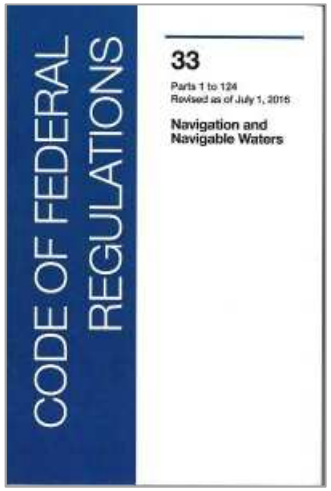
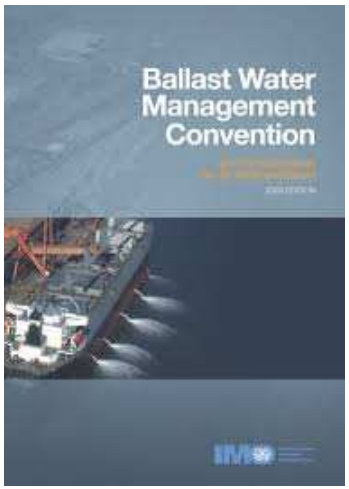
From planning to survey to sign-off to compliance for the life-cycle of your ship.





Your Integration / Service Partner

Navigating US Waters

Debra DiCianna, Senior Compliance Engineer

Overview

- MEPC 72
- USCG Navigation and Vessel Inspection Circular (NVIC)
- USCG 2017 Annual Report
- Ballast water management system (BWMS) Information
- BWMS Problems

MEPC 72

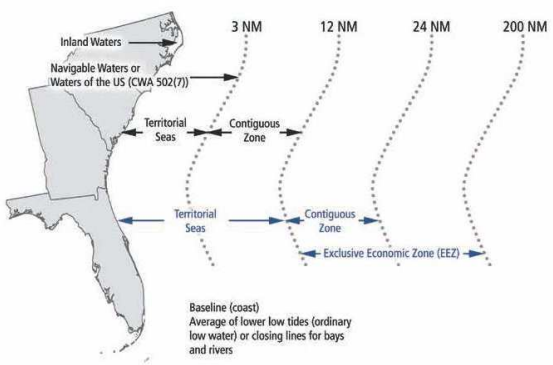
- Adopted:
  - Draft amendments to regulations A-1 and D-3 of the BWM Convention to make the BWMS Code mandatory for approval of BWMS
  - Draft amendments to regulation B-3 of the BWM Convention concerning the implementation schedule of ballast water management for ships.
- Approved a BWM circular for the experience-building phase
- Invited proposals for the development of guidance with regard to commissioning of BWMS that may include indicative testing in conjunction with their commissioning
- Invited proposals to regarding guidance on contingency measures and inclusion in ballast water management plans

BWM Convention Compliance Dates

Vessel Age	Compliance Date
New Vessels (Ship constructed on or after EIF)	Upon delivery
Existing Vessels	Renewal Survey as defined by: • the first renewal survey on or after 8 September 2017 if: ➢ this survey is completed on or after 8 September 2019; or ➢ a renewal survey is completed on or after 8 September 2014 but prior to 8 September 2017* • the second renewal survey on or after 8 September 2017 if the first renewal survey on or after 8 September 2017 is completed prior to 8 September 2019, provided that the conditions of paragraph * above are not met."

BWM Requirements in the US

- The United States has not ratified the BWM Convention and has established independent ballast water regulations.
- In the US, ships must be in compliance with:
  - USCG Ballast Water Regulations;
  - US EPA VGP; and
  - Individual State requirements – 16 States have ballast water requirements (California is the most stringent)



