Demonstration Project to Verify Wastewater Reclamation System

Joint study group

Nishihara Environment Co., Ltd., Tokyo Engineering Consultants Co., Ltd., Kyoto University, and Itoman City

Project site

Itoman City WWTP

Project outline

Verifying the safe, energy-saving and economical wastewater reclamation and reuse technology combining UF membranes and UV disinfection to provide new water resources for agricultural use and further development of local economy suffering from lack of water and also set the technical standard for the use of reclaimed wastewater.

Proposal technology outline

WWTP Final settling tank (Secondary effluent)

Reclamation system

UF membrane

UV

- Easy operation management with complete automation
- No by-products or residuals
- Reliable inactivation of viruses

⇒ providing safer reclaimed wastewater

Reclaimed wastewater facility

< Novelty/ Originality >

- ✓ Verify the techniques to detect fractured membranes/reduced UV intensity
- ✓ Reduction of energy consumption/ Greenhouse gas emission

Storage tank

The Demo. site (1,000m³/day)

To "Seseragi" channel (Environmental water)

Agricultural Users (Acceptance)

< Novelty/ Originality >

- ✓ Use for highly profitable agriculture (vegetables, fruits, etc.)

⇒Cooperation with "BISTRO" sewerage

To each receiving site (Agricultural water)

○Features/expected results of the proposed technology

Technical innovation

- Verifying the techniques to detect fractured membranes or reduced UV intensity to ensure the safety of reclaimed wastewater, and aiming to build a managing method to achieve stable operation of the system.
- Aiming to reduce the energy consumption and greenhouse gas emission by studying specific operation methods including a procedure and frequency of automatic washing or automatic UV intensity control.

Installation effects

- Since no coagulant is used, operating cost can be significantly reduced and continuity of reclaimed water supply business will be improved.
- Further utilization of reclaimed wastewater can be achieved by supplying reclaimed water with reduced pathogen risk.
- Contribution to the local productivity/ economy by supporting the formation of recycling society, agricultural production, and sightseeing business.

Other effects

- Useful operation data for setting a technical standard related to the use of reclaimed water can be obtained.
- Aiming to achieve the reclaimed wastewater quality satisfying the world standard for reclaimed wastewater (ISO/TC282: under preparation) based on Title22 (California, USA), and Reclaimed Wastewater Quality Standards (MLIT).