

Research on the storage and pressure sewer systems of dewatered sludge

Whole term

1998. 7 ~ 2000.3

(Purpose)

Reduction of sludge and resource recovery through incineration, pyrolysis and so on become popular according to the project of sewerage development. Systems of sludge incineration and pyrolysis need long term stoppage for the inspection and repair. Integrated treatment of sludge which aims to improve the treatment efficiency is in progress. Therefore, the sludge storage and transfer facilities on large scale are becoming necessary. In addition, silos to store sludge and technologies of pressure sewer systems which are more air-tight than the existing technologies are required because of both the odor and dust. However, design and planning data are not sufficient because there is no standardized design method to those storage and pressure sewer systems.

In this manual, initially special qualities of sludge storage and transfer technologies were confirmed and then the scope of application, the basic concept for the design and the design method for each facility were established and how to rehabilitate the facility reasonably and effectively was also investigated.

(Contents)

This manual is composed of planning, design, and references.

1) Planning: In the planning section, an abstract of the sludge storage, pressure sewer systems and scope of application are mentioned. Also, an actual case study is supplied for the silo-storage and pressure sewer technology.

2) Design: The basic concepts for the design of storage and pressure sewer technologies are mentioned. The structure and the principle of the pressure pump, the basic design concept for the piping method are presented. Technologies of measurements and control are introduced. A counter plan for secondary pollution and safety, and codes such as fire-fighting and building etc. are supplied.

3) References: Specifications of silo-storages and pressure pumps are presented and a model study in such a case of separating treatment ability as large, medium and small is present. Not only result of the construction cost but also evidences of the design dimensions and related codes clipping are indicated. Moreover, a type of technology for each company is introduced.

(Results)

As a series system of storage and pressure sewers of dewatered sludge, purpose of the utilization and the application scope in the sludge treatment system were clarified and their basic design concepts and cautions were presented as a design manual. Hopefully, this manual could contribute to the establishment of an unified design method, and effective rehabilitation and operation of sludge treatment systems.

Collaborators: Japan Institute of Wastewater Engineering Technology

Ebara Corp., Kubota Corp., Kobe Steel, Ltd., Sanki Engineering Co.,Ltd.,

Tsukishima Kikai Co., Ltd., NGK Insulators, Ltd., Mitsubishi

Heavy Industries, Ltd.

Personnel in charge of the study: Yasuhiro Shinoda, Takayuki Hasegawa, Yasuhiro Nakanishi

Keywords

Sewage sludge, Storage technology, Transportation technology by pressurizing