

INSTRUCTION

for the Development of Guidelines
for Safe Ballast Water Exchange at Sea

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This Instruction is applied during the development of Ballast Water Management Plans which shall be available on ships in accordance with IMO Resolution A.868(20) “Guidelines for the Control and Management of Ships’ Ballast Water to Minimize the Transfer of Harmful Aquatic Organisms and Pathogens” and requirements of Part IV “Stability” and Part VIII “Systems and Piping” of Rules for the Classification and Construction of Sea-Going Ships of Russian Maritime Register of Shipping.

The Instruction is intended for the developers of Ballast Water Management Plans and for the Surveyors to the Register.

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INSTRUCTION FOR THE DEVELOPMENT OF GUIDELINES FOR SAFE BALLAST WATER EXCHANGE AT SEA

1 GENERAL

1.1 The Instruction for the Development of Guidelines for Safe Ballast Water Exchange at Sea¹ is used during the development of Ballast Water Management Plans² which shall be available on ships in accordance with IMO Resolution A.868(20) "Guidelines for the Control and Management of Ships' Ballast Water to Minimize the Transfer of Harmful Aquatic Organisms and Pathogens" and requirements of Part IV "Stability" and Part VIII "Systems and Piping" of Rules for the Classification and Construction of Sea-Going Ships of Russian Maritime Register of Shipping³.

The Plan is intended to assist the crew in effecting quarantine arrangements aimed at minimizing the risk of transfer of harmful aquatic organisms and pathogens with ballast water and sediments in ballast tanks while securing the safety of the ship. The Plan shall also present information on the ship's ballast system and effectiveness of ballast water handling planning to the quarantine authorities. In this connection the Plan shall be prepared in a language understood by the crew and translated into English.

The Instruction is used for the development of guidelines providing for three methods of ballast water exchange:

.1 refill method by which a ballast tank or other ship's space intended for the carriage of ballast water is first emptied (of at least 95 per cent of its volume) and then refilled with sea water;

.2 flow-through method by which sea water is pumped through a filled ballast tank or other ship's space intended for the carriage of ballast water through overflow or other arrangement. At least three times the ballast tank volume shall be pumped through the tank;

.3 dilution method by which sea water is filled through the top of the ballast tank or other ship's space intended for the carriage of ballast water with simultaneous discharge of the same amount of ballast water and maintaining constant level in the ballast tank. At least three times the ballast tank volume shall be pumped through the tank.

The Plan shall be developed for typical ballasting conditions contained in the approved operational informations, instructions and guidelines as well as for additional typical conditions approved by the Register.

As a rule, the Plan shall not provide for the planning of ballast water exchange by the crew. However, if the planning of ballast water exchange by the crew is provided for, the ship shall be additionally provided with a computer and special program for ballast water exchange calculations, both approved by the Register.

The Plan shall be approved by the Register.

The requirements of the Instruction do not cover ballast water handling which do not involve minimization of the possibility of transferring harmful aquatic organisms and pathogens with ballast water.

¹Hereinafter referred to as "the Instruction".

²Hereinafter referred to as "the Plan".

³Hereinafter referred to as "the Register".

2 SCOPE OF SURVEYS

2.1 The Register carries out:

.1 review and approval of the Plan, stability calculations when ballast water is exchanged at sea (for each stage), general and local strength calculations when ballast water is exchanged at sea (for each stage), calculations of sections of the air pipes and other openings used during ballast water exchange at sea, calculations of time necessary for ballast water exchange at sea; computer programs for ballast water exchange at sea calculations;

.2 survey of hull, arrangements, machinery and systems in the context of periodical surveys of the ship for compliance with the Plan.

2.2 Review and approval of the documentation stated in 2.1 is performed by the Register Head Office and branch offices on its authorization. The scope of the technical documentation to be submitted additionally which is necessary for the review of the documentation specified in 2.1 is established for each ship separately.