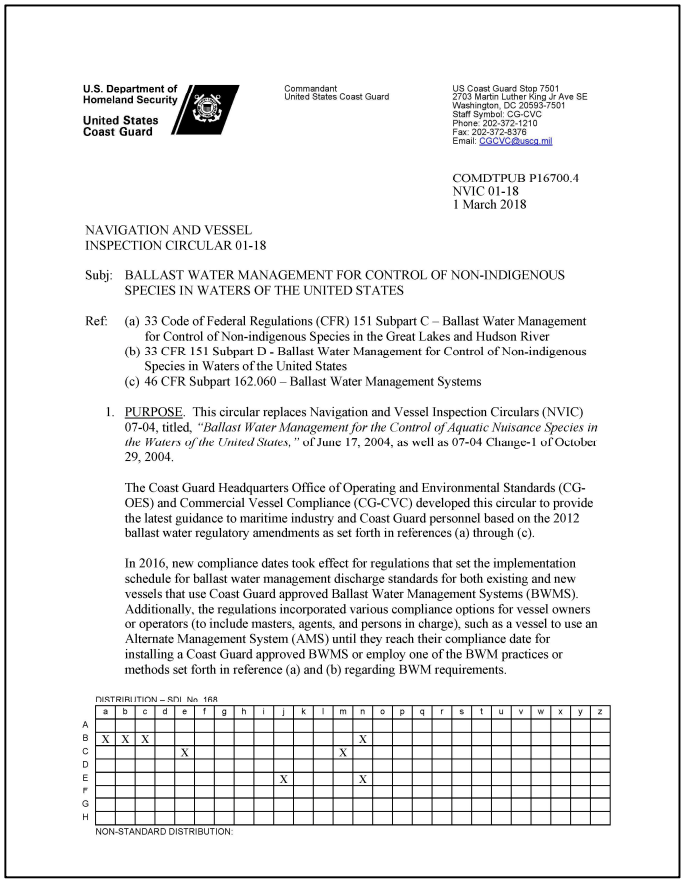
- Vessels must also avoid discharge or uptake of ballast water in areas / into waters within, or that may directly affect marine sanctuaries, marine preserves, marine parks, coral reefs or waters Federally protected wholly or in part for conservation purposes.

Understanding Compliance Dates

- USCG Compliance Dates:
  - BW capacity 1500 – 5000 m^3 – First scheduled drydocking after 1 January 2014
  - BW capacity < 500 m^3 and > 1500 m^3 – First scheduled drydocking after 1 January 2016
- Documentation used to identify USCG compliance date
  - Out of water endorsement of the SOLAS Ship Safety Construction Certificate
- USCG ballast water discharge standards only apply to discharges within 12 nm of US shore

NVIC 01-18

- Navigation and Vessel Inspection Circular (NVIC) published 1 March 2018
- General overview of US ballast water management (BWM) requirements
- Covers:
  - Applicability of Regulations
  - BWM Reporting and Recordkeeping
  - Compliance Guidance
  - Enforcement
- Replaces 2004 NVIC



U.S. Department of Homeland Security
United States Coast Guard

Commandant
United States Coast Guard

US Coast Guard Stop 7501
2703 Martin Luther King Jr Ave SE
Washington, DC 20593-7501
Staff Symbol: CG-CVC
Phone: 202-372-1210
Fax: 202-372-8376
Email: CGCVC@uscg.mil

COMDTPUB P16700.4
NVIC 01-18
1 March 2018

NAVIGATION AND VESSEL
INSPECTION CIRCULAR 01-18

Subj: BALLAST WATER MANAGEMENT FOR CONTROL OF NON-INDIGENOUS SPECIES IN WATERS OF THE UNITED STATES

Ref: (a) 33 Code of Federal Regulations (CFR) 151 Subpart C – Ballast Water Management for Control of Non-indigenous Species in the Great Lakes and Hudson River
(b) 33 CFR 151 Subpart D - Ballast Water Management for Control of Non-indigenous Species in Waters of the United States
(c) 46 CFR Subpart 162.060 – Ballast Water Management Systems

1. PURPOSE. This circular replaces Navigation and Vessel Inspection Circulars (NVIC) 07-04, titled, *"Ballast Water Management for the Control of Aquatic Nuisance Species in the Waters of the United States,"* of June 17, 2004, as well as 07-04 Change-1 of October 29, 2004.

