

# Environmental Standard – Slipyards

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## 1. PURPOSE

The purpose of this Environmental Standard is to define the minimum standard accepted by the Tasmanian Ports Corporation Pty Ltd (“TasPorts”) for boat repair and maintenance activities undertaken at slipyards on land owned or managed by TasPorts (“**TasPorts Slipyards**”) to ensure compliance with legal requirements and community expectations to prevent **environmental harm** or **environment nuisance**.

## 2. SCOPE

This Standard applies to TasPorts staff, contractors, vessel owners, customers, licensees, tenants and port users planning to undertake boat repair and maintenance activities at slipyards on land owned or managed by TasPorts.

## 3. OBJECTIVES

The objectives of this Standard are to ensure that boat repair and maintenance activities undertaken at slipyards on land owned or managed by TasPorts are conducted in a planned and controlled manner that prevents environmental harm or environment nuisance. In particular, that:

1. Chemicals, paints and other potentially environmental hazardous liquids and materials are used carefully and stored securely to prevent overspray, leakage and spills
2. Wastes are minimised and:
  - captured, contained and stored to prevent dust, leakage and spills;
  - segregated to enable recycling where possible; and
  - controlled wastes are clearly identified, labelled and removed from site in accordance with legal requirements
3. Pollution of water, soil, marine sediment and air is prevented
4. Biological foulants and marine pests are identified & reported where necessary, and removed, stored and disposed of correctly
5. Noise emissions are not excessive or unreasonable and are not a source of disruption or annoyance to surrounding areas
6. Contaminated soil and river/marine sediments from historical activities are managed to protect human health and prevent further dispersion

## 4. POTENTIAL ENVIRONMENTAL IMPACTS FROM SLIPYARDS

Boat repair and maintenance activities have the potential to adversely impact the environment. The greatest risk to the environment results from maintenance activities at facilities that do not have adequate waste containment structures<sup>1</sup>.

Specific environmental management issues associated with boat repair and maintenance are as follows [Ref 1]:

1. Materials use and storage:
  - Potentially hazardous chemicals and other materials are used such as fuels, oils, alkaline/acidic solutions, cleaning solvents, disinfectants, detergents, degreasers, rust inhibitors and antifouling paints. These materials need to be used carefully and stored securely to prevent leakage and spills.
  - As hazardous chemicals may cause serious injury or environmental harm in the event of an accidental leak or spill, clear and well understood emergency protocols must be in place to deal with such situations.

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<sup>1</sup> *Environmental Guidelines for Boat Repair and Maintenance, 2<sup>nd</sup> edition, EPA Tasmania 2020*

2. Removal of antifouling paint:
  - Removal of antifouling paints results in paint debris, sludge, dust and other particles that may contribute to water, soil and air pollution and may be harmful to marine life.
3. Manual and mechanical scraping, scrubbing and cleaning:
  - Hull and deck sanding and scraping produces a range of solid wastes, including paint chips and dust that can pollute and contaminate air, soil, surface waters and marine sediments. Conducting these activities outdoors increases the potential for pollutants to be dispersed into the environment by wind, rain or runoff. The accumulation of paint chips and other residues in yard soils and sediments can also lead to contamination.
4. Pressure water blasting:
  - High-pressure water blasting can present containment problems caused by the wide dispersion of biological and physical materials removed from the boat hull during cleaning. Pollutants and contaminants resulting from pressure water blasting activities include:
    - Chemicals and additives, including detergents, solvents, caustic or acids, used in the cleaning solution.
    - Materials removed from the cleaning surface including biological hull foulants, antifouling paint chips and sludge, dirt, oil and grease; and
    - Compounds produced as a result of reactions between the cleaning solution and the materials removed from the boats.
5. Abrasive blast cleaning:
  - Abrasive blast cleaning uses compressed air (dry blasting) or water (wet blasting) to propel hard granular particulate matter through a nozzle against the boat hull and/or other surfaces. Typical blast materials include siliceous sand, garnet, copper or zinc slag and steel grit or shot.
  - Abrasive blast cleaning results in emissions which may cause air pollution, soil and water contamination. Performing these practices near public places may also result in visual annoyance, dust and noise nuisances.
6. Removal of biological foulants:
  - Marine pests may be present on the hull of boats, in ballast tanks or in the internal plumbing of boats. Boats that have been in interstate or international waters risk introducing marine pests into Tasmania's marine environment, while all facilities risk spreading marine pests between regions within the State.
7. Painting:
  - Manual painting of boats may result in the concentrated release of harmful vapours and liquids. Wastes generated by painting activities are considered hazardous where they contain solvents and/or heavy metals.
  - Spray painting can result in the release of volatile organic compounds and fine particles from overspray into the atmosphere and then onto soil and into water bodies.
8. Fibreglassing:
  - Fibreglassing is a source of hazardous volatile emissions to the environment. Acetone (the solvent used to clean tools and other surfaces contaminated with resin) and styrene (the volatile component of the polyester resin) are the largest contributors of volatile emissions caused by fibreglassing activities. Fibreglass trimming, grinding, sanding and drilling activities may also give rise to air pollution in the form of dust and other particulate emissions.
9. Welding and metal fabrication:
  - Welding can contribute to air pollution and cause metal contamination of soil, stormwater and marine waters by generating airborne dusts and the emission of fumes and smoke.
10. Engine maintenance and repair:
  - Engine maintenance and repair activities involve the use of oil, fuel and solvent that are potentially hazardous to human health and the surrounding environment.

