Finnish Paper Mill Enjoys Reliable Measurements on Wood Chips with Radar Level Transmitter

RESULTS

- Measures reliably despite long range and dusty vapor space
- Reduced maintenance with use of Teflon® bag

APPLICATION

Wood Chip Silos

Application Characteristics: Dry, dusty, irregular surface, low dielectric, 23m (76 ft.)

CUSTOMER

A Finnish paper mill

CHALLENGE

A Finnish paper mill needed some new level measurements on their three wood chip silos. They were without a measuring system due to failure of the old ultrasonic gauges. The silos are approximately 23 meters (76 ft) high. The wood chips are blown into the silos from the top of the silo. The blowing causes a large amount of dust both in the vapor space and on all surfaces, including the sensor. The silos are emptied from the bottom. All three concrete silos are side by side.

The only potential mounting location for each silo was in a 1x1 meter opening in the cover. The rest of the silo cover was 0.65 meter (2 ft) thick concrete. Two of the openings were located where there was a good view of the surface. The middle silo opening had the potential for chips to drop into the line of sight between the mounting and the surface.

A sample of the wood chips. Note: The ruler is in centimeters.

SOLUTION

A Rosemount 5600 with a parabolic antenna and a PTFE (Teflon) bag was installed in the available space. The parabolic antenna provides a concentrated beam to the surface. This is an essential element for measuring materials where there are poor reflections due to the material and surface characteristics. It was especially important for the center silo where chips could fall near the beam area. In solids applications, it is important that the antenna is as far into the vessel as possible. In this case, a flange was added to the cover directly on the roof and no extra height was added. The PTFE bag was used to eliminate dust build-up on the antenna, which could weaken the signal.

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Another essential element in measuring solids is the software capabilities of the device. The device has easily accessible parameters that control signal handling such as time delays, surface search, and echo filtering. However, many of these parameters need to be optimized for individual applications. The advanced diagnostic software capabilities allowed these changes to be made easily and the issues were resolved satisfactorily.

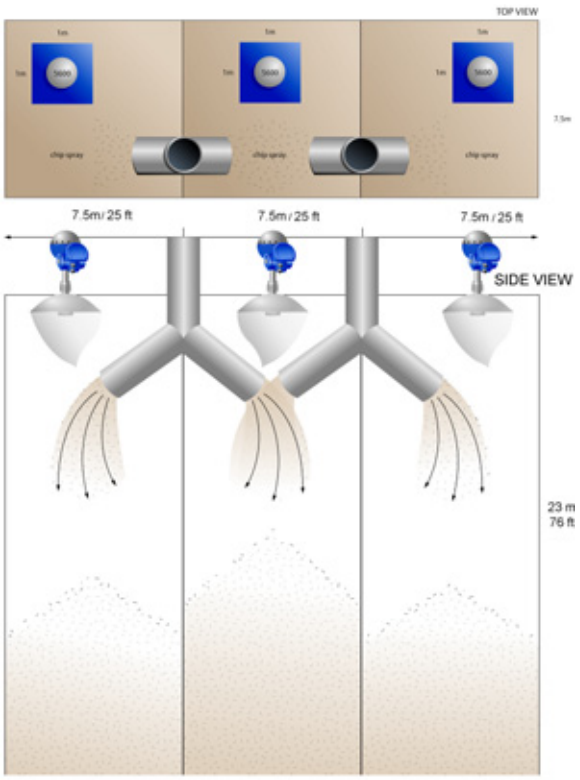
RESOURCES

Emerson Process Management Pulp & Paper Industry
http://www.emersonprocess.com/solutions/paper/

Rosemount 5600 Series Radar Level Transmitters
http://www.emersonprocess.com/rosemount/products/level/m5600.html

Measuring Solids With A Rosemount 5600 Non-Contacting Radar
See Document Number 00840-0100-4024

Rosemount 5600 with a parabolic antenna and a PTFE (Teflon) bag



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