Tailings factsheet

Introduction

The physical activities of extracting and processing ore to separate valuable metals and minerals often result in significant quantities of mineral residue material – including tailings. As the world's demand for many mined products has grown at an accelerating pace in recent decades, and as the grades of many orebodies have decreased as they have been mined over time, so the volumes of this residue material have increased.

There is a clear imperative to use all possible endeavours to ensure that Tailings Storage Facilities (TSFs) are managed to the highest standards of safety so that our industry can build and sustain trust with all our stakeholders. Anglo American employs best-practice standards and we manage our TSFs with the utmost care through rigorous governance and stewardship.

We upgraded our technical standard for TSF safety management in early 2014, going beyond established regulatory and industry standards in many respects at that time. We played an active role in the multi-stakeholder process of developing the Global Industry Standard on Tailings Management (GISTM), setting a high bar for the mining industry to achieve strong social, environmental, and technical performance. In 2022, we aligned our technical standard to include the additional technical requirements of the GISTM, including guidelines for the implementation thereof. In support of our technical standard and other non-technical disciplines, we have developed a Processed Mineral Residue Policy, approved by our Board of Directors, that is available on our website.

Transparency is central to how we approach engagement, and our disclosure provides stakeholders with valuable information and an update on our ongoing progress across this key area of our operations.

This factsheet outlines the approach we take to ensure the safety of our TSFs, and the different future we are working towards.

What is Mineral Residue?

After the completion of mining and processing, we are left with mineral residue that is generally made up of two principal components:

- Waste rock left from extracting the ore from the ground.
- Processed mineral residue – the mineral waste that remains after the mined ore is processed to separate the valuable metals or minerals from the host rock, including fine tailings, coarser discard, rejects or slag.

Fine tailings slurry discharge at El Soldado, Chile

What is a Tailings Storage Facility (TSF)?

A TSF is a structure specifically engineered and tailored to deal with the physical nature of tailings, as well as local climate, topography and seismic activity.

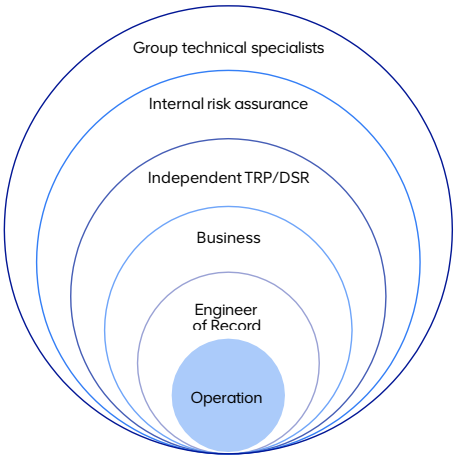
The purpose of a TSF is to receive deposits of tailings and allow water to separate from the fine waste particles – either naturally or through a mechanised process – so that the water can be recycled back into mining processes.

A TSF is defined as a single facility that can consist of multiple contiguous tailings dams, in-pit deposits or a combination of these.
A tailings dam is defined as an above-ground structure that contains tailings deposited as a slurry.

The Las Tórtolas tailings storage facility at Los Bronces, Chile

Anglo American's Technical Standard (Overview)

Anglo American's TSFs are subject to our mandatory Group Technical Standard, that covers Planning and Design, Implementation and Management and Performance Monitoring. The Standard has a set of specifications that covers Standard Applicability, Classification, Design Criteria, Surveillance Requirements and Documentation.



Design and implementation

- All TSFs have a Consequence Classification of Structure (CCS) rating based on the potential hazard evaluation.
- All TSFs are built following established minimum design criteria aimed at ensuring structural integrity.
- Change management is delivered to the highest standards aimed at ensuring the structural integrity is preserved over time.

