



Technical Article

Sampling of Coal in the USA

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Over the years the use of mechanical sampling systems has grown rapidly in the USA. With about 1 billion (109) tons of coal being mined, the need for accurate sampling systems is proving itself throughout the industry. The complexity of coal sampling, however, has not made it easy to design and maintain these mechanical coal sampling systems. Many installations unfortunately, do not perform as anticipated. Redesign and retrofits are constantly being done on existing facilities. Gravity flow of sticky coals is generally the basic problem in a sampling system. This paper discusses some of the common practices of coal sampling in the USA.

Over the years, coal sampling has grown from the original, simple slurry samplers to multi-stage sampling systems that have become more and more comprehensive in order to accommodate rapidly changing sampling requirements and increased tonnage flow rates. As an example, it is not uncommon today to be confronted with coal feed rates as high as 10,000 t/h and with the maximum coal particle size sometimes exceeding 6 inches.

Coal is one of the most difficult materials to sample, due to its variability in composition between non-combustible particles to those which lend themselves to complete burning. The sampling responsibility is further complicated by the objectives to be realized in analytical examination variable and sometimes very

high moisture contents, the presence of clay, the size of the lot or consignment to be represented by the sample and finally the degree of sampling precision required.

The proper collection of the sample involves an extensive understanding of the physical characteristics of the coal, the minimum number and weights of increments to be taken, the size consist of the coal and the overall sampling precision that is required.

This paper does not intend to present any new sampling techniques or theory but will confine itself to some practical aspects of coal sampling in the USA.