Dusty solids are no problem for solids level measurement radar

Founded in 1970, Unimin Corporation has grown from a small, local sand mining company to a leading producer of non-metallic industrial minerals in North America. Unimin’s products are the fundamental building blocks of nearly every manufacturing and industrial process. The company is a worldwide supplier to the glass, ceramic, and lighting industries; to oil and natural gas service companies; and to paint, plastic, rubber, and composite manufacturers.

In operation for more than 70 years, Unimin’s Blue Mountain mining facility near Nephton, Ontario is a leading global supplier of nepheline syenite. This complex aluminum silicate is a valuable component of many different chemicals, coatings, and plastics. The glass and ceramic industry has used nepheline syenite for many years, as it promotes rapid melting at lower temperatures. Such temperatures result in a number of benefits: reducing energy consumption, lengthening the life of furnaces, as well as improving production yields and glass quality. Unimin produces numerous particle sizes of nepheline syenite, the smallest being a very fine powder of ten microns.

Challenge

From the primary crusher to the finished product stored in silos, the nepheline syenite production process is extremely dusty. Reliable and accurate level measurement is critical to ensure inventory levels are maintained to keep production running efficiently. Silos that feed the pebble mills
must be maintained with material and final product silos must be kept stocked for customer deliveries.

The facility has used most level measurement technologies with limited success and high maintenance costs. Ultrasonic transducers had difficulty working through the intense dust in the application and contacting cable level transmitters required costly maintenance. Due to the abrasive nature of the material, some level measurement cables were destroyed after only one year. Collectively these previous technologies needed some type of maintenance attention every two weeks! Unimin has also been using SITRANS LR460 radar transmitters with reasonable success, but the larger size of these devices makes them prohibitive for some installations.

Solution

In the early summer of 2011, Unimin purchased its first SITRANS LR560 78 GHz radar level transmitter from Measuremax Peterborough, a Siemens Canada channel partner. The 2-wire connection and small size allowed for a fast and easy installation on one of the silos feeding the pebble mill. Operators used SITRANS LR560’s local display pushbuttons and Quick Start Wizard to set up the device and fed the 4-20 mA output back to Unimin’s control system for monitoring and control.

Every installation has been effortless – in fact, the user interface is so simple that Unimin’s operators can configure the devices themselves without any technical support. Since installation, there has been no maintenance required for any of the new transmitters! Given the success and zero maintenance of the first installation, Unimin has since acquired an additional nine SITRANS LR560s for other level measurement applications.

Benefits

No other level measurement technology has been able to perform reliably in Unimin’s facility like the SITRANS LR560. These transmitters have eliminated high maintenance costs, as they have not experienced any issues nor have they required cleaning or other upkeep. SITRANS LR560’s compact size allows for very easy installation and the very narrow 4-degree beam provides greater flexibility on the installation. For example, if the only available location is close to the feed point, the SITRANS LR560 can be mounted there and still work. Accuracy has improved as well due to the very narrow beam because the transmitter can measure material down into the cone area.

“The SITRANS LR560 is fantastic and we are going to standardize our facility using this transmitter everywhere level measurement is required,” states John Warren, Electrical Supervisor at Unimin Corporation. “The transmitters are so easy to use and are extremely reliable.”

www.siemens.com/sitransLR560