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CIRCULAR

IMO MEPC.387(81) Interim guidance on the BWM Convention

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This Circular is issued to advise that the IMO adopted, on the 22nd of March 2024, Resolution [MEPC.387\(81\)](#) – **Interim Guidance on the application of the BWM Convention to Ships Operating in Challenging Water Quality Conditions.**

The main purpose of the Guidance is to assist ships in planning for compliance with the BWM Convention and the D-2 discharge standard when a type-approved ballast water management system (BWMS) encounters operational limitations or has difficulty meeting operational demand in challenging water quality (CWQ) conditions.

The Circular notes that encountering an operational limitation or experiencing a challenge in satisfying operational demand when operating a BWMS in CWQ, does not indicate a BWMS failure. A BWMS has warnings and alarms to protect the BWMS equipment and/or the ship and the triggering of these set points or flow reductions demonstrates proper BWMS operation as designed.

The Ballast Water Management Plan (BWMP) should include triggers for implementing CWQ procedures based on the performance and self-monitoring functions of the BWMS. The list of triggers should be developed based on information provided by the BWMS manufacturer in the Operations, Maintenance, and Safety Manual (OMSM), based on the BWMS design and operational limitation(s).

The Guidance includes recommended steps that can be taken to restore or maintain the effective operation of a BWMS when operating in CWQ. These include:

- identifying when a system is inoperable owing to CWQ;
- actions to avoid bypass of the system;
- steps to recover from bypass including steps to return to compliance with the D-2 discharge standard; and
- planning, record-keeping, and communication principles.

The Guidance covers the following areas for ships operating in CWQ:

- Pre-planning
- Assessment
- Troubleshooting and Mitigation
- CWQ Triggering
- Alternatives to Bypass
- Bypass
- Decontamination
- Record-keeping / Communication

The Guidance also contains:

- Guidance for Administrations with respect to ballast water management plans and challenging water quality;
- Guidance for Port State Control Officers with respect to ships that have encountered challenging water quality;
- Guidance for BWMS manufacturers with respect to participation in planning;
- An example of a decontamination procedure;
- Sample process diagrams for ships ballasting in areas with challenging water quality:
 - Assessment of BWMS operations
 - Challenging water quality process
 - Alternatives to bypass
 - Decontamination: managing ballast water following a BWMS bypass

Pre-planning

The approved BWMP should include a ship-specific definition of operational demand based on the sustained flow rate below which cargo operations cannot practicably be continued by the ship. This flow rate should not be more than 50% of the treatment-rated capacity of the BWMS unless the ship's safety or stability would be affected.

A detailed plan for at least the following items should be included in the ship-specific BWMP and BWMS operating instructions, taking into account ship safety and the maintenance and operation instructions in the OMSM:

Maintenance:

Maintenance timetables and checklists for maintaining the system in optimal condition for managing CWQ.

Assessment:

Indications from the BWMS self-monitoring system or a mechanical observation that the BWMS is not performing at its expected treatment-rated capacity.

Troubleshooting and mitigation:

Procedures to identify and resolve challenges linked to the operation and maintenance of the BWMS, as well as ship-specific procedures for assisting and optimizing the BWMS in treating CWQ, with a view to completing normal ballast water treatment.

CWQ triggers:

A table of critical alarms specific to the BWMS based on the OMSM indicating that an operational limitation has been reached (i.e. an automatic shutdown of the BWMS, a critical alarm for which the BWMS OMSM directs a manual shutdown, or a safety-related circumstance that requires the shutdown of the BWMS for the protection

of the BWMS equipment, the ship or its crew. This should include ship-specific procedures to be taken when an alarm is encountered.

Alternatives to bypass:

Pre-planned actions, considerations, and procedures taking into account the OMSM, that may clear operational limitations or allow the BWMS to meet operational demands.

Bypass procedure:

Steps to be taken to bypass the BWMS, including treatment of a fractional part of the ballast water stream and/or bypassing only the inoperative part of the ballast water treatment process.

Decontamination:

Specific procedures for decontaminating ballast tanks and/or piping to reduce the risk of bypassed water, with a view to meeting the D-2 standard at subsequent discharges. Any use of the ballast water exchange plus treatment (BWE+BWT) approach should be detailed in the approved BWMP.

Communication:

Procedure for informing the port State(s) that will receive any ballast water discharge impacted by reactive bypass of the BWMS, before arrival of the ship in such State(s).

Record-keeping:

How to record CWQ situations in the Ballast Water Record Book (BWRB). The BWRB should provide a detailed description of the ballast water management method(s) used, as well as the location and affected tanks (tank ID).

The BWMP should include an evaluation of ship safety to be conducted before the application of any steps to manage CWQ. Any safety risks identified should be evaluated to determine mitigating actions.

Assessment

Pre-emptively bypassing the BWMS based on historical CWQ issues experienced at a location is discouraged because water quality conditions may vary by precise location, ship and/or nearby port operations, time of day, tide, weather, or seasonality.

If a pre-emptive bypass is warranted in the case of regular visits to a port or location with known and recurring CWQ, this should be agreed in advance between the Administration of the ship and the port State receiving the ballast water.

Troubleshooting and mitigation

The Guidelines provide a sample process for planning troubleshooting and mitigation, ("Challenging water quality process").

