



## QUARTERLY REPORT TO 31 DECEMBER 2009

### HIGHLIGHTS

- **Newcastle Iron Recovery Plant**  
The reconstruction and refurbishment of the EARS section of the ERMS SR Plant, which is called the Newcastle Iron Reduction Plant, is continuing at the Kooragang Island site. Removal of surplus equipment has been completed, as has site clearance and preparation for the necessary modifications and extensions to the plant. Ordering of specialty or long lead time equipment items is underway and construction will be well advanced during the March quarter, with commissioning and initial production scheduled for the second quarter of 2010.
- **Purchase of Roll Briquetting Press**  
Following successful briquetting testwork undertaken during the quarter by CSIRO Minerals on Austpac Reduced Iron produced from mill scale, a 12 tph Koeppern roll briquetting press was purchased in January 2010 for integration into the Plant.
- **Supply and Sales Agreements**  
Negotiations for the supply of raw materials and the sale of finished products have reached an advanced stage with agreement in principle on Austpac's requirements and the preparation of legal documentation is underway. The final documentation will be subject to approval by the relevant Boards.
- **Austpac's Technologies in the Titanium Industry**  
Test work for a major corporation in the titanium industry was successfully undertaken during the quarter and additional work is planned for the March quarter. A new silica-reduction process which can be easily integrated into the ERMS SR process was developed to further enhance our high grade synrutile. Continued interest in ERMS SR synrutile was shown by two other groups. It is expected this activity will lead to alliances which will assist the future development of a commercial ERMS SR plant.

### THE NEWCASTLE IRON RECOVERY PLANT

The Newcastle Iron Recovery Plant will use the EARS acid regeneration section of the ERMS SR Demonstration Plant at Newcastle to convert two by-products from the steel industry, spent pickle liquor (SPL) and mill scale, into hydrochloric acid and high grade iron. This

recycling project will demonstrate the effectiveness of Austpac's EARS and direct reduction technologies in profitably treating mill waste products, so solving a significant disposal problem for the steel industry.

To ensure the EARS section of the ERMS SR Demonstration Plant is capable of long term commercial operations, a number of modifications have been made to the iron recovery plant's flow sheet, the plant lay-out and some equipment, including:

- Infrastructure for the delivery and handling of up to 25,000 tpa of mill scale and 6,000 tpa of coal, the production, briquetting and despatch of Austpac's reduced iron product, and the delivery of SPL and despatch of regenerated acid,
- Replacement of some high temperature equipment (e.g. pyrohydrolysis roaster, gasifier, afterburner, heat exchanger and connecting duct work) with refractory lined components,
- Installation of improved materials handling systems and relocation of some equipment and pipe work to improve plant operability, and
- Redesign and fabrication of the metallising section.

The Austpac design team led by John Winter has met these challenges and has developed a revised plant flow sheet that incorporates commercially robust equipment and adheres to best design and safety practice. Austpac is confident that these accomplishments will be reflected in an EARS plant with excellent operability which produces high quality materials within specifications.

During the quarter under review, the removal of all superfluous or inoperable equipment was completed, as was clearance and site preparation for the modifications to the plant, including the briquetting area. The detailed process and instrumentation diagrams which incorporate the flow sheet and equipment modifications were finalised, equipment lists have been prepared, and fabrication drawings for the major equipment items were completed and sent to suppliers in preparation for construction.

Ordering of a number of specialist items only available offshore (e.g. transfer valves capable of handling high temperature solids from Canada) or other equipment with long delivery times is underway. A roll briquetting machine has been purchased and is being moved to site in preparation for installation. Construction of the plant will continue through the first quarter with final installation and, subject to all long lead time items being shipped to site as ordered, commissioning is scheduled for early in the second quarter of 2010.

## **BRIQUETTING TESTS AND PURCHASE OF ROLL BRIQUETTING MACHINE**

During the rolling process in a steel mill some of the iron on the surface of the steel oxidises and flakes off. This iron oxide is called mill scale, which may be used for other processes but is often dumped. Austpac's iron reduction process reduces the mill scale to iron metal, and the iron is extremely pure because it is derived from steel, in contrast to Direct Reduced Iron, which is derived from iron ore which contains contaminants such as silica and other minerals. Austpac Reduced Iron (ARI) will therefore be a premium product. The ARI process is covered by international patents or patent applications

Mill scale flakes comprise coarse and fine particles, and while the ARI process produces iron, as it is technically a direct reduction process, the iron is reduced without becoming molten and there is no physical change to size of the flakes. To ensure the reduced mill scale can be used for steel making without blowing out of the arc furnace, Austpac will produce ARI briquettes, a far more commercially attractive product.

