

CASE STUDY

Mag Meter Solves Intake Water Problem at Grupo Suzano Pulp & Paper Plant

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Overview

When plant engineers at Grupo Suzano of Brazil's pulp and paper plant in Sao Paulo Brazil noticed irregular measurements of plant intake water drawn from a nearby river, there was immediate cause for concern because it threatened the plant's productivity. Grupo Suzano is a diversified Brazilian company that produces over one million tons of paper annually, which is sold in Brazil and abroad.

The company takes great pride in its 30 different paper brands, which include coated and uncoated office papers and cardboard. The company cultivates its own pulp stock of Eucalyptus trees through sustainable agriculture techniques and pioneered in developing 100% recycled paper in Brazil.

The Problem

Without reliable water flow measurement on its 42-inch intake line, the plant's pumps were either drawing too much or too little water for efficient operations. The plant's engineers determined that an electromagnetic flow meter was the problem because in the past the meter was prone to losing its signal, which led to improper measurement.

Complicating matters, the Tiete River, the plant's source water for the intake line, had heavy debris which affected the flow meter's ability to measure accurately.

The troublesome flow meter was now causing multiple problems again, which affected process efficiency. These issues included higher than necessary pumping costs, over-consumption of water with potential environmental impacts and over-use of consumable water testing and treatment chemicals prior to recycling the water.

Additionally, the plant needed to run continuously, so modifying or replacing the flow meter had to be performed without affecting plant operations.

The Solution

The Grupo Suzano pulp and paper plant engineers contacted the applications team at McCrometer for a solution to their flow measurement problem. The company's application specialists recommended McCrometer's SPI Mag™ flow meter.



SPI Mag Flow Meter

This single point insertion (SPI) mag flow meter provides a highly cost-effective solution for the reliable measurement of liquid flow in closed conduit, pressurized pipe applications.

Unlike conventional magnetic meters, the SPI Mag flow meter's cost is independent of pipe line size because of its insertion style flow sensor. It supports applications line sizes from 2 to 96 inches. The SPI Mag flow sensor relies on precise electromagnetic sensing technology based on Faraday's law.

Velocity and pipe diameter information are utilized by the meter to determine flow rate over wide flow ranges with a high degree of accuracy. With accuracy of up to $\pm 2\%$ of reading, ± 0.03 ft/s (± 0.009 m/s) and zero stability from 0.3 to 32 ft/s velocity range (0.09 to 10m/s), the SPI mag flow meter solved the plant's issues with flow measurement accuracy, repeatability of measurement and overall reliability.

The plant team appreciated the hot tap installation with the SPI Mag flow meter because it eliminates process line shutdowns, cutting the pipe, welding and re-assembly. The meter's streamlined sensor design is debris-shedding and self-cleaning, which also eliminated expensive technician maintenance labor costs for the plant team.

A versatile flow instrument, the SPI mag flow meter is suitable for use in municipal water and wastewater. It is also designed for application in any type of industrial flow process involving conductive fluids such as potable water for food/beverage, pulp paper stock, slurries, sludge and cooling water in electric power generating plants.

McCrometer's pre-programmed converter is designed for use with the SPI Mag flow meter and comes in a rugged enclosure for industrial environments that meets IP67. It features two dual 4-20mA analog outputs with an additional RS485 port for easy connection to the plant's distributed control system (DCS). The plant team also found the converter simple to use with its built-in local display offering eight graphical lines of information and three-key touch programming.



Converter Used with the SPI Mag Flow Meter

Conclusions

Grupo Suzano's pulp and paper plant team is pleased with their new SPI Mag flow meter. The meter is operating satisfactorily without any accuracy or reliability problems, which the team appreciates because accessing the meter requires time-consuming travel outside the plant. Looking ahead, the plant team already has identified additional locations for the installation of new SPI Mag flow meters in the near future.



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