

Information accurate as at September 2026.

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Tailings Storage

What happens to mine waste at Macraes?

Storing tailings safely has been central to how OceanaGold operates at Macraes since the mine opened in 1990. Our tailings facilities are designed, built, and monitored to the highest standards in New Zealand, and are subject to independent oversight and regular review throughout their lives.

As part of Macraes Phase Four, we are consolidating tailings storage into one purpose-built, in-pit facility while progressively rehabilitating the older facilities on site.

What are tailings?

When gold ore (rock containing gold) is processed, the rock that has had its gold extracted is left behind as a fine silt material called tailings. At Macraes, around 6 million tonnes of ore is processed each year, and the tailings from that process need to be stored safely — permanently.

Tailings at Macraes contain naturally occurring minerals including arsenic, sulphate, and trace metals. These need to be stored in a controlled way to prevent them entering nearby waterways.

Where are tailings stored at Macraes?

The mine currently has several tailings storage facilities (TSFs). As part of MP4, the approach to tailings storage is changing significantly:

- Sulphate — elevated levels can harm stream invertebrates.
- Metals (arsenic, copper, zinc) — toxic to aquatic life at high concentrations.
- Nitrogen from explosives — promotes excessive algae growth.

Fraser's TSF (Stage 3) — the new primary facility

The storage location for all MP4 tailings is inside the old Fraser's Open Pit — a large, pre-existing hole in the ground that acts as a natural containment bowl. A large, engineered embankment called the Fraser's Backfill holds tailings within a portion of the pit.

- Stage 3 raises the embankment from 480 m to 520 m above sea level — creating enough room to store all tailings through to around 2039
- At full capacity the facility will hold approximately 153 million tonnes of tailings

- The embankment will be over 430 m wide at its crest — wider than five rugby fields, and has been designed to withstand a 1-in-10,000 year earthquake event.
- The embankment is built from waste rock from the Innes Mills Pit — a coarse, well-draining schist that withstands earthquakes well.

Existing facilities

MP4 will affect two existing decommissioned tailings storage facilities:

- MTI (Mixed Tailings Impoundment) — the top layers of tailings will be pumped out and transferred to Fraser's TSF.
- SP10 and 11 — tailings will be pumped out and transferred to Fraser's TSF, leaving behind only the SP11 closure embankment.

Removing SP10 and 11 frees up space for new mining in the Innes Mills Pit and simplifies the long-term management of the site.

Why store tailings in a pit?

A purpose-built solution

Using an existing pit to store tailings is a well-established approach that takes advantage of the natural landscape. The pit walls provide containment on three sides, and the engineered embankment holds the fourth. All of OceanaGold's tailings storage facilities — including the Fraser's TSF — are designed, built, and monitored to the same rigorous New Zealand dam safety standards, and all are classified as High Potential Impact dams, meaning they receive the highest level of scrutiny and oversight. The in-pit design simply makes the most of the existing geography of the site.

Is it safe?

Every tailings storage facility at Macraes is regulated under the New Zealand Building Act and Dam Safety Regulations. Each facility is given a Potential Impact Classification (PIC) — a rating that reflects the potential consequences if something were to go wrong. All of OceanaGold's active tailings facilities, including the new Frasers TSF Stage 3, are classified as High PIC — the highest scrutiny level in New Zealand. This means designs must comply with the New Zealand Dam Safety Guidelines and be independently peer reviewed by an experienced dam engineer before construction can begin. A Building Consent is required before any work starts.

OceanaGold is aligned with the Global Industry Standard on Tailings Management (GISTM) — an international best-practice standard developed after major tailings failures overseas. Each facility has its own Operations, Maintenance and Surveillance Manual setting out inspection routines, monitoring requirements, and how to respond if something unexpected is detected.

An Emergency Action Plan is kept current for every active facility. OceanaGold's engineers are on-site during construction to verify that what is being built matches the design, and each facility's risk classification is formally reassessed every five years during operation.

High PIC means:

- Design must comply with the New Zealand Dam Safety Guidelines.
- An experienced dam engineer must independently peer review the design.

- A Building Consent is required before any construction begins.
- OceanaGold's engineers must be on-site during construction to verify conditions match design assumptions.
- The facility must be reassessed every five years during operation.
- An Emergency Action Plan must be in place and kept current.

Earthquake safety

The embankment is designed to withstand a 1-in-10,000 year earthquake without catastrophic failure. The waste rock it is built from — coarse schist — does not liquefy under shaking, which is one of the main causes of tailings dam failures elsewhere in the world.

