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Commissioning and Ramp-up of SART and Selen-IX: Key Ingredients to Achieving McNulty Series 1 or Better

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Abstract

The empirical McNulty curves are widely used by industry to measure the success of commissioning and ramp-up of hydrometallurgical plants and/or to anticipate the time required to reach their 100% nameplate capacity prior to committing project funding. The two main criteria considered by McNulty included a) the novelty and complexity of the hydrometallurgical process and 2) the level of sophistication and capability of the project team tasked with process implementation. The McNulty Series 1 curve applies to processes that have been implemented many times in the past and have a highly capable implementation team, reaching 90% capacity in 6 months and 100% capacity in one year since commissioning. This paper focuses on experiences with commissioning and ramp-up of SART and Selen-IX processes, which are still considered novel by many in the industry. The relevance of these processes to the global mining industry is high: they both enable more sustainable, cost-effective, and socially acceptable metallurgical processing, and they both represent innovations that did not originate from any of the major mining houses, or major equipment suppliers. Examples of recently commissioned SART (Sulphidization, Acidification, Recycle, and Thickening) and Selen-IX plants show that ramp-ups that are faster than the McNulty Series 1 curve are achieved, despite high variability in plant feed, and special EH&S risks and requirements unique to these plants. The key factors behind the project successes are analyzed in detail, and lessons learned are summarized to assist owners to complete truly holistic assessments of projects involving the integration of these processes.