



APPENDIX 5

BALLAST WATER MANAGEMENT PLAN

SHIP NAME:

IMO NUMBER:



Courtesy of Goodwood Ship Management



APPENDIX **5** **Ballast Water Management Plan** (1 August 2014)

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SECTION 1 General Information

[Please delete this Section 1 on completion of the Template]

1 General

The vessel is to maintain a Ballast Water Management Plan (BWMP) on board for use by the vessel's Master, crew and the port State authorities. The plan is to include:

- The vessel particulars
- Vessel's ballast system design and description
- Safety considerations
- A detailed description of the actions required by the crew to implement the ballast water management option(s) used on board
- Detailed procedures for the disposal of sediments (at sea and ashore)
- The Bio-Fouling Management Plan (if required by the flag Administration. See 13.4)
- Other operational considerations including communications with and reporting to coast or port State authorities, and the designation of a Ballast Water Management Officer onboard who is responsible for the proper implementation of the BWMP.

In addition, the BWMP is to include a listing and the details of any exemptions issued by the Administration in accordance with Regulation A-4 of the *Convention* and, where appropriate, a list of any additional measures issued by a Party to the Convention that are relevant to the vessel's trade. Detailed descriptions of any actions required by the vessel's crew to comply with the additional measures are to be included in the BWMP.

2 Development of the Ballast Water Management Plan

The following sections of a BWMP, based on *IMO Resolution MEPC.127(53) "Guidelines for ballast water management and development of ballast water management plans (G4)"*, are provided to assist in the development of a vessel-specific BWMP where in instances a treatment system is used for ballast water management operations.

The following BWMP has been written in English, the working language of the vessel. (If the language used is not English, French or Spanish, a translation into one of these languages is to be made.)

2.1 General Contents of Plan

The ballast water management plan contains information required by Regulation B-1 of the *Convention*. The plan contains the following information:

- Ship particulars
- Index of sections for referencing the contents of the plan
- Introduction or explanation of the need for ballast water management and the need for reporting to port States
- Description of ship's ballast water system including ballast water sampling points
- Description of the management method(s) used on board for ballast water management and sediment control
- The Bio-Fouling Management Plan (if required by the flag Administration)

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- Safety procedures for the ship and the crew
- Operational and safety restrictions
- Procedures for disposal of sediments
- Methods of communication
- Duties of the Ballast Water Management Officer
- Ballast water recording requirements
- Information on crew training and familiarization, including training records
- Information of any exemptions granted to the vessel under Regulation A-4
- Supporting documentation including copies of reference documents related to ballast water management regulations and existing national, regional or local quarantine requirements for ballast water management
- Ship's Ballast Water Record Book including copies of the completed ballast water record forms and ballast water handling logs

2.2 General Guidance for Using the Template

<Fields highlighted in yellow> are comments, suggestions or example text that need to be deleted and may require the user's input, in which case they are to be filled out accordingly.

Users are recommended to review the contents for relevance and applicability to the topics or subject headings that are being developed for specific vessels.

SECTION 2 Ballast Water Management Plan Template

1 Cover Page

<p style="text-align: center;">Ballast Water Management Plan</p> <p style="text-align: center;"><Vessel Name></p> <p style="text-align: center;"><IMO Number></p> <p style="text-align: center;">To meet the requirements of Regulation B-1 of the International Convention for the Control and Management of Ship's Ballast Water and Sediments, 2004</p> <p style="text-align: center;">and</p> <p style="text-align: center;">Part B of IMO Resolution MEPC.127(53) "Guidelines for Ballast Water Management and Development of Ballast Water Management Plan (G4)" adopted 22 July 2005</p> <p style="text-align: center;">Issued Date: _____<xxxxxxx>_____</p> <p style="text-align: center;">Approved By: _____<xxxxxxx>_____</p> <p style="text-align: center;">Approved Date: _____<xxxxxxx>_____</p> <p style="text-align: center;">Owner/Operator: _____<xxxxxxx>_____</p>

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2 Preamble

A preamble is essentially an introductory text which is intended to provide the purpose of the plan or relevant document. The text below is a sample preamble.

Preamble

This Ballast Water Management Plan (BWMP) has been developed to provide guidance to the Master and the crew of the M/V <Vessel Name> with the procedures to be followed for the operation of the vessel's ballast water management system. This plan has been prepared to be practical and easy to use with structured and logical actions required in association with ballast water management operations. This plan has also been written in the working language of the ship's crew.

The following items have been included in this Plan:

- Detailed safety procedures for the vessel and the crew associated with ballast water management procedures
- A detailed description of the actions to be taken to implement the ballast water management procedures
- Detailed procedures for the disposal of sediments at sea and to shore
- **The Bio-Fouling Management Plan (if required by the flag Administration)**
- Procedures for coordinating the discharge of managed ballast water with port State authorities
- The designation of a Ballast Water Management Officer who is responsible for the implementation of the BWMP
- The reporting and recording requirements provided for in the *Ballast Water Management Convention*

In addition, also included in the Plan is advice regarding the update of the ballast water management step-by-step procedures, sequences for ballast water management, and any additional operational and safety restrictions.

3 Review and Revision History

On a routine basis, the owners/operators and vessel’s crew review the contents of the BWMP. This review is to confirm that the information provided within the Plan is current and contains the information necessary to conduct a ballast water management operation in accordance with the *Ballast Water Management Convention* and the *ABS Guide for Ballast Water Treatment*. A record of the crew reviews and revisions to the Plan updates is recorded in the tables below.

Review Record/Revision History

This section documents a review by the vessel’s crew and provides a means to track the revision history of the ship’s BWMP as a means to confirm that the BWMP remains current.

Review History

Name	Position/Rank	Date of Review	Signature
<XXXX>	<XXXX>	<XXXX>	<XXXX>
<XXXX>	<XXXX>	<XXXX>	<XXXX>
<XXXX>	<XXXX>	<XXXX>	<XXXX>

Revision History

Current Version	Previous Version	Date of Revision	Created by (Name/Rank)	Description of Revision
<XXXX>	<XXXX>	<XXXX>	<XXXX / XXX>	<XXXX>
<XXXX>	<XXXX>	<XXXX>	<XXXX / XXX>	<XXXX>
<XXXX>	<XXXX>	<XXXX>	<XXXX / XXX>	<XXXX>

4 Table of Contents

A Table of Contents is an index of the information provided, allowing users to quickly navigate and reference various sections of the Plan.

An example is given below. [Replace as deemed appropriate.]

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5 Introduction

At the beginning of each BWMP an “introductory” section should be included to reflect the intent of Regulation B-1 and the purpose of the plan.

The text below is an example based on the Appendix to *IMO Resolution MEPC.127(53) “Guidance for Ballast Water Management and Development of Ballast Water Management Plans G(4)”*.

Introduction

This Ballast Water Management Plan (the Plan) is written in accordance with the requirements of Regulation B-1 of the International Convention for the Control and Management of Ship’s Ballast Water and Sediments, 2004 (the Convention), the associated Guidelines and the ABS Guide to Ballast Water Treatment.

The purpose of the BWMP is to meet the requirements for the control and management of ship’s ballast water and sediments in accordance with the *Guidelines for Ballast Water Management and the Development of Ballast Water Management Plans as contained in MEPC.127(53)* and the ABS Guide to Ballast Water Treatment. The Plan provides standard operational guidance for the planning and management of vessel’s ballast water and sediments and describes safe procedures to be followed.

This plan has been approved by ABS for the purpose of ABS classification (where the BWT or BWT+ notation has been assigned) and statutory certification on behalf of <insert Administration> (where ABS is acting as a Recognized Organization (R.O.)). No alteration or revision has been made to any part of this Plan without prior approval of ABS.

This Plan may be inspected on request by an authorized authority.

It is the responsibility of the Owner/operator and/or the Vessel’s Master to review this Plan on a regular basis and confirm that the information contained herein is accurate and current.

[In addition, the user may consider expanding this “introductory” section to explain why the need of a BWMP and the need for reporting to port States.]

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6 Vessel Particulars

Vessel particulars are to include at least the following:

Vessel Name	<Vessel Name>
Vessel Type	<xxxx xxxx>
Port of Registry	<xxxx xxxx>
Flag	<xxxx xxxx>
Gross Tonnage (gt)	<xxxx xxxx>
Deadweight (DWT)	<xxxx xxxx>
IMO Number	<xxxx xxxx>
International Call Sign	<xxxx xxxx>
Length (Overall)	<xxxx xxxx>
Length (Between Perpendiculars)	<xxxx xxxx>
Beam	<xxxx xxxx>
Summer Draft	<xxxx xxxx>
Deepest Ballast Drafts (normal & heavy weather)	<xxxx xxxx>
Total Ballast Capacity (in m ³ or other units)	<xxxx xxxx>
Total Number of Ballast Tanks and Holds	<xxxx xxxx>
Number of Ballast Tanks	<xxxx xxxx>
Number of Holds	<xxxx xxxx>
Main Ballast Water Management Methods	
Ballast Water Treatment	<identify the make/model of treatment system and the treatment method(s)> [e.g. Hyde Guardian/HG250S, treatment by filtration and UV light]
Ballast Water Exchange	<Sequential, flow-through, Dilution> [Identify the exchange method(s) and remove those not applicable]
Classification Society and ID	<xxxx xxxx> <1398765>
Identification (Rank) of the Appointed Ballast Water Management Officer	<xxxx xxxx>

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7 Ballast Water System

7.1 Description

Provided in this section is a description of the ship's ballast system, including a general description of the system design, ballast tank arrangements, ballast tank and pump capacities, ballast piping and pumping arrangements and the details of the installed ballast water treatment system.

[Example text:

This vessel has six (6) pairs of main ballast tanks, one (1) forepeak ballast tank, and four (4) "smaller" aft ballast tanks, with a total ballast capacity of 60,000 m³. There are two ballast systems on the vessel. The main system consists of two 2,800 m³/hour pumps serving the six pairs of main ballast tanks and the single forepeak tank using both main pumps simultaneously. The main system includes an eductor system for stripping the forebody ballast system. The aft ballast system has two pumps at 1,000 m³/hour and is used to control trim and list.]

7.2 Plans/Drawings of the Ballast System

Plans, drawings and/or documents of the ballast system have been provided in this section or are appended accordingly to this Plan. The number of plans, drawings or documents provided has been limited to those determined to be necessary and has been reviewed and revised as necessary by the vessel's crew in order to avoid the inclusion of extraneous materials.

