



## APPLICATION NOTE: Turbine Meters Control Methanol Flow During Wastewater Treatment Denitrification Process

Wastewater treatment plants (WTP) may have high loads of nitrogen nutrients in their discharge water. High nitrogen levels can lead to low dissolved oxygen levels in nearby bodies of water and harm aquatic life, cause toxic algal blooms that interfere with water treatment and desalination operations, and pose a threat to human life. An important wastewater treatment is denitrification of the discharge water by methanol injection. This process converts the nitrates into nitrogen gas that is released without harming the environment.



*Methanol Injection Manifold*

A WTP operator required an accurate and reliable solution for monitoring methanol flow into multiple points along the the denitrification process to meet the total maximum daily limits (TMDL) of less than 8 mg/L. The flow meters needed to be compatible with methanol and suitable for use in the Class 1 Division 2 hazardous area.

FT Series turbine flow meters and FTO Omniflo® turbine flow meters were recommended to meet the customer's requirements. The FT Series flow meters for monitoring methanol flow on the larger injection lines and FTO Omniflo flow meters for low flow monitoring on small lines with flow rates less than 1.0 GPH. All flow meters were supplied with Flow Technology's Linear Link to provide signal linearization and interface with the plant control system. The turbine meters were enclosed in NEMA-7 explosion-proof housings to meet the hazardous area classification.

The high accuracy of the FTI turbine flow meters allowed the operator to precisely control methanol injection rates at multiple points in the denitrification process. After implementation the plant was able to reduce excess methanol use, which lowered operating costs, and maintain continual compliance with state and federal TMDL regulations on their discharge water.

### HIGHLIGHTS

**Industry:** Industrial

**Service:** Flow Rate/Total

**Fluid:** Methanol

#### **Application**

Monitor methanol flow streams during the denitrification process

#### **Problem**

- Check methanol flow on multiple injection lines for proper flow control to meet regulatory discharge requirements
- Must be suitable for use in a classified hazardous area

#### **Solution**

- FT Series Turbine Flow Meters
- FTO Series Turbine Flow Meters
- Linear Link Linearizer Transmitters