



## QUARTERLY REPORT TO 30 SEPTEMBER 2017

### HIGHLIGHTS

- During September 2017, Austpac visited the USA to introduce the Zinc Iron Recovery Process (ZIRP) to major steel corporations, investment funds, venture capitalists, high net worth individuals and business brokers throughout the country.
- The results of this extensive marketing campaign are encouraging and negotiations continue with interested parties in the USA, Canada and Mexico. A further visit is planned for November 2017 to secure investment and develop future joint venture opportunities in North America.
- In Australia, negotiations continue with steel producers regarding the application of the ZIRP. With the changing landscape of the Australian steel industry an additional opportunity is being pursued, with the exchange of technical data and ongoing discussions regarding the use of the ZIRP technology.
- Recycling steel mill by-products, or “Urban Mining”, is a recognised challenge for steel producers as they strive to participate in the Circular Economy. The ZIRP is able to treat the main problem by-product of steel making; zinc-contaminated furnace dusts. These are mainly generated by Electric Arc Furnaces that produce steel by melting galvanised scrap metal. The potential use of the technology throughout the world steel industry is significant, and its application is the new horizon Austpac is seeking, both internationally and locally.
- The potential for the ZIRP technology to create value by recovering valuable commodities from steel industry by-products is immense and Austpac is committed to its ongoing commercialisation in partnership with both local and offshore industry participants.
- Hole GG-01 at Nhill, passed through a thick cover of sediments and intersected basement rocks at 249m. The hole continued with 75.6m of diamond core drilling before termination at 324.5m. The basement comprises strongly to intensely altered basaltic volcanics. This is accompanied by sulphide mineralisation deposited along fractures and breccia boundaries and in voids. The sulphides are dominantly pyrite, with significant amounts of sphalerite and minor finely disseminated chalcopyrite and gold. The results, which include 0.5m of 3.6% Zn and 0.44g/t Au, and 0.5m of 1.2% Zn and 0.20g/t Au as described later in this report, are highly encouraging.
- The mineral assemblage discovered at Nhill is typical of the outer halo of a hydrothermal system. Step out drilling is required to locate its source, which could be a major porphyry copper-gold or a volcanic-hosted massive sulphide system. A number of interested explorers have indicated an interest in reviewing the data with a view to an exploration joint venture.
- In September 2017 Austpac Resources NL received a \$430,325 Research and Development tax concession refund.

## NEWCASTLE ZINC & IRON RECOVERY PLANT (NZIRP)

The testwork program at Newcastle which commenced in March 2017 progressed well and has achieved the first milestone; recommissioning of Stage 1 of the test plant, the EVAP unit. A summary of activities during this period follows.

An east coast-based Australian steelmaker is supporting the testwork program by supplying furnace dust containing iron oxides and some zinc minerals, as well as SPL from the steelmaker's pickling lines. Ten tonnes of furnace dust and four tonnes of SPL have been delivered to the NZIRP site for processing.

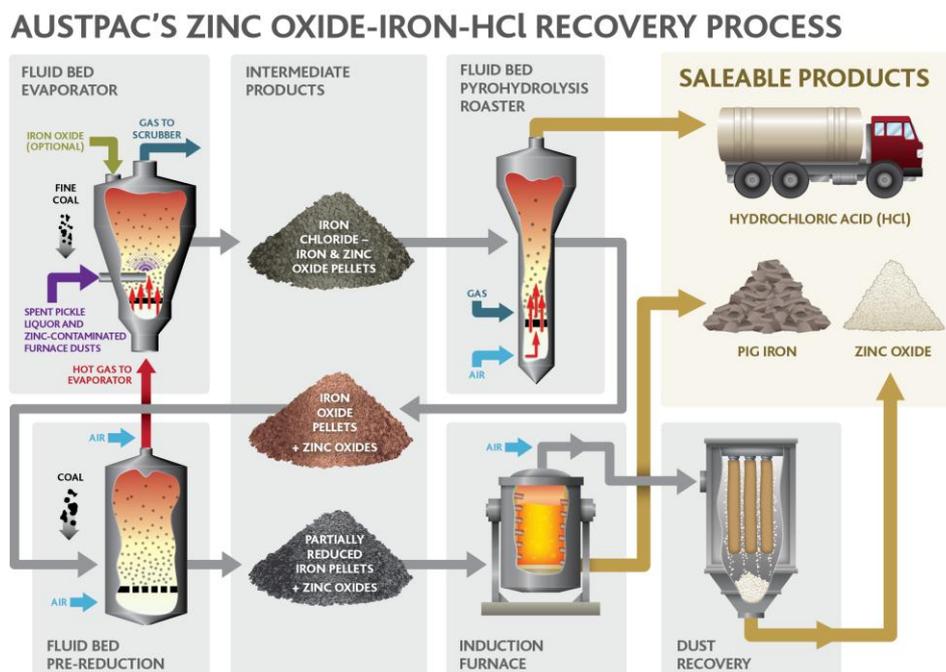
Grinding is required to break down any agglomerated particles in the furnace dusts, so the solids preparation equipment installed in 2012 was recommissioned in June and July 2017. The dust and fine coal is transferred to a ball mill where it is ground to a fine slurry. This is pumped from the discharge tank via a ring main to the fluid bed evaporator (EVAP) in the adjacent process tower.