The following plans or drawings and ship specific documents can be found in Annex 1 [refer to the correct annex if not applicable]:

- Ballast tank arrangement (profile, plan and section views);
- Ballast water capacity plan;
- Ballast water piping and pumping arrangement (including air pipes, discharge/overflows, and sounding and gauging arrangements);
- Ballast pump capacities;
- Ballast Water Management System (BWMS) used on board, with reference to the detailed operational and maintenance manuals held onboard;
- IMO type approval certificate of the installed BWMS and
- A list or diagrams indicating the location of ballast water sampling and access points in pipelines and ballast water tanks

A BWMS is installed onboard this vessel for the treatment of ballast water, some general information of the system is given below:

- [lists the make and model of the treatment system]
- [gives a summary description of the treatment method(s) used, i.e., the principles of the treatment such as mechanical separation, physical disinfection, or chemical treatment, etc.]
- [lists the treatment rated capacity (TRC) – overall treatment capacity (in m³) and rate (in m³/hour)]
- [lists the power requirement]
- [identifies the location of sampling points (include a plan showing the locations)]

Additional details of the BWMS, including the operational manual, can be found in Annex 2. [refer to the correct annex if not applicable.]

8 Ballast Water Sampling Points

8.1 General

Article 9 of the *Ballast Water Management Convention* provides for compliance monitoring by officers duly authorized by a Party to the *Convention* for the purpose of monitoring regulatory compliance. The availability and suitability of ballast water sampling points is an essential component of ballast water management. These sampling points have been provided so as to enable the officers or other interested parties to take samples of ballast water for confirming compliance of regulations or monitoring the required effects of ballast water management.

Sampling requirements for compliance control of Regulations D-1 and D-2 of the *Convention* differ as the two regulations have significantly different parameters.

Sampling of ballast water is primarily a function of the authorized authorities, and it is unlikely that a crew member will be required to take samples unless at the expressed request and under the direct supervision of an authorized port State inspection officer.

The vessel's Master and crew specifically advise authorized officers of the safety procedures and the precautions to be observed when entering enclosed spaces.

The Master will contact the appropriate port State authorities to obtain as much notice as possible regarding the intention of the authorized officers to take samples in order to assist in the planning and to provide for the required resources. The Master will provide all reasonable assistance to the authorized officers in support of the function of sampling.

Additional guidance on ballast water sampling can be found in the Annexes to *IMO Resolution MEPC.173(58) "Guidelines for Ballast Water Sampling (G2)"*.

8.2 Sampling for Compliance with the Exchange Standard (Regulation D-1) [revise as applicable]

In-tank sampling may be made via sounding or air pipes and manholes by using pumps, sampling bottles or other water containers. Samples may also be taken from the discharge line.

The sampling and analysis methods to test for compliance with D-1 standards may be found in BWM.2/Circ.42 "Guidance on ballast water sampling and analysis for trial use in accordance with the BWM Convention and Guidelines (G2)".

For this vessel, the access and sampling point arrangement to ballast tanks is given in the following plans:

- Ballast Water Sampling Points (Sounding Plan)
- Location of Ballast Tanks Manhole Access (Plan and/or profile view)

8.3 Sampling for Compliance with the Performance Standard (Regulation D-2) [revise as applicable]

Sampling for compliance with the D-2 Performance Standard should be taken from the discharge line as near to the point of discharge as practicable during ballast water discharge whenever possible. Sampling via manholes, sounding pipes or air pipes is not the preferred approach.

In-tank sampling should only be used if ballast water treatment occurs on uptake prior to or while ballast water is in the tank. If any part of the treatment process occurs during the ballast water discharge, then in-tank sampling will be would not be permitted. In such situations the vessel's Flag Administration will be consulted if in-tank sampling is permitted at any time or for any operation of the BWMS

The sampling and analysis methods to test for compliance with D-2 standards may be found in BWM.2/Circ.42 "Guidance on ballast water sampling and analysis for trial use in accordance with the BWM Convention and Guidelines (G2)".

A list or diagrams showing the location of the sampling and access points to the pipelines and ballast water tanks is provided in <Annex 1> [revise as applicable] of this Plan.

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9 Operational Information on Ballast Water Management

9.1 General

Ballast Water Management (BWM) means mechanical, physical, chemical and biological processes either singularly or in combination to remove, render harmless, or avoid the uptake or discharge of harmful aquatic organisms and pathogens within ballast water and sediments. Currently, two general practices are recognized by the *Convention*, namely the ballast water exchange for compliance with Regulation B-4 in accordance with Regulation D-1 and the use of ballast water management systems for compliance with Regulation B-3 in accordance with Regulation D-2.

Discharge of ship's ballast to a ballast water reception facility provided by a port State in accordance with Regulation B-3.6 is also an acceptable ballast water management practice, although there are limited approved ballast water facilities. The *IMO Resolution MEPC.153(55) Guidelines for ballast water reception facilities (G5)* provides requirements for ballast water reception facilities.

9.2 Ballast Water Treatment [revise as applicable]

Ballast Water Management System (BWMS) means any system which processes ballast water such that it meets or exceeds the ballast water performance standard in Regulation D-2 of the *Ballast Water Management Convention*. The BWMS includes ballast water treatment equipment, all associated control equipment, monitoring equipment and sampling facilities.

Ballast water treatment equipment is equipment which mechanically, physically, chemically or biologically processes, either singularly or in combination, to remove, render harmless, or avoid the uptake or discharge of harmful aquatic organisms and pathogens within ballast water and sediments. The BWMS installed has been type approved in accordance with Regulation D-3 of the *Convention* and should only be operated in accordance with the system design criteria and the manufacturer's operational and maintenance instructions.

The use of this treatment system is detailed in the vessel's BWMP. All failures and malfunctions of the system are recorded in the Ballast Water Record Book. Entries of treatment of the vessel's ballast water are made in Section 4.b of the ballast water reporting form (<Annex 4.b>) and details of the specifics of failures/malfunction are recorded in the form of a narrative record of unusual events (<Annex 4.d>).

9.3 Ballast Water Exchange [revise as applicable]

Ballast water exchange can be used for this vessel to meet the performance standard described in Regulation D-1. The exchange practice could be employed until the *Convention* enters into force and the vessel reaches its compliance date.

There are three (3) methods of ballast water exchange recognized by IMO. These are the sequential method, flow-through method and the dilution method. Both of the latter methods are considered as "pump-through" methods. Each of these has particular safety aspects associated with it, which require special considerations when selecting the appropriate method(s) to be used on this vessel. The degree to which a vessel is suited to the sequential method, the flow-through method or the dilution method depends on its design and age.

Regulation B-4 of the *Convention* requires that vessels should conduct ballast water exchange:

- At least 200 nautical miles from the nearest land and in water at least 200 meters in depth; if not possible
- At least 50 nautical miles from the nearest land and in water at least 2000meters in depth; or
- In sea areas designated by the port State.

All local and/or national regulations will be taken into consideration as they may specify other criteria for water depths and distances from land.

This vessel shall not be required to deviate from its intended voyage or delay the voyage in order to comply with any particular requirements as indicated above.

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The voyage should be planned taking into account when ballast water exchange in accordance with the above criteria can be carried out.

Because of the possibility that partial exchange may encourage re-growth of organisms, ballast water exchange will only be commenced in any tank if there is sufficient time to complete the exchange to comply with the standard in Regulation D-1 and the ship can comply with the distance from land and minimum water depth criteria in Regulation B-4. As many complete tanks should be exchanged to the standard in Regulation D-1 as the time available allows. If for any tank the standard in Regulation D-1 cannot fully meet the exchange standard, the exchange should not be commenced for that tank.

In cases where the vessel's Master reasonably decides that a ballast exchange would threaten the safety or stability of the ship, its crew or its passenger because of adverse weather, ship design or stress, equipment failure or any other extraordinary condition, the vessel will not be required to comply with the above requirements.

When a vessel is required to conduct ballast water exchange but does not do so in accordance with the regulation, the reasons shall be entered in the vessel's Ballast Water Record Book.

9.3.1 Sequential Method [revise as applicable]

The sequential method is also known as the "empty-refill exchange" method and entails first pumping out the tank until it is empty, or nearly so, and then refilling the tank with open ocean water to achieve a 95% volumetric exchange.

All the ballast water in each tank should be discharged until the pump loses suction. Stripping pumps or eductors should be used if possible to avoid a possible situation where organisms are left in the bottom of the tank and the tank is refilled with new water which may allow re-emergence of organisms.

The sequential method entails emptying ballast tanks of coastal water and refilling with open ocean water. Emptying of certain tanks may lead to significantly reduced stability, higher vessel structural stresses, high sloshing pressures and/or reduced forward drafts which may then increase probability of bow slamming.

Margins have been provided for stability and strength for all seagoing conditions, as specified in the vessel's approved trim and stability booklet and loading manual. The loading conditions for the selected ballast water exchange method will be taken from the approved loading manual and trim and stability booklet. The following items will be evaluated to mitigate the risks to the vessel when the sequential method is selected for ballast water exchange:

- Intact stability
- Longitudinal strength
- Sloshing
- Forward and aft drafts
- Bottom forward slamming and associated hull vibration
- Propeller immersion
- Over- and under-pressurization of tanks and holds
- Free surface effects
- Bridge visibility

In planning the sequential exchange sequence, the following considerations will be followed:

- i)* The exchange sequence is to be divided into steps
- ii)* Each step represents emptying or filling one tank or a pair of tanks and is evaluated as a loading condition by the loading computer to verify conformity with the vessel's operating limits

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- iii) The printout results of the loading computer includes a summary ballast water exchange sequence table showing the degree of fill for each tank and the values calculated for various criteria parameters (e.g. estimated drafts, trim, BM, SF propeller immersion, etc.)

9.3.2 Flow-through Method [revise as applicable]

The flow-through method is accomplished by pumping open ocean water into a full ballast tank and allowing water to overflow the tank from the top or from other overflow arrangements for a length of time that will change the ballast water tank volume three times. Ballast water equal to approximately three times the tank capacity must be pumped through the tank to achieve 95% effectiveness in eliminating aquatic organisms.

The flow-through method does not typically alter stability, hull girder stress and vessel attitude. It therefore eliminates the concerns of exceeding bending moment and shear force limits and concerns related to shallow forward and aft drafts and extreme trims. In those instances where the flow-through method alters stability, hull girder stress or vessel attitude, a ballast water summary sequence table is to be submitted demonstrating that strength and stability have been maintained.

As the flow-through method is not necessarily suitable for all tanks, the following safety issues are evaluated when the flow-through method is selected for ballast water exchange:

- Safe pumping procedures taking into account additional vessel structural stress that may be involved with conducting ballast water exchange
- Over-pressurization of ballast tank or pumping equipment
- Avoid a flow-through that has ballast flowing on decks which can cause a safety hazard to crew
- Inlet and outlet piping connections be located as remotely from each other as practicable.

9.3.3 Dilution Method [revise as applicable]

The dilution method is similar to the flow-through method but open ocean water is filled through the top of a full ballast tank with simultaneous discharge from the tank bottom at the same flow rate, whereby maintaining a constant level in the tank throughout the ballast exchange operation. As with the flow-through method, ballast water equal to approximately three times the tank capacity must be pumped through the tank to achieve 95% effectiveness in eliminating aquatic organisms.

The dilution method has the advantages of the flow-through method with regard to maintaining the stability, strength and other similar benefits. By discharging water from the bottom of the ballast tanks, sediments are more easily removed. This method avoids the use of air vent and the removal of manhole covers to discharge water over the deck.