However, in all cases the copies of the following documents shall be submitted:

- .1 all current informations on stability;
- .2 Loading Manual;
- .3 tanks plan;
- .4 tables of tanks capacity;
- .5 plan of openings for access to ballast tanks with indication of size of such openings;
- .6 plan of air, overflow and sounding pipes system (with indication of internal diameters of the piping);
- .7 ballast and stripping ballast system plans;
- .8 plans of other systems used in ballast water exchange (bilge, water fire main, etc.);
- .9 specifications of pumps used in ballast water exchange;
- .10 specifications of remote control system for the ballast system components and ballast tanks level measurement system.

3 STRUCTURE OF THE PLAN

3.1 The Plan shall include the following sections:

- .1 "Particulars of ship";
- .2 "Reasons for the necessity of ballast water management";
- .3 "Systems and arrangements used in ballast water exchange";
- .4 "Safety measures";
- .5 "Instructions for ballast water exchange";
- .6 "Sampling points";
- .7 "Training of the crew";
- .8 "Duties of the officer responsible for ballast water handling";
- .9 "Ballast Water Reporting Form and Ballast Water Handling Log Form".

3.2 The following shall be attached to the Guidelines:

- .1 IMO Resolution A.868(20) with Appendix;
- .2 summary of current national and local quarantine requirements regarding ballast water exchange, which shall be periodically updated.

All pages of the Plan shall be numbered. A number shall be assigned to the document. This number shall be put on the title page and on each page. Moreover, the total number of pages in the document shall be given on each page.

The Plan shall be translated into English.

3.3 Section 1 "Particulars of ship".

This Section shall contain the following particulars of ship:

- .1 name of ship;

- .2 type of ship;
- .3 port of registry;
- .4 international call sign;
- .5 IMO number;
- .6 flag of ship;
- .7 name of shipowner;
- .8 gross tonnage;
- .9 class of ship;
- .10 operational restrictions (if any);
- .11 principal dimensions;
- .12 total volume of ballast tanks, m³;
- .13 total number of tanks suitable for ballast water loading;
- .14 number of tanks intended exclusively for ballast water;
- .15 list of ballast tanks each with capacity indication;
- .16 number of the current Loading Manual (if applicable);
- .17 number of the current Information on Stability;
- .18 number of the current Information on Stability for Ships Carrying Grain Cargoes (if applicable);
- .19 number of the current Information on Stability and Structural Strength for Ships Carrying Bulk Cargoes Other than Grain (if applicable);
- .20 presented in a tabular form (see Table 3.3.20) details of an official (master, chief mate, chief engineer, etc.) responsible for ballast water handling and a note that he has been familiarized with the Plan.

Table 3.3.20

No.	Date of designation	Full name and rank of the officer responsible for ballast water handling	Signature of the officer responsible for ballast water handling, confirming familiarization with the Plan	Signature of the master (shipowner, operator) confirming designation of the responsible officer

If assistants to the responsible officer are designated, the information about them and their designation shall be also tabulated.

The information about the responsible officer and his assistants may be presented in other form.

3.4 Section 2 "Reasons for the necessity of ballast water management".

The following information shall be included into this Section:

"Studies carried out in several countries have shown that many species of bacteria, plants and animals can survive in ballast water and sediments in ballast tanks. Subsequent discharge of ballast water or sediments into the water of ports may result in the establishment of harmful aquatic organisms and pathogens, which may pose threats to indigenous human, animal and plant life, and the marine environment. Although other media have been identified as being responsible for transferring organisms between geographically separated water bodies, ballast water discharge from ships appears to have been among the most prominent.

The potential for ballast water discharge to cause harm has been recognized not only by the IMO but also by the World Health Organization, which is concerned about the role of ballast water as a medium for spreading of epidemic disease bacteria.

Some States have set up control over ballast water discharge to minimize the potential for infestation of their rivers, including estuaries, with alien organisms. A preferable method to achieve this objective is ballast water exchange in central areas of the oceans. The most interested countries give instructions for ships with respect to ballast water management together with a request for co-operation on a voluntary basis regarding application of technical means.

