OCEANAGOLD
WAIHI OPERATION

Waihi North Project

TAILINGS STORAGE FACILITIES

The Waihi Tailings Storage Facilities (TSFs) are designed, constructed, and operated in accordance with the New Zealand Dam Safety Guidelines published by the New Zealand Society on Large Dams (NZSOLD). These guidelines are based on international best practices. Their design undergoes a rigorous engineering review under the Building Act, while a similarly detailed review of their environmental performance is required as part of gaining resource consents.

Once constructed, ongoing, independently verified monitoring of water quality, structural integrity, and other operational elements are conducted throughout the life of a TSF.

This document has been produced for New Zealand consenting purposes only. Information contained herein must not be relied on for investment purposes.

JUNE 2022

OVERVIEW

Tailings are the finely ground rock left over after the gold and silver have been extracted. A TSF is the name for any structure built for the purposes of storing tailings from extraction processes. There are several different types of TSF globally, with varying types of construction. All of our TSFs are built and operated in accordance with internationally recognised standards.

The Waihi site currently operates two TSFs, with a third TSF proposed – TSF 3. Construction of TSF2 began in 1987, and TSF1A in 1999. Placement of tailings to TSF2 stopped in 2005 and currently only rainwater flows into the TSF2 impoundment area.

By 2007 (within three years), the water quality within TSF2 was of such a standard that Waikato Regional Council approved direct discharge to the river. Of particular note since deposition of tails was ceased, the TSF has become capable of supporting aquatic life and for many years the facility has been a habitat for a variety of waterfowl. The outflow is continuously monitored for turbidity (cloudiness), conductivity and pH, and is periodically tested for a wide range of parameters to ensure that its quality remains suitable for discharge.

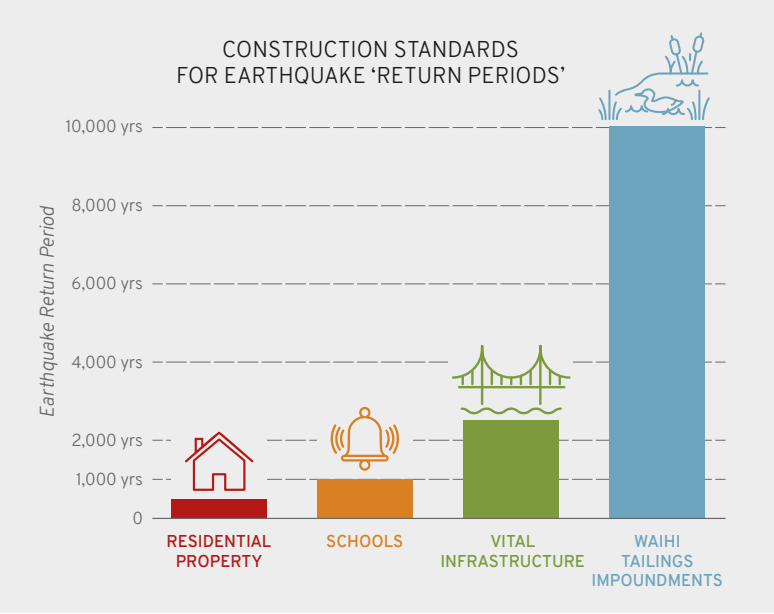
TSF PRINCIPAL FEATURES

CONSTRUCTION

The embankment structures are engineered and constructed from selectively placed mine waste rock. They butt up against rising ground to form large impoundments which contain the tailings ponds.

They have been designed to accommodate all waste rock and tailings from the operations, while also allowing some contingency. For example, the embankment crest level is designed to provide a safe height above the tailings, plus stored water level. Storage capacity is provided for a 1.2 m rainstorm, (the Probable Maximum Precipitation), plus an additional 1.0 m minimum freeboard above that. This is to ensure that even in a severe rain event, water in the tailings ponds cannot overflow and find its way into surrounding rivers and streams.

