Automated systems improve delivery efficiency and eliminate difficulties of manual tank-level measurement

Benefits of **remote** tank-level **monitoring** systems

To maximise efficiency and profitability, distributors of petroleum and chemical products need accurate and up-to-date information on the fluid levels in their own and their customers' storage tanks. In many cases, however, traditional manual methods of gathering and communicating this information leave much to be desired, resulting in costly and inefficient delivery routines that adversely impact both distributors and the customers they serve.

Dissatisfied with these problematic manual methods, many petroleum and chemical distributors are turning to automated systems for remotely monitoring storage tanks.

Automated systems use various technologies to provide current and correct tank-level data, helping distributors make accurate demand forecasts and determine the most efficient delivery routes. This translates into lower costs for distributors and better service for their customers.

This paper will explore the need for remote tank-level monitoring systems and explain how they work. It will also take a detailed look at the benefits these systems offer distributors of petroleum and chemical products, as well as others responsible for monitoring and managing tank-stored liquids.

Remote tank-level monitoring systems improve efficiency, logistics management and inventory control in the distribution of petroleum and chemical products stored in tanks.

Conventional tank management

For petroleum and chemical distributors, the most profitable scenario starts with a full delivery truck leaving the plant and ends with that truck returning completely empty after traveling the fewest possible miles and making the fewest possible stops to meet current customer needs. At the other end of the spectrum is the highly inefficient 'milk run,' during which a delivery truck visits each customer, 'tops off' all tanks and returns with some amount of unneeded product.

To avoid making inefficient deliveries that waste time and fuel, many distributors used to rely on customer input to determine how much product to send out in a delivery truck. So they spent a good deal of their time on the phone with customers, who were either placing orders or providing manually obtained tank-level measurements.

Unfortunately, customers could not always be relied on to take the necessary readings or place product orders in a timely manner. As a result, distributors would often get calls from customers who needed expensive emergency deliveries because their tanks were completely empty.

To relieve customers of their responsibilities in the process, distributors can dispatch sales reps to take tank-level readings. On the downside, however, this task robs reps of valuable selling time and becomes impractical when it requires regular visits to distant customers.

A better option: remote monitoring

In recent years, many distributors have discovered that these problems and others associated with manual readings can be solved by switching to one of a number of automated systems for remote tank-level monitoring.

Data from automated systems tells distributors exactly how much product each customer needs before they send out delivery trucks. This information allows them to plan delivery routes that minimise costly miles and man-hours while still meeting customer needs.

The latest automated systems use a variety of level-measurement technologies to monitor tank levels, from extremely flexible MIR (micropower impulse radar) to other application-specific methodologies such as pressure or ultrasonic. Advanced systems also feature wireless communication from the measurement equipment all the way to the user's computer system. Wireless technology transmits up-to-date tank-level data without the need for wires or cables, allowing cost-effective installation and ability to monitor tanks in the most remote locations.

In addition, advanced systems include a user-

friendly software package that presents and interprets tank-level data and allows for user-defined readings and set-points. Some software packages also include a web-based option that lets users access tank data anytime and anywhere they can connect to the Internet.

State-of-the-art remote monitoring systems can also manage data from groups of tanks, or tank farms. These systems feature cost-saving technology that uses a single receiver to wirelessly collect data from multiple tanks at the same site and then transmit all the data to a computer system that can be accessed by the user. System software analyses the data to determine which one of the tanks actually needs product at a given time, thereby eliminating inefficient 'top offs' of tanks on the farm that need not be filled on that particular delivery run.

More automation advantages

Other advantages of remote tank-level monitoring include:

- Lower measurement costs. Automated systems eliminate labor and other costs associated with manual tank measurement.
- Increased safety. With technology delivering tank-level data to the desktop, employees of distributors or the firms that hire them need no longer risk injury by regularly scaling tall tanks to take manual readings.
- Cost-effective expansion. By freeing up fleet time that used to be spent on inefficient delivery routes, remote tank-level monitoring systems allow distributors to add customers without adding trucks or drivers.
- Better informed customers. Tank monitoring systems make it possible for distributors to inform customers when they need a delivery. Therefore, customers can be warned before tank levels get low enough to require costly emergency deliveries.

For distributors who want to do more than just inform customers about low tank levels, remote tank monitoring can help them run a highly efficient vendor managed inventory (VMI) system. In a VMI system, the supplier takes responsibility for maintaining an agreed-upon amount of product at the customer's location. With VMI growing in popularity, distributors often use the service as a marketing tool.

By adding remote tank monitoring to VMI, distributors can manage product inventories without involving customers at all. Such a system offers important advantages to distributors, who no longer have to deal with the consequences of customer errors and oversights in managing product supply in storage tanks. As for customers, they no longer have to worry about tank refills or running out of product, whether they are in the office or away on business or vacation.

In addition to helping companies involved in the distribution of petroleum and chemical products, remote tank-level monitoring systems can provide valuable assistance to other firms that fill, empty or store fluids in large tanks. For example, the systems can monitor storage tanks in processes such as waste retrieval and oil production.

Conclusion

Remote tank-level monitoring systems improve efficiency, logistics management and inventory control in the distribution of petroleum and chemical products stored in tanks. State-of-the-art systems feature highly capable but cost-effective technologies that automatically provide tank-level data to distributors anytime and anywhere they need it.

By using this data to plan optimal delivery routes, distributors can lower operating expenses and free up time and trucks that can be used to generate additional revenue. In addition, remote tank monitoring can help distributors keep tanks properly filled without input from their owners, boosting customer satisfaction and giving suppliers a critical edge in a competitive business.

For more information:

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