If CWQ is impacting ballasting operations, then the crew should implement ship-specific troubleshooting procedures. This may include steps such as verifying:

- the correct alignment of valves;
- that the BWMS is in the correct mode; and
- fully addressing any BWMS warnings and alarms.

The crew should also follow ship-specific procedures to verify that the BWMS has been properly maintained. If the steps above indicate that the BWMS has been properly operated and maintained, the crew should follow procedures to deploy mitigating measures that assist the system in treating the water successfully. These may include:

- manually operating any backflushing controls;
- applying suitable backpressure at high differential filter pressures;
- maximizing UV intensity in the presence of turbid water or low UV transmittance;
- progressively reducing ballast water flow rate to the point of operational demand or operational limitation.

CWQ triggers

The crew should implement CWQ actions when, despite taking all mitigating measures, the BWMS delivers a critical alarm or the BWMS is not meeting operational demand.

CWQ triggers relating to operational limitations should be:

- based on the system design limitations of the BWMS as tested during the type approval process;
- clearly identified in the ship's approved BWMP, and
- developed with reference to the OMSM.

The relevant CWQ triggers should be reviewed and amended, as applicable, in the event of any change to the BWMS.

Alternatives to bypass

The Guidelines provide a sample diagram "Alternatives to bypass".

Alternatives should be tried before the ship bypasses a BWMS because bypass:

- increases the risks ballast water poses to the environment, human health, property, and resources;
- increases the operational workload for the ship's crew to perform alternative management methods and subsequently return the BWMS and ship to normal operations for D-2 compliance.

Before the BWMS is bypassed, the designated officer should:

- ensure that any BWMS alarm is not due to factors such as malfunction, maintenance, crew familiarity or experience;
- ensure that the BWMP and OMSM have been followed in troubleshooting the operation of the BWMS;
- verify that the BWMS has been properly maintained and ensure that applicable mitigating measures have been applied to optimize the performance of the BWMS;
- restrict the flow rate of the BWMS to the minimum level consistent with operational demand; and
- consider persisting with using the BWMS in the challenging area to load the minimum safe amount of ballast water and complete the remaining ballasting at a nearby less challenging location at a later time, taking into account the ship's stability and cargo condition as well as expected weather conditions.

Bypass procedures

Consideration should be given to:

- limiting the number of ballast tanks that will be exposed to partially treated or unmanaged ballast water;
- treating the greatest possible fraction of the uptake water, by continuing to apply the BWMS to as much of the uptake water stream as practicable;

In cases where only one part of a BWMS treatment process is inoperable, consideration should be given to applying the remainder of the treatment process to the uptake water, if practicable.

Only the minimum safe volume of ballast water should be taken on board through the bypass following which, if necessary and practicable, the ship should proceed to a nearby area where less challenging uptake water may be obtained to complete ballasting using the BWMS as usual.

Decontamination

The density of organisms at the location of uptake may impact the ship's return to D-2 compliance following a bypass. The approved BWMP should include a procedure for decontaminating ballast tanks.

The Guidelines provide an example of a decontamination procedure as well as a sample process diagram, "Decontamination: managing ballast water following a BWMS bypass.

Where a ship is operating in a sea area where ballast water exchange under regulations B-4.1 and D-1 is not possible (e.g. an enclosed or semi-enclosed sea) and no ballast water exchange area has been designated, the ship should follow any instructions provided by subsequent port States to reduce the risk of discharging unmanaged or partially unmanaged ballast water and/or residuals.

Communication

The next State receiving water from affected ballast tanks should be informed of the bypass, such as through a pre-arrival ballast water reporting form. Any deviation from the procedures in the Guidance or the BWMP should be noted in the communication.

Record-keeping

Where the BWMS has not operated as expected owing to CWQ and may not be treating the water successfully, such circumstances should be recorded in the Ballast Water Record Book, taking into account the Guidance on ballast water record-keeping and reporting (BWM.2/Circ.80, as may be revised).

The ship's BWRB should include a description of:

- the reason normal ballasting operations were stopped;
- any steps taken to optimize the treatment process and resolve BWMS technical malfunctions;
- the operational demands that were not met and/or operational limitations encountered;
- the steps that were taken before a bypass was initiated;
- the tanks which have received bypassed ballast water (tank ID);
- the date, time, and location where the bypass took place; and
- the decontamination steps that were taken to recover from BWMS bypass as per the approved BWMP, including:
 - the start and end locations (GPS coordinates) at which any flushing and/or exchange took place;
 - the start date and time;
 - the end date and time;
 - the method of exchange; and

- the volume exchanged and/or flushed.

Act now

Ship Owners/ Managers/ Operators/ Surveyors/ Auditors are to take note of the above and ensure that BWMPs are amended to include the guidance given in Resolution MEPC.387(81).

Surveyors, in particular, should check that approved BWMPs are ship-specific, reflect the OMSM of the BWMS, and include at least:

- equipment maintenance procedures and intervals;
- predetermined mitigating measures that may preserve and optimize the treatment process in marginal conditions;
- a table of critical alarms that justify CWQ action;
- ship-specific alternatives to bypassing the BWMS;
- safe bypass procedures that minimize the exposure of tanks/piping to unmanaged water; and
- a decontamination procedure that reflects the Guidance and is safe for the ship and crew.

Surveyors should also check that crew familiarization includes:

- relevant aspects of the Guidance;
- BWMS operating instructions; and
- the environmental risks of bypassing BWMS and steps to avoid/minimize them.