This Update is a regular advertising feature provided by OceanaGold Waihi Operation

17 October, 2019

WHO GIVES A DAM?

We do. Which is why so much effort goes in to making sure that what we do meets local and international scrutiny and legislation; and that what we leave behind is sustainable in the long term.

Last week the Overseas Investment Office (OIO) announced that the Government had granted permission for OceanaGold to purchase farmland south of Waihi adjacent to the present tailings storage area. The company will later apply for consents to construct and operate a third Tailings Storage Facility (TSF).

Our two tailings impoundments are carefully engineered structures constructed to precise specifications.

What is a tailings impoundment, and how is it different to a tailings dam?

A tailings dam is just that, a dam built out of tailings – finely ground up rock left over after mineral extraction. These are the structures we have seen fail on TV.

The two tailings impoundments outside Waihi are not dams, and nor are they just piles of rock. They are carefully engineered structures made up of a series of zones, each constructed to precise engineering specifications for compaction, shear strength, rock geochemistry and structural integrity. They are constructed like a water dam, as if they are required to hold a large body of water rather than a slurry of tailings that settles and compresses over time.

Doesn't the water leak out?

The impoundments contain a complex series of underground and surface drains, settling ponds, and monitoring bores. This system allows us to regularly check water chemistry and clarity to make sure it remains within consent limits. There are also regular checks by regulators such as Waikato Regional Council. The Ohinemuri River is also monitored; by us, and by independent companies who report directly to council.

One of our two impoundments at Waihi has already been decommissioned. The water is of high quality and is consented to be discharged directly into the Ohinemuri River without any treatment being required.

TSF2 has already been decommissioned and the water is discharged into the Ohinemuri River without any treatment being required.

What goes into a tailings impoundment?

When rock is ground up to a fine powder to permit the extraction of gold and silver the slurry material left over is known as tailings. In Waihi this material is stored in two large impoundments constructed from hard rock excavated from the Martha open pit.

What would happen in an earthquake or a huge rainstorm?

Our tailings impoundments are designed to withstand earthquake loads with a return period of 10,000 years. In comparison, normal buildings, including residential houses, are designed for earthquake ground motions with an average return period of 500 years. Structures that may contain large numbers of people including schools are designed for 1,000 years, and structures with special post-disaster functions (e.g., hospitals, fire and police stations) and vital infrastructure (e.g., state highway bridges) are designed for 2,500 years.

The tailings impoundments operate with a freeboard of just over three metres, this is the distance between the water level and the crest of the impoundment. If required, the water from TSF1 can be pumped to the Water Treatment Plant. Water from TSF2 is allowed to be discharged into the river.

What happens when the mine closes?

When the tailings impoundments are finally closed, they will be partially capped leaving a wetland and potentially a small lake on the top. A variety of land uses is possible for the remaining area. When mining is completed the Martha Trust will take over responsibility for the tailings impoundments. The company will fund the trust to allow it to carry out its functions. The sum provided will generate annual interest sufficient to allow the trust to manage, monitor and maintain the site.

Are the contents toxic?

The gold bearing rock in this area contains trace elements. Copper, lead, zinc and other elements may all be present depending on the geochemistry of the rock before it is ground up. You can see examples of this in the red-brown stains on road cuttings on the Coromandel Peninsula. These trace elements were always there, but crushing the rock makes it easier for them to leach into the environment. Our tailings impoundments are designed to make sure this does not happen. The tailings are surrounded by several layers of rock and clay. In technical terms they are 'encapsulated'. This prevents oxygen from reaching the tailings. No oxygen means trace elements remain inert. Tailings also contain small traces of cyanide left over from the gold recovery process. Over a few days this cyanide is broken down by sunlight into carbon and nitrogen compounds.

Who checks what we are doing?

We have regular checks and peer reviews by external agencies. New Zealand and overseas experts monitor what we are doing and provide detailed reports. From site selection to construction, and monitoring and independent peer reviews by recognised experts, the construction of Waihi's tailings impoundments has been closely followed and reported on. There is strong regulatory involvement from Waikato Regional Council and Hauraki District Council through the consent conditions. The most recent peer review was last month.

On the WEB

There is much more detail about each of these topics on our website.

www.waihigold.co.nz/mining/waste-rock-and-tailings/tailings-storage-facilities/

www.waihigold.co.nz/mining/waste-rock-and-tailings/embankment-design/

www.waihigold.co.nz/mining/waste-rock-and-tailings/surface-and-subsurface-water-management/

www.waihigold.co.nz/mining/cyanide-ph-and-acid-drainage/

OCEANAGOLD WAIHI OPERATION

The OceanaGold Waihi Operation community engagement line is attended 24 hours a day, seven days a week. Contact the Company Liaison Officer, Donna Fisher.

0800 WAIHIGOLD (0800 924 444)

www.waihigold.co.nz www.oceanagold.com