

GUIDANCE NOTE

Underwater Cleaning of Maritime Vessels

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1. Introduction

This guidance note is one of a series of such notes prepared by ERA with the intention of providing clarity on good practices and legal requirements for activities with a potential for environmental impact. The aim of this note is to improve the environmental performance of enterprises which undertake underwater cleaning of hulls, sea apertures and propellers for vessels of classes set out in Annex 1. Vessels not covered in this list should abide with the conditions set out in this GBR to minimise their environmental impact,

The note explains the regulatory system put in place by ERA to ensure that these activities have a minimal effect on the environment. The note contains a set of environmental conditions which ERA considers as representing good environmental practice for this activity when undertaken in Maltese waters. It also contains explanatory comments to help with an understanding of those conditions.

The cleaning of vessel hulls may be necessary to allow for repair and maintenance or to increase fuel efficiency. While from an environmental perspective it is preferable that such operations be carried out in a dry dock, it is recognised that often this is not possible or practical. Underwater cleaning operations may be undertaken when the vessel is moored at a dock or in open water. The waste materials arising from the cleaning operation pose a number of environmental risks including:

- The release of toxic materials onto the sea bed
- The smothering of sea bed habitats by deposition of solids
- The introduction of exotic species into Maltese waters

The rules set out in this note are intended to provide a simple set of instructions for divers, cleaning personnel and shipping companies with a view to minimising any negative impact.

ERA would be very interested to learn of your experience in using this guidance note and the associated set of environmental conditions. Please give us feedback (tohull.cleaning@era.org.mt) on such questions as:

Are all the conditions practical?

Do some need clarification?

Are there additional conditions you would consider useful?

Is the guidance clear and relevant?

2. Registration and Notification

An operator such as a diving company who wishes to undertake underwater cleaning and maintenance must be registered with ERA. A notification needs to be submitted to ERA for each individual cleaning required. Shipping companies should ensure that cleaning contracts are only issued to registered operators.

Definitions

“Approved areas” means the sites indicated below in which underwater cleaning and maintenance is permitted.

**Wharfs within the Grand Harbour
Bunkering and Waiting Areas
Freeport: Innermost berthing areas at North Quay
Terminal One and South Quay Terminal Two.**

“Operator” means every person undertaking or co-ordinating underwater cleaning and maintenance of marine vessels.

“Underwater cleaning and maintenance” means any operation undertaken to maintain and clean an underwater part of a marine vessel whilst in water

“Cleaning agent” means any chemical used as an aid during the underwater cleaning and maintenance operation.

Diving companies undertaking underwater vessel maintenance and cleaning as well as shipping agencies that have their own divers for such operations must register with ERA. The application form for registration is available on the environmental permitting section of the ERA website, www.era.org.mt
The key information required during the registration phase is as follows:

- Basic information including the name and position of the applicant, company name and contact details.
- Information on the equipment to be used for cleaning and for underwater collection of waste. This could be supported with photographs of the equipment and descriptions of how the cleaning and collection is carried out using the specified equipment. In the section where information on the method/s used for collecting the marine growth removed from the vessel, the mesh size of the collecting nets should be specified. If under certain circumstances (e.g. cleaning carried out offshore), different equipment is used to collect debris, this should also be described.

- In cases where surface washing is proposed (such as prior to painting), a Material Safety Data Sheet (MSDS) of the active chemical component in the cleaning agent is to be submitted. Preferably, high pressure water is to be used instead of chemicals. High pressure liquid cleaners that operate with detergents, solvents or acids should only be used if collection of waste waters is ensured. The scraping of paint should only be undertaken in dry areas, unless a collection system approved by ERA is used for underwater operations.

ERA officials have the right, at any time, to inspect the equipment registered for use in cleaning operations. ERA also reserves the right to ask for samples of fouling material that has been removed from the vessel. Analyses and species identification may also be required to be carried out.

If the application for registration is acceptable, ERA will issue a letter of confirmation of registration to the company together with a list of conditions which are mandatory. The conditions will be broadly similar to those set out in section 4, The registration is valid for one year commencing on the date of registration by ERA. The registration MAY be renewed annually but this is dependent on the operator's compliance with requirements during the year.

Once a registered operator receives a commission for a specific cleaning operation it must notify ERA prior to commencement. The Notification Form is available on the environmental permitting section of the ERA website, www.era.org.mt. The notification form must include:

- Details of vessel
- Description of proposed works
- Type of anti-fouling paint on vessel
- Vessel Location

- Photos of the fouling to be removed

- Paint certificate indicating that vessel is free from TBT

- Date of last cleaning

The submitted Notification Form is then vetted by ERA and if deemed adequate, the operator will be informed that he may proceed to undertake the proposed operation. ERA reserves the right to visit the cleaning operation at any time to ensure that operator complies with the conditions set out. It is in the interest of the Operator to submit notifications and requests for re-registration as early as possible to avoid delays.