Due to the geological setting of New Zealand, a risk to a TSF (or any structure) is an earthquake. As a result, the Waihi TSFs are carefully engineered to withstand significant seismic events, including earthquake ground motions with a 1 in 10,000-year return period (or 0.01% probability of happening in a given year). To put this in context, standard buildings, such as residential houses, are designed for 1 in 500-year events. Structures that can accommodate large numbers of people, such as schools, are designed for 1 in 1,000-year events. Structures with special emergency and post-disaster functions (e.g., hospitals, fire, and police stations) and vital infrastructure (e.g., state highway bridges) are designed for 1 in 2,500-year events.



DRAINAGE

Subsurface drainage intercepts tailings seepage, leachate from waste rock, and groundwater. These drains include underdrains beneath the tailings, a cut-off drain along the upstream toe of the embankment, an initial toe drain plus downstream toe drain, and gully subsoil drains. In addition, leachate collection drains are also included within the embankment design.

Diversion drains above the tailings ponds intercept clean surface runoff from the adjacent hill and direct it to nearby streams, reducing the amount of water entering the ponds.

The TSFs are surrounded by a perimeter drain which collects surface runoff from the embankment and directs it into collection/silt ponds. Depending on the water

quality, it is either discharged directly or diverted to our Water Treatment Plant.

In addition, decant water from the top of the tailings pond, and water from the underdrainage system is either re-used for ore processing, or treated and discharged.

OPERATION AND MONITORING

There is a Dam Safety Management Plan that involves monitoring and surveillance of the performance of the TSFs. The monitoring data is interpreted and assessed by the design engineer and annual reports on the safety and integrity of the TSFs are produced. The ongoing performance and safety of our TSFs is also reviewed by an independent peer review panel.

Monitoring demonstrates that the structural and environmental performance of our current TSFs meet accepted criteria and design expectations, to be adequately protective of the surrounding environment. The independent peer review panel reviews the monitoring data and interpretive reports annually to independently confirm that the Waihi TSFs' performance meets design expectations and conditions of the resource consents.

TSFs AND CYANIDE

Cyanide is used in the processing of ore to enable a higher percentage of gold and silver to be extracted. Given its past history, there can be concerns relating to the toxicity of cyanide, however it is important to distinguish facts from myths and misconceptions.

While cyanide can be deadly, it also occurs naturally, is not toxic in all forms or all concentrations, does not persist in the environment, and is not cumulative, nor is it a heavy metal or radioactive.

The particular form of cyanide, together with the concentration, is what determines whether it has the potential to be toxic within the environment. From an environmental perspective, the 'toxicologically significant' or 'ecologically important' form of cyanide is what's known as weak acid dissociable (WAD) cyanide.

Only low residual concentrations of cyanide are found in the decant pond at our tailings storage areas, with concentrations of WAD cyanide averaging around 4 g/m^3. For comparison, this is well within the level of 50 g/m^3 which is the upper level considered safe for migratory birds and waterfowl in the International Cyanide Code.

The Cyanide Code is the internationally recognised benchmark for best management practices for cyanide used in the gold and silver mining industry.

TAILINGS STORAGE FACILITY 3

As part of the Waihi North Project and to cater for the extension of mining life, OceanaGold Waihi is proposing to construct a new tailings storage facility, TSF 3, immediately east of the current facilities. The proposed TSF 3 will be of a similar design and construction to the existing TSFs.

The impoundment will be fully lined to reduce the potential for seepage to enter the groundwater. At lower levels, the liner will be a geosynthetic liner as used in landfills, while at higher levels, the liner will be compacted earth fill.

All designs and plans will be put through a rigorous review process and adhere to all regulatory requirements.

