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Ballast Water Fact sheet #1

Biosecurity Inspections of Ballast Water Management Systems

Since 8 September 2024, all relevant vessels should be compliant with the regulation D-2 discharge standard set by the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention).

Recent vessel inspections by Australian Biosecurity officers have identified non-compliances in the operation and maintenance of the installed ballast water management systems (BWMS) and vessels not managing ballast water in accordance with their ballast water management plan (BWMP). System alarms have been ignored, uptake and discharge has occurred whilst in bypass mode and tampering with alarm settings has been detected, resulting in unmanaged or non-neutralised ballast being discharged in Australian ports. This represents a biosecurity risk. Some vessels that have been assessed as non-compliant have been issued directions to stop discharge of ballast resulting in delays to cargo and ballasting operations.

This fact sheet describes some commonly encountered problems and proactive options to improve the likelihood of complying with Australia's biosecurity requirements. If issues are encountered the vessel should follow the BWMS troubleshooting advice and if further assistance is needed, contact the BWMS manufacturer.

What to expect

- Australian Biosecurity officers will continue to inspect vessels in accordance with the [Guidelines for port State control under the BWM Convention¹](#) moving from initial to detailed inspections if required.
- Biosecurity officers will assess if the ballast water has been managed in accordance with the operations outlined in the vessel's BWMP. Ensure the plan includes a contingency measure and reference to troubleshooting steps for the BWMS.
- Vessels may be directed not to discharge ballast water if essential ship-board procedures set out in the BWMP have not been implemented. See s302(2) of the *Biosecurity Act 2015* and Article 9 of the BWM Convention. This includes ignoring of BWMS alarms related to treatment levels.
- Discharge of ballast water in Australian territorial waters that is not managed in accordance with the BWMP is an offence under s270 of the *Biosecurity Act 2015* and penalties may be applied.

Ballast Water Biosecurity Risks

BWMS that use Active Substances (electro-chlorination & chemical based)

- **Repeated 'low TRO' alarms during uptake.** The Total Residual Oxidant (TRO) sensor is a critical component of a properly installed BWMS as it measures if ballast water is treated within the system design limits. Repeated 'low TRO' or similar alarms during uptake may indicate that the ballast water has not been effectively treated due to an insufficient dose or generation of Active Substance (AS). If ballast water is treated with an AS at a concentration below the lower alarm limit of the system, an increased level of inspection may apply.
- **'High TRO' alarms during discharge.** This alarm could indicate a problem with neutralisation. If the AS in the ballast water is not properly neutralised, the ballast water may cause marine pollution. Commonly encountered issues include seized metering pumps, insufficient or incorrectly mixed

¹ MEPC.252(67) as adopted on 17 October 2014



neutraliser in the neutraliser tank, blocked TRO sensor pipes, expired TRO reagents and valves arranged incorrectly.

- **‘TRO Communication’ alarm.** During uptake, TRO production by the electrolyser or dosage from the chemical tank is linked to the values obtained by the TRO sensor. If the sensor is not properly reporting the AS concentration to the BWMS, then the treatment may not be effective. Further analysis of the error code on the TRO unit could be required. Common problems include intake valves not opened, intake lines blocked, dirty cuvette, expired reagents or seized TRO pumps

BWMS that use ultra-violet (UV) light

- These systems rely on **UV light** to inactivate or kill organisms in the ballast water and often treat on uptake and discharge. The systems use multiple sensors for UV intensity, temperature, water turbidity and water flow to maintain effective treatment.
- **Alarms** indicate that the system may not be treating the ballast water effectively. Continually operating when there are repeated alarms for low light intensity, high filter differential pressure, low water flow or high temperature may result in a detailed inspection and a direction to stop discharge.

General tips

- **Troubleshoot any alarms** using the troubleshooting steps in the BWMS Operation, Maintenance and Safety Manual (OMSM). Contact the manufacturer for advice if alarms cannot be resolved and record all maintenance and repairs (even those conducted outside of scheduled periods). Revert to the contingency method listed in your BWMP if the system is not operational.
- If the alarms relate to **challenging water quality**, the [interim guidance](#)² provides assistance to troubleshoot the issue and if necessary decontaminate the tanks if BWMS bypass is required.
- **Sediment** accumulation has been linked to D-2 failures so the vessel may consider enacting the at sea flushing procedures from their BWMP to lower this risk.
- **Conduct all maintenance** as per the BWMS OMSM. Consistent with the [BWMS Code](#), all maintenance, repairs and calibration of sensors shall be recorded and should follow the manufacturers schedule
- Ensure **TRO sensor reagents, and any treatment or neutralisation products** are held in sufficient supply on the vessel, are not past their expiry date and have been stored as per manufacturers advice
- Ensure **data and alarm logs** can be easily extracted as .pdf or excel files if required for further analysis.
- **Tank by tank records** are recommended to allow risk assessment on a tank by tank basis.
- **Replacement parts** must be the same as those listed on the TAC.

Further information

Consult the [Australian Ballast Water Management Requirements](#) for answers to common questions. Contact the Marine Pest Unit via pestsmarine@aff.gov.au for all other ballast water related enquiries.

Acknowledgement of Country

We acknowledge the continuous connection of First Nations Traditional Owners and Custodians to the lands, seas and waters of Australia. We recognise their care for and cultivation of Country. We pay respect to Elders past and present, and recognise their knowledge and contribution to the productivity, innovation and sustainability of Australia’s agriculture, fisheries and forestry industries.

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² MEPC.387(81) as adopted on 22 March 2024