Unless some precautions are taken, ballast water handling can affect the safety of the ship due to stresses

exceeding design values arising in the hull or due to deterioration of the ship's stability.

IMO recommends providing each ship with the Plan which shall contain detailed instructions for the fulfillment of the requirements of the quarantine authorities with simultaneous ensuring the ship's safety.

It is necessary to maintain fully and carefully Ballast Water Handling Log for submitting it to the port authorities, which may be interested in ballast water handling history in order to assess potential hazards caused by ballast water discharge.

Port authorities of some countries require to provide them prior to arrival of the ship with information on the amount of ballast water on board, ballast water source, and whether ballast water exchange has been undertaken. In this connection, a form of Ballast Water Reporting is provided in the Plan.

3.5 Section 3 "Systems and arrangements used in ballast water exchange".

This Section shall contain the following materials:

1 ballast water tanks arrangement plan, which shall incorporate longitudinal profile of the ship, plans and cross-sections, which make it possible to identify the configuration of a tank and its location. The name and number in accordance with the ship's documentation shall be stated for each tank.

A table (example of filling-in — see Table 3.5.1) containing the following data shall be put on the arrangement plan:

- name of the tank and its number (if any);
- position (frames);
- capacity, m³ (or t at $\gamma = 1,025 \text{ t/m}^3$);
- pumps and arrangements serving the tank.

The plan shall also include the number and title of the document, which contains data on the tanks depending on the level in them.

The above covers the cargo holds and other spaces used for the carriage of ballast water;

Table 3.5.1

Tank	Position, spacing	Capacity, t	Serving pumps
Forepeak	Bow — 25	500	All ballast pumps
Double-bottom tank No. 1	32 — 41	600	Ballast pump No. 1
Double-bottom tank No. 2	41 — 54	700	Ballast pump No. 2
Double-bottom tank No. 3	54 — 62	1000	All ballast pumps
Double-bottom tank No. 4	62 — 74	1000	Ballast pump No. 2
Double-bottom tank No. 5	74 — 90	1000	Ballast pump No. 1
Afterpeak	124 — stern	350	All ballast pumps

.2 list of pumps and arrangements used for loading/ discharge ballast water with indication of their capacity (example of filling-in — see Table 3.5.2);

Table 3.5.2

Pump	Rated capacity, t/hr
Ballast pump No. 1	500
Ballast pump No. 2	500

.3 ballast and bilge (or ballast-bilge) systems plans including arrangement of:

.3.1 sea inlet valves and water intakes;

.3.2 piping with indication of their diameter and direction of water flow;

.3.3 valves, valve chests and other fittings with the symbols of their design (straight-way, non-return, etc.);

.3.4 pumps with indication of their type and capacity;

.3.5 discharges.

If in the process of ballast water handling use is made of other systems (e.g. water fire main system), appropriate parts of these systems plans shall be given;

.4 air, overflow and sounding piping plans;

.5 description of instruments for measuring levels in ballast tanks and for controlling fittings and pumps;

.6 type ballasting plans including cases of minimum and stormy ballast.

3.6 Section 4 "Safety measures".

This Section shall list actions, conditions under which ballast water handling is permitted, as well as the precautions, which shall be taken, in particular:

.1 method of ballast water exchange;

.2 sea state;

.3 wind force;

.4 position of ship in relation to the direction of wind and waves;

.5 ambient temperature;

.6 monitoring of weather change, weather pilotage in areas affected by cyclones, typhoons or heavy icing conditions;

.7 minimum/maximum forward and aft draughts;

.8 maintenance of adequate intact stability in accordance with approved informations on stability;

.9 permissible shear forces and bending moments in accordance with the approved Loading Manual;

.10 information on torsion moments, where relevant;

.11 limitations concerning stability and strength;

.12 free surface effects on stability;

.13 effects of hydrodynamic impact loads in tanks;

.14 wave-induced hull vibration;

