Form: RWPRR401-B

# CCS Circular

China Classification Society
(2011) Circ.No.89 Total No.153
December 19, 2011 (Total pages 10 )

To: relevant departments of CCS Headquarters, CCS plan approval centers, surveyors of CCS branches (offices), shipyards, design units, ship owners and ship management companies

## Notice for Information on US Regulations for Ship's Ballast Water Discharges

The conditions of entry into force of the International Convention for the Control and Management of Ship's Ballast Water and Sediments, 2004 (hereinafter referred to as "BWM Convention") have not yet been met, however, many countries in the world have already implemented control on ship's ballast water discharges in advance through legislation to protect their water environment. Most countries have adopted the measures of controlling the exchange of ship's ballast water and require all ships entering their ports to carry the approved Ballast Water Management Plan. Some countries' standards are even more stringent than the existing IMO standard. Take the United States as an example. The United States Coast Guard (USCG), the State of New York and the State of California have each developed their own regulations for ballast water discharges, of which some discharge indicators are 100 times, even 1,000 times, more stringent than the provisions of Regulation D-2 of BWM Convention (hereinafter referred to as "IMO Standard"). Once these regulations enter into force, they will have great impact on ships navigating in or entering the waters specified by these regulations for operation. For this purpose, relevant information on major US Regulations for Ship's Ballast Water Discharges is notified below and relevant units are invited to pay high attention to this Notice.

### 1 Major US Regulations for Ship's Ballast Water Discharges

#### 1.1 Major US Standards for Ship's Ballast Water Discharges and their Implementation Schedules

The US standards for ballast water discharges are no doubt the most stringent ones in the world. Compared with the IMO standard, certain indicators of the US standards are 100 or 1,000 times more stringent than those of the IMO standard, some of which require almost zero living organisms for the water discharged. Moreover, their implementation schedules are not subject to the effectiveness of IMO BWM Convention.

Below are the detailed comparisons of three US standards for ballast water discharges currently developed (USCG Standard, California Standard and New York Standard) with the IMO Standard as well as of their respective implementation schedules.

Table 1.1(1): The IMO Standard and Major US Standards for Ballast Water Discharges

| Living Organisms | IMO Standard | California Standard | | New York Standard | | USCG Phase-1 Standard | USCG Phase-2 Standard |
|---|---|---|---|---|---|---|---|
| | | 2010 (Interim Standard) | 2020 | 2012 | 2013 | 2012 | 2016 |
| | | New ships | All ships* | All ships | New ships | New ships | New ships |
| >50μm | <10/$m^3$ | 0* | 0 | <0.1/$m^3$ | 0 | <10/$m^3$ | <0.01/$m^3$ |
| 50μm /$m^3$ | <10/$m^3$ | 0 | 0 | <0.1/$m^3$ | 0 | <10/ml | <0.01/ml |
| 10μm<organisms<50 μm | <10 /ml | <0.01/ml | 0 | <0.1/ml | <0.01/ml | <10/ml | <0.01/ml |
| 10μm | <10/ml | <0.01/ml | 0 | <0.1/ml | <0.01/ml | N/A | < $10^3$ bacteria/100ml; <$10^4$ virus/100ml |
| <10μm | N/A* | < $10^3$ bacteria/100ml; <$10^4$ virus/100ml | 0 | N/A | N/A | N/A | < $10^3$ bacteria/100ml; <$10^4$ virus/100ml |
| Toxicogenic Vibrio cholerae (01,0139) | <1cfu/100ml or <1cfu/g zooplankton samples (wet weight) | <1cfu/100ml or <1cfu/g zooplankton samples (wet weight) | 0 | <1cfu/100ml | <1cfu/100ml | <1cfu/100m | <1cfu/100ml |
| Escherichia coli | <250cfu/100ml | <126cfu/100ml | 0 | <126cfu/100ml | <126cfu/100ml | <250cfu/100ml | <126cfu/100ml |
| Intestinal Enterococci | <100cfu/100ml | <33cfu/100ml | 0 | <33cfu/100ml | <33cfu/100ml | <100cfu/100ml | <33cfu/100ml |
| Bacteria | N/A | N/A | N/A | N/A | < $10^3$ bacteria/100ml | N/A | N/A |
| Virus | N/A | N/A | N/A | N/A | <$10^4$ virus/100ml | N/A | N/A |

*Notes: "0" means zero detectable living organisms.

