

Harbourfront Commission

For discussion
on 21 December 2010

HC/18/2010

Water Quality in Typhoon Shelters

PURPOSE

This paper gives Members an overall view of water quality in typhoon shelters, namely the stormwater and sewage outfalls, and vessel discharge in the typhoon shelters; and updates Members on the progress of the Harbour Area Treatment Scheme (HATS).

STORMWATER AND SEWAGE OUTFALLS INSIDE TYPHOON SHELTERS

2. Hong Kong has separate systems to deal with stormwater and wastewater flows. The stormwater drainage system is planned by the Drainage Services Department (DSD) under the Development Bureau (DEVB) and the foul water sewerage system is planned by the Environmental Protection Department (EPD) under the Environment Bureau (ENB). The drainage system is for flood prevention to safeguard public safety while the sewerage system is for water quality improvement to safeguard public health and environmental protection.

3. Within Victoria Harbour, there are stormwater outfalls inside Causeway Bay Typhoon Shelter, Shaukeiwan Typhoon Shelter, Chai Wan Cargo Handling Basin, Rambler Channel Typhoon Shelter, the typhoon shelter at Tsim Sha Tsui (near China Hong Kong City), New Yau Ma Tei Typhoon Shelter, To Kwa Wan Typhoon Shelter, Kwun Tong Typhoon Shelter and Sam Ka Tsuen Typhoon Shelter.

4. The stormwater outfalls are provided for flood control purposes to discharge collected surface runoff from the upstream catchment areas to the nearest coastal waters. Diverting these outfalls will entail a longer flow path and will unacceptably increase the flood risks of the catchment areas. There are no plans to redirect stormwater outfalls to outside typhoon shelters.

5. All sewage outfalls in Victoria Harbour are located outside typhoon shelters. They will be decommissioned by end 2014 under the HATS Stage 2A under construction.

VESSEL DISCHARGE IN TYPHOON SHELTERS

6. The Merchant Shipping (Prevention of Pollution by Sewage)

Harbourfront Commission

HC/18/2010

Regulation (Cap. 413K) was introduced in 2007 to implement Annex IV of the MARPOL Convention of the International Maritime Organization. Cap. 413K is designed to restrict the discharge of sewage into the sea from Hong Kong registered ships wherever they may be, and other ocean going vessels within the waters of Hong Kong. The regulation applies to:

- (a) ships engaged in international voyages; and
- (b) ships of 400 gross tonnage or above or ships of less than 400 gross tonnage but are certified to carry more than 15 persons.

7. At present, Annex IV requirements only cover ocean going vessels, and do not apply to local vessels during their normal operation within HK waters on the following grounds:

- (a) most of these vessels were less than 400 gross tonnage and carrying not more than 15 persons;
- (b) local vessels had genuine difficulties, particularly for existing vessels, in complying with the Annex IV requirements. The fitting of holding tanks or sewage treatment plants might either be impossible or uneconomical; and
- (c) there are difficulties to collect sewage from these vessels since they are located at different locations far apart and it is impracticable to use a large barge stationed at the typhoon shelters due to the limited space available at the typhoon shelters.

8. Both the New Yau Ma Tei and Causeway Bay Typhoon Shelters are mainly designed for use by local vessels and they are usually less than 400 gross tonnage and only carry around one or two persons, and Cap. 413K would not apply. Apart from small vessels, there are 2 and 4 stationary vessels in the New Yau Ma Tei and Causeway Bay Typhoon Shelters respectively, and they carry a total of 35 persons on board. Since the residing and working population of the vessels moored at these typhoon shelters is small, the amount of sewage generated by local vessels is relatively insignificant as compared with the total sewage generated in the territory.

9. Notwithstanding that Cap. 413K does not govern local vessels, certain types of local vessels are subject to the control of wastewater discharge by other local legislation. These include the floating restaurants (e.g. Jumbo) which are required by EPD to be fitted with wastewater treatment system in accordance with the Water Pollution Control Ordinance (Cap. 358), and those ferry vessels operated as harbour cruise restaurants which are required by the Food and Environmental Hygiene Department to be fitted with wastewater holding tanks under the Food Business Regulation (Cap. 132X).

IMPROVING WATER QUALITY IN VICTORIA HARBOUR - HATS

10. The HATS Stage 1 was commissioned in December 2001, and has since been providing chemically enhanced primary treatment, at the Stonecutters Island Sewage Treatment Works (SCISTW), of some 1.4 million cubic metres of sewage collected from urban Kowloon, Tseung Kwan O, Kwai Tsing and the northeastern part of Hong Kong Island. The HATS Stage 1 currently serves a population of about 3.5 million, and since its commissioning, the water quality of Victoria Harbour has improved significantly; for example, the dissolved oxygen in the harbour waters has increased by about 10% and the levels of key pollutants in the harbour area waters have generally decreased.

11. The marine water quality monitoring programme of EPD covers various physical and chemical parameters and, based on the monthly monitoring results of the key parameters covering dissolved oxygen, ammonia nitrogen, inorganic nitrogen and E. coli (where applicable), the overall marine water quality objectives are complied with. The monitoring results over the past three years (2007-2009) show a continuous improvement in marine water quality. The compliance rate of marine water quality for 2009 exceeds 90%, comparing favorably with the 2008 figure.

12. In March 2010, DSD commissioned the advance disinfection facilities (ADF) at SCISTW under HATS Stage 2A to remove at least 99% of the E.coli in the treated effluent. Upon the commissioning of the ADF, the E. coli level in marine water on the western side of Victoria Harbour fell by 60%, and the water quality of the Tsuen Wan beaches also showed substantial improvement.

13. DSD is now working on HATS Stage 2A, which aims to collect and treat the remaining 25% (approximately 450 000 cubic metres) of sewage generated from the northern and southwestern shores of Hong Kong Island. Construction works are now in progress and are targeted for completion in end 2014. When Stage 2A is commissioned, it is expected that the water quality of Victoria Harbour would be further improved.

14. EPD commissioned a consultancy study in June 2010 on the planned secondary sewage treatment works under HATS Stage 2B, including the review on the water quality, population projection, sewage flow and load. The study will put forward recommendations on the planning, funding arrangements, design and construction for HATS Stage 2B. The Government will make reference to the study findings in drawing up the schedule for the implementation of HATS Stage 2B.

Harbourfront Commission

HC/18/2010

CONCLUSION

15. Members are requested to note the content of this paper.

**Drainage Services Department
Environmental Protection Department
Marine Department**

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