Ballast water compliance requirements

IMO Standards

Evolution of IMO's Ballast Water Management Standards

It is estimated that on an annual basis approximately 10 billion tons of ballast water are shipped globally!

Adopted in 2004 "*The International Convention for The Control and Management of Ship's Ballast Water and Sediments*" was developed by the International Maritime Organization (IMO) with the intention of controlling the transfer of harmful aquatic organisms and pathogens through ship's ballast water and sediments.

In order to come into effect the Convention had to be ratified by a minimum of 30 countries, representing a combined total gross tonnage of more than 35% of the world's merchant fleet. On 08 September 2016, Finland became the 55th country to ratify the Convention giving a combined world gross tonnage of 35.1441%, meeting the mandatory requirement for ushering in the Convention 12 months later.

As of 02 February 2018, sixty-eight countries have ratified the convention representing more than 75% of the world's merchant fleet tonnage.

The 'Convention' provides for two Ballast Water Management Standards

- D-1 Standards: Ballast Water Exchange" in open seas, at least 200 nautical miles (nm) from nearest land with water depth at least 200 meters.
- D-2 Standards: "Ballast Water Treatment" specifying the maximum amount of viable organisms discharged in ballast water after treatment (BWTS).

The 2004 Convention set an implementation schedule that IMO Resolution A.1088 (28) dated 28 January 2014, amended, and on the Convention's entry into force on 08 September 2017, recommended:

Date of construction (Keel Laid)	Ballast Water Capacity	Implementation Period
Before 08 Sept. 2017 (Existing Ships)	< 1500 cum > 5000 cum 1500 – 5000 cum	First IOPPC* renewal survey following Entry Into Force
After 08 Sept. 2017 (New Ships)	**(All capacities)**	Upon delivery

* IOPPC – International Oil Pollution Prevention Certificate

System Approval Guidelines

In October 2016, during its 70th session, IMO Marine Environment Protection Committee (MEPC) adopted revised *Guidelines for approval of ballast water management systems (G8)*, updating Guidelines originally issued in 2008.This revision updates approval procedures for BWMS, including, among others, more robust test and performance specifications and more detailed requirements for type approval reporting and control and monitoring equipment. This could have been an effort to reconcile differences between the IMO and the USCG requirements.

At the IMO MEPC 71st session the Committee approved a revised implementation scheme for compliance with the D-2 standards. The revised scheme was to be considered for adoption at MEPC 72 scheduled for 9-13 April 2018.

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As a result of the above, from 08 September 2017:

- **New ships** - Meet D-2 standards.
- **All ships** must have:
  - Ballast Water Management Plan
  - Ballast Water Record Book
  - An International Ballast Water Management Certificate
- **Existing ships**: Meet at least D-1 standards or can choose to comply with D-2 standards, which is not mandatory until the corresponding compliance date.
- **IOPPC Renewal Survey between 08 September 2017 and 08 September 2019**:
  - If previous IOPPC renewal survey between 08 September 2014 and 08 September 2017, comply with D-2 standard by first renewal survey following entry into force (EIF) of the convention.
  - Existing ships other than above, shall comply with D-2 standards at second IOPPC renewal survey following EIF of the Convention, or IOPPC renewal survey on or after 08 September 2019, whichever occurs first.
- **IOPPC Renewal Survey after 08 September 2019**: Meet D-2 standards by date of renewal survey.
- **Ships not having IOPPC renewal survey**: Meet D-2 standards at date determined by Flag State, but no later than 08 September 2024.

IMO MEPC 71 Session Approved Ballast Water Implementation Tabulated Scheme

See **Appendix A**.

US Coast Guard approach to Ballast Water Management

The US Coast Guard (USCG) amended its Ballast Water Management approach in March 2012 by allowing achievable ballast water discharge standards (BWDS).

Applicable to all non-recreational vessels and commercial sea going ships equipped with ballast tanks operating in US waters within 12 nm of the baseline.

Ballast Water Management exempts:

- Crude oil tankers in coastwise trade (Coastwise defined in 46 CFR 175.400)
- Non-sea going vessels
- Sea going vessels not operating outside EEZ and < 1600 GRT
- Vessels operating only in 1 COTP zone
- Any vessel of the US armed forces
- Any warship, naval auxiliary, or other vessel owned or operated by a foreign state and used, for the time being, only on government non-commercial service.