.15 preparation of tanks for the forthcoming ballast water exchange;

.16 preparation of systems and machinery;

.17 instructions for each tank regarding the capacity of the pump during ballast water exchange to avoid over- and under-pressurization of ballast tanks;

.18 measures to protect the crew;

.19 documented records of ballast water handling;

.20 emergency procedures for situations, which may affect ballast water exchange at sea, including deteriorating weather conditions, pump failure, loss of power, etc.;

.21 time to complete ballast water exchange or an appropriate stage thereof, taking into account that ballast water may represent 50 per cent of the total cargo capacity for some ships;

.22 monitoring and controlling the amount of ballast water.

3.7 Section 5 "Instructions for ballast water exchange".

This Section shall contain concrete ballast water exchange procedures, which shall be worked out for each type ballasting plan specified in 3.5.6.

At the beginning of the Section the methods of ballast water exchange shall be stated. The selection of ballast water exchange method shall be based on a preliminary analysis of strength and stability.

Ballast water exchange procedure for each typical case of loading with ballast water shall be worked out on the "step by step, from tank to tank" principle.

It is necessary to indicate the maximum number of ballast tanks, which can be treated simultaneously.

Instructions shall be also provided concerning selection of the ocean area for ballast water exchange.

For a ship on which ballast water can be exchanged both by refill method and by flow-through and/or dilution methods (description of the methods — see below), the Guidelines shall provide for two different procedures in accordance with the instructions given below.

Probably it will be advisable to envisage more severe limitations in terms of sea conditions at which ballast water exchange shall be conducted in large compartments (tanks), for example, in cargo holds of oil tankers, because ship's motion increases loads on structures, inducing heavy sloshing in the compartment (tank). In all ships it is essential to avoid resonance when in a seaway.

Instructions shall be provided concerning movement of the ship and/or other measures shall be taken to preclude loading of the discharged (being discharged) ballast water.

3.7.1 Refill method.

When the refill method is used, the complete cycle of ballast water exchange shall be broken down into "steps" (stages).

For each "step" (stage) the following data shall be indicated:

numbers of tanks which ballast water is simultaneously discharged from/ loaded into;

pumps used for discharge/loading ballast water;

used sea inlet valves and discharges because relative position thereof affects the final result. If there are options for selection, these openings shall be spaced as far as possible;

forward and aft draughts;
 height of the ship's center of gravity (with due regard for the correction for the effect of free surfaces of ballast water and stores) in percentage of that allowable for the intact ship;

bending moment in percentage of that allowable;
 shear force in percentage of that allowable.

It is recommended to represent the complete cycle of ballast water exchange by refill method in tabular form (example of filling-in — see Table 3.7.1).

When determining the sequence of ballast water exchange it is essential to:

ensure compliance with the requirements for the ship's trim. Minimum forward and aft draughts shall be consistent with the instructions of informations and guidelines in force on board the ship;

ensure compliance with the requirements for stability and strength of the ship in accordance with the Register Rules, informations on stability and Loading Manual.

3.7.2 Flow-through method.

If the flow-through method is used, it shall be clearly specified to which tanks this method cannot be applied.

For example, it shall be specified that for double-bottom ballast tanks this method is unacceptable unless special modification has been made.

The ballast system fitness for ballast water exchange by the flow-through method without any risk of the tank being over pressurized shall be supported by calculations and testing on board.

Ballast water exchange by the flow-through method with water flowing over the upper deck is not permitted. Collecting piping, internal overflow pipes or interconnecting pipe/trunk arrangements between ballast tanks may be used to avoid ballast water flowing over the upper deck.


In cases, where in accordance with the ship's information documents provision is made for partial ballasting of tanks or holds, then, as a rule, the flow-through method shall not be used for such tanks or holds, unless otherwise confirmed by the stability and strength calculations.

It shall be stated clearly that this method shall not be used under icing conditions.