The Coast Guard Headquarters Office of Operating and Environmental Standards (CG-OES) and Commercial Vessel Compliance (CG-CVC) developed this circular to provide the latest guidance to maritime industry and Coast Guard personnel based on the 2012 ballast water regulatory amendments as set forth in references (a) through (c).

In 2016, new compliance dates took effect for regulations that set the implementation schedule for ballast water management discharge standards for both existing and new vessels that use Coast Guard approved Ballast Water Management Systems (BWMS). Additionally, the regulations incorporated various compliance options for vessel owners or operators (to include masters, agents, and persons in charge), such as a vessel to use an Alternate Management System (AMS) until they reach their compliance date for installing a Coast Guard approved BWMS or employ one of the BWM practices or methods set forth in reference (a) and (b) regarding BWM requirements.

DISTRIBUTION – SDL No. 168

	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
A																										
B	X	X	X											X												
C					X								X													
D																										
E										X				X												
F																										
G																										
H																										

NON-STANDARD DISTRIBUTION:

USCG Extensions

- Need to show commitment to compliance.
- Options:
  - Proof of BWMS acquisition.
  - Proof of contract with engineering firm with estimatec timeline.
  - Contract with shipyard for BWMS retrofit.
- Applications need to address means for BWMS installation and timeline for compliance.

Application for Extended Compliance Date under
U.S. Coast Guard Ballast Water Management (BWM) Regulations

** For all dates, please use a DD-MMM-YY format. Example: "05-Feb-17" Shaded blocks are optional.

APPLICANT INFORMATION

Requesting Co.			
Address 1		Applicant Name	
Address 2		Applicant Email	
City		Other Email	
State (U.S.)/Country		Other Email	
Date submitted		Other Email	

VESSEL INFORMATION

Vessel Name	IMO or Vessel No.	Owner, or type "Same" if Name is "Requesting Co." entered above	Ballast Water Capacity (m^3 only)	Keel Laid Date *or* Date of Major Conversion	Delivery Date	Date Vessel LAST entered drydock Past Drydock	Firm Date Vessel enters drydock NEXT Future Drydock	Is this a Supplemental Request? Vessel has existing extension (Yes/No)	*For USCG use only*: Vessel Extension Request #

Ship Type (Select): O Bulk O Chemical O Container O General Cargo O Heavy Lift O Passenger O RoRo O Tanker O Gas O Other

O NO. Vessel does not have installed BWMS/AMS O YES. Vessel has installed BWMS/AMS

BWMS Manufacturer (if fitted): System: Date Installed:

Reason for which extension is requested (attach additional documentation as necessary):

Extension Policy Letter and spreadsheet at: http://homeport.uscg.mil/ballastwater

Page 1

Email application package to: environmental_standards@uscg.mil

Discharge of Ballast Water in Extraordinary Circumstances

- Vessels that have not reached their compliance date and cannot meet the ballast water exchange (BWE) requirements (i.e., not operating outside 200 nm or safety concerns) – *Ballast water discharge without ballast water exchange (BWE) is permitted.*
- BWMS stops operating properly or BWM method is unexpectedly unavailable
  - Report the issue as soon as practicable to the nearest Captain of the Port (COTP) or District Commander
  - Vessel must follow directions of the COTP

Repeat BWMS Problems

- BWMS unavailable on a previous voyage will not be considered “unexpectedly unavailable”.
- BWMS expected to be repaired prior to its next discharge into waters of the US.
- COTP may require a vessel to deviate from, or delay, its voyage.
- If the vessel cannot use another BWM method or safety concerns apply, the COTP may allow the vessel to discharge untreated or managed ballast water.

