

Tailings Fact Sheet

BACKGROUND

Tailings are created as mined ore is processed through crushing, grinding and milling. Mined ore is moved to the milling circuit where the rock is reduced into sand and silt sized particles and then mixed with water and moved as slurry through the gold, silver and copper recovery process. The valuable minerals are separated from the rest of the milled rock particles either through physical or chemical recovery processes. After removal of the valuable minerals, the remaining milled rock slurry, now referred to as tailings, is pumped, flows by gravity, or is dewatered and transported by truck or conveyor to a surface engineered facility.

These engineered facilities are carefully designed, constructed and operated to safely contain the tailings and water, even during extreme climatic or seismic events. Depending on the chemical characteristics of the tailings and the surrounding environment, the engineered TSF will generally be lined with a composite liner system consisting of a low permeability soil liner overlain by a geosynthetic liner such as high-density polyethylene (HDPE) to prevent impacts to surface and groundwater systems.

Where tailings slurry is deposited in the facility, the water separates from the heavier sand and silt particles and collects to form a decant/reclaim pond on the surface of the impoundment. The tailings pond water is then recycled back into the milling process for reuse. The tailings are contained within the facility



and once it reaches capacity, the facility is typically reclaimed with a designed cover system used to minimize erosion and infiltration, while maintaining containment of the materials, protecting the environment and achieving post-mining designated land use.

CONSTRUCTION METHODS

TSFs are designed and constructed to store both tailings and water. The dam construction methods include two main types: (1) water retention dams and (2) progressively raised embankments. Water retention dams are typically constructed to their full height prior to anything being stored upstream and raised embankments are progressively raised in a vertical manner over time to store additional material. Raised embankments are the most commonly used method for TSFs. The raised embankment design methods for TSFs are typically downstream, upstream or centerline. This designates the direction in which the embankment crest moves in relation to the starter dam (dyke).

Upstream

Construction of an upstream embankment begins with development of a starter dyke. The tailings are then discharged from the dam crest and form the foundation for future raises. Figure 1 shows an overview of the stages of construction.

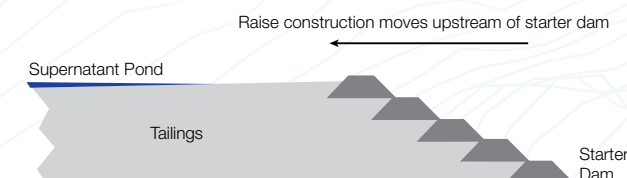


Figure 1: Upstream construction method

Downstream

Downstream methods commence with a starter dyke, which is often impervious with an internal drainage system as shown on Figure 2. The tailings are first deposited behind the dyke and the embankment is raised in a downstream manner over time.

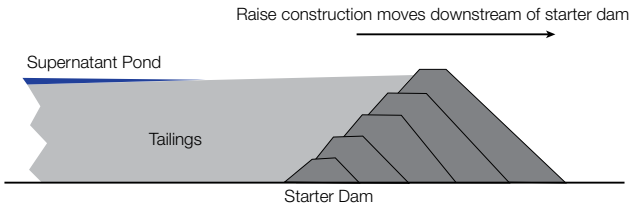


Figure 2: Downstream construction method

Centerline

With the centerline method, the embankment is raised vertically, maintaining the dam centerline embankment as shown on Figure 3.

This design method often also incorporates internal drainage, and requires construction of a free-draining shell. Modified centerline is a combination of upstream and centerline methods and is performed to reduce the volume of construction material that is required to be placed within the embankment.

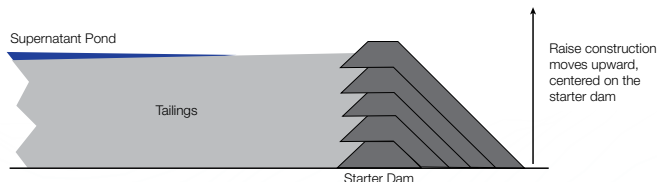


Figure 3: Centerline construction method

DEPOSITION

Tailings can be discharged using subaqueous (below water) or subaerial techniques. Subaerial deposition is more common than subaqueous as it forms a sloping beach toward the reclaim/decant pond. Subaerial can be done from a single discharge point, or multiple discharge points rotated around the facility. Subaqueous deposition is normally completed when there is a potential for oxidation that could result in mobilized acid mine drainage. Subaqueous deposition can be completed in conventional TSFs, as well as offshore or within lakes or pits.