Any changes to the original conditions shall be immediately advised to ERA in writing. These changes cannot be in a manner that may jeopardise the original conditions upon which ERA has issued the certificate. If such conditions are jeopardised ERA reserves the right to withhold the original certificate as well as not to issue further certificates.

3. Main environmental issues

The most important environmental issues arising from underwater cleaning and maintenance of vessels are as follows:

- Discharges to sea
- Emissions to air
- Waste management

Discharges to sea

Bottom paints can be separated into three general categories: antifouling hard, antifouling ablative and non-toxic coatings. The two most commonly used varieties are hard and ablative paints.

Hard paints create a porous film on the hull when dry. Biocides are held in the pores and the toxins dissolve when in contact with water. Ablative paints are partially soluble. The active ingredient is continually leached out. The underlying film then weakens and is polished off as the vessel moves through the water. Fresh antifouling paint is thus exposed. Hard paints contain varying levels of biocides which are released slowly. Ablative paints generally contain lower levels of toxins yet they are released at a steadier rate. The impact on the aquatic environment over time is about the same.

Non-toxic coatings are the most environmentally friendly option. They contain Teflon or Silicon and produce a hard, slick surface to which antifouling growth cannot firmly attach.

Underwater hull cleaning, if done properly, removes marine growth and minimal amount of antifouling paint. However, when done too vigorously or when ablative paint is scrubbed, unacceptable levels of toxic bottom paint are released into the surrounding water. The following is a set of tips for divers to minimize pollution problems in terms of paint and biocide release through hull cleaning.

Best Management practice for divers

The following tips for divers are intended to guide decisions about hull treatment and maintenance. With a little attention pollution problems associated with hull cleaning can be minimized.

- Clean gently to avoid creating a plume or cloud of paint in the water. This indicates that paint is being removed.

- Ablative paints should not be cleaned in water using harsh scrubbing materials since this will release paint and its associated biocides. Only soft sponges can be used on this paint surface.
- Always use the least abrasive material that will effectively clean the painted surfaces:
- Use stainless steel pads or brushes only on unpainted areas
- Never sand, strip or chip hull paint underwater.

Best Management practices during underwater cleaning

- Whenever possible, properly secured retaining nets of the right mesh size must be utilised during inshore and offshore cleaning to collect the marine fouling being removed without creating unnecessary danger for the divers.
- Suction equipment for marine fouling during cleaning is highly recommended.

Emissions to Air

In the event that blasting needs to be carried out at sea, the contractor needs to prove that works will be carried out in a water tight environment, and that suitable air and water environmental protection measures will be employed. This also applies to different types of marine crafts such as oil rigs. Maintenance blasting on oil rigs is usually carried out on a semi submersible barge and in a water tight environment. Hydro blasting and glass blasting are two acceptable methods given that the method of operation and the environmental protection measures are acceptable to the ERA. Grit blasting at sea with metal particles such as, aluminium oxide, steel grit, cast iron shot, garnet and slag, will not be considered. In such an instance the craft will have to be dry-docked.

Waste Management

Much of the waste produced during the cleaning and maintenance of underwater painted vessel parts is to be treated as hazardous waste due to the biocides commonly found in antifouling paint. All such wastes should be properly contained in sealed drums and stored on hard ground in a secure area, where collection is only possible by authorized waste carriers. Propeller cleaning at offshore locations does not require the collection of marine growth, as the growth is normally minimal and the surface of the propeller is unpainted.

The disposal of hazardous waste has to follow the procedure of a Waste Consignment Note as described in Waste Management Regulations (Legal Notice 184 of 2011, as amended, S.L. 549.63)

The relevant Waste Consignment Permit application is to be completed and submitted to the Ambient Quality and Climate Change Unit by the waste producer. The transfer of waste is only possible once the permit is issued and during the validity of the permit, by using the relevant Consignment Note application. In this manner it is ensured that the waste is properly transferred and disposed of in an adequate permitted facility. It is common practice to employ waste brokers for arranging the disposal of hazardous wastes.

4. Conditions for Environmental Protection

Registered Operators must comply with the following conditions:

General Requirements

- 1.1. All operators have a duty of care to protect the environment. The operator shall become familiar with the legal obligations and good environmental practice.
- 1.2. The operator shall inform the working staff of the importance of environmental protection, and provide them with appropriate training.
- 1.3. The Operator shall facilitate inspections by ERA of the equipment registered for the cleaning operations as well as the cleaning operation itself.
- 1.4. Registered operators may proceed with cleaning assignments once confirmation is received from ERA and after giving a prior advice of the initialisation of the operation. In cases where the notification refers to methodologies or variations that were not approved by the registration process, the notification has to be resubmitted and re-vetted. No cleaning can be undertaken in this circumstance until or unless ERA re confirms.
- 1.5. Samples of material taken off vessels or used in such operations should be analysed to identify any species. ERA may request any sample of such operations for chemical, biological or other analysis.

