

COAL PREPARATION PLANT SERVICES

The efficiency of a coal preparation plant (prep plant) has a major impact on the profitability of a mining operation. SGS provides a range of technical services to help you optimize plant efficiency and improve your bottom-line performance for new or existing operations. With our sampling, analytical and technical capabilities SGS can provide:

- Process engineering review of your plant circuits and operation practices
- Plant performance testing and evaluation reports with recommendation to improve plant performance
- The design of on-line monitoring, blending, and sorting systems that help maximize mine profitability
- Coal washability studies that provide the data needed for good plant design work
- Coal preparation testing, pilot plants and process simulations
- Training of your operators in how maximize the efficiency of the plants processing equipment
- Operational and maintenance services to run your preparation plant efficiently and economically

PLANT DESIGN

SGS has the experience and expertise to provide complete circuit design services or we can act as an independent consultant during a plant design. Informed plant design decisions made early in the process will ultimately determine the prep plant's efficiency operating costs and profitability. Our world class technical experts can also measure and certification of your plant performance.

PLANT PERFORMANCE EVALUATIONS

PLANT AUDITS AND OPTIMIZATION

SGS provides complete preparation plant performance audits. We have the expertise to design the test, perform the

in-plant sampling, and the lab analysis required to measure the efficiency of your plant's operation. We will prepare distribution curves for the plant's cleaning equipment, generate a report detailing the performance screens, centrifuges, magnetic separators and other processing equipment while provide specific, workable recommendations to help you resolve any issues.

Optimizing the performance of a coal prep plant can increase profits with only a small financial expense. Any improvements made to increase plant yield will result in increased profits. In tight economic times plant audits can generate profits often with no or very small capital needs.

The following installations benefit from plant evaluations and optimization:

- Newly-commissioned plants to certify or check performance.
- Plants that have experienced changes in coal feed characteristics.
- All operating plants to insure plant performance is maintained.
- Operations interested in a systematic optimization program to keep their plants at the leading edge of performance.

SGS can provide all the manpower and equipment required to complete the sampling, processing, sizing analysis and data evaluation required to give you a complete picture of your operation.

PLANT OPERATIONAL SERVICES

SGS is capable of providing operational and maintenance services for you preparation plant on a full commercial basis at either existing operations or for new plant start ups. The scope of services that can be supplied include, but is not limited to, labor, maintenance of spare parts, process consumables, power and water and can cover all aspects from receipt of the run-of-mine coal to the dispatch of the final coal products and rejects disposal. The labor



provided can cover the overall plant management, supervision, plant operating labor force, administration, purchasing, stores, engineering, and laboratory services. SGS will negotiate a tailor made outsourced services package to suit the customer's requirements to ensure a successful contract to the mutual benefit of both parties. The global presence of SGS means we are ready and able to work in any location where you need our operating services.

SORTING AND BLENDING

Some times the only coal processing required to control quality is a good coal sorting and blending system. Typically on-line analysis is required to allow real-time control of sorting and blending systems. SGS has the expertise to design, supply and operate blending and sorting systems that will allow your coal quality issues to be managed efficiently.

On-line analyzers can be used with a coal preparation plant to maximize a plants performance by providing the data and controls that prevent a plant from over-washing (producing to high a quality product) or under-washing (producing product that is out of spec).

SGS can identify the lowest-cost solution for raw and clean coals. This will allow you to maximize yield, and blend different

quality coals to achieve the correct shipment specifications. We can help evaluate your various options and design a complete system which includes sampling systems and on-line analyzers. With the ability to blend different qualities of coal, you become more cost efficient.

COAL WASHABILITY STUDIES

Washability characteristics are determined from float/sink analysis of core samples, as mined samples, or from preparation plant feed samples. In addition to the float/sink analysis, SGS can perform froth recovery testing on finer size material. If a coal contains a high percentage of middlings material, SGS can perform the crushing studies required to determine if additional yield can be obtained by crushing and liberating coal from the host rock.

SGS coal washability studies, including float/sink analysis, can be done on samples ranging in size from bulk washability samples (over 1 ton) to bench-scale size samples (2-10kg). These analyses can be done over a range of densities and on coarse or fine coals.

Coal Washability data is used to:

- Determine preparation plant efficiency.
- Provide the data needed for preparation plant design engineering.
- Determine the potential for recovery and the quality of coal reserves.
- Determine the optimum operating parameters for preparation plant circuits.
- Characterizing types and amounts of impurities.
- Determining optimum size range of a specific coal for cleaning.
- Measure loss in clean coal yield.

PILOT PLANT TESTING

Pilot plant testing demonstrates and confirms the preparation plant flowsheet. Pilot plant tests are unique because they operate in an integrated fashion. All unit operations work to provide continuous feed or product for a variety of scales.

For new projects, piloting demonstrates operational viability and produces the final product that can be expected, reducing technical risk. Piloting also generates data that can be used when designing the full-scale plant, reducing design and capital risk. Existing operations can also be simulated at the pilot-scale to evaluate new technology, assess the impact of different coal and ash characteristics, or troubleshoot problems without interrupting production at the main plant. These pilot plants can produce samples for marketing purposes.

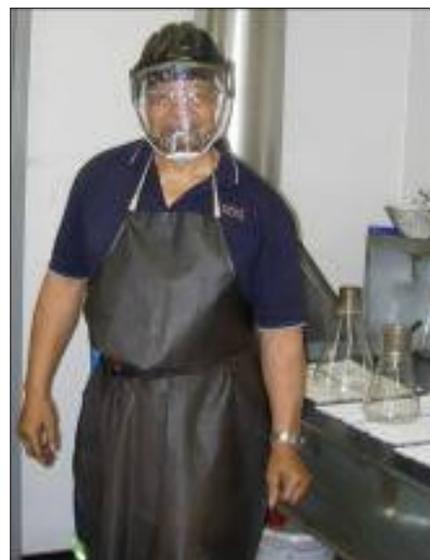
PROCESS SIMULATION

Once the coal's washability characteristics have been determined, SGS can estimate the performance of a preparation plant, both yield and quality, based on different process equipment and circuit configurations. This will provide new plant design information and provide a means of evaluating alternate equipment and flowsheets in existing plants.

TROUBLESHOOTING

With our extensive background in preparation plant operation, SGS can quickly and efficiently resolve any technical problems in your plants. Without bias or special interest, we can independently:

- Thoroughly evaluate operations and recommend the best effective technology for your purpose.
- Recommend innovative workable alternatives to bottlenecks in plants needing support.
- Provide short-term commissioning assistance during start-up.
- Assist with training or provide resources to assist with transitions.



DUE DILIGENCE

SGS has the capability to provide independent, unbiased evaluations of coal preparation plants anywhere in the world to support to help you evaluate assets prior to purchase or acquisitions.

CONTACT INFORMATION

Email us at minerals@sgs.com
www.sgs.com/coal

SGS

WHEN YOU NEED TO BE SURE