Tailings can be dewatered or modified in other ways prior to deposition. The current methods include:

1. Thickened tailings (which involves a process of dewatering to form a low solids content slurry);
2. Paste (which includes dewatering until the tailings do not segregate as they are deposited and have minimal excess water);
3. Dry stack (includes dewatering to a filtered wet or dry cake that cannot be transported via trucks or conveyors); and
4. Co-disposal which includes mixing mine waste with dewatered tailings (other terminology includes co-mingling, co-placement or co-deposition whereby each has slightly different methods of mixing material).

NEWMONT'S TAILINGS STORAGE FACILITIES

Newmont's engineering, construction and operating standards and technical guidance explicitly cover tailings management and establish requirements to ensure safe and stable facilities throughout their operating and post-mine closure life. The design, construction and operation of all TSFs are scrutinized through our Investment System process, supported by inspections and audits, critical controls and strict application of annual inspections by independent qualified geotechnical engineers. Newmont's Environmental Standard for Closure and Reclamation Management covers the long-term management of TSFs to ensure safe and stable conditions.

Newmont has both operational and closed TSFs in a variety of climatic and topographic settings. Newmont conducts extensive siting, engineering, environmental and social studies to support the specific selection and design of each facility. Annually, Newmont safely manages and disposes more than 100 million tonnes of tailings that are placed within engineered, surface containment facilities; used to backfill former mining pits; or placed as structural backfill paste in underground mines.

The Church of England Disclosure is available on our website along with an inventory of our TSFs.

NEWMONT STANDARDS, GUIDELINES AND GOVERNANCE

Newmont's Standards for Tailings and Heap Leach Management sets the minimum requirements for the design and management of TSFs to protect human health, wildlife, flora, groundwater and/or surface water, prevent uncontrolled release to the environment, manage process fluids, and identify requirements for closure and reclamation.

Tailings Management Standard

The standard works in conjunction with other standards and incorporates the International Council on Mining and Metals' (ICMM's) position statement on 'Preventing Catastrophic Failure of Tailings Storage Facilities.' All Newmont sites identify, assess and comply with laws, regulations, permits, licenses, external standards and other relevant or appropriate requirements.

Planning and Design

- Sites complete a baseline of conditions prior to design of the TSF, including evaluation of land use, hydrology/hydrogeology, geochemistry, biodiversity, cultural resources, geology, seismicity, soil and visual aesthetics.
- Tailings management plans must be developed to restrict potential releases to the environment.
- Tailings management plans are expected to include: design and operating criteria, schedules for inspections, monitoring and maintenance, applicable regulatory, legal or other requirements, management methods, risk assessments, overview of instrumentation including KPIs/critical controls, organization structure (roles and responsibilities), training requirements, emergency response plans (inundation mapping and analysis) and concurrent reclamation.
- Fluid management plans describe management of solution levels based on the site-wide water balance. The plan will also identify trigger alert levels and contingency plans during operations, closure and reclamation phases.
- Characterization and specifications for geochemical and physical properties of the construction and tailings materials are performed.
- Engineering requirements for seepage control, liners, and leak collection recovery systems are specified. With excess solutions that may require discharge, compliance with applicable quality and quantity discharge limits is based on downstream beneficial use.

- Engineering requirements for geotechnical and erosional stability including such measures as internal filters and drains, buttressing, and systems for storm containment and runoff.
- Requirements for piezometers to monitor solution pore pressures in the embankments, tailings and foundation.
- Groundwater monitoring wells to establish baseline and monitor potential seepage.
- Risk-based assessments to evaluate whether the design criteria provide adequate levels of protection.
- Quality control and quality assurance protocols are required to document that construction complies with engineering design.

Yanacocha, Peru



Implementation and Management

- Facilities will have critical controls to mitigate significant risks with risk assessments conducted annually or at major milestones.
- Tailings and Fluid Management Plans must be reviewed and updated annually or when significant changes occur.
- Site-wide water balances are updated over the life of the operations to reflect changes in mine plans, processing and operations, and are regularly calibrated.