#### 11. Waste:

- General waste such as plastics and drink bottles can be lethal to wildlife if mistaken for food or from entanglement. General waste can also block stormwater drains and become litter along shorelines and waterways.
- Hydrocarbon, metal and chemical wastes can contaminate stormwater run-off and pollute marine and estuarine water quality.
- Controlled wastes (such as hydrocarbon, oil, fuel and chemical waste) must not be allowed to leak, spill or escape into the environment.

#### 12. Air Quality:

- Activities that generate dust, fumes, gases, smoke and other emissions may affect local air quality and cause air pollution.

#### 13. Noise:

- Excessive and/or unreasonable noise emissions from activities such as grinding, sanding, cutting and the revving of engines can be a major source of disruption and annoyance to surrounding areas.
- Noise is considered to interfere with a person's enjoyment of the environment if it is unreasonable having regard to its volume, intensity or duration; and the time, place and other circumstances in which it is emitted. Noise also carries long distances over water.

#### 14. Contaminated land:

- There is a high probability that past and current boat maintenance practices have resulted in soil and sediment contamination. Any onsite excavation or construction needs to be carefully managed to protect human health and prevent further dispersion of contaminants.

## 5. LEGAL AND OTHER REQUIREMENTS

The laws and other requirements that may be applicable to boat repair and maintenance activities undertaken at TasPorts Facilities, include but are not limited to:

- *Environmental Management and Pollution Control Act 1994 ("EMPCA")*
  - prescribes that any person has a general environmental duty to take such steps as are practicable or reasonable to prevent or minimise environmental harm or environmental nuisance caused, or likely to be caused by an activity (i.e. noise generation) conducted by that person ("**General Environmental Duty**").
- *Environmental Management and Pollution Control (Waste Management) Regulations 2020*
  - prescribes types of controlled waste and prohibits the handling, storing, transport reuse, recycling, pre-processing, treatment or disposal of controlled waste without approval.
- *Environmental Management and Pollution Control (Noise) Regulations 2016*
  - specifies requirements relating to noise levels and hours of operation
- *Environmental Guidelines for Boat Repair and Maintenance 2020, EPA Tasmania*
  - provides guidance to the boat repair and maintenance industry to manage the environmental risks associated with boat repair and maintenance
- *Bunding and Spill Management Guidelines 2015, EPA Tasmania*
  - provides guidance on bunds and spill containment systems to contain spills and leaks of environmentally hazardous materials/liquids to minimise the risk of pollution.
- *Anti-fouling and In-water Cleaning Guidelines 2015 (Commonwealth)*
  - provides guidance on best-practice approaches for the application, maintenance, removal and disposal of anti-fouling coatings and the management of biofouling and invasive aquatic species on vessels and movable structures
- *National biofouling management guidelines for marinas, slipways, boat maintenance and recreational boating facilities 2021:*
  - Provides best practice management measures to manage biofouling and the associated risks of marine pest introduction, establishment and spread from these locations, including that

facilities and systems are in place so that all residues, solid coatings, liquid or any other forms of waste (including removed biological material) can be contained and not enter any waterways.

- *Protection of the Sea (Harmful Anti-fouling Systems) Act 2006*
  - provides for the protection of the sea from the effects of harmful anti-fouling systems (HAFS)
- *Work Health and Safety (Abrasive Blasting) Code of Practice 2015*
  - provides practical guidance on how to manage health and safety risks associated with abrasive blasting.
- *TasPorts Environmental Standard – Noise*
  - defines the minimum standard accepted by TasPorts to prevent noise and vibration related environmental harm or environmental nuisance arising from noise generating activities undertaken at **TasPorts Facilities**.
- *TasPorts Environmental Guideline – Managing Contaminated Material during Ground Penetration and Excavation*
  - provides guidance when planning and undertaking works requiring ground penetration, excavation or dredging at TasPorts facilities due to the likelihood that soil, marine sediments and other material will be contaminated.

## 6. REQUIREMENTS

### 6.1. Slipway Environmental Management Plan

Slipways on land owned or managed by TasPorts must have an *Environmental Management Plan* approved by TasPorts' Manager Environment & Sustainability. This includes slipways operated by TasPorts tenants. Approved Environmental Management Plans must be reviewed, updated and re-submitted every 5 years, or earlier if needed.

The purpose of an Environmental Management Plan is to ensure that environmental risks associated with boat repair and maintenance activities at a slipway are documented and managed, and that activities occur in a manner that enables the objectives set out in section 3 of this standard to be achieved.