Ongoing dam safety management

- A Dam Safety Assurance Programme governs roles, responsibilities, and monitoring throughout the life of each facility.
- Radar monitoring tracks movement of pit walls.
- Regular visual inspections and in-ground instrumentation monitors embankment performance
- All facilities have Operations, Maintenance and Surveillance manuals.

FACILITY

Frasers TSF Stage 3

Top Tipperary TSF

MTI TSF

SP10 and 11

SP11 Closure Embankment

SAFETY CLASSIFICATION

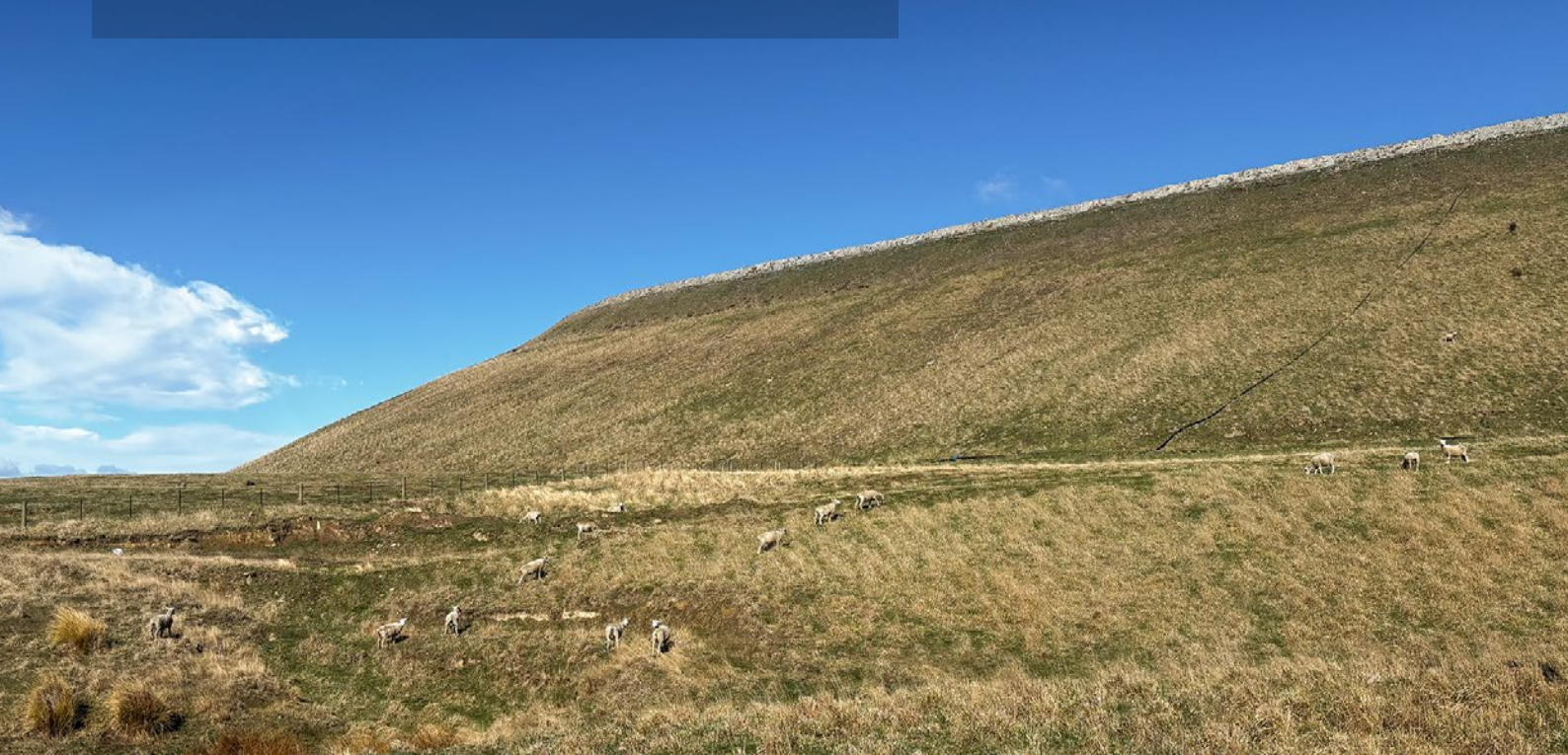
High PIC — most stringent requirements

High PIC — operating

High PIC — will be decommissioned

High PIC — will be decommissioned

Low PIC — residual water dam



How is seepage from tailings managed?

Left unmanaged water in tailings can seep slowly through and around an embankment. This seepage can carry dissolved minerals into nearby streams.