"N/A" means not applicable or no requirements.

"All ships" means new ships and existing ships.

Table 1.1 (2): Implementation Schedules of the IMO Standard and Major US Standards for Ballast Water Discharges

<table>
<tr><th>Standard</th><th>Ballast Water Capacity ($m^3$)</th><th>Date of Construction or Keel Laying</th><th>2009</th><th>2010</th><th>2011</th><th>2012</th><th>2013</th><th>2014</th><th>2015</th><th>2016</th><th>2017</th><th>2018</th><th>2019</th><th>2020</th></tr>
<tr><td rowspan="6">IMO(D-2)</td><td>1500 ⩽ BW ⩽ 5000</td><td rowspan="2">C* < 2009</td><td></td><td></td><td></td><td></td><td></td><td colspan="6">Not later than the first intermediate or renewal survey, whichever occurs first, after the anniversary date of delivery of the ship in 2014.</td></tr>
<tr><td>BW < 1500 or > 5000</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td colspan="5">Start implementation.</td></tr>
<tr><td>BW < 5000</td><td>C ⩾ 2009</td><td colspan="13">On the second annual survey of the ship, but not later than 31 December 2011.</td></tr>
<tr><td>BW ⩾ 5000</td><td>2009 ⩽ C < 2012</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td colspan="5">Not later than the first intermediate or renewal survey, whichever occurs first, after the anniversary date of delivery of the ship in 2016</td></tr>
<tr><td>BW ⩾ 5000</td><td>C ⩾ 2012</td><td></td><td></td><td></td><td colspan="11">Start implementation.</td></tr>
<tr><td rowspan="2">New York</td><td rowspan="2">All</td><td>All ships</td><td></td><td></td><td></td><td colspan="11">Start implementation.</td></tr>
<tr><td>New ships C ⩾ 1 January 2013</td><td colspan="5"></td><td colspan="9">Start implementation.</td></tr>
<tr><td rowspan="2">California</td><td rowspan="2">BW* < 1500</td><td>K/L* ⩾ 1 January 2010</td><td></td><td colspan="12">Start implementation.</td></tr>
<tr><td>K/L < 1 January 2010</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td colspan="5">Start implementation.</td></tr>
</table>

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1500 ≤ BW ≤ 5000 | K/L ≥ 1 January 2010 | | Start implementation. | | | | | | |
| | | K/L < 1 January 2010 | | | | | | Start implementation. | | |
| | BW > 5000 | K/L ≥ 1 January 2012 | | | | Start implementation. | | | | |
| | | K/L < 1 January 2012 | | | | | | | | Start implementation. |
| **USCG (Phase-1)** | All | New ships C ≥ 1 January 2012 | | | | On delivery of a new ship. | | | | |
| | BW < 1500 | Existing ships < 1 January 2012 | | | | | | | | At the first dry-docking after 1 January 2016. |
| | 1500 ≤ BW ≤ 5000 | Existing ships < 1 January 2012 | | | | | | At the first dry-docking after 1 January 2014. | | |
| | BW > 5000 | Existing ships < 1 January 2012 | | | | | | | | At the first dry-docking after 1 January 2016. |
| **USCG (Phase-2)** | All | New ships C ≥ 1 January 2016 | | | | | | | | On delivery of a new ship. |
| | All | Existing ships ≤ 1 January 2016 | | | | | | | | At the first dry-docking after 1 January 2016 or 5 years after the ballast water treatment system in compliance with Phase-1 Standard is installed. |

*Notes: BW (Ballast Water) means the ballast water capacity;
K/L (Keel Laying) means the date of keel laying;
C (Construction) means the date of construction.

## 2 Implementation Requirements of the existing major US Regulations for Ship's Ballast Water Discharges

### 2.1 Implementation Requirements of New York Regulations for Ship's Ballast Water Discharges

**(1) Application:**

New York regulations for ship's ballast water discharges apply to all ships that enter New York for operation and that are subject to Vessel General Permit (VGP), except ships:

① operate exclusively within waters of New York Harbor and Long Island Sound; or

② carry only permanent ballast water.

