

Nickel-Cobalt-Copper Keynote Address

KEYS TO A SUCCESSFUL NICKEL LATERITE HPAL DESIGN AND OPERATIONS: A FIRST HAND EXPERIENCE

By

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ABSTRACT

It has been over 60 years since the HPAL application for nickel laterites was first commercialised in Moa Bay in the late 1950s. The following decades saw the technology in an open patent, which subsequently paved way to the modernisation and adaptation of HPAL technology to global nickel laterite deposits. To-date, these operations have varied levels of technical and economic successes and failures, several of which have eroded a considerable portion of their net value early-on in the project lifecycle.

Whilst there has been more than 60 years of exhaustive technical knowledge, improvements and skills that were shared across the greater nickel laterite community including lessons learned, several greenfield HPAL installations were still marred with difficulties. This consequently gave the HPAL technology a negative reputation. However, there are a few operations that got it right and have demonstrated the success of HPAL technology both technically and economically.

This paper provides personal insights into “why it happened” and what differentiates a successful HPAL operation from the perceived failures. These insights are leveraged from the author’s first hand comprehensive experience in the end-to-end-project lifecycle of HPAL plants (project development, engineering and design, execution, commissioning, operations, debottlenecking and optimisation) and involvement in various roles from field operation, DCS (control room) operation, production crew supervision, R & D, process engineering, consultancy and corporate roles.

Keywords: Nickel, Laterite, High Pressure Acid Leach (HPAL), Lessons Learned, Successes, Failures, Strategic Capabilities, Adaptive Leadership, Operational Discipline, Culture, “Know Your Process”, Advance Feed Knowledge, Integrated View, Process Integration, Holistic Skills,

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