

Evaluation of Sludge Dewatering Device to Lower Moisture Content

(Research of FY 2018-2021)

1. Purpose

This study deals with the "Pressurized screw press dewatering device (Type III)" (from now on referred to as "SP III dewatering device"), which was selected for the JS New Tech Implementation Program in 2013, as a part of the evaluation of dewatering devices for lower moisture content. The study aims to understand the actual operation and performance of the SPIII dewatering device, and to prepare basic data for technical standardization to promote its adoption in entrusted projects.

2. Outcomes of the Previous Year

The FY 2018 study aimed to clarify the conditions for investigating SPIII type dewatering devices. We organized the status of installation and collected information through a questionnaire survey to municipalities that had installed the system under JS contract.

3. Outcomes of This Year

(1) A questionnaire survey was conducted to 51 municipalities, including local governments, which had adopted the SPIII dewatering device for more than one year. Twenty-three municipalities responded to the questionnaire regarding the performance of the SPIII dewatering device in actual O&M by

their operators and the need for technical improvements. Some municipalities provided trial operation data.

(2) We visited the two municipalities surveyed above and interviewed the maintenance managers to confirm the problems and requests for improvements.

Figure 1: SP III's performance in trial operations

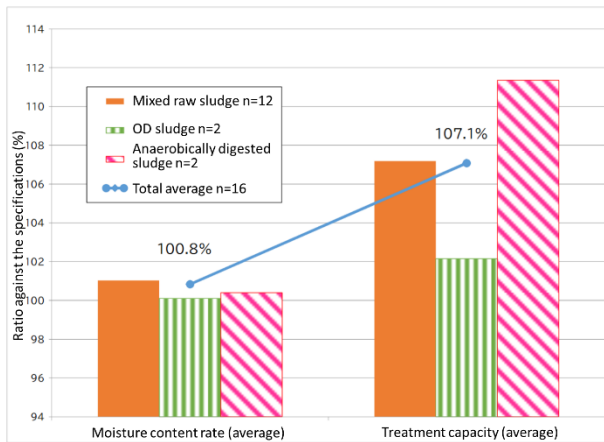
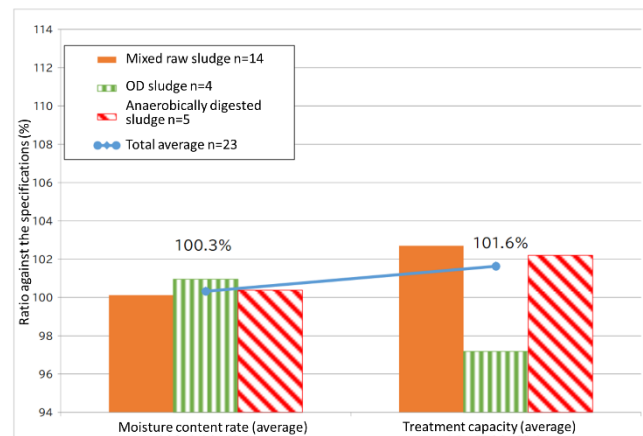


Figure 2: SP III's performance in daily operations



- Figure 1 shows each performance of mixed sludge, OD sludge, and anaerobically digested sludge during the trial operation. All sludge types satisfied the performance of the specifications in water content and treatment capacity. Especially, the treatment capacity greatly exceeded the performance of the specifications.
- Figure 2 describes the system performance of daily operations by maintenance operators. In the daily operation, the SP III's performance satisfied the specifications for all sludge types' average values. On the other hand, their daily operation showed a significant decrease in the treatment capacity than the trial operation. The reason could be the adjustment of the operation to control the treatment capacity.
- The most common problems were early corrosion and blockage of the cleaning nozzle. The most common requests for improvement were improving the maintenance and management of the outer cylinder cover and eliminating the difficulty in adjusting the dewatering operation.

3. Future Schedule

We will continue the follow-up survey on other dewatering devices implemented as dewatering machine to lower moisture content. Based on the improvements found in this study, we will prepare data for technical standardization to promote further introduction in the entrusted projects.

*We sincerely thank the local governments for their cooperation for this study.

Keywords: **Pressurized screw press dewatering device (Type III), Sludge dewatering device to Lower moisture content, Follow-up study**