Composite Tailings Process Addresses Challenging Tailings Material

Syncrude Canada is using composite tailings technology to more quickly remediate the challenging fluid fine tailings (FFT) material and enable the reclamation of oil sands mining pits while accelerating recycle water release.

The composite tailings (CT) process involves combining gypsum and sand with FFT, the clay, silt and water that remain following the bitumen mining and extraction process. The FFT is recovered from Syncrude’s tailings ponds and transported by pipeline to the CT plant. This reduces FFT inventories in the tailings ponds.

CT technology causes the tailings to consolidate faster, enabling Syncrude to more quickly develop landscapes that support grass, trees and wetlands reclamation work.

Syncrude has been using this technology at its Mildred Lake site since 2000 to fill in its former east mine pit with CT material. The company is now constructing forested upland areas and wetland areas over the CT material. The project also includes a 57-hectare watershed and a 17-hectare fen pilot project. This large-scale reconstruction effort is the first of its kind in the region.

In 2012, Syncrude began the design and construction of a new composite tailings plant at its Aurora mine.

CT technology has been in development since 1995, when Syncrude and Suncor Energy Inc. partnered on a field pilot at Syncrude’s Mildred Lake site.