TAILINGS DAMS

TAILING STORAGE FACILITIES

Watertight Protection with Synthetic Geocomposites*

*Using SIBELON® Technology

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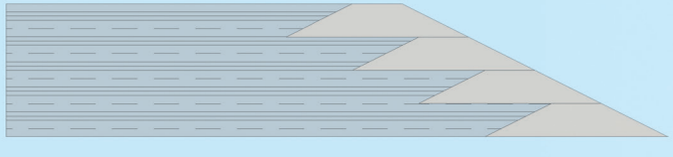
SAFETY

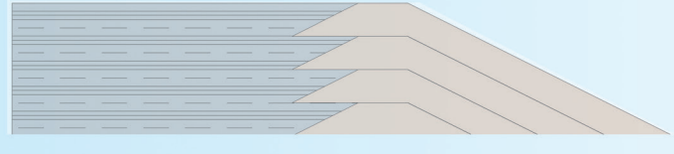
The downstream raising method for tailings dams reduces the safety concerns associated with the upstream and centreline raising methods

The downstream raising is considered the most safe construction method to withstand strong earthquakes and to prevent seepage piping trough the dam body

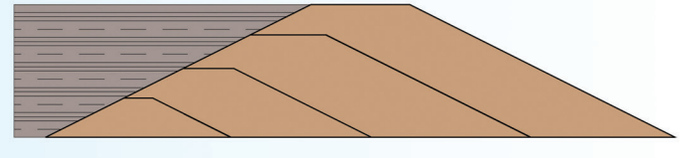
The downstream raising method provides the safety standards of a conventional rockfill dam for water storage



UPSTREAM



CENTRELINE



DOWNSTREAM

MINING WITH PRINCIPLES

Mining with principles is our responsibility towards future generations. Mining facilities are strictly related to habitats, human activities, infrastructures, heritage, fauna, vegetation, and therefore must be designed and maintained having sustainability as one of the key objectives. Sustainability requires safe and durable structures, sound experience of designers and contractors, low environmental impact in construction and operation

The SIBELON® technologies improve sustainability

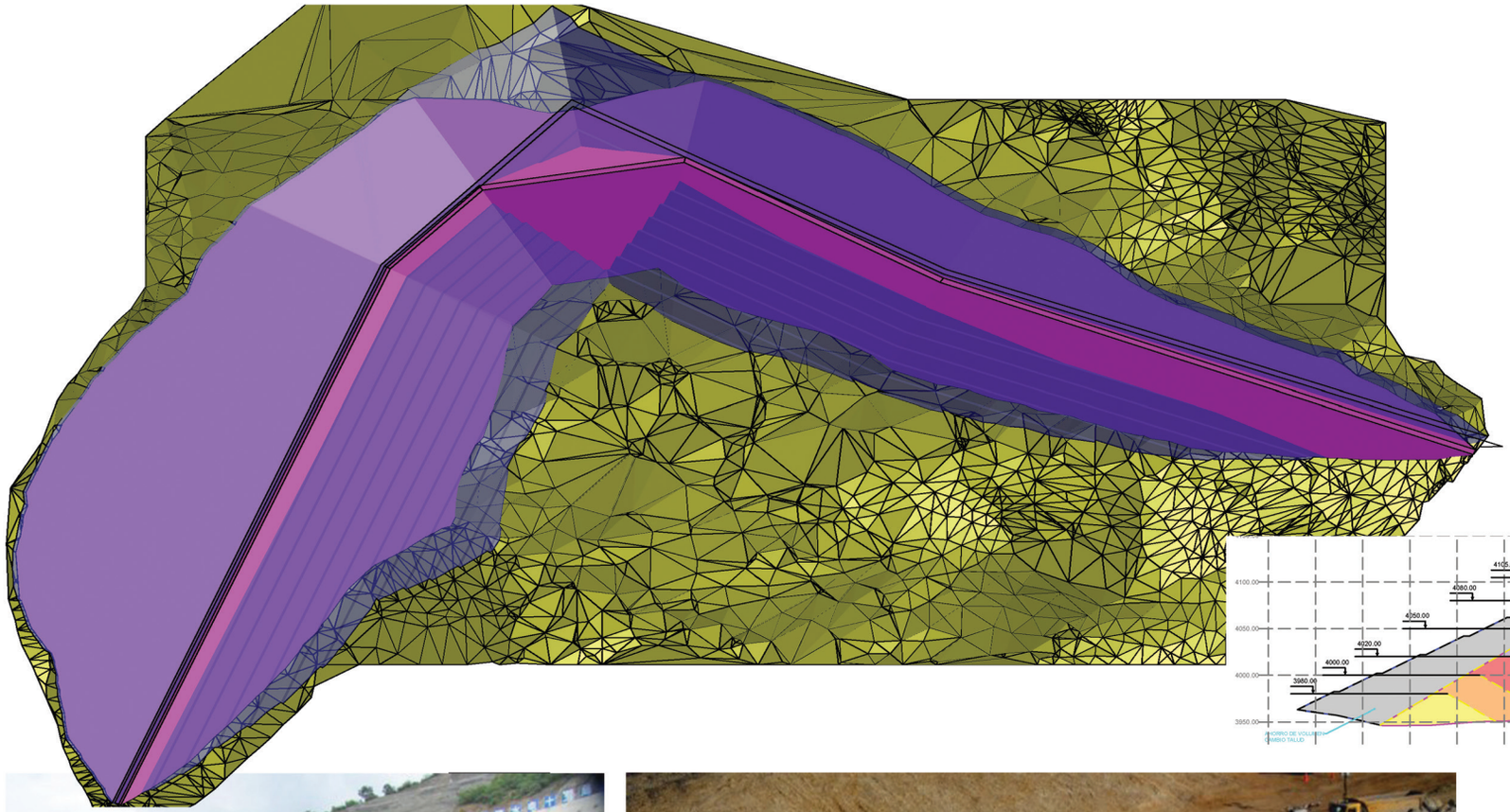
Sar Cheshmeh – Iran – National Iranian Copper Industries, Downstream raise, exposed SIBELON® geomembrane, 2008