Ballast Water Discharge Standards

Ballast Water Discharge Standards (BWDS) in US waters are governed by:

- 33 CFR Part C: Great Lakes & Hudson River (33 CFR 151.1511)
- 33 CFR Part D: Waters of the United States (33 CFR 151.2030)

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Per above, USCG approved BWMS must meet the following BWDS:

- For organisms ≥ 50μ, discharge must include < 10 organisms per *cum* of ballast water
- For organisms ≤ 50μ and ≥ 10μ, discharge must include < 10 organisms per *ml* of ballast water
- Indicator microorganism must not exceed:
  - For Toxicogenic *Vibrio cholerae*: a concentration < 1 colony forming unit (cfu) per 100 ml
  - For *Escherichia coli*: a concentration < 250 cfu per 100 ml
  - For intestinal enterococci: a concentration < 100 cfu per 100 ml

The above USCG BWDS requirements are similar to the IMO's *The International Convention for The Control and Management of Ship's Ballast Water and Sediments, 2004,* Annex/Reg. D-2 (Ballast Water Performance Standards) and G8 guidelines *(Guidelines for Approval of Ballast Water Management System*), except that the former uses the term **"living"** and latter uses the term **"viable" defined by IMO as "**organisms that have the ability to successfully generate new individuals in order to reproduce the species"**.**

USCG BWMS Implementation Schedule

An amended Implementation Schedule for the BWDS for vessels using a USCG approved BWMS, to manage ballast water discharged to waters of the United States, is governed by:

- 33 CFR Part C: Great Lakes & Hudson River (33 CFR 151.1512b)
- 33 CFR Part D: Waters of the United States (33 CFR 151.2035b)

Type of vessel	Ballast Capacity	Date Constructed	Compliance Date
New Vessels	All capacities	On or after 01 December 2013	On Delivery
Existing vessels	All capacities	Before 01 December 2013	First scheduled dry dock after 01 January 2016

Ballast Water Discharge in US Waters Post Compliance Dates

Vessel discharging ballast water in US waters beyond their compliance dates, per Implementation Schedule [dates specified in Table 151.1512(b) or 151.2035(b)] must employ one of the following BWM methods when operating in waters of the US:

- Use a USCG approved ballast water management system (BWMS)
- Use only water from a United States public water system (PWS)
- Use an Alternate Management System (AMS)
- Do not discharge BW into waters of the United States (includes the territorial sea as extended to 12 nautical miles from the baseline)
- Discharge to a facility onshore or to another vessel for purposes of treatment. (No known shore facilities in US)

In addition to the above criteria there are two alternate compliance options available:

- Foreign Flag State/Administration type approved BWMS, temporarily accepted by USCG as an Alternate Management System (AMS)
- Seek an extension for compliance with the Implementation Schedule per original compliance dates Requires documented records be produced citing inability to comply with USCG requirements despite all efforts.

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Alternate Management System (AMS)

AMS is governed by 33 CFR 151.2026.

A foreign Administration type approved BWMS can apply to USCG for AMS type approval. If approved, a vessel may continue to manage ballast water with an AMS for up to five (5) years after the date it is required to comply with the BWDS Implementation Schedule in 33 CFR 151.1512(b) or 151.2035(b), as applicable.

Installation of AMS is not mandatory. However, a BWMS approved by the foreign Administration, but **not** approved by USCG as an AMS, cannot be used to discharge ballast water in United States.

Remember:

- AMS is a transition phase, a temporary alternative to BWMS.
- AMS **is not** the same as USCG type approved BWMS.
- AMS **does not** imply USCG type "approval".
- AMS **is not** mandatory for USCG type approval.
- Vessels fitted with AMS may employ other BWMS, as approved under USCG regulations.
- AMS installed onboard **does not guarantee** USCG type approval for BWMS.
- *Once USCG type-approved BWMS are available for a vessel, the vessel will no longer be able to install AMS in lieu of type-approved systems.*

A foreign type approved BWMS accepted as an AMS must be installed while the foreign type approval is valid. *If either the foreign type approval or the AMS acceptance expires **after** the installation, the system may continue to be used*. However, if either the foreign type approval or the USCG acceptance is revoked, the BWMS may no longer be used to discharge ballast water into waters of the United States.

Extension of Compliance – 33 CFR 151.2036

As an alternate compliance option, many vessel operators have approached the USCG for an extension of compliance dates to comply with the BWM requirements at a date beyond the Implementation Schedule in 33 CFR 151.1512(b) or 151.2035(b).

33 CFR 151.2036 allows the USCG to grant an extension of a vessel's compliance date to an owner/operator who has documented that, despite all efforts, compliance with an approved ballast water management method is not possible.

The USCG published MSIB 003/17, "Ballast Water Management (BWM) Extension Program Update" as guidance to compliance dates extension request.

