

CAPABILITY STATEMENT:
GEOMETALLURGY

From orebody variability to better mining decisions.

Geometallurgical insight that connects geological characteristics with processing behaviour, unlocking value across the mine plan and lifecycle.

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THE OREBODY DOESN'T WORK TO AN AVERAGE.

UNDERSTANDING OREBODY VARIABILITY

Variability changes the decisions.

Ore deposits are rarely uniform. Changes in mineralogy, grade, grindability, and deleterious materials can affect how material is mined, blended, and processed. Their consequences may emerge in throughput, recovery, energy demand, operating cost, and ultimately project economics.

THREE CONNECTED QUESTIONS

01

WHAT IS IN THE ROCK?

Grade, mineralogy, geochemistry, density, ore domains, and geotechnical characteristics form the geological picture.

02

HOW WILL IT RESPOND?

Liberation, grindability, power consumption, throughput, and recovery describe processing behaviour.

03

WHAT DOES IT CHANGE?

Ore characteristics and processing performance influence mine schedules, blending strategies, equipment selection, and production forecasts.

VBKOM'S ROLE

Geometallurgy connects the geological picture with processing response and mine-planning requirements, bringing variability into view before decisions become expensive to reverse.

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BUILD EVIDENCE.
TEST THE ASSUMPTIONS.

A PRACTICAL GEOMETALLURGICAL DEVELOPMENT PROCESS

A model is only as useful as the evidence behind it.

Our process is iterative. Each stage builds the quality of the data, examines processing response, and improves the reliability of spatial predictions as the project advances.

01

UNDERSTAND THE VARIABILITY

Review existing orebody knowledge, establish a geometallurgical data matrix, define study objectives and design representative sampling. Consider ore domains, weathering, dilution, sample integrity, budget and decision risk.

02

CHARACTERISE THE RESPONSE

Plan ore characterisation testwork. Integrate geological, mineralogical, and metallurgical data; analyse geometallurgical classes and assess potential effects on comminution, throughput and recovery.

