

# Structural Stability Monitoring (DO)

There are many aspects of a mine site that need to be analysed for stability - from pits, to tailings dams, to stockpiles.

Monitoring of pit slope stability is vital for production as well as for health and safety. Partial or total failure of a pit will cover working areas with overburden and interrupt production it is also a major health and safety issue. Catastrophic unforeseen failure is likely to result in casualties or loss of life if employees are in the vicinity of a failure.

Monitoring of the tailings storage facility (TSF) stability is vital for health and safety of employees and neighbours - many fatalities and much environmental damage have been caused throughout the years from tailings dam failures. Failure of a TSF is also likely to close a mine permanently.

Stockpiles, and in particular Waste Rock Dumps (WRD) are at risk of collapse and the monitoring of stability is important (particularly in the short-term). Monitoring of WRD slope stability is therefore important for production and vital for health and safety. The frequency for assessing WRD stability will depend on site specific conditions. WRDs are often present at various locations throughout a mine site, both ex-pit and in-pit. Routine inspections and monitoring are needed. It is preferred to have daily or continuous monitoring in place. Oxidation of a WRD can impact on stability but is generally more of a concern from an environmental perspective monitoring for signs of oxidation and acid rock drainage (ARD) is an important environmental measurement for many mines during the operational phase to demonstrate no impact on the environment.

Access and egress from the mine site are critical to a mining business. Robust access is required to allow people, raw materials and equipment enter the site and conversely this access also allows the mining company to export its final product to market. Road, railway and port infrastructure may be owned and managed by the mining company and require monitoring for stability to ensure there are no unforeseen interruptions to production.

## Relevant EO Products

- [Product Sheet: Monitoring of Infrastructure](#)
- [Product Sheet: Infrastructure Stability Monitoring](#)
- [Product Sheet: Soil Moisture](#)