

Code of Practice for Materials Handling on Wharves



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1 INTRODUCTION

South Australia's aquatic environments have substantial ecological and economic value. The state government, therefore, has a responsibility to protect these environments and provide community leadership and direction in sustainable use, improved management and conservation.

Many industries depend on these resources for commercial materials handling. Over time, changes in state, national and global economies, technological advances and greater awareness of the environment have greatly altered the nature of materials-handling activities and their relationship to the host community and region.

The fundamental characteristic of maritime facilities is that these are at the interface of land and water. This interface is a heavily regulated environment due to the sensitivity of intertidal and marine resources, habitat value and exposure to natural hazards. Wharf development and expansion often require significant alteration of the environment through dredging and filling, and port operations can affect the quality of air, soil and water.

The challenge for the maritime industry is to conduct its operations in an environmentally sound, yet economically productive and competitive manner. In 2005, over 1700 commercial vessels made registered calls across South Australia's ports, with over 14 million tonnes of materials being transferred across wharves. These figures do not include containerised goods or the 817 commercial fishing vessels and their associated catch, which are unloaded around the state.

The South Australian Environment Protection Authority (EPA), together with an external advisory group (see Appendix 9.2) and in partnership with the Australian Government Department of the Environment and Water Resources (DEWR), has developed this code of practice to encourage and enforce environmental management practices for the benefit of future generations. This has been done with respect for and acknowledgment of all those who rely on the sustainable use of South Australia's aquatic environments.

1.1 Scope of this code of practice

This code of practice applies to all people, organisations and agencies that own, operate and use wharf facilities and vessels for the purpose of materials handling within the marine and inland waters environment of the state of South Australia.

This code of practice does not address overall port operations, such as materials storage and maintenance, vessel regulation or dredging. These issues are managed through other codes, guidelines and regulations. The primary focus of this code is the handling of materials on wharves.

2 ENVIRONMENT PROTECTION REGULATORY FRAMEWORK

The EPA codes of practice do not contain offence provisions, but they fit within a framework of regulatory tools (see Figure 1) that can be used by the EPA. When an EPA code of practice is linked to an Environment Protection Policy (EPP), compliance with the requirements of a code of practice (the things that must or must not be done) can be enforced by an Environment Protection Order (EPO). Non-compliance with an EPP is an offence under the *Environment Protection Act 1993*.

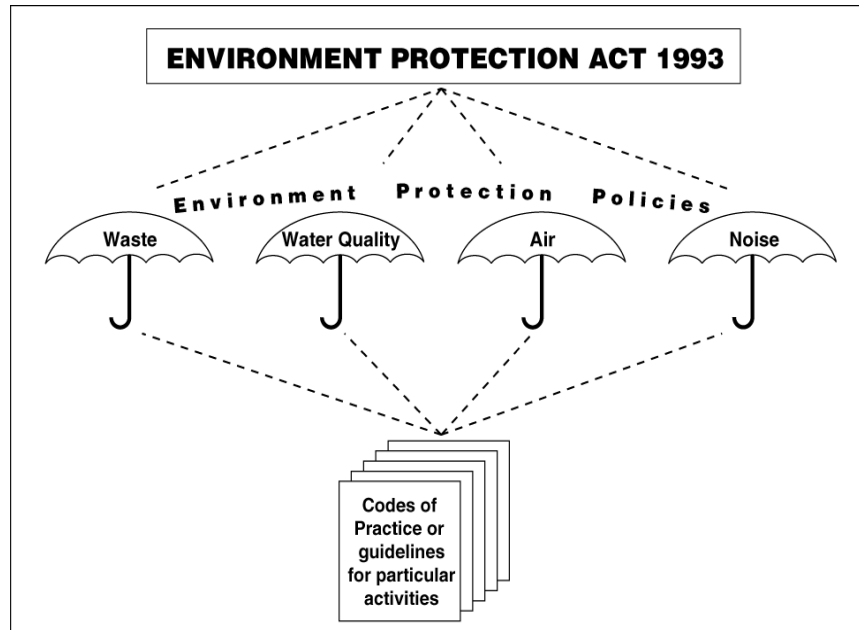


Figure 1 Relationships between the Environment Protection Act, Environment Protection Policies, Codes of Practice and Guidelines

2.1 Environment Protection Act

At the top of the hierarchy, the Environment Protection (EP) Act provides for the protection of the environment and defines the EPA's functions and powers. The EP Act promotes ecologically sustainable development and the use of the precautionary principle to minimise environmental harm. It requires polluters to bear an appropriate share of the costs and responsibilities of protecting the environment from their activities. The EP Act makes people or organisations responsible for minimising harm to the environment as a result of their actions.

2.2 Environment Protection Policies

Environment Protection Policies (EPPs) are the second level of environment protection legislation—they can be developed for any area to secure the aims of the EP Act. The *Environment Protection (Water Quality) Policy 2015* is an example of a recently developed EPP.

The principal aim of this Water Quality Policy is to achieve the sustainable management of waters by protecting or enhancing water quality while allowing economic and social development. In particular, the policy seeks to:

- ensure that pollution from both diffuse and point sources does not reduce water quality

- promote best practice environmental management.

EPPs may contain mandatory provisions that are enforceable under the EP Act, either as offences or by the issuing of an EPO. EPPs may also refer to, or require compliance with codes of practice—as is the case with this code of practice.

2.3 EPA codes of practice

A code of practice is designed to assist in compliance with the general environmental duty and, therefore, to assist in fulfilling obligations under the EP Act and associated EPPs. It does this by closely examining an industry or activity and its various aspects and impacts, and through a process of negotiation formulates reasonable and practical outcomes and recommended practices to achieve such outcomes. These are outlined as 'musts' and 'shoulds', which are defined as follows:

- 'must': indicates a requirement in this code, which, if ignored, is likely to lead to a breach of the Environment Protection (Water Quality) Policy
- 'should': indicates a recommended practice.

Before a code of practice can become enforceable, the EPA must consult with people, organisations and industries likely to be affected by it. The EPA must consider the views expressed by those consulted and pass them on to the responsible minister. For this code of practice, the principle consultation process involved the facilitation of the external advisory group (see Appendix 2).

This code of practice will be linked to the Water Quality Policy. The requirements outlined in this code will be enforceable by the issuing of an EPO under Section 93 of the EP Act. Failure to comply with an Order is a breach of the EP Act and constitutes a criminal offence. Future links may be made with other EPPs, such as those pertaining to air and waste.

2.4 EPA guidelines

EPA guidelines are advisory rather than regulatory documents as they provide guidance. In some cases guidelines may refer to laws, but they are not enforceable in their own right. Guidelines are 'how to' documents that include technical information and may further explore the recommended methods of undertaking an activity as outlined in a code of practice.

2.5 EPA authorisations

The EP Act states that an environmental authorisation is required before certain activities of environmental significance may be undertaken. These activities are outlined in Schedule 1 of the EP Act, a number of which involve the maritime industry (see Appendix 1).

If the EPA grants an authorisation, it may impose conditions necessary or expedient for the purposes of the EP Act. **Where a code of practice exists for an activity of environmental significance, the requirements or 'musts' of the code will, if appropriate, form conditions of licence.** However, due to the higher environmental risks associated with these activities, additional conditions of licence may also be applied, for example, those relating to reporting or monitoring requirements.

