

Flow and Level Measurement

Wastewater Applications Guide



Greyline
— Precision Flow Measurement —
An ONICON Brand

GREYLINE METERS IN THE WASTEWATER TREATMENT PROCESS

1. Sewer Flow (Sanitary, Stormwater, Combined)

Channel Type: Underground closed pipe, partially full to full

Meter: AVFM 6.1, MantaRay, Stingray 2.0, OCF 5.0

Why: Collection system sub-metering. Infiltration and inflow studies. Preventing overflow events. Acquiring baseline data of current system performance, in consideration of expansion due to construction. Underground pipes are not accessible for clamp-on style meters and pipes may not be full. Area-velocity or open channel technologies are best and can be installed via manholes.

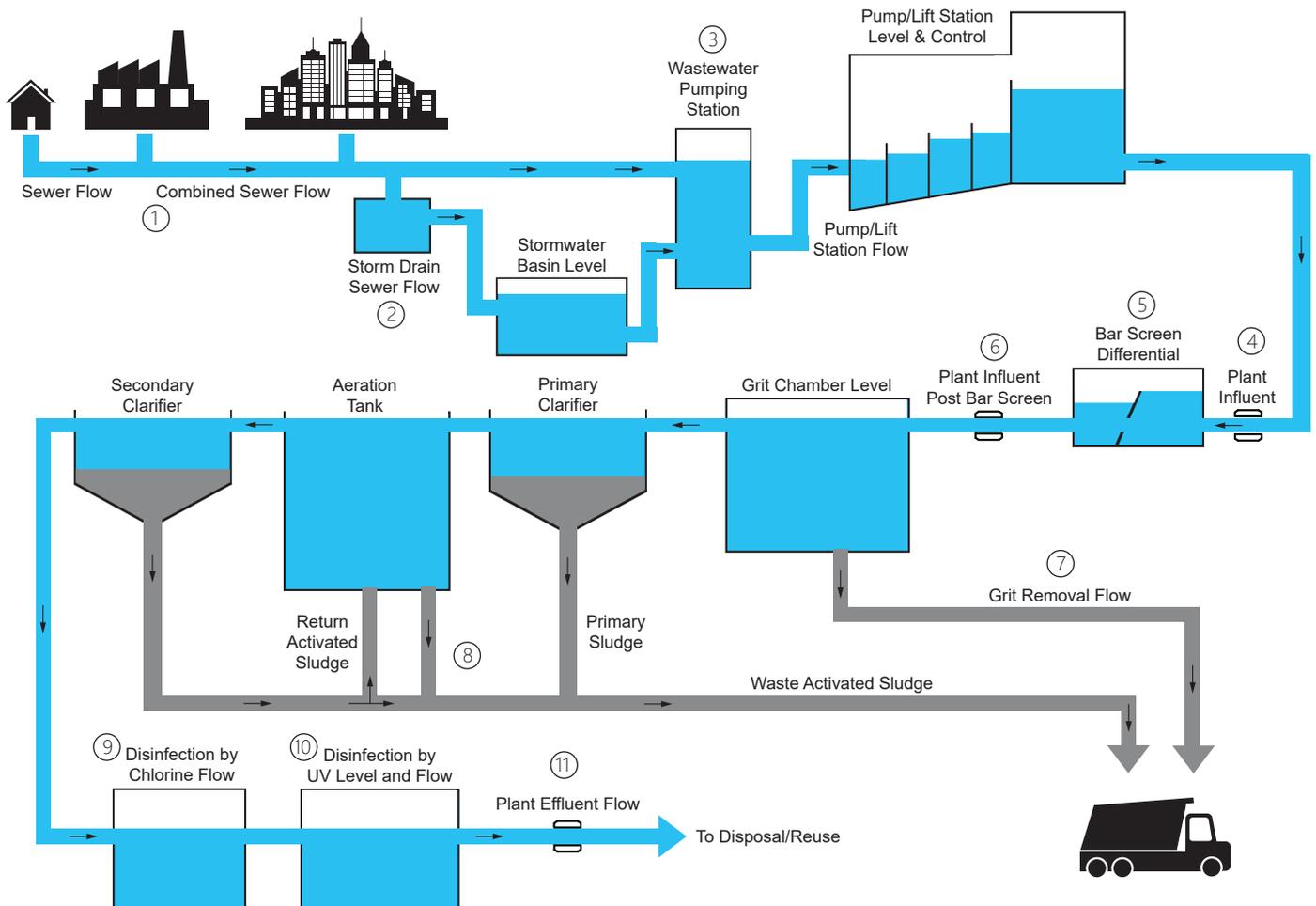
2. Stormwater Basin Flow & Level

Channel Type: Underground closed pipe, partially full to full

Tank Type: Underground structure

Meter: AVFM 6.1, MantaRay, Stingray 2.0, OCF 5.0, SLT 5.0

Why: Measure influent, effluent, and level in the detention/retention tank to verify performance. Underground pipes are not accessible for clamp-on style meters and pipes may not be full. Area-velocity or open channel technologies are best and installed via manholes. Ultrasonic level sensors can withstand temporary submersion in tanks which flood during extremely heavy rainfall.



3. Pump/Lift Station Flow & Level

Tank Type: Underground structure

Meter: DFM 6.1, DFS 5.1, SLT 5.0, PSL 5.0

Why: Measure discharge flow rates to calculate volume changes or to understand when pump demand increases. Measure discharge with flow switch to protect pumps from running dry. Measure level and provide 4-20 mA output to user's PLC to control pumps. Or, measure level and control pumps in a single instrument with alternation and a redundant sensor input.

4. Plant Influent

Channel Type: Exposed closed pipe or open channels

Meter: DFM 6.1, OCF 5.0

Why: Monitor what is coming in to the plant, for visibility to average, max, and minimum flows. Compare total influent to total effluent.

5. Bar Screen Differential

Channel Type: Open channels before and after screening process

Meter: OCF 5.0, DLT 2.0

Why: Measure level on each side of the screen to trigger rake to clean screen. Manual monitoring not required, and reducing rake run time saves energy.

6. Plant Influent Post Bar Screen

Channel Type: Open channel

Meter: OCF 5.0

Why: Measure total plant influent that will be treated. Measuring at this location takes any losses through the screening process into account.

7. Grit Removal Flow

