

TFC Improves Accuracy and Reduces Costs Using Wireless Guided Wave Radar for Pollution Control

RESULTS

- Maintenance and inspection time reduced by 75%
- Reduced cost of installation with savings of 1,000k Yen (\$9,000)
- Improved accuracy
- Downtime minimized providing savings of 3,000k Yen (\$27,000) per annum



APPLICATION

Level measurement in underground concrete pit

CUSTOMER

Toray Fine Chemicals, Chiba, Japan

CHALLENGE

Toray Fine Chemicals (TFC) in Chiba is the only plant to produce DMSO (dimethyl sulfoxide) and polysulfide polymer in Japan.

The facility uses four partially buried concrete pits for the wastewater treatment process. Wastewater is discharged from each manufacturing process into the pits. It is then biologically treated and discharged to the public water area. The intermediate treatment liquid remains in the pits.

Since the contents are waste liquid, leakage from the underground pits can contaminate groundwater and soil. It is difficult to detect leakage from the bottom of the pit but it is necessary to regularly check the soundness of the pits to prevent environmental damage. Periodic inspections to check on the safety and soundness of the pits are required by Japanese law.

Emptying the pits to check for abnormalities such as cracks and damage is difficult so TFC carries out regular "Water Logging" inspections. During the water logging inspection, the pits are filled with water and left for a long period of time. Any decrease in the water level over this period is measured using a level gauge and recorder. During these inspections, some elements of the wastewater treatment process need to be stopped completely, which delays production, so it is vital to carry out the inspection as quickly as possible. The procedure for inspecting the four pits was taking two full days from start to finish.

Installing the test measurement devices permanently would reduce the preparation time but the costs to do this were prohibitive for an inspection that only takes place once a year.

"Installation was possible in a very short time and the resulting measurement was very accurate."

Kuroda Takashi
Toray Fine Chemicals



Rosemount 3308 Wireless Guided Wave Radar installed over the concrete pit.

SOLUTION

TFC installed a Rosemount™ 3308 Wireless Guided Wave Radar onto each tank. The devices were very easily installed and configured quickly, which saved a considerable amount of time. The accuracy of the GWR was a huge improvement on the previous test devices.

Because the Rosemount 3308 is wireless, the installation location can be changed easily if required and the *WirelessHART*® Technology is unaffected by obstacles. Using a digital signal – rather than 4-20mA analog – to the DCS improved the repeatability from 5mm to 2mm.

The whole inspection time was reduced by 75% and the cost was less than 50% of the original analog instrument system, resulting in savings of 1,000k Yen (\$9,000).

The new system also reduced the number of man hours needed by inspectors from 22 hours down to 5.5 hours, and minimized the downtime of the wastewater treatment facility, providing savings of 3,000k Yen (\$27,000) per year.

		8.00am	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00	18.00
BEFORE												
Day 1	Pit 1										Setting of inspection devices	
Day 2	Pit 1	Measurement										interpret the results
	Pit 2					Setting of inspection devices	Measurement					
	Pit 3										Setting of inspection devices	
Day 3	Pit 3	Measurement									interpret the results	interpret the results
	Pit 4					Setting of inspection devices	Measurement					
AFTER												
Day 1	Pit 1		Measurement									
	Pit 2		Measurement									
	Pit 3		Measurement					interpret the results	interpret the results			
	Pit 4		Measurement									





Inspection program before and after the installation of the Rosemount 3308.

RESOURCES

Rosemount 3308 Level Transmitter - Wireless Guided Wave Radar
Emerson.com/Rosemount/3308

Emerson Automation Solutions Industries
Emerson.com/Industries/Chemical

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Global Headquarters
Emerson Automation Solutions

6021 Innovation Blvd
 Shakopee, MN 55379 USA
 +1 800 999 9307 or +1 952 906 8888
 +1 952 949 7001
 RFQ.RMD-RCC@Emerson.com




Europe Regional Office
Emerson Automation Solutions Europe GmbH

Neuhofstrasse 19a P.O. Box 1046,
 CH 6340 Baar, Switzerland
 +41 (0) 41 768 6111
 +41 (0) 41 768 6300
 RFQ.RMD-RCC@Emerson.com

Middle East & Africa Regional Office
Emerson Automation Solutions

Emerson FZE P.O. Box 17033
 Jebel Ali Free Zone - South 2
 Dubai, United Arab Emirates
 +971 4 811 8100
 +971 4 886 5465
 RFQ.RMDMEA@Emerson.com

Asia Pacific Regional Office
Emerson Automation Solutions

1 Pandan Crescent
 Singapore 128461
 +65 6777 8211
 +65 6777 0947
 Enquiries@AP.Emerson.com

00830-0200-4308 Rev AA