2.6 Importance of other government legislation and codes of practice

Environmental legislation administered by the EPA is only a part of the legislation that regulates this industry. Organisations should also be aware of their obligations under legislation pertaining

to public health; occupational health, safety and welfare; dangerous substances; fisheries; and transport.

Many provisions contained in other legislation and codes of practice promote practices that have environmental benefits. Organisations are required to comply with the mandatory provisions of other legislation. It is important to note that the EPA cannot enforce legislation outside its authority—this is the responsibility of the relevant government body.

A number of maritime industries have developed their own code of ethics and/or environmental accreditation schemes and handbooks. The EPA encourages the development of such tools and promotes the use of this code of practice to assist with their development and/or review.

3 UNDERLYING PRINCIPLES OF THIS CODE OF PRACTICE

3.1 Pollution avoidance

The potential for environmental harm can be significantly reduced if the waste management hierarchy shown in Figure 2 is applied.

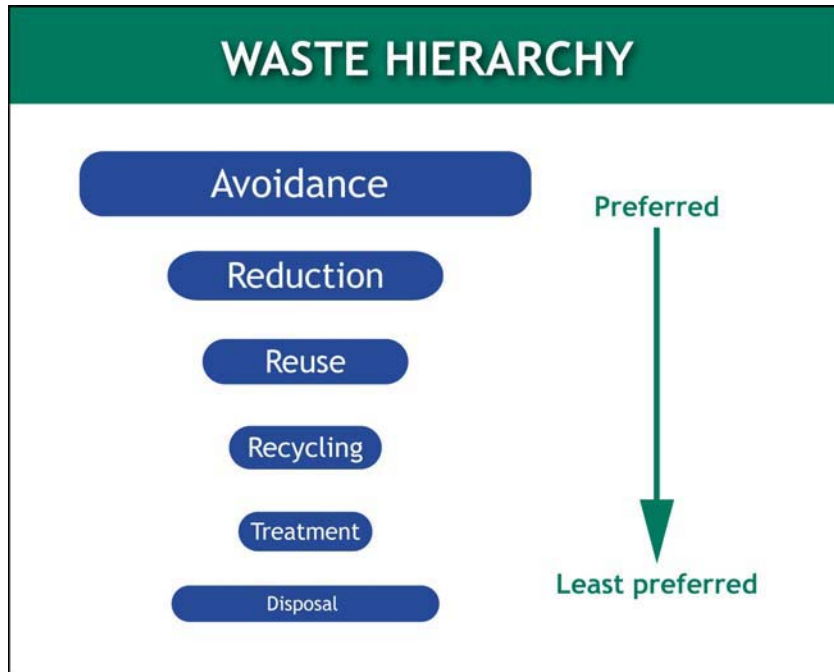


Figure 2 Waste management hierarchy

It is better to avoid the production of pollutants or waste products than to look for methods of disposal. Most importantly, it is more likely to be ecologically and economically sustainable to do so.

AVOIDANCE	do not produce the waste in the first place
REDUCTION	reduce the amount of pollution or waste by changing the way the activity is performed
REUSE	some products and materials can be reused with minimal processing, for example, capturing fertiliser spilt onto the vessel/wharf for sale as a lesser-grade product
RECYCLING	break down products into their constituent materials and reprocess them into new articles
TREATMENT	remove pollutants from waste streams using chemical or physical methods, thereby decreasing the environmental impact
DISPOSAL	transfer waste to another location under controlled conditions for long-term storage (no further use)

To assist with the application of the waste management hierarchy, it is important to consider the closely related tools of environmental planning (for example, water-sensitive wharf infrastructure design) and environmental management systems.

3.1.1 Environmental planning

Environmental planning is concerned with the future, while an environmental management system is concerned with what is happening now and how to implement plans. One of the most important functions of environmental planning is finding the best use for each location and the best location for each use. Many, if not all, environmental management practices in a code of practice should be considered during the environmental planning stages of development proposals, assessment and construction. In doing so, compliance with the code of practice can be achieved from the beginning, and the cost of future modification or retrofitting can be avoided.

Government planning authorities and prescribed bodies include councils, Planning SA, the Department of Water, Land and Biodiversity Conservation, the Coast Protection Board and EPA. These authorities have planning policies and guidelines that relate either directly or indirectly to wharf development, for example, coast protection measures. It is likely that this code of practice will be a key guiding document for the establishment of policy for assessing development by many of these authorities. Before seeking approvals for new development, organisations are advised to consult with these agencies about their policies and prepare the application accordingly.

3.1.2 Environmental management systems

In most cases, organisations will already be in operation and so the opportunity for environmental planning has passed. In this case, the application of a code of practice is more complex, but often a necessity to avoid any further environmental harm. A useful and commonly applied tool for incorporating environmental best management practices (like those outlined in a code of practice) into existing operational structures is an environmental management system (EMS).

An EMS is a systematic approach that can be used by a business or organisation to identify and manage significant impacts on the environment that can occur as a result of its activities. It provides a structured way to identify environmental impacts and legal responsibilities, set clear objectives and targets, and then implement and review changes for continual improvement. The most generally accepted process for an EMS is outlined in Figure 3.

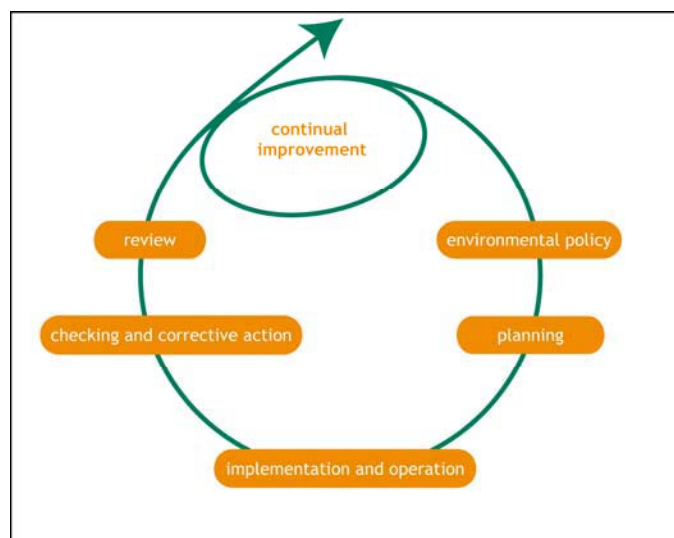


Figure 3 Environmental management system process. Source: *Small business environmental management solutions (Business SA 2002)*

3.1.3 Risk management

Risk management is a key business process within both the private and public sectors worldwide. Sound and effective implementation of risk management policies and procedures are part of best business practice as well as a means of improving operational activities. Risk management is the connective element between managing environment, health, safety and economic aspects of business.

This code of practice is designed to facilitate a risk-management approach as a recognised method by which individual site characteristics, operations and resources can be taken into account before devising the most reasonable and practical techniques for management. This is further explored in *Section 4 How to use this code of practice*.

A joint Australian and New Zealand Standard, *AS/NZS 4360:2004 Risk Management*, has been developed for guiding business through what can be a confusing process. A handbook to accompany this standard has also been produced to demonstrate how to establish a context, and then how to identify, analyse, evaluate, treat, communicate and monitor risks.