See **Appendix B** for Process Flow Chart 1 & 2.

BWMS – USCG Type Approval Process and Limitations

USCG type approval process is very stringent, being carried out by Independent Laboratories (IL), and is independent of the manufacturer. The list of approved IL can be accessed at https://cgmix.uscg.mil/EQlabs/EqLabsSearch.aspx - *Select "Ballast Water Management Systems - 162.060"*

In the past, the significant challenges and limitations for USCG type approved ballast water treatment system are:

- **System Scaling**: Test data for the BWMS can't be "scaled" or extrapolated linearly. The system approved for flow rate of 1000 cum/h cannot be assumed to be effective at 2000 cum/h flow rate or for higher flow rates. Each system varying ballast handling capacities to be individually type approved.
- **Approval of multiple alternate components**: **Every** component associated with the ballast water treatment system needs to be type approved.

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- **Frequent update/modification of systems**: Having been tested by IL **every** time the system is modified or updated, it again has to undergo rigorous type approval procedures with IL.

USCG Type Approved BWMS

To-date, the USCG has approved six (6) BWMS in accordance with 46 CFR 162.060 - Select *"Ballast Water Management System - 162.060"*

See **Appendix C** for approved BWMS.

This risk alert was compiled with the aid of:

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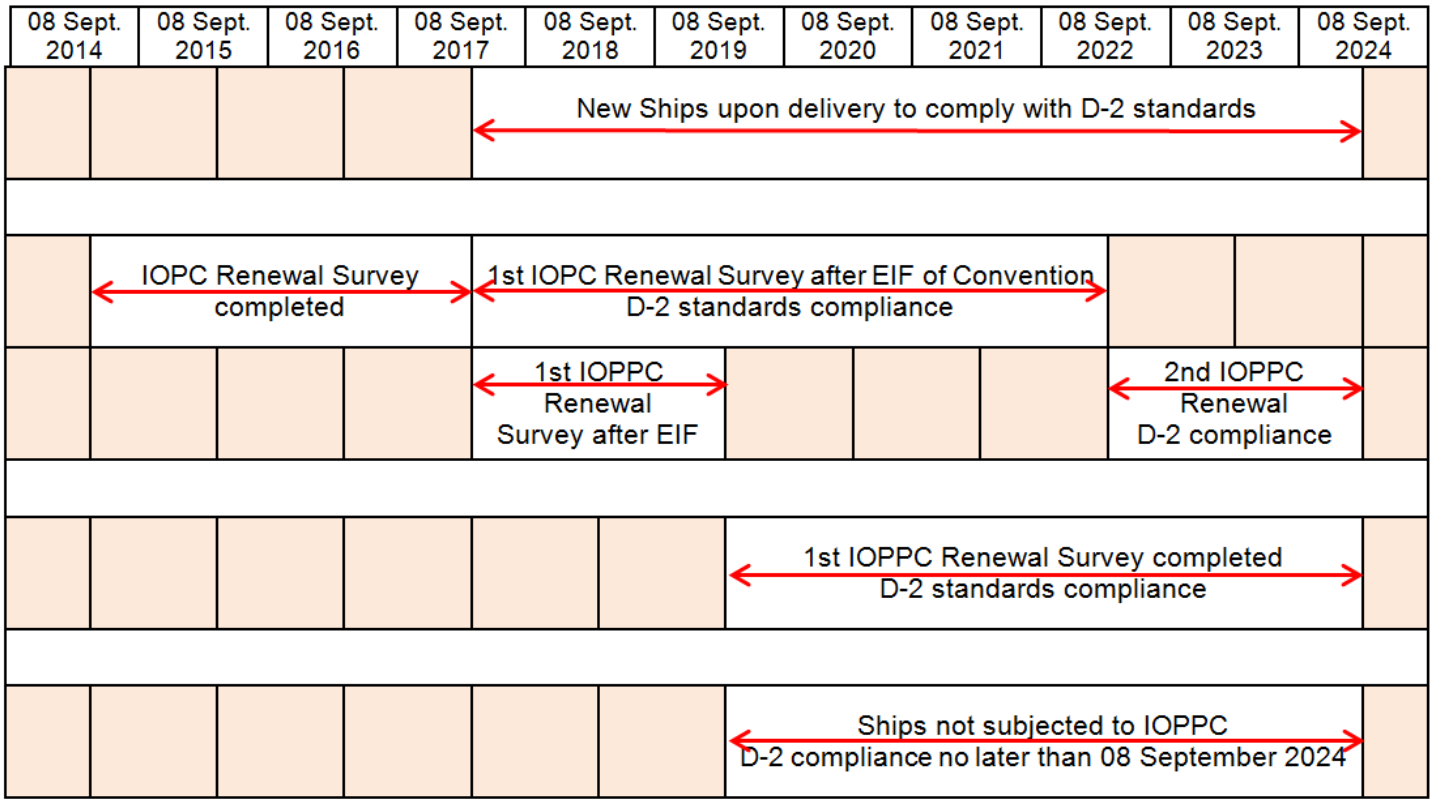
Appendix A



