

Removing Heavy Metals from Wastewater Treatment Pond Saves US\$110,000

Challenge

Acid mine drainage (AMD) from waste rock piles at a copper and zinc mining operation in Canada contains high levels of zinc and other heavy metals. To comply with provincial discharge limits, the wastewater pH level was increased with slaked lime slurry, forming a zinc hydroxide precipitate that settled out in ponds. During the spring and fall seasons, however, high flows shortened retention time and water temperature inversions remobilized the precipitate. Environmental excursions occurred frequently.

Solution

After performing jar tests of the zinc hydroxide removal process, GE Water & Process Technologies recommended treating the AMD entering the ponds with PolyFloc* AE1123 polymer to form a denser, more stable sludge and improve settling efficiency. A reliable chemical feed system was also provided. In addition, the customer made changes in the pond design that increased retention time.

Results

In the first two years of using PolyFloc AE1123 there was not one zinc excursion, something not accomplished in more than 30 years using other products. The new treatment program was also less expensive, providing a net annual savings of US\$110,000 (CAN\$114,000) per year.



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