4 HOW TO USE THIS CODE OF PRACTICE

This code of practice outlines preferred environmental management practices for materials handling by firstly considering the application of environmental management systems and addressing new wharf developments (see Sections 5.1 and 5.2). The code then addresses the various individual operators involved in materials handling (Section 5.3) before considering types of materials-handling operations (Section 5.4) that are of high environmental risk (such as equipment cleaning, dry and liquid bulk handling).

Readers of this code of practice should examine Sections 5.1, 5.2 and 5.3 before considering which parts of Section 5.4 are relevant.

Each section includes:

- a summary of the activity or issue and environmental concerns
- an outline of who the section applies to (these are guides only and it must be remembered that all persons have a general environmental duty not to pollute the environment)
- 'musts': required outcomes
- 'shoulds': recommended practices
- key notes and references that may assist or further clarify the management of the activity or issue.

The 'must' requirements throughout this code of practice are generally designed to establish an optimum outcome with an 'or' alternative that provides for an assessment of risk of the activity being performed and subsequent flexibility in determining the method of control used. Methods for reducing risk are outlined as 'should' and are, therefore, only recommended practices. The EPA encourages operators to devise their own methods for their particular circumstances.

The EPA is primarily concerned with prescribing environmental outcomes and not methods of achieving such outcomes. Operators are encouraged to use their experience, knowledge and ingenuity within their own industry to develop structural and operational tools to avoid pollution, provided environment protection standards are retained. The use of this code of practice as a reference tool in establishing leases, contracts, environmental management systems and standard operating procedures is encouraged.

5 ENVIRONMENTAL MANAGEMENT PRACTICES

5.1 Environmental management systems

A materials-handling operation populated by employees that are aware of their own roles and responsibilities, and those of others, is likely to be more successful and consequently less likely to cause environmental harm. As all materials-handling operations have some impact on the environment, all parties involved have a responsibility to ensure that the impacts are managed appropriately and pollution avoided where possible. EMS is a useful tool for providing a structured way of planning and implementing environment protection measures. Most importantly, it can be used for formulating an understanding between parties as to how this will occur.

THIS APPLIES TO:

- Wharf owners
- Materials owners and charterers
- Materials handlers (including stevedores and transport operators)
- Vessel operators/ship masters.

All parties should (recommended practices):

- develop, implement and review (annually) an EMS to achieve high environmental performance standards for all operations undertaken
- establish environmental management practices (beneath an overall EMS) that are specific to the nature of the materials to be handled, the equipment to be used and the facilities over which they will be handled
- ensure environmental management practices complement the management practices of other responsible parties involved in materials handling

KEY NOTE

Wharf facilities differ from location to location. They can be timber jetties used for commercial fishing vessels or purpose-built structures for handling a specific type of material, such as petroleum or grain. As such, it is important that when developing environmental management systems, aspects and impacts of individual facilities are considered and an environmental action plan designed to suit. For example, a wharf facility primarily used for commercial fishing vessels would require an environmental management system with an emphasis on actions to prevent pollution from activities such as stockfeed or bait handling.

- incorporate relevant best environmental management practices from this code of practice and/or from an EMS into contractual (or non-contractual) conditions of using the wharf or vessel

- have users, customers, contractors and employees provide written acknowledgment that they understand and will abide by environmental management system obligations before undertaking any work or activity on the vessel or wharf
- train personnel in all aspects of environmental management related to the materials-handling process
- exchange knowledge of environmental management practices within the materials-handling industry to establish and encourage a uniform approach.



KEY NOTE

The EPA Industry Sustainability Branch and some local councils provide business and industry with free training in environmental management and can advise and assist with developing internal training programs for personnel if required.

KEY REFERENCES

International Standard *ISO 14001:2004, Environmental management requirements with guidance for use*, <www.iso14000-iso14001-environmental-management.com/>.

Australia and New Zealand Standard *AS/NZS 4360:2004 Risk management*, <www.standards.org.au>.

Business SA, *Small business environmental management solutions*, <www.epa.sa.gov.au/pdfs/sbes.pdf>.

5.2 Development of materials-handling facilities

Any over-water development carries with it an inherent risk of environmental harm, both in its construction and ongoing operation. Wharves are generally constructed in low energy, sheltered environments to benefit materials-handling operations. These sheltered, low energy environments, such as rivers, bays and estuaries, are ecologically significant and are known to be more sensitive to the influx of pollutants than higher energy environments that are more exposed. As such, the development of wharves requires careful consideration to avoid environmental harm.

THIS APPLIES TO:

Wharf developers

Wharf developers must (required outcomes):

- ensure that the necessary development application process is followed.

KEY NOTE

In South Australia, planning and development are regulated by the *Development Act 1993* and the *Development Regulations 1993*.

Wharf developers should contact their local government/council authority for further information on development regulations and planning policies for developments in and on water.

In accordance with Section 37 of the Development Act and Regulation 24 of the Development Regulations (Part 5), planning authorities are required to refer certain types of development applications to other agencies, known as 'prescribed bodies', for specialist advice. The EPA is one of these prescribed bodies.

Schedule 8 of the Development Regulations outlines the circumstances under which referral is required, the time allocated for response and the nature of advice to be provided.

Activities of environmental significance specified in Schedule 21 of the Development Regulations

The EPA is required to provide a response within four weeks, for which the planning authority must have regard.

Activities of major environmental significance (specified in Schedule 22 of the Development Regulations).

The EPA is required to provide a response within six weeks. The EPA may provide direction to the planning authority, including direction to refuse an application. The planning authority must comply with any EPA direction to refuse an application or to impose conditions.

Any conditions applied to a development approval are important as they are legally binding, that is, they provide statutory force to the prescribed environmental protection measures.

Wharf developers must (required outcomes):

- with regard to activities of major environmental significance, wharf developers must ensure wharf facilities will be fit for the purpose (refer to key note below) of permitted materials-handling operations and avoid, as far as is reasonable and practicable, the release of pollutants to the environment:

BY

providing in-built structural pollution controls in areas designated for activities likely to be performed through the operation and use of the facility (this includes material spillage, equipment washing, refuelling, stockpile and storage areas)

AND

providing waste collection facilities and/or waste transfer (reception) stations, and/or by facilitating waste transporters commensurate with the type of vessels used and the activities likely to be performed through the operation of and use of the facility (this includes wastes from vessels such as black, grey and bilge water, garbage and wastes from vessel service and repair activities)

AND

during the course of development, ensure spill, erosion and sediment control equipment is available for all pollutants likely to be generated through construction.

KEY NOTE

In general, a **fit for the purpose** materials-handling facility is one that can demonstrate structural and operational capabilities to minimise the environmental impacts of its operations.

Waste collection facility: a facility that is designed and constructed to receive the contents of a holding device for vessel wastewaters. Wharf owners and operators should provide for those vessels with fixed or portable holding devices.

Waste transfer (reception) stations: structure(s) designed to temporarily store vessel wastes in an environmentally responsible manner (such as waste oil, bilge water, fish waste, oil-absorbent materials and garbage).

Waste transporter: a mobile service provider contracted to remove wastes.

KEY REFERENCES

Adelaide indigenous plant maps and a list of growers of native plants,
<www.urbanforest.on.net/resources_growerslist.htm>.

