**Utilization ex-pit Mine as Backfill Facility for Nickel Waste Management in Western Obi Island Project.**

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**ABSTRACT**

Indonesia's nickel reserves are reported as among the largest globally, with the country supplying over half of the world's nickel products. In Indonesia, nickel is processed using both pyrometallurgy and hydrometallurgy technologies. Pyrometallurgy, Electric furnace (EF) technology produces Ferronickel from saprolite with content of Ni < 1.7% and High Pressure Acid Leaching (HPAL) technology, a hydrometallurgical process for low grade nickel ore with a Ni content ranging from 1.1–1.4% into Mixed Hydroxide Precipitate (MHP), an intermediate product for electric vehicle cathodes. In 2020, Harita Nickel, an Indonesian nickel processing company, became a pioneer in utilizing HPAL technology for managing low-grade nickel ore. Both of the above processes produce waste in solid form, making waste management a focal point attention. On the western of Obi Island, Harita Nickel manages waste by utilizing ex-pit mining area as back fill facility. Waste sourced from EF in the form of slag and tailings sourced from HPAL is approximately 7 million tons and 25 million m3 per annum, respectively. The waste management strategy involves aligning the ex-pit mining area from extraction activities with the factory's waste production. Given Obi Island's tropical climate and relatively high rainfall, these factors play a crucial role in selecting an appropriate waste disposal technology for ex-pit mining areas. Additionally, the approach follows a well-established tailings management system that adheres to both national regulations and global standards.

**Key words:** Nickel ore, Electric furnace, HPAL, Ferronickel, MHP, Back Fill and Waste management