



## QUARTERLY REPORT TO 31 MARCH 2016

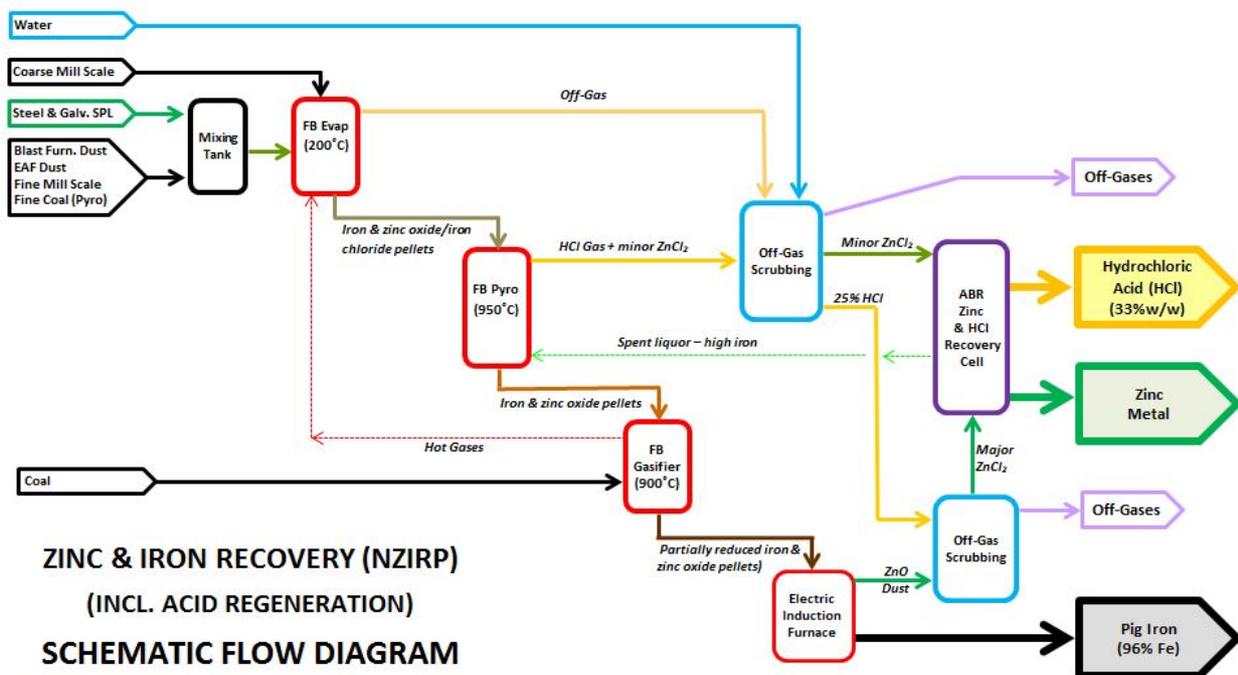
### HIGHLIGHTS

- The Newcastle Zinc & Iron Recovery Plant (NZIRP) is designed to recycle the by-products from the steel and galvanising industries in the Sydney region; 10,000 tpy of EAF dust, 12,000 tpy of mill scale and 13,000 tpy of iron and zinc-rich chloride liquors. The Plant will produce 15,000 tonnes of pig iron, 6,600 tonnes of concentrated 33%w/w HCl and 3,700 tonnes of zinc per year. The estimate of capital and operating costs indicates that the project will be economically robust. During the quarter, the testwork and engineering program necessary to develop the final design and definitive costs of the modified Plant was refined.
- For some time Austpac has believed there is great potential in the USA for technology that can recover zinc, iron and concentrated HCl from steel industry furnace dusts and spent liquors. In 2013 the USA produced 87 million tonnes of steel; over 60% of this was from steel mills with electric arc furnaces. During the quarter, Austpac has been working with a group of well-connected US companies who also recognise that our technologies create an immediate opportunity to recycle some of the hundreds of thousands of tonnes of EAF dust produced each year by the industry. Accordingly, Austpac is in advanced discussions regarding the funding of the testwork and engineering program at Newcastle and also a commercial zinc-iron-HCl recovery plant in the United States
- During the quarter, a company with a significant heavy mineral resource in Asia approached Austpac regarding the ERMS SR synrutile process, and negotiations have commenced regarding the terms for the use of the technology to add value to ilmenite by producing high grade synrutile as feedstock for titanium sponge manufacture.
- Austpac and ABR continued discussions regarding closer cooperation to maximise the use of and benefits from their respective technologies.
- During the quarter Austpac received an R&D tax concession refund of \$2.33 million for expenditure at Newcastle during the 2013-14 year. This will be used for working capital and to advance the NZIRP project.
- Austpac continues to pursue discussions with an Australian finance house and an associated US finance group regarding a project finance facility of up to \$15 million.
- Austpac is awaiting a decision by the Department of Energy and Earth Resources regarding the Company's application for a grant for co-funding a geophysical and drilling program at Nhill (EL 5291) under the Victorian Government's TARGET initiative.

