Customer Success Story

Location: South America

Applied Membranes Inc. elevates mining operations with containerized water treatment solution for copper extraction

Mining operations encounter significant challenges securing and maintaining a reliable water supply. AMI systems solve these challenges worldwide.

Challenge

In South America, at an elevation of 1200 meters above sea level, our client sought a water treatment system for their mining operations.

The project site involved an open-cut mine, process plant, concentrator facility, and other structures including warehouses and offices.

Within the process plant, key operations include crushing, grinding, flotation, filtration, and thickening. Supporting services like reagent handling, fuel storage, and utilities were also essential.

The objective was to sustain copper concentrate and copper cathode production by integrating a desalination plant into the extensive mining process.

Challenges included: remote, high-altitude location, corrosive seawater source, and installation timeline coinciding with the COVID-19 pandemic.

Solution

Applied Membranes designed and built a state-of-the-art desalination seawater RO (SWRO) system, with a capacity of **800 GPM (190 m3/h),** housed in two (2) 40-foot containers.

The solution also incorporated two (2) containerized multimedia filtration systems rated at **1270 GPM** flow.

In total, the solution spanned across four (4) containers for a fully integrated water treatment plant.

Tailored for remote conditions, the containerized systems are corrosion-resistant to withstand harsh environmental conditions.

Key Features:

- SWRO desalination system with over 252 8×40" membranes 572 GPM (130 m3/h) permeate flow
- MMF system with ten (10) 72" Dia x 72" Height multimedia filters and greensand
- Chlorine, sodium bisulfite, and antiscalant injection systems
- Fully integrated 40' ISO climatized containers with insulation

Results

Commissioned remotely during the COVID-19 pandemic, this AMI water treatment solution continues to play a pivotal role in ensuring a consistent supply of high-quality water for critical mining processes.

The source seawater TDS measures over 35,000 ppm. AMI system permeate measures **180 ppm TDS**, which is below the client's maximum limit and exceeds their expectations.

- **Water quality:** AMI water treatment systems ensure a reliable and consistent water supply for mining operations.

  Water supply for human consumption is also being provided to the encampment where mine workers live.
- **Durability:** AMI containerized systems mitigate the impact of harsh environmental conditions for sustained performance in challenging environments.
- **Operational efficiency:** The integrated water treatment solution allows flexibility to switch to an "offline" mode during non-operational shifts. This optimizes water usage for active mining production hours.

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