Governance

Group Management, Business Management, Operations Managers and Supervisors ensure an effective "Three Lines" of defence governance model is implemented, as follows:

- First Line. Business and Operations Management are responsible for the identification, assessment, and management of TSF risks. They are responsible for setting effective control measures in TSF construction, operational, and closure processes.
- Second Line. Functional Group Head and the Head of Discipline are responsible for implementing a TSF risk management programme, consistent and aligned with the Standard to support the Businesses in consistent and effective risk management and reporting.
- Third Line. Anglo American Business Assurance System (ABAS) provides independent internal assurance, applying a risk-based approach and using independent Subject Matter Experts. Findings are reported to the Business Accountable Executive, the Operational Manager, the Head of Discipline, the Group Director – Technical and Operations, and the Board Audit Committee.

Management and Monitoring

- TSFs with a 'Major' or 'High' CCS have a Competent Person responsible for the integrity of the TSFs, supported by an appointed Accountable Executive. A Competent Person is equivalent to a Responsible TSF Engineer as defined within GISTM.
- Each TSF has an Engineer of Record (EoR), responsible for monitoring and support to ensure that the TSF is performing to its design.
- A dedicated team of Group engineering specialists provide oversight, strategic direction and technical support. A review of TSFs at non-managed operations is done on a rotational basis.
- Various forms of remote and other monitoring technology are used to measure TSF performance, including ground movement and seepage.

Inspection and Audit

- Site-based operational personnel conduct daily / weekly / bi-weekly inspections.
- The EoR conducts formal dam safety inspections and reporting on a quarterly, semi-annual and /or annual basis.
- A technical review panel conducts an independent review of the highest risk profile TSFs at least annually.
- Additional technical reviews and analyses are carried out by independent Dam Safety Review consultants.

Risk Management

A Tolerable Risk Framework (TRF) was developed in 2024 to provide a common methodology and approach for TSF safety evaluations and risk tolerability demonstration within Anglo American. The TRF is organized around four interrelated principles, ensuring TSF risks are understood, communicated, managed, and reduced as reasonably practicable, aligned with the ALARP principle.

Anglo American's Group Technical Standard is available at:
www.angloamerican.com/tsf

Tailings safety technology

General Site Characterization and Instrumentation

A deep understanding of the behaviors and performance of our TSFs allows us to proactively design strategies to prepare our TSFs for all eventualities, and to implement effective surveillance and management practices. We compile site and material engineering data to inform collapse failure mode risk. We also review and update our design criteria to systematically improve surveillance programs.

In phase 1, which commenced in 2022, we prioritised:

- Additional investigation and analysis, which assesses the soil composition through a combination of Cone Penetration Testing (CPT) and traditional drilling (rotary, sonic, etc.) within the tailings and foundations.
- The installation of a remote, real-time instrument monitoring system which will connect sensors such as piezometers, weather stations pressure sensors, and deformation sensors, so that data is acquired at close time intervals.
- The appointment of an InSAR specialist to provide a monitoring solution based on satellite remote sensing technology to determine the extent, magnitude, and evolution of surface deformation. In addition, a geotechnical specialist consultancy firm provides the interpretation of the InSAR data for possible trending of deformation and displacement to allow our field engineers to closely monitor these areas in combination with review of any adjacent instrumentation. Thereby we utilize all available data/trends to monitor and continue to assess behaviors over time.
- Laboratory testing of the tailings and foundation materials.
- High-level stability assessments for existing and proposed future ultimate heights accounting for recently developed site-specific Probabilistic Seismic Hazard Assessments (PSHAs) to define the extreme loading criterion related to earthquakes.

The data will be collected and linked to a centralized system that site engineers, EoRs, and AEs can access. This will enable us to understand the conditions and behavior over time and to be notified of changes.

In phase 2, which commenced in 2023 and is ongoing as part of continuous improvement, we focus on:

- Sonic drilling within the TSF foundation soil horizons for geotechnical and geochemical characterization. Installing additional vibrating wire piezometers and shape arrays (used to measure displacements in ground and in structures that lie below ground level).
- Performing detailed stability and deformation analyses updates for current and proposed final TSF heights.
- Performing high quality in-situ sampling and on-site laboratory testing in select instances, using the newly commissioned Anglo American-sponsored Mobile laboratory.