## NEWCASTLE ZINC & IRON RECOVERY PLANT

Conceived in 2010, the Newcastle Iron Recovery Plant was designed to process mill scale and blast furnace (BF) and basic oxygen furnace (BOF) dusts from steel mills and spent pickle liquors (SPL) from steel pickling operations, and produce briquetted iron and strong 25% hydrochloric acid (HCl). Since 2011, Austpac spent \$18.5 million on the plant which was 85% complete when construction was curtailed in 2014 while additional funds were sought to finish the plant.

During the first half of 2015, Austpac recognised that technology developed by ABR Process Development (ABR) would enable the Newcastle plant to process zinc-contaminated EAF dusts. ABR's zinc recovery cell uses a patented membrane/electrolysis process to recover zinc metal and concentrated 33% HCl from mixed zinc-iron chloride waste solutions produced by the galvanising industry. By integrating that process into Austpac's EARS acid and iron recovery flowsheet, the Newcastle plant will be able to produce iron, zinc and concentrated HCl. A further enhancement is the replacement of the second stage of the iron reduction section with an induction furnace to produce pig iron, which is higher quality and has a higher value than briquetted iron.



As the ABR zinc/acid recovery technology and the induction furnace introduced significant changes to the Newcastle plant's flowsheet, Austpac and ABR agreed to evaluate the economics of the modified plant, which is now termed the Newcastle Zinc and Iron Recovery Plant (NZIRP). During the second half of 2015, Austpac developed a mass and energy balance for the NZIRP from which the Plant's inputs and outputs could be derived. The modified plant will produce 15,000 tonnes of pig iron, 6,600 tonnes of concentrated 33% HCl and 3,700 tonnes of zinc per year, which enabled Austpac to estimate the Plant's capital and operating costs. Austpac and ABR also developed a testwork and engineering program that will be undertaken to develop the final design and a definitive capital cost for the NZIRP before continuing construction at Newcastle.

The modifications to the Plant will reduce process risk, improve Plant reliability and significantly enhance profitability, thus making the NZIRP economically robust.

Technology to recycle zinc-contaminated SPL and electric arc furnace (EAF) dusts and iron-rich SPL and furnace dusts from the steel industry to produce concentrated hydrochloric acid, pig iron and zinc metal is unique. The combined Austpac-ABR technologies have applications in mini-mills which use EAF technology to produce steel.

## **NEW DEVELOPMENTS IN THE USA**

Australia is a very small steel producer by world standards; there are two steel makers in Australia who in 2013 produced a total of 4.7 million tonnes of crude steel, 78% from blast furnaces and the balance from electric arc furnaces. The two EAF furnaces in NSW produce around 10,000 tonnes per year of zinc and iron-rich dust. The NZIRP can process up to 22,000 tpy of solid feedstock, so it is planned to add 12,000 tpy of mill scale so the plant operates at full capacity.

In 2013, the USA produced 87 million tonnes of crude steel, making it the third largest producer in the world. Aided by competitive energy costs, over 60% of this steel was produced in steel mills using electric furnaces. These plants produce hundreds of thousands of tonnes of EAF dust each year and their disposal is an ongoing problem for steel producers. Austpac has always believed there is great potential for the Company's technology in the USA, and the modified flowsheet with the ability to recover iron, zinc and concentrated HCl from steel mill waste markedly enhances this potential.

During the current quarter, Austpac has been working with a group of US companies who have also recognised the potential for a technology that can process EAF dusts and produce three valuable products. The companies are well-connected and Austpac is in advanced discussions regarding funding the testwork and engineering program at Newcastle and also the construction of a commercial zinc-iron-HCl recovery plant. This new initiative is developing quickly and Austpac believes it is an important advance for the Company.

## **ERMS SR SYNRTILE TECHNOLOGY**

During the quarter, a company with a significant heavy mineral resource in Asia approached Austpac regarding the ERMS SR synrutile process. The company aims to develop a mine and a mineral separation plant to produce ilmenite, rutile and zircon, but has also expressed an interest in adding value to the ilmenite by using Austpac's technology to produce high grade synrutile for use as a feedstock for the production of titanium sponge, an intermediate process in the manufacture of titanium metal. Negotiations are underway regarding terms for the use of the technology, which would involve Austpac in a Scoping Study followed by a Bankable Feasibility Study.

## **EL 5291 NHILL**

The status of the various company applications for financial support under the Victorian State Government's TARGET Minerals Exploration Initiative is yet to be determined by the Department of Energy and Earth Resources. Austpac's application includes a first stage of geophysical surveying, using a magnetometer and gravity meter. This work is best conducted while the farm fields remain fallow, so preparations for these stages of data acquisition are in progress.

### **Mining Exploration Entities:**

EL 5291 (Nhill); Located between Nhill and Dimboola, Victoria; 100% Austpac Resources N.L.

### **For further information please contact:**

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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 Fellow 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)**

Austpac Resources N.L. [[www.austpacresources.com](http://www.austpacresources.com)] is a minerals technology company currently focused on recycling waste chloride solutions and iron oxides produced by steelmaking to recover hydrochloric acid and iron metal. Austpac's technologies also transform ilmenite into high grade synthetic rutile, a preferred feedstock for titanium metal and titanium dioxide pigment production. The Company has been listed on the Australian Stock Exchange since 1986.