OceanaGold manages this in several ways:

- A low-permeability zone between the tails and the embankment of the Frasers facility limits how much water passes through.
- Drainage systems behind the embankment capture seepage before it can reach the Innes Mills Pit or the environment.
- Cut-off drains on the western side of the facility intercept seepage that might otherwise flow toward Murphys Creek.
- The position of the operational pond on the Frasers facility is managed to optimise the performance of the embankment.
- A wetting system keeps exposed tailings surfaces moist in dry, windy conditions to prevent dust.

Do the TSFs contain cyanide?

Cyanide is used in gold processing to extract gold from ore. It's a word that can cause concern, but the facts are reassuring. Cyanide occurs naturally in the environment, does not persist or accumulate, and is not toxic in all forms or at all concentrations. It is not a heavy metal and is not radioactive. What matters is the form it takes and how much is present.

The form that matters environmentally is called weak acid dissociable (WAD) cyanide. Concentrations of WAD cyanide in the water at our tailings storage facilities average around 4 parts per million — well within the limit of 50 parts per million that the International Cyanide Code sets as safe for migratory birds and waterfowl. OceanaGold operates in accordance with the International Cyanide Code, which is the globally recognised standard for responsible cyanide management in gold mining.

What happens at closure?

Closing a tailings facility is a long-term commitment, not a one-off event. For the Frasers TSF, the plan is:

Dry closure — capping the Frasers Pit

The Frasers Pit will be completely filled with tailings by the time mining ends. The tailings surface will then be capped and shaped so that rain runs off rather than soaking in. This approach — known as dry closure — is well suited to the Frasers Pit given its scale and location, and is consistent with how OceanaGold manages all of its tailings facilities to minimise any long-term environmental footprint.

Reinstating Macraes Road

The wide embankment crest will sit at roughly pre-mining ground level. This allows Macraes Road to be realigned back toward its original route, crossing the top of the embankment.

Restoring the Waikouaiti headwaters

A lined drainage channel along the embankment crest will carry water from the upper part of the North Branch of the Waikouaiti River catchment to the North Branch of the Waikouaiti River — reconnecting it to the river system it was historically part of, with native riparian planting along the margins.

For the older facilities

SP10 and 11: Once tailings are removed and the embankments demolished, the areas will be recontoured and rehabilitated. SP11 will leave a small water storage pond with a low-impact closure embankment.

MTI: At closure, MTI will be capped and shaped to allow water to run off. We will also stabilise the surface with specialised grass mixes to prevent erosion.

Post-closure water management continues

Seepage management doesn't stop when mining stops. Any ongoing seepage from the tailings is captured and treated for as long as needed. A funded trust takes over management of these obligations after OceanaGold's consents expire.



What about dust from tailings?

Tailings contain naturally-occurring arsenic, which means dust from dry tailings surfaces is a potential concern. However:

- Tailings are deposited wet and quickly form a hard, crusted surface — loose dust only forms under strong, dry winds.
- A water sprinkler system keeps surfaces moist in dry or windy conditions.
- The nearest home is over 1.1 km from the Frasers TSF — well beyond the distance at which dust concentrations become significant.
- Strong winds toward the nearest homes occur less than 2.5% of the time.
- Independent assessment concludes dust from tailings presents a negligible health risk to the community.



Key facts

Primary facility Frasers TSF — built inside the old Frasers Open Pit

Embankment crest width Over 430 m — no credible catastrophic failure risk

Total tailings to be stored ~153 million tonnes through to mine closure (~2039)

Safety classification High PIC — highest scrutiny level in NZ

Earthquake design Withstands a 1-in-10,000 year event without catastrophic failure

Closure method Dry closure — capped surface, no pit lake in Frasers Pit

Road reinstatement Macraes Road realigned across embankment crest

Stream reinstatement North Branch Waikouaiti reconnected at closure

Post-closure management Funded trust continues seepage and ecological management

Want to know more?

OceanaGold is committed to a long-term partnership with the community and it is important to us that you have reliable information about what we are proposing and what it means to you.

Macraes Information Centre

Location: 117 Ronaldsay Street, Palmerston, Otago.

Open hours: 9.00 am to 3.00 pm weekdays.

This fact sheet is based on the Assessment of Environmental Effects (Rev B, 2026) and the Frasers TSF Stage 3 Technical Report (EGL, 2026) prepared for Oceana Gold (NZ) Limited as part of the MP4 application under the Fast-track Approvals Act 2024.

Disclaimer: Plain-language summary for community information only. Based on the Assessment of Environmental Effects (Rev B, 2026) and supporting technical reports. Full application documents should be consulted for complete detail.



Find out more about Macraes Phase Four: www.macraesphasefour.co.nz
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