An Environmental Management Plan must include the following information:

- i. Details on the type of boat repair and maintenance work undertaken at the slipway
- ii. Site map showing key features and environmental controls
- iii. Responsibility for slipway operation, maintenance and boat repair/maintenance activities (eg. TasPorts site coordinator, vessel owner, maintenance contractor).
- iv. For each activity or work undertaken at the slipway details on:
  - potential environmental impacts
  - controls to prevent environmental harm or nuisance and meet environmental objectives
  - responsibility for implementing controls
- v. Chemicals stored and handled at the slipway including:
  - quantities stored
  - responsibility for storage and handling
  - storage and dispensing arrangements
  - spill containment systems to contain spills and leaks
- vi. Waste Management Plan that documents:
  - liquid and solid wastes generated at the slipway including wastewater and stormwater run-off
  - the classification of each waste generated (e.g. general or controlled waste)
  - who generated the waste (e.g. TasPorts, tenant, vessel owner, maintenance contractor)
  - responsibility for storing and arranging disposal of the waste
  - how the waste is stored on-site to ensure it remains contained prior to collection for off-site recycling / disposal
  - requirements to ensure controlled wastes are stored, transported and disposed of in accordance with Waste Management regulations

- vii. Environment Improvement Plan that documents:
  - improvements identified as required for the slipyard to meet environmental objectives and minimum environmental controls listed in section 6.2 of this standard
  - proposed improvement implementation timeframes
  - responsibility for improvement implementation
- viii. Details on how environmental hazards and incidents are recorded and investigated and associated corrective and preventative actions are tracked (TasPorts operated slipyards are to use the Beacon incident management system).

## 6.2. Slipway Environmental Controls

Environmental controls for slipways on land owned or managed by TasPorts should align with the practices and controls recommended in Part 3 of EPA Tasmania's [Environmental Guidelines for Boat Repair and Maintenance 2nd Edition, October 2020](#). Appendix 1 contains a summary of recommended practices and controls.

## 6.3. Slipway Documents and Records

Slipways must develop and maintain the following documents and records:

- Environmental Management Plan
- Procedures for undertaking boat repair and maintenance work
- Permits to Work for specific high environmental risk tasks (i.e. abrasive blasting, spray painting)
- Checklists
- Slipping Register containing details on each boat slipped, including:
  - General Information: name of boat, distinctive numbers/letters, length, gross tonnage and recent voyage history (i.e. whether from intrastate, interstate or overseas)
  - Record of anti-fouling work: type of anti-fouling system used; dates of application of anti-fouling system; name of anti-fouling system; manufacturer, name and colour of anti-fouling system; type, name, colour and date of application of sealer coat, if applied
  - Record of painting work: paint history, types of paint applied and application dates
- Proof of proper disposal of controlled wastes – including abrasive blast media & sludge collected from sumps etc (unless analysis proves otherwise)
- Emergency Response Plan that describes environmental safety provisions and emergency response procedures in the event of fire, chemical and other spills, damage to equipment and personal injury.
- Trade Waste Agreement, where relevant
- Monitoring results of analysis (e.g. for Trade Waste Agreement, waste analysis)

## 6.4. Monitoring and Evaluation

Monitoring to verify that environmental controls are in place and are effective must occur through the use of tools such as routine checklists and periodic audits and inspections.

Sampling and analysis programs must be developed and implemented as necessary to verify compliance with trade waste agreements and waste management regulations.

## 6.5. Event and Action Management

At TasPorts operated slipyards all environmental hazards or incidents must be reported to the relevant TasPorts Operations Supervisor and logged in the TasPorts Incident Management System, Beacon. Corrective and preventative actions arising from environmental hazards, incidents and/or monitoring programs must be tracked in Beacon.

At non-TasPorts operated slipyards all environmental hazards, incidents and associated corrective and preventative actions must be managed, logged and tracked in accordance with the processes and system detailed in the most recent approved Environmental Management Plan.

## 7. DEFINITIONS AND ABBREVIATIONS

Environmental Harm	<b>Environmental harm</b> is defined in section 5(1) of the <i>Environmental Management and Pollution Control Act 1994</i> (Tas) to mean:  any adverse effect on the environment (of whatever degree or duration) and includes an environmental nuisance.
Environmental Nuisance	<b>Environmental nuisance</b> is defined in section 3 of the <i>Environmental Management and Pollution Control Act 1994</i> (Tas) to mean:  (a) the emission, discharge, depositing or disturbance of a pollutant that unreasonably interferes with, or is likely to unreasonably interfere with, a person's enjoyment of the environment; and  (b) any emission, discharge, depositing or disturbance specified in an environment protection policy to be an environmental nuisance.
TasPorts Slipyards	Slipyards on land owned or managed by TasPorts
TasPorts Facilities	TasPorts owned, operated or managed land, berths, vessels, navigation aids and water
General Environmental Duty	As defined in the <i>Environment Management and Pollution Control Act 1994</i> , a person must take such steps as are practicable or reasonable to prevent or minimise environmental harm or environmental nuisance caused, or likely to be caused, by an activity conducted by that person
Habituation	Where birds exposed to a frequently repeated stimulus realise they are not a real threat and so eventually ignore them.
Introduced birds	Birds that are not native to Tasmania and have been accidentally or deliberately introduced to Tasmania by human activity
Loafing	Birds resting
Nestlings	Bird chicks still in the nest, with open eyes and quills
Permit holder	Person identified on a <i>Permit To Take Protected Wildlife</i> issued by the Department of Primary Industry Parks Water and Environment
Roosting	Birds sleeping
Sensitive Noise receptors	Locations where people may be adversely impacted by exposure to noise. These include, but are not limited to residential areas, hospitals, schools, day care facilities and elderly housing.

