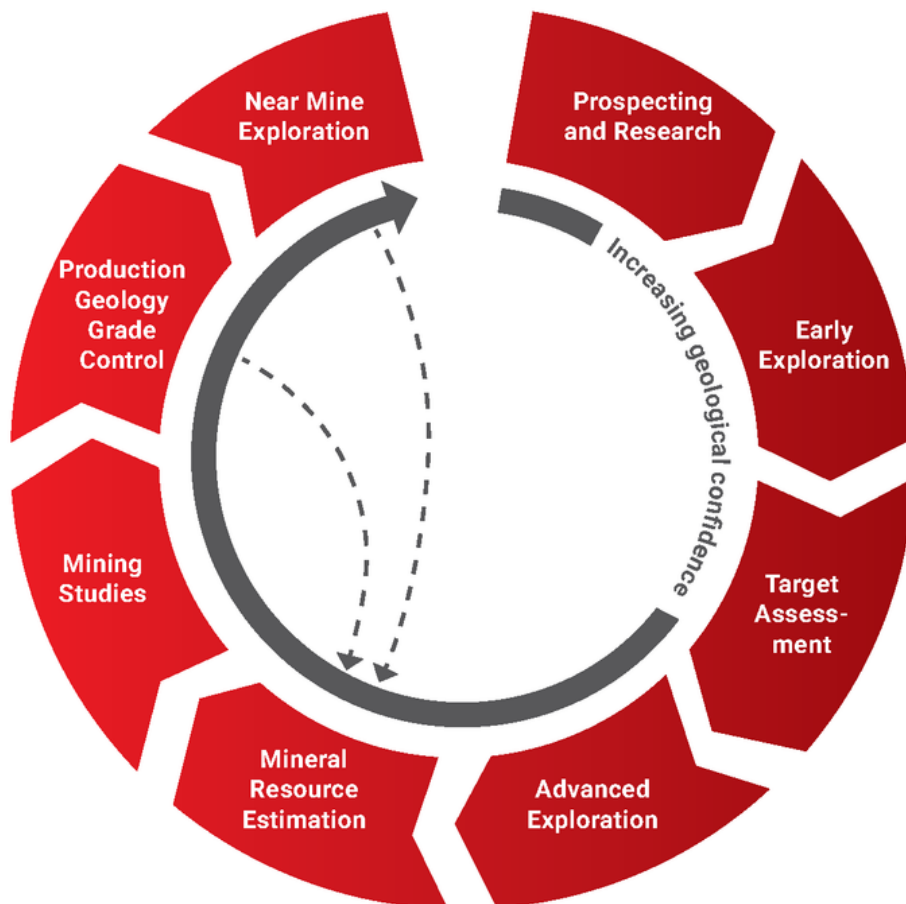# Capability Statement

Geological Consulting Services

The VBKOM Geological Consulting Services focus on high-quality geological input in all aspects of Mineral Resource definition, from exploration, geological modelling and blockmodelling, declaration of Code Compliant Mineral Resource estimates, CPR's, production geology through to mine reconciliation. We can also train your geological team to allow your operation to maximise geological value.

Our competence-base stretches across all commodities and covers all geological aspects of the Project Value Chain throughout the lifecycle of any project, from Rights Applications right through to mature mine status.

Near Mine Exploration

Prospecting and Research

Production Geology Grade Control

Early Exploration

Increasing geological confidence

Mining Studies

Target Assessment

Mineral Resource Estimation

Advanced Exploration

Our Services

VBKOM Geological Services can assist with all aspects throughout the exploration and Mineral Resources value chain. The services offered include:

❯ Prospecting and Mining Right Applications and management

❯ Exploration planning and management

❯ Geological modelling

❯ Mineral Resource estimation

❯ Independent technical reviews, due diligences and audits

❯ Mining geology and grade control

❯ Code Compliant Competent Persons' reports (SAMREC, JORC, NI 43-101)

❯ Specialised geological investigations
  • Exploration Target definition
  • Geological grade control
  • Metal accounting

❯ Training and operations support tailor-made to operational requirements

❯ Geotechnical logging and studies

❯ Geometallurgical studies

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Geology and Geotechnical
Risk Management | Financial Modelling
Mining Engineering | Industrial Engineering
Project Support | Simulation and Decision Support

Geological Models, Geostatistics and Blockmodels

A geological model forms the foundation of the mining value chain, upon which all resultant assumptions are based – from initial target delineation to Mineral Resource estimation to final reserving and metallurgical processing.

A high-quality geological model implies a good understanding of geological concepts and resultant geological continuity and can serve as a strong support to classify the Mineral Resource at a higher level of confidence. A high-quality geological model should also support the future expansion of exploration activities, potentially increasing the life of a project.

Geostatistics should confirm, rather than dictate, the interpretation of the geological model and defined domains within the geological model. A high-quality geological model combined with industry-standard geostatistical methodologies will most often result in a credible, meaningful Mineral Resource estimate in terms of both the grade and tonnage for conversion to a Mineral Reserve.

