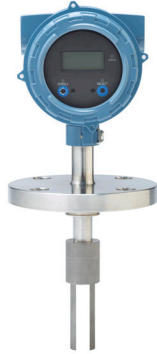




Nuclear instruments replaced with Micro Motion density meters in a magnetite slurry application



Micro Motion Fork Density Meter

RESULTS

No governing regulations or requirements for specialized training, leak tests, or safety procedures

No need for licenses to adhere to nuclear regulations

No risk to personnel from a radioactive source

Technical support for Micro Motion meters



Application

Patriot Coal is an active coal mining facility located in Kentucky. At Patriot Coal, the coal is mined and then passed to the coal preparation plant before loading. At this stage the ‘run-of-mine’ coal also contains rocks and impurities which are removed in separators to minimize shipping costs. The mined material is first crushed down to around one inch-sized pieces. It then passes through cyclones and rinse drains that contain magnetite slurry with an intermediate density. The density of the slurry is controlled to a level where coal is suspended and the heavier rock sinks. The suspended coal then passes through while the particles of rock fall to the bottom and can easily be removed. Magnetite is the preferred ferromagnetic mineral used to produce the suspension density for this application and can be recovered magnetically. While the magnetite slurry is re-circulated, the density is continuously monitored and controlled to keep it at the optimum level for coal and rock gravity separation.



Challenge

Patriot Coal used nuclear density meters to measure and control the magnetite slurry concentration. Since the nuclear source within these density meters is hazardous, it is heavily regulated with requirements for licensing, controlling documentation, specialized training and leak testing. The company wanted to reduce their dependence on nuclear instrumentation to avoid having to comply with these regulations while increasing safety for their personnel.



Solution

Patriot Coal approached Emerson for a solution and chose to install the Micro Motion liquid fork density meters on the separators at their Kentucky plant. They now have replaced six nuclear density meters with Micro Motion density meters, eliminating the associated radioactive hazard resulting in increased personnel safety and significant reduction in

regulatory compliance costs. The company no longer has to adhere to the strict regulations associate with nuclear instrumentation. Patriot Coal also reports that the new Micro Motion instrumentation is more reliable than the nuclear density meters.



Micro Motion fork density meter controlling the magnetite slurry density