



BIOFUELS

Increasing Volume Accuracy at an Ethanol Plant

The Challenge

This ethanol plant faced three different types of challenges – dust, accuracy and reliability. There were extreme amounts of dust, especially during fill rates of up to 580 tons per hour which made it extremely difficult to track the filling and emptying processes. They had been using guided wave radar – a single point measurement technology – in a very large bin of uneven topography. Using just a single measurement was not providing an adequate level of accuracy, as the level of material varied significantly in different areas of the bin. Also, the sensing cables on the guided wave radar were breaking, making taking measurements impossible and causing operations to shut down until the cable could be recovered from the material contents and then replaced.

The Solution

The MV model of the 3DLevelScanner was mounted on a 150' tall, 75' diameter, concrete

silos containing whole corn. The silo is outset fill, with multiple discharge sites in a very dusty and noisy application. Using the advanced parameters of the 3D Level Manager software, the device was optimized to track during a rapid and extremely dusty filling cycle. With multiple discharge sites and empty rates of up to 150 tons per hour, the 3DLevelScanner was able to provide a far more accurate volume than the previously installed, single-point guided wave radar device. After the success of the first unit, the customer purchased three additional units for its other large silos.

The Benefits

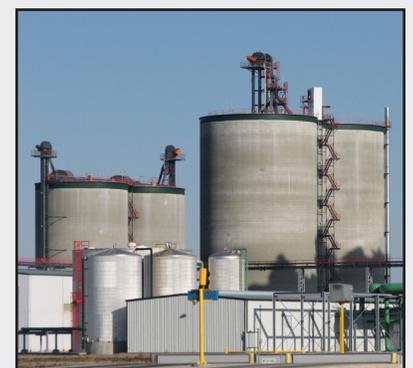
The 3DLevelScanner was able to meet the challenge of a dusty environment and was optimized to track during the filling and emptying processes. The low frequency, acoustic waves are able to penetrate the dust generated during fill, unlike radar which works at a higher frequency. Using the MV model which takes multiple measurements within a 70° beam angle the inventory accuracy was improved significantly, enabling the plant to optimize its filling and emptying schedules and railcar traffic. The non-contact device eliminated the risk of breaking cables, preventing work stoppages while providing plant personnel inventory measurement data when it was needed.



Scanner was mounted in existing hole.



Top of silo with gravity on conveyor fill.



3D now installed on all four large silos.



APPLICATION HIGHLIGHTS

- Material:** Corn
- Bin Type:** Concrete silo with flat top and bottom
- Bin Size:** 150' tall x 75' diameter
- Class:** Class 2, Div 1 inside and outside silo
- Model:** MV