A meaningful geological model improves the confidence in a Mineral Resource estimate. Mineral Resource classification should be a function of data density, grade continuity, and grade estimation. However, confidence in geological input, data quality, and geological continuity will always outweigh or override statistical classification methodologies during final Mineral Resource classification.

The importance of a high-quality geological model can not be stressed enough when generating a meaningful Mineral Resource blockmodel which honours the geology as well as the informing data for effective use by the Planning Team for their Reserving processes and for annual Mineral Resource declarations.

The importance of reviewing Geological data at mining sites:

Reviewing and incorporating all available data (historical and recent), as well as geophysical surveys and mapping data allows a geologist to form a well-rounded understanding of a project's geology at a conceptual level, even during the early exploration stage, before drilling has begun.

Geological understanding is key to generating comprehensive and suitable exploration strategies which are supportive to the generation of a meaningful geological model.

Determining the sequence of orebody formation through deposition/erosion or intrusion, structural deformation, and understanding the mineralisation controls, promotes good geological interpretation.
Regular updates and integrating new information allow solid geological theories to be tested, proved, revised, and remodelled.
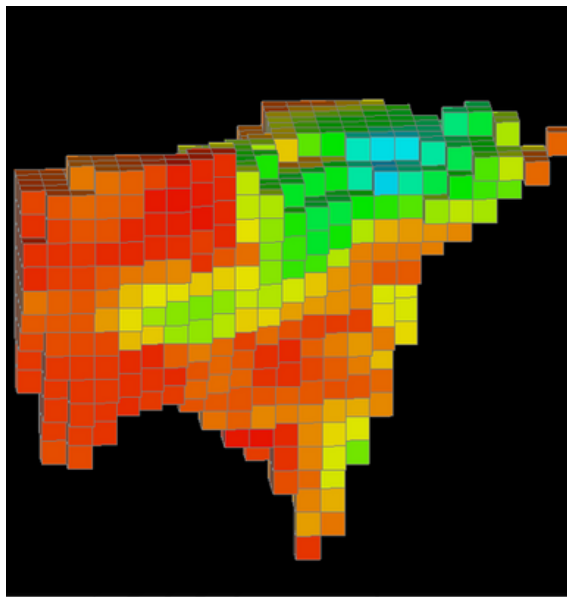
Often geologists do not dedicate enough time to building high quality, representative, and detailed geological models and frequently assume (sometimes incorrectly) that geostatistical solutions will partially, or even completely provide an adequate estimate of the spatial variability within the mineral deposit, resulting in simplified grade shell models being produced which do not adequately mimic the geometry of a mineral deposit.

Domaining within a geological model is critical to the Mineral Resource estimation process. Exploratory data analysis can assist in recognising domains. If controls on mineralisation are well understood, a wealth of information in the form of alteration, weathering patterns, and structural trends may be also used to define these zones, in addition to lithological information. Delineation of mineralised zones based on grade shells alone may often result in under- or over-reporting of the Mineral Resource. A meaningful estimate should be conducted within homogenous mineralised zones that display similar geological as well as statistical characteristics.

Our approach

The VBKOM geology team are experienced in generating detailed geological models utilising both traditional and implicit modelling methodologies. Our models incorporate diverse exploration, geological, sampling, geophysical and topographic data for high quality Mineral Resource and Mineral Reserve reporting. We strive to generate purpose-built models using well-considered modelling processes and appropriate software selection.

We place high emphasis and pride on geological understanding, resulting in high quality, meaningful and useful geological models. We aim to provide our clients with a geological model that may be validated in terms of both hard data and experienced interpretation.

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Our Value Proposition

VBKOM is a provider of innovative business and technical consulting services and solutions for the mining and capital-intensive industries throughout Africa. We challenge ourselves to apply fresh thinking and to utilise our experience and technology in pioneering new ways to deliver forward-thinking solutions.

We offer complete multi-disciplinary economic studies for blue-chip mining houses, junior miners and financial institutions across the full range of mineral commodities.

Due to VBKOM's diverse pool of expertise, we can offer our clients specialised skills within a one-stop-shop culture. Our engineering, risk, and project management capabilities as well as simulation and decision support expertise, make us an ideal partner to the mining, petrochemical, agricultural, and construction industries.

At VBKOM the quality of our work is guided by a simple philosophy – our success is driven only by the success of our clients and the achievement of our professionals. By using cutting-edge technology and the most advanced computer modelling systems on the market our technical expertise comes unrivalled. Our capacity and continuity have earned us the trust of some of the world's most prestigious mineral resource companies. By staying true to our core values; by utilizing our vast project-specific experience and qualifications; along with applying proven world-class methodologies and processes the VBKOM team is a dynamic, flexible and innovative team with a track record standing as solid proof of our competitive edge in our field.

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