

CAPABILITY STATEMENT

SUBJECT

# Research and Development

MARKETS

Feasibility and Mine Planning | Mine Operations | Mine and Quarry Closure  
Rehabilitation, Monitoring and Research

ISO

9001:2015 | 14001:2015 | 45001:2018





## Research and Development

There are several advantages of partnering with SGME when there are requirements to be fulfilled on a mine site. In unification with our engineering services, our research and development facilities ensure greater quality control as we can oversee the entire testing process to verify that results are precise and accurate, and that data is reliable and suitable to be used as a basis for informed decision-making.

This leads to greater efficiency in service delivery which is crucial for mine sites with tight timelines or urgent environmental concerns.

Our specialised team of experts enhances the relevance and insightfulness of data interpretation, and ensures results are tailored to your mine site and project requirements. Integrated solutions become possible with seamless transitions between strategy, data collection, data analysis and project completion.

Cost-effectiveness is another significant benefit to our clients because our in-house services circumvent the need for third-party testing facilities and streamline testing processes. The flexibility of customised approaches, developed based on site- and project-specific needs, further enhances the effectiveness of environmental solutions offered by SGME.

Our laboratory services encompass a range of advanced testing techniques tailored to address environmental challenges accurately and efficiently. The techniques and tests we conduct are not routinely available from a commercial laboratory; however, they are essential for fulfilling project requirements. Humidity cells serve as a swift assessment tool to gauge acid generation, salt and metal release in leachate from waste storage facilities. This method allows for rapid insights into leachate characteristics to aid in timely decision-making and proactive environmental management.

Leach columns offer a more detailed evaluation of acid generation, salt and metal release in leachate over a longer period than the humidity cells. This slower yet comprehensive approach provides in-depth data that is crucial for understanding waste behaviour and its environmental impacts.

Soil water characteristic curves (SWCCs) play a pivotal role in describing water storage capacity and behaviour of soil or other media. This information is essential for cover design modelling in various environmental and engineering projects. Having accurate SWCC data enables precise modelling of water movement and water retention in covers and landforms.

Water potential measurements, whether conducted in the laboratory or in the field, offer insights into water availability and movement in soils and other materials. It is an important test in the calibration of matric suction sensors.





## Key considerations

- 1. Expertise and experience:** We pride ourselves on the expertise and experience of our team members. With qualifications in various fields and a proven track record in handling diverse projects, we bring a wealth of knowledge to every engagement.
- 2. Comprehensive services:** Our clients benefit from our comprehensive range of services that cover all aspects of our work. From initial assessments and laboratory testing to strategy development and implementation, we offer end-to-end solutions tailored to each client's specific needs.
- 3. Quality assurance:** Quality control and assurance are at the forefront of everything we do. Our rigorous quality standards are ISO-accredited and ensure that all laboratory testing, data analysis and reporting are accurate, reliable and of the highest possible quality.
- 4. Cost-effectiveness:** We understand the importance of cost-effectiveness for our clients. Our transparent pricing structures and clear communication about project costs ensure that clients receive value from their investment.
- 5. Regulatory compliance:** Compliance with regulatory requirements and industry standards is non-negotiable. We stay updated with the latest regulations, guidelines and best practices to ensure that our work meets all legal obligations and to provide our clients with peace of mind.

## Approach

SGME's laboratory services are delivered methodically within a framework that is based on industry best practices. Our soil and water samples are managed in accordance with quality assurance measures and a statistics-based sampling plan to maintain quality in all aspects of research. Analysis of soils provides chemical and physical information on soil quality. This information includes soil characteristics such as permeability, texture, stability, bearing strength, pH, electrical conductivity (EC), plant nutrients, fertility, acidity / alkalinity and toxicities / contaminants.

The main parameters for surface water and groundwater contaminants at a mine site are usually derived through water as solutes. In most instances, in-situ testing and analysis for pH and EC take place for rapid results. In other instances, samples are collected for laboratory testing. We conclude our findings through the issuance of comprehensive reports and detailed testing results.



## Outcomes

Engaging SGME delivers seamless integration between consulting and laboratory services, and facilitates a holistic approach to managing mine sites and delivering projects. Our integrated services allow for enhanced quality control, accurate data collection and precise analysis to support informed decision-making and implementation of effective strategies. Our dedicated team of professionals with in-depth expertise and our state-of-the-art laboratory equipment offer unique testing capabilities that enable acceleration of project timelines while addressing bespoke project needs.

Clients benefit from customised solutions, comprehensive data interpretation and regulatory compliance within a safe and quality-controlled environment. SGME delivers reliable test results for successful outcomes.

## Working with SGME

Engaging SGME as a collaborative partner delivers numerous benefits:

- **Improved return on investment (ROI):** Our expertise maximises ROI to satisfy investor expectations.
- **Reduced mine closure risks and disruptions:** Our strategies minimise complex closure risks to ensure a smooth future land use transition.
- **Addressing environmental, social, and governance (ESG) risks:** We focus on ESG criteria to mitigate environmental impacts and meet regulatory standards.
- **Enhanced strategic insight:** Collaboration boosts your performance through strategic planning.
- **Industry collaboration:** We foster partnerships with mining experts, staying abreast of technology and regulatory advancements.
- **Future risk vigilance:** Our proactive approach anticipates future risks to aid informed decision-making.
- **Innovative solutions for safe execution:** Our expertise delivers innovative solutions to ensure safe execution.

Our proactive and ethical approach ensures adaptability, sustainability and responsible development to safeguard the mining industry and create enduring value.

**CONTACT**

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