



NICKEL-COBALT LATERITES IN THE NEWS

July 2020

An overview of the latest news from the world of nickel-cobalt laterites covering existing HPAL operations, HPAL projects, heap leaching, and process innovations.

Existing HPAL Operations

Ravensthorpe restarts

First Quantum are continuing with the restarting of the Ravensthorpe nickel operations in Western Australia despite coronavirus challenges. The acid plant and atmospheric leaching operations restarted in March 2020. The first HPAL circuit was brought on stream in mid-April, followed by product drying and containerising of nickel mixed hydroxide product. The second HPAL circuit is scheduled to come online in due course.⁽¹⁾ According to Director of Exploration Mike Christie at Paydirt's Africa Downunder conference in September 2019, it is planned to ramp-up production to between 20,000 t/y and 30,000 t/y of nickel over the next few years.⁽²⁾

Goro likely to be sold

New Century Resources, Australia, have secured a 60-day exclusivity period to negotiate a deal to acquire 95 per cent of the Goro operation in New Caledonia.⁽³⁾ In a presentation for the Noosa Virtual Mining Conference in July 2020, New Century's Managing Director Patrick Walta said that it would include the provision of funding and working capital from Vale and the French State for a simplification plan to bring the operation down the cost curve and obtain a sustainable business. The plan includes decommissioning of the refinery after partial neutralization, which represents 50% of the issues in the operation, and producing only MHP for the battery industry (already implemented in May 2020); switching to limonite feed only and exporting saprolite ore to reduce cost and increase production; and moving to dry stacking of tailings which eliminates the need for a new wet tailings dam.⁽⁴⁾

Update: New Century Resources has dropped its intention to acquire Goro as the company has been unable to generate the required funding (Ref: Australian Mining, 8 September 2020).

Ramu expansion engineering ready

According to an ASX announcement on 8 October 2018 by Highland Pacific, a minority partner in the Ramu Nickel JV, a US\$1.5 billion expansion is being investigated. Ramu is currently rated at 34,000 tpa nickel and 3,300 tpa cobalt as MHP, achieved in 2017. By way as an update, Craig Lennon, Executive Director of



Highlands Pacific (now a wholly owned subsidiary of Conic Metals Corp.), advised the author that the expansion project is engineering ready, although the final decision to proceed is dependent on factors including global markets and final permitting decisions in PNG.⁽⁵⁾

HPAL Projects

Indonesian projects slowed

There are several HPAL projects in Indonesia aimed at producing MHP for the EV battery industry. They received environmental approvals in January 2020, allowing them to proceed with construction. However, their development depends on Chinese expertise and progress is likely to be slowed due to Chinese workers involved in the construction being quarantined.⁽⁶⁾

Sunrise Project execution plan progressing towards Q3 2020 completion

Fluor Australia Pty as Project Management Contractor (PMC), is working with the project team to develop a comprehensive Project Execution Plan (PEP) for the Sunrise Project in New South Wales. The Company expects that completion and announcement of the outcomes will be in late Q3 2020. Clean TeQ advises that the PEP capital estimate will likely be higher than the 2018 DFS figure, while the operating costs indicate that the Project will remain extremely competitive as a result of strong cobalt by-product credits.⁽⁷⁾

Queensland offers funding for the Sconi Project

The Queensland government has offered Australian Mines a conditional financial support package for the development of the Sconi cobalt/nickel/scandium project in North Queensland. The package will be subject to a number of conditions including a timetable for securing an offtake agreement for all of the nickel sulphate and cobalt sulphate production (September 2020); delivery of a detailed execution plan, obtaining approved financing for construction and making a final investment decision; appointing an engineering, procurement, construction management contractor (end 2020); and completion of construction (July 2023). It also includes conditions for employment of people and engagement of independent contractors working directly on the project.⁽⁸⁾

Heap Leaching

Piauí Project granted preliminary environmental licence

Brazilian Nickel Plc announced the granting of a Preliminary Environmental Licence by the Brazilian Piauí State Environmental Agency on 22 October 2019 for the mining and heap leaching processing plant to produce nickel and cobalt products for the battery industry at its Piauí Nickel Project. They are now ready to advance through a Bankable Feasibility Study enable financing and application for a Construction Permit.⁽¹⁰⁾ An operating demonstration plant has leached 8,000 tonnes of ore in full-height heaps and has achieved first sales of nickel and cobalt products.⁽⁹⁾ This will allow them to expand the existing demonstration plant by a factor of 10 to 1,400 tpa nickel to jump-start the project to immediate producer status without the need for a BFS.⁽¹¹⁾

Process Innovations

Australian government grant secured for TECH Project using DNi Process™

Pure Minerals Limited has secured a \$2.55 million grant via its wholly owned subsidiary Queensland Pacific Metals Pty Ltd (QPM) for the Townsville Energy Chemicals Hub (TECH) Project. QPM and project partners Direct Nickel Projects Pty Ltd (DNi) and Commonwealth Scientific and Industrial Research Organisation (CSIRO) successfully applied for the Federal Government grant.⁽¹¹⁾ The TECH Project will process imported, high-grade nickel-cobalt laterite ore from New Caledonia to produce nickel sulphate, cobalt sulphate and other valuable co-products. If it proceeds it will be the first commercial application of the DNi Process™. The next step is a pilot plant testwork program on a bulk sample received from New Caledonian ore supply partners.



Metso Outotec introduces novel superheated steam sulphation process

The process is a recent development of Metso Outotec, Finland, and has been successfully tested on a laboratory scale. It includes agglomeration of ground laterite with sulphuric acid, then superheated steam treatment at elevated temperature followed by water leaching. Nickel and cobalt are sulphated and solubilized. Iron dissolution is minimized by conversion from goethite to hematite. Sulphuric acid consumption is said to be moderate. A paper on the process is to be presented by Metso Outotec in the Nickel-Cobalt-Copper Conference at ALTA 2020 Online.⁽¹²⁾

Pressure Acid Leaching for the production of nickel and cobalt for the battery industry is one of the key topics of the [Nickel-Cobalt-Copper Conference](#) to be held November 10-12 as part of [ALTA 2020 Online](#). This will be followed on November 13 by a not-to-be-missed short course [The ART of HPAL - The way of Success](#). The course presenters played key roles as owner and engineering contractor in Sumitomo's highly successful Coral Bay and Taganito HPAL projects in the Philippines.

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