BWMS Operational Issues

- Freshwater salinity limitations
- Ballast water processing rates
- BWMS manufacturer service networks
- Important to document issues and interactions with BWMS service provider

USCG Type Approvals

BWMS	Treatment Sequence	Capacities
Optimarin (Norway)	Uptake: Filtration + UV Disinfection Discharge: UV Disinfection	167 – 3,000 m^3/h
PureBallast 3 (Sweden)	Uptake: Filtration + UV Disinfection Discharge: UV Disinfection	150 – 3,000 m^3/h
OceanSaver MkII (Norway)	Uptake: Filtration + Side-stream Electrochlorination (EC) Discharge: Neutralization	200 – 7,200 m^3/h
BalClor™ (China)	Uptake: Filtration + Side-stream EC Discharge: Neutralization	150 – 8,500 m^3/h
Ecochlor (USA)	Uptake: Filtration + Chlorine Dioxide Injection Discharge: None	500 – 16,200 m^3/h
Erma First FIT (Greece)	Uptake: Filtration + Full-flow EC Discharge: Neutralization	100 – 3,740 m^3/h

USCG TA BWM Overview

BWMS	Service Network	Possible Concerns
Optimarin (Norway)	Centralized service.	Holding time limitation Small company
PureBallast 3 (Sweden)	Large company with developed service and training network	Holding time limitation
OceanSaver MkII (Norway)	Marine equipment company with wide service network	Multiple failures and service issues. New ownership by TeamTec may improve system and service issues
BalClor™ (China)	Difficult to obtain information.	Quality of materials and construction Responsiveness of service network
Ecochlor (USA)	Centralized service.	Small company Storage and replenishment of chemicals
Erma First FIT (Greece)	Centralized service. Well-established medium-sized company.	More complex salinity augmentation with full-flow EC.

USCG - UV Details

BWMS	Disinfection Requirements	Salinity Augmentation	Holding Time
Optimarin	UV-I > 600 W/m^2	None	3 days
PureBallast 3	**170 – 600 m^3/h Reactors** min. UV-I @ 50% TRC= 530 W/m^2 min. UV-I @ 100% TRC = 820 W/m^2 **1000 m^3/h Reactor** min. UV-I @ 50% TRC= 772 W/m^2 min. UV-I @ 100% TRC = 1383 W/m^2	None	72 hours

USCG – EC Details

BWMS		Disinfection Requirements	Salinity Augmentation	Holding Time
Side-stream	OceanSaver MkII	TRO > 1.7 mg/l	Electrolytic Feed: 20 PSU and > 17°C	None
Side-stream	BalClor™	TRO = 7.5 mg/l	Electrolytic Feed: 15 PSU and > 5°C	None
Full-flow	ERMA FIRST FIT	TRO = 6 mg/l	Electrolytic Feed: 0.9 PSU and > -2°C	None

