

Survey study on Neyagawa river drainage basin sewerage disposer system examination

Whole term

2000.4-2002.3

(Purpose)

Since the demand for the disposer is increasing gradually because of the living environment, improvement and the increase of the aging family members, etc., the examination the introduction of the disposer in the future is becoming more important.

The purpose of this research is to examine the influence of basic disposal system (disposal without a treatment facility) upon the river basin sewerage system and to collect and arrange of problem on the plan. Furthermore, The author selected Ryuuge area in Yao city, which is a part of core project for special redevelopment conducted in the sewerage area of Neyagawa River Basin, as the model area.

(Result)

In 2000 fiscal year, the outline of base area maintenance project, solid waste treatment project and the project of sewer system on Ryuuge area was reviewed. Moreover, a basic survey on the type and spreading condition of disposer and the deal of disposer in each local government was carried out.

In 2001 fiscal year, the author assumed that the basic disposer system was introduced in all of service area by Ryuuge wastewater treatment plant, afterward the influence of disposer upon the water treatment facilities and the sludge treatment facilities, the influence of rubbish treatment project, and the increase of load of overflow in order to consider the combined sewer system used as a part of sewerage area, etc were analyzed. After that, the problems of the plan were collected and arranged.

① Although the suspended solid in a sewer increases by basic disposer system, the flow controlled doesn't occur in the conduit. However, the sediment in the conduit tends to increase continuously and frequency conduit cleaning is needed. It is assumed that the cleaning performance (annual cleaning conduit extension to the total conduit extension) is 30% (cleaning is required once in every 3.3 years) when the disposer introduction rate is 100%.

② In case of 100% disposer introduction;

- It is predicted that only phosphorous exceeds 0.1 mg/L above the design effluent quality (BOD 10 mg/L, SS 8 mg/L, T-N 10 mg/L, T-P 1 mg/L) water treatment facilities with disposer introduction rate of 100%
- Since required reaction tank capacity increases 16% by the increasing of the inflow BOD load in the case of 100% of a disposer diffusion rate, the measure such as the addition of the carrier in the nitrification tank is required to reach predetermined A-SRT.
- The rate of increasing of COD load by the basic disposal system is 40% in the case of 100% of a disposal diffusion rate, and the introduction of new treatment systems, such as ozone oxidation or activated-carbon adsorption process is needed to reduce COD.

③ Regarding to the sludge treatment facilities, the amount of generating sludge increases by 22% and each facility of concentration, drying, incineration, and the sludge pneumatic transportation become insufficient to treat in the case of 100% of the disposal introduction rate.

④ Regarding to the rubbish treatment project, the garbage is excluded from the purpose of collection by basic disposal system, and about 35% of combustible trash is reduced in the case of 100% of the introduction rate.

⑤ In the case of 100% of the diffusion rate, overflow load from the storm outfall and primary effluent load increased by 15% and 19% of each compared to the 0% case in Kozakaai Catchment Areas.

After that, when the influence on the overflow load of storm event by SS was analyzed, in the case of 100% of the diffusion rate, overflow load from the storm outfall and primary effluent load increased by 19% and 18% of each compared to the 0% case in the same areas.

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Person in charge of study: Sigeru Miyahara, Sakae Kuribayashi, Etsuo Nikaido
Maremorino Nojiri

Key words

Disposer, Single purpose disposer