ANZECC, *Best practice guidelines for waste reception facilities at ports, marinas and boat harbours in Australia and New Zealand*,
<www.deh.gov.au/coasts/pollution/dumping/waste-reception/pubs/guidmn2.pdf>.

DHS & EPA, *SA reclaimed water guidelines—treated effluent*,
<www.epa.sa.gov.au/pdfs/reclaimed.pdf>.

EPA website: <www.epa.sa.gov.au/planning.html>.

EPA Guidelines—Bunding and spill management,
<www.epa.sa.gov.au/pdfs/guide_bunding.pdf>.

Planning SA, *Guide to development assessment: An integrated planning and development assessment system for South Australia*,
<143.216.252.11/publications/24p.pdf>.

Melbourne Water, *Water sensitive urban design engineering procedures: stormwater*, <www.publish.csiro.au/pid/4974.htm>.

Rainwater tanks:

<www.adelaidecitycouncil.com/adccwr/publications/brochures_flyers/water_conser_vation_brochure.pdf>.

WaterWise Plumbers, (08) 8292 4000.

Wharf developers should (recommended practices):

- refer to the EPA *Code of Practice for vessel and facility management: marine and inland waters* (2007) for more information about environmental management practices for over-water developments
- use water-sensitive wharf design techniques

KEY NOTE

Water-sensitive Design (WSD) is a technique for managing components of potable water supply, wastewaters, stormwater and groundwater. WSD has multiple environmental benefits, including improving landscape, reducing pollutant export, retarding storm flows and reducing irrigation requirements.

Stormwater and wastewater pollution issues are apparent on many wharf facilities around the state. Significant environment protection gains could be achieved with improved operational and supporting structural mechanisms in place.

- install catchment devices into wharves used and offered for use as bulk-handling facilities, to avoid the through-fall of materials into adjacent waters

- install stormwater management devices, such as first flush diverters, gross pollutant traps, oil/water separators, hydrocarbon absorbers, sediment traps and/or soluble pollutant removers to control runoff. Wastewater treatment specialists should be consulted to determine which system would be most effective for the wharf and the nature of the materials handled
- install washdown facilities with appropriate wastewater containment, treatment and disposal controls
- install roofed and bunded waste transfer stations and refuelling stations.

KEY NOTE

A number of waste oil transfer stations have been constructed at wharf facilities around the state. Provided they receive ongoing management and maintenance, these facilities reduce the impacts of maritime waste on the aquatic environment and their construction, and installation should be seriously considered at all wharf facilities around the state. Waste transfer stations can be designed for various kinds of wastes, including putrescible matter, paper and cardboard, iron and steel, plastics and tyres, and batteries, depending upon the uses made of the wharf facility.

5.3 Materials-handling operators

The working relationship between wharf owner, materials owner, vessel charterer, materials handler and vessel operator/master is critical to the successful conduct of a materials-handling operation and can affect the environmental management of such an operation. All parties have a role to play, and there should be ongoing commitment to actively communicate and enter into negotiations when issues arise.

WHO THIS APPLIES TO

- Wharf owner
- Materials owner and charterer
- Materials handlers (including vessel crew, stevedores and transport operators)
- Vessel operator/ship master.

5.3.1 Wharf owner

The function and design of wharves can affect the efficiency and environmental performance of materials-handling operations. Whilst measures such as improved materials-handling equipment and the use of wharf support devices can assist with pollution avoidance, it is also important to ensure that the wharf itself facilitates this goal. For example, the catchment capacity of the wharf, stormwater controls and services for waste management should reflect the risk of environmental harm from the material being handled.

Wharf owner must (required outcomes):

- obtain environmental authorisations (an EPA licence) for prescribed activities of environmental significance under their control

KEY NOTE

A licence is required under the EP Act for the conduct of bulk-shipping facilities and some forms of high-pressure water blasting, abrasive blasting and painting. These licences prescribe conditions of authorisation that must be followed, failing which prosecution will result. For more information visit <www.epa.sa.gov.au>.

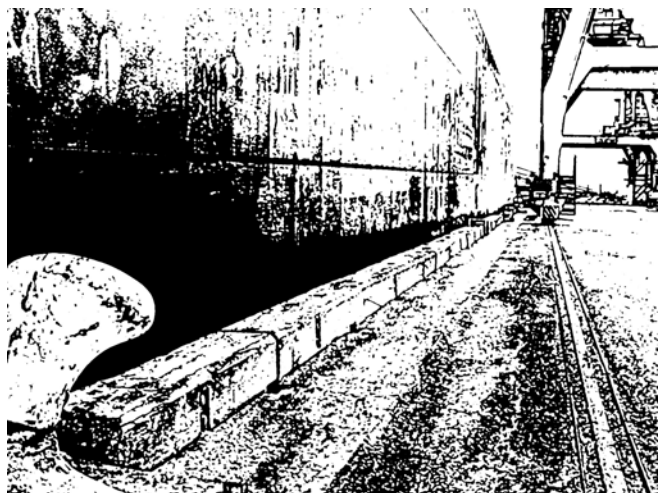
- ensure wharf structure is **fit for the purpose** of permitted materials-handling operations and avoids, as far as is reasonable and practicable, the release of pollutants to the environment

OR

- advise materials handlers of the limitations of the wharf to manage pollutants and refer to individual responsibility to comply with the EP Act and Water Quality Policy.

Wharf owners should (recommended practices):

- restrict materials-handling operations on wharves that are not fit for the purpose and may result in the release of pollutants to the environment
- cooperate with materials owners and handlers to develop structural mechanism(s) and operational strategies to be employed when materials handling is permitted on wharves
- provide purpose-built work areas with structural pollution control mechanisms that are located away from the wharf apron and stormwater drains for activities relating to materials-handling operations (such as equipment cleaning)
- encourage the use of preventative measures, such as bunding to enclose works areas and prevent wastewater runoff
- develop and communicate to all identifiable materials handlers emergency management procedures for the wharf, including those for stormwater management
- locate emergency management equipment where materials are loaded, unloaded and stored
- consign any materials recovered from the wharf and wharf support devices after materials-handling operations have ceased (including materials contained within sumps, recovery bins, stormwater drains, and so on) to the materials owner, if such person/organisation is known
- request that materials handlers complete a materials-handling report card for each handling operation and provide access to the recorded information.



KEY NOTE

Report cards could be used to record information that acts as a measure of accountability for having conducted a materials handling operation in an environmentally responsible manner—if an investigation into environmental harm was to occur, having this type of record would be advantageous. Refer to the 'should' recommendations for materials handlers on what information to record in a report card (Page 20).

5.3.2 Materials owner or charterer

The type and standard of vessel chartered, the integrity of shore-based equipment and the competencies of handlers often determine whether materials-handling operations pollute the environment. Therefore, contract negotiations are a critical step in the process for avoiding pollution. It is in the materials owner's and/or charterer's best interests to demonstrate that every effort was made to ensure an environmentally sound materials-handling operation can be undertaken.

Materials owner or charterer must (required outcome) contract parties and equipment for all loading and unloading operations on wharves that, when in operation, have the capacity to prevent pollutants from entering the environment

OR

ensure other measures are available to minimise pollutants entering the environment that reflect the risk of environmental harm from the materials handling operation being performed (see 'should' section for options on Page 20).