CONCLUSION

OceanaGold Waihi's TSFs are formed using downstream construction embankments, similar to the design used for water storage dams. These designs are developed by experienced tailings facility engineers and subject to regulatory approvals and independent review. To learn more about the different types of TSF designs visit oceanagold.com

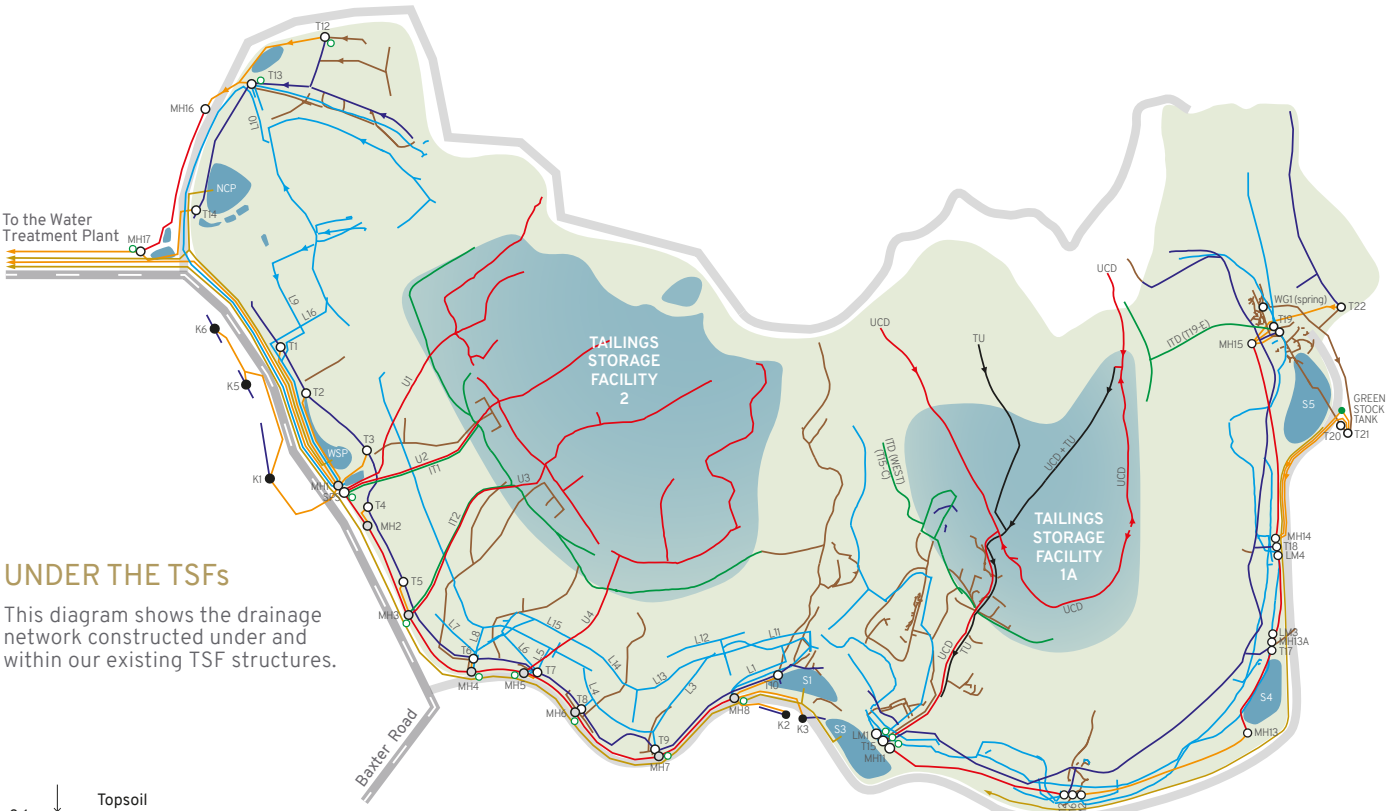
The TSFs are constructed from earth and rock fill that is placed and compacted to high standards with independent quality control testing.

