

A glossary of mining and technical terms you may hear being used in relation to Project Martha

Backfill

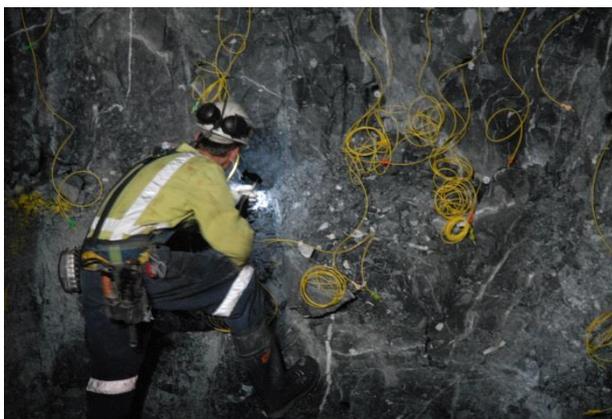
Material returned underground to fill the *stopes* (voids) left when ore is removed. Some of the *backfill* at our current Correnso underground mine is surplus material mined during *development*. *Backfill* can also be sourced from a local quarry and trucked to site before being transported underground.



Above: A *bogger* in a *drive* and another on display in Waihi's main street.

Bogger

A low profile front end loader used underground to load *rock* onto underground trucks. Some boggers can be operated by remote control.



Above left: *charging up* a face. Above right: A series of *decked* charges all wired and ready to go.

Charge Up

Placing explosives in readiness for a blast. To reduce vibration some charges in individual holes are *decked*. This means that the charge in a hole is split into a number of smaller ones.

Compliance

If an operation meets its consent conditions it is said to be in compliance.

Competent ground

The name miners give to rock underground which is sound and not prone to collapse or fragmentation. When a *drive* has been *bolted and meshed* and then sprayed with *shotcrete* it is competent ground. Staff are not allowed in any areas which are not competent ground.

Consent Conditions

The series of decisions determined by local and regional councils (usually with the help of outside commissioners) which make up the rules an activity must abide by. The CEPA consent conditions cover a wide range of topics from blast vibration and noise to dewatering.

Decking

To minimise the vibration caused by a blast *charges* are sometimes layered in drill holes split into a number of smaller charges. The period of time between each layer of charges in the holes going off is only a few milliseconds, but in some situations it can be a useful method of reducing vibration.

Decline

The name given to the sloping tunnel that leads from the *portal* down to the workings.

Development

Used to describe the construction of the *drives* and infrastructure needed to access the *orebody*. 'There's 200 metres of *development* to do before we reach the ore'.

Development Drive

A *drive* (tunnel) which is constructed to provide access to the *ore body*.



Drive

The name for a tunnel that leads from the decline to the underground workings. Drives are put along the *ore body* at various levels.

Left: A *vent bag* in a *drive*.



Escapeway

A series of ladderways in vertical shafts that provide an alternative way of getting out of the mine in the event of some form of emergency. All staff and visitors underground must be capable of climbing the *escapeway*.



Évasé

Pronounced ay-vass-ay. The technical name for the funnel at the top of a *vent shaft* such as the one on Union Hill.

Left: The *évasé* on Union Hill

Ex-gratia

From the Latin meaning 'by favour'. This term is used to describe something that is done voluntarily rather than required by law. In this case OceanaGold Waihi intends to offer an *ex gratia* payment to property owners above Project Martha development drives of 5% of the value of the property ignoring the announcement of or existence/operation of the project. This means that if the property is valued at \$300,000 we will make a one-off payment of \$15,000.

Exploration Programme

A programme of work designed to investigate a particular area. An exploration programme can take place on the surface or underground. On the surface, a variety of techniques may be used such as gravity surveys, sediment sampling or drilling. Underground rock samples can be analysed or a drilling programme undertaken.

Firing Multiple Headings

When more than one area is charged and then blasted within the same blast window.