**(2) Implementation Requirements:**

New York standard for ship's ballast water discharges is 100 times, sometimes even 1,000 times, more stringent than the IMO Standard. Its implementation requirements vary with a ship's date of construction and regard ships constructed on or after 1 January 2013 as new ships, to which even more stringent discharge standard is applied.

Specifically, the implementation requirements are as follows:

① all ships: Each ship that is covered under the US Environmental Protection Agency (EPA) VGP, if intended to operate in New York waters, is to be fitted with a ballast water treatment system in compliance with New York requirements, which is 100 times more stringent than the IMO standard, for ballast water discharges before 1 January 2012. Given the time and technology constraints faced by existing ships, New York permits the deadline for installation of ballast water treatment systems on such ships to be extended to midnight 1 August 2013.

② new ships: Each ship constructed on or after 1 January 2013 that is covered under the VGP, if intended to operate in New York waters, is to be fitted with a ballast water treatment system in compliance with New York more stringent standard, which is 1,000 times more stringent than the IMO standard.

As the existing water ballast treatment systems and technology cannot meet a standard that is 1,000 times more stringent than the IMO standard, New York decides to accept applications of ship owners or operators for extension of installation of ballast water treatment systems.

**(3) Application for Extension:**

For each ship constructed on or after 1 January 2013 and intended to operate in New York waters, if it cannot meet New York standard for ballast water discharges, the owner or operator is to submit application for extension to New York Department of Environment Conservation(DEC) not later than 30 September 2011. The application is to give reasons why the ship cannot meet the requirements and specify the deadline for the ship to be compliant.

Ship owners or operators who have not submitted application for extension by 30 September 2011 are to submit the application as soon as possible, even though the deadline for application has passed.

Notes: For all information on VGP, including the details of New York standard for ballast water, please visit the following website:

http://www.epa.gov/npdes/pubs/vessel_vgp_permit.pdf.

### 2.2 Implementation Requirements of California Regulations for Ship's Ballast Water Discharges

**(1) Application:**

California regulations for ship's ballast water discharges apply to all ships of 300 gross tonnage and above, fitted with ballast water tanks and entering California coastal waters from waters other than California coastal waters, except:

① ships of the Armed Forces;

② ships in innocent passage.

**(2) Implementation Requirements:**

California standard for ballast water discharges is currently the most stringent one in the United States. It is implemented primarily in two phases. Phase 1 is the interim standard for ballast water discharges, the implementation requirements of which are directly connected with a ship's date of construction and ballast tank capacity. Phase 2 is the final standard, requiring uniform implementation of all ships so that ballast water discharged will contain zero detectable living organisms.

Specifically, the implementation requirements are as follows:

① for ships constructed on or after 1 January 2010 with ballast tank capacity not more than 5000 $m^3$, the implementation date required is 1 January 2010, so such ships are to be fitted with a ballast water treatment system compliant with California interim standard before delivery;

② for ships constructed on or after 1 January 2012 with ballast tank capacity more than 5000 $m^3$, the implementation date required is 1 January 2012, so such ships are to be fitted with a ballast water treatment system compliant with California interim standard before delivery;

③ ships constructed before 1 January 2010 with ballast tank capacity more than 1500 $m^3$ but not more than 5000 $m^3$ are to be fitted with a ballast water treatment system compliant with California interim standard by 1 January 2014;

④ ships constructed before 1 January 2010 with ballast tank capacity not more than 1500 $m^3$, or ships constructed before 1 January 2012 with ballast tank capacity more than 5000 $m^3$ are to be fitted with a ballast water treatment system compliant with California interim standard by 1 January 2016;

⑤ all ships are to be fitted with a ballast water treatment system compliant with California final standard by 1 January 2020.

Notes: For relevant requirements of California regulations for ballast water discharges, please refer to California Code of Regulations through the link below:
http://ccr.oal.ca.gov/linkedslice/default.asp?SP=CCR-1000&Action=Welcome
And also California Coastline Ecological System Protection Bill (SB497), available on:
http://www.slc.ca.gov/spec_pub/mfd/ballast_water/Documents/SB_497.pdf.