The following safety precautions are to be taken when this method is selected for ballast water exchange:

- Arrangements are to be made to automatically maintain the ballast water level in the tanks at a constant level
- High and low water level alarms are to be provided where maintaining a constant level in a tank or hold which is essential to the operational efficiency of the vessel during ballast water exchange
- Over- and under-pressurization because of rapid change in volume of contents of the tank
- Arrangements are to include the provision of a manual emergency stop for any operating ballast pump in case of valve malfunction or incorrect control actions.

9.3.4 Evaluation of Exchange Sequences

For each of the ballast exchange methods determined to be suitable for the vessel, the vessel's loading condition and exchange sequences for the selected methods are to be verified by calculations to show compliance with the applicable requirements for ballast capacity, trim, stability, longitudinal strength and local strength. These approved conditions are included in the vessel's loading manual and/or trim and stability booklet. The vessel operators use these approved ballast water exchange loading conditions when performing ballast water exchange operations.

9.4 Precautionary Practices

9.4.1 Minimizing Uptake of Harmful Aquatic Organisms, Pathogens and Sediments

When loading ballast, every effort should be made to avoid the uptake of potentially harmful aquatic organisms, pathogens and sediments that may contain such organisms. The uptake of ballast water will be minimized or where practicable, avoided in areas and situations such as:

- Areas identified by the port States;
- In darkness when organisms may rise up the water column;
- In very shallow water;
- In the vicinity of sewage outfalls;
- Where there is a known outbreak of diseases communicable through ballast water;
- Where the incoming and outgoing tide is known to be more turbid;
- Where the propeller may stir up sediment; or
- Where dredging is or recently has been carried out.

9.4.2 Avoiding Unnecessary Discharge of Ballast Water

Where it is necessary to take on and discharge ballast water in the same port to facilitate safe cargo operations, care should be taken to avoid the unnecessary discharge of ballast water that has been taken on in another port.

A note is to be provided explaining that any exchanged ballast water which is mixed with non-exchanged water is no longer considered to be properly exchanged.

10 Safety Procedures for the Vessel and the Crew

10.1 General

This section of the BWMP contains the specific safety aspects of the BWMS and/or the ballast water exchange system(s) used onboard the vessel.

10.2 Ballast Water Treatment [revise as applicable]

The use of chemicals and active substances in ballast water treatment systems on board this vessel may raise concern over the health and safety of those responsible for operating the system and handling the materials, as well as the risk of unintentional discharge into the environment.

For BWMS that use or generate chemicals or active substances, proper precautions have been considered when developing the safety procedures. Development of safety procedures for chemical/active substance treatment system have been based on a safety assessment taking into consideration the vessel's design and the health and safety information from the manufacturer of the ballast water management system and the supplier of the ballast water treatment chemicals or active substances. The safety procedures include at least the following:

- A fail-safe and secure means of transferring ballast water treatment chemicals/active substances onto the vessel
- Application of containment for all liquid chemicals stored and in use
- Safety means and instructions for introducing stored chemicals/active substances into operations
- Safety procedures for normal operation of the treatment system
- Awareness of potential hazardous byproducts that may be produced during the ballast water treatment process
- Means to verify that the residual concentration of discharged ballast does not impact the local marine environment
- Safety procedures for use in the event of a spillage on board the vessel or crew exposure to treated ballast water, chemicals/active substances
- Maintaining material safety data sheet (msds) for chemicals and active substances used or generated during the treatment process
- Adequate personal protective equipment for all operations, including emergency situations

In case of any failure compromising the proper operation of the BWMS, audible and visual alarm signals are given to all stations from which the ballast water operations are controlled. A visual alarm is always activated whenever the BWMS is in operation for the purpose of cleaning, calibration or repair, and these events are recorded by the control equipment.

A safety assessment methodology is provided in the IMO Circular, BWM.2/Circ.20 entitled "Guidance to ensure safe handling and storage of chemical and preparations used to treat ballast water and the development of safety procedures for risks to the ship and crew resulting from the treatment process". The safety assessment has been undertaken by the Owner/vessel's Master in conjunction with the manufacturer of the BWMS and the supplier of the active substance or preparation, taking into consideration the specific design of the vessel, the design of the BWMS and the specific properties and risk of any chemical or preparation either used for the treatment or generated during the treatment process.

Reference has been made to the operating and maintenance manuals of the manufacturer regarding the safety aspects and precautions of the installed ballast water management system.

Reference is made to information regarding the safety aspects of the onboard system before carrying out any operations.

[Provide in this part the details of safety guidance and specific safety aspects of the ballast water treatment system used. Detailed procedures and information for safe application of active substances or preparations onboard should be included. Associated hazards to the vessel and the crew, if any, are to be included.]

10.3 Ballast Water Exchange at Sea

10.3.1 General

The exchange of ballast water at sea has the potential to be more hazardous than ballast water operations conducted in port. Taking into consideration that adverse weather and sea conditions can be encountered in a short time while underway in an open sea, ballast water exchanges at sea are pre-planned well in advance. Safety procedures aimed at addressing the potential for increases in hull stresses, loss of transverse stability, bottom slamming, adverse effects on the vessel's maneuverability, over- and under-pressurization of ballast tanks, and the effects of sloshing loads on tanks represent only a few of those issues that warrant a heightened awareness from the crew and are included in this section of the BWMP

Precautions including keeping the hull girder stresses and bending moments within the permissible limits contained therein in the approved loading manual and confirming that the vessel maintains adequate intact stability, as contained in the approved trim and stability booklet, are adhered to throughout the exchange sequence.

Continual monitoring of the ballast water exchange operations is made. The monitoring includes the pumps, levels in tanks, the line and pump pressures, stability and hull girder stresses of the vessel.

Detailed instructions and procedures for crew safety, including but not limited to, proper lighting being provided when the crew is working on deck, procedures for opening sampling points and guidance regarding water on deck (where the flow-through method is used) are addressed.

10.3.2 Safety Considerations

The following general safety considerations are evaluated for each step of the full exchange sequence in the ballast water exchange:

- i)* Maintenance of adequate intact stability in accordance with an approved trim and stability booklet, taking into account the free surface effects of partially filled ballast tanks;
- ii)* Operation within acceptable ranges of the forward and aft drafts and trim with particular reference to bridge visibility, propeller immersions and slamming;
- iii)* Maintaining hull girder loads below the permissible seagoing strength limits of shear forces, bending moments and torsional moments in accordance with an approval loading manual;
- iv)* Risk of over- and under-pressurization of ballast tanks due to ballast pump capacity and vent size/location;
- v)* Need for greater margins on stability, strength and drafts in severe weather conditions;
- vi)* Weather routing in areas seasonally affected by cyclones, typhoons, hurricanes or heavy icing conditions;
- vii)* Likelihood of sloshing loads in ballast tanks that may be slack at any one time
- viii)* Safety precautions be taken when personnel are required to work on deck at night, in heavy weather, when ballast water overflows the deck and in freezing conditions.
- ix)* Contingency procedures for situations which may affect the ballast water exchange operation including deteriorating weather conditions, pump failure and loss of power

A listing of the safety considerations pertaining to the specific ballast water exchange method(s) selected is to be included in this section of the management plan.

Sequential Method [revise as applicable]

- Maintaining adequate intact stability
- Means to prevent the longitudinal hull girder stress and, where applicable, torsional hull girder stress level exceeding the permitted values with regard to the prevailing sea conditions
- Measures taken to prevent significant structural loads resulting from sloshing action of partially filled tanks, especially where the partially filled tanks are adjacent to empty tanks
- Maintaining forward and aft drafts and trim to provide for adequate bridge visibility, propeller immersion and minimum forward draft

Flow-Through Method [revise as applicable]

- Verifying air vent pipes are properly sized and open for continuous overflow
- Avoiding the risk of over-pressurization of ballast tanks and ballast piping
- Avoiding flowing and accumulation of water on the deck

Dilution Method [revise as applicable]

- Means to automatically maintain the ballast water level in the tanks at a constant level
- Provision of high and low water level alarms in ballast tanks
- Avoiding over- or under-pressurization of ballast water tanks and ballast piping

10.3.3 Precautionary Advice for Planning of Ballast Water Exchange Operation

During ballast water exchanges there may be times when, for a transitory period, one or more of the following criteria cannot be fully met or are found to be difficult to maintain:

- Bridge visibility standard (SOLAS V/22);
- Propeller immersion; and
- Minimum draft forward.

In planning a ballast water exchange operation that includes sequences which involve periods when the criteria for propeller immersion, minimum draft and/or trim, and bridge visibility cannot be met, the vessel's Master will assess:

- The duration(s) and time(s) during the operation that any of the criteria will not be met;
- The effects(s) on the navigation and maneuvering capabilities of the vessel; and
- The time to complete the operation.

A decision to proceed with the operation should only be taken when it is anticipated that:

- The ship will be in open water;
- The traffic density will be low;
- An enhanced navigational watch will be maintained including, if necessary, an additional lookout forward with adequate communications with the navigation bridge;
- The maneuverability of the vessel will not be unduly impaired by the draft and trim and/or propeller immersion during the transitory period; and
- The general weather and sea state conditions will be suitable and unlikely to deteriorate.

10.3.4 Conditions in Which Ballast Water Exchange at Sea Should Not be Undertaken

The BWMP includes a list below of circumstances in which ballast water exchange should not be undertaken. These circumstances may result from critical situations of an exceptional nature, force majeure due to stress of weather, known equipment failures or defects, or any other circumstances in which human life or safety of the vessel is threatened.

- Ballast water exchange at sea will be avoided in freezing weather conditions. However, when it is deemed absolutely necessary, particular attention will be paid to the hazards associated with the freezing of overboard discharge arrangements, air pipes, ballast system valves together with their means of control, and the accretion of ice on deck.
- Exchange at sea will be avoided when routing in areas seasonally affected by cyclones, typhoons and hurricanes, as well as in areas where short range visibility is crucial for navigation.
- [lists additional items as deemed necessary for the vessel in question]

10.4 Procedures for Safe Tank Entry

[Provide details of the company's tank entry procedure in this subsection.]

While these procedures may already be documented in the vessel's Safety Management System (SMS), because of their importance, please provide a highlight of the key elements of the safe tank entry procedures in this subsection including, but not limited to, the following topics:

- Authorization of entry
- General precautions
- Testing the atmosphere
- Precautions during entry]

11 Operational and Safety Restrictions

Details of specific operational and safety restrictions including those associated with the BWMS which affects the ship and/or the crew including reference to procedures for safe tank entry have been considered.

11.1 General

The implementation of the BWMP is largely dependent on the proper planning and execution of the task contained therein. Thus, pre-planning and training are essential to provide an effective management practice of the vessel's ballast. The detailed safety issues and procedures discussed in Sections 9 and 10 should be adopted during the development of the ship's voyage plan.

11.2 Ballast Water Treatment (Revise as applicable)

Operational manuals of the ballast water treatment system have been provided on board the vessel with key procedures included in the vessel's BWMP.

