Research on utilizing a highly efficient mobile sludge drying facility loaded on a car		
Whole term	1997. 4 ~ 2000.3	

(Purpose)

It was a very urgent task to treat and dispose of sludge effectively in Nanao-Kashima region Ishikawa Prefecture, because there was a rising trend in the maintenance cost that was a part of sludge-treatment-cost. The technology in this research to solve this problem was drying and correcting dewatered sludge using the exhausted gas of gas turbine generators, and to contrive reduction of dewatered sludge and effective use of dried sludge. Also, by mobile loading on a car, it was possible to treat dried sludge in many wastewater treatment plants effectively.

This research conducted from 1984 to 1986, with Nanao City in Ishikawa Prefecture as a co-worker, was a kind of activity on the concept " Utilization of new technology to promote functional advancement in projects" under " The system of new generational projects to support sewerage activities". It aimed at researching and evaluating the drying performance, complex energy efficiency, effective utilization of dried sludge and etc.

(Results)

In this year, the experiments in winter were proceeded using the actual facility last year (400 kg/h) and the experiments in spring, summer, and autumn were followed at the " Western Water Quality Maintenance Center" in Nanao City.

1) Energy and drying efficiency: Safe operation was confirmed by four seasonal experiments using the 400 kg/h-facility except for summer when the characteristic of sludge was not usual. The target of the development was achieved as a drying efficiency of 67 ~ 72% and an energy efficiency including electric power of 53 ~ 55%.

2) Characteristics of dried exhausted gas and drainage: the odor of the exhausted gas was up to the standard of the code for the prevention of odor. Though this facility was not related to the code for the prevention of air pollution, dust, SOx and NOx were all up to the regulations when the kerosene used was below 40 kg/h. The drainage water quality from the scrubber was similar to the inflowing wastewater and there was no impact on the wastewater treatment.

3) Evaluation on the effects of deodorization on dried sludge to which activated carbon is added: Activated carbon deodorized the sludge odor, and an investigation after 1 year, confirmed that the deodorizing power of the activated carbon was effective in long-term point of view.

4) Quality of dried sludge: Ingredients of compost were included in each test and the utilization of dried sludge as fuel is possible.

5) Safety and operation: Safe operation is possible as per the successive continuous operations carried out for 24 hours in every season.

6) Noise and vibration: Both noise and vibration are at low levels and night time operation is possible without any trouble.

7) Operational cost: The operational cost is ￥ 9,000~19,000 without the labor cost for each ton of dried sludge on the basis of 5~16 h/day operation.

8) Summary: It was verified that this facility is high in energy and drying efficiencies, and there is no problem in the quality and maintenance of the exhausted gas. In Nanao City, dried sludge was recognized as a fertilizer and utilized for restoration of green areas and farmlands because it is effective as a fertilizer.

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Keywords	Type of being loaded on a car, Sludge drying, Use of exhausted heat from the generator, Effective use of dried sludge