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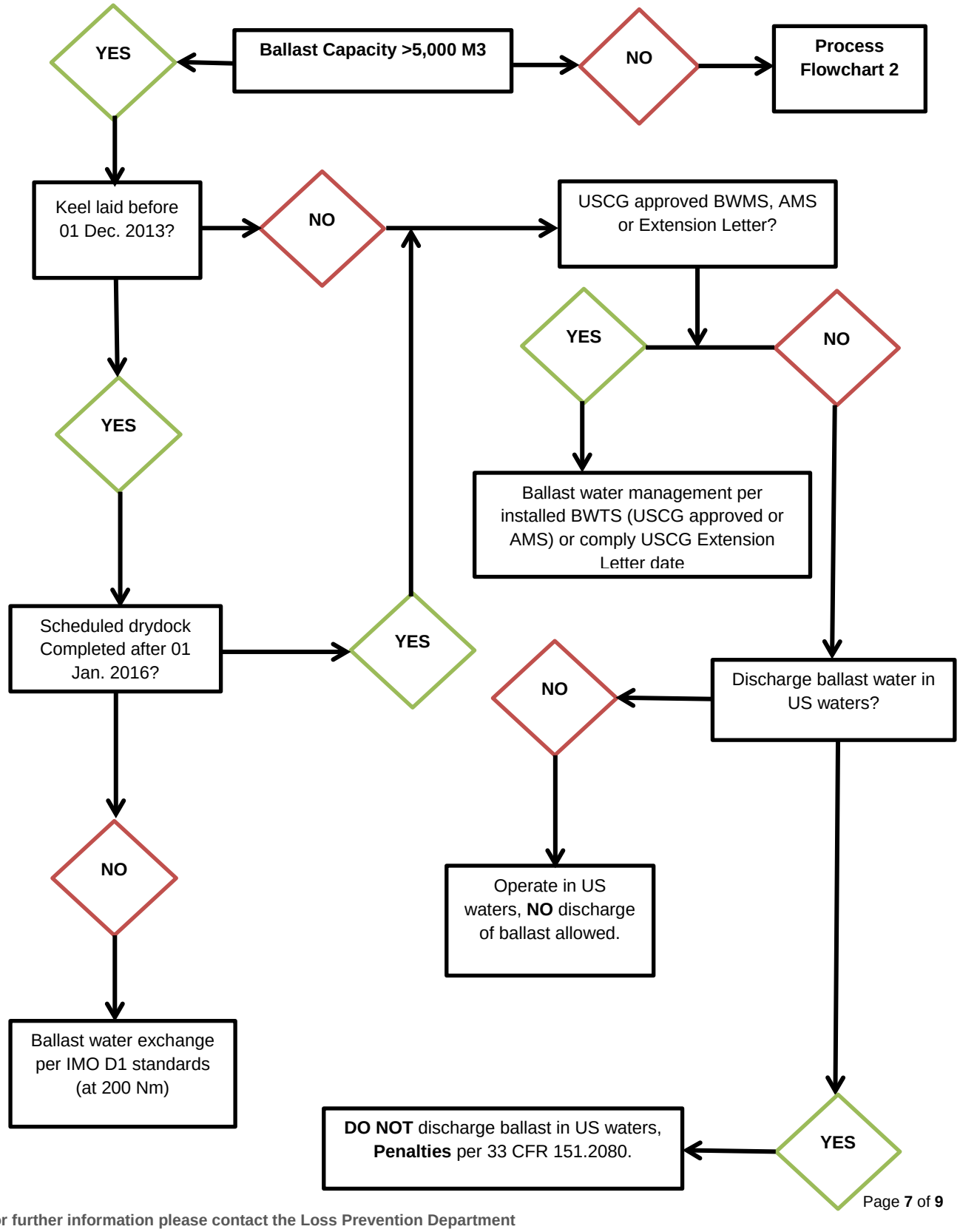
Appendix B

