



DEPARTMENT OF CIVIL ENGINEERING
土木工程系

November 20, 2004

Dr. Sarah S.T. Liao, JP
Secretary for the Environment, Transport and Works
Environment, Transport and Works Bureau
10/F., Citibank Tower
3 Garden Road
Central
Hong Kong

Dear Dr. Liao,

Re: Harbour Area Treatment Scheme (HATS) Stage 2

Further to my letter of October 12, 2004 commenting on the draft record of the Special Meeting of the ACE on HATS Stage 2, September 6, 2004, I would like to further elaborate on one aspect of that discussion.

During the above meeting, Dr. John Wong pointed out that the flushing power of the channel to the east of Tsing Yi was not sufficient, and opined that the outfall at the Stonecutters Island should be lengthened to increase the dilution factor from 30-40 to 100 (paragraph 9 and 15 of draft record of meeting). There are two points relating to this:

1. At the Stonecutters Island site, the water depth above the seabed is very limited, typically less than 10 m. To increase the dilution from 30 to 100 basically entails increasing the length of the 1.2 km long outfall diffuser by 3 times or more. The feasibility and effectiveness of this measure (e.g. against navigation constraints) needs to be carefully examined.
2. To protect the water quality in Hong Kong's coastal waters (e.g. Victoria Harbour or the beaches off the Castle Peak/Tun Mun area), the discharge of huge volumes of CEPT-treated sewage (greater than 20 cubic meters per second) at the present site of limited depth is not a robust option and hence not desirable. The low initial dilution coupled with short travel time to beaches will result in high bacteria counts. Fundamentally, regardless of the degree of wastewater treatment (i.e. CEPT, secondary biological treatment, or tertiary treatment) we need to look at alternative sites with greater depth and longer travel times to the sensitive coastal areas. It is well-recognised that secondary treatment alone is not effective in reducing bacteria counts, and natural mortality in sea water can be very effective in achieving this objective. The successful post-operation experience in Kaoshiung city (Taiwan) that uses primary treatment with a well-designed submarine outfall is an example.

3. In 2000, the International Review Panel (IRP) limited their study to 4 options; apparently full secondary treatment was contemplated and hence the idea at that time seemed to be secondary treatment plus a short outfall. Hence none of the well-studied options covered in the original SSDS study was considered - namely the sites towards the south of East/West Lamma Channel, in waters greater than 20 m, where the prevailing ocean current can naturally assimilate the well-dispersed and treated wastewater. My view is that these options should be included for consideration in the further deliberations. For example, an enhanced CEPT or secondary treated wastewater discharged in the southern waters may be an alternative to disinfection that is both economically and environmentally acceptable.

Yours sincerely,

Joseph Hun-wei Lee
Pro-Vice-Chancellor
Redmond Chair of Civil Engineering

JHWL/cf