### *“Disclaimer*

*The information contained in this standard is not intended as providing professional advice to any person or organisation in relation to their legal obligations concerning birds. It is your responsibility to determine, understand, implement and comply with any legal obligations. No claim is made as to the accuracy, currency or completeness of the content in this Standard.”*

Appendix 1: Summary of recommended environmental controls from *Environmental Guidelines for Boat Repair and Maintenance* 2<sup>nd</sup> Edition, October 2020, EPA Tasmania

### References

1. *Environmental Guidelines for Boat Repair and Maintenance* 2<sup>nd</sup> Edition, October 2020, EPA Tasmania
2. *Guideline – Managing Contaminated Material During Ground Penetration and Excavation*, TasPorts



## Appendix 1: Summary of recommended environmental controls from Part 3 *Environmental Guidelines for Boat Repair and Maintenance* 2<sup>nd</sup> Edition, October 2020, EPA Tasmania

Activity	Recommended Environmental Controls
Boat work area – general requirements	<ul style="list-style-type: none"> <li>Activities to occur on bunded, sealed area: <ul style="list-style-type: none"> <li>to ensure full containment of wash-down wastewater, stormwater run-off from the work area, and other facility liquid wastewater.</li> </ul> </li> <li>Work area must be &gt; 1 metre above the high tide mark: <ul style="list-style-type: none"> <li>To minimise the potential for waste materials to enter marine waters</li> </ul> </li> <li>Where having work area &gt; 1 meter above high tide mark is not feasible (due to existing facility constraints): <ul style="list-style-type: none"> <li>Work must be limited to low tide and in a bunded/contained area that is cleaned out before tidal inundation.</li> </ul> </li> <li>Daily checklist</li> </ul>
Chemical Storage & handling	<p>Storage:</p> <ul style="list-style-type: none"> <li>Within secure, bunded, covered area with impervious surface</li> <li>Away from stormwater drains, pipes of areas prone to flooding</li> <li>Provided with adequate ventilation</li> <li>Signage that identifies chemical hazards and restricted access</li> <li>Minimal quantities are to be stored</li> <li>Volatile &amp; flammable solvents and liquids must be stored in sealed containers away from heat, flames, direct sunlight, oil or other flammable liquids and fire hazards</li> <li>Incompatible chemicals must be stored separately (eg fibre glassing catalyst methyl ethyl ketone peroxide must not be stored near flammable liquids or other dangerous goods).</li> <li>Seal and clearly label all storage containers and smaller decanting containers.</li> <li>Where possible, fit containers with taps or pump the liquid to minimise the potential for spills.</li> <li>Place chemically compatible trays under container taps to catch spills or drips.</li> </ul> <p>Handling:</p> <ul style="list-style-type: none"> <li>Refer to Safety Data Sheets (SDSs) for information on chemicals stored on site.</li> <li>Ensure all personnel handling chemicals are aware of their potential hazards.</li> <li>Provide required PPE (refer to SDS) and train staff in the use of the equipment.</li> <li>Replace the lids on containers of solvent, resin, fibreglassing initiator and accelerator promptly after use, to reduce evaporative loss and contamination by dust.</li> </ul>
Emergency Response	<ul style="list-style-type: none"> <li>Emergency Response Plan that describes environmental safety provisions and emergency response procedures in the event of fire, chemical and other spills, damage to equipment and personal injury.</li> <li>Review contents of the plan with facility staff at least once a year.</li> <li>Clearly display emergency spill and other incident response telephone numbers.</li> <li>Report all spills to EPA Tasmania's Pollution Incidents and Complaints Hotline number: 1800 005 171. This number is available 24 hours a day, 7 days a week.</li> <li>Spill kits including absorbent materials and booms.</li> <li>Staff trained in the use of spill clean-up equipment.</li> <li>Do not use sawdust or other readily combustible absorbents to clean up flammable liquid spills.</li> <li>Refer to SDSs for guidance in dealing with the spills</li> <li>Dispose of contaminated clean-up materials as controlled waste or as advised by Environmental Advisors.</li> </ul>
Hull cleaning & stripping	<p>General:</p> <ul style="list-style-type: none"> <li>Use mechanical or manual buffing and scraping methods in preference to pressure water blasting and abrasive sand blasting for hull cleaning, where possible, as solid wastes are less likely to escape and more can be swept or vacuumed up for disposal.</li> <li>Fit sanders, grinders and other power tools with dust extraction and collection systems.</li> <li>Use water-based or biodegradable strippers, cleaners and degreasers.</li> <li>Use phosphate-free detergents wherever possible and scrub with a soft brush to absorb the detergent. Use biodegradable spray-type cleaners that do not require rinsing.</li> <li>Read the manufacturer's MSDS before deciding on a chemical cleaner. Chemicals that are toxic to humans are likely to also be toxic to marine organisms.</li> <li>Wherever possible, use hot water, rags or a brush instead of chemicals.</li> <li>Dilute corrosion and rust removers to the correct concentration.</li> <li>Assume that any removed underwater coating is contaminated with biocides or other hazardous chemicals and therefore must be handled and stored as controlled waste.</li> <li>Do not burn off antifouling coatings as this may generate highly toxic fumes, smoke and gases.</li> </ul> <p>Pressure water blasting:</p> <ul style="list-style-type: none"> <li>Avoid creating environmental nuisance, including noise.</li> <li>Prevent spray drift from escaping the work area by locating moveable waterproof screens alongside and behind the operator and avoid pressure water blasting during windy conditions.</li> </ul>

