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## SABIA, Inc. Backgrounder

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### ABOUT SABIA, Inc.

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SABIA, Inc. is a leader in the supply of integrated nuclear elemental bulk material analyzers, associated software options, and world-class nuclear analyzer services and support.

SABIA means “Wise one” and the company’s mission is to provide customers with complete information of material composition so they can make wise decisions. The company believes that the more you know about your material, the more you can positively affect your operational efficiency.

### A Strong History

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The founders of SABIA have spent their entire careers in nuclear-related technologies working to develop the potential of nuclear technology for addressing many of the world’s challenges. Prior to forming SABIA Inc., the founders were members of and led the teams that developed the world’s first digital radiation monitoring system for nuclear power plants at General Atomic in the 1970s, the world’s first post-accident neutron flux monitoring systems and neutron flux plant protections systems at Gamma-Metrics in the 1980s, and the world’s first solid-state gamma camera for nuclear medicine at Digirad Corp. in the 1990s. They received a variety of patents from these developments. In more recent years they were members of the team that first commercialized Prompt Gamma Neutron Activation Analysis (PGNAA) in the early 1980s for use as elemental analyzers in coal mines, coal preparation plants, coal-fired power plants, cement plants and mineral operations.

SABIA, Inc. was founded in 2000 with the objective of making real-time online analysis of bulk materials economically practical for the many applications where it will benefit society by improving quality, reducing costs and minimizing environmental impact.

Customer service has been the foundation of the company’s business vision. As a small start-up, the company used third-party-analyzer and nuclear-instrument services to obtain the market intelligence to determine what the market needed by way of products and to build a reputation upon which to base its sales efforts. The vision of service continues to guide all business planning. Proper service enables the

customers to stay focused on their processes and puts SABIA in a position to identify and resolve other related customer needs.

SABIA has complimented its products and services through strategic partnerships with world-class software providers to be able to offer a complete material management system to its customers.

SABIA has also pursued and reached agreements with sales representatives in new territories to extend the company's footprint internationally.

## **A Bright Future**

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2009 has been an exciting year for SABIA, Inc. The company has expanded its product line, moved into a new World Headquarters, further expanded its network of sales representatives worldwide, and launched a new website.

SABIA is optimistic about the future of the industries it serves and will continue to expand its products and services to meet emerging customer needs.

### ***Expanded Product Line***

SABIA recently announced the launch of the SABIA X1 Series, a compact line of customizable on-belt elemental analyzers. The SABIA X1 Series provides the user with accurate, real-time elemental analysis of a moving stream of material. The analyzer helps users eliminate material uncertainty, streamline the decision making process, lower costs, improve quality, and reduce negative environmental impact. The SABIA X1 Series provides unique flexibility.

- Customizable analyzer configuration and readout format depending on the specific application
- Easy installation — mounts onto existing conveyor structures without modifications
- Full network capability — authorized users can view analysis results in real time from any Web browser
- Optional high performance system available for demanding applications
- Design adaptable for coal, cement, and minerals applications
- Minimal lead time from order to installation

### ***New World Headquarters***

SABIA, Inc. opened the doors to its new World Headquarters earlier this year. The new, more spacious facility will allow for the company's projected expansion in the coming years.

### ***New Corporate Website***

SABIA, Inc. recently launched a new corporate website. The new, completely renovated website has a number of attractive features: easy navigation bar, products and services offered, markets served, updated information on company news and events, white papers, a list of global locations, friendly contact page, and much more.

## PRODUCTS AND SERVICES

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SABIA offers a series of elemental analyzers and software for bulk material analysis. All SABIA products are customized for the customer's specific application. SABIA is continually expanding its product line and services to meet emerging customer needs.

The SABIA X1 Series is a compact line of customizable elemental analyzers that provide the user with accurate real-time elemental analysis. The information provided by the analyzer helps the users optimize operational efficiency, eliminate process uncertainty, streamline the decision making process, lower costs, improve quality, and manage the impact on the environment.

