

Case Study

Project Title

Wastewater Characterization Study of Pani Gold Project – PT Merdeka Copper Gold Tbk

Project Snapshot

Klien: PT Merdeka Copper Gold Tbk | **Lokasi:** Pohuwato, Gorontalo

Sektor: Gold Mining | **Periode / status:** 2025; Completed

Layanan Ganeca: Water, Sediment, and Rock Characterization; Geochemical Testing; Sediment Pond Evaluation and Design; Hydrological Analysis; Chemical Treatment Optimization; SOP Development

Project Overview

Pani Gold Project required a comprehensive characterization of mine runoff to evaluate its water management system during the construction phase and support the development of its runoff control system. Ganeca combined water and sediment characterization, treatability testing, hydrological analysis, and sediment pond design evaluation to develop treatment and design recommendations based on actual site conditions.

The Challenge

The runoff water showed unusual characteristics. The samples were dominated by colloidal particles, with TSS reaching as high. At the same time, the available sample volume was limited. This required careful planning of the testing process to obtain sufficient information for the evaluation. The extreme water characteristics also made it difficult to determine the most suitable coagulant type and dosage using conventional approaches alone.

Our Solution

Ganeca tested four samples representing seven sediment ponds. The testing included initial and final water characterization, settling velocity tests, and jar tests using several coagulant alternatives. The test results were then combined with hydrological analysis and sediment pond capacity evaluation, including overflow rate and detention time. Based on the overall assessment, Rolfloc R130 was selected as the most suitable coagulant. The study was then translated into recommendations for chemical dosage, injection systems, and sediment pond development.

Results & Value

Despite the extreme runoff characteristics and limited sample availability, Ganeca successfully developed a representative testing approach to characterize the wastewater and evaluate its treatment behavior. The testing program provided a clear understanding of the contaminants present and their response to different treatment conditions, enabling the identification of a suitable coagulation approach for effective pollutant removal while maintaining stable water quality. The findings were further integrated with site-specific hydrological and sediment pond evaluations to support a more comprehensive understanding of runoff management requirements. These results were translated into practical recommendations for chemical treatment, dosing systems, and sediment pond development, providing a reliable technical basis for improving runoff management at the Pani Gold Project.

Project Photos



Layanan terkait: [Research on Mine Environmental](#) | [Environmental Laboratory Testing](#)