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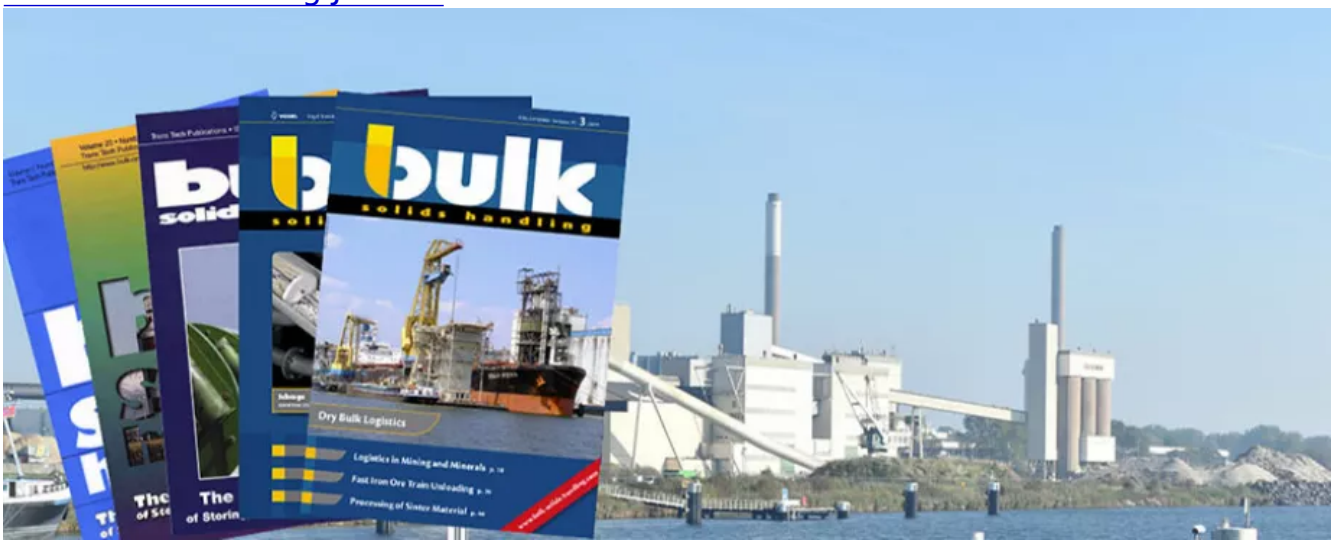

Case Study

Reclaiming Gold and Uranium in South Africa

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Bucket wheel excavators coupled with mobile conveyor systems are used almost exclusively in open-pit operations for removing overburden and mining minerals. The purpose of this article is to describe the technically and economically successful application in a new field, viz. reclaiming slimes dams containing gold and uranium.

1. Background

Since gold was discovered in 1886 on the Witwatersrand which extends from Springs 50 km East of Johannesburg to the West as far as the Klerksdorp goldfields and the Orange Free State goldfields at Welkom, slimes dams were constructed.

They originate from underground gold mining and are the remainder of a gold containing pyritic conglomerate, found extensively in the Witwatersrand basin, which was crushed and pulped before extraction of the gold, and then dumped on the surface of the mining area.

Apart from gold "left-overs" significant quantities of uranium minerals are contained in this waste product. The dam construction consisted of an initial dike frame of compacted dry material. These were filled with slurry and were allowed to dry before the next layer of slime was deposited.

Incidentally, the slimes dams surrounding Johannesburg became a most striking landmark with their yellow colouring and their desert-like dust clouds over them on windy days, until grassing of the old mine dumps began some years ago.