If use of this method is permitted for some tank, calculations shall show that under no circumstances

Table 3.7.1

Stage-by-stage ballast water exchange

Displacement of the ship 12000 — 15000 t Minimum value of $Z_{perm} = 7,2$ m (for indicated displacement range)										
Fore-peak	Tanks					Draughts		Height of center of gravity, %	Bending moment, %	Shear force, %
	No. 1		No. 2			forward	aft			
	S	P	S	center	P					
						7,0	7,2	71	54	64
Step 1: ballast pump No. 1 from center tank No. 2, ballast pump No. 2 from forepeak										
						6,8	7,1	82	56	59
Step 2: ballast pump No. 1 to center tank No. 2, ballast pump No. 2 to forepeak										
						7,0	7,2	71	54	64
Step 3: ballast pump No. 1 from S tank No. 1, ballast pump No. 2 from P tank No. 2										
						6,8	7,1	82	56	59
Step 4: ballast pump No. 1 from S tank No. 1, ballast pump No. 2 from P tank No. 2										
						7,0	7,2	71	54	64
Step 5: ballast pump No. 1 from P tank No. 1, ballast pump No. 2 from P tank No. 2										
						6,8	7,1	82	56	59
Step 6: ballast pump No. 1 from P tank No. 1, ballast pump No. 2 to S tank No. 2										
						7,0	7,2	71	54	71
Symbol:  — the tank is filled										

pressure in the ballast tank will excessively rise. If for this purpose manholes and/or other openings are opened, conditions shall be indicated, under which their opening is possible, as well as instructions shall be provided regarding control over the observance of these conditions and control over secure closing of these openings after completion of work.

If the ship is provided with reciprocating ballast pumps, the Plan shall state that they shall not be used when the flow-through method is employed.

It shall be also stated that accumulation of water on the deck will be precluded.

Precautions shall be listed, which shall be taken in order to prevent penetration of water into the ship.

The Plan shall specify that at least three times the tank volume shall be pumped through the tank.

The conclusion regarding acceptability of this method shall generally be based on a hydrodynamic calculations with due regard for the hydraulic characteristics of the system and the strength of the tanks.

A gradual (stage-by-stage) procedure of ballast water exchange by the flow-through method shall be used with the order of tank treatment being stated (example of filling-in — see Table 3.7.2).

It is necessary to indicate time required to pump the needed amount of water through each ballast tank (if it is possible to use pumps of different capacity — indicate time for each pump separately). This information may be presented in a simple tabular form with a list of all ballast tanks to ensure that the crew is able to determine the time required for ballast water exchange.

The Plan shall state that after completion of each stage the next stage may be initiated provided that the results of the situation assessment are satisfactory, taking into account the ship's position, weather forecast, condition of machinery and degree of the crew's tiredness.

3.7.3 Dilution method.

When the dilution method is used for ballast water exchange, arrangements shall be provided to automatically maintain a constant level in the ballast tank. These arrangements shall provide for manual emergency stop of ballast pumps in case of fittings malfunction or incorrect control actions. Moreover, high and low water level alarms shall be provided for the ballast tank in order to ensure safety of the ship during ballast water handling at essential change of ballast water level.

The Plan shall examine the consequences of failure of the arrangements maintaining automatically a constant level in the ballast tank. The consequences of overflow and actions of the crew in such a situation shall be also indicated. In any case, overflow of ballast water shall not result in excessive rise of pressure in the ballast tank.

The dilution method may be used only stage by stage with individual tanks being pumped through sequentially. The Plan shall specify a level of filling for each tank at which ballast water exchange will be conducted and the time required for this purpose. This information may be presented in a tabular form similar to 3.7.2. Upon completion of each stage of ballast water exchange the next stage may be initiated provided that the results of assessment of the situation are satisfactory, considering weather forecast, position of the ship, condition of machinery and the ship as a whole, as well as the readiness of the crew.

3.8 Section 6 "Sampling points".

This Section shall contain simple and clear plans indicating points for taking samples of the ballast water and sediments.

This is necessary to ensure rendering prompt assistance by the crewmembers to the quarantine officers who will have to obtain samples.

