

Products & Services Application Suitability

Rock Stress Testing

Excelsior Energy performs Rock Stress Testing in the form of Diagnostic Fracture Injection Testing (DFIT). Hydraulic Fracture Analysis is one of the only reliable test methodologies in boreholes.

Testing occurs over a time period of several hours depending on depth and drill rig capability. Test results are available instantly upon completion of the testing. These test results will be analysed by the infield or desktop Mining Engineer to make immediate and informed decisions about mining operations.

Cap Rock Integrity Testing

We perform Cap Rock Integrity Testing in the form of Diagnostics Fracture Injection Testing (DFIT).

Hydraulic fracture opening and closing pressure analysis will provide reliable data on the cap rock integrity in particular for Block Caving operations and underground tunnelling. This type of testing can be performed during exploration drilling during mine planning, pre-production and mine expansion phases through vertical surface boreholes.

The test results are analysed and interpreted by Mining Engineers to make informed decisions about the mine planning to optimise production and for increased safety.

Hydraulic Pre-Conditioning / Block Caving

Hydraulic Pre-Conditioning or Block Cave Mining is commonly used in competent rock under high stresses and seismic conditions, to manage risks associated with induced seismicity and cave propagation.

The Hydraulic Pre-Conditioning process consists of using up holes drilled from the undercut level or down holes from an upper level. Conditioning is conducted through high pressure water injection along the drill holes at regular intervals to provoke discrete fractures along the borehole.

Burst Mitigation

Rock burst through inducted stresses in rock formations is a significant risk to underground mining operations. Controlled fracturing of high stress rock formation is a mitigating operation to prevent uncontrolled rock bursts.

This type of conditioning can be performed in advance, during shaft and mine planning phases, where high stress rock formation has been identified by Mining Engineers or as an emergency application for imminent rock burst dangers during ongoing operations by creating dedicated relief boreholes.

High pressure water is injected into the rock formation fracturing and destressing the rock in a controlled manner. This operation can also be conducted in conjunction with Rock Stress Testing, where test results indicate pre-ample or imminent hazards.

