

Appendix 6.1A

Marine Water Baseline
Conditions near Proposed Kwai
Chung Barging Point

Marine Water Baseline Conditions near Proposed Kwai Chung Barging Point

Proposed Kwai Chung Barging Point falls within Victoria Harbour Water Control Zone (WCZ). Therefore, legislations and criteria presented in Section 6.3 of the Report are still valid for the Barging Point to follow. Moreover, There are two EPD marine water monitoring stations near Kwai Chung Barging Point, i.e. VM12 and VM14 in Rambler Channel (as shown in the below figure). The below table summarizes the latest marine water quality recorded in these two monitoring stations in 2011.

Water quality of VM12 and VM14 monitoring stations in 2011

Parameters		VM12	VM14
Temperature (°C)		23.1 (15.3 - 26.5)	23.7 (15.4 - 28.6)
Salinity		31.7 (30.2 - 32.8)	30.0 (23.9 - 32.8)
Dissolved Oxygen (mg/L)	Depth Average	5.2 (3.0 - 6.6)	5.9 (3.2 - 8.4)
	Bottom	5.0 (2.9 - 6.6)	5.9 (3.2 - 8.4)
Dissolved Oxygen (% Saturation)	Depth Average	72 (42 - 85)	83 (46 - 126)
	Bottom	69 (42 - 82)	80 (40 - 122)
pH		7.8 (7.5 - 8.1)	7.9 (7.6 - 8.3)
Secchi Disc Depth (m)		2.1 (1.6 - 2.9)	2.1 (1.6 - 3.0)
Turbidity (NTU)		13.3 (3.8 - 40.4)	4.3 (2.1 - 10.1)
Suspended Solids (mg/L)		16.4 (5.4 - 47.6)	6.2 (2.2 - 15.7)
5-day Biochemical Oxygen Demand (mg/L)		0.9 (0.4 - 2.0)	1.1 (0.5 - 2.4)
Ammonia Nitrogen (mg/L)		0.176 (0.059 - 0.307)	0.126 (0.039 - 0.290)
Unionised Ammonia (mg/L)		0.004 (0.002 - 0.008)	0.004 (0.001 - 0.006)
Nitrite Nitrogen (mg/L)		0.050 (0.012 - 0.120)	0.075 (0.013 - 0.160)
Nitrate Nitrogen (mg/L)		0.205 (0.117 - 0.423)	0.286 (0.120 - 0.773)
Total Inorganic Nitrogen (mg/L)		0.43 (0.30 - 0.67)	0.49 (0.29 - 1.00)
Total Kjeldahl Nitrogen (mg/L)		0.32 (0.18 - 0.53)	0.27 (0.14 - 0.40)
Total Nitrogen (mg/L)		0.57 (0.42 - 0.79)	0.63 (0.37 - 1.29)
Orthophosphate Phosphorus (mg/L)		0.027 (0.008 - 0.042)	0.024 (0.003 - 0.038)

Parameters	VM12	VM14
Total Phosphorus (mg/L)	0.05 (0.03 - 0.09)	0.04 (0.03 - 0.06)
Silica (as SiO ₂) (mg/L)	1.13 (0.36 - 2.03)	1.32 (0.30 - 3.40)
Chlorophyll-a (µg/L)	2.1 (0.2 - 10.5)	4.0 (0.4 - 21.0)
<i>E.coli</i> (count/100mL)	210 (91 - 520)	170 (7 - 3700)
Faecal Coliforms (count/100mL)	570 (170 - 2200)	400 (26 - 9300)

VM12

The bottom DO and UIA levels of VM12 are well complied with the WQO in 2011. However, around 83% of samples on depth-averaged DO were above 4 mg/L, failing to meet the depth-averaged DO criterion of WQO (which requires >90% of samples above 4 mg/L) and the level of TIN were 0.43 mg/L exceeded the TIN WQO criterion of 0.4 mg/L.

VM14

The bottom DO and UIA levels of VM14 are well complied with the WQO in 2011. Around 92% Monitoring parameters like DO and UIA at VM14 monitoring station were all well within the respective WQO criteria except the concentration of annual mean depth-averaged TIN which was 0.49 mg/L, exceeding the TIN WQO criterion of 0.4 mg/L.

Overall

In general, TIN is the major pollutant parameters for VM12 and VM14, whereas marginally exceedance of depth averaged DO occurred at VM12 only. For the entire Victoria Harbour WCZ, the overall WQO compliance rate in 2011 was only 50% compared with 76.7% in 2010, mainly due to the exceedances of DO and TIN objectives in the WCZ at some monitoring stations. The higher non-compliance rate of TIN at Victoria Harbour WCZ in 2011 could be due to high background TIN level under the influence of Pearl River discharge, the year-to-year normal range of fluctuation of the discharge from the Tolo Harbour Effluent Export Scheme and surface runoff, as well as the gradual increase in effluent from preliminary treatment plants located between North Point and Central.

Locations of proposed Kwai Chung Barging Point and marine water monitoring stations - VM12 and VM14