Materials owner or charterer should (recommended practices):

- charter vessel(s) that are 'suitable for the trade'
- charter vessel(s) that comply with all international and Australian regulations

KEY NOTE

A vessel 'suitable for the trade' is one that has the structural and operational capabilities to transfer and/or hold the materials to be handled.

- use wharves that have infrastructure to support pollution avoidance
- contract materials handlers who have developed environmental management systems and who use resources such as trained personnel and materials-handling equipment that is environmentally sound
- collaborate with materials handlers to complete a materials-handling report card and provide access to the recorded information.

KEY NOTE

Report cards could be used to record information that acts as a measure of accountability for having conducted a materials handling operation in an environmentally responsible manner—if an investigation into environmental harm was to occur, having this type of record would be advantageous. **Refer to the ‘should’ recommendations for materials handlers about information to record in a report card (Page 20).**

5.3.3 Materials handlers

Stevedores, some vessel crew members and transport agents handle the majority of materials and are the most likely to witness or be involved in incidents that cause environmental harm on wharves. They also depend on, and are governed by, other parties involved in the materials-handling process and can be bound by contractual agreements. It is, therefore, important for materials handlers to establish environmental management operating procedures from the outset and be vigilant in their implementation to ensure the performance of their general environmental duty.

Materials handlers including vessel crew, stevedores and transport operators) must (required outcomes:

- obtain environmental authorisations (an EPA licence) for prescribed activities of environmental significance

KEY NOTE

A licence is required under the EP Act for the conduct of bulk shipping facilities and some forms of high-pressure water blasting, abrasive blasting and painting. These licences prescribe conditions of authorisation that must be adhered to or prosecution will result. For more information visit <www.epa.sa.gov.au>.

- operate vessels and handling equipment for all loading and unloading operations on wharves in such a manner that prevents pollutants from entering the environment

OR

where vessel and handling equipment are unsatisfactory, devise methods to capture, contain, treat, and reuse or dispose into a waste transporter all pollutants (to the most reasonable and practicable extent) produced from materials-handling operations that best reflect the risk of environmental harm

- ensure that emergency management equipment for containing and cleaning up spills or emissions resulting from a materials handling operation is available for the duration of the operation
- remove all material deposited on the wharf by the process of handling (for which the wharf structures will allow) during the handling operation, only if it is safe to do so, or at its immediate conclusion
- ensure that wastes are removed by a waste transporter

OR

placed in a waste transfer station designated for holding that waste.

Materials handlers including vessel crew, stevedores and transport operators should (recommended practices):

- ensure contractual arrangements with the materials owner include the necessary environmental management resources (human and structural) to conduct the materials handling operation
- combine the use of handling equipment with wharf support devices: this may include devices that bridge the gap between the vessel and the wharf, as well as catchment sumps, and so on
- identify materials-handling equipment and wharf support devices that are not suitable for use and notify the responsible person or entity
- attend to materials-handling equipment and associated wharf support devices that require maintenance and/or repairs as soon as practicable
- not handle materials during adverse weather conditions unless equipment and wharf support devices can minimise the release of pollutants to the environment
- cover all loads during transportation unless it is not reasonable and practical to do so
- minimise equipment idling
- consider materials modification

KEY NOTE

Materials modification can minimise releases into the environment during handling, or can be combined with other measures to reduce material loss. For example, dust can be reduced by using dust suppressants, such as water, which when sprayed over the material increases its cohesiveness. However, it can also substantially increase the weight of the material to be conveyed and then shipped. Other suppressants, such as chemicals added to the water, oil and oil products, agglomerating agents, coating agents and foaming agents are also used to improve cohesiveness. Although they do not have the disadvantage of increasing weight, other side-effects such as higher flammability can result, so that for each situation a suitable solution should be sought.

- collaborate with materials owners to complete a materials-handling report card at the conclusion of the handling operation and provide access to the recorded information.

KEY NOTE

Report cards could be used to record information that acts as a measure of accountability for having conducted a handling operation in an environmentally responsible manner. If ever there came a time when a handling operation was investigated for potentially causing environmental harm, having this type of record would be advantageous.

The report card could contain the following information:

- name of vessel charterer and its master
- name of materials owner
- name of materials handlers (including stevedores and transport operators)
- location of materials-handling operation (wharf locality)
- date and time of materials-handling operation (start/stop)
- specification of materials handled (type, volume, material safety data sheets (MSDS), trimming and/or modification procedures undertaken)
- vessel and shore-side loading/unloading plan that incorporates environmental management practices to be carried out
- condition of the wharf before and after materials-handling operation; photographs would be useful records
- environmental incidents that may have occurred and actions taken.

5.3.4 Vessel operations during materials handling

The operation of vessels during materials-handling operations can release air pollutants such as nitrogen oxides, sulphur dioxide, particulates and other hazardous pollutants. Materials transferred to and from vessels can also be spilt onto decks and other parts of the vessel. By following good operational practices, pollutants can be prevented from entering waterways and the local atmosphere.

Operators must (required outcomes):

- capture, contain, treat, and reuse or dispose of to a waste transporter all pollutants (to the most reasonable and practical extent) from vessel decks (and other areas) deposited during materials-handling operations
- not permit ballast water intake to overflow onto a vessel's deck, resulting in pollutants being washed into the water.

Operators should (recommended practices):

- provide handling equipment on vessels that avoids pollution during operations
- keep vessel engines in good working order to reduce emissions and to prevent oil and fuel leaks to bilge water
- shut down unnecessary power plants during loading/unloading activities
- use onshore power if available during loading/unloading activities

- use onshore vapour recovery units (combustors) for fuelling activities
- use low-sulfur fuels in port
- minimise noise impacts from handling equipment, vessel engines and whistles
- observe all AMSA Marine Orders relating to materials handling.

KEY REFERENCES

AMSA, *Code of practice for the safe loading/unloading of bulk carriers*, <www.amsa.gov.au/Publications/Shipping/COP_safe_loading_and_unloading_of_bulk_carriers.pdf>.

AMSA, *Marine Orders Part 32 Cargo handling equipment Issue–Amendment*, <www.amsa.gov.au/Shipping_Safety/Marine_Orders/Documents/MO32.pdf>.

5.4 Materials-handling operations

Environmental management practices are being developed worldwide to improve the materials-handling industry, especially for those operations with the greatest environmental risk, such as bulk handling. There are technologies being marketed for use to reduce environmental impacts whilst conducting materials handling operations, and it is important for materials-handling operators to actively seek out and research these technologies for possible application. Increasing urbanisation near ports and wharves is also placing greater pressure on materials-handling operations to ensure environmental management practices are of a high standard, particularly for noise and air emissions.

WHO THIS APPLIES TO

All operators that either provide facilities for or have the need to perform:

- equipment cleaning
- vehicles, equipment and machinery handling
- livestock, catch and stockfeed handling (including fisheries)
- dry bulk handling
- liquid bulk handling.

KEY REFERENCES

Port Technology International, <www.porttechnology.org>.

International Association of Ports and Harbors, <www.iaphworldports.org/top.htm>.

ECTA, EPCA & CEFIC, *Recommendations on safety, health and environmental management practices for logistics service providers*, <www.cefic.org/files/Publications/Safety_SHE.pdf>.

