

## Research on performance evaluation of the high-speed filtration institution in the Sibaura water renovation center

Whole term

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### (Purpose)

Tokyo sewer office and JIWET (Japan Institute of Wastewater Engineering Technology) started utilization research of high-speed filtration new technology in 1993. Evaluation of performance using a pilot plant, determination of design conditions of actual institution, and creation of maintenance management manual of institution were performed at this time. Consequently, the real institution was built in the Sibaura water renovation center.

Purpose of this research is evaluating performance of the real high-speed filtration institution. Performance evaluation is performed in two years. This paper reports the results of investigation performed for the first year.

### (Result)

By the result of the investigation conducted in 2004, the following things became clear.

#### 1. Filtration speed as operation conditions

The filtration speed at the time of fine weather was slow compared with the time of utilization research. Furthermore, it means that the investigation in case of rainy weather had measured on sharply late conditions.

#### 2. Concentration of wastewater influent

Water quality of wastewater influent at the time of fine weather was low concentration compared with the time of utilization research. In case of investigation in the 1st rainy weather, SS concentration was almost same as the time of utilization research. Moreover, BOD concentration is high a little. Compared with investigation in the 1st rainy weather, it has quite high concentration as a result of investigation in case of the 2nd rainy weather. Especially SS concentration has reached 5 times. This is considered to be influence of inverted siphon at wastewater influent pipeline. Under the influence of deposition sludge of this portion, it became the high concentration exceeding anticipation.

#### 3. Removal rate of treated wastewater

The removal rate of treated wastewater was calculated using influent concentration and treated sewage concentration of composite sample. Consequently, removal rate at the time of fine weather is less than the result at the time of utilization research in both SS and BOD. About the result in case of rainy weather, since filtration speed is slow, comparison is simply impossible. However, it is thought that this result has satisfied the result of utilization research, judging from removal rate.

In case at the time of fine weather, compared with the time of utilization research, one 1.5 times the amount of capture of this has been checked about SS. In case of the 1st rainy weather, result of investigation was below half of result of utilization research. Moreover, in case of the 2nd rainy weather investigation, the quantity of caught SS exceeded the permissible limit, breakthrough arose.

### (Study schedule)

Investigation for 1 time of fine weather and 2 times of rainy weather was conducted in 2004. It will investigate continuously from last year in 2005. Furthermore, performance evaluation of the high-speed filtration institution in the Sibaura water renovation center is due to be performed.

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key words

Improvement of combined system, High-speed filtration, Performance evaluation, Alternative technology of primary settling tank, Sibaura water renovation center