

Published: 4 May 2011

Cleaning up tailings' toxins

Australian researchers have developed a system for rehabilitating mine sites involving the use of eucalypts that convert toxic mining by-products to nitrogen.



Credit: ScienceImage

A team including Curtin University's Associate Professor Ron Watkins grew 'hyper-accumulating' eucalypt plants on tailings at Stawell Gold Mine in Victoria. Hyper-accumulating plants absorb copper and arsenic, which are present in high concentrations at tailings sites.

Mine tailings – the fine residue from the processing of ore – normally occupy the largest area of a mine site.

'A standard approach is to isolate tailings by covering them with an impermeable material, such as clay and topsoil, but this can be expensive and severely limits the utility of the land after mine closure,' says Assoc Prof Watkins.

'Our research has shown that in many cases, the impermeable cover is unnecessary and can be replaced by a shallow soil developed directly upon the sulphide-bearing tailings.

'Such an approach can ensure that acid drainage does not develop, while allowing the land to be used for a productive purpose, such as the growing of eucalypt trees for essential oils and firewood, and the creation of native seed farms.'

Assoc Prof Watkins' team also investigated the reconstitution of tailings as soil to facilitate plant growth. The team trialled old topsoil kept on site by the mine, biosolids from a local water treatment plant and milled waste rock.

From ECOS online <http://www.ecosmagazine.com/?paper=EC10085>