The Australian Bulk Handling Review (periodical), <www.bulkhandling.com.au/informaoz/bh/index.htm>.

Port of Seattle Environment Programs, <www.portseattle.org/community/environment/>.

American Association of Port Authorities Environmental Restoration <<http://www.aapa-ports.org/Issues/content.cfm?ItemNumber=989>>.

5.4.1 Equipment cleaning

Materials-handling equipment is usually cleaned before it can be used again. Cleaning often creates wastes consisting of solvents, detergents, paint chips, rust, oil, grease and remnant materials from handling operations. If the heavy metals found in these wastes make their way into aquatic environments they can be passed up the food chain to fish, birds and humans. Some heavy metals will remain in sediments, where they will increase the cost of dredge material disposal or even result in a dredging refusal altogether. Similarly, if cleaning wastes are nutrient rich (such as fertilisers and fish offal) and are released into the aquatic environment they may result in excessive algal growth, which can put natural ecosystems out of balance.

Operators must (required outcomes):

- obtain environmental authorisations (an EPA licence) for prescribed activities of environmental significance

KEY NOTE

An EPA licence is required for pressure water blasting that involves the use of solvents, surfactants, acidic or caustic solutions, or the production of paint sludges and residues or any other materials listed in Part B of Schedule 1 of the EP Act that is not lawfully disposed of to sewer. The addition of powdered material or grit to enhance the cleaning process will require a licence for dry-abrasive blasting. **Separate approvals must be obtained from the EPA and SafeWork SA. Approval by one authority does not imply approval by the other.**

- not perform in-water hull scraping, or any process that occurs underwater to remove material, except under extraordinary circumstances where written approval by the EPA has been provided

- perform cleaning operations in designated cleaning areas with waste and/or wastewater controls (including those for spray drift)

OR

undertake measures to avoid pollution that reflect the risk of environmental harm from the activity being performed (refer to 'should' section below for options).

KEY REFERENCES

EPA Guidelines—Bunding and spill management,
<www.epa.sa.gov.au/pdfs/guide_bunding.pdf>.

EPA Guidelines—Pressure water-blasting activities,
<www.epa.sa.gov.au/pdfs/guide_pressure.pdf>.

EPA Guidelines—Stormwater management for wash bays, <www.epa.sa.gov.au/pdfs/water_wash.pdf>.

SafeWork SA, <www.safeworksa.sa.gov.au>.

Operators should (recommended practices):

- provide a designated cleaning area with waste and wastewater controls
- avoid compressed air cleaning and use vacuum technologies instead
-

KEY NOTE

Using compressed air to clean equipment, machinery and other surfaces is extremely dangerous. Injuries can be caused by the air jet and by particles made airborne. Industrial vacuum cleaners should be used instead. These vacuum apply a standard nozzle inside a shroud in close contact with the work surface; a vacuum is applied inside the shroud, removing the product and piping it into a collection and treatment chamber. If compressed air must be used, please consult SafeWork SA.

- comply with Australian Standard *AS/NZS 2761* for the removal of lead-based surface coatings
- maintain dust collectors in accordance with manufacturer recommendations
- ensure that pressure water blasting is only carried out during favourable wind conditions, to prevent any fugitive emissions arising from the operation creating a nuisance to any adjacent premises or to the public
- for open air cleaning, use tarpaulins, hessian and polythene sheeting or similar materials to confine overspray, waste material and dust. The screening material should be tear resistant, UV resistant, fire retardant and able to prevent the escape of fine particles
- recycle materials removed from equipment
- use alternative water sources, such as rainwater or suitable recycled wastewater, for cleaning, and employ wastewater reuse technologies
- use high-temperature water rather than chemicals for assisting with cleaning

- use durable and impermeable waterproof liners to prevent wastewater from escaping into the environment, and direct all wastewater runoff to a collection point
- collect wastewater runoff from scaffolding structures
- use one or more of the following environmental management strategies to prevent spray drift:
 - locate moveable, impermeable screens alongside and behind the operator
 - clad scaffolding in dense screens
 - avoid cleaning operations during windy conditions
 - fit back-spray screens to roof-cleaning equipment.

5.4.2 Vehicles, equipment and machinery handling

The loading and unloading of vehicles, equipment and machinery usually involves cleaning activities for quarantine. This can produce pollutants such as nitrates, phosphates and other chemical pollutants. If these wastes are released into the aquatic environment, they may result in excessive algal growth, which can put natural ecosystems out of balance. Accidental spills and leaks of oil, grease and coolants are also common. If the heavy metals found in these wastes make their way into aquatic environments they can be consumed by shellfish, snails, worms and other bottom-dwelling organisms and passed up the food chain to fish, birds and humans. Heavy metals that are not incorporated into living tissue will remain in the sediments or water column where they will substantially increase the cost of dredge material disposal or result in dredging being refused altogether.

Operators must (required outcome)

- comply with Section 5.3 Materials-handling operators.

Operators should (recommended practices):

- design new handling facilities to minimise travel distance from off- and on-loading facilities to storage area to minimise air emissions
- slope vehicle, equipment and machinery storage areas to enable the collection, treatment or reuse of stormwater runoff
- reduce dust emissions from traffic and storage areas through the use of surface materials such as permeable pavers or compacted recycled building products (rock or concrete conglomerates)
- wash, service and process vehicles, equipment and machinery in purpose-built facilities with pollution controls

KEY NOTE

Vehicle processing works, including fit out, paint and panel rectification, and vehicle washing, should all be conducted in purpose-built facilities with pollution controls. These can include roofed and bunded wash bays with wastewater treatment and recycling technologies, and spray booths with adequate ventilation and filtration systems.

- encourage use of water-soluble vehicle protection coatings
- establish regular inspection regimes to identify and address leaks of oils, hydraulic fluids, coolant and other lubricants
- schedule materials-handling operations to avoid re-storage and re-shuffling of vehicles to reduce air emissions
- discourage engine idling during on- and off-loading activities to reduce air emissions.

5.3.3 Livestock, catch and feed (for stock and catch), including commercial fishing operations

The emission of dust; transport of solid and liquid manure, straw and sand in stormwater runoff; direct spillage of feed, bait, fish, offal and blood; or release of washdown water from wharf loading/unloading areas can result in increased nutrient levels. This may result in excessive algal growth, which can put natural ecosystems out of balance and possibly cause the suffocation of aquatic plant and animal species. These wastes can also contain organic solids, heavy metals, salts, bacteria, viruses, other micro-organisms and sediments.

KEY REFERENCE

AMSA, *Marine Orders, Part 43 Cargo and cargo handling—livestock, Issue 5 (Amendment)*, <www.amsa.gov.au/Shipping_Safety/Marine_Orders/Documents/MO43.pdf>.

Operators must (required outcomes):

- comply with Section 5.3 Materials-handling operators

KEY NOTE

Water circulation in and around wharves, jetties and within bays is limited. Thus, even small volumes of pollutants can cause environmental harm. If fish waste is dumped at a site that does not have strong currents, it is likely that it will not be dispersed upon discharge and will, therefore, accumulate on the seabed. The organic components of fish waste have a high biological oxygen demand. The decomposition of fish waste will have impacts on the recreational environment, including odour problems, aesthetic problems and poor sanitary conditions. In some circumstances, it can pose a significant safety risk to other marine users, such as swimmers with the attraction of sharks close to shore.

