What is the Mining Process?

At each stage of the mining process we illustrate the science and technology behind the extraction of minerals at modern mines.

- **Run of Mine**
  - Mining is the extraction of valuable materials from the ground.
  - Deposits can be mined by open pit or underground methods.

- **Ore Stockpiling**
  - Ore is transported from the mine and stored in stockpiles near the processing plant.
  - From the stockpile, the ore is transported to the first stage of processing – the crusher.

- **Crushing**
  - Mixed ore passes through a crushing circuit to reduce the size of the ore.
  - Crushed ore is then transported to the grinding mill to be further reduced in size.

- **Grinding / Milling**
  - Grinding and milling reduce the size of crushed ore in preparation for the separation processes that follow.
  - Grinding of the ore occurs by tumbling the material within a mill.

- **Transport to Railhead**
  - The resulting concentrate will be refined further, either on-site or off-site at a smelter.

- **Concentrate**
  - Concentrates are dewatered to remove any solids from the foam concentrate.
  - The final product is a mineral rich high grade concentrate.

- **Potential Filtration**
  - Waste tailings can be further filtered if required, using modern techniques such as a filter press.

- **Tailings Thickener**
  - Tailings are the by-product of the mining process.
  - Following mineral processing, the waste tailings have a high water content and require dewatering and thickening.

- **Tailings Management Facility (TMF)**
  - The purpose of the TMF is to safely store tailings and facilitate water recovery.
  - Tailings management is a critical element of the Mining Life Cycle.

- **Water Recirculation**
  - It is possible to re-use much of the water that is required in the mining process, in particular following the concentrate and tailings dewatering processes.
  - Excess water is treated and cleaned before being safely discharged.