Precautions shall be indicated to be taken before entering enclosed areas and to be followed within enclosed areas.

In order to ensure sampling of ballast water a simplified plan of ballast tanks shall be given with indication of the name (number) of each tank, arrangement of sounding pipes or other openings through which sampling is provided. Besides, details of the arrangement of drain cocks from ballast and, if any, stripping ballast piping shall be given.

If required, samples from ballast piping when ballast water is loaded or discharged shall be taken from the drain cock on the suction side of the ballast pump in the engine room, from the drain cock in the vicinity of the overboard discharge valve in the cargo pump room, from the drain cock on the pump in the forward pump room, etc.

For sampling sediments a simplified plan of ballast tanks shall be given with indication of openings for access to each tank. The plan shall contain a table indicating the number of the tank, name of the tank, arrangement of the openings for access (deck, frames, side).

Table 3.7.2

Ballast water exchange by flow-through method

Stage	Tank	Capacity, t	Pumps	Capacity, m ³ /hr	Time for three exchanges, hrs
1	3P or 3S	750	No. 1 or No. 2	250	9
2	Deeptank	500	No. 1 or No. 2	250	6
3	2 Center	620	No. 1	250	7,5
4	Forepeak	870	No. 3	340	7,8

Where cargo spaces are used for ballasting appropriate information on them shall be provided.

3.9 Section 7 "Training of the crew".

The crewmembers responsible for ballast water handling shall be aware of their duties. If the crewmembers know the aim of ballast water exchange and/or disposal of sediments, they will probably ensure efficient performance of ballast water handling.

In order to convince the crew that there is a need for the said ballast water handling it is advisable to give examples of consequences resulted from transfer of harmful organisms from one area of the world ocean to another.

The following issues shall be used for training of the crew in ballast water exchange aspects:

- .1 objective of ballast water exchange at sea;
- .2 methods of ballast water exchange;
- .3 methods of ballast water exchange permitted on board as applied to each tank as well as the reasons why other methods of ballast water exchange shall not be used;
- .4 allowable external conditions and consequences of the violation of the restrictions;
- .5 safety measures and consequences of their violation;
- .6 shipboard means intended for ballast water exchange;
- .7 location of sampling points;
- .8 procedures used for sediments disposal, frequency or explanation why this is unacceptable.

Detailed information and explanations shall be given for each issue.

3.10 Section 8 "Duties of the officer responsible for ballast water handling".

At the beginning of the Section it is necessary to indicate the rank of the officer responsible for ballast water handling and ranks of the crewmembers carrying out ballast water handling under the supervision of this officer.

The officer responsible for ballast water handling shall, as a minimum:

- .1 ensure that ballast water handling complies with the procedures specified in the Plan;
- .2 inform the shipowner or operator about the beginning and the completion of ballast water exchange;
- .3 prepare Ballast Water Reporting (see 3.11) prior to arrival at the port;
- .4 render assistance to PSC officer or to quarantine officer in obtaining any samples which may be required;
- .5 maintain Ballast Water Handling Log;
- .6 perform other duties on behalf of the shipowner.

3.11 Section 9 "Ballast Water Reporting Form and Ballast Water Handling Log Form".

Ballast Water Reporting Form (see Appendix 1) is a model developed by IMO as guidance for use in notifying the port of arrival administration that requests information in advance. To avoid errors, an instruction for filling in the

form shall be given. It is also necessary to state, that the question No. 3 "Total number of ballast tanks on board" relates to the total number of segregated ballast tanks.

This instruction shall also specify that before this form is used it is necessary to find out whether the arrival country has its own model of information form.

It is advisable to fill in all items of the form including permanent information (e.g. ship's name, IMO number, total number of tanks and total capacity thereof, etc.) in advance. This will make it possible to avoid unforeseen errors.

The form shall be filled in clearly so that the quarantine officer will have no doubts in reading it.