In the event of an emergency, suitable by-passes or overrides to protect the safety of the ship and crew have been provided.

For this vessel, the treatment systems that use active substances and preparations, the information of their intended use and application, including the quantity of active substances and preparations to be added to the ballast water and the maximum allowable concentration of the active substances there-in are contained in the operational manual. The onboard handling and storage of chemicals used to treat ballast water have been verified by a safety assessment.

[Safety procedures can be found in the operating manual. Instead of making reference to the manufacturer's operating manual, it is worthwhile to specifically provide in this part a summary of the key procedures related to the operation of the ballast water treatment system in order to emphasize the importance of such information to the safety of the vessel and its crew. This summary can be a bullet list.]

11.3 Exchange at Sea (Revise as applicable)

A ballast handling plan for each voyage will be prepared well in advance, taking into account the safety considerations discussed in Section 10. This section gives guidance on additional operational and safety handling procedures to be followed at sea.

Ballast exchange procedures, regardless of the method selected, are complex and may require a prolonged period, sometimes lasting days, to complete. Detailed training for all crew members that may participate in the exchange of ballast water are conducted so that the crew can safely perform the routine duties that are expected of them and respond to an emergency should it occur.

Operational limits defined for specific ballast exchange conditions will be adhered to during ballast operations.

When conducting ballast water exchange, the vessel's Master, Ballast Water Management Officer and crew will maintain a diligent watch in order to respond to power failures, ballast pump or pipe failures or structural failures. Should any of these events occur, they will be reported immediately to the company's safety office in accordance with established procedures.

Some shipping lanes may not comply with the requirements concerning the minimum distance and water depth that are required by the *Convention*. The vessel in such regions will use a rule-based risk assessment, making use of the exemptions or designated ballast water exchange zone in the region.

The crew are to regularly make themselves familiar with the company procedures related to entry into tanks.

12 Method(s) Used on board for Ballast Water Management

12.1 General

This section of the BWMP clearly identifies the specific **method or methods** of ballast water management utilized onboard the vessel. Details of the **method(s)** including the step-by-step procedures of operation of the management practices are provided.

A ballast handling plan for a voyage will be planned in advance, in a similar manner to the preparation of a cargo plan, with the same degree of thoroughness. The pre-planning is necessary in order to maintain safety in case of compliance with the ballast water exchange, ballast treatment or other BWM options. The safety information and operation/safety restrictions are taken into account when preparing the ballast handling plan.

12.2 Procedures for Ballast Water Treatment **[revise as applicable]**

[When a BWMS is installed on board and used as the vessel's primary ballast water management practice, the following information, as a minimum, is to be provided in this section under the different heading titles.]

[Example text:

The XYZ hypochlorite BWMS installed onboard M/V <Vessel Name> is used as the vessel's primary ballast water management practice in the normal operations of the vessel. The treatment process is a two-stage process: during ballasting, water is processed first by filtration to remove any particles of larger than 50 microns in size and then passes through the UV treatment to disinfect the organisms and to the vessel's ballast tanks.]

12.2.1 Particulars and Specification of the Treatment System **[revise as applicable]**

Particulars of Treatment System

- Make and model**
- Name of manufacturer**
- Treatment rated capacity**
- Operation scope of the treatment system [List the normal operating parameters of the treatment system, i.e., allowable operating temperature of the system, flow rate, specification of temperature, current and voltage of power unit, etc.]**

12.2.2 Operation of the Ballast Water Management System **[revise as applicable]**

[In this subsection, provide details of the important parameters, operation procedures and instructions for the operation of the treatment system and its main components, for example, considering the following

- Detailed procedures for operation of the system and individual main components of the treatment**

Provide simple instructions for steps to be taken in each of the operation scenarios below:

- For preparation of ballast operation, including the checks on the state/condition of various components**
- For starting the treatment system for ballasting including automatic and manual modes**
- Precautions on operation of the system and its components during ballasting**
- For stopping ballasting operation**
- For preparation of deballasting operation including the checks on state/condition of various components**

- For starting the treatment system for deballasting including automatic and manual modes
- For precautions on operation of the system and its components during deballasting
- For stopping deballasting operation
- For the shutdown of the treatment system
- Instructions for ballast water remaining in the system
- Detailed instructions on how active substances and preparations should be loaded on the vessel
- Detailed procedures for safe application of active substances and preparation to the treatment system.]

12.2.3 Control and Monitoring Equipment

The control equipment has the capability of automatically monitoring and adjusting necessary treatment dosages or intensities and other aspects of the BWMS of the vessel. The equipment also incorporates a continuous self-monitoring function during the period in which the BWMS is in operation.

The monitoring equipment records the proper functioning or failure of the BWMS and the control equipment will be able to store data for at least 24 months, and will display and print a record for official inspections as required. In the event of the control equipment being replaced, means are provided so that the data recorded prior to the replacement remains available on board for 24 months.

The control and monitoring equipment of the BWMS consists of the following:

- <xxxx xxxx xxxx xxxx xxxx - [identify the name of control or monitoring equipment and its function]
- <xxxx xxxx xxxx xxxx xxxx - [identify the name of control or monitoring equipment and its function]
- <xxxx xxxx xxxx xxxx xxxx - [identify the name of control or monitoring equipment and its function]
- <xxxx xxxx xxxx xxxx xxxx - [identify the name of control or monitoring equipment and its function]
- <xxxx xxxx xxxx xxxx xxxx - [identify the name of control or monitoring equipment and its function]

12.2.4 Safety and Emergency Procedures

The BWMS should not contain any substances of a dangerous nature, unless adequate arrangements for storage, application, mitigation, and safe handling are provided to mitigate any hazards introduced thereby. In case of any failure compromising the proper operation of the BWMS, audible and visual alarm signals will be given at all stations from which the ballast water operations are controlled.

The safety arrangements are given in <Chapter x of the XYZ System Operating and Maintenance Manual> [provide the correct site of reference]. In the event of an emergency, special bypass and interlock arrangements have been implemented and details can be found in <Chapter x of the XYZ BWT System Operating and Maintenance Manual> [provide the correct site of reference].

<Chapter 5 of the XYZ BWT System Operating and Maintenance Manual> [provide the correct site of reference] provides specific instructions for operating the BWMS for emergency ballasting or deballasting operations of the vessel for various scenarios envisaged [this paragraph as deemed appropriate.]

12.2.5 Maintenance [Modify this subsection as deemed appropriate]

The maintenance of the system has been included in the vessel's planned maintenance system (PMS), supplemented by individual maintenance plans for the main components. Procedures of the PMS and the execution of the maintenance plans of the system and the individual main components are detailed in <Chapter 7 of the XYZ BWT System Operating and Maintenance Manual> [provide the correct site of reference].

The Ballast Water Management Officer will routinely check the maintenance schedule sheet and the equipment history to verify whether inspection/maintenance has been executed as planned.

12.3 Procedures for Ballast Water Exchange [revise this section as applicable]

When ballast water exchange is designated as the primary ballast water management practice for a voyage, the ballast exchange method on M/V <Vessel Name> is to be the sequential method.

The sequential method entails completely emptying the ballast tanks of coastal waters and refilling with open-ocean water. Emptying of certain tanks may lead to significantly reduced stability, higher vessel structural stresses, high sloshing pressures and/or reduced forward drafts which may then increase the probability of bow slamming. At all times during the ballast water exchange sequence, the calculated stability and strength limits defined for the vessel as documented in the vessel's loading manual or trim and stability booklet must be adhered to.

The following preparations will be made prior to the commencement of the exchange:

- i) Assess the impact of the weather on the exchange operation for the duration of the exchange sequence
- ii) Verify that the departure or initial ballast condition as given in the plan is similar to the actual condition. If the actual initial loading condition does not compare well with the corresponding initial load case provided in the loading manual or trim and stability booklet, the ballast exchange sequence should be re-computed using the onboard loading program to verify conformity with all operating limits
- iii) Verify the vessel is in deep water and in the open ocean - at least 200 nautical miles from shore and 200 meters of water depth
- iv) Verify that there is sufficient time to complete the exchange while in deep water/open ocean. Exchange should only be commenced in any tank if there is sufficient time to complete the exchange.

[Example text:

The eight (8) initial loading conditions (fully loaded departure and arrival, normal ballast departure and arrival, heavy ballast departure and arrival) selected represent various loading scenarios and a ballast water exchange sequence for each loading condition has been established using the approved loading computer. Each step of an exchange sequence has been evaluated for compliance with the operating limits and the results of each exchange sequence is documented in the sample form of Ballast Water Exchange Sequence Table shown in Table 1 below. The printout results of evaluation for each initial loading condition are given in Appendix xx of this Plan.

After departing port and when in the appropriate open ocean location, proceed with the ballast sequence(s) given in Appendix xx of this Plan. These steps may be used as guidance in performing a ballast exchange sequence.]

TABLE 1
Sample Form of Summary of Ballast Water Exchange Sequence
Ballast Water Exchange Sequence Table

Voyage: _____
 From: _____
 To: _____
 Date (dd/mm/yr): _____
 Weather Conditions: _____

Sequence	A.P.T.		Tank No.		F.P.T	F.O./L.O./F.W. (Mt)	Draft Aft (M)	Draft Fwd (M)	Trim (M)	GM/KG (M)	BM %	SF %	Propeller Immersion %	Bridge Visibility (M)	Time Estimation (hr.)	Remarks											
	P	S	P	S	P	S	P	S	P	S	P	S	P	S													
Initial Condition																											
Step 1																											
Step 2																											
Step 3																											
Step 4																											
Step 5																											
Step 6																											
Step 7																											
Step 8																											
Step 9																											
Step 10																											

- Notes:
- 1) Master to be notified when the propeller will not be fully immersed
 - 2) Master to be notified that bridge visibility forward will be reduced
 - 3) Master or Ballast Water Management Officer to confirm that the tanks indicated as empty or filled are in that condition
 - 4) Noting difficulties to confirm tank levels of the vessel at sea, where a step results in the partial filling of a tank, additional conditions of $\pm 10\%$ of the partially filled tank level are to be assessed. (Steps resulting in partially filled tanks are to be avoided)

The following procedures will be adhered to for exchange operations:

- Measure the density and temperature of departure ballast
- Measure the density of ballast taken in each tank after exchange
- Make entries in appropriate forms or logs as required documenting times, locations and water depth of each step in the exchange sequence.

13 Sediment Management

13.1 General

In addition to being added weight, the carriage of sediments provides a suitable environment for the aquatic organisms and pathogens to survive for extended periods of time after the water they were originally in has been discharged. The re-introduction of ballast water may enable the organisms to redevelop and subsequently, upon discharge into another port or area, cause injury or damage to the local aquatic environment. This section provides instructions and procedures to the crew for the disposal of sediments both at sea via the use of features incorporated into the vessel's design or while in a port or shipyard to the shore-based facilities.

Regulation B-5 of the Convention requires that the vessels should, without compromising safety or operational efficiency, be designed and constructed with a view to:

- Minimize the uptake and undesirable entrapment of sediments,
- Facilitate the removal of sediments, and
- Provide safe access to allow for sediment removal and sampling.

