



Copper Processing

Copper Processing Operations Optimization

Paterson & Cooke (P&C) has a strong reputation in mineral processing with a team that brings decades of experience evaluating copper processing practices, allowing us to lead the paradigm shift in operational excellence. We work with site and technical service teams to improve process selection, production models, and operational strategies.

Our approach entails conducting a thorough assessment of your ore, operations, and metallurgical accounting. We delve into every facet of your copper processing operation, identifying bottlenecks and opportunities for improvement beginning with an understanding of the mineralogy to improve recovery for flotation, leaching, and SX/EW. Every site brings unique opportunities to implement cutting-edge metallurgical methodologies and innovative practices, all geared towards optimizing on-site copper recovery.

Freeport-McMoRan - Morenci, AZ, USA

The Morenci operation consists of two concentrators capable of milling 132,000 metric tons of ore per day (mtpd), which produce a copper and molybdenum concentrate; as well as a 72,500 mtpd crushed-ore leach pad, a low-grade run-of-mine leaching system, four SX plants, and three EW tank houses that produce copper cathode.

The mineral processing team at P&C evaluated the plant cyclone feed system and was responsible for the Scoping Study of the cleaner circuit upgrade. Mineral Processing 101 training for site personnel was given by our team of experts.

Andean Precious Metals – Confidential Project, Chile

P&C performed a process due diligence evaluation for the potential acquisition of a copper heap leach and SX/EW project in Chile. The process included crushing, agglomeration, chloride/acid leaching, solvent extraction, the tank farm, electrowinning, and additional ancillary facilities for the production of LME Grade A copper cathodes.

P&C reviewed the project documentation, including design, costs, staffing plans, mineralogy, mine planning, operations planning, etc., and performed a site visit to evaluate the project on behalf of the client. The findings and recommendations from the evaluation were documented in the report to the client, including risks and opportunities associated with the potential acquisition.

Newmont Mining - Phoenix Project, USA

P&C personnel were directly involved in the design, commissioning, startup, and operation of Newmont's Phoenix Copper/Gold Concentrator. The operation included crushing, milling, gravity recovery, conventional flotation, cyanide leach, and the desorption and recovery facility for carbon processing.

P&C personnel were also directly involved in the design, commissioning, startup, and operation of the copper heap leach and SX/EW facilities at Phoenix. The facility is one of the coldest, year-round operating SX/EW facilities in the world as well as the first site in North America to incorporate acid mist hoods in electrowinning.

Leaders in Process Engineering

At P&C, our team of process engineers comes with extensive operational processing experience supported by a team of expert metallurgists offering a wide variety of project capabilities.

Our engineering expertise in the field of mineral processing spans the breadth of services from comminution through tailings. This, coupled with our in-depth knowledge of comminution, flotation, leaching, solvent extraction, and electrowinning, enables us to provide clients with unique, more creative, and more definitive solutions. Our engineering is backed by in-house laboratory testing to assist in providing cost-effective and operationally robust solutions.

Copper Processing Services

Engineering Services

- Flowsheet development from Concept Studies through Detailed Engineering
- In-house laboratory metallurgical and tailings management testing
- Geometallurgical determinations of optimized ore routing and processing
- Advanced, predictive production modelling

On site/Operational Services

- Commissioning support for new copper processing equipment
- Process optimization (debottlenecking) and upgrade opportunities
- Site feed trials
- Operator training
- Process auditing
- Qualified Persons (QP) for technical reports

Group Capabilities

- Tailings & Mine Waste
- Slurry Pipeline Systems
- Mine Backfill
- Mineral Processing
- Mine Services
- Marine Pipeline Systems
- Laboratory Services

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