

## Investigation on the improvement of the combined sewer overflows by filtering screen

Whole term

2001.6~2003.3

### (Purpose)

The overflow from the combined sewer in case of rain has influenced on the fine view of the public water and caused contamination as well. According to recent concerns, not only the load reduction to satisfy the water quality standards but also the reduction of impurity mixed with discharged overflow is necessary.

This institute evaluated the performance of the filtering screen as a countermeasure for combined sewer overflows, which could be installed with less reconstruction, and published the design resources in 1998. The design resources include the planning, design, operation and maintenance with respect to the hydraulic impact at the upstream due to the installation of the filtering screen, and data on the performance of the filtering screen except its evaluation method.

Therefore, the objectives of this research were to examine the method of evaluating the performance of filtering screens and to publish a technical manual summarizing the results. Furthermore, summarizing the effect and problems for the case of plural use of filtering screens, the effective operation and maintenance could be clearly examined. Also, the actual data such as calculations for installation of machineries were summarized.

### (Results)

#### 1) Investigation on the performance evaluation

Investigations were performed in actual treatment plants in 5 cities nationwide for verification of the effect on the overflow subjected to rain. The sampling was carried out in several ways such as by human means, by automatic and simple water-sampling equipment and by a mixed impurity capture machine. The results of mixed impurity measurement, in which all the capture type was spot, showed a great increase of after-screening reduction by 10~30% relative to that before screening. The amount of mixed impurity was greater when using the capture machine for E city. Therefore, the influence of the capturing method was considered high.

#### 2) Investigation on the effective management of the plural filtering screen

For effective management method, the automatic voice reporter, automatic voice reporter with fax machine and intensive monitoring system were examined and summarized with respect to the number and the size of the filtering screen system.

#### 3) Examination on the manpower per unit filtering screen system

The installation of the filtering screen and the ball-type control panel, and the manpower required for plumbing were examined as the items to be considered in integrating the filtering screen system. The manpower per unit filtering screen are classified into two types, RSW type (standard type) and RSWsf type (small flame type), and then one-body class and separate class for each type.

#### 4) Summary

For the distribution of this method, the existing design data were re-investigated, and a new method for evaluation, a way of effective management of plural filtering screens and an example of the manpower per unit were investigated and summarized in the technical manual.

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Keywords

Filtering screen, Improvement of the combined sewer overflows