	<ul style="list-style-type: none"> <li>• If the surface to be cleaned contains paint with more than 0.5% lead content, then the area being cleaned should be totally encapsulated with a waterproof membrane and operators working inside the encapsulating membrane should be completely protected from contact with all wastewater.</li> <li>• Direct all wastewater runoff to a collection point.</li> </ul> <p>Abrasive blast cleaning:</p> <ul style="list-style-type: none"> <li>• Avoid creating environmental nuisance, including noise. The relevant Council should be consulted for details of minimum buffer distances from adjoining land uses when conducting abrasive blasting.</li> <li>• Remove zinc anodes before blasting.</li> <li>• Wet abrasive blasting is preferable to dry blasting, as it creates less toxic dust.</li> <li>• Vacuum blast cleaning is recommended over all other abrasive blasting methods and techniques for outdoor blast cleaning.</li> <li>• Do not use dry abrasive blasting in strong winds where dust escape may pose a nuisance. Use water or a proprietary suppressant agent to control dust emissions from the work area.</li> <li>• In the absence of vacuum blasting equipment, conduct abrasive blasting in an abrasive blasting chamber vented to atmosphere via an effective dust collector, preferably a fabric filter. Alternatively, ensure that the screening material for outdoor/open-air blasting is tear-resistant, UV (ultraviolet) resistant, fire retardant and of suitable material and construction (preferably fully enclosed) to prevent the escape of fine dust.</li> <li>• Avoid the use of silica sands (for example river sand, beach sand or quartz rock) and avoid using copper slag, zinc slag or any other abrasives that contain toxic heavy metals.</li> <li>• Use recyclable and more environmentally benign abrasives such as garnet, ilmenite, chilled iron grit, cast steel grit or cast-iron shot.</li> <li>• Where a boat's paint history is not known, arrange for testing of the paint on all painted structures to be blasted. Refer to the Surface Preparation and Cleaning section of this standards, and to AS/NZS 4361.2:2017 (Guide to Hazardous Paint Management).</li> </ul>
Application of anti-fouling paints	<p>Manual painting:</p> <ul style="list-style-type: none"> <li>• Where possible, manual painting using brushes and rollers is recommended in preference to spray painting methods. Refer to the manufacturers' directions when deciding on the application method.</li> <li>• Before applying antifouling paints, consider using alternative technologies, particularly those that rely on the coatings physical properties rather than its toxicity to prevent fouling, if these technologies are appropriate for the vessel's speed and frequency of activity.</li> <li>• Only antifouling paints that have been registered for use in Australia by the Australian Pesticides and Veterinary Medicines Authority can be sold and/or applied in Australia. All registrations of TBT - based paints were revoked in March 2003. 'Home-made' antifouling paints are illegal, as is adding any ingredient to, or otherwise modifying registered products.</li> <li>• Mix paints in drip trays under cover and in a sealed, bunded and well-ventilated paint bay. Do not mix or prepare antifouling paints in locations that are subject to tidal influences.</li> <li>• Clean up spilt paint (particularly water-based paint) and allow the remaining paint to dry rather than washing it into the wastewater collection system.</li> <li>• After painting, wipe/squeeze as much paint as possible from the brushes, trays and rollers back into the paint tin for future use.</li> <li>• Paint out excess paint onto an absorbent material such as an old rag or newspaper. Allow it to dry before disposal.</li> <li>• When using containers filled with water to clean water-based paint from brushes and rollers, allow the paint solids to settle by leaving the container overnight. Pour the water out onto the garden or grassed area in the morning and use an old rag or newspaper to wipe out the solids from the bucket.</li> <li>• Do not rinse paint containers into stormwater drains, gutters or sewers.</li> <li>• Allow empty paint and thinner containers to air-dry before disposal.</li> </ul> <p>Spray Painting:</p> <ul style="list-style-type: none"> <li>• As for manual painting, consider using alternatives to antifouling paints, particularly those that rely on the coating's physical properties rather than its toxicity to prevent fouling.</li> <li>• Ensure that spray painting activities does not create an environmental nuisance, including noise.</li> <li>• Spray paint large objects on a sealed and bunded surface that is either fully enclosed (sides and top) with screening material or fully screened (sides only) to a height two metres above the structure.</li> <li>• Spray paint only in calm conditions.</li> <li>• Keep spray guns and lines clean and well maintained to reduce emissions; also spray perpendicular to the surface being sprayed and maintaining a uniform distance from the surface.</li> <li>• Use efficient spray equipment (transfer efficiency &gt; 65%) such as high-volume low pressure (HVLP) spray guns for all outdoor/open-air spraying.</li> <li>• Use corrosion inhibitors that are compatible with surface coating requirements, biodegradable and free from chromates, nitrates and nitrites. Corrosion inhibitors also commonly contain zinc that can contaminate stormwater and land.</li> </ul>