### Analyzers

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- **SABIA X1 Series**  
Real-time on-belt analysis of bulk materials
- **SABIA X1-S Sample System Analyzer**  
Real-time on-belt analysis of bulk materials on a sample belt
- **SABIA X1-L Static Sample Analyzer**  
Preparation-free analysis of four-liter static samples on a 10 or 15 minute basis
- **Analyzer Conversion Packages**  
A complete technology conversion of an existing analyzer

### Software Solutions

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- **Blending**
- **Inventory Management**
- **Stock Pile Modeling**

### Services

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- **Service and Support for Nuclear Analyzers and Gauges**  
SABIA understands the importance of keeping the analyzers in optimal operating condition. SABIA's comprehensive service agreements maximize uptime and ensure ongoing performance while controlling costs. Customers choose a service plan that fits their needs.

## TARGET MARKETS

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SABIA serves coal mines, coal preparation plants, coal-fired power plants, cement plants, and other minerals mines and processing operations.

### Coal

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SABIA offers analyzers for run-of-mine, in process and load out applications. With a SABIA analyzer coal mines can:

- Sort and blend to specifications
- Meet quality targets
- Avoid contract penalty payments
- Maximize seam recovery
- Ensure a consistent product
- Maximize profitability

### Coal-Fired Power

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SABIA offers analyzers assist your plant in blending measurement and control, receiving validation, advanced combustion and post combustion control, emissions control from feedstock knowledge, test burn and purchasing opportunity evaluation. With a SABIA analyzer coal-fired power plants can:

- Optimize boiler efficiency
- Meet environmental regulations
- Control blending
- Reduce derates
- Eliminate unplanned shutdowns
- Extend periods between scheduled shutdowns
- Maximize profitability

### Cement and Minerals

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SABIA offers analyzers for stockpile building, raw mix control, and cooled clinker as it exits the kiln, and static analysis for the lab or quarry. With a SABIA analyzer cement plants can:

- Control C3S in Stockpile or in Raw Mix
- Improve product homogeneity
- Meet stockpile targets
- Control raw mix
- Reduce energy costs
- Extend quarry life
- Extend refractory life
- Maximize profitability

With an elemental analyzer, iron, bauxite, copper, and other minerals industries can increase their profitability through enhanced control of their processes.

## **ENVIRONMENTAL IMPACT**

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Domestically, The U.S. Environmental Protection Agency (EPA) sets limits on air pollutants under the Clean Air Act. Internationally, the Kyoto Protocol to the United Nations Framework Convention on Climate Change aims to reduce collective emissions.

As regulatory agencies implement emission standards there is an increasing demand for real time information. SABIA analyzers provide significant operational benefits in coal mining, generation of power from coal, production of cement, mining, and processing a variety of minerals. The analyzers provide critical information on material composition that enables real-time control of process parameters that affect product quality, efficiency of power production and power consumption. The benefits also include reductions in cost, energy use, and carbon-dioxide emission.

## **CORE TECHNOLOGY**

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Analyzers, using a process known as Prompt-Gamma, Neutron-Activation Analysis (PGNAA), irradiate material in the customer's process with neutrons and measure the induced gamma rays to determine the amount of each element in the material. This process occurs in real time as the material is conveyed on a belt or through a pipe to enable real-time material management.

### **SABIA Improvements in Implementing PGNAA**

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SABIA continues to provide innovation and technological leadership in applying nuclear technology for enhancing production and use of basic materials while protecting the environment. SABIA has:

- Reduced size and weight of on-belt analyzer systems
- Lowered on-belt analyzer prices
- Improved data analysis capability and data availability
- Improved reliability
- Implemented world's first Web-based analyzer
- Enabled a variety of new analyzer configurations for custom installations

## **CONTACT INFORMATION**

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SABIA is headquartered in San Diego, California, USA with office locations and sales representatives around the world.

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