

Investigation and research to utilize the rotary-pressurized-dehydrator

Whole term

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(Purpose)

The importance of sludge treatment and the disposal are concerned because the generation of sewage sludge increases with the expansion of sewerage systems. Later needs for the sludge dehydrator would differ for each treatment scale. Moreover, a totally balanced development of the dehydrator is required to achieve a high dewatering efficiency, site reduction, convenience in maintenance, cost reduction, and safety of the treatment. In this study, the applied rotary-pressurized-dehydrator was the latest model developed by Fonia Co. in Canada, which has made 30 deliveries in the domestic market of Canada, and has originally been used as a filtering equipment for the pulp wastewater having powdered particles, and then has been applied to the market of sewage sludge-dewatering.

The objective of this study was to investigate and evaluate the practicality, dewatering efficiency, performance of the dehydrator which has high dewatering efficiency, maintenance efficiency, and site reduction using new concept of principles of dewatering and structure. In addition, it aimed at confirming the conditions of application and scope of utilization, and investigating the facts such as specifications, etc. required to prepare a technical manual.

(Results)

The technical manual prepared in this study consists of sections such as planning and designing. The contents of the manual are:

Chapter 1. General rules

Chapter 2. Summary

Chapter 3. Basic matters on planning

Chapter 4. Basic matters on design

Chapter 5. Maintenance and reference

The section of planning and design introduces the current state of the sludge dewatering facility, the functions required for a sludge dewatering facility in the future and special features, and effects of the dewatering facility identified by this study. Basic performances of several kinds of sludge are introduced and matters that demand special attention on planning stage of the facility, such as operating method, maintenance and etc. are summarized.

The section of references reports the result of the investigation on the performance of the dewatering equipment. In addition, design samples, which have the size derived from a model facility are presented and the economical efficiency of each kind of representative dewatering equipment is calculated. It was confirmed that the rotary-pressurized-dehydrator has specific characteristics in the summer as mentioned below:

(1) Dewatering efficiency is excellent for mixed raw sludge.

(2) Dewatering for big sized sludge is possible.

(3) Dewatering chamber for this hydrator comprises 1~ 4 channels and it is possible to extend the chamber to be compatible with any increment of sludge.

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Keywords

Sewage sludge dewatering, Rotary-pressurized-dehydrator