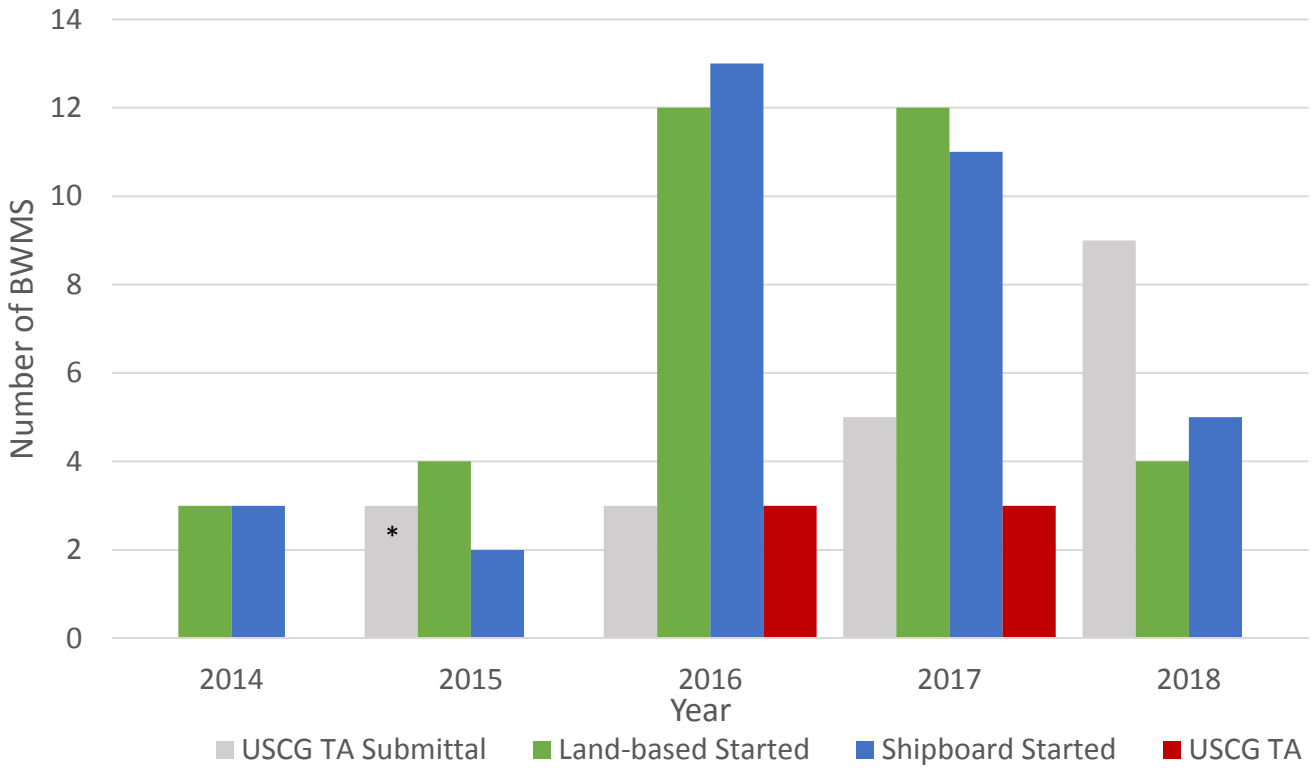
USCG – Chemical Injection Details

BWMS	Disinfection Requirements	Salinity Augmentation	Holding Time
Ecochlor	Dosage: 4.25 mg/l	None	24 hours (treated water must meet 0.2 mg/l ClO2 MADC)

New USCG TA Applications Under Review

BWMS	Submission	Treatment Sequence	TRC Range
Purimar BWMS Samsung Heavy Industries Co., Ltd. (Korea)	28 September 2017 Korean Register	Uptake: Filtration + Side-stream EC Discharge: Neutralization	250 – 10,000 m^3/h
Electro-Cleen™ Techcross, Inc. (Korea)	31 October 2017 Korean Register	Uptake: Full-flow EC Discharge: Neutralization	150 – 12,000 m^3/h
BALPURE De Nora (USA)	3 March 2018 Lloyds Register	Uptake: Filtration + Side-stream EC Discharge: Neutralization	400 – 7,500 m^3/h
BIO-SEA BIO-UV (France)	12 March 2018 DNV GL	Uptake: Filtration + UV Disinfection Discharge: UV Disinfection	55 – 1,400 m^3/h
BallastAce JFE Engineering Corporation (Japan)	29 March 2018 Control Union	Update: Filtration + Chemical Injection Discharge: Neutralization	500 – 7,000 m^3/h
GloEn-Patrol Panasia Co., Ltd. (Korea)	30 March 2018 DNV GL	Uptake: Filtration + UV Disinfection Discharge: UV Disinfection	150 – 12,000 m^3/h
Aquarius® EC Wärtsilä Water Systems (England)	9 April 2018 DNV GL	Uptake: Filtration + Side-stream EC Discharge: Neutralization	150 – 12,000 m^3/h
OceanGuard Headway Technology Co., Ltd. (China)	9 May 2018 DNV GL	Uptake: Filtration + Full-flow EC Discharge: Neutralization	65 – 5,200 m^3/h

