

## Research for the application of the rotary-pressurized-dehydrator in large scale treatment plants

Whole term

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### (Purpose)

Based on the acceleration of the effective use of sludge, cost saving and stability of the treatment; effective sludge treatment systems are required in sewage projects. Later, the capacity of the sludge dehydrator should be varied to be compatible with large, medium, and small sized cities.

This study investigated the basic performance of the rotary-pressurized-dehydrator during the period from 1985 to 1986. Especially, it was verified that the efficiency of dewatering was as much as the efficiency of the existing dehydrator, and the result was applied in the technical manual.

In spite of the results, in this study, the applicability in a large scale treatment plant was verified through an actual experiment because the equipment had not yet been verified as to be adopted in an actual facility.

In this study, the optimal stable continuous operational condition was investigated by applying to a large scale treatment plant (dewatering and incinerating system), and it was evaluated by an actual experiment. Simultaneously, the advantage of the dewatering and the incinerating system was evaluated by a sample analysis, and the final objective was to collect the technical data on the rotary dewatering equipment in order to investigate the applicability of it in large scale treatment plants.

### (Results)

#### 1) Result of the actual plant test

- At the Tama River Upstream Treatment Plant of Sewerage Bureau in Tokyo Metropolitan Government, the dehydrator (Ø1, 200 X 1 channel) was installed and an actual plant test was conducted to investigate the applicability of the rotary-pressurized-dehydrator in large scale treatment plants.

- This dehydrator fixes operational variables adequately and it is possible for it to treat the water content of the cake suitably.

#### 2) Technical manual of the dehydrator for the application in large scale treatment plants.

- This manual describes the planning, design and maintenance of the rotary-pressurized-dehydrator. Though the equipment could be applied in medium and small sized treatment plants, the effect of utilization should be evaluated.

- Dewatering equipment for large sized treatment plant (1) About 53 % of treatment plants carry out incineration. (2) Severe dewatering operations rather than those in medium and small sized treatment plants are required (3) Demand for rehabilitation, retrofitting and increment is increasing.

- In the case of incineration of sludge, the following conditions are required.

(1) Dewatering of the cake- water-content has to be compatible with the incinerator, (2) Stable- 24-hour- continuous- operations and etc. It was verified that this equipment has such performances and the economical efficiency.

- In the case of disposal of the dewatered cake, the following conditions are required.

(1) Ability to dewater into stable low water contents, (2) Ease of intermittent operations and etc. It was verified that this equipment has such performances and the economical efficiency.

- In the case of rehabilitation and retrofitting, the following conditions are required.

(1) Increase of the treated quantity in the existing ground, (2) The arrangement should not be restricted by the existing buildings, (3) Easy construction etc. This equipment could correspond to those problems because of its small size and light weight.

Collaborators: Japan Institute of Wastewater Engineering Technology

Kubota Corp., Sanki Engineering Co.,Ltd., Tomoe Engineering Co., Ltd.,  
NGK

Insulators, Ltd.

Personnel in charge of the study: Tsuneto Takaso, Yuichi Ichikawa, Syuichi Masuoka,  
Takahiro Ito

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