

本署檔案
OUR REF: EP60/L1/09 Annex 04
來函檔案
YOUR REF:
電話
TEL NO.: 2835 1608
傳真
FAX NO.: 2305 0453
電郵
E-MAIL:
網址
HOMEPAGE: <http://www.epd.gov.hk>

Environmental Protection Department
Environmental Compliance Division
Territorial Control Office
28/F, Southorn Centre
130 Hennessy Road
Wan Chai, Hong Kong



CB(1)89/13-14(01)

環境保護署
環保法規管理科
總區辦事處
香港灣仔
軒尼詩道一百三十號
修頓中心廿八樓

15 October, 2013

Clerk to Panel on Environmental Affairs
Legislative Council Secretariat
Legislative Council Complex
1 Legislative Council Road, Central
Hong Kong

(Att: Ms. Miranda Hon)

Dear Ms. Hon,

Panel on Environmental Affairs
Follow-up to meeting on 14 June 2013
Supplementary information pertaining to item CB(1)1269/12-13(03)

In discussing the paper CB(1)1269/12-13(03) on “Controlling the impact of dumping and dredging activities on the marine environment” at the meeting of the Panel on Environmental Affairs on 14 June 2013, the Administration was requested to provide the following information:

- (a) a map showing the locations of monitoring stations and coverage of the East of Sha Chau facility and the North Western Water Control Zone (NWWCZ);
- (b) explanation on the parameters used in assessing the compliance rates with Water Quality Objectives (WQOs) of the NWWCZ, the reasons for the decline in the compliance rates, and the measures to improve the situation; and
- (c) information on the acceptable levels under the Environmental Impact Assessment process.

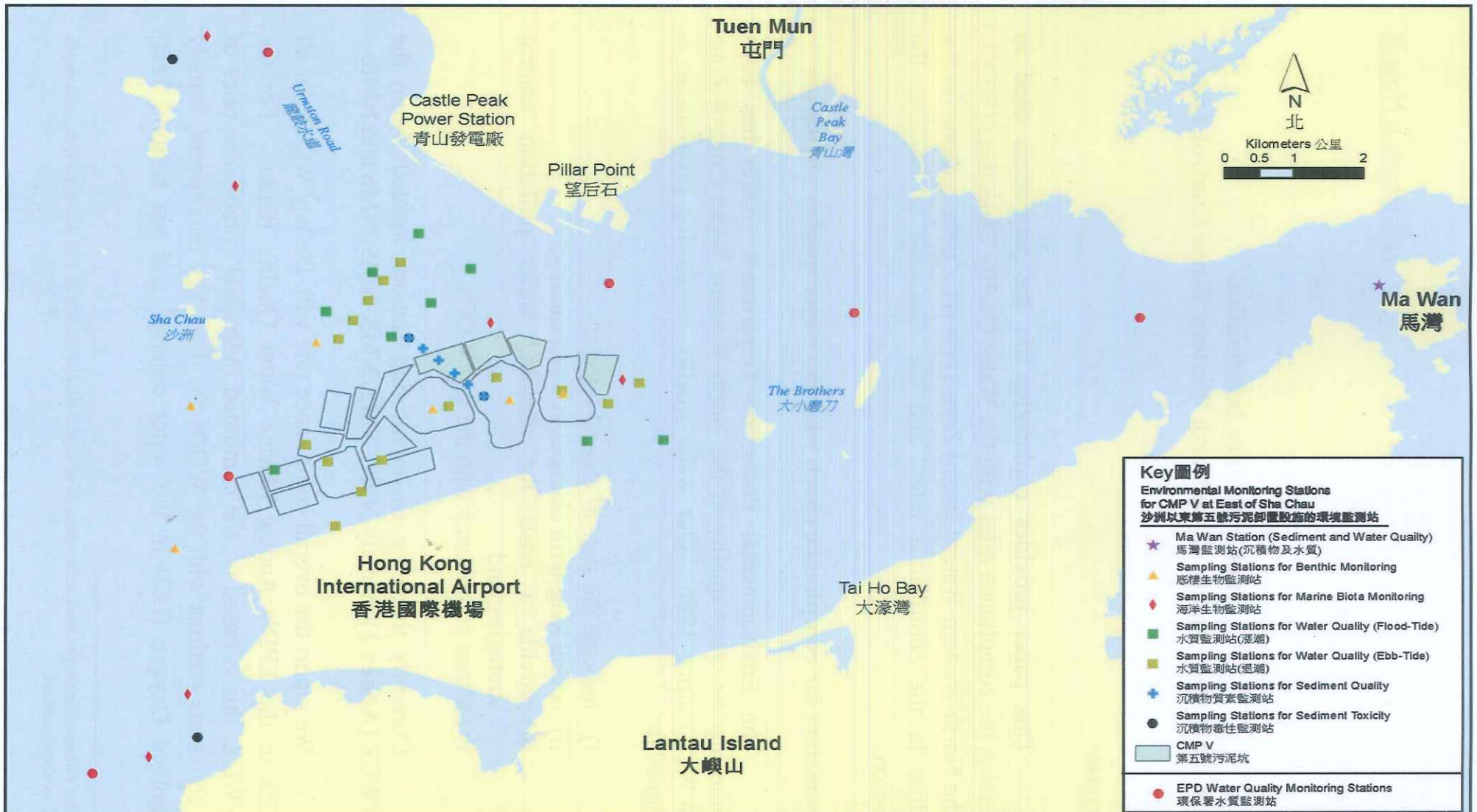
We provide our responses in the Information Notes A, B and C attached.

Yours sincerely,

A handwritten signature in cursive script, appearing to read 'S. C. C. Tsang'.

(Sam C. C. TSANG)
for Director of Environmental Protection

c.c. CEDD (Attn.: Mr. Peter MOK) (Fax: 3107 1304)



Environmental Monitoring Stations for Contaminated Mud Pit V at East of Sha Chau and Water Quality Monitoring Stations in North Western Water Control Zone
 沙洲以東第五號污泥卸置設施的環境監測站及位於西北部水質管制區內的水質監測站

**Supplementary Information
on the Water Quality of the North Western Water Control Zone**

Purpose

This paper provides explanation on the parameters used in assessing the compliance rates with the Water Quality Objectives (WQOs) of the North Western Water Control Zone (NWWCZ), the reasons for the decline in the compliance rates, and the measures to improve the situation.

Parameters for compliance check with the water quality objectives

The Environmental Protection Department (EPD) has been monitoring the water quality of the North Western Water Control Zone (NWWCZ) since 1986. Our water quality monitoring programme is designed to:

- i) indicate the state of coastal waters;
- ii) reveal long-term changes in water quality;
- iii) provide a basis for planning water pollution control strategies; and
- iv) assess compliance with the key WQOs.

Currently there are six monitoring stations located within the NWWCZ (**Annex 1**), namely NM1, NM2, NM3, NM5, NM6 and NM8.

We report the overall compliance rate with the key WQOs for all WCZs in the EPD's Annual Marine Water Quality Report. For the NWWCZ, this is based on the combined individual compliance rates of the above six stations with the WQOs for three key parameters, namely Dissolved Oxygen (DO) in the water column¹ and sea bottom, Total

¹ Water column means the arithmetic mean of at least 3 measurements at 1 m below surface, mid-depth and 1 m above seabed.

Inorganic Nitrogen (TIN) in the water column, and Unionised Ammonia (NH₃) in the water column. The three parameters, applicable to marine waters in most WCZs, are selected because of their relevance to the general health and well-being of the marine ecosystem. For example, oxygen is needed in the water for respiration and healthy growth of all marine lives; inorganic nitrogen is an essential nutrient in marine water to support growth but at the same time can lead to red tide formation if it is present in excessive amount; and a high level of unionized ammonia in water is harmful to marine organisms.