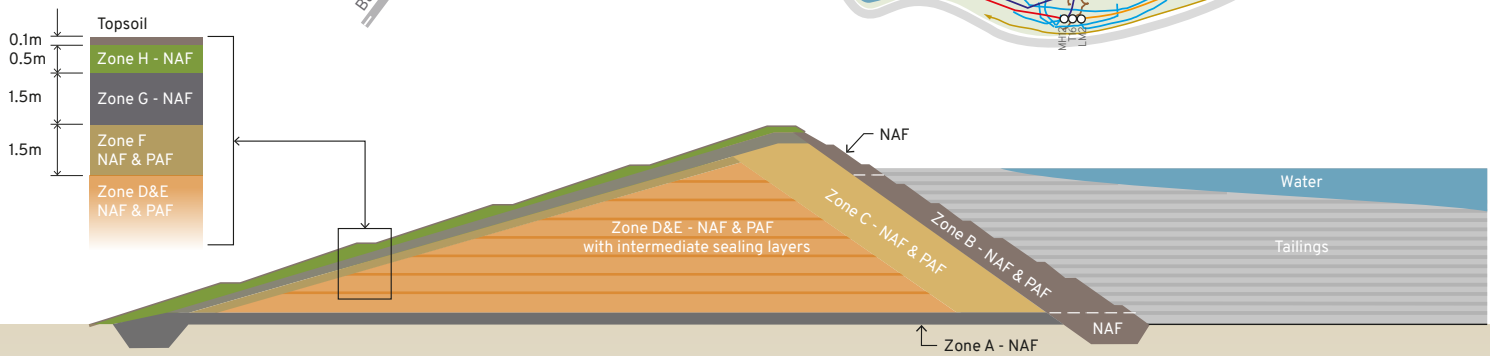
There is a dam safety management plan that involves ongoing monitoring and surveillance of the performance of the TSFs.

Monitoring demonstrates that the structural and environmental performance of our current TSFs meet accepted criteria and design expectations, to be adequately protective of the surrounding environment.

UNDER THE TSFs

This diagram shows the drainage network constructed under and within our existing TSF structures.





TYPICAL TSF CROSS SECTION

INSIDE THE TAILINGS STORAGE FACILITIES

The TSF embankments are engineered structures that include several different zones, fulfilling different purposes for maintaining both structural and environmental integrity.

The embankments are constructed from waste earth and rock mined from our operations. They are built up by placing each successive layer of fill on the previous compacted layer.

A unique feature of waste rock is that some of it contains sulphide and is capable of producing acid drainage when exposed to oxygen and water. This rock is referred to as potentially acid-forming (PAF) rock. Waste rock without the potential to form acid drainage is referred to as non-acid forming (NAF) waste rock.

The zoning of the embankment includes low permeability zones to:

1. Restrict seepage from the tailings (Zone B).
2. Restrict leachate from waste rock entering the groundwater (Zone A).
3. Restrict entry of oxygen and water into the downstream shoulder of the embankment (Zone G).

Sealing the outside shoulder of the embankment to restrict oxygen and water infiltration reduces the formation and leaching of soluble minerals.

Each zone of the embankment is constructed from selected material and by controlled placement. The functions of each zone are:

- **Zone A)** Low permeability zone laid in contact with the original ground that restricts seepage or leachate from waste rock into the underlying ground.
- **Zone B)** Low permeability upstream zone that restricts seepage from the tailings into the embankment.
- **Zones C1 & C2)** Structural fill that provide support to Zone B and provide a transition between the finer grained material in Zone B and the coarser material in Zones D2 and D3.
- **Zone D1)** Part of Zone D compacted to achieve structural fill standards.
- **Zones D2 & D3)** Bulk fill zones.
- **Zone F)** Structural fill zone on the outside shoulder that also provides a transition between the coarser material in Zone D and finer material in Zone G. Zone F also provides a drainage path for leachate.
- **Zone G)** Outer sealing layer of the embankment that restricts entry of oxygen and water.
- **Zone H)** Plant growth layer.

INFORMATION ACCURATE AS AT JUNE 2022

IF YOU HAVE AN IDEA, CONCERN OR QUESTION, WE WANT TO HEAR FROM YOU.
You can contact us via our website; **waihinorth.info or visit** our Project Information Office; **86 Seddon Street, Waihi.**
Our Free Community Engagement Line **0800 924 444** is available 7 days.