Globe Progress pit lake.

Sustainability and social performance: Globe Progress

OceanaGold's open pit Globe Progress mine near Reefton is in the fifth year of post-closure site rehabilitation. It is located in a mountainous area of native forest on public conservation land.

The operation

The mine's 260-hectare footprint occupies mainly an area of historic mine workings since regenerating into beech-dominated native forest. Between 2007 and 2016 Globe Progress produced more than 610,000 ounces of gold. OceanaGold processed mined ore into a concentrate, which it transported by truck and rail to the Macraes mine in East Otago where the company produced gold bars for export.

Globe Progress also comprised the much smaller Souvenir pit (later used for tailings storage), the Fossicker's tailings storage facility, as well as the Devils Creek and Union Creek waste rock stacks, roads, buildings, and a handling area for ore processing.

Over eight years of full production, the mine employed about 250-300 full time workers and, through direct and indirect employment, is estimated to have provided 550 FTEs within the West Coast region and $250 million in income for West Coast households. The company has estimated other expenditure for West Coast businesses to have exceeded $100 million.

A number of factors contributed to OceanaGold's decision to place Globe Progress into care-and-maintenance and then closure, including the relatively low gold price at the time.

The pit lake at Globe Progress will eventually outflow into Devils Creek.

Restoration of native forest

The company's rehabilitation team has been working closely with the Department of Conservation, the West Coast Regional Council, and Buller District Council to ensure ongoing rehabilitation is ecologically appropriate and consistent with long-term goals for the conservation area.

Recontouring waste rock stacks and planting them in native trees has dominated OceanaGold's management of the site prior to, during and after closure.

As of October 2020, more than 130 ha – of roughly 260 ha of disturbed ground – have been completely rehabilitated at the Reefton Restoration Project, and around 800,000 seedlings planted. OceanaGold intends to plant an additional 200,000 beech and mānuka seedlings by December 2023.

Red, silver and mountain beech, and mānuka are the four key tree species being planted, some of them now growing into stands of forest. During the height of the annual planting season, a team of contractors can plant up to 18,000 seedlings a week, each spaced 1.5 metres apart.

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Saplings planted on a waste rock stack are well on their way to becoming native forests. Photo taken in 2017.

OceanaGold monitors plantings in 10m by 10m plots, to record the progress of forest regeneration, led by Prof David Norton of the University of Canterbury. The method of some years standing is to create a substrate full of tree stumps and logs, which reduces erosion during rain events, and creates micro-habitats for flora and fauna.

The woody material also encourages birds – kākā, robin, tui, bellbird and tomtit - which disperse the seeds of a range of native plant species, further promoting ecological succession. As the canopy develops, OceanaGold inter-plants rimu, Hall's tōtara and miro, to round out the ecology. Seedlings are eco-sourced from the mine area, and are now grown at a nursery in Rakaia, Canterbury.

Environmental and restoration technician Megan Williams checks beech trees on a restored waste rock stack.

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Lakes and wetlands

In 2021, OceanaGold plans to plant an extra 64,000 wetland plants into lake margins as part of the Reefton Restoration Project. This includes capping of substrate and laying of topsoil prior to planting. One is the former tailings storage area at Fossicker's, which is a now 3m deep lake and an attraction for native waterfowl. Beech and mānuka will be planted above the future waterline.

The company capped the former Souvenir pit and later tailings storage facility in its entirety and planted it out in 2018.

The Globe Progress pit lake is now 110m deep, and is being maintained at that level, pending completion of a spillway and water treatment system for discharge into Devils Creek. This lake is bounded by steep-sided rock faces, so planting takes the form of hydro-seeding. This started in 2020.

Reefton Restoration Project co-ordinator Jeff Nyenhuis inspects plantings on the capped section of the Fossickers Tailings Storage Facility.

Freshwater quality

OceanaGold will treat freshwater outflows from the site actively or passively via a vertical flow reactor, being installed in January-March 2021. This will maintain water quality long term at the site, after the company has handed the site back to the Department of Conservation.

Water at Fossicker's cannot be discharged at present because the levels of total suspended sediment are still too high. It has improved significantly, however. Overflow is pumped and treated.

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The Globe Progress pit lake has been dosed with ferric chloride to improve water quality. The $FeCl_3$ adsorbs dissolved arsenic and other metals, and drops out of suspension as fine particles, dropping to the lake bottom.

Other activities

Other works include recontouring and backfilling disturbed ground, spreading of topsoil and exotic pest management. The area where trucks were parked was recontoured and planted in 2018.

OceanaGold is still to remove infrastructure, buildings, bridges, power lines and the processing plant from the site.

Local pest control is undertaken onsite by staff and alongside the Rainy Creek Group, organised by Forest and Bird, a trapping programme for possums, stoats and rats.

OceanaGold has provided $150,000 in funding for a socio-economic development office in Reefton, and $50,000 for local community projects.

Environmental and restoration co-ordinator Stephanie Hayton with Reefton school students during a planting day on the banks of the Inangahua River in Reefton township.

Browkins Honey Bees Ltd has so far introduced around 50 hives to the Globe Progress site and will eventually sell the honey through the local i-SITE and West Coast markets, generating income and providing a further diversified revenue stream to the region. With the new venture, Oscar Brown and his family plan to move closer to Reefton. Long-term, with the bee population doing its job, Reefton's native plant species will self-generate and the site will return to its natural state much faster than it would have done without the hives.

Case study source: OceanaGold Corporation.

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