Case Study

Shifting to Dry Stack Tailings Management

North American Tungsten
Cantung Mine, NT, Canada

> Background

North American Tungsten underwent a change in tailings management from exfiltration ponds to dry stack tailings storage facilities at Cantung mine which, in combination with Mactung mine, holds 15% of the world's known tungsten. Okane was initially engaged to conduct a study of existing and proposed tailings containment areas that would limit net percolation and oxygen ingress that produce acid mine drainage (AMD), and provide a closure surface that would closely mirror the surrounding landscape.

> Approach

As part of the shift to dry stack tailings management, it was important to be able to demonstrate an understanding of how the facilities would be reclaimed. Okane recommended a new dry-stack demonstration area with the purpose to quantify performance of the cover systems during operations and post-closure, and to resolve uncertainties pertaining to energy balance, water balance, chemistry and characterization of the geotechnical and geo-chemical aspects of the landforms.

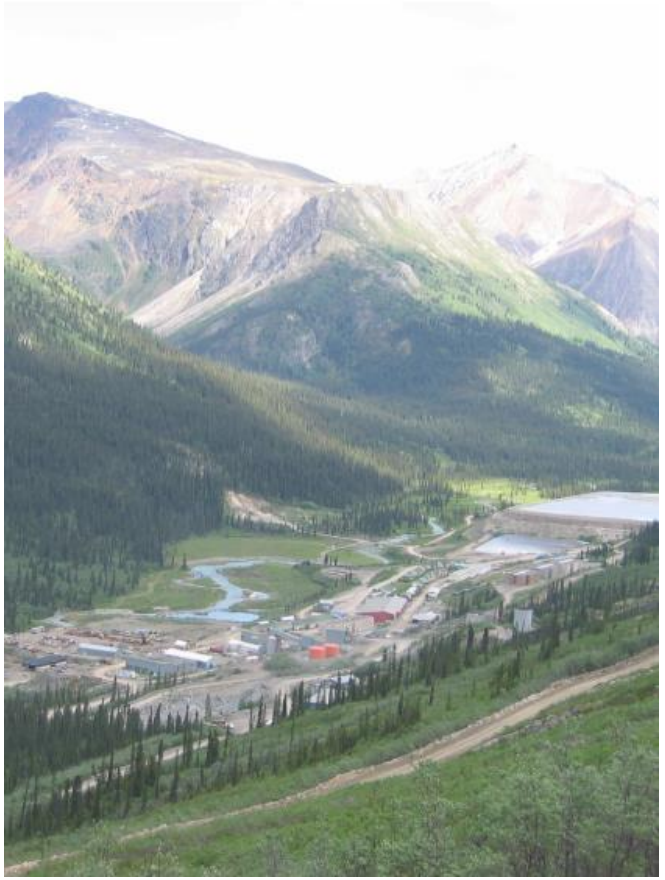
> Client Benefit

The final results of the study, instrumentation program, and a numerical modelling analysis showed that some of the existing cover systems were performing and would perform very well into the future. The conceptual modelling analysis demonstrated that sufficient levels of saturation could be maintained such that sulphide oxidation would be limited and any seepage emanating from the facility would be circum-neutral pH.

An aesthetically pleasing landform design that achieves cover system performance objectives for dry stack tailings facilities.

Integrated Mine Closure and Relinquishment Solutions

okane 25 YEARS



(unknown). *Tungsten Townsite*. mindat.org and the Hudson Institute of Mineralogy.