



FCI ST50

Optimizing Wastewater Treatment Plant Aeration System Air Flow Measurement

Application Note Case Study ANCS016

Problem

The air flow into the aeration basins at a major wastewater treatment plant (WWTP) located in Northeastern USA were continuously running at maximum flow resulting in significant, and excessive, energy cost and excess wear and tear on the aeration blowers.

Flow Conditions

- Pipe diameter: 24" [DN600] (header)
6" [DN150] (drops)
- Flow Rate: 0 SCFM to 7,000 SCFM [0 NCMM to 198 NCMM] (header)
0 SCFM to 1,500 SCFM [0 NCMM to 43 NCMM] (drops)
- Temperature: 40 °F to 250 °F [4 °C to 121 °C]
- Pressure: 0 psig to 10 psig [0 bar(g) to 0,7 bar(g)]
- Media composition: Air
- Available straight-run: 30+ diameters

Solution

The WWTP plant installed FCI Model ST50 aeration flow meters in the main header line and the basin drop lines. The ST50 flow meters provided an accurate, repeatable, direct mass flow measurement of the air flow rate from the blowers. The flow rates were then adjusted and controlled at a level which ensured optimum oxygenation and no more. The WWT plant was able to realize immediate energy cost savings and ROI, as well as a more effective and efficient water treatment process. As of this writing, these Model ST50 flow meters have been in continuous, un-interrupted operation for 4 years.

FCI Model ST50: ST50-8F11BA0B

Benefits

- Immediate ROI from energy cost savings at the plant.
- Plant qualified for a state energy savings grant (reimbursed them the investment in flow meters).
- Constant power thermal dispersion technology provided wider range, wider turn-down than DP and Vortex shedding flow meters plant also considered.