

# Study on the fiber filtration technology for CSO control

Whole term

2006.5~2007.9

**(Purpose)**

Recently, serious influences for ecosystems in public water areas and public health by untreated sanitary sewage discharging to public water areas in rainy weather have been alarmed in some treatment areas adopting combined sewer systems. Many cities adopting combined sewer systems address improvements. The improving measures include constructions of stormwater reservoirs and settling tanks and setting filtration screens on diversion chambers. In particular, technologies which show higher pollution load removal performances than stormwater reservoir, require narrower installation area, and need lower construction and maintenance costs are additionally required in recent years.

The purpose of the study is establishing design method, operation method and maintenance method of “simplified fiber filtration facilities”, which aims to reduce discharging pollution load from sewer treatment plants and pumping stations, with verification tests for practical application.

**(Research Content)**

A brief overview of simplified fiber filtration facilities is shown in Figure 1. The Facilities are composed of a pretreatment part and a filtration part. The Preparation part serves as removal of buoyance debris and the filtration part serves as removal of suspended solids. Basically, the filtration part is not washed in operation but washed with air after rain. Reservoirs keep vacant while facilities are not operated. Meanwhile, the facilities can adopted with modifications of relatively depthless building frames such as existing primary settling tanks.

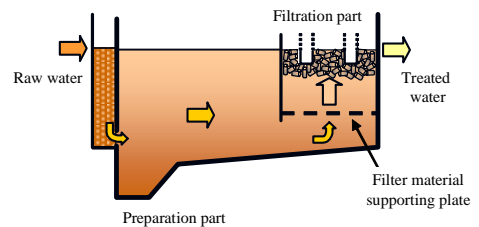


Figure 1 Overview of facilities

Figure 2 shows a workflow of the study, including three considerations for tests as following.

I The check test for basic properties

The purpose of the test is basic data collections acquired for design. It was tested with influent water on a sunny day. Points we will check are surface loading of preparation part and overflow trough loading which keeps fiber filter media.

II The check test for treatability

The purpose of the test is treatability testing in rainy weather. Intended wastewater is influent of primary settling tank in rainy weather. Target performance is shown below,

- SS removal ratio; over 60%,
- BOD removal ratio; over 60%,
- Debris removal ratio; over 99%,

under the condition which has lower than 5 kPa head loss and shorter than 5 h operation time.

III Accelerated test

The purpose of the test is examination of filter material life. Tests for abrasion resistance with washing 1,000 times and filtration performance with will be operated.

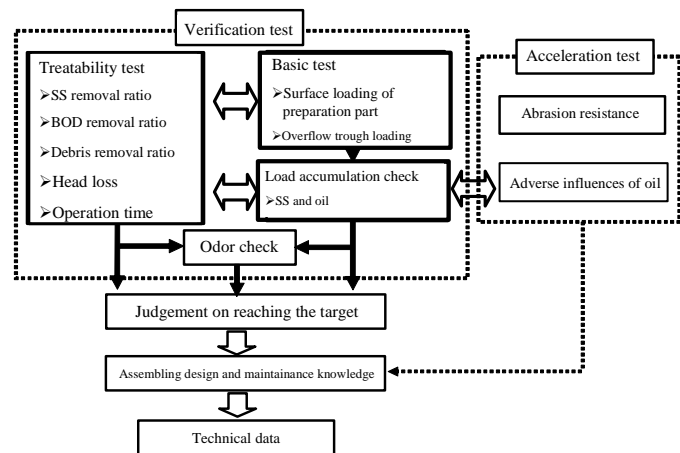


Figure 2 Workflow of the study

**(Schedule)**

We will organize results of the tests and assemble knowledge about plan, design, construction, and maintenance. Technical data of simplified fiber filtration facilities for CSO control will be drawn up at the end of the study.

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Key words

CSO control, Fiber filtration