Ramu Nickel: first of a new breed

The US$1.5 billion Ramu nickel mine in Papua New Guinea has been a long time coming; close to 50 years since discovery and seven years since the first construction crews arrived.

However, as ramp-up continues during 2012-13 to 31,150t/y of nickel in the form of a mixed nickel-cobalt hydroxide intermediate product, its first sales should define Ramu as the next generation of high-pressure acid leach plants (HPALs).

The experience of HPAL plants in Western Australia in the 1990s, cast a pall over HPAL developments. The number of new or re-furbished plants in the past decade can be counted on one hand. Projects like Ravensthorpe, Goro, Ambatovy, Taganito and now Ramu.

John Gooding, Highlands managing director, explained: “Ramu is aiming to change perceptions, that the right HPAL project can be moderate in its capex intensity (US$1.5 billion plant for 31,150t/y of nickel), mid-range in its maintenance and opex performance (aiming for less than US$5/lb payable nickel) and hence profitable for shareholders.”

He continued: “Comparing, say, the nickel projects in WA to what we have in PNG could not be more different. It is a bit like comparing, say, the operability and technologies of 1980s aeroplanes with a modern Airbus; a lot has changed. A lot of hard lessons were learned in the 1990s and 2000s about materials of construction and orebody selection, which are the key drivers of operability and costs.

“From a construction stand-point, Ramu has, where possible, used the best and highest-quality materials. For example, the autoclaves are lined with T17-grade titanium and equipment selected from internationally recognised suppliers.

“Ramu is also a return to the many decades of tried and tested processing of Pacific-hosted wet laterite ores which are low in magnesium and easier to process and hence should be lower in cost. This is in comparison to the dry laterites of WA which are metallurgically more complex and, when combined with inferior equipment selection, lead to major rebuilds and retrofits.

“We are not reinventing or creating a new process here; it is very similar to that used at Moa Bay for the past 40 years. Ramu still has one to two years to showcase its value, but we hope it will highlight how, with superior materials and a proven processing route, it will prove to be a resounding success. The key will be the simplicity of operation and the low maintenance costs,” he said.

The processing plant at Basamuk has three autoclave trains with more than enough capacity to produce the nameplate capacity. There is also an acid-making plant and an auxiliary boiler to provide additional process heat. Significant redundancy has been built into the design, to allow maintenance to be carried out without the need to stop the plant completely. Power is provided by heavy fuel oil Wartsila generator sets.

Comparing, say, the nickel projects in WA to what we have in PNG could not be more different. It is a bit like comparing, say, the operability and technologies of 1980s aeroplanes with a modern Airbus; a lot has changed.”

John Gooding, Highlands managing director

The mine deposit at Karumbukari is connected to the Basamuk by a 135km slurry pipeline. The free-dig mineral reserves at Karumbukari/Ramu are sufficient for 20 years and resources have the potential to increase the mine life by a further 15-20 years.

**Highlands’ stake and ‘fortunate’ position**

Highlands currently holds an 8.56% interest in Ramu and this will increase to 11.3% at no cost after repayment of the project internal debt (estimated to be in 2018). “Highlands is in the fortunate position of essentially being free carried in the Ramu project for a ~10% stake in a US$1.5 billion project which we could increase later this decade to 20% at fair market rates,” said Mr Gooding.

The project’s operator and majority owner is Hong Kong and Shanghai-listed Metallurgical Corporation of China Limited (MCC). MCC is a multi-asset multi-disciplinary company, well known for its strength in scientific research, industrial engineering practice and international trading.

**CONTACT**

Highlands Pacific

Australia office:
Level 4, 167 Eagle Street, Brisbane QLD 4001
Tel: (617) 3239 7800  Fax: (617) 3221 6727
Papua New Guinea office:
Level 1, Allotment 6
Section 58, Sir Hubert Murray Highway
Boroko, NCD, (PO Box 1486, Port Moresby, NCD 121)
Papua New Guinea
Tel: (675) 323 5966  Fax: (675) 323 5990
E-mail: info@highlandspacific.com