



## QUARTERLY REPORT TO 31 MARCH 2017

### HIGHLIGHTS

- During the last quarter of 2016, Austpac committed to a program to make 5 tonnes of reduced iron pellets at the Newcastle Iron and Zinc and Iron Recovery Plant (NZIRP) for testing in an Electric Induction Furnace (EIF) at a commercial foundry. This will produce sufficient samples of pig iron and zinc oxide that will prove the Company's recycling process is commercially viable and attract the interest of steel industry participants both in Australia and internationally.
- In March 2017, Mr. Colin Iles was appointed as a Director of Austpac Resources N.L. His experience in the steel industry and in international trade, business development and technical projects significantly augments Austpac's management and technical team.
- Over 60% of the steel produced in the USA is made using Electric Arc Furnaces (EAF's) which each year produce hundreds of thousands of tonnes of furnace dusts. The potential for Austpac's recycling process is significant and further development of north American opportunities will be undertaken in the second half of 2017 following the production of pig iron and zinc oxide during the process-proving testwork program at Newcastle.
- A program to drill a deep vertical hole to test a geophysical target in the basement rocks beneath approximately 150m of cover sediments for copper-lead-zinc mineralisation will commence at Nhill in early May 2017. This program is co-funded by the Victorian Government.
- The draft licence and investment agreement with a company to use the ERMS SR process to produce high grade synrutile feedstock for the titanium sponge industry from a significant heavy mineral resource in Asia is still awaiting final approvals to sign the agreement.
- In March 2017, Austpac completed a placement to professional investors of 19,000,000 fully paid ordinary shares at 1 cent each to raise \$190,000. The funds are being used for working capital and to progress the application of Austpac's technology both at Newcastle and internationally.
- A 2016 Research and Development tax concession refund of \$1,506,552 was also received in March 2017. The funds are being used for the testwork program underway at Newcastle which will produce marketing samples of pig iron and zinc oxide from steel industry furnace dusts and spent pickle liquor.
- Discussions with financial institutions for both working capital and project finance continue.

### **NEWCASTLE ZINC & IRON RECOVERY PLANT (NZIRP)**

Austpac's process to recover iron, zinc oxide and hydrochloric acid (HCl) from steel industry furnace dusts and spent pickle liquor has been proven over the past ten years by extensive small scale testwork at Newcastle. At that time, the process comprised four stages: an initial evaporation stage to make a composite iron oxide/zinc oxide/iron chloride pellet, followed by a fluid bed roasting stage to produce a solid iron oxide/zinc oxide pellet

and strong HCl which is collected from the off gases, and then a two stages of fluid bed reduction roasting to produce iron pellets, which could be briquetted. Any volatile metals fumed off during the second reduction stage, but the process could not handle furnace dusts with high levels of zinc.

During 2015-16, Austpac evaluated a number of ways to successfully process zinc-contaminated dusts and decided to replace the second fluid bed reduction step with an electric induction furnace (EIF). This gave the benefit of producing higher value pig iron, and the volatile metals including zinc could be collected as oxides from the EIF off-gas using a bag house.

The ability to recover pig iron, strong HCl and zinc oxide from zinc-contaminated dusts from the steel industry is unique and in November 2016, Austpac lodged a patent application entitled “Processing of Zinc-Containing Waste Materials” to protect this new recycling process. The application is progressing through the normal approval channels.



### AUSTPAC'S IRON-ZINC-HCL RECOVERY PROCESS

The final step of using an EIF to produce pig iron and zinc oxide had not been proven as insufficient samples of partially-reduced mixed oxide pellets had been produced by the earlier work. Austpac's management and technical team therefore developed a strategy to use the pilot scale equipment at Newcastle to produce five tonnes of the partially-reduced pellets equipment at Newcastle for testing in an EIF at a commercial foundry. This will produce sufficient samples of pig iron and zinc oxide to prove the entire recovery process.

The process-proving testwork program commenced in March 2017. Rather than configure the existing equipment which has not been used for some time, it was decided to refurbish and modify the evaporator and produce a large sample of oxide/chloride pellets. An existing fluid bed roaster is being adapted to undertake both the pyrohydrolysis and partial reduction steps. Drawings for the fabrication of the roaster modifications have been commissioned. During May 2017, the solids delivery system completed in 2012 and designed to handle mill scale, will be recommissioned and modified to process the fine furnace dusts for delivery to the evaporator as a slurry. New off-gas ducting will be installed, the gas scrubbing equipment will be re-established together with the water and electrical supply to the plant.

The program will be well-advanced and it is anticipated that sections of the modified plant will be commissioned during the coming quarter. Discussions have been held with steel-producers regarding the availability of furnace dusts and SPL and a satisfactory arrangement has been made for supply of these items. It is anticipated that the trials using an EIF at a foundry will be completed during the July-September quarter of 2017.

## **FUTURE OPPORTUNITIES IN THE USA**

During 2016, Austpac reviewed a number of opportunities with a group of industrialists in the USA who recognised that Austpac's technologies could be used to recycle EAFD in that country. The USA is the third largest steel producer in the world, over 60% of which is made in electric arc furnaces that generate large volumes of waste dust. A number of sites in the steel-producing region in the northeast of the country were identified, but the opportunities could not then be advanced until Austpac could demonstrate that the improvements to process could produce pig iron, zinc oxide and strong hydrochloric acid.

Once the pilot scale testwork program underway at Newcastle proves the final step in Austpac's furnace dust recycling process, and encouraged by the recent upswing in the US steel industry, the opportunities in the USA will be able to be advanced with a marketing campaign during the second half of 2017.

## **ERMS SR SYNRTILE TECHNOLOGY LICENCE**

In 2016, Austpac was approached by a company with a significant heavy mineral resource in Asia regarding a licence to use the Company's ERMS SR synrutile process. A draft licence and investment agreement was negotiated with that company which included assisting with a scoping study followed by a bankable feasibility study, with the objective of establishing an entity to manage the construction and operation of an ERMS SR Plant.

The company is still awaiting final approvals in order to sign the agreement.

## **EL 5291 NHILL**

Exploration at Nhill advanced during the quarter following the completion of the Milestone One field work program last December, which included geophysical surveying and interpretation. This was the first stage of the co-funding Grant Agreement with the Government of Victoria under the TARGET Initiative designed to stimulate investment in western Victoria. During the quarter Austpac completed all necessary reporting requirements, and the Company has now received the Government's 50% contribution.

Milestone Two entails a vertical drillhole to obtain high quality diamond core from the basement of Cambrian rocks, which are believed to be prospective for copper-lead-zinc mineralisation. Recent planning has involved negotiation of an access agreement with the owner of the land selected for the drillhole, the registration of that agreement with the Government, compliance with other obligations for such work under the Mining Act, the acquisition of a water licence, and the organisation of accessory equipment and personnel for the drilling program.

Mobilisation of the drill rig has been hampered by recent heavy rains in the Nhill region, but the equipment is expected to be on site in early May 2017. The drillhole will be completed in the second quarter of 2017.

## **Mining Exploration Entities:**

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

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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 zinc-contaminated iron oxide dusts produced by steelmaking to recover hydrochloric acid, iron metal and zinc oxide. 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.