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Comments on the Engineering Aspect of HATS II

Dear Sir/Madam,

It came to my attention, as indicated in your 'Technical Notes' appended to the 'Public Consultation', that all the engineering trials adopted Biological Aerated Filters (BAF) only. It is my assumption that the tenders chose BAF for the purpose of saving treatment plant site area only. In my opinion, a Sequencing Batch Reactor (SBR) is also a worthwhile or perhaps more practical option. Why?

Saving More Capital Costs

To remove the COD and nutrients in wastewater, a BAF system consists of 3 tanks at least: an anaerobic reactor, an aerobic reactor and a clarifier. To achieve better nutrient removal efficiency, an anoxic reactor is required. In addition to constructing reactors, the routine of cleaning or replacing packing materials is also necessary as the microorganism growth on the materials is evitable. All of these will result in high capital costs. However, in a SBR system one reactor can function as all the reactors without any requirement on packing materials. Thus, the demand on land resource, the construction of reactor and the procurement of packing materials have been significantly reduced.

Offering More Flexible Treatment Capacity

The Government states clearly that in the future the amount of wastewater discharged will vary a lot and at the moment the projection on wastewater generation still keeps unclear. Under such circumstance, the design operation of BAF have to be very careful where packing materials have occupied most of the reactor space and the treatment flexibility is quite limited. In some extreme cases where the wastewater flow rate suddenly increases beyond design scope, BAF will be 'flooded' and cause some operation incidents. By contrast, in a SBR there is no packing material and the water can pass through the reactor smoothly with low probability of 'flooding bed'.

Requiring Less Management

A SBR requires an automated control system to perform all the processes. Once

the system development and operation staff training have been accomplished, the staff can just sit in the control room and the site investigation is not routinely required. However, when a BAF is adopted to treat such great amount of wastewater, the cleaning and replacing packing materials will definitely demand plenty of manpower input.

To achieve the desired wastewater treatment result in a SBR, the automated control system is the key component and must perform very well. As far as I know, in Beijing there is a wastewater treatment plant (named 'Wu Jia Cun') using SBR has attained satisfactory performance. I am confident that in Hong Kong we can also obtain good water quality by means of SBR technology.

Thanks for your consideration.

Sincerely,

Qiang Wu