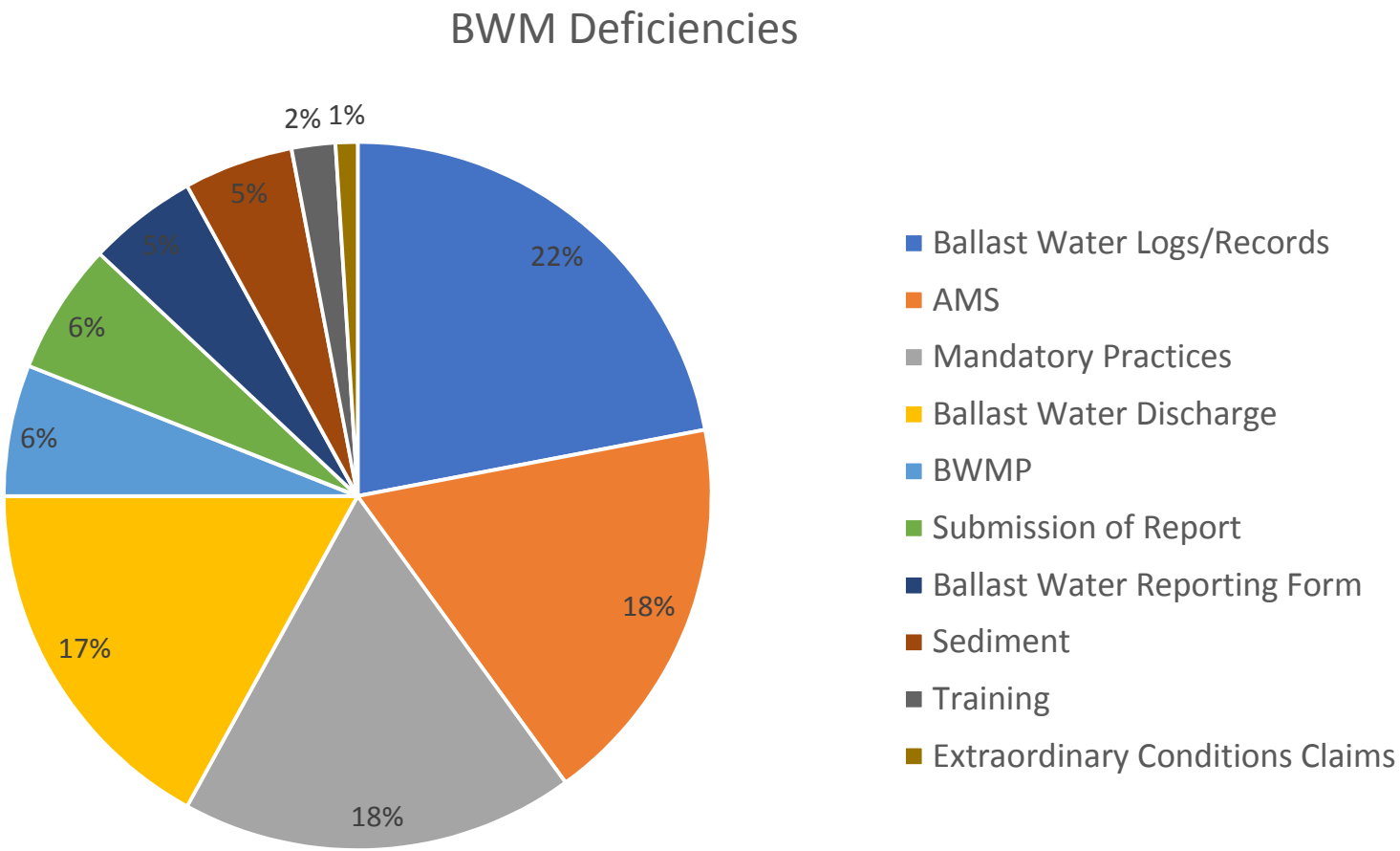
Progress in USCG TA Testing



Note: * MPN Method used for counting organisms – USCG denied request

Source: Survey of BWMS Vendors
(data as of 30 January 2018)

