



April 7, 2014

## NEWCASTLE IRON RECOVERY PLANT – PROJECT UPDATE

- Plant construction and equipment commissioning continues to advance
- Pilot scale processing of waste furnace dusts for BlueScope progresses

### Progress at Newcastle

Construction and commissioning of the Newcastle Iron Recovery Plant (NIRP) is continuing.

During March 2014, eight critical support beams that were fabricated the previous month were installed in Level 6 of the North Process Tower. The North Tower will house the EARS acid regeneration and iron reduction/metallisation section of the Plant, which comprises four fluid beds (evaporation/pelletisation, pyrohydrolysis, gasification and iron reduction) and two stoves (for heat recovery).



**Preparing for installation of support beams for the North Tower**



**Installing the new cross member beams in Level 6 of the North Tower**



**Installing the main support beams**



**Completed installation of Level 6 beams**

Fabrication and painting of the steel support beams for Level 9 of the North Tower is underway. The new beams will be installed during April 2014.

The gasification and metallisation fluid beds are awaiting the completion of the high temperature tuyeres which will be installed in a refractory-lined plenum (the lower part of a fluid bed vessel that distributes fluidising gases into the bed of solids). When complete the plenums will be bolted to the upper bodies of the fluid beds prior to their installation in the North Tower.

During March 2014, six solids screw feeders were delivered to the Plant and are ready for installation. Four will be used to discharge solids from product and raw material silos that were installed adjacent to the iron briquetting area in 2013, and two will be used to blend and convey feed materials to the briquetter.



**Refractory-lined fluid bed vessels for gasification and metallisation**



**Inspecting three of the solids screw feeders**



**A screw feeder will be installed on each of the silos**

### **Processing of Iron Oxide Furnace Dusts for BlueScope Steel**

During the final phase of commissioning of the NIRP, Austpac will process a 1,000 tonne sample of waste iron oxide dusts produced from furnaces during steel-making operations at BlueScope Steel's Port Kembla facilities. BlueScope will also provide sufficient spent pickle liquor to facilitate the bulk trial, and will test the iron briquette product at Port Kembla, as well as the regenerated hydrochloric acid and other by-products.

Prior to the bulk trial, Austpac will process 200kg of a blend of furnace dusts through the Company's pilot scale facility at Newcastle. The objective of this work is to generate operating parameters for the bulk trial at the Plant. BlueScope has now provided samples of furnace dusts, spent pickle liquor and coal, and the pilot scale operations have commenced. This work includes the three integral steps of Austpac's EARS/iron reduction processes; evaporation-pelletisation, pyrohydrolysis and metallisation.

As illustrated below, the fluid bed evaporator has successfully produced iron chloride/iron oxide pellets from a slurry of furnace dusts and spent pickle liquor. These pellets will be used to produce hydrochloric acid and iron oxide in a batch fluid bed roaster, and the iron oxide will then be reduced to metallic iron using Austpac's proprietary iron reduction process. This work will continue through April 2014.



**View of pilot scale fluid bed evaporator from upper level**



**Adjusting slurry feed pump to fluid bed evaporator during pelletising operations**



**Iron chloride/iron oxide pellets made from spent pickle liquor and furnace dust**



**Detail of iron chloride/iron oxide pellets (1-4mm in diameter)**

### **Steel Industry Applications for Austpac Technology**

Iron oxide dusts produced by many steel making facilities (e.g. blast, basic oxygen and electric arc furnaces) are unsuitable for recycling if they contain other metals such as zinc. Austpac's processes are believed to be the only technology able to recover both iron and other metals separately from furnace dusts and spent mixed chloride liquors. The Newcastle Iron Recovery Plant will showcase this technology to the steel industry around the world, and discussions are continuing with international steelmakers and others interested in Austpac's technologies.

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

Austpac Resources N.L. [ [www.austpacresources.com](http://www.austpacresources.com) ] is a minerals technology company focused on the steel and titanium industries. It has been listed on the Australian Stock Exchange since 1986. Austpac's technologies are used to process waste chloride solutions and iron oxides produced by steelmaking to recover hydrochloric acid and iron metal pellets. Another technology, the ERMS SR process, can be used to transform ilmenite into high-grade synthetic rutile, a preferred feedstock for titanium metal and titanium dioxide pigment production.