- dispose of liquid and solid fish wastes in onshore waste collection facilities

OR

release liquid fish wastes from the vessel whilst in motion and in unrestricted open waters more than three nautical miles from land

- if the discharge of wastewater from vessel holds during loading and unloading operations is necessary for reasons of vessel stability, ensure all reasonable and practical measures have been undertaken to minimise pollutants contained in the wastewater.

Operators should (recommended practices):

- where the release of wastewater is necessary to maintain vessel stability during loading/unloading operations, install on board a treatment device to improve water quality prior to discharge or reconfigure the vessel to retain wastewater for appropriate disposal
- minimise freefall of catch and stockfeed
- close catch nets before transfer between vessel and wharf
- position catch nets as close as possible to receiving containers before releasing the catch
- completely seal containers of fish and stockfeed before handling
- conduct livestock and stockfeed loading under cover, using mechanical ventilation
- use wharf support devices during loading/unloading, such as vessel/wharf bridges (rigid or soft), chutes, or placement of catchment traps beneath operating areas to contain spilt product, such as tarpaulins or drip trays
- seal stormwater drains with temporary covers/mats or bunds to prevent spilt product from entering waters either through stormwater runoff or through cleaning practices
- install and operate dust suppression mechanisms for dry stockfeed loading

KEY NOTE

When bulk fodder is to be loaded, areas where flammable dust may be present must be classified in accordance with Australian Standard *AS/NZS 61241.3:1999*. The same applies to the electrical equipment installed in these areas, which should be selected, installed, certified and maintained in compliance with Australian Standards *AS/NZS 2381.1:2005* and *AS/NZS 61241.1.2:2000*. For more information read *Marine Orders—Part 43 Cargo and cargo handling—livestock, Issue 5 (Amendment):2004*, <www.amsa.gov.au/Shipping_Safety/Marine_Orders/Documents/MO43.pdf>.

- ensure vessel hatches are covered when materials handling is not in progress
- install telescopic arm loaders and conveyors
- use pneumatic or continuous screw conveyors
- enclose conveyors
- use vacuum collectors
- use captured stormwater or treated wastewater for dust suppression.

5.4.4 Dry bulk handling

The emission of dust and the transport of bulk product in stormwater runoff or washdown water from dry bulk-handling activities can result in increased nutrient levels. This may result in excessive algal growth, which can put natural ecosystems out of balance.

KEY REFERENCES

AMSA, *Code of practice for the safe loading and unloading of bulk carriers*, <www.amsa.gov.au/Publications/Shipping/COP_safe_loading_and_unloading_of_bulk_carriers.pdf>.

AMSA, *Marine Orders Part 33, Cargo and cargo handling—grain, Issue 3*, <www.amsa.gov.au/Shipping_Safety/Marine_Orders/Documents/MO33.pdf>.

Operators must (required outcome):

- operators must comply with Section 5.3 Materials-handling operators.

Operators should (recommended practices):

- use vacuum collectors
- install telescopic arm loaders
- use pneumatic or continuous screw enclosed conveyors
- use dustless vacuum sweepers for cleaning up spilt materials
- while loading/unloading, lower grabs fully into the vessel's hold or hopper or down to the wharf deck (as the case may be) before releasing material to minimise dust
- not release materials from a grab at a height that allows material to disperse and escape from its intended receptacle
- install and operate dust suppression mechanisms during materials-handling operations and consider using captured stormwater or treated wastewaters
-

KEY NOTE

Apart from polluting the environment, dust and other emissions from handling dry bulk products can have adverse effects on machinery, causing friction and increased wear. There are hoppers available for materials handling that use vacuum technology to attract and confine materials from grab unloading operations, thereby decreasing loss to the environment (be it water or air).

- use wharf support devices that are stable and strong enough for the bulk material to be handled
- ensure vessel hatches are covered when materials handling is not in progress
- avoid the storage of dry bulk stockpiles on wharves.

5.4.5 Liquid bulk handling

There is a substantial risk of spilling chemicals into the aquatic environment during liquid bulk handling. Spills are costly to clean up, can significantly degrade water quality and threaten aquatic plant and animal life. If chemicals make their way into aquatic environments they can cause instant or slow death to aquatic life and/or be passed up the food chain to fish, birds and humans. Heavy metals that are not incorporated into living tissue will remain in the sediments or

water column, where they will substantially increase the cost of dredge material disposal or result in dredging being refused altogether.

KEY REFERENCE

AMSA, *Code of practice for the safe loading and unloading of bulk carriers*,
<www.amsa.gov.au/Publications/Shipping/COP_safe_loading_and_unloading_of_bulk_carriers.pdf>.

Operators must (required outcome):

- operators must comply with Section 5.3: 'Materials-handling operators'.

Operators should (recommended practices):

- ensure emergency management equipment is serviced and maintained
- fit overfill protection alarms to both land and vessel bulk liquid storage facilities
- perform closed gauging and/or sampling operations if possible
- ensure hoses are purged before uncoupling
- ensure inert gas systems on vessels are fully operational (in accordance with class requirements) and used at all times
- not perform tank washing without all necessary written approvals
- ensure tank materials are compatible with products to be stored
- regularly inspect and maintain alarm systems, storage tanks, hoses, couplings, appurtenant equipment and overfill protection devices.
-

KEY REFERENCES

IMO Crude Oil Washing Systems,
<www.imo.org/Environment/mainframe.asp?topic_id=306>.
MARPOL Annex 1 Regulation 13, 'Prevention of pollution by oil',
<www.imo.org/Conventions/contents.asp?doc_id=678&topic_id=258#7>.

6 GLOSSARY

ACS	Australian Customs Service
Activity	Includes the storage or possession of a pollutant
Air	Includes any layer of the atmosphere
AMSA	Australian Maritime Safety Authority
ANZECC	Australian and New Zealand Environment Conservation Council
AQIS	Australian Quarantine and Inspection Service
Blackwater	Toilet wastewater or human sewage
Bulk materials	Any material other than liquid or gas in any combination of particles, granules or other like fragmentation or aggregation, that is loaded directly into a cargo space of a vessel without any other form of containment
Bund(ing)	An impervious structure that surrounds an area to prevent escape of pollutants
Crew	In relation to a ship—includes any person employed on the ship
Emergency management plan	A plan prepared by an organisation to provide a swift, efficient and cost-effective response to medical, fire, care and shelter, and communications needs after disasters such as product spills, earthquakes, explosions or fires
Environment	Under the <i>Environment Protection Act 1993</i> , ‘... means land, air, water, organisms and ecosystems, and includes— (a) human-made or modified structures or areas; and (b) the amenity values of an area’.
Environment Protection Order	Means an Environment Protection Order issued under Division 2 of Part 10 of the <i>Environment Protection Act 1993</i>
Environmental authorisation	A works approval, licence or exemption
Environmental harm	Under the <i>Environment Protection Act 1993</i> , ‘... any harm, or potential harm, to the environment (of whatever degree or duration) and includes— (a) an environmental nuisance; and (b) anything declared by regulation (after consultation under section 5A) or by an environment protection policy to be environmental harm’.
Environmental incident record	Details location, time, date, nature, source and management strategies undertaken regarding environmental (harm) incidents