03

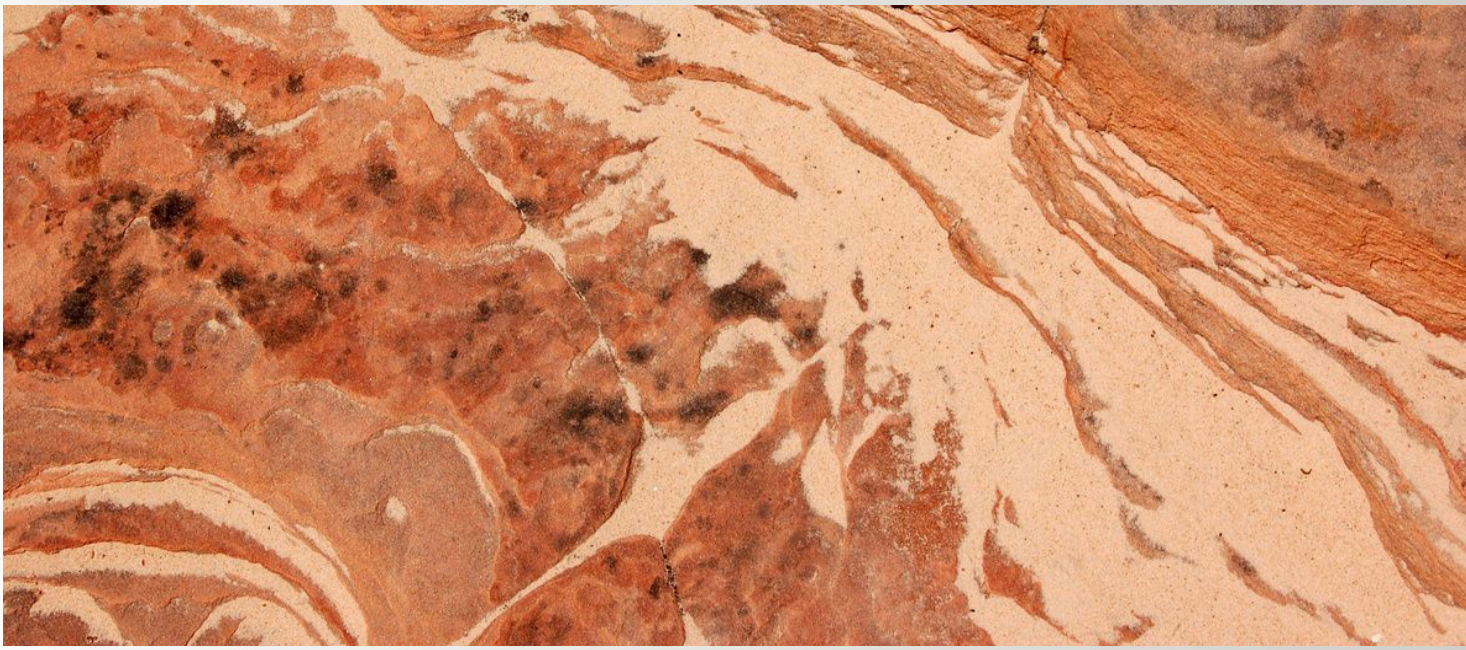
MAP THE PROCESS BEHAVIOUR

Apply multivariate analysis, class-based process modelling, hypothesis validation, and geostatistical domaining. Develop geometallurgical block-model attributes to inform mining and processing decisions.

04

RECONCILE AND REFINE

Where production data are available, compare predictions with plant results, ore sourcing, and metal accounting. Use differences to review assumptions, blending practices, and operating parameters



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MAP THE ORE.
ANTICIPATE THE RESPONSE

GEOSPATIAL MODELLING & MINE-TO-PLANT INTERPRETATION

Primary rock variables and processing-response variables are assessed together, then placed in a spatial orebody context. The objective is not simply a more detailed model. It is a model that informs real mining and processing choices.

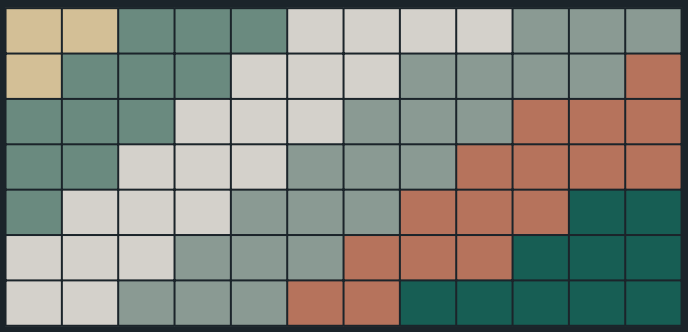
PRIMARY VARIABLES

- Grade
- Mineralogy
- Geochemistry
- Density
- Ore classification
- Geotechnical properties
- Deleterius material distribution

RESPONSE VARIABLES

- Grindability
- Liberation
- Power demand
- Throughput
- Recovery
- Ore-processing behaviour

CONCEPTUAL OREBODY / GEOMETALLURGICAL MODEL



MINE-TO-PLANT DECISIONS

- Mine scheduling
- Ore blending / ROM stockpiles
- Flowsheet & equipment options
- Process optimisation and recovery

THE RECONCILIATION LOOP

MODEL
Predict ore behaviour

PLAN
Schedule and blend

PROCESS
Measure plant performance

RECONCILE
Compare actual with predicted

During production, the model becomes more useful when actual results are fed back into interpretation, allowing predictions, assumptions, and operating practices to be tested and refined.

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FROM EARLY STUDY TO DAILY PERFORMANCE.

GEOMETALLURGY ACROSS THE PROJECT LIFECYCLE

Geometallurgical inputs mature with the available evidence. The questions change from defining variability to evaluating options, then to understanding the differences between predicted and actual performance.

01

EXPLORATION & SCOPING

Frame the critical questions. Build early orebody knowledge, identify domains and design sampling or testwork around the uncertainties that matter.

02

RESOURCE, RESERVE & FEASIBILITY

Expand characterisation, evaluate mine and processing options, assess variability, and carry better-informed assumptions into technical and economic studies.

03

PRODUCTION & OPTIMISATION

Use feed information, plant results, recovery forecasting, metal accounting, and reconciliation to understand performance and guide operational adjustments.

CONNECTED TECHNICAL JUDGEMENT

VBKOM connects geology and Mineral Resource estimation with mining engineering and metallurgy. Our role is to interpret the options, uncertainties, and commercial consequences of orebody variability, bringing an independent, owner-focused perspective to open-pit and underground study and operating contexts.

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By unearthing opportunities, our solutions have the power to improve lives.

VBKOM

BRING THE OREBODY INTO THE DECISION

Talk to VBKOM about the geometallurgical evidence needed to inform your next study, mine-planning, or processing decision.

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