CASE STUDY • POWER INDUSTRY

MAINTENANCE-FREE RADAR LEVEL TRANSMITTER REDUCES OPERATIONAL COSTS AT WASTE INCINERATOR PLANT

Customer

A Pražské služby, a.s. (Czech Republic)

Application

Fine ash silo in a municipal waste incinerator

Challenge

In Prague, they have had a municipal waste collection system since 1994. One of the technologies that they use to process collected trash is waste incineration, which reduces waste to ash. These ashes get stored in tall silos, so that after further processing, they can be used for other purposes, such as construction.

Before implementing the Emerson solution, the plant relied on capacitance, mechanical and unreliable non-contacting radar sensors to measure the level of fine fly ash in their silos. However, these devices presented multiple challenges that caused inefficiencies, created unsafe environments for personnel, and hindered operation:

- **Unreliable Measurements and Manual Checks:** The devices that the facility was using before provided poor and unreliable measurements of the fine ash in the silos, necessitating manual checks and interventions in a health-threatening environment. This led to inefficiencies in ash collection, slowing down processes and even causing extended downtimes.
- **Increased Operational and Service Costs:** Prior to switching to Rosemount™ Level Measurement Technology, the facility experienced increased operational costs due to a lack of visibility inside the tank. This resulted in costly emergency truck arrivals and frequent maintenance tasks that had to be performed several times a week.

Results

- Significant cost savings thanks to non-contacting radar technology, which delivers accurate and reliable measurement at all times.
- Improved safety with the elimination of manual interventions.
- Reduction of maintenance tasks and associated costs thanks to the maintenance-free non-contacting radar technology.

Image 1. *Rosemount™ 3408 Non-Contacting Radar Level Transmitter installed on the fine ash silo*

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Solution

The plant installed the Rosemount 3408 Radar Level Transmitter with a purging ring, and it significantly reduced maintenance tasks, increased personnel safety, and lowered operational costs. The Rosemount 3408 features the latest innovations in non-contacting radar technology, providing accurate measurements of product surface levels. Additionally, the purging ring solution prevented the antenna from clogging in the dusty fly ash application.

The level sensor was easy to install on the silo and delivered reliable measurements from day one. The solid option from the Rosemount 3408 includes a special signal processing algorithm specifically developed to overcome the challenges of obtaining reliable solids measurements where there are angled and uneven product surfaces, multiple surface echoes and low dielectric products. Unlike other level devices, the Rosemount 3408 features Smart Echo Supervision™ Signal Processing, which automatically monitors the surface echo and identifies false echoes dynamically. This reduces sensitivity to internal obstructions and ensures that level measurements are reliably and accurately reported. As a result, the facility was able to optimize truck arrivals for product collection and consequently reduce costs. The Rosemount 3408 is also virtually maintenance-free, which decreased maintenance costs and manual rounds at the waste incinerator plant. This freed operators from repetitive and unsafe tasks, allowing them to focus more valuable activities.

Rosemount Non-Contacting Radar Technology enables plants like Pražské služby to increase process efficiency by reducing manual rounds and eliminating maintenance tasks. Additionally, it enhances personnel and plant safety while lowering operational and and maintenance-related costs.

> *When Emerson offered us their new radar to try, I was skeptical because we've tried several ultrasonic meters and two radars from other manufacturers in the ash silo in the past. Only after installing Rosemount radar did we get reasonable and usable data for the first time, and not a jumble of values jumping between 1–8 meters.*
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> ***Jiri Salakvarda***
> *Instrumentation Technician*

Image 2. *The Rosemount 3408 features special Solid algorithm together with Smart Echo Supervision, which monitors the surface echo automatically and identifies which echoes are false dynamically*

Resources

Rosemount 3408 Level Transmitter
Emerson.com/Rosemount3408

For more information, visit
Emerson.com/RosemountNonContactingRadar

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