Anglo American's Mobile Lab (Exterior)


Anglo American's Mobile Lab (Interior)

Seismic Characterization

We use a geophysical method called passive seismics, where we use ambient noise to image the interior of our tailings dams. This can identify phreatic surface levels within the dams and identify any potential soft or unconsolidated zones, and fully characterize the structure response to dynamic loading (i.e. earthquakes). This technology is gradually being rolled out at our upstream constructed tailings dams in Southern Africa.

In South America, for the foundation response, we are employing similar geophysical methods but with active measurements to enable accurate assessments to be carried out for characterization. Passive monitoring allows us to calibrate our cyclic models of the tailings dam itself.

Fibre optic sensing

Fibre optic cable technology is installed at four of our tailings dams and we plan to continue deploying this technology at select additional tailings dams, providing near real-time monitoring of strain, deformation and seepage. In some cases, satellite technology will be combined with fibre optic cable monitoring to complement the performance and behavior of the structure.

Tailings safety technology

FutureSmart Mining™ – Changing the future of tailings

Anglo American is working on implementing a number of step-change technologies that we expect to significantly decrease the volume of waste material produced in the extraction and processing of mineral ore, while also offering major water and energy usage reductions for each tonne of metal or mineral produced, as well as smaller overall mine waste footprints.

Coarse particle recovery

Coarse particle recovery (CPR) is a recovery method that uses a fluidised bed to enable valuable minerals, with as little as 1% mineral surface exposure, to be separated from gangue (commercially valueless ore). Energy and water savings can be significant as a proportion of the water used in processing can be easily recovered and recycled. This also creates a drier and more stable mineral residue deposit.

Bulk ore sorting

Bulk ore sorting leverages new sensor technology that can, in real time, reject a proportion of sub-economic material early in the processing sequence, creating opportunities to both increase plant throughput and reduce the volume of waste material to the TSF. Bulk ore sorting thereby also delivers significant reductions in water and energy intensity. Combining bulk ore sorting, CPR and other technologies are expected to enable greater operational efficiency and materially reduce our consumption of water and energy.

Hydraulic Dewatered Stacking

Hydraulic Dewatered Stacking (HDS) is a patented technology developed by Anglo American as part of the FutureSmart Mining™ approach. Leveraging the fines-free sand derived from the adoption of CPR, the new tailings management system places contiguous sand drainage channels that accelerate consolidation and dewatering. HDS aims to deliver:

- Safety: A desaturated tailings dam can be extremely resistant to liquefaction.
- Water: Sands that will be omnipresent throughout the tailings dam deliver greater, faster water recycling.
- Legacy: Rehabilitation and other closure activities can be implemented in months, not years. Enabling re-purposing of the land to benefit the communities.

A large-scale demonstration at the El Soldado copper mine in Chile was completed in Q4 2024. The El Soldado trial proved useful in shedding new light on unsaturated soil mechanics and the interpretation of the results will be available by the end of 2025.

CPR at Quellaveco copper mine, Peru.

Hydraulic Dewatered Stacking at El Soldado copper mine, Chile

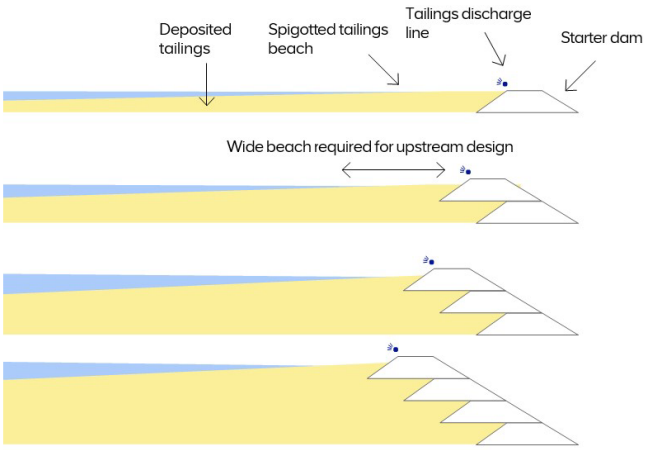
How are tailings dams constructed?