Discharges to Sea

- 2.1. No cleaning shall be allowed in bathing areas and marine protected areas. Cleaning shall be carried out only in the Approved areas.
- 2.2. No marine fouling removed during the underwater cleaning operation shall be released into the sea.
- 2.3. No underwater cleaning and maintenance shall be carried out on hulls having paint coatings containing TBT (Tributyltin).
- 2.4. Underwater cleaning of soft marine growth on hulls which are coated with ablative paints (self-polishing) shall only be allowed if soft sponges are used for the removal of the fouling in question. In cases when hard encrusted growths are found on hull which are coated with ablative paints (self-polishing) no cleaning shall be allowed in-water and cleaning has to be carried out in dry dock.
- 2.5. If vessel is covered with sealing agents, it's MSDS has to be submitted with the notification. ERA reserves the right to refuse the permit if it is felt that the paint surface might have been jeopardised.
- 2.6. No sanding, stripping and chipping of antifouling paint shall be carried out at sea.
- 2.7. No antifouling paint chips accidentally removed during cleaning or maintenance shall be released into the sea.
- 2.8. Underwater pluming or clouding during removal of fouling might indicate that the paint layer is being stripped. In such cases operations are to be immediately suspended and ERA are to be informed forthwith.
- 2.9. Any cleaning agents used must have approval from ERA prior to notification.

Emissions to Air and Water

- 3.1. Grit blasting at sea with metal particles such as, aluminium oxide, steel grit, cast iron shot, garnet and slag, is prohibited.

- 3.2. Blasting at sea using glass beads or other inert material shall be subject to the submission by the operator of a method statement to ERA. Such method statement shall specify methods of operation, type of medium and environmental protection measures.
- 3.3. The operator shall not initiate blasting prior to approval by ERA of the method statement. The method statement must be submitted together with the notification.

Waste management

- 4.1. All waste produced during the cleaning and maintenance of underwater vessel parts shall be treated as hazardous waste, unless proved otherwise by the operator (e.g. marine fouling removed from unpainted parts namely the propeller)
- 4.2. All wastes shall be properly contained in sealed drums and stored in a designated area prior to collection for disposal.
- 4.3. The transport of waste off-site shall be by means of a waste carrier authorised for that waste.
- 4.4. Off-site disposal or recycling of wastes shall only take place at a facility licensed for that purpose (e.g. only inert waste may be disposed of at a landfill licensed for inert waste).

The disposal of hazardous wastes shall follow the procedure of a Waste Consignment Note as described in Waste Management Regulations (Legal Notice 184 of 2011, as amended, S.L. 549.63)

Note: The above conditions may be subject to revision in order to:

- (i) reflect any requirements set out by new regulations or legislations which come into force from time to time;
- (ii) mitigate any potential risks and pressures on the marine environment from this activity.

5. Useful Web Sites

A considerable body of information in regard to good environmental practices in similar operations is available on the following English language websites:

- Malta Environment and Planning Authority: www.era.org.mt
- The Department of the Environment, Water, Heritage and the Arts (Australia): www.environment.gov.au
- Report on Ballast Water and Hull Fouling in Victoria
www.parliament.vic.gov.au
- Australian Government National Pollutant Inventory Substance Profile: Organo-tin compounds Substance Fact Sheet: TBT:
<http://www.npi.gov.au/database/substance-info/profiles/66.html>

Annex 1

Classes of the Marine Craft by type¹

- Tankers: ships used to transport crude oil, chemicals and petroleum products. Tankers can appear similar to bulk carriers, but the deck is flush and covered by oil pipelines and vents.
- Ferries and Passenger vessels: ships used to perform short journeys for a mix of passengers, cars and commercial vehicles. Most of these ships are Ro-Ro (roll on-roll off), ferries, where vehicles can drive straight on and off. Passenger vessels include vacation cruise ships.
- Ro-Ro vessels: Ships with roll on/roll off cargo spaces or special category spaces which allows wheeled vehicles to be loaded and discharged without cranes.
- Container vessels: Ships used to transport large, rectangular metal boxes, usually containing manufactured goods.
- Dry cargo vessels: Ships used to transport cargo that is not liquid and normally does not require temperature control.
- Reefer vessels: Ships with refrigerated cargo holds in which perishables and other temperature-controlled cargoes are bulk loaded.
- Bulk Carriers: Ships used to transport large amounts of non-containerised cargoes such as oil, lumber, grain, ore, chemicals etc. identifiable by the hatches raised above deck level which cover the large cargo holds.
- Yachts: of a length greater than 50m.
- Fishing vessels: of a length greater than 30m.

¹ Definitions are taken from the 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories.