TAILINGS

Tailings are residue material left over from mineral processing.

When ore is brought to the surface from Rosebery's underground mine, it is put through a processing plant to remove as much of the valuable minerals as possible. The key metals produced at Rosebery are zinc, copper, lead, and gold doré.

The residue from this process is predominantly crushed rock and water, with small quantities of trace elements and processing reagents.

WHAT HAPPENS WHEN A TSF REACHES CAPACITY?

When a TSF is full, it may be closed using a variety of methods.

Dry cover systems include engineered synthetic fabrics and/or natural clay rich soils to prevent long term oxidisation of trace minerals.

Wet cover systems include flooding the facility with water to prevent oxidisation.

MMG consults with future landholders, regulators and recognised experts to find the best closure design for each specific site to ensure it is safe, stable and non-polluting. Once this process is complete, the rehabilitated TSF will blend into the surrounding landscape.

After decades of operation, Rosebery's existing tailings storage facilities are fast approaching the end of their lifecycle, and MMG is exploring all available options for the construction of a new state-of-the-art facility.

HOW ARE TAILINGS STORED SAFELY?

Tailings are pumped into specially engineered storage dams – called tailings storage facilities or TSF for short. Solid material settles whilst water accumulates on the surface and is then captured, treated and carefully monitored to ensure it complies with Environment Protection Authority (EPA) guidelines before it is released.

MMG is required to comply with strict global safety standards and state laws when constructing and managing TSFs. TSFs in Tasmania have ongoing independent regulatory oversight from the EPA and the Dam Safety Branch of the Department of Primary Industries Parks Water and Environment (DPIPWE).

MMG's responsibility for limiting the environmental impact of its operations continues even after storage facilities reach the end of their operating life.

Strict standards are in place to ensure that tailings can be stored safely without impacting on surrounding communities or the environment.

TAILINGS

WE MINE FOR PROGRESS

MMG

PASTE FILL

There are a number of factors that make paste fill unsuitable and unsafe to use at the Rosebery Mine.

Paste fill requires a process of mixing tailings with other materials such as cement to be re-deposited in disused parts of the underground mine.

MMG successfully utilises paste fill technology at its Dugald River Mine in Queensland. It is a cost-effective way to process a portion of the tailings, however, the Dugald River Mine site still operates a sizeable tailings storage facility. Using paste fill does not negate the need for a TSF.

MMG has conducted extensive investigations, testing and conceptual designs into the use of paste fill at the Rosebery Mine.

SAFETY

The Rosebery Mine is over 85 years old and historic mine workings where paste could be deposited are above the areas where people are currently working. There are potentially unmapped drill holes connecting these historic voids with newer parts of the mine which, if filled with paste and dewatered tailings, could pose an unacceptable safety risk to our mine workers.

In the lower area of the mine, drilling, blasting, extracting ore, and waste rock filling all occur in close proximity to one another. When filling with paste in an adjacent area or above mine workings, there is an increased risk to the stability of fill barricades, historic drill holes and ground stability from nearby drill and blasting activity. This poses an increased risk to our mine workers from local paste fill failure.

CAPACITY

Extensive studies conducted by MMG have found that most of the Rosebery Mine's historic voids have already been backfilled, meaning potential capacity for paste fill is less than 6 months tailings production.

As for future capacity, even if every newly mined void could be filled with paste, it would only accommodate between 60 and 70 per cent of the total tailings. In addition, not all parts of the mine are suitable for paste fill, therefore tailings storage on the surface would still be needed.

Mine voids at Rosebery are currently filled with waste rock generated from accessing ore. If those voids were filled with tailings the waste rock would need to be stored on the surface, where it also requires careful management to prevent potential acid run-off caused by oxidisation. The likely outcome of using paste fill is the mine would require a much larger above ground disturbance to accommodate both waste rock storage and residual tailings in a TSF.