Demonstration of filter-aided secondary clarifier for improving wastewater treatment capacity

Project Members

METAWATER Co., Ltd., Japan Sewage Works Agency and Matsumoto city

Project Fields

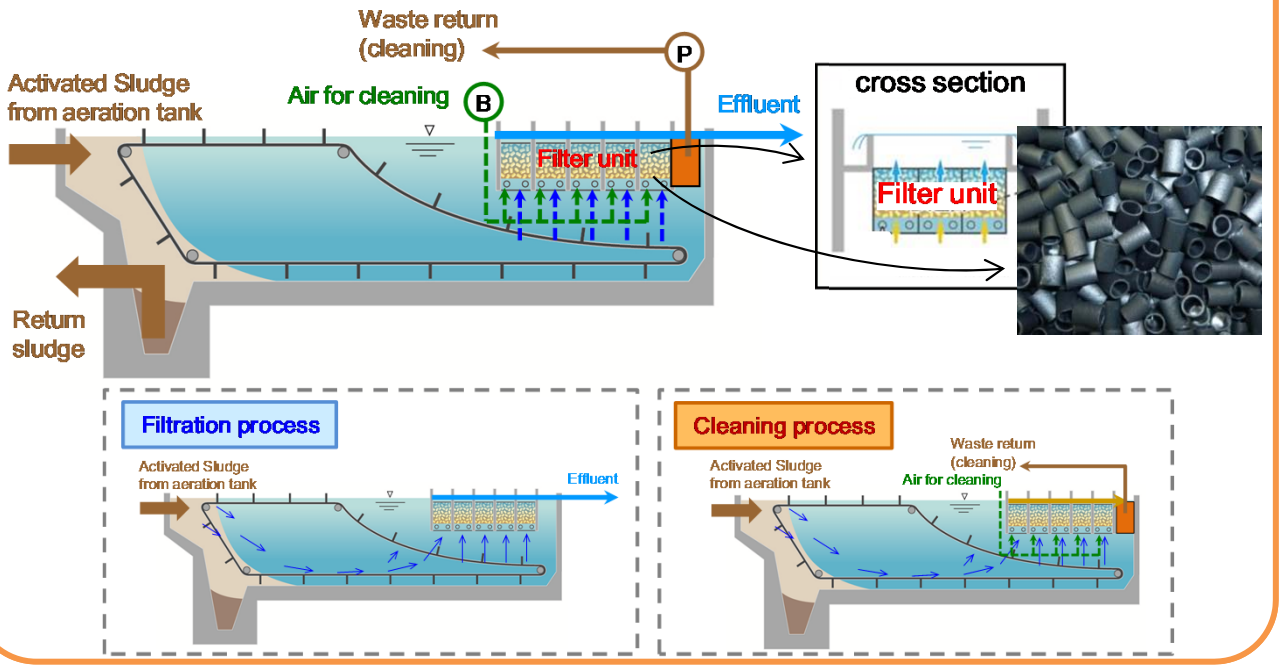
Ryoshima Wastewater Treatment Plant (Matsumoto City)

Project Outline

Demonstrate the technology to improve wastewater treatment performance in terms of hydraulic capacity or effluent quality, by installing the filter unit to an existing full-scale secondary clarifier.

Outline of the proposed technology

- ◆ The filter unit is installed to a secondary clarifier for effluent quality enhancement.
- ◆ Head loss at the filter unit is small. (less than tens of millimeters)
  - No adjustment of existing water level is required.
- ◆ The filter unit is cleaned by air periodically.
  - Automatic cleaning allows the continuous system operation.
- ◆ No driving device is submerged under water.



Features of the technology

In a secondary clarifier, almost all of suspended solids are removed with sedimentation, and residual suspended solids are captured within the filter unit.

- ➢ Hydraulic capacity improvement
  Effluent flow rate can be increased twofold (compared to design maximum daily wastewater flow), without a negative impact on effluent quality.
  ➡ Much wastewater can be treated only with existing secondary clarifiers.
- ➢ Effluent quality improvement
  Under design maximum daily wastewater flow, effluent quality can be enhanced (comparable to sand filter effluent quality).

Other innovation

Relationships between sludge blanket level at secondary clarifier, zone settling velocity of activated sludge and other parameters (e.g. flow rate) are verified during WWTP surveys.

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Data are utilized to estimate the impact of proposed technology on an existing secondary clarifier.