Environmental management system	A systematic approach to dealing with the environmental aspects of an organisation's operation. It is a tool that enables an organisation of any size or type to control the impact of its activities, products or services on the natural environment
General environmental duty	Under the <i>Environment Protection Act 1993</i> , '... a person must not undertake an activity that pollutes, or might pollute, the environment unless the person takes all reasonable and practicable measures to prevent or minimise any resulting environmental harm'.
Greywater	Water that has been used for washing, laundering, bathing or showering
IMO	International Maritime Organization
Land	Under the <i>Environment Protection Act 1993</i> , '... means, according to context— (a) land as a physical entity, including land covered with water; or (b) any legal estate or interest in, or right in respect of, land'.
Licence	A licence under Part 6 of the <i>Environment Protection Act 1993</i> to undertake a prescribed activity of environmental significance
Listed pollutants	These pollutants, listed in Schedule 4 of the <i>Environment Protection (Water Quality) Policy 2015</i> , must not be discharged or deposited into water, or onto land from which it is likely to enter water
Listed waste	This list is found in Schedule 1 Part B of the <i>Environment Protection Act 1993</i>
Material safety data sheet (MSDS)	Information sheets on products that manufacturers are required to provide, which outline the composition and applications of the product, and precautions that need to be taken when using it
Materials handler	Stevedore, vessel crew and all other persons who perform materials handling operations. It is acknowledged that international shipping crews may not be permitted to handle cargo and thus environmental obligations will reside with contracted materials handlers

Materials handling	Conveying materials from a location outside a vessel to a location on board a vessel, including associated operations such as modifying, lashing and securing of materials, OR conveying materials located on board a vessel to a location outside the vessel, including vessel-to-vessel transfer of materials, and including associated operations such as unlashng of materials
Materials-handling equipment	Equipment used to convey materials between vessels and wharf
Materials-handling report card	Records the environmental performance of a materials handling operation (refer Section 5.3.3 of this document)
Materials modification	The alteration of materials to improve efficiency during materials handling
Materials owner	Person(s) or organisation(s) that own materials
Pollutant	Under the <i>Environment Protection Act 1993</i> , ‘... (a) any solid, liquid or gas (or combination thereof) including waste, smoke, dust, fumes and odour; or (b) noise; or (c) heat; or (d) anything declared by regulation (after consultation under section 5A) or by an Environment Protection Policy to be a pollutant, but does not include anything declared by regulation or by an Environment Protection Policy not to be a pollutant’
Pollution control mechanism	Used to guard against pollution and inappropriate practices
Responsibility for pollution	Under the <i>Environment Protection Act 1993</i> , ‘... the occupier or person in charge of a place or vehicle at or from which a pollutant escapes or is discharged, emitted or deposited will be taken to have polluted the environment with the pollutant (but without affecting the liability of any other person in respect of the escape, discharge, emission or depositing of the pollutant)’
State waters	Include inland waters, estuarine and marine waters (which covers coastal state and territorial waters vested in the state)
Stormwater	Rainwater runoff
Vessel	A foreign or Australian ship, boat or craft or a structure that is capable of navigation
Vessel charterer	The person, organisation or agent that contracts the vessel for use in a materials-handling operation
Vessel master	In relation to a ship, means the person who has command or charge of the ship

Vessel operator	The person responsible for care and control of the vessel during a materials-handling operation
Waste-collection facility	A facility that is designed and constructed to receive the contents of a holding device for vessel wastewaters
Waste transfer (reception) stations	Structure designed to temporarily store wastes in an environmentally responsible manner (such as waste oil, bilge water, oil-absorbent materials and garbage)
Waste transporter	A mobile service provider contracted to remove wastes
Wharf	A landing place or jetty, including the wharf apron, where vessels may tie up and load or unload
Wharf apron	The surface between land and vessel on which loading and unloading activity occurs
Wharf developer	The applicant for a development of a wharf recorded by the relevant planning authority
Wharf owner	Person(s) and organisation(s) with lands title authority for care and control over wharf infrastructure
Wharf support devices	Structures, other than materials-handling equipment, that prevent materials from escaping to the environment during loading and unloading operations
Wharf user	Person(s) and organisation(s) that make use of wharves for the purpose of materials handling

7 REFERENCES AND RELATED READING

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8 WEBSITES (viewed 28 May 2007)

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<www.aapa-ports.org/programs/hne/Library_envrest.htm>
- **Australian Bulk Handling Review**
<www.bulkhandling.com.au/informaoz/bh/index.htm>
- **Australian Maritime Safety Authority**
<www.amsa.gov.au>
- **Australian Quarantine and Inspection Service**
<www.aqis.gov.au>
- **Flinders Ports South Australia**
<www.flindersports.com.au>
- **International Association of Ports and Harbors**
<www.iaphworldports.org/top>
- **International Maritime Organization**
<www.imo.org>
- **Planning SA**
<www.planning.sa.gov.au>
- **Port of Seattle Environment Programs**
<www.portseattle.org/community/environment/>
- **Port Technology International**
<www.porttechnology.org>
- **SafeWork SA**
<www.safeworksa.sa.gov.au>
- **South Australian Environment Protection Authority**
<www.epa.sa.gov.au>
- **Urban Forest**
<www.urbanforest.on.net/resources_growerslist.htm>
- **Waste Transfer Stations**
<www.seacon.com.au/wasteoil/index.php>

APPENDIX 1 Materials-handling prescribed activities of environmental significance listed in Schedule 1 of the *Environment Protection Act 1993*

Schedule 1 Part A 7. (1)

Bulk shipping facilities: the conduct of facilities for bulk handling of agricultural crop products, rock, ores, minerals, petroleum products or chemicals to or from any wharf or wharf side facility (including sea-port grain terminals), being facilities handling or capable of handling these materials into or from vessels at a rate exceeding 100 tonnes per day.

Schedule 1 Part A 3. (6) (b)

Waste transport business (category B): the collection or transport for fee or reward of—

b) solid waste from any commercial or industrial premises or from any teaching or research institution (other than building or demolition waste)

APPENDIX 2 MEMBERS OF THE CODE OF PRACTICE EXTERNAL ADVISORY GROUP

Mr Sergio Balacco	ABB Grain
Ms Mary McFadden	Adelaide Brighton Cement
Mr Stephen Puffett	Adelaide Brighton Cement
Mr Chris Barber	Australian Maritime Safety Authority
Mr Rick Simmonds	Australian Marshalling Services
Mr Andrew Best	BP
Mr Steven Charlish	Caltex Australia Petroleum
Mr Andrew Towers	CSX World Terminals
Ms Val Day	Department of Environment and Heritage (Coast and Marine)
Mr Roger Galbraith	Department for Transport, Energy and Infrastructure
Mr Sean Reardon	Flinders Ports
Mr Michael Simms	Flinders Ports
Mr Glenn Bird	Incitec Pivot
Mr Geoff Rose	McArthur Shipping
Mr Steven Egel	P&O Ports
Mr Paul Saliba	Penrice Soda Products
Ms Claire van der Geest	SeaNet Extension Officer
Mr Douglas Bourne Jones	Shipping Australia Ltd
Mr Tony Grant	Shipping Information Agency
Mr Tony Belperio	Smorgon Steel Recycling
Mr Neil Murphy	South Australian Freight Council
Mr Darren Stead	WMC HiFert