- TSFs must be operated within design specifications including piezometric head in embankments and tailings and the management of the pond with design and operational criteria.
- A closure and reclamation plan shall incorporate the requirements of the fluid management plan and support stormwater and erosion management while achieving post-mining land use.
- The TSF is managed to be protective of the environment and adheres to the requirements of the International Cyanide Management Code, permit/license/regulatory requirements, and any other legal obligations or voluntary commitments.

Performance Monitoring

- TSFs shall be inspected regularly for erosional and geotechnical stability, material characterization (geochemical and geotechnical properties), trigger levels and critical controls.
- Annual geotechnical reviews are required by a qualified independent senior geotechnical engineer. Independent Tailings Review Boards (ITRBs) have been implemented at select operations based on technical, social and/or political risks identified by Newmont leadership.
- Routine inspections to verify integrity and to support maintenance and repair programs as defined in the monitoring plans. This includes monitoring instrumentation such as piezometers, inclinometers, and survey monuments as defined in the monitoring plans. Inspection and maintenance activities are also completed following extreme events (rainfall, seismic, etc.).

NEWMONT'S TECHNICAL GUIDELINES AND STANDARD OPERATING PROCEDURES (SOPS)

Newmont's Technical Services team has developed a Tailings Facility Geotechnical Guideline that define minimum requirements for TSFs:

- Definitions for tailings embankments
- Responsibilities of engineering and management staff
- Geotechnical input design criteria guidelines for:
 - Foundation settlement and consolidation
 - Seismic loading
 - Liquefaction
 - Hydraulic properties of the foundation, soil liners and drainage layers
 - Water management systems
 - Tailings rheology and characteristics
- Geotechnical process design for:
 - Geotechnical field investigations
 - Laboratory testing
 - Engineering design
- Geotechnical design requirements for each level of Project Design
- Risk analysis
- Quality assurance/quality control

Newmont's Technical Services team has also developed Seismic Design Criteria Guidelines that define minimum requirements for design, construction and operation of TSFs to ensure safe and stable operations for region-specific seismic events. Each operation develops and implements site-specific Standard Operating Procedures (SOPs) and manuals based on the TSF design. Site-specific SOPs consist of per shift activities including inspections of pipelines, exposed liner, embankments, pond levels and leak detection systems.

NEWMONT'S AUDITS, INSPECTIONS AND REPORTING

Newmont has a number of programs through the Sustainability & External Relations and Technical Services teams for auditing, inspecting and reporting on the stability of our TSFs. The Technical Services team routinely conducts geotechnical reviews with the internal engineering team and reviews annual inspection reports prepared by independent qualified geotechnical engineers and ITRBs. Reporting on tailings management systems can be found within our annual Sustainability Report at:

<https://www.newmont.com/sustainability/sustainability-reporting/default.aspx>

To improve understanding of the potential risks associated with tailings management, potential catastrophic failure was added as an enterprise risk in 2017 at the corporate, regional and site levels. Critical Controls are reviewed and reported on a monthly basis to the Accountable Executive through the Corporate Tailings Management Team.

NEWMONT'S EMERGENCY RESPONSE PLANNING AND COMMUNICATIONS

Newmont operations have Emergency Response Plans that define chain of command and communications and actions to take during emergencies. Additionally, Newmont operations have performed site-specific dam break inundation studies to support emergency response including communications and evacuation notification.

In most jurisdictions, Newmont operations also do joint drills and exercises with local emergency response teams to prepare for emergencies. It should be noted that Newmont has contingency plans in place at every operation that describe trigger levels and detailed actions required to prevent overtopping or embankment stability failure of TSFs.

GLOBAL INDUSTRY TAILINGS ON STANDARD MANAGEMENT

Newmont is committed to implementation of the Global Industry Standard on Tailings Management (GISTM), which strives for zero harm to people and the environment, and requires companies (operators) to take responsibility by prioritizing safety of their tailings facilities through all phases of the mine lifecycle. We are aligned with the International Council on Mining & Metals (ICMM) in our commitment to end catastrophic failure of tailings facilities and will continue to engage with peer companies, industry associations, governments and communities.

We are working to address our portfolio of tailings facilities sites using a phased approach, concentrating on our operating facilities and those that have an extreme or very high consequence classification (as defined by the GISTM) first. We plan to come into compliance with the GISTM over a five year period. We will be updating our internal management and governance systems, including our standards and guidelines to align with the GISTM. This process will be led by our corporate Tailings Management Team who reports to our appointed Accountable Executive.