

# Tank Storage Farm Eliminates Maintenance with Radar Transmitter

## RESULTS

- Eliminates maintenance due to coating
- Reliable measurement prevents pumps from running dry



## APPLICATION

Wastewater level measurement

**Application Characteristics:** Dirty, oily water with turbulence, foam and heavy condensing water vapors

## CUSTOMER

Tank storage farm, Netherlands

## CHALLENGE

A large tank storage farm in the Netherlands uses a waste treatment plant for all wastewater and rain water that is collected. The tank collects the wastewater and loading pipe cleaning systems waters which contains edible oils, fats, and detergent. The liquid forms a coating on all objects in the tank. During pumping, foam is formed. The liquid surface is turbulent and the tank vapor space is filled with condensing water vapor.

It is important to have a reliable level measurement to prevent damage of the pump if it should run dry. Over the years the tank farm has tried several technologies including mechanical float gauges, float switches, submersed pressure transmitters and vibrating fork level switches. All had problems with the coating. None of the solutions were reliable and all needed continuous maintenance. A high frequency radar level measurement was used but did not provide a reliable measurement because of the dense condensing water vapor and condensation inside the antenna.

The tank storage farm wanted a solution that is non-contacting, maintenance-free, and provides a continuous level signal to their visualization system for reliable level control. Previous radar installations only provided a partial solution for the problem.



*The Rosemount 5401 is installed over a wastewater collection tank.*

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## TANK STORAGE

### SOLUTION

The Rosemount 5401 Radar Level Transmitter was a great fit for this application with water vapors, turbulent surface conditions, and foam. The low frequency signal of the Rosemount 5401 was able to handle condensing water vapors better than a high frequency device. Low frequency can also handle the foam better than a high frequency unit. In addition, the Rosemount 5401 radar uses dual port microwave technology that results in a signal-to-noise ratio that is two times better than other radar transmitters.

The cone antenna design was more resistant to condensation build up. Combining the low frequency microwave signal with the dual port technology and a condensation resistant antenna delivered a reliable level measurement for this application. The end result was a maintenance-free reliable level measurement.

With the Rosemount 5401 installed and configured, the tank storage farm was provided with a continuous, reliable measurement that prevents pumps from running dry and reduced maintenance time due to the vapors, turbulence, and foam.



### RESOURCES

#### Emerson Process Management Water & Wastewater Industry

<http://www.emersonprocess.com/solutions/water/index.asp>

#### Rosemount 5400 Series Two-wire Radar Level Transmitters

<http://www.emersonprocess.com/rosemount/products/level/m5400.html>

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