3.11.1 Explanations and recommendations for filling in Ballast Water Reporting Form.

Section 1 "Particulars of ship"

Name of ship: print the ship's name.

Shipowner: registered shipowners or operators.

Flag: port of registry country.

Last port and country: last port and country visited by the ship before arrival to the port concerned (please, do not use abbreviations).

Next port and country: next port and country to be visited by the ship after leaving the port concerned (please, do not use abbreviations).

Type: state purpose of the ship using the following abbreviations: bulk carrier (bc), ro-ro (rr), container ship (cs), tanker (ts), passenger ship (pa), oil/ore carrier (ob), general cargo (gc). For other ships state the purpose in full.

Arrival date: date of arrival at the port concerned. Use the European form for date indication: (day, month, year/DDMMYY).

IMO No.: identification number of ship.

Call sign: official call sign.

Agent: agent of this ship.

Port of arrival: the port concerned (please, do not use abbreviations).

Section 2 "Ballast water"

Total amount of ballast water on board: total amount of segregated ballast water on arrival at the port concerned, with indication of the units of measurement.

Total ballast water capacity: total volume of all tanks and holds intended for the carriage of ballast water, with indication of the units of measurement.

Section 3 "Ballast water tanks"

Each tank and hold is taken into account separately (e.g. port tanks and starboard tanks shall be taken into account separately).

Total number of ballast water tanks on board: state the total number of all tanks and holds which can be used for the carriage of segregated ballast water.

Is the Ballast Water Management Plan available on board?: if the Plan is available on board, enclose the word "YES" in a circle. If the said Plan is not available on board – enclose the word "NO" in a circle.

Has the Plan been applied? Do you follow the said Plan?: enclose the words "YES" or "NO" , respectively, in a circle.

Number of tanks in ballast: state the number of tanks with segregated ballast water and the number of holds with ballast water at the beginning of voyage to the port concerned (if no ballast water is carried on board go to Section 5).

Number of tanks exchanged: the question has to do only with tanks and holds loaded with ballast water at the beginning of the voyage to the port concerned, thereafter exchanged.

Number of tanks not exchanged: the question has to do only with tanks and holds filled with ballast water at the beginning of the voyage to the port concerned.

Section 4 "Ballast water history"

Record all tanks that will be deballasted at the port of arrival (if none, go to Section 5).

Ballast water sources: list separately all tanks and holds from which you have discharged ballast water or plan to discharge it at port. Record the precise name of the tank or use symbols given at the end of the table. Fill in the cells of the table for each tank separately over the entire line of the table, having stated all ballast water sources, cases of exchange and/or cases of discharge. If ballast water history is identical to the existing one (e.g. the same ballast water source, dates and places of exchange and discharge), groups of tanks may be integrated (e.g. side tank No.1 with side tank No.2, in both cases the water from Belgium was exchanged in open ocean on 02.11.2000). If an additional page will be required, do not forget to state the date of arrival, ship's name, IMO No. at the top.

Date: date of ballast water loading. Use the European form for date indication (day, month, year/DDMMYY).

Port or latitude/longitude: ballast water source.

Volume: volume of ballast water loaded with indication of units.

Temperature: temperature of water during ballast water loading, °C.

Ballast water exchange.

State method of ballast water exchange: circle one: empty/refill method, flow-through method or dilution method.

Date: date of ballast water exchange. Use the European form for date indication (day, month, year/DDMMYY).

End point or latitude/longitude: ballast water exchange place. If the procedure will be performed over a lengthy distance, state latitude and longitude of the end point.

Volume: volume of ballast water exchanged, m³.

Exchange percentage: percentage of ballast water exchanged. Calculate the percentage by dividing the volume of the discharged (pumped through) water by the

initial volume of ballast water in the tank. If necessary, determine the percentage proceeding from the capacity of pumps.

Note. For effective exchange by the flow-through method, this figure shall be equal to at least 300 per cent.

Sea, m: record the height of waves in meters during ballast water exchange.

Ballast water discharge.