The existing EVAP unit required extensive reconditioning. This included installing a new plenum for the fluid bed and off-gas stack, and recommissioning and modification to the gas burner, the blowers and fans and the off-gas scrubber. This work was completed by late July 2017.

Cold commissioning of the solids feed preparation area commenced in August 2017, followed later in the month by hot commissioning of EVAP fluid bed. The Stage 1 unit operated to design specifications and culminated in the production of optimally-sized mixed chloride-oxide pellets. Some modifications to the circuit are being made to maximise operability prior to commencing continuous operations to process ten tonnes of dust held in store.

Each stage of the testwork program is being conducted as a simulated continuous campaign. The pellets from the EVAP production run will be stored until required for the next two stages; Pyrohydrolysis (PYRO) and Fluid Bed Pre-Reduction (FBPR). These stages will use the same fluid bed roaster, operated sequentially. The body of a large existing refractory-lined roaster is being modified for these dual duties. This requires the fabrication of a refractory-lined lower body and plenum, as well as a refractory-lined roaster cap and off-gas ductwork. The modified roaster will be integrated with the gas scrubbing system used for EVAP, and with the gas and air supply, electrics and instrumentation necessary for its operations. This will occur during the coming months.

The final process step will use an Electric Induction Furnace (EIF) to produce pig iron and zinc oxide from the pre-reduced iron oxide/zinc oxide pellets from Stage 3. Arrangements have been made with a commercial foundry to conduct a number of test melts, which will be undertaken early in 2018, depending upon availability.



In May 2017, Austpac completed the planned exploration drill hole. DH GG-01, a vertical hole, passed through the overlying Murray Basin sediments using mud rotary equipment and encountered competent basement at 248.9m. Diamond core drilling was then used to continue the hole for a further 75.6m and the hole was terminated at 324.5m

The basement consists primarily of basaltic volcanics which, apart from two very narrow sections in the hole, have been strongly to intensely altered and demagnetised by hydrothermal fluids. The alteration is accompanied by sulphide mineralisation, which was deposited primarily as pyrite (iron sulphide) in fractures, along breccia boundaries and in vughs/amygdales (voids). The pyrite is often accompanied by significant amounts of sphalerite (zinc sulphide) and minor amounts of finely disseminated chalcopyrite (copper sulphide) and anomalous gold.

Results from the 69 core samples submitted for analysis are very encouraging. Two intervals contain abundant visible sphalerite and pyrite mineralisation:

- 0.5m at 3.6% Zn with 0.44 g/t Au (intercept downhole from 308.0m to 308.5m)
- 0.5m at 1.2% Zn with 0.20 g/t Au (intercept downhole from 324.0m to 324.5m; end of the hole), and the 3m above this intercept are also geochemically anomalous.

The mineralisation encountered in GG-01 is highly encouraging considering it is the first core hole drilled in this previously untested terrain:

- Exploration in the Mallee region of western Victoria has been hampered by the thick cover of Murray Basin sediments.
- The basaltic volcanic encountered at the base of drill hole GG-01 at Nhill are analogous to parts of the Cambrian Mount Stavelly Volcanic Complex, ~170km to the southeast, where porphyry-style copper-gold mineralisation has been discovered.
- The strong pervasive alteration of the basement volcanic and the highly anomalous zinc mineralisation (up to 3.6% Zn and 0.44g/t Au) is the result of the introduction of metal-rich fluids into permeable fractures and breccia zones.
- The mineral assemblage observed is typical of the outer halo of a hydrothermal system, the source of which is offset from the drill hole.
- Step out drilling is required to locate the source in this mineralisation, which could be a major porphyry copper-gold or a volcanic-hosted massive sulphide system.

Austpac is presently considering alternatives to undertake what will be a substantial follow up exploration program, including a joint venture with a number of interested explorers who have indicated an interest in reviewing the data.

### **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.