As discussed in 9.4.1, practical steps are to be taken during ballast water uptake to avoid the accumulation of sediments. However, it is recognized that sediments will be taken onboard and will settle on tank surfaces. The amount of sediment accumulation is directly related to:

- i) The vessel's trading pattern,
- ii) Ballast tank design and configuration,
- iii) The frequency in which the ballast is taken on board,
- iv) The frequency of removal and
- v) The availability of reception facilities.

Any sediments remaining in the ballast tank may contain aquatic species. The volume of sediment in a ballast tank should be monitored on a regular basis. Sediment in ballast tanks should be removed in a timely manner in accordance with the ballast water management plan and as found necessary.

Where practicable, routine cleaning of the ballast tanks to remove sediments should be carried out in a timely manner in mid-ocean or under controlled arrangements in port, at a repair facility or in dry dock or as found necessary.

Additionally, fouling organisms should be removed from the hull and piping on a regular basis. Anchors and anchor chains should be rinsed upon retrieval to remove organisms and sediments at their point of origin.

The safety of the crew and the vessel should not be risked by any sediment control and handling practices.

13.2 Disposal of Sediments at Sea

Where sediment has accumulated in ballast tanks and disposal is to be made at sea, consideration should be given to flushing the tank bottoms and other surfaces in suitable locations, such as more than 200 nautical miles from the nearest land in waters having a depth over 200 meters, or in areas designated for ballast water exchange by the port or coastal State.

It is recognized that flushing with sea water or conducting ballast water exchange in open sea may only serve to suspend sediment or remove only a limited amount of the sediment. Therefore, the scheduling of in-tank cleaning of the ballast tanks should be incorporated in the vessel's maintenance schedule. Appropriate entries of the sediment disposal event should be made using the applicable form and kept in the Ballast Water Record Book.

[A description of the operational procedures and safety precautions for the disposal of sediments at sea is to be included here]

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13.3 Disposal of Sediments to Shore

Removal of sediment from ballast tanks should preferably be undertaken under controlled conditions in port, at a repair facility or in dry dock. The removed sediment should preferably be disposed of in a sediment reception facility if this is available, reasonable and practicable. A certificate concerning such disposal should be obtained from the reception facility and appropriate entries should be made using the applicable form and kept in the Ballast Water Record Book.

Additionally, tank sediments removed from the vessel under controlled arrangements in port or in dry dock can be disposed of in an approved upland disposal facility in accordance with local and national law.

[A description of the operational procedures and safety precautions for the disposal of sediments to shore-based reception facility is to be included here]

13.4 Additional Consideration

Biofouling is the attachment and accumulation of aquatic organisms on a metal surface or structure in contact with water for a period of time. Biofouling takes place in two different forms: microfouling and macrofouling. Microfouling occurs when microscopic organisms attach and adhere to the immersed surfaces. These organisms can be bacteria to slimes and algae. Macrofouling occurs when larger macro organisms attach to the immersed surfaces. Such macro organisms can be barnacles, seaweed, mollusks and any other organisms.

Biofouling control is not required by the Ballast Water Management Convention. It is however generally recognized that biofouling on a vessel can also result in the transfer and establishment of invasive aquatic species that may pose threats to local ecosystems and aquatic environments, similar to ballast water carried by a vessel. While there is currently no requirement for the BWMP to include maintenance procedures addressing biofouling, some Flag Administrations and local coastal states have amended or issued regulations on ballast water management plans incorporating biofouling maintenance and recordkeeping requirements. For example, the amended U.S. Coast Guard regulation on ballast water management which entered into force 21 June 2012 requires the biofouling maintenance and sediment removal procedures be included in the vessel's BWMP under USCG 33 CFR 151.2050(g).

When a vessel-specific Biofouling Management Plan has been prepared in accordance with the guidelines in MEPC.207(62) (see also ABS Guidance Notes on Biofouling Management Plan, January 2013 and the Biofouling Management Plan Template) and kept on board, this is considered fulfilling the requirements in USCG 33 CFR 151.2050(g). A reference to this Biofouling Management Plan in the vessel's BWMP is then considered acceptable.

14 Methods of Communication

The quick and effective communication between the vessel and the port State and local authorities regarding the discharge of ballast water is a significant component in this management of ballast water.

This section of the Plan should contain the information necessary to support this communication.

14.1 Communication Directory

As the requirements for the submission of ballast water reports vary greatly between parties to the Convention, it is recommended that the Ballast Water Management Plan contain a directory of those authorities that the vessel may be required to contact for any given voyage. This directory should contain the name of the appropriate authority, telephone number, email address and street address. It is recommended that the vessel's Master or the Ballast Water Management Officer contact the port State authorities well in advance of the vessel's arrival to obtain any specific instructions and requirements relative to the reporting and discharge of ballast waters.

14.2 Coastal State with Specific Procedures/Requirements for Discharge of Ballast Water

The actions to be taken by the vessel are:

- Follow the agreed-upon reporting procedure
- Contact the vessel's agent to ascertain the latest information on ballast discharge requirements in the water of the respective state
- Timely plan for all the above actions and that safety and operational restrictions are met
- Keep proper records and have them readily available for possible examination

14.3 Coastal State with No Specific Procedures/Requirements for Discharge of Ballast Water

The actions to be taken by the vessel are:

- Contact the vessel's agent and/or company to obtain the latest information on the discharge requirements at the port State territory
- Carry out the discharge of ballast water as per the ballast exchange sequence or by the use of a ballast water treatment system, as applicable
- Take into consideration safety and operational procedures related to respective discharge
- Keep proper records and have them readily available for possible examination

15 Duties of Designated Ballast Water Management Officer and Vessel's Master

The responsibility for the execution and recordkeeping associated with the management of ballast water is to be assigned to a responsible member of the vessel's crew. This section of the Plan provides guidance on those duties associated with ballast water management to be performed by the Ballast Water Management Officer and the vessel's Master. Vessel-specific listings of responsibilities are to be carefully identified and included in this section of the Ballast Water Management Plan.

15.1 Duties of Ballast Water Management Officer

Duties of the appointed officer (designated or rank officer) in charge of ballast water management may include:

- i)* Following the applicable Ballast Water Management Plan or develop a new Ballast Water Management Plan on the basis of the vessel's safety criteria, equipment availability and weather forecast
- ii)* The responsibility for proper implementation of the Ballast Water Management Plan including availability of personnel and equipment
- iii)* Informing the shore management, the owner or operator of the commencement/interruption/completion of ballast water management
- iv)* Maintaining the Ballast Water Record Book
- v)* Verifying the required ballast water management recordkeeping records and logs
- vi)* Preparing the appropriate national or port Ballast Water Reporting Form prior to the arrival at port
- vii)* Assisting the port State control or quarantine officers with any sampling that may need to be performed
- viii)* Providing crew training and familiarization in ballast water management requirements and applicable shipboard systems and procedures
- ix)* Other duties specified by the vessel's owners/operators

The Ballast Water Management Officer must periodically keep the vessel's Master advised on the progress of the Plan. If there is any doubt or if the management plan does not keep to the schedule, the Master is to be advised accordingly. Additionally, the appointed Ballast Water Management Officer is to inform the Chief Officer when commencing/stopping ballast operations at each stage.

15.2 Vessel's Master

Duties of the vessel's Master may include:

- i)* Confirmation that the Ballast Water Management Plan is clearly understood by the appointed Ballast Water Management Officer and by the other responsible officers who may be involved, and that all operations strictly conform to the safety procedures and parameters.
- ii)* When ballast water exchange is used, the Master shall consider the Precautionary Advice to Masters When Undertaking Ballast Water Exchange Operations (MSC/Circ.1145). Where transitory deviations of bridge visibility (SOLAS V22), propeller immersion and minimum draft forward during ballast water exchange are acceptable, the Master is to be notified by a note placed in the Ballast Water Management Plan.
- iii)* Coordinate communications with coastal and port State authorities through established procedures. Such communications may include, but may not be limited to, submission of ballast water reporting forms, coordinating inspections of ballast water logs and sampling of ballast water, local restrictions or instructions related to the discharge of ballast water, designated areas for discharge of ballast water in the event that the vessel was unable to discharge the ballast water due to weather or mechanical failures.

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16 Recording Requirements

16.1 General Requirements

In accordance with Regulation B-2 of the Annex to the Convention, a record is to be kept of each ballast water and sediment management operation. This includes discharges at sea and to the reception facilities. The designated Ballast Water Management Officer is responsible for facilitating the administration of ballast water management and treatment procedures on board the vessel, maintaining appropriate log sheets and records, and verifying that ballast water management and/or treatment procedures are followed, properly recorded and kept up-to-date.

The vessel's ballast water records should be accessible and readily available for examination by port State authorities at all reasonable times, and in case of an unmanned vessel under tow, it may be kept on the towing vessel.

16.2 Ballast Water Record Book

In accordance with Regulation B-2, each ship is to have on board a ship-specific ballast record book that may be an electronic record system, or that may be integrated into another record book or system. Entries in the Ballast Water Record Book shall be made on each of the following occasions:

- a) When ballast water is taken on board:
 - Date, time and location of port or facility of uptake (port or lat./long.) Depth if outside port
 - Estimated volume of uptake in cubic meters
 - Signature of officer in charge of the operation
- b) Whenever ballast water is circulated or treated for ballast water management purpose:
 - Date and time of operation
 - Estimated volume circulated or treated in cubic meters
 - Whether conducted in accordance with the BWMP
 - Signature of the officer in charge of the operation
- c) When ballast water is discharged into the sea:
 - Date, time and location of port or facility of discharge (port or lat./long.)
 - Estimated volume of discharged in cubic meters plus remaining volume in cubic meters
 - Whether approved ballast water management plan had been implemented prior to discharge
 - signature of the officer in charge of the operation
- d) When ballast water is discharged to a reception facility:
 - Date, time and location of uptake
 - Date, time and location of discharge
 - Estimated volume discharged or taken up, in cubic meters
 - Whether approved ballast water management plan had been implemented prior to discharge
 - Signature of the officer in charge of the operation
- e) Accidental or other exceptional uptake or discharge of ballast water:
 - Date and time of occurrence
 - Port or position of the ship at the time of occurrence
 - Estimated volume of ballast water discharged

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- Circumstances of uptake, discharge, escape or loss, the reason therefor and general remarks
- Whether approved ballast water management plan had been implemented prior to discharge
- Signature of the officer in charge of the operation

16.3 Record-keeping Forms

16.3.1 Ballast Water Reporting Form

The Ballast Water Reporting Form is to be used when reporting ballast water management to a national or local authority that requests information in advance. When ballast water exchange is used as the ballast water management practice, the Ballast Water Reporting Form (shown in <Annex 4.a>) [provide the correct reference as appropriate] is to be used based on IMO Assembly Resolution A.868(20). When a treatment system is used on board for managing the ballast water, the form given in < Annex 4.b>) [provide the correct reference as appropriate] is to be used

Communication with the coastal and port States will be made to obtain a copy of any reporting forms and/or instructions which may be unique to that State. Prior to entering into the US Waters, the US Ballast Water Reporting Forms from the NBIC (National Ballast Information Clearinghouse) via the NBIC website at <http://invasions.si.edu/NBIC/bwform.html> will be obtained. The completed form will be submitted directly to NBIC in accordance with the instructions provided on the website. When this vessel uses its ballast water treatment system accepted under the USCG Alternative Management Systems (AMS) in California waters, a “Ballast Water Treatment Supplemental Reporting Form” will be submitted in addition to the “standard” US Ballast Water Reporting Form.