During the quarter under review, briquetting tests were undertaken by CSIRO Minerals at their Brisbane facilities on a sample of ARI produced from mill scale. A Taiyo K-102 briquetting press with a 500 kg/hour capacity was used and it was concluded from a number of tests that ARI would make competent briquettes suitable as an arc furnace feed.



Unprocessed Mill Scale



ARI Briquettes

As reported earlier this month, Austpac purchased a used Koeppern roll briquetting press for installation in the Newcastle Iron Recovery Plant. This machine has a nominal capacity of 12 tonnes/hour which is more than the Plant's capacity so it is planned to operate the press for six hours per day, thus saving significant costs.

#### **APPLICATIONS FOR AUSTPAC'S TECHNOLOGIES IN THE TITANIUM INDUSTRY**

During the previous quarter, a number of international companies contacted Austpac enquiring about the applicability of specific technologies to treat industrial waste streams, as well as commissioning testwork to upgrade low grade ilmenite and the supply of high grade synrutile for new applications in the industry. Testwork continued through the quarter under review with very positive results. A major breakthrough was achieved when it was demonstrated that a process to significantly reduce the silica content of synrutile could be integrated into the ERMS SR process for a very small incremental operating cost and no additional capital cost. A large pilot scale rig to further investigate this new process was constructed during the quarter. It is being used to process Murray Basin ilmenite to further improve the high grade product produced by the ERMS SR Demonstration Plant in 2008 before undertaking further third party testwork. It is likely this process will be included in the flow sheet of Austpac's proposed 60,000 tpa ERMS SR plant in Eastern Australia.

Several titanium metal manufacturers have shown interest in this enhanced product and it is proposed to supply small samples to these companies for further evaluation.

Further work in conjunction with international companies on applications for the Company's technologies will continue through the March quarter of 2010 in parallel with the construction of the Newcastle Iron Recovery Plant. It is anticipated this will lead to the development of new alliances for the use of our technologies.

### **EXPLORATION LICENCE 4521 – HORSHAM, VICTORIA**

A new water bore was completed to a depth of 49 metres in an area close to the southern boundary of the WIM150 core resource known to contain saline groundwater which may be suitable for future mineral processing. Pipe fittings were installed to allow the measurement of the water level. The purpose of the bore is to enable the water level in this hole and in several other monitoring bores to be recorded during a water pumping test of an adjacent borehole. The pumping test was undertaken during the last weeks of January 2010, and analysis of the data has yet to be undertaken by the hydrological contractor, Coffey Environments.

In November 2009, Austpac applied for funding under Round 3 of the Department of Primary Industries "Rediscover Victoria" Drilling Program. The program proposed by Austpac consists of a fence of vertical air core holes designed to further investigate the basement rocks below the Murray Basin mineral sands in the western portion of E.L. 4521. It focuses on the McKenzie River target to test for potential copper-gold mineralised zones within the basement. The Department recently advised that Austpac was successful in obtaining a grant to the value of \$14,000, which will cover 50% of the direct drilling costs of the program. Austpac plans to undertake this program during 2010.

The Victorian Department of Primary Industries has also advised Austpac that Exploration Licence 4521 has been renewed for a further two years.

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*NOTE: This report is based on and accurately reflects information compiled by M.J. Turbott who is a Fellow of the Australasian Institute of Mining and Metallurgy and a member of the Australian Institute of Geoscientists and is a competent person as defined in the Australian Code for Reporting of Identified Mineral Resources and Ore Reserves.*

#### **About Austpac Resources N.L. (ASX code: APG)**

#### ***WINNER: 2008 National Mining Awards APPLIED TECHNOLOGY OF THE YEAR***

Austpac [ [www.austpacresources.com](http://www.austpacresources.com) ] is a minerals technology company focused on the titanium, steel and iron ore industries. It has been listed on the Australian Stock Exchange since 1986. Austpac's key technology transforms ilmenite into high grade synthetic rutile, a preferred feedstock for titanium dioxide pigment and titanium metal production. The technology can also be used to process waste chloride solutions and iron oxides produced by steel making to recover hydrochloric acid and high purity iron metal briquettes. A third process can be used to produce Direct Reduced Iron (DRI) from both hematite and magnetite iron ores.