USCG 2017 Annual Report



USCG 2017 Annual Report

- BWM exams increased by 1.9%
- Deficiencies increased by 99.1% (110 to 219) related to logs/records, alternate management systems (AMS), mandatory practices, BWM plans, and the discharge of untreated ballast water into waters of the U.S.
- USCG imposed operational control restrictions on 17 vessels due to the severity of deficiencies where some of these vessels were required to leave port in order to comply.
- Vessels received sanctions ranging from warnings, Notice of Violations (NOV), and Administrative Civil Penalty (Class I) actions for failure to implement BWM requirements.
- Civil Penalty – Maximum $35,000 per day – for each day

USCG Common Trends

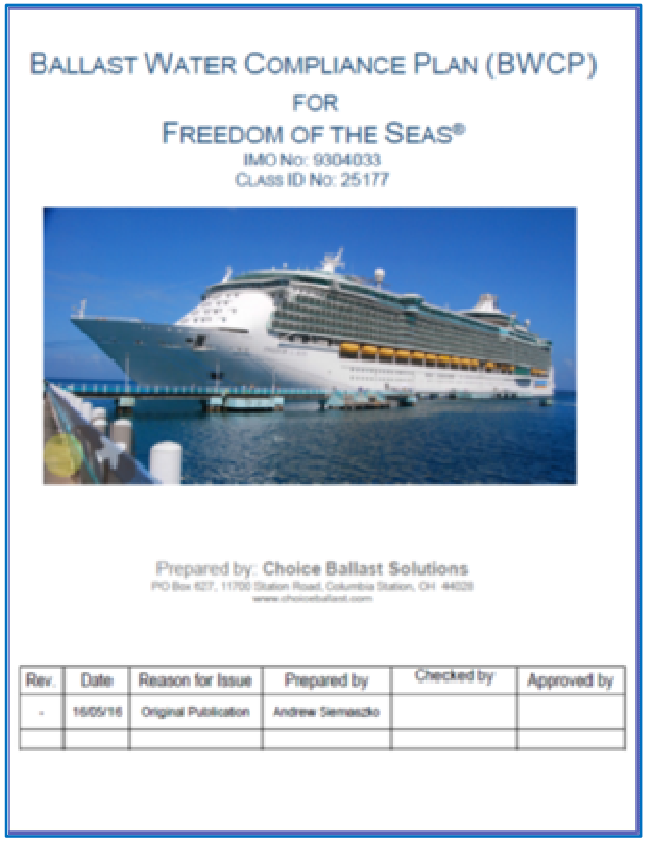
- For deficiencies - Lack of familiarity and training regarding the use of a BWMS, maintenance of the BWM plan specific for the vessel, and implementation of a BWM strategy.
- USCG found that the BWMS was only used during voyages to the U.S. and that crews received little or no training in operating and maintaining the system.
  - For a BWMS to operate reliably, it must be used regularly and in accordance with the manufacturer's specifications. This improves crew operational knowledge of the BWMS and its reliability.
- The BWM plan should include routine shipboard operations and contingencies for those situations when compliance with the BWM requirements is not possible.

BWMS Installation Problems

- Evaluated existing BWMS installations, components, and operation
- Design and Installation – Shipyard
- Findings:
  - Possible oversizing of BWMS
  - Major components are correct
  - Substitution of ancillary components – controllers, sensors
  - Some substituted components not marine rated
  - Equipment needs isolation mounts
- Lessons Learned:
  - Ensure all components installed are those included in type approved model
  - Proper oversighted needed during installation

Important Next Steps

- Be prepared for the unexpected
- Document any problems
- Train and educate crew
- Keep up-to-date with all developments
- Team with trusted partners

