

# WE Energies Automates Dewatering Bin Sludge Level Measurement and Monitors the Result Without Wires

## RESULTS

- Improved personnel safety
- Reduced operations and maintenance cost
- Reduced project implementation cost



## APPLICATION

Ash level measurement in the bottom of an Ash Dewatering Bin

## CHARACTERISTICS

Very cold temperatures during the winter months; murky water

## CUSTOMER

WE Energies, Upper Pensinsula of Michigan, USA

## CHALLENGE

Ash from the bottom of a boiler must be removed. This ash is mixed with water to form slurry which is carried to dewatering bins where the ash is concentrated for disposal. When the ash in the bottom of the bin reaches a predetermined level it is pumped out. WE Energies' power plant needed to reliably measure the level of ash in the bottom of a dewatering bin.

Customer had been using a "yo-yo" system to monitor the sludge. A weight on a string is dropped into the bin until it hits the sludge. As the weight is reeled back, a servo motor determines the length of string and sludge level is calculated. Maintenance personnel needed to manually read and record the level measurement. During the winter months, the wet string caused the device to freeze up even though it has a heat blanket. The result is a lost level measurement, and the need for maintenance to repair the frozen device.

WE Energies experienced several negative business consequences as a result of the unreliable ash level measurement. In winter, snow, ice, and cold presented safety risk to maintenance personnel needing to climb to the top of the dewatering bin. The need to maintain the frozen "yo-yo" measurement device increased maintenance costs. Finally, due to the loss of the ash level measurement, ash was sometimes pumped from the dewatering bin before reaching the desired level. This increased operations cost.



*Mobrey MSL600 Sludge Blanket Level Monitor and Rosemount 648 Wireless Temperature Transmitter*

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## SOLUTION

WE Energies installed a Mobrey MSL600 Sludge Blanket Level Monitor to measure the ash level. The monitor uses sonar technology to make a continuous measurement. The sensor is mounted below the water level and has no moving parts that can freeze. The output from the MSL600 was sent to a Rosemount 648 Wireless Temperature Transmitter. The 648 wirelessly sent the level reading to the control room. The system has operated successfully through the harshest winter months without requiring any maintenance and had no downtime. In addition, plant personnel no longer need to climb to the top of the bin to read and record the sludge level.

WE Energies experienced several positive business results by automating the sludge level measurement with the Mobrey MSL600 and Rosemount 648. First, personnel safety has been improved by eliminating the need to climb to the top of the bin to manually take the level measurement. Second, unscheduled maintenance on the bin level measurement has been eliminated, reducing maintenance cost. Third, ash pumping cost was reduced due to elimination of unnecessary ash pumping. Finally, by wirelessly communicating the level measurement to the control room, the cost of installing wires was eliminated reducing implementation cost. The installation has been so successful that additional Ash Dewatering Bins on site are being upgraded with this solution.

## RESOURCES

### Emerson Process Management Power Industry

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

### Mobrey MSL600 Sludge Blanket Level Monitor

<http://www2.emersonprocess.com/en-US/brands/mobrey/Level-Products/Ultrasonic/MSL600/Pages/index.aspx>

### Rosemount 648 Wireless Temperature Transmitter

<http://www2.emersonprocess.com/en-US/brands/rosemount/Temperature/Single-Point-Measurement/648-Wireless/Pages/index.aspx>

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