16.3.2 Ballast Water Handling Records

In compliance with Regulation B-2.5, each operation concerning ballast water shall be fully recorded without delay in the Ballast Water Record Book and each entry shall be signed by the officer in charge of the operation concerned and each completed sheet be signed by the Master. Recordkeeping of the ballast water management activities covering the occasions in 16.2 is accomplished by the use of the following log forms:

- i) A ballast water handling form outlining the ballast water management activities onboard; and
- ii) A narrative record of unusual events.

These two forms can be found in < Annex 4.c and 4.d> [provide the correct references as appropriate]. These forms serve as a guide for recording the information concerning the source of the ballast water on board and what ballast water operations have been undertaken during the voyage. It is to be noted that the “narrative record of unusual events” form is also applicable for use in record keeping of activities related to sediment removal during dry dock or by tank flushing at sea.

Even when the vessel is not currently trading in an area where ballast water information is required to be reported, this vessel will have these forms completed, documenting the history of what water has been carried and the ballast water operations undertaken on board.

When the concerned coastal or port State has its own ballast water handling form, then those forms will be used. When this vessel intends to enter the waters of the State of California, a complete a ballast water log will be completed. This is a separate log that outlines the ballast water management activities of each tank onboard a vessel.

17 Crew Training and Familiarization

To assist in the implementation of the Ballast Water Management Plan, the vessel's crew are trained and familiar with the tasks expected of them. The training, together with an understanding as to the reasons why ballast water management is necessary, will promote the effective and efficient operations in accordance with this BWMP.

Training and familiarization of the vessel's crew is essential in the management of ballast water and sediments. Specifically, the training includes instructions on the requirements of the Ballast Water Management Convention, the implementation of the Ballast Water Management Plan, ballast water and sediment management procedures, the recordkeeping requirements of ballast water operations, the Ballast Water Record Book and log forms, and reporting functions. This training is particularly sensitive to those matters concerned with the safety of the vessel and the crew. Records of conducted training are included in Annex 6.

Where a treatment system is installed on board and is used as the main ballast water management practice, the vessel's Master and crew, as appropriate, are to be trained in the operation, handling procedures and maintenance of the installed treatment system, particularly with regard to the operational or safety aspects associated with the treatment system.

The vessel's Master and the crew engaged in the ballast water exchange at sea are trained and familiar with the following as appropriate:

- i) The vessel's ballast pumping and piping arrangements, positions of associated air and sounding pipes, positions of compartment and tank suction and pipelines connecting them to the vessel's ballast pumps and, when using the flow-through method, the openings used for release of water from the top of the tank, together with overboard discharge arrangements
- ii) The method of confirming that sounding pipes are clear and that air pipes and their non-return devices are in good working order
- iii) The different times required to undertake the various ballast water exchange operations, including the time to complete individual tanks
- iv) The location of and access to sampling points
- v) The method(s) in use for ballast water exchange at sea with particular reference to the required safety precautions
- vi) The need to continually monitor ballast water exchange operations
- vii) The method used onboard for ballast recordkeeping, reporting and recording of routine soundings of the ballast tanks

Provisions for crew training and familiarization include the following:

- Requirements of a general nature regarding ballast water management
- Training and information on ballast water management practices
- Ballast water exchange
- Ballast water treatment systems
- General safety considerations
- The ballast water record book and maintenance of records
- The operation and maintenance of the installed ballast water treatment systems
- The safety aspects associated with the particular systems and procedures used on board the vessel which affect the safety and health of crew and passengers and/or the safety of the vessel
- Precautions for entering tanks for sediment control

- Procedures for the safe handling and packaging of sediments
- Storage of sediments

The vessel's Master and Ballast Water Management Officer regularly verify that the personnel assigned to key responsibilities in ballast water management practice(s) are suitable and well trained according to the above, special attention being given to the safety aspects related to the subject procedures.

Training records are maintained with this Ballast Water Management Plan.

Vessels operating in the waters of the United States are to maintain onboard a standalone training plan or other documentation, owners/operators must maintain a written training plan describing the training to be provided and a record of the date of training provided to each person trained. (Final VGP 2013/2.2.3.1).

18 Exemptions

18.1 General

Exemptions may be granted to a vessel from Regulations B-3 (with respect to the application of Ballast Water Management for Ships) or C-1 (with respect to Additional Measures) by a party or parties under regulation A-4 of the Convention as follows:

- Application for an exemption is to be supported by a risk assessment based on the Guidelines for risk assessment under Regulation A-4 of the BWM Convention (G7), MEPC.162(56)
- Exemptions granted shall be effective only after communication with the IMO and circulation of relevant information to the Parties
- Any exemptions granted to this vessel are recorded here in the BWMP and the vessel's Ballast Water Record Book

18.2 Exemptions Granted to the Vessel

The following exemptions have been granted to this vessel:

[In this part, provide information of the applications for and the granting of exemptions by the port State authorities. Append an individual copy of the exemptions granted in the Plan.]

Individual copies of the exemptions are included as Annex 7.

19 Supporting Documentation

The following documents have been appended to this Ballast Water Management Plan:

- i)* The International Convention for the Control and Management of Ship's Ballast Water and Sediments, February 2004
- ii)* IMO Resolution A.828(20), Guidelines for Control and Management of Ship's Ballast Water to Minimize the Transfer of Harmful Aquatic Organisms and Pathogens
- iii)* Latest National or Local Quarantine Requirements for Ballast Water Management

[Modify the above list as deemed appropriate.]

ANNEX **1 Ballast Water System Drawings and Data**

[In this annex, insert copies of the relevant drawing, plans and/or documents of the vessel’s ballast system, including the following:

- Ballast tank arrangement (profile, plan and section views)

FIGURE 1
Sample Ballast Tank – Profile View



FIGURE 2
Sample Ballast Tank Arrangement – Plan View

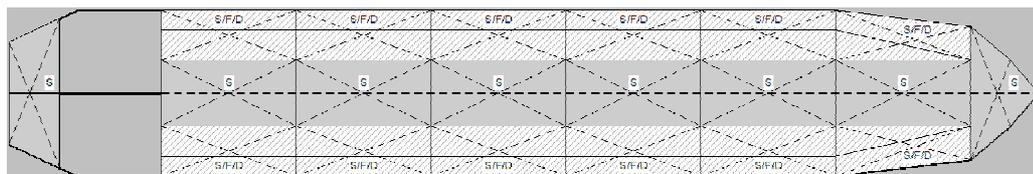
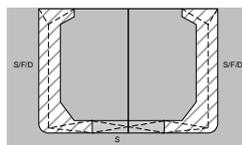


FIGURE 3
Sample Ballast Tank Arrangement – Section View



- Ballast water capacity plan

TABLE 1
Sample Ballast Water Capacity Plan

Tank Number	Location/Frame Number	Capacity (m ³)	Available Pumps	Designated Exchange Methods
XXXX	XXXX	XXXX	XXXX	XXXX

- Ballast water piping and pumping arrangement (including air pipes, discharge/overflows, and sounding/gauging arrangement)

TABLE 2
Sample Ballast Pump Data

Pump Name	Rated Capacity (m ³ /hour)	Type	Location
xxxx	xxxx	xxxx	xxxx

TABLE 3
Sample Overflow and Filling Line Data

Tank Name	Number of overflow lines per tank (air vents or overflow lines per tank)	Overflow line nominal diameter (mm)	Overflow lines total cross section area (mm ²)	Filling line nominal diameter (mm)	Filling line total cross sectional area (mm ²)	Ratio of overflow filling line total cross section area
xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx

- Ballast water management system used on board
 Technical information and data of the ballast water management system installed on board can be found in Annex 2
- A list or diagrams indicating the location of ballast water sampling and access points in pipelines and ballast water tanks]

2 Information of Ballast Water Management System Installed Onboard

1 General

[Provide in this part an overview of the ballast water management system installed on board the vessel, including but not limited to the following information:

- Name of the BWMS manufacturer
- Type and model of the system installed
- Treatment rated capacity
- Power requirement
- Description of treatment method(s) employed
- Reference to the type approval certificate
- List of major components of the treatment system
- Description of the ballast water treatment system, including the general arrangement, piping, monitoring and control equipment, alarms, bypasses, etc.
- Location of sample points
- Limiting conditions, if any]

2 System Manuals

[Insert a copy of the manufacturer's operational and maintenance manuals of the ballast water treatment system.]

3 Material Safety Data Sheets

[Insert a copy of the updated material safety sheets (MSDS) for each chemical or active substance used onboard or generated as a byproduct during the treatment process.]

4 Type Approval Certificate of Ballast Water Management System

[Insert a copy of the type approval certificate]

ANNEX **3 Ballast Water Record Book**

The attached Ballast Water Record Book was developed based on Appendix II of the International Convention for the Control and Management of Ship's Ballast Water and Sediments, 2004 and is provided for the assistance of owners/operators.

Form of Ballast Water Record Book

(Based on Ballast Water Management Convention, Annex, Appendix II)

Ballast Water Record Book

International Convention for the Control and Management of
Ship's Ballast Water and Sediments

Period from: _____ To: _____

Name of vessel: _____

IMO number: _____

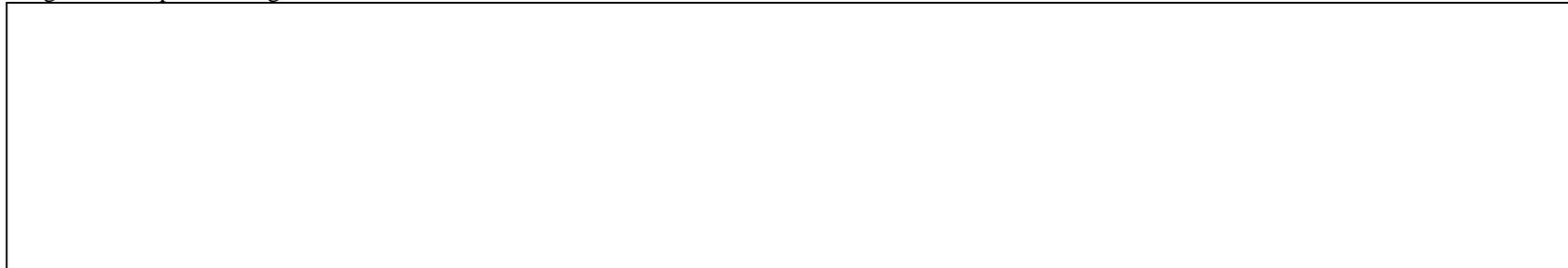
Gross tonnage: _____

Flag: _____

Total ballast water capacity (in cubic meters): _____

The ship is provided with a ballast water management plan: []

Diagram of ship indicating ballast tanks:



1. Introduction

In accordance with Regulation B-2 of the Annex to the International Convention for the Control and Management of Ship's Ballast Water and Sediments, a record is to be kept of each ballast water operation. This includes discharges at sea and to reception facilities.

