Modular Metals Removal System

Scalable, Cost-Effective Solutions For Treating Mine Wastewater

Problem/Need

New mining operations are being forced to look beyond conventional treatment for metals removal from wastewater (e.g. lime precipitation/settling ponds) or high density sludge (HDS) precipitation in order to meet the increasingly stringent discharge limits for effluent streams. Mining operations require new options to ensure compliance with tightening regulatory standards. Mines located in remote and cold regions as well as those establishing DBOO models for mine water treatment, require cost-effective metal removal systems that can be easily installed, removed and redeployed to other sites.

newterra Solution

newterra designs, engineers and manufactures a robust, modular metals removal system that efficiently and cost-effectively treats mine wastewater streams to comply with today's tighter discharge limits. Our fully enclosed systems incorporate an automated, multi-stage process to remove copper, cobalt, nickel, zinc, lead, iron and cadmium and are designed with the operator in mind.

Differentiation

Unlike lime precipitation and settling ponds or high density sludge (HDS) precipitation, **newterra's Modular Metals Removal Systems**:

- Remove target metals to levels in the low parts per billion (ppb) range – allowing compliant effluent discharge
- Package proven technologies, including our innovative LongBox® Clarifier and Pipe Flocculator, into modular, cost-effective treatment solutions that minimize site work requirements and related costs
- Utilize custom 12' wide modular building to maximize treatment volume, provide easy access for operations and maintenance, and eliminate the need for large, costly concrete foundations
- Can be easily transported to remote mines and later redeployed to other sites
- Are designed in a treatment train configuration so capacity can be increased and reduced in 400 GPM (25 lps) increments as demands change over the life of the mine
- Feature a fully insulated, climate-controlled container-based building to eliminate the hazards and hardship of performing maintenance and repairs outdoors
- Minimize operator involvement through advanced automation that can be remotely monitored and controlled to optimize treatment and prevent downtime

Why newterra

- Cost-effective
- Prefabricated
- Expandable
- Removes metals to very low concentrations

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clean water. modular solutions. simple.™

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Specifications

Process

- pH adjustment and metal hydroxide precipitation targeted for Copper, Nickle, Zinc, Lead, Iron, and Cadmium
- Coagulants and flocculants are used to bundle the fine particulate into large settleable solids
- Settleable particulate is settled out in our **LongBox® Clarifier**
- Fine particulate is filtered out in a multimedia filter
- Ultrafine particulate is filtered with a submicron filter
- **newterra's DIMETIX**™ resin is used to polish the target metals to below metal hydroxide solubility limits

newterra Modular Metals Removal System

Metals Precipitation → Coagulation → Flocculation → Clarification → Multimedia Filtration Option → Selective Metals Ion Exchange Option

Inputs & Outputs

Target Metals	
Target Metals for Treatment	**Effluent Limits**
Copper, Lead, Nickle, Zinc, Cobalt, Cadmium, Iron	Low Parts Per Billion Range

Capacity	
Design Flow Rate	**Max Flow Rate**
400 gpm (25 lps)	500 gpm (31.25 lps)

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