There are six fundamental types of tailings dams, each constructed using different techniques:

Upstream

The upstream method starts with the construction of a starter dam. Tailings will naturally separate so that coarse material settles closest to the starter dam, while liquid and fine material settles furthest away. As the level of the materials rises, the crest of the dam is raised "upstream", using the support of the previous dam raise and the tailings beach area. Its stability is dependent on the in-situ strength of the tailings material itself.

This method is more suitable in dry climates with limited seismic activity, low deposition rates, and flat topography.

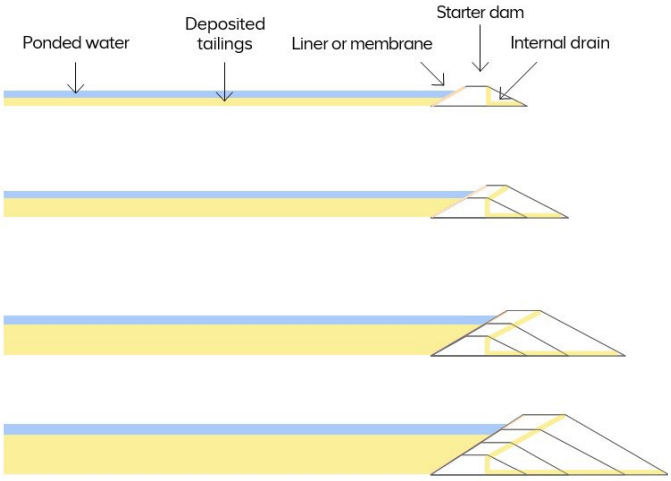


Downstream

The downstream method begins in most cases with a starter dam that has a low permeability zone or liner to control and minimise water loss.

In some cases, it also serves to initially store water for start-up of the plant. Tailings are placed behind the dam and the embankment is raised by building the new wall on the downstream slope of the previous section. The crest of the dam thereby moves "downstream" or away from the starter dam. A liner or membrane can be used on the upstream slope of the dam to prevent erosion and limit infiltrations.

Downstream tailings dams require more material to build than upstream constructed dams, but are considered more stable, making them better suited for areas with seismic activity and more intense rainfall or water management requirements.



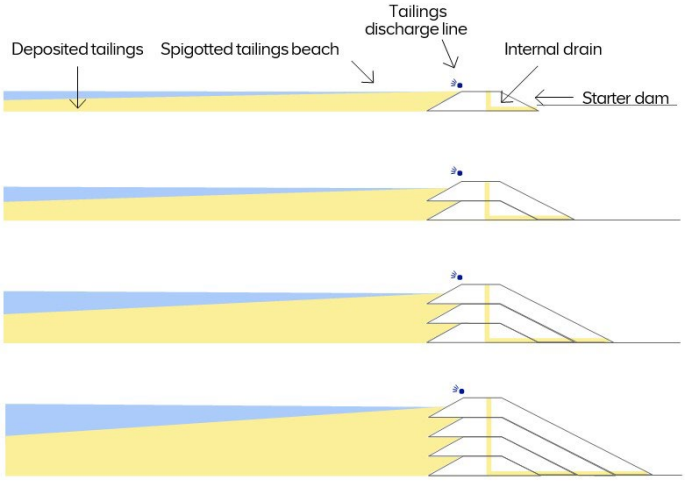
Centreline

The centreline method sits between the upstream and downstream construction methods. Like the upstream method, the tailings are discharged on top of the dam to form a beach behind the dam wall.

When the dam is raised, material is placed on both the tailings beach and the existing embankment.

The embankment crest is being raised vertically on the "centreline" and does not move in relation to the upstream and downstream directions.

The centreline design is suitable in areas with moderate rainfall and moderate to high seismic risk.



Hybrid/Mixed

A hybrid dam is a combination of the tailings dam types that are defined as either Downstream, Upstream or Centreline. Some tailings dams have changed construction type in the past and now are defined as 'hybrid' or 'mixed' type. In addition, some hybrid dams may incorporate waste rock materials in their structure.

Landform

A landform is one that is typically a very old legacy tailings dam that has dried out to the point where it does not constitute a wet dam anymore, nor is considered to be a containment structure. The main features, such as the outer wall slopes, may also be altered or flattened by erosion to the point that the facility is unrecognisable in comparison to its previous engineered state.