	<ul style="list-style-type: none"> <li>Use a wash station for cleaning spray equipment and scrape the paint cup free of any residual paint with a spatula before cleaning the equipment with solvent.</li> </ul>
Fibre-glassing	<ul style="list-style-type: none"> <li>Contain and control all spray emissions. The recommended method is to work inside a building, keeping the doors closed while using mechanical ventilation equipment.</li> <li>Where practical, hand lay-up methods are recommended over spray gun applications as hand lay-up releases less styrene.</li> <li>For spraying, use airless, air-assisted, or HVLP spray guns. Internal mix, airless spray guns result in lower styrene emissions than other types of spray guns.</li> <li>Ensure that the spray lay-up equipment is properly maintained and periodically cleaned. This will avoid glass jamming in the spray gun chopper mechanism and the generation of additional waste (resin and glass) when fixing it.</li> <li>Use a gun wash station or similar for the cleaning of spraying equipment.</li> <li>Reduce the amount of grinding and sanding as much as possible by trimming with a knife or mechanical cutter when articles have solidified but not yet hardened.</li> <li>Securely wrap all sanding and grinding dusts prior to disposal.</li> </ul>
Welding & metal fabrication	<ul style="list-style-type: none"> <li>Establish an isolated, well-ventilated area for using oxy-acetylene torches and welders, away from combustible materials such as oils, grease and rubber.</li> <li>Conduct all metal cutting operations on a sealed surface inside a screened area to minimise the horizontal dispersion of metal fragments and allow the sweeping or vacuuming of metal scraps and filings.</li> <li>Securely wrap all dusts and other grinding wastes prior to disposal in an industrial bin.</li> </ul>
Engine maintenance & repair	<ul style="list-style-type: none"> <li>Use a drip tray or groundsheet under the engine to collect oil, grease, solvents or detergents.</li> <li>Keep adequate supplies of rags and other absorbent materials for cleaning up small fuel and oil spills.</li> <li>Clean engine parts in a properly designated wash bath or over catch pans located in a covered, sealed and bunded area that is graded to a collection pit or sump.</li> <li>Where possible, clean engine parts with a brush rather than with solvents or aqueous degreasers such as alkaline or caustic soda.</li> <li>Use water-based or biodegradable strippers, cleaners or degreasers wherever possible.</li> <li>Use a funnel when pouring fuel into drums or tanks or use hand pumps to remove fuel from drums.</li> <li>Drain oil filters before disposal and never place any containers containing residual oil, fuel or other fluids in industrial waste bins unless they have been drained and wiped clean.</li> <li>Use bilge pump/separation services</li> </ul>
Removal of biofouling	<ul style="list-style-type: none"> <li>Biofouling should be carefully removed to prevent contamination with paint chips and other hull coatings. It may be necessary to analyse residue samples to ensure that they are not contaminated with heavy metals and antifouling agents. Do not return collected biofouling to the sea or any waterway.</li> <li>Facilities, particularly those that slip boats that have been in international waters, should install waste treatment systems with technology to minimise the risk of introducing and/or translocating marine pests. This may include filtration technology, neutralisation or other chemical treatment processes.</li> <li>If it is suspected that an introduced marine pest has been found outside known existing locations during removal of biofouling from a vessel, report the finding to DPIPWE on 1300 368 550. <ol style="list-style-type: none"> <li>Signs of a suspected pest could include unusually heavy biofouling, dominance of fouling by one species, or a 'new' species not seen before in your region.</li> <li>If possible, collect some specimens and keep them in a sealed plastic bag in a freezer until they can be taken for identification.</li> <li>Further information about introduced marine pests is available on the DPIPWE website (<a href="http://www.dpipwe.tas.gov.au">www.dpipwe.tas.gov.au</a>).</li> </ol> </li> </ul>
Waste Management	<p>Management Options:</p> <ul style="list-style-type: none"> <li>There are five general options for managing solid and liquid waste: <ol style="list-style-type: none"> <li>Minimise (eg. minimise water and chemical use; use low-toxicity products).</li> <li>Onsite containment and storage (prior to onsite reuse or transport offsite).</li> <li>Onsite treatment and reuse (eg. recirculating treated wash water).</li> <li>Offsite recycling (eg. used oils, cardboard, batteries, metal offcuts.)</li> <li>Offsite disposal (to an approved facility).</li> </ol> </li> <li>Operators should focus efforts on the first four options. Offsite disposal should be a last resort and only considered where none of the other environmental management options are available.</li> </ul> <p>Waste Classification:</p> <ul style="list-style-type: none"> <li>Boat repair and maintenance facilities typically produce both solid and liquid waste, which can be classified as either 'general' or 'controlled'. See Parts 3 and 4 of the Environmental Management and Pollution Control (Waste Management) Regulations 2020.</li> <li><b>General waste</b> includes uncontaminated debris and litter such as: <ul style="list-style-type: none"> <li>Cardboard and paper</li> <li>Food and garden waste</li> <li>Plastics</li> <li>Aluminium cans</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Glass drinking bottles</li> <li>○ Steel cans and drums (clean)</li> <li>● <b>Controlled (hazardous) waste</b> includes waste that is capable of leaching, or is toxic, corrosive, poisonous, flammable or explosive, such as: <ul style="list-style-type: none"> <li>○ Detergents, degreasers, brush cleaning fluids, solvents and acidic or alkaline solutions</li> <li>○ Used oil, grease, dissolved hydrocarbons and other organics</li> <li>○ Paint, paint scrapings, abrasive blast media, biofouling residues and antifouling paint residues containing metals such as copper, lead, zinc, tin and metalloids; or other substances such as tributyltin, diuron and diuron derivatives used in antifouling paints</li> <li>○ Contaminated and spent solvents</li> <li>○ Under-cured resin material. This must be hardened by adding an appropriate amount of catalyst prior to disposal in an industrial bin, together with other fibreglassing wastes (eg. overspray resins, glass and cardboard coverings)</li> <li>○ Mercury switches</li> <li>○ Marine biota (bio-hazardous) residues</li> </ul> </li> </ul>
Solid Wastes	<ul style="list-style-type: none"> <li>● Separate solid wastes as soon as they are generated to: <ol style="list-style-type: none"> <li>1) Minimise time and effort involved in re-sorting wastes prior to disposal.</li> <li>2) Maximise the volume of re-useable or recyclable wastes</li> <li>3) Minimise volumes of controlled (hazardous) waste by ensuring that they are not mixed with, and thereby contaminate, general waste</li> <li>4) Facilitate the disposal of compatible waste types.</li> </ol> </li> <li>● Establish a recycling station in a convenient location, with clearly labelled waste containers for individual types of solid waste, including under cover spill trays for battery storage.</li> <li>● Collect and recycle* the following general wastes for disposal at a waste recycling and reprocessing facility: <ol style="list-style-type: none"> <li>1) Clean cardboard and paper</li> <li>2) Aluminium cans and glass drink bottles</li> <li>3) Plastics labelled 1, 2 or 3</li> <li>4) Clean empty steel drums and cans</li> <li>5) Scrap metal, including zinc anodes</li> <li>6) Engine and dry cell batteries.</li> </ol> <p>* For more information visit <a href="http://www.businessrecycling.com.au">www.businessrecycling.com.au</a></p> </li> <li>● Establish a storage area or areas with separate bins or containers for other, non-recyclable solid wastes.</li> <li>● Only put solid, inert general wastes into industrial general waste skips.</li> <li>● All bins, industrial skips and sealed containers must be emptied regularly.</li> <li>● All containers for waste oils, solvents and other chemicals or potential contaminants (paint, paint thinners or acids) must be empty and have been dried out before disposal in waste bins.</li> <li>● Controlled (hazardous) solid waste must be stored onsite in sealed, clearly labelled containers for collection by a registered waste transport contractor and transported to an approved disposal, treatment or storage facility. The storage area should be secure, sealed and bunded.</li> <li>● Where possible, separate abrasive material/grit from the waste and re-use.</li> <li>● Erect signs to describe facility waste disposal requirements and (where relevant) use pamphlets, newsletters and meetings to convey information.</li> </ul>
Wastewater collection, treatment and disposal	<ul style="list-style-type: none"> <li>● Facilities have four options for managing wastewater produced onsite: <ol style="list-style-type: none"> <li>1) Minimise the production of wastewater.</li> <li>2) Recirculate and re-use wastewater onsite.</li> <li>3) Treat and discharge to the municipal sewer in accordance with the conditions of any Trade Waste Agreement.</li> <li>4) Remove for disposal at an appropriate liquid waste reception facility, using a registered waste transporter.</li> </ol> </li> <li>● The main aims of a treatment system are to remove suspended solids, dissolved and undissolved contaminants, turbidity and discolouration so that the water can either be reused onsite, or discharged to the sewer (subject to a Trade Waste Agreement). The system should include: <ul style="list-style-type: none"> <li>○ A sealed, bunded work area</li> <li>○ Catchment drains and trenches</li> <li>○ A common sump for the catchment drains</li> <li>○ Tanks with enough volume to store and treat the runoff water</li> <li>○ A sand filter to remove fine particles from the water</li> <li>○ An oil/water separator</li> </ul> </li> <li>● Specific requirements for the various elements of the wastewater collection and treatment system are as follows: <ul style="list-style-type: none"> <li>○ Construct a bund around the boat work area to contain wastewater runoff and minimise the amount of water requiring treatment. Placement of the system should take the tides, wave action and associated inundation into consideration. In the case of existing facilities where the work area</li> </ul> </li> </ul>