### 2.3 Implementation Requirements of USCG Regulations for Ship's Ballast Water Discharges

**(1) Application:**

USCG regulations for ship's ballast water discharges apply to all ships operating in the US waters and fitted with ballast water tanks, unless they are in innocent passage, except:

① crude oil tankers engaged in coastwise trade;

② ships of the US Armed Forces;

③ ships operating exclusively within one Captain of the Port Zone, due to the short nature of these voyages.

innocent passage: A foreign vessel merely traversing the territorial sea of the U.S. (i.e., not bound

for, entering or departing a U.S. port, or not navigating the internal waters of the U.S.) does not fall within the applicability of this subpart.

**(2) Implementation Requirements:**

USCG phase-1 performance standard for ballast water discharges is consistent with the IMO standard except for its implementation schedule, which is relatively ahead of that of the IMO standard. Moreover, its implementation schedule will be executed by USCG in accordance with the Table above and is not subject to the effectiveness of IMO BWM Convention.

Specifically, the implementation requirements are as follows:

① ships constructed before 1 January 2012 are to be fitted with a ballast water treatment system by the date specified in "Phase-1" of Table 1.1(2).

② ships constructed on or after 1 January 2012 but before 1 January 2015, if fitted with a ballast water treatment system compliant with phase-1 regulations, are to be fitted with a ballast water treatment system compliant with phase-2 regulations within 5 years of the date of installation of the original ballast water treatment system.

③ ships constructed on or after 1 January 2012 but before 1 January 2015, if not fitted with a ballast water treatment system compliant with phase-1 regulations, are to be fitted with a ballast water treatment system compliant with phase-2 regulations during the first dry-docking on or after 1 January 2016.

④ ships constructed on or after 1 January 2016 are to be fitted with a ballast water treatment system compliant with phase-2 regulations on delivery.

Notes: For details of USCG regulations for ballast water discharges, please refer to "Federal Register 33/46 CFR Part 151/162".

## 3 Feasibility and the latest Updates of major US Regulations for Ship's Ballast Water Discharges

### 3.1 Feasibility Assessment of the Regulations

Currently, with regards to the major US standards for ballast water discharges, all standards are more stringent than the IMO standard except USCG Phase-1 standard, which is similar to the IMO standard. Some indicators are 100 or 1,000 times more stringent than those of the IMO standard, requiring almost "zero detectable living organism" standard for the water discharged.

To find out whether the existing ballast water treatment technology can meet a standard that is 100 or 1,000 times more stringent than the IMO standard, USCG requested Science Advisory Board (SAB) to carry out feasibility assessment of USCG phase-2 discharge standard. The findings were:

(1) Of all ballast water treatment systems assessed by SAB, none can meet a standard that is 100 or 1,000 times more stringent than the IMO ballast water management standard (Regulation D-2) or "zero detectable living organisms" discharge standard.

(2) If the existing ballast water treatment systems are improved, some systems may meet a standard that is 10 times more stringent than IMO Regulation D-2.

(3) Wholly new ballast water management systems need to be developed to meet proposed standards that are 100 or 1,000 times more stringent than the IMO ballast water management standard. Modifications of the existing management systems will not enable these systems compliant with the requirements specified above.

According to the assessment results above, the Final Act will be promulgated by the end of this year. Relevant units are invited to follow up and the Society will inform the Parties concerned of

the final results by Circular in time.

### 3.2 Latest Updates of the Regulations

According to the feasibility assessment results specified in 3.1 above, USCG and the State of California will promulgate the Final Act by the end of this year and adopt a reasonable and feasible standard for ship's ballast water discharges. The latest updates are summarized below:

(1) USCG

According to the feasibility assessment results, USCG may choose the alternative measures listed in Table 3.2 below for the phase-2 discharge standard:

Table 3.2 Possible Alternative Measures for USCG Phase-2 Standard

| **Living Organisms** | **>50μm** | **>10μm&≤50μm** | **≤10μm** | **Pathogen Indicators** | | |
|---|---|---|---|---|---|---|
| | | | | **Toxicogenic Vibrio cholerae（01,0139）** | **Escherichia coli** | **Intestinal Enterococci** |
| Alternative Measure 2 | < 10 / $m^3$ | < 10 / ml | N/A | <1 cfu / 100 ml | <250 cfu / 100 ml | <100 cfu / 100 ml |
| Alternative Measure 3 | < 1 / $m^3$ | < 1/ ml | N/A | <1 cfu / 100 ml | <126 cfu / 100 ml | <33 cfu / 100 ml |
| Alternative Measure 4 | <0.1 / $m^3$ | < 1/ ml | N/A | <1 cfu / 100 ml | <126 cfu / 100 ml | <33 cfu / 100 ml |

Notes: Alternative measure 2: similar to the IMO standard.

Alternative measure 3: 10 times more stringent than the IMO standard.

Alternative measure 4: 100 times more stringent than the IMO standard.

**(2) California**

From the comparisons of discharge standards in Table 1.1(1) above, it is clear that California standard for ship's ballast water discharges is the most stringent one in the US, some indicators of which are 1,000 times more stringent than those of the IMO standard, requiring even zero detectable living organisms in discharges. Therefore the feasibility of the regulations is under assessment.

In light of the results of feasibility assessment in conjunction with USCG regulations mentioned in 3.1 above, California may pass the Final Act of the standard for ship's ballast water discharges that is reasonable and feasible, which will be promulgated by the end of this year.

**(3) New York**

Given that the existing ballast water treatment systems and technology cannot meet a standard which is 1,000 times more stringent than the IMO standard, New York has decided to accept applications of ship owners or operators for extension of installation of ballast water treatment systems.

Specifically:

① Given the time and technology constraints faced by existing ships, New York permits the deadline for installation of ballast water treatment system on ships constructed before 1 January 2013 to be extended to midnight 1 August 2013.

② For each ship constructed on or after 1 January 2013, if it cannot meet New York standard, the owner or operator is to submit application for extension to New York DEC not later than 30

September 2011. The application is to specify the deadline for the ship to be compliant.

③ Ship owners or operators who have not submitted application for extension by 30 September 2011 are to submit their application as soon as possible, even though the deadline for application has passed.

**4 Points for Attention**

(1) Before the BWM Convention comes into force, most countries and regions' control on ballast water discharges through legislation is actually implementing some requirements of BWM Convention in advance, e.g. requirements for ballast water exchange and approval of the developed ballast water management plan. However, some countries have put forward requirements more stringent than the IMO Convention through legislation, including Argentina and Chile as well as the US. Chile requires all ships coming from abroad, including all ships coming from zones affected by cholera or by any similar contagious epidemic, to have ballast water exchange in deep water. If exchange is not possible, 100 grams of powdered sodium hypochlorite, or 14 grams of powdered calcium hypochlorite may be added per tonne of ballast water in the ballast tank. After thorough mixing, allow 24 hours before the treated ballast water is deballasted. Argentina requires ships whose ballast has been taken up in a WHO listed cholera high risk area to treat ballast water with chlorine. Chlorine dilution is specified as 50ltrs chlorine to 100 tonnes of ballast water.

(2) All parties are required to pay high attention to the fact that ships navigating in state waters where specific regulations for ballast water discharges exist, such as waters of California and New York, are to comply with regulations of the states while ships navigating in US waters other than the above mentioned waters are to comply with USCG regulations for ballast water discharges. As the existing ballast water treatment systems cannot meet the US standards for ballast water discharges, USCG and the relevant states may modify the standards for ballast water discharges. All parties are invited to pay continuous attention to the latest updates of the US regulations and install ballast water treatment system or submit waiver request (if allowed) within the specified time period. The Society will also pay close attention to the practical matters of US regulations for ballast water discharges and inform the parties concerned in time, if necessary.

(3) The installation of ballast water management system needs to consider factors such as installation space, location, power consumption required by the system, etc. Therefore, relevant units such as ship owners, design units, shipyards and CCS plan approval centers, etc, are recommended to pay attention to this Notice and consider installation of ballast water management systems on ships intended for operation in waters where there are ballast water discharge controls, or make relevant preparation for the subsequent installation, e.g. installation space for a ballast water treatment system, power reserved in the main power generating equipment for a ballast water treatment system, etc.