Water Retaining

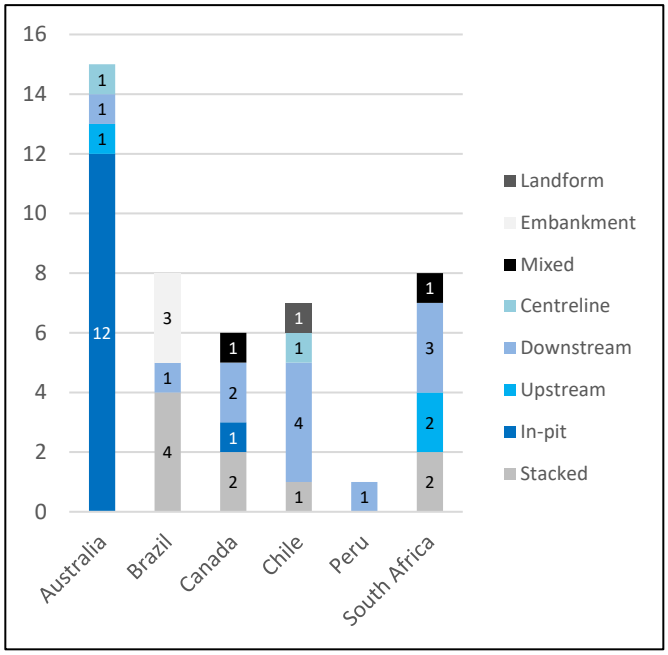
Water retaining type of dams are built using selected imported fill materials from designated borrow areas and quarries, placed in a controlled manner in lifts, typically resulting in an embankment structure that is designed to store water and tailings in direct contact with the outer wall. Water retaining structures may have specific engineered structural features, such as riprap, a low permeability liner or core zone, internal filters, and drainage system, to safely manage stored water and seepage flow through the dam body.

Water retaining structures are similar to downstream structures in that the outer wall is self-supporting. A key difference is that a downstream facility is not always designed to allow water to pond against the outer wall.

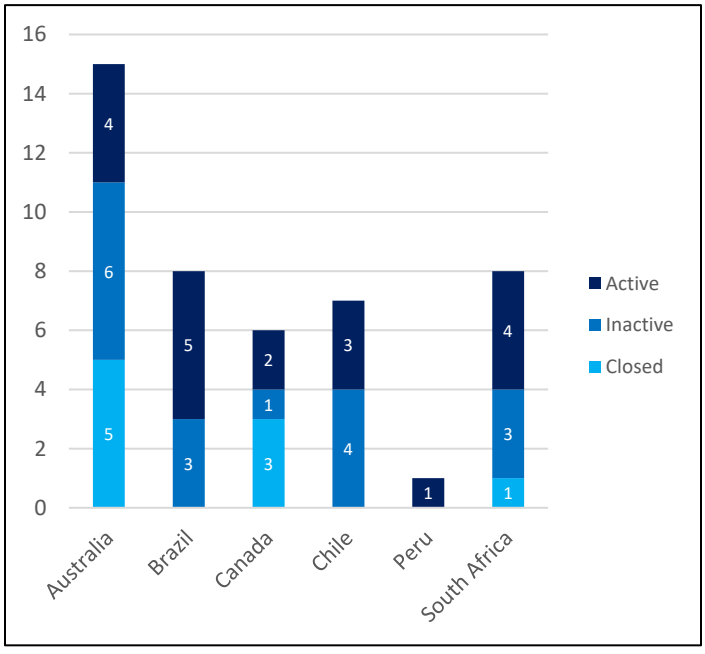
Anglo American managed operations - Summary by country

Of the 45[i] Processed Mineral Facilities currently managed by Anglo American, 19 are in active use, 17 are inactive or in care and maintenance, and 9 are closed or rehabilitated.

Construction Methods



Activity Status



[i] The 2024 count of 57 came down to 45 primarily due to the demerger of the Anglo American Platinum operations.