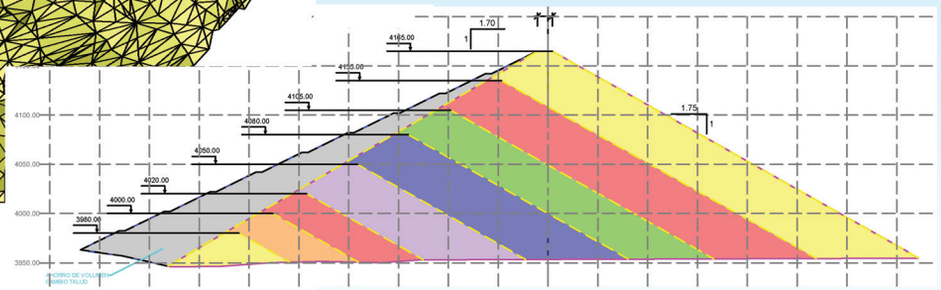
SAFETY

The SIBELON® technologies apply to the downstream raising method for tailings dams. The flexible watertight liner prevents water infiltration also in presence of high settlements and dynamic loadings, ensuring long term safe operation of the dam

EFFECTIVENESS

The design of an upstream geomembrane installed on extruded concrete curbs allows to provide steeper and stable dam slopes, achieving a significant reduction of the embankment volume and contraction of construction time and costs





At Las Bambas tailings dam adopting an exposed SIBELON® geomembrane allowed > 20% saving in the volume of fill materials

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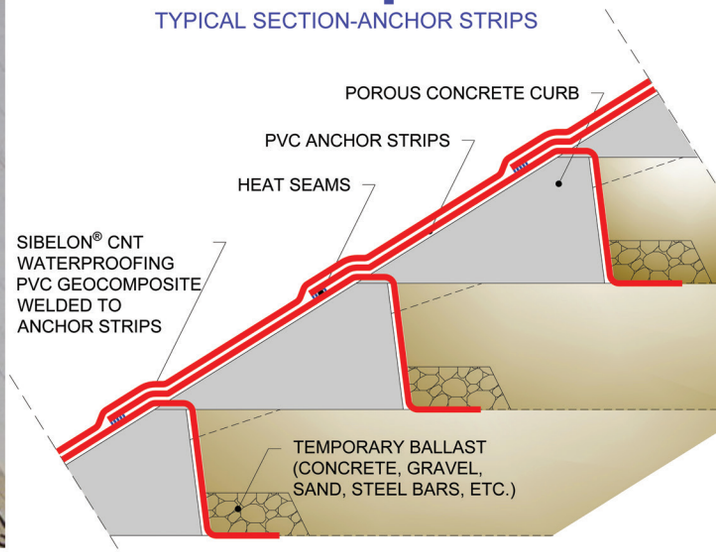
TYPICAL SECTION-ANCHOR STRIPS



EXPERIENCE

Experience acquired since 1963 in the hydro sector, with water heads > 180 m and > 160 large dams lined, has been essential to adapt SIBELON® technologies to the mining industry

Carpi is already approved supplier of VALE, MMG, GLENCORE, AN-GLOAMERICAN, RAND-GOLD RESOURCES, DRA and others

Las Bambas – Peru – MMG
Downstream raise, exposed SIBELON® geomembrane, built in stages from 2015
At present at Stage 4, height 173 m

DURABILITY

Our exposed geomembranes performing since the late 1970s testify the excellence of a formulation with high molecular weight branched plasticisers, granting hundreds of years of durability in TSF

Quality control with standardised procedures guaranties the watertightness of the system

HARDFILL DAMS UPSTREAM FACE IMPERVIOUS LAYER

Ambarau – Congo
RANDGOLD RESOURCES
Exposed SIBELON® geomembrane

Asana – Peru
ANGLO AMERICAN QUELLAVECO
Exposed SIBELON® geomembrane on joints and on left bank

Tailings storage is one of the functions of a mining facility, which is often implemented by water retaining dams, canals and tunnels

SIBELON® technologies are used to stop/prevent seepage reducing the water footprint. In canals, the low hydraulic roughness of the geomembrane allows increasing the efficiency

La Virgen pressure tunnel - Peru
Rehabilitation with SIBELON® geocomposite to stop leakage and increase the hydraulic performance

Larona Canal – Indonesia – VALE
Rehabilitation with SIBELON® geocomposite increased the volume of water being delivered to the turbines from 148 m3/sec to 170 m3/sec

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