	<p>is not above the high tide mark and relocation is not feasible, a diversion valve may need to be fitted to divert tidal water when it enters the pit or sump.</p> <ul style="list-style-type: none"> <li>○ Ensure that the wastewater collection system is separate from the stormwater collection system for other relatively clean areas of the site such as carparks and roofs.</li> <li>○ Regularly clean and maintain work areas and ensure that no particles or wastewater from cleaning or maintenance work falls or drains into stormwater.</li> <li>○ Where possible, cover work areas to minimise the amount of contaminated runoff.</li> <li>○ Do not hose boats, hardstand areas, vehicles or machinery parts on to the surrounding soil and/or stormwater system.</li> <li>○ Cover catchment drains and trenches with removable gratings (10mm gap size).</li> <li>○ Regularly inspect the gratings and remove accumulated debris.</li> <li>○ Prevent oily wastes from being mixed with other runoff water that enters the collection system. Large amounts of oil may interfere with other treatment technology used for reducing metal concentrations in the liquid waste.</li> <li>○ Construct the waste collection sump so that the accumulated sludge/slurry can be removed by a registered waste transporter using a vacuum loading tanker, for treatment and disposal as a controlled waste.</li> <li>○ Fit the sump with removable catchment baskets or cover the sump outlets with a removable screen (2mm diameter mesh gaps).</li> <li>○ Regularly inspect and clean the sump and baskets/screens, especially before and after site and boat cleaning activities to ensure that they are clear of trapped solids.</li> <li>○ Ensure the capacity of the first holding tank is large enough to contain the wastewater runoff from at least one hour of continuous operation of a pressure cleaner (estimated at between 420 – 1260 litres), and the 'first flush' runoff from a storm event.</li> <li>○ Regularly monitor liquid levels in holding tanks to avoid any overflow and to detect leaks. Dipsticks can be used for this purpose.</li> <li>○ Reuse the treated water onsite, wherever possible.</li> <li>○ Any wastewater discharged to the sewer system must meet the quality standards required by a Trade Waste Agreement. The Trade Waste Agreement sets out the acceptable pollutant discharge concentration limits.</li> <li>○ Spent abrasive blast media and the sludge/slurry and other solids collected by on-site liquid waste management systems (pits, trenches, sumps and/or holding/settling tanks) should be managed as controlled wastes and stored/disposed of accordingly unless waste analyses prove otherwise.</li> </ul>
Other liquid wastes	<ul style="list-style-type: none"> <li>● Establish a secure recycling station for used engine oil, lubricating oil, hydraulic and gearbox oil, volatile solvents, thinners and other hydrocarbons.</li> <li>● Establish a separate area for liquid wastes that cannot be readily recycled, such as: <ul style="list-style-type: none"> <li>○ Oily bilge water</li> <li>○ Other contaminated water that cannot be treated in the wastewater system</li> <li>○ Liquid paint residues, thinners and solvents</li> </ul> </li> <li>● Display signs to show where the recycling station and storage area for non-recyclable liquids are located.</li> <li>● Store un-recyclable liquid wastes in separate, sealed containers for disposal at an approved waste disposal facility by a registered waste transporter.</li> <li>● Ensure there are enough drums and/or other containers for collecting and storing recyclable and non-recyclable liquids.</li> <li>● Ensure that incompatible wastes, for example oxidising and explosive or combustible wastes, are stored separately and in suitable containers. See the SDS for storage information of the chemical of concern in the waste products.</li> <li>● Clearly label all liquid waste disposal drums with details of their contents and ensure that they are sealed prior to their disposal by a registered waste transporter.</li> <li>● Store all liquid wastes undercover to minimise contamination of runoff water.</li> </ul>
Controlled waste transport and disposal	<ul style="list-style-type: none"> <li>● Clearly label all controlled waste disposal drums and containers with the details of their contents.</li> <li>● Controlled waste must be disposed through a registered waste transporter at a waste disposal facility permitted to receive controlled waste. Contact the EPA Tasmania Division in DPIPW for information on controlled waste transport businesses currently registered to collect and transport the waste of concern.</li> <li>● The controlled waste transporter may need to arrange for testing of the waste by a National Association of Testing Authorities (NATA) registered laboratory or other accepted accreditation body in order to determine which waste facility can accept the wastes.</li> <li>● It may be necessary to apply for an Environmental Approval under Regulation 21 of the Waste Management Regulations 2020 if the disposal or treatment of a controlled waste is to occur at a facility not licensed to receive that controlled waste. An application form is available from <a href="http://www.epa.tas.gov.au">www.epa.tas.gov.au</a></li> </ul>