Fresh Air Base

A designated place that underground staff can go to that has fresh air in the event of an emergency. Different areas can be designated as a *Fresh Air Base* depending on the location, extent and nature of any emergency.

Grade

The amount of gold contained in the rock. Usually expressed on grammes of gold per tonne of rock. For example, 'We're getting 10g/t in that stope'.

Infill Drilling

When we drill into the ground looking for gold-bearing material we cannot drill everywhere so drill holes are spaced quite a distance apart and may point in different directions. If we find something of interest we go back and drill holes closer together. This is called infill drilling, and gives us a much better understanding of the extent of the *ore body* and its *grade*.



Jumbo

A large underground machine with two drilling booms used to drill into the ground to make holes for explosives. Also used to install *rock bolts* and *mesh* to ensure the ground is *competent*.

Left: A *jumbo* in a *drive* which has been *shotcreted*.



LV

A light vehicle. Any comparatively smaller vehicle underground such as a ute.

Left: An *LV* in a *drive*.

Ore

The name given to rock containing precious metals.

Ore body

The area which contains the ore.

Panel

The name given to a section of an *ore body* being worked. A panel of ore is charged and blasted then the ore is loaded onto trucks for transport to the surface.



Portal

An opening on the surface that leads to the *decline*.



Above: A six person *refuge chamber*. We also have refuge chambers which hold 20 people.

Refuge chamber

An air tight reinforced steel enclosure which staff retreat to in the event of an emergency or incident. Each refuge chamber is self-sufficient for up to 36 hours, which is regarded as the maximum time an emergency in a gold mine would last. Each has battery-powered lighting and contains fresh air cylinders, water, and a toilet. Each refuge chamber has a radio telephone so that staff can communicate with the surface. Refuge chambers are strategically placed underground depending on where staff are working. A refuge chamber is also a *fresh air base*.

Shotcrete

A slurry of concrete that is sprayed onto the walls of the *drives* for extra reinforcement.

Solo

An underground drilling machine similar to a *jumbo*, except the *solo* only has one drilling boom while a *jumbo* has two or more and is used mostly for drilling longer holes.



Stope

The name given to an area that has been mined out and the *ore* removed. 'We need more backfill for that stope'. Also used to describe the act of mining the ore. 'We'll be stoping in that area today'.

Left: A *solo* at the top of the picture drills holes in preparation for *charge up*. At the bottom of the picture a *bogger on remotes* loads out *ore*. When all the *ore* has been mined out this *stope* will be *backfilled*.

Tight Fill

After the *ore* is removed (as in the picture above) the void that is left is filled with surplus rock which is pushed right up into the roof of the top level ensuring no voids are left. This compacted material ensures that subsidence is not possible.



Troopie

Also known as a PC which is an abbreviation for Personnel Carrier. Troopies are large four wheel drive station wagons with bench seats in the back. They are used to transport staff and visitors around the underground.

Each Troopie has a two-way radio and first aid kit, and is fitted with an on board fire suppression system. They spend most of their life underground.



Vent bag

A long canvas tube which directs fresh air to parts of the mine.

Left: A *vent bag* in the underground workshop at Trio. The outlet has been tied off to restrict the fresh air flow and direct the air to other parts of the mine.

Vent fan

A large fan which sucks air into the mine through the *portal* and pushes it to areas around the mine and eventually up to the surface through the *vent shaft*. The vent fan is located underground to reduce noise. We also have a smaller fan on the surface on top of the *évasé* which would be used in an emergency where the main vent fan was not working.

Vent shaft

A vertical shaft leading from underground workings to the surface. Fresh air is sucked into the mine through the *portal* and travels around the mine before being pushed back to the surface through the *vent shaft*.

Virgin ground

An area which has not previously been mined.

Waste

The name given to rock which does not contain commercially viable quantities of gold and silver. *Waste rock* is used underground as *backfill* in previously mined areas called *stopes*.