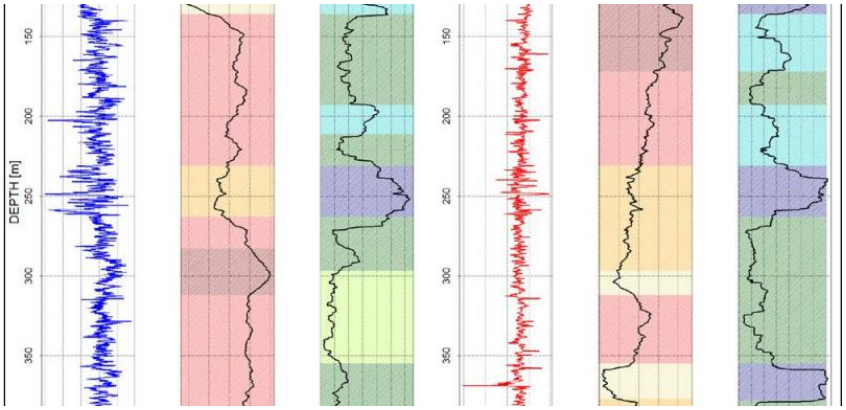
Innovative Statistical Method

Reduces Coring Costs and Improves Mine Modeling



Elastic moduli logs were used to create mean and standard deviation (SD) curves revealing clear statistical changes, with shading added to define rock masses by physical properties.

Objectives

- Identify geotechnical boundaries in planned mine-pit walls using geophysics rather than full coring and lab-only analysis, reducing delays caused by long lab-assay turnaround times.
- Deliver improved geotechnical models for open-cut and underground mines by enhancing understanding of rock mechanics, critical for developing a safe mine design.

Our Approach

- Acquired P-wave and S-wave velocities with full waveform sonic (FWS) logging in crystalline igneous rock; combined with density data, these measurements enabled calculation of the elastic moduli.
- Applied statistical analysis to each modulus log to define distinct geotechnical regimes.
- Identified elastic-moduli change points that define rock-mass transitions and enhance stress and strain modeling.

Value to Customer

- Provided a faster, more accurate data set that enabled the client to assess reserves more quickly and accurately, requiring fewer cores and less laboratory analysis.
- Delivered a scientific method that will generate cost and efficiency benefits for future exploration programs.
- Redirected savings from reduced coring toward evaluating more chipped holes, expanding the data set without increasing the exploration budget.

LOCATION
Colombia

WELL TYPE
Mining application

FORMATION
Mineral

PRODUCTS/SERVICES
Slimeline Services

Weatherford®