Air Quality Management	<ul style="list-style-type: none"> <li>• Undertake all activities that have the potential to generate large volumes of dust and particulate emissions in an enclosed and ventilated work area.</li> <li>• Where an enclosed and ventilated work area does not exist, use a tarpaulin or similar material to enclose the part of the boat being worked on and contain potential airborne wastes.</li> <li>• Avoid burning coatings from hulls as this produces toxic gases.</li> <li>• Wrap oily/greasy rags and paper, oil-soaked sawdust, plastics and rubber and place in an industrial bin (these materials should not be burnt).</li> <li>• Fit power tools with dust extraction and collection systems.</li> <li>• Where possible, avoid abrasive blasting as this can create toxic dust.</li> <li>• Apply paints using rollers or brushes or airless spray guns in preference to compressed-air guns. Where spray painting cannot be avoided, use High Volume Low Pressure (HVLV) spray guns to reduce the amount of overspray, paint usage, the release of volatile organic compounds and subsequent odours.</li> <li>• Regularly collect floor sweepings, dust, powder waste or absorbent clean up materials and place them in a sealed bag before disposing of them in a covered waste bin.</li> <li>• Use wet/dry vacuum cleaners with dust filters for general cleaning of the work area floor surface rather than sweeping and hosing the surface down with water.</li> <li>• Maintain air pollution control equipment and immediately replace or repair any emission control equipment that is blocked, frayed, leaking or not functioning within specifications.</li> <li>• Control any exhaust emissions to prevent nuisance or objectionable odours/fumes offsite.</li> <li>• Use mechanical ventilation systems and activated carbon filters or scrubbers to prevent the release of any uncontrolled and objectionable odours from buildings or rooms.</li> </ul>
Noise management	<ul style="list-style-type: none"> <li>• Incorporate acoustic barriers, damping and insulating materials in the facility's design and layout. Use the natural topography and consider landscaping improvements (fencing, mounds and structures) to serve as noise barriers.</li> <li>• Maintain adequate separation distances between facilities and neighbours, and close windows and roller doors facing noise-sensitive premises.</li> <li>• Fit mechanical ventilation systems (for example air conditioners and fans) with noise-proof ducting and acoustically designed intake and exhaust openings</li> </ul>
Contaminated land & sediment	<ul style="list-style-type: none"> <li>• Where land is potentially contaminated from past activities, earth works should only occur following an assessment of contamination levels by a qualified expert.</li> <li>• Soil to be disposed of off-site or reused on-site as fill material must first be assessed by a qualified expert to ensure its suitability for disposal or reuse.</li> <li>• Marine sediment in the near vicinity of boat repair and maintenance facilities should not be disturbed unless it has been demonstrated that it is safe to do so through analysis of contaminant concentrations.</li> </ul>