

Port Operations Committee

**Prohibition of Washwater Discharge from Exhaust Gas Cleaning  
Systems of Vessels within Hong Kong Waters**

This paper seeks members' views on Environmental Protection Department (EPD)'s proposed prohibition of washwater discharge from Exhaust Gas Cleaning Systems of vessels within Hong Kong Waters. For details, please see the self-explanatory paper prepared by EPD at **Annex**.

2. Members are invited to submit your comments on the above proposal, if any, on or before 18 January 2021.

Marine Department

4 January 2021

**Prohibition of Washwater Discharge from Exhaust Gas Cleaning Systems of Vessels within Hong Kong Waters**

**1. Purpose**

1.1 This paper is to brief and seek Members' views on the proposed prohibition of washwater discharge from exhaust gas cleaning systems (EGCSs) of vessels operating within Hong Kong waters.

**2. Background**

2.1 Since 1 January 2019, all vessels are required to use compliant fuel<sup>1</sup> in the waters of Hong Kong under the Air Pollution Control (Fuel for Vessels) Regulation (Cap. 311AB).

2.2 Under Section 7 of the Cap. 311AB, a vessel that uses technology (e.g. EGCSs, also known as scrubbers) which can achieve the same or less emission of sulphur dioxide (SO<sub>2</sub>) as compared with the use of low-sulphur marine fuel may apply to the Environmental Protection Department (EPD) for an exemption<sup>2</sup> from using compliant fuel. An exemption is subject to conditions which the vessel shall comply with when operating in the waters of Hong Kong.

2.3 EGCSs are emission abatement devices to treat exhaust gas of engines and boilers with seawater or a mixture of seawater and additives, to remove SO<sub>2</sub> and particulate matter (PM) from the exhaust. After passing through an EGCS, the treated exhaust gas is released to the atmosphere and the washwater is either discharged into the sea or retreated and reused in the EGCS, which is dependent on the operation mode of the EGCS. Generally, there are three operation modes of EGCSs.

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<sup>1</sup> "Compliant fuel" means (a) low sulphur marine fuel with sulphur content not exceeding 0.5%; (b) liquefied natural gas; or (c) any other fuel approved by the Authority.

<sup>2</sup> For the application for granting an exemption, it shall be made at least 14 days before the date on which the first exempted stay period to which the application relates is intended to commence.

- (a) **Open-loop mode:** Using seawater as an alkaline medium for washing the exhaust and the washwater would be discharged overboard.
- (b) **Closed-loop mode:** Using seawater with sodium hydroxide to clean the exhaust, and the washwater will be treated onboard and circulated into the scrubbing process.
- (c) **Hybrid mode:** Both open-loop and closed-loop mode are readily available.

### 3. Impacts of Washwater from EGCSs on Marine Environment

3.1 The washwater discharged from the open-loop and hybrid mode of EGCSs contains pollutants including, in particular, polyaromatic hydrocarbons (PAHs) and heavy metals (e.g. vanadium, zinc, cadmium, lead and nickel) which are toxic to aquatic life and humans. Other impacts of the washwater include acidification, increase in turbidity and water temperature and eutrophication.

3.2 Hong Kong waters has an area of only about 1,650 km<sup>2</sup> and contains mostly relatively shallow nearshore or coastal waters including a significant number of semi-enclosed bays and coastal areas. Unlike the conditions of open waters, the marine environment of Hong Kong is subject to fairly limited oceanic dilution and flushing. Various ecological sensitive sites or other sensitive uses are congested within the limited areas of our coastal waters and some are located relatively close to navigation channels.

3.3 On the other hand, Hong Kong is one of the busiest container ports in the world, handling around 18 million twenty-foot equivalent units of containers (TEUs) in 2019. There is also an increasing use of EGCSs in the shipping trade to comply with the International Maritime Organization (IMO) 2020 Sulphur Cap. The washwater discharge from EGCSs could result in an accumulation of toxic and persistent pollutants (in particular PAHs and heavy metals) as well as an increased risk of acidification and eutrophication in the waters of Hong Kong.

#### **4. International Ban on Washwater Discharge**

4.1 To avoid the transfer of pollution problems from air to water relating to the use of EGCSs, a number of regions have banned the washwater discharge from EGCSs.

4.2 For instance, since 1 January 2019, the China Maritime Safety Administration prohibited the washwater discharge in its inland river domestic emission control areas (“DECAs”), port areas of coastal DECA<sup>3</sup> and Bohai Sea waters. The ban was further extended to cover both coastal and inland emission control areas since 1 January 2020 under the Mainland’s implementation plan of the IMO 2020 Sulphur Cap issued by the Ministry of Transport.

4.3 Other regions which have banned the washwater discharge from EGCSs include California of United States, Bahrain, Malaysia, Pakistan and Singapore in Asia and Belgium, Germany, Ireland, Latvia, Lithuania and Norway in Europe.

#### **5. Proposed Prohibition of Washwater Discharge from EGCSs into Hong Kong Waters**

5.1 Pursuant to the granting of an exemption under Section 7 of the Cap. 311AB, EPD proposes to impose the following conditions to prohibit the discharge of washwater from EGCSs:

- (a) Discharge of washwater from open-loop EGCSs within Hong Kong waters is prohibited.
- (b) For hybrid EGCSs, they must be operated in the closed-loop mode and no washwater shall be discharged from the EGCSs into the waters of Hong Kong.
- (c) In the case where washwater is found discharging from an EGCS, the exemption from using compliant fuel will be revoked and the vessel will have to switch back to use compliant fuel.

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<sup>3</sup> The coastal domestic emission control area covers all sea areas within 12 nautical miles of Mainland territorial sea.

**6. Advice Sought**

6.1 Members are invited to note and comment on the proposed prohibition of washwater discharge from EGCSs within Hong Kong waters as described in Section 5 above. Should you have any enquiry, please contact Mr. Ivan Shek, Acting Senior Environmental Protection Officer (Air Policy) of EPD at 2594 6236.

**Environmental Protection Department**

**January 2021**