

Performance Improvement in Alumina Refining

Eugenio Azevedo¹ and Christopher Baker²

1. VP Continuous Improvement – Manufacturing and Technology

2. Director – Refining Technology

Alcoa of Australia Limited, Perth, WA, Australia

Corresponding author: chris.baker@alcoa.com

Abstract

Alcoa's refining operations are driven to provide year on year performance improvement, providing production increases, reductions in energy and emissions intensity, and productivity, often outside of investment of major growth capital. This performance improvement is achieved through an integrated performance improvement system that applies a multifaceted approach involving close collaborations between operations and centers of excellence. The integrated approach combines a) Structured technology development, deployment and expert support, based on an investment-optimized, sequenced roadmap process with high levels of customer engagement. A portfolio of development projects is defined based on operational and key strategic requirements, with execution timing and prioritization based on implementation needs. b) Application of state-of-the-art digital techniques and advanced sensors. Complex production systems are optimized at high frequency based on data from proprietary and patented on-line sensors, simulation and control systems that contain thousands of physical and chemical equations based on Alcoa's deep understanding of the process. c) Highly skilled manufacturing excellence teams providing location support and coaching in operational practices and problem resolution. d) Operations centric management systems, driving transparency and focus on priorities.

Keywords: Refining, Technology, Digital, Systems, Management.