

CAPABILITY STATEMENT

SUBJECT

Field Testing and Monitoring

MARKETS

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

ISO

9001:2015 | 14001:2015 | 45001:2018





Field Testing and Monitoring

SGME's field services are an indispensable component of our holistic solutions that offer substantial advantages to our clients. Conducting in-situ testing during fieldwork not only expedites results, but also enhances the cost-effectiveness and precision of site investigations.

This is important because any disruption, transport or storage of materials can alter their core properties which emphasises the need for on-site testing to obtain dependable data. In-situ testing plays a pivotal role in acquiring input data that is crucial for precise modelling, further reinforcing its significance. Our field services encompass a diverse range of tests designed to assess various aspects of materials and environments. These tests include saturated permeability, density, electrical conductivity, pH and handheld x-ray fluorescence (XRF) testing. Each test serves a specific purpose from evaluating material characteristics for cover design modelling to providing insights into environmental conditions and material composition. By harnessing these field services, SGME ensures thorough data collection, informed decision-making and effective solutions in cover and landform design, environmental management and regulatory compliance.

SGME's field testing services are instrumental in fortifying cover design, landform design and geochemical assessments because they provide critical data that underpins decision-making processes. For cover design support, saturated permeability testing and density testing are indispensable in assessing material properties intended for cover use. Saturated permeability testing gauges the rate at which water can infiltrate the cover which is a crucial factor for its performance. Density testing offers insights into the compactness and stability of the cover which influence its porosity and long-term effectiveness.

In landform design, field testing plays a pivotal role in evaluating the permeability, stability and erosion resistance of landform materials. Understanding hydraulic conductivity of cover layers through in-situ testing aids in crafting landforms that are capable of effectively managing water flow, mitigating erosion and fostering vegetation growth. Assessing the density and structural properties of landform materials ensures their resilience against environmental factors which promotes sustainable landform development.

For geochemical assessments, field tests such as electrical conductivity and pH testing along with handheld (XRF) analysis, provide crucial insights. These tests aid in characterising soil and water quality, identifying potential contaminants, and determining material suitability for specific land uses. The geochemical data obtained from field testing serves as a guide for deciding which samples to send to a laboratory for further confirmation analysis which enhances efficiency of the overall assessment process.



Key considerations

- 1. Time sensitivity:** Field testing is often faster than sending samples to a laboratory and waiting for results. If time is of the essence, such as in time-sensitive projects or urgent assessments, field testing may be more suitable.
- 2. Cost-effectiveness:** Field testing can be more cost-effective, especially for routine or preliminary assessments. It eliminates the need for sample transportation, laboratory fees and associated overhead costs, making it a budget-friendly option.
- 3. On-site accuracy:** Some parameters may be more accurately measured on-site due to minimal sample handling and immediate testing. For instance, field tests for pH, electrical conductivity and certain chemical analytes can provide real-time accurate results without the risk of sample degradation during transportation.
- 4. Real-time decision making:** Field testing allows for immediate decision-making based on results obtained on-site. This real-time data can be critical for adjusting strategies, making quick decisions during fieldwork and / or addressing unforeseen issues promptly.
- 5. Flexibility and adaptability:** Field testing offers greater flexibility and adaptability to changing conditions or unexpected situations. Our scientists and engineers can modify testing procedures, target specific areas of interest and / or conduct additional tests on-site as needed. This adaptability ensures that comprehensive data that addresses evolving project requirements can be gathered efficiently without delays associated with sending samples to a laboratory.

Approach

The approach to field testing involves planning, execution and data analysis to ensure accurate and reliable results. Our objectives and applied approach are clearly defined by selecting representative sampling points based on site characteristics. Equipment calibration, safety protocols and real-time data analysis are all essential elements during testing.

Sample collection and preservation follow established and industry standard processes to maintain sample integrity. Quality assurance measures including duplicate samples and calibration verification are implemented throughout our approach. Data interpretation considers overall strategy, project goals and objectives, regulatory requirements and relevant standards. This systematic approach ensures that field testing delivers actionable insights for informed decision-making.



Outcomes

Engaging SGME for field testing can lead to several significant outcomes and cost savings. Accurate and reliable data collection achieved through calibrated equipment, standardised protocols and experienced scientists and engineers allows flexibility with the comprehensive data points and enables well-informed decisions to be made. Field testing facilitates real-time insights by enabling immediate analysis and adjustments during fieldwork where necessary. This agility is essential for addressing unexpected challenges promptly and optimising efficiency.

SGME's strategy and applied field-testing approach provides convenience of rapid results, is accurate and cost-effective, and eliminates the need for sample transportation and laboratory fees which translates to savings for your project. Field testing data enables a customised approach that is unique to your mine site as it facilitates a tailored strategy to address specific and unique mine considerations and objectives.

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

HEAD OFFICE

3/37 McDonald Road
Windsor, Qld, Australia, 4030

info@sgme.au

RESEARCH AND DEVELOPMENT

20/37 McDonald Road
Windsor, Qld, 4030

research@sgme.au

t: (+61) 7 3148 6288

sgme.au