

APPLICATION HIGHLIGHT

Wastewater Treatment Plant Aeration Basins

Application:

One of the first steps that a Waste Water Treatment Plant (WWTP) will do is shake up the sewage to expose it to air. This causes some of the dissolved gases that taste and smell bad to be released from the water. As organic mater decays, it uses up oxygen. Aeration replenishes the oxygen.

The aeration distribution lines at the bottom of the aeration tanks need sufficient airflow to effectively aerate. A typical WWTP could have dozens of these aeration lines. It is not uncommon to have the aeration tubes distribution outlets to become clogged with debris originated from various origins.

Challenge:

An existing WWTP's upgrades include the periodic monitoring of all the individual aeration lines to assure that there is no blockage or restrictions, thus maximizing aeration. The piping arrangement at the proposed flow meter locations included a 90° elbow, seven pipe diameters of straight run, and a second 90° elbow directed the air down to the bottom of the aeration tank. This non-ideal piping configuration does not allow sufficient upstream piping requirements for the flow metering technologies suited for this application. In addition, supplying a dedicated flow meter at each location was financially unrealistic

Solution:

To condition the airflow, the flanged spool section between the two 90° elbows was retrofitted with A VORTAB Meter Run (model VMR). The standard VMR includes a flow meter port ideally positioned three pipe diameters downstream from the flow conditioning section. To periodically monitor the airflow, a retractable and removable FCI thermal dispersion mass flow meter was utilized. Incorporating a ball valve allowed the flow meter to be inserted and removed from the median without costly shutdown. Utilizing a single flow meter, a technician could efficiently track down suspected clogged aeration lines.