Date: date of ballast water discharge. Use the European form for date indication (day, month, year/DDMMYY).

Port or latitude/longitude: ballast water discharge place. Do not use abbreviations for recording names of ports.

Volume: volume of ballast water discharged, m³.

Salinity: record salinity of ballast water during discharge in the units of measurement (e.g. specific gravity (sg) or parts per thousand (ppt)).

If exchanges were not conducted, state other control action(s) taken: if exchange was not conducted for all tanks and holds it is necessary to state what actions were or will be taken (e.g. discharge of ballast water to shore-based reception facilities or treatment of approved type).

If none, state the reason: state concrete reasons why ballast water was not exchanged. This is true for ballast water discharge from all tanks and holds.

Section 5 "Are the IMO Ballast Water Guidelines available on board?"

Is IMO Resolution A.868(20) available on board your ship?: enclose the words "YES" or "NO", respectively, in a circle.

Responsible officer's name and rank (in block letters) and signature: master or chief mate or chief engineer shall write down name and rank and sign the Form.

3.11.2 An example of filling in Ballast Water Handling Log.

Ballast Water Handling Log (see Appendix 2) shall contain pages for record of ballast water loaded and discharged and pages for record of data related to atypical ballast water handling.

These two forms serve as a guidance for record of details which frequently are of interest for the quarantine officers wishing to have information on ballast water source.

The Guidelines shall state that even if a ship operates for some time in the area where no information on ballast water is required, nevertheless, it is recommended to fill in the Log because subsequently a confirmation of the existing ballast water history may be required.

Ballast Water Handling Logs shall be kept on board within three years after completion.

BALLAST WATER REPORTING FORM

(To be provided to the Port State Authority upon request)

1. SHIP INFORMATION

2. BALLAST WATER

Ship's Name:	Type:	IMO Number:	Specify Units: M ³ , MT, LT, ST
Owner:	Gross Tonnage:	Call Sign:	Total Ballast Water on Board:
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 on board? YES NO Management Plan Implemented? YES NO

Total number of ballast tanks on board: _____ No. of tanks in ballast: _____ IF NONE IN BALLAST GO TO No. 5.

No. of tanks exchanged: _____ No. of tanks not exchanged: _____

4. BALLAST WATER HISTORY: RECORD ALL TANKS THAT WILL BE DEBALLASTED IN PORT STATE OF ARRIVAL; IF NONE GO TO No. 5.													
Tanks/ Holds <small>(List multiple sources per tank separately)</small>	BALLAST WATER SOURCE				BALLAST WATER EXCHANGE <small>Circle one: Empty/Refill, Flow Through or Dilution</small>					BALLAST WATER DISCHARGE			
	DATE DDMMYY	Port or Lat/Long	Volume (units)	Temp (units)	DATE DDMMYY	Endpoint Lat/Long	Volume (units)	% Exch.	Sea Hgt. (m)	DATE DDMMYY	Port or Lat/Long	Volume (units)	Salinity (units)

Ballast Water Tank Codes: Forepeak = FP, Afterpeak = AP; Double Bottom = DB; Wing = WT; Topside = TS; Cargo Hold = CH; Other = O

IF EXCHANGES WERE NOT CONDUCTED, STATE OTHER CONTROL ACTION(S) TAKEN: _____

IF NONE STATE REASON WHY NOT: _____

5: IMO BALLAST WATER GUIDELINES ON BOARD (RES. A.868(20))? YES NO

RESPONSIBLE OFFICER'S NAME AND TITLE (PRINTED) AND

SIGNATURE: _____

BALLAST WATER HANDLING LOG

(Record of ballast water management on board)

Ship _____ Port of registry _____ IMO number _____

Tank location	Date	Initial content, t	Final content, t	Geographic location of ship (Port or Lat.&Long.)	Pumps used, or gravitate	Duration of operation	Salinity	Signature of officer in charge	Rank

Российский морской регистр судоходства

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**Instruction for the Development of Ballast Water Management Plans
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