Reasons for the decline in compliance rates

The overall WQO compliance rates in the NWWCZ ranged between 61% and 94% from 2002 to 2012, and were 72% in both 2011 and 2012. In 2012, all six stations in the NWWCZ fully complied with the WQOs for DO and NH₃. However, the compliance rate with the TIN WQO was just 17%, since the water column average TIN level at only one of the six stations met the WQO of 0.5 milligram per litre (mg/l), while at the remaining five stations it ranged between 0.56 to 0.85 mg/l. It is observed that the decline in the overall WQO compliance rate of the NWWCZ over the last three years (from 2010 to 2012) was mainly because of a drop in the compliance rate with the TIN WQO. Nevertheless, despite non-compliance with the TIN WQO in the NWWCZ, the number of annual red tide occurrence in the area remains low with less than four cases reported annually during the same ten-year period.

Parameter	Compliance rate (%) in Year										
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
NH ₃	100	100	100	100	100	100	100	100	100	100	100
DO	67	67	83	100	100	50	67	100	100	83	100
TIN	83	67	83	67	67	67	17	83	33	33	17
Overall	83	78	89	89	89	72	61	94	78	72	72

In some years, the effect of the amount of rainfall during a particular year on the levels of TIN is more significant. For example, the lowest TIN compliance rate of 17% observed in 2008 and the highest

83% in 2009 were both related to the amount of rainfall recorded in the region during the year².

Improvement measures

Generally speaking, non-compliance with the TIN WQO is mainly associated with local discharge from North West New Territories and northern Lantau, and the relatively higher background TIN level of the discharge from the Pearl River flow. To reduce the pollution load, several projects have been implemented or are planned to improve the sewage infrastructure. These include our on-going efforts in extending the public sewerage network to North West New Territories such as public sewers to villages in Tuen Mun and Yuen Long, and the planned upgrading of the Pillar Point Sewage Treatment Works (STW) and San Wai Preliminary Treatment Works to chemically enhanced primary treatment.

Hong Kong is situated at the mouth of Pearl River sharing the coastal marine waters with Guangdong. We are working closely with Guangdong to address cross-boundary water quality management issues of adjoining waters through the Pearl River Delta Water Quality Protection Special Panel under the Hong Kong-Guangdong Joint Working Group on Sustainable Development and Environmental Protection. We have collaborated with our Guangdong counterparts to study the pollution load carrying capacity of the Pearl River Estuary under different water quality targets, and we will continue our joint efforts to reduce pollution loading to the Pearl River Estuary.

² Higher rainfall will result in a greater amount of surface runoff from land and discharge from Pearl River and will increase nutrient, including TIN, input to the marine water of the NWWCZ. 2008 was a wet year, and according to the Hong Kong Observatory (HKO), June 2008 had a monthly rainfall volume of 1346.1mm which was the highest since record began in 1884. This could explain the higher TIN levels in the water column resulting in lower compliance rate with the WQO. On the other hand, 2009 was drier than usual and the annual rainfall volume recorded by HKO was 8% less than normal, and hence there was less surface runoff resulting in lower TIN levels and higher compliance rate with the WQO.

Map showing the marine water monitoring stations, and the outfalls of the three sewage treatment works (STWs) in the NWWCZ



Information Note C

Information on the acceptable levels under the EIA process

The Technical Memorandum on Environmental Impact Assessment Process (TM-EIA) issued under the Environmental Impact Assessment Ordinance (Cap. 499) sets out, *inter alia*, the principles and criteria for evaluation and assessment of environmental impacts. In evaluating water quality impact, Annex 6 of the TM-EIA stipulates that the Water Quality Objectives (WQOs) established for each water control zone under the Water Pollution Control Ordinance (Cap. 358) shall be considered. For dredging works in the north western part of Hong Kong waters, the WQOs of the North Western Water Control Zone (Cap. 358X) will be applied for the assessment of acceptability of water quality impact. In terms of dissolved oxygen, the concentration in the water column shall not be less than 4 mg/l for 90% of samples and the concentration within 2 m of the sea bed shall not be less than 2 mg/l for 90% of samples during the whole year. For suspended solids, waste discharge shall neither raise the natural ambient level by more than 30%, nor cause accumulation of suspended solids which may adversely affect aquatic communities.

Environmental Protection Department
October 2013