Channel Type: Exposed closed pipe

Meter: DFM 6.1, DFS 5.1

Why: Measure flow of grit slurry from separation chamber to disposal processes. Ensure lines do not become clogged, or monitor volume of slurry sent to disposal.

8. Sludge Flows (Primary Clarifier, Return Activated, and Waste Activated)

Channel Type: Exposed pipe

Meter: DFM 6.1

Why: Rate of sludge leaving clarifiers and being recycled back in are key indicators for system performance. Accurate sludge flow measurement allows for dynamic control with the varying system operating conditions of a wastewater treatment plant.

9. Chlorine Disinfection

Channel Type: Open channel

Meter: AVFM 6.1, OCF 5.0

Why: With Chlorine disinfection, the flow rate must be accurately controlled as the contact time is very important to ensure complete disinfection. If the water travels through the chlorine contact basin too quickly then it will not be properly disinfected. The AVFM 6.1 can be used to control the inlet pump of the basin or an outlet valve/gate to control flow rate. If a flume or weir is installed, an ultrasonic open channel flow meter can be used to measure and control flow.

10. UV Disinfection

Channel Type: Open channel

Meter: OCF 5.0

Why: The level is important to keep the lamps properly submerged and to not let the level get too high or organisms traveling at or near the surface may not be destroyed. Level is more important than contact time as the UV radiation destroys organisms in a matter of seconds compared to 30-60 minutes for chlorine. UV lamps can be damaged if not kept submerged. If the channel is equipped with a flume or weir, flow rate and level can be measured with an ultrasonic open channel flow meter.

11. Plant Effluent Flow

Channel Type: Open channel, Exposed pipe flow

Meter: AVFM 6.1, OCF 5.0

Why: Calculate total volume of water being discharged from the plant. Important for tracking plant discharge versus input, for determining how much water is exiting to local bodies of water, and for reporting to government agencies. Some of the plant effluent may be used as recycled or reclaimed water. Measure flow on these pipes to determine how much water is being used for these applications.

CONTACT US

UNITED STATES

Greyline Instruments Inc.
11451 Belcher Road South
Largo, FL 33773

315-788-9500
888-473-9546 Toll Free
315-764-0419 Fax
info@greyline.com

CANADA

Greyline Instruments Inc.
16456 Sixsmith Drive
Long Sault, ON
K0C 1P0

613-938-8956
855-300-9151 Toll Free
613-938-4857 Fax
info@greyline.com

WWW.GREYLINE.COM

