

# Guided Wave Radar Saves \$57,000 Annually for Gas Plant By Improving Measurement of Skim Tank

## RESULTS

- Reduced frequency of changing filters from three times per week to once per week for annual cost savings of \$57,000
- Reduced amount of water to separator, resulting in longer life expectancy and improved efficiency
- More consistent measurements



## APPLICATION

Oil and water skim tank

**Application Characteristics:** 3,000 barrel salt-water disposal tank; 10-15,000 barrels of oil/water mixture flow through daily; changes in density.

## CUSTOMER

Gas Plant, USA

## CHALLENGE

A Gas Plant has a 3,000-barrel saltwater disposal tank. They run between 10 and 15,000 barrels of water per day through this tank. The incoming water is a mixture of oil and water and is put into the tank to separate. Knowing the location of the interface is important to the operation because they filter the water and re-inject it back into the ground. If oil comes through with the water, it plugs the filters and they have to be replaced.

This gas plant had been using a pressure transmitter on the tank in combination with a radar gauge to determine both the level in the tank and the interface level. Some very involved calculations have to take place to arrive at the interface level. In the equations, you have to assume a constant density so that the calculations will work. The problem is that the density is never constant and the results have never been accurate.

With this method, some filters were changed daily because of oil in the water. The operators were not able to skim the tank efficiently for fear of getting oil in the filters.



*Rosemount 3300 installed on salt water disposal tank.*



*Some filters were replaced daily due to inaccurate level and interface measurement.*

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Under normal conditions, it costs around \$28,600 per year to change the filters on a weekly basis. When the oil goes through, the filters must be changed immediately. Of course, this is unplanned and takes people away from other tasks that they would be doing. This happened often with the old equipment. It was estimated that the filters were changed an average of three times per week at a cost of \$85,800 per year.

### SOLUTION

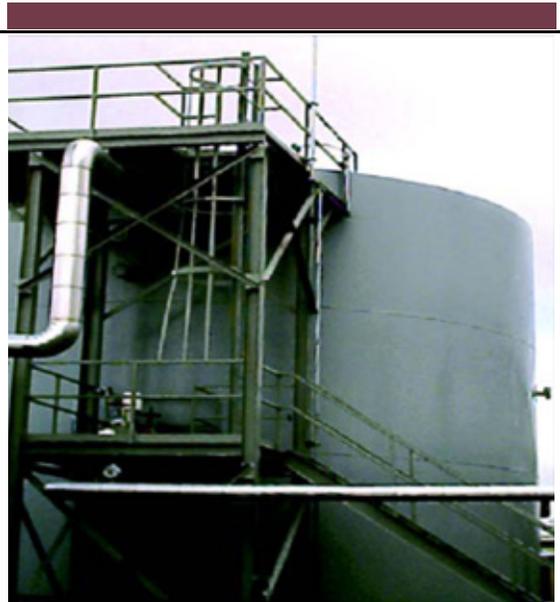
The solution implemented was a Rosemount 3302 Guided Wave Radar transmitter and a Rosemount 333 Tri-loop. The 3302 provided both overall level and interface level measurements using a standard 4-20 mA analog signal and a HART digital output. The tri-loop took the extra process variable on the HART signal and provided a second analog signal to the control system. The customer is able to skim the oil off the tank with a much higher degree of confidence than ever before. As a result of the Rosemount 3302 radar gauge, the gas plant is getting the expected life out of the filters and the process is more efficient.

With the Rosemount 3302, the customer is back to changing the filters once per week. This is saving the gas plant around \$57,000 per year and had a payback of three weeks. The interface also helps with the oil side of the tank by reducing the amount of water that is sent to the separator. After going through the separator, the oil is sold to a pipeline which takes it to a local refinery. Reducing the amount of water the separator has to handle will prolong its life and make that process more efficient.

### RESOURCES

#### Rosemount 3300 Series Guided Wave Radar Level and Interface Transmitters

<http://www.emersonprocess.com/rosemount/products/level/m3300.html>



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