9252 8400 E: info@bhpl.biz W: [www.bhpl.biz](http://www.bhpl.biz)