2. Ballast water and ballast water management

Ballast water means water with its suspended matter taken on board a ship to control trim, list, draught, stability or stresses of a ship. Management of ballast water shall be in accordance with an approved Ballast Water Management Plan and taking into account guidelines developed by the IMO.

3. Entries in the Ballast Water Record Book

Entries in the Ballast Water Record Book shall be made on each of the following occasions:

3.1 When ballast water is taken on board:

- .1 Date, time and location of port or facility of uptake (port or lat./long.), depth if outside port
- .2 Estimated volume of uptake in cubic meters
- .3 Signature of the officer in charge of the operation

3.2 Whenever ballast water is circulated or treated for ballast water management purposes:

- .1 Date and time of operation
- .2 Estimated volume circulated or treated (in cubic meters)
- .3 Whether conducted in accordance with the Ballast Water Management Plan
- .4 Signature of the officer in charge of the operation

3.3 When ballast water is discharged into sea:

- .1 Date, time and location of port or facility of discharge (port or lat./long.)
- .2 Estimated volume discharged in cubic meters plus remaining volume in cubic meters
- .3 Whether approved Ballast Water Management Plan had been implemented
- .4 Signature of the office in charge of the operation

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- 3.4 When ballast water is discharged to a reception facility:
 - .1 Date, time and location of uptake
 - .2 Date, time and location of discharge
 - .3 Port or facility
 - .4 Estimated volume discharged or taken up, in cubic meters
 - .5 Whether approved Ballast Water Management Plan had been implemented prior to discharge
 - .6 Signature of officer in charge of operation
- 3.5 Accidental or other exceptional uptake or discharges of ballast water:
 - .1 Date and time of occurrence
 - .2 Port or position of the ship at the time of occurrence
 - .3 Estimated volume of ballast water discharged
 - .4 Circumstances of uptake, discharge, escape or loss, the reason therefor and general remarks
 - .5 Whether approved business water management plan had been implemented prior to discharge
 - .6 Signature of officer in charge of operation
- 3.6 Additional operational procedure and general remarks

4 Volume of ballast water

The volume of ballast water on board should be estimated in cubic meters. The Ballast Water Record Book contains many references to estimated volume of ballast water. It is recognized that the accuracy of estimating volumes of ballast is left to interpretation.

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Record of Ballast Water Operation

Sample Ballast Water Record Book Page

Name of Vessel: _____

Distinctive number or letters: _____

Date	Item (number)	Record of operations	Signature of officer in charge

Signature of Master _____

SHIP NAME:
IMO NUMBER:

BALLAST WATER MANAGEMENT PLAN

ANNEX **4 Ballast Water Recordkeeping Forms**

- .a Ballast Water Reporting Form for Ballast Water Exchange
- .b Ballast Water Reporting Form including Ballast Water Treatment
- .c Form of Ballast Water Handling Log
- .d Form of Narrative Record of Unusual Events

4.a Ballast Water Reporting Form for Ballast Water Exchange

BALLAST WATER REPORTING FORM

(Based on IMO Resolution A.868(20), Appendix 1)

1. VESSEL INFORMATION

2. BALLAST WATER

Vessel Name:	Type:	IMO Number:	Specify Units: m ³ , MT, LT, ST
Owner:	GT:	Call Sign:	Total Ballast Water Onboard:
Flag:	Arrival Date:	Agent:	
Last Port and Country:		Arrival Port:	Total Ballast Water Capacity:
Next Port and Country:			

3. BALLAST WATER TANKS

Ballast Water Management Plan onboard? Yes [] No []

Total number of tanks onboard: _____ Number of tanks in ballast: _____ If none in ballast go to #5

Number of tanks exchanged: _____ Number of tanks not exchanged: _____

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5. IMO BALLAST WATER GUIDELINES AND THE INTERNATIONAL CONVENTION ONBOARD? Yes [] No []

RESPONSIBLE OFFICER:

NAME _____ (PRINTED)

TITLE _____ (PRINTED)

SIGNATURE _____ Date _____

Guidance for Completing the Ballast Water Reporting Form

<p>Please fill out in English and make every effort to PRINT clearly</p> <p>Section 1: Vessel information</p> <p>Vessel name: Print the name of the vessel.</p> <p>Owner: The registered owner(s) or operator(s) of the vessel.</p> <p>Flag: Country under which the ship normally operates. Write the full name Do not use abbreviations.</p> <p>Last port and country: Last port and country at which the vessel called before arrival in the current port. Write the country and port names in full. Do not use abbreviations.</p> <p>Next port and country: Next port and country at which the vessel will call, upon departure from the current port. Write the country and port names in full. Do not use abbreviations.</p> <p>Type: List specific vessel type, write out or use the following abbreviations: bulk (bc); ro-ro (rr); container (cs); tanker (ts); passenger (pa); oil/bulk ore (ob); general cargo (gc). Write in any additional vessel types.</p> <p>GT: Gross tonnage.</p> <p>Arrival date: Arrival date to current port. Use European date format (DDMMYY).</p> <p>IMO number: Identification number of the vessel used by the International Maritime Organization.</p> <p>Call sign: Official call sign.</p> <p>Agent: Agent used for this voyage.</p> <p>Arrival port: This is the current port. Write the name in full. Do not use an abbreviation.</p> <p>Section 2: Ballast water <i>(Note: Segregated ballast water = clean, non-oily ballast)</i></p> <p>Total ballast water onboard: Total segregated ballast water upon arrival to current port, with units.</p> <p>Total ballast water capacity: Total volume of all ballast tanks or holds, with units.</p> <p>Section 3: Ballast water tanks</p> <p>Count all tanks and holds separately (e.g., port and starboard tanks should be counted separately).</p> <p>Total no. of tanks onboard: Count all tanks and holds that can carry segregated ballast water.</p>	<p>Ballast water management plan: Do you have a ballast water management plan specific to your vessel onboard? Check Yes or No.</p> <p>Use of Management plan: Do you follow the above management plan? Check Yes or No.</p> <p>No. of tanks in ballast: Number of segregated ballast water tanks and holds with ballast at the onset of the voyage to the current port. If you have no ballast water onboard, go to section 5.</p> <p>No. of tanks exchanged: This refers only to tanks and holds with ballast at the onset of the voyage to the current port.</p> <p>No. of tanks not exchanged: This refers only to tanks and holds with ballast at the onset of the voyage to the current port.</p> <p>Section 4: Ballast water history</p> <p>Ballast water source: List all tanks and holds that you have discharged or plan to discharge in this port (carefully write out, or use codes listed below the table). Follow each tank across the page listing all source(s), exchange events, and/or discharge events separately. If the ballast water history is identical (i.e., the same source, exchange and discharge dates and locations), like tanks can be combined (example: wing tank 1 with wing tank 2 both water from Belgium, exchanged Oct. 3rd, mid ocean – can be combined. See first line of the table in the sample form). Use an additional page if necessary. Include ship name, date and IMO number at the top of each page.</p> <p>Date/Time: Date and time of ballast water uptake. Use European format (DDMMYY) and (HHMMSS).</p> <p>Port or latitude/longitude: Location of ballast water uptake. If carried out in port, write the port name in full.</p> <p>Volume: Volume of ballast water uptake, with units.</p> <p>Temperature: Water temperature at time of ballast water uptake, in degrees Centigrade (Celsius).</p> <p>Ballast water exchange: Indicate exchange method: Circle empty/refill or flow through.</p> <p>Date/Time: Date and time of ballast water exchange. Use European format (DDMMYY) and (HHMMSS).</p>	<p>Endpoint or latitude/longitude: Location of ballast water exchange. If it occurred over an extended distance, list the end point latitude and longitude.</p> <p>Volume: Volume of ballast water exchanged, with units.</p> <p>Percentage exchanged: Percentage of ballast water exchanged. Calculate this by dividing the number of units of water exchanged by the original volume of ballast water in the tank. If necessary, estimate based on pump rate. (Note: For effective flow-through exchange this value should be at least 300%).</p> <p>Sea height (m): Document the sea height in meters at the time of the ballast exchange (Note: this is the combined height of the wind seas and swell, measured from crest to trough).</p> <p>Ballast water discharge:</p> <p>Date/Time: Date and time of ballast water discharge. Use European format (DDMMYY) and (HHMMSS).</p> <p>Port or latitude/longitude: Location of ballast water discharge. If discharged in a port, write the name of the port in full.</p> <p>Volume: Volume of ballast water discharged, with units.</p> <p>Salinity: Document salinity of ballast water at the time of discharge, with units, [i.e., specific gravity (sg) or parts per thousand (ppt)].</p> <p>If exchanges were not conducted, state other control action (s) taken: If exchanges were not made on all tanks and holds to be discharged, what other actions were taken? (i.e., transfer of water to a land-based holding facility or other approved treatment).</p> <p>If none, state reason why not: List specific reasons why ballast exchange was not done. This applies to all tanks and holds being discharged.</p> <p>Section 5: IMO Ballast water</p> <p>IMO Ballast Water Convention and IMO Guidelines onboard. Is a copy of the IMO Convention and Guidelines on board? Check Yes or No.</p> <p>Responsible officer's name and title (printed) and signature: e.g., Master, chief officer or chief engineer must PRINT their name and title and sign the form.</p>
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4.b Ballast Water Reporting Form Including Ballast Water Treatment

BALLAST WATER REPORTING FORM

(Modified form based on Resolution A.868(20))

1. VESSEL INFORMATION

2. BALLAST WATER

Vessel Name:	Type:	IMO Number:	Specify Units: m ³ , MT, LT, ST
Owner:	GT:	Call Sign:	Total Ballast Water Onboard:
Flag:	Arrival Date:	Agent:	
Last Port and Country:	Arrival Port:		Total Ballast Water Capacity:
Next Port and Country:			

3. BALLAST WATER TANKS

Ballast Water Management Plan onboard? Yes [] No []

Total number of tanks onboard: _____ Number of tanks in ballast: _____ If none in ballast go to #5

Number of tanks exchanged: _____ Number of tanks not exchanged: _____ Number of tanks underwent treatment: _____

5. IMO BALLAST WATER GUIDELINES AND THE INTERNATIONAL CONVENTION ONBOARD? Yes [] No []

RESPONSIBLE OFFICER:

NAME _____ (PRINTED)

TITLE _____ (PRINTED)