Process Flow Chart 1



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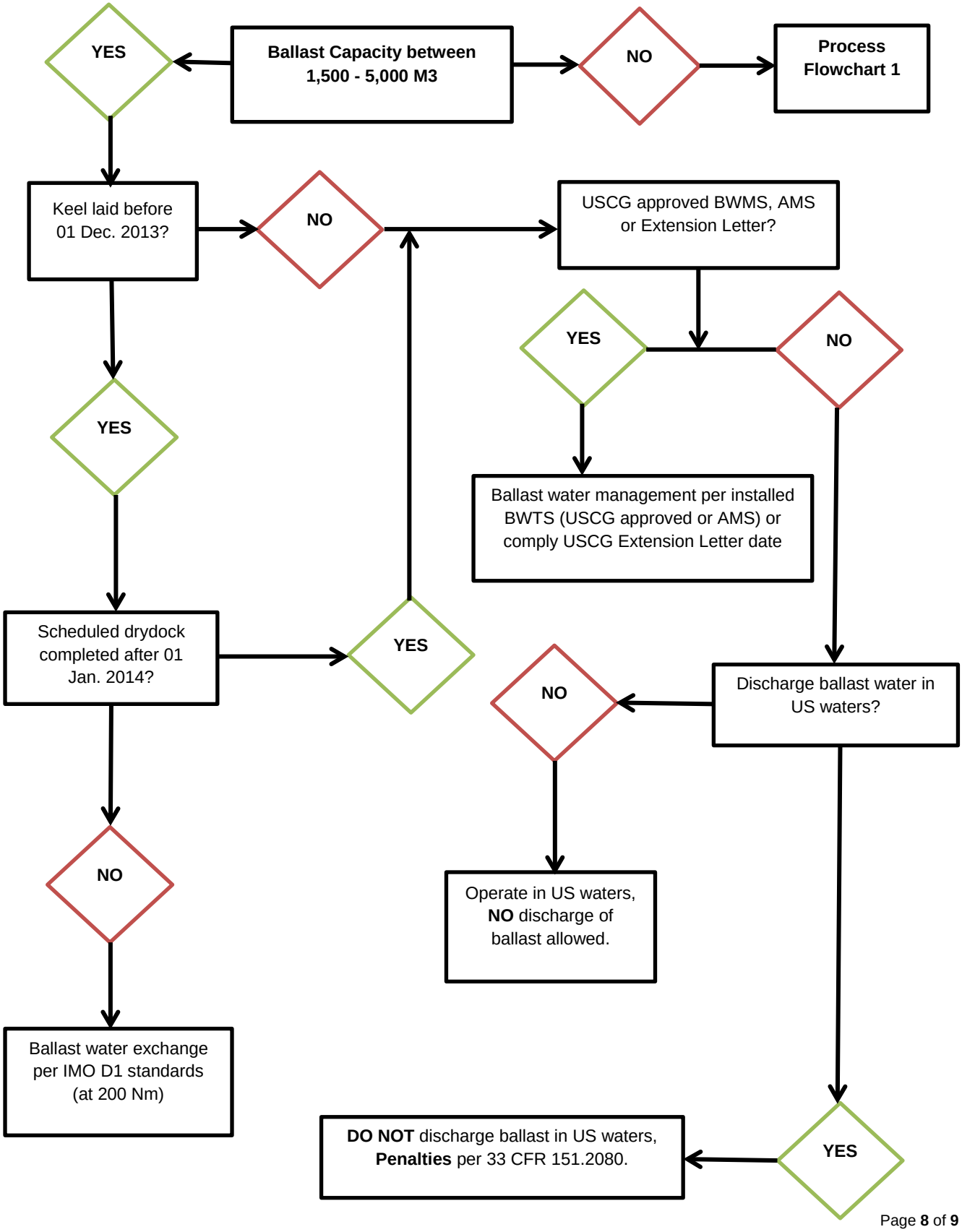
Process Flow Chart 2



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Appendix C

SNO	EQUIPMENT	CAPACITY	APPROVAL NUMBER
1	Optimarin AS (Norway)	167 – 3000 cum/h	162.060/1/1
2	Alfa Level Pure Ballast (Sweden)	85 – 3000 cum/h	162.060/2/2
3	Ocean Saver BWTS MKII (Norway)	200 – 7200 cum/h	162.060/3/3
4	Sunrui Marine Environment Engineering Co. Ltd	170/350/600/1200/1700/2200/2800/3200/3800/4300/5500630/7300/8500 cum/h	162.060/4/1
5	Ecochlor Inc.	500/1300/3500/6900/12200/16200 cum/h	162.060/5/1
6	ERMA First ESK Engineering Solutions S.A.	90/140/200/300/515/600/800/1200/1250/1600/2300/2500/3740 cum/h	162.060/6/0

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