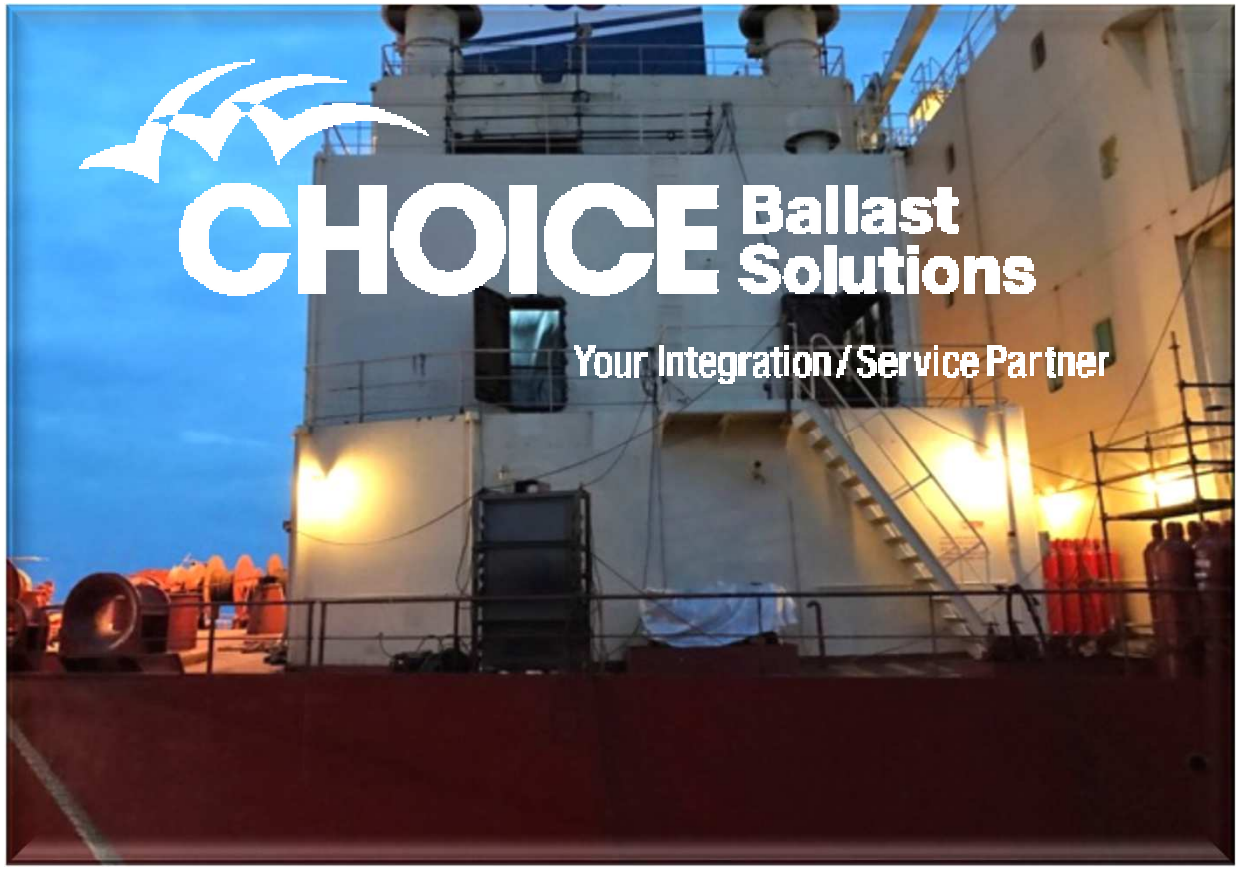


BALLAST WATER COMPLIANCE PLAN (BWCP)
FOR
FREEDOM OF THE SEAS®
IMO No: 9304033
CLASS ID No: 25177

Prepared by: Choice Ballast Solutions
PO Box 627, 11700 Station Road, Columbia Station, OH 44028
www.choiceballast.com

Rev.	Date	Reason for Issue	Prepared by	Checked by	Approved by
-	16/05/16	Original Publication	Andrew Siemaszko		

From planning to survey to sign-off to compliance for the life-cycle of your ship.



Choice Ballast provides:

- Fleet Evaluation,
- BWMS Selection,
- Compliance/Regulatory Planning,
- Feasibility Studies, Surveys,
- 3D Laser Scanning,
- Design Engineering,
- Detailed Design,
- Project Management,
- Installation Oversight,
- BWM Plans and
- Vessel Support Services

Thank you!

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