SIGNATURE _____ Date _____

Guidance for Completing the Ballast Water Reporting Form

<p>Fill out in English and make every effort to PRINT clearly</p> <p>Section 1: Vessel Information Vessel Name: Print the name of the vessel Owner: The registered owner(s) or operator(s) of the vessel Flag: Country under which the ship normally operates. Write the full name in full. Do not use abbreviations. Last port and country: Last port and country at which the vessel called before arrival in the current port. Write the port and country names in full. Do not use abbreviations. Next Port and Country: Next port and country at which the vessel will call upon departure from the current port. Write the port and country names in full. Do not use abbreviations. Type: List specific vessel type, write out the following abbreviations: bulk (be), ro-ro (rr), container (cs), tanker (ts), passenger (pa), oil bulk ore (obo), general cargo (ge). Write in any additional vessel type. GT: Gross tonnage Arrival Date: arrival date to current port. Use European date format (dd-mm-yy) IMO Number: Identification number of the vessel used by the International Maritime Organization Call Sign: Official call sign Agent: Agent used for this voyage Arrival Port: This is the current port. No abbreviation for ports. Write the name in full.</p> <p>Section 2: Ballast Water (Note: Segregated ballast water = clean, non-oily ballast)</p> <p>Total Ballast Water Onboard: Total segregated ballast water upon arrival to current port, with units Total Ballast Water Capacity: Total volume of all ballast tanks or holds, with units, when no cargo is on board.</p>	<p>Section 3: Ballast Water Tanks Count all tanks and holds separately (e.g. port and starboard tanks should be counted separately) Total Number of tanks Onboard: Count all tanks and holds that can carry segregated ballast water</p> <p>Ballast Water Management Plan Onboard: Do you have a ballast water management plan specific to your vessel onboard? Check Yes or No. Use of Management Plan: Do you follow the above management plan? Check Yes or No. Number of tanks in Ballast: Number of segregated ballast water tanks and holds with ballast at the onset of the voyage to the current port. If you have no ballast water onboard, go to section 5. No of tanks exchanged: This refers only to tanks and holds with ballast at the onset of the voyage to the current port. Number of tanks not exchanged: This refers only to tanks and holds with ballast at the onset of the voyage to the current port. Number of tanks underwent treatment: This refers only to the tanks and holds with the ballast underwent treatment.</p> <p>Section 4: Ballast Water History Two “standard” tabulation forms are provided, one for the ballast water exchange events and the other include also the ballast water treatment practice.</p> <p>a) Ballast Water Exchange History Recorded all tanks that will be discharged in the port State of arrival (one tank per line). If none, go to section 4.b. Tanks/Holds: This refers only to the tanks and holds with ballast at the onset of the voyage that have underwent the ballast water exchange in open water and are to be discharged at the arrival port. Careful write out the tank name or use the tank codes listed below the table.</p>	<p>Entries of data should be made one tank per line. Follow each tank across the table, listing all The tank codes below the table. Follow each tank across the page, listing all source(s), exchange events, and/or discharge events separately. If ballast water history is identical (i.e. same source, exchange and discharge dates, locations and exchange volumes, etc.), sets of tanks can be combined (example: wing tank 1 and wing tank 2, both water from Belgium, exchanged 02.11.97, mid ocean). Additional sheets of ballast water history should include the vessel's name, IMO number, the arrival port and date at the top of the supplemental form.</p> <p>Ballast Water Source Date/Time: Date and time of ballast water uptake. Use the European date format in (dd-mm-yy) and the two-digit time format in (hh:mm)</p> <p>Port/Facility or Latitude/Longitude: Location of ballast water uptake. No abbreviations for ports. Volume of Uptake: Volume of ballast water uptake in m³ Temperature: Water temperature at time of ballast water uptake, in degrees Centigrade (Celsius)</p> <p>Ballast Water Exchange Date/Time: Date and time of ballast water exchange. Use date format in dd-mm-yy and time in two digit format as hh:mm.</p> <p>Endpoint or Latitude/Longitude: Location of ballast water exchange. If it is occurred over an extended distance, list the end point in latitude and longitude.</p> <p>Volume of Ballast Exchanged: Volume in m³ of Ballast exchanged.</p>
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Guidance for Completing the Ballast Water Reporting Form (continued)

<p>Percentage Exchanged: Percentage of ballast of ballast water exchanged. Calculate this by dividing the number of units of water exchanged by the original volume of ballast water in the tank. If necessary, estimate this based on pump rate. (Note: For effective flow through exchange this value should be at least 300%).</p> <p>Sea Height: Record the sea height in meters at the time of the ballast exchange (Note: this is the combined height of the wind seas and swell, measured from crest to trough. It does not refer to the depth.)</p> <p>Ballast Water Discharge Date/Time: Date and time of ballast water discharge. Use date format in dd-mm-yy and time in two digit format as hh:mm. Discharge Location, Port of Latitude/Longitude: Location of ballast water discharge, no abbreviations for ports. Volume of Ballast Discharge: Volume of ballast water discharge in m³ Salinity: Document salinity of ballast water at the time of discharge with units in specific gravity (s.g.) or parts per thousand (ppt)</p> <p>If exchange were not conducted, state other control action(s) taken: If exchange were not made on all tanks and holds to be discharged, what other actions were taken? E.g. transfer of water to a land-based holding facility or other approved treatment.</p> <p>If none, state reasons why not: List specific reasons why ballast exchange was not done, This applies to all tanks and holds being discharged.</p> <p>b) Ballast Water Treatment History If the vessel does not use treatment system on ballast water, go to section 5.</p>	<p>Treatment System Treatment Method: Identify the treatment method(s) used by the treatment system installed. For example: “filtration + ultraviolet light” or “cavitation + electrochemical oxidation”, etc. Make/Model: Identify the make and model of the treatment system installed, for example: Hyde Guardian/HG250S.</p> <p>Did the treatment system experience any failure/malfunction that affected the treatment of ballast water to be discharged at this arrival port: The IMO G4 Guidelines requires any failure/malfunction of the treatment system be recorded in the ship’s Ballast Water Record Book. Check the appropriate Yes or No box whether the vessel or the ballast water treatment system experienced any failure/malfunction or unexpected situation that may have impacted the treatment of ballast water to be discharged at this arrival port.</p> <p>If <u>Yes</u> is checked, the following information is to be provided: Date of failure/malfunction: Identify the date or dates when the failure/malfunction of the treatment system occurred. Use date format in dd-mm-yy. Explain the failure/malfunction: Describe the failure/malfunction or unexpected situation. How was the situation resolved: If applicable, describe how the situation was resolved.</p> <p>Ballast Treatment Record Tanks/Holds: Similar to the ballast water exchange history table, list all tanks and holds that you have discharged or plan to discharge. Follow each tank across the page , listing all source(s), treatment events and discharges separately. If none, go to section 5.</p>	<p>Ballast Water Source Date/Time: Date and time of ballast water uptake. Use the European date format in (dd-mm-yy) and the two-digit time format in (hh:mm) Port/Facility or Latitude/Longitude: Location of ballast water uptake. No abbreviations for ports. Volume of Uptake: Volume of ballast water uptake in m³ Temperature: Water temperature at time of ballast water uptake, in degrees Centigrade (Celsius)</p> <p>Treatment History Date of First Treatment: Indicate the date (dd-mm-yy) when ballast water treatment was initiated for that tank. If treatment occurred over several days, list the day when the treatment began. Date of Second Treatment: If applicable, provide the date (dd-mm-yy) when secondary ballast water treatment occurred. For example: If ballast water treated with UV both on uptake and discharge, put the date of treatment on uptake as the first treatment date and the date of treatment on discharge as the second treatment date. Volume of Ballast Treated: For each tank to be discharged, list total volume of ballast water treated by the ballast water treatment system</p> <p>Additional sheets used: Check the appropriate Yes or No box whether there are additional sheets of ballast water treatment history data.</p> <p>Section 5 IMO Ballast Water Guidelines and the International Convention onboard: Do you have the IMO Assembly Resolution A.868(20) and the Ballast Water Management Convention onboard your vessel? Check Yes or No. Responsible Officer’s Name and Title (Printed) and Signature: e.g. Master chief officer or chief engineer must Print their name and title and sign the form.</p>
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SHIP NAME:
IMO NUMBER:

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4.c Form for Ballast Water Handling Log

Name of Vessel _____ Flag _____
 IMO Number _____ Call Sign _____

Date	Time	Location Port or Facility of Uptake (Port or Lat./Long.)	Estimated Volume of Uptake (in cubic meters)	Location of the Exchange Operation (Port or Lat./Long.)	Depth of Water at Exchange Location (in meters)	Estimated Volume of Ballast Water Discharged at Sea (in cubic meters)	Estimated Volume of Ballast Remaining (in cubic meters)	Estimated Volume of Ballast Water Discharge in Port or Facility (in cubic meters).	Signature of Officer in Charge	Rank

Note: Any accidental or other exception uptake or discharge of Ballast Water shall also be recorded. The circumstances associated with the accidental or other exceptional uptake, discharge, escape or loss and the reason therefore and any general remarks associated with such an event shall also be recorded.

Responsible Officer

Name _____ (Printed) Title _____ (Printed)

Signature _____ Date _____

SHIP NAME:
 IMO NUMBER:

BALLAST WATER MANAGEMENT PLAN

4.d Form of Narrative Record of Events Related to Ballast Water Management Onboard

Name of Vessel _____ IMO Number _____ Gross Tonnage _____
 Flag _____ Total Ballast Water Capacity (in cubic meters) _____

Record events which are relevant to ballast water management and which are likely to be of interest to quarantine officers, such as sediment removal during dry-dock, or tank flushing at sea. Each entry should be completed with the signature and the rank of the officer making the entry.

<i>Date</i>	<i>Activities</i>	<i>Comments</i>	<i>Signature</i>

Responsible Officer

Name _____ (Printed) Title _____ (Printed)
 Signature _____ Date _____

SHIP NAME:
IMO NUMBER:

BALLAST WATER MANAGEMENT PLAN

ANNEX **5 Supporting Documents**

[Insert copies of the following documents:

- a)* The International Convention for the Control and Management of Ship's Ballast Water and Sediments, February 2004
- b)* IMO Resolution A.868(20), Guidelines for Control and Management of Ship's Ballast Water to Minimize the Transfer of Harmful Aquatic Organism and Pathogens
- c)* BWM.2/Circ.42 "Guidance on ballast water sampling and analysis for trial use in accordance with the BWM Convention and Guidelines (G2)"
- d)* Latest National or Local Quarantine Requirements for Ballast Water Management]

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SHIP NAME:
IMO NUMBER:

ANNEX **6 Ballast Water Management Training Records**

[Insert copies of applicable documents (i.e., description of training) and a Table recording the training information of crew. The table should include crew, position, and date of training. Refer to A5-2/17.]

Name	Position/Rank	Date of Training	Trainers Name, Position/Rank, Signature
<XXXX>	<XXXX>	<XXXX>	<XXXX>
<XXXX>	<XXXX>	<XXXX>	<XXXX>
<XXXX>	<XXXX>	<XXXX>	<XXXX>

ANNEX **7 Exemptions Granted by Port State Authorities**

[Insert copies of applicable documents]