

Best Practice Guidelines
for
Waste Reception Facilities at
Ports, Marinas and Boat Harbours
in Australia and New Zealand



Australian and New Zealand Environment and
Conservation Council
Australian Transport Council



TABLE OF CONTENTS

1. PREFACE	1
1.1 Objectives of the Guidelines	1
1.2 Environmental Outcome	1
1.3 Authority of Guidelines	1
2. BACKGROUND	3
3. RESPONSIBILITIES	5
3.1 Administering Authorities	5
3.2 Clients	5
3.3 Providers	5
4. BEST PRACTICE GUIDELINES - WASTE MANAGEMENT PRINCIPLES	7
4.1 Introduction	7
4.2 Waste Avoidance	8
4.3 Waste Reduction	8
4.4 Waste Segregation	8
4.5 Waste Segregation and Reuse	9
4.6 Waste Recycling	9
4.7 Waste Treatment	9
4.8 Waste Disposal	9
4.8.1 Disposal of Non-quarantine Wastes	9
4.8.2 Disposal of Quarantine Wastes	10
4.9 Quarantine Wastes	10
5. BEST PRACTICE GUIDELINES - PLANNING AND DESIGN OF SERVICES	12
5.1 Introduction	12
5.2 Adequacy	12
5.3 Undue delay	12
5.4 Overview of Planning	13
5.5 Process	13
5.6 Scoping	14
5.7 Design	16
5.8 Waste Management Plan	26
5.9 Consultation	30
5.10 Finalising Design and Management Plan	31
5.11 Drafting and Lodging Applications for Approval	31
5.12 Construction and Commissioning	31

6. BEST PRACTICE GUIDELINES - OPERATION OF SERVICES	33
6.1 Waste Management Procedures	33
6.1.1 Management Plan	33
6.1.2 Quarantine Waste	33
6.1.3 Non-quarantine Waste	33
6.2 Documentation	33
6.3 Training	34
6.4 Operation and Maintenance	35
6.5 Waste Transfer Timing	35
6.6 Emergency Response	36
7. AVAILABILITY OF RECEPTION FACILITIES	36
7.1 Commercial Ports	36
7.2 Small Boat Harbours and Marinas	36
8. REFERENCES	38
9. ACKNOWLEDGMENTS	39
10. GLOSSARY	40
 APPENDIX A - INTERNATIONAL, AUSTRALIAN AND NEW ZEALAND LEGISLATION	
A.1 International Conventions and Legislation	
A.1.1 UNCLOS III	A. 1
A.1.2 MARPOL 73/78	A. 1
A.1.3 SPREP	A. 4
A.1.2 Torres Strait Treaty	A. 4
A.2 Australian Legislation	
A.2.1 Commonwealth	A. 5
A.3 Australian State and Territory Legislation	A. 7
A.3.1 New South Wales	A. 8
A.3.2 Northern Territory	A.10
A.3.3 Queensland	A.11
A.3.4 South Australia	A.12
A.3.5 Tasmania	A.13
A.3.6 Victoria	A.14
A.3.7 Western Australia	A.16
A.4 New Zealand Legislation	
A.4.1 National	A.17
A.4.2 Regional and District	A.18
A.5 Overview of the Waste Management Framework in Australia and New Zealand	A.21

1. PREFACE

1.1 Objectives of the Guidelines

The following Guidelines will assist managers of commercial ports, marinas, boat harbours, and administering authorities, to ensure the provision of facilities and services for the reception of wastes from vessels. The Guidelines provide information relating to ongoing management, as well as for the planning and establishment of new services and facilities. The scope of required facilities and services will depend on the types and quantities of wastes carried by visiting vessels and the needs of the operators of those vessels. At large commercial ports, there may be a significant demand for reception facilities that cater for a wide range of shipboard wastes including waste oil and oily mixtures, noxious liquids, sewage and garbage. At small boat harbours, where the normal traffic is limited to recreational and fishing vessels, a solid waste bin and a drum for waste oil may suffice. In all cases, the provision of waste reception facilities should be addressed as part of an overall management plan.

Managers of commercial ports may already be familiar with the *Comprehensive Manual on Port Reception Facilities* published by the International Maritime Organization (IMO). These Guidelines are intended to complement and supplement the IMO Manual, by providing “local” guidance relative to environmental regulatory requirements, standards and practices, and the availability of facilities in Australia and New Zealand. Readers wishing to obtain a more comprehensive coverage of the topic should refer to the IMO Manual and the other reference sources listed in the Guidelines.

Preparation of the Guidelines involved extensive consultation with a representative sample of port, marina and boat harbour managers and clients, and other stakeholders. Wherever possible, comments and input from members of these consultative groups was incorporated into the Guidelines.

1.2 Environmental Outcome

The environmental outcome of implementation of these Guidelines is the reduction of inappropriate disposal of wastes from vessels of all sizes into marine waters and adjacent shore areas to ensure the protection of environmental values. This reduction should occur through use of available waste reception facilities by all users of Australian and New Zealand waters. By implementing these Guidelines, the managers of ports, marinas and boat harbours will ensure that suitable facilities are available.

1.3 Authority of Guidelines

These Guidelines provide practical advice on how to implement waste management required by international law, MARPOL 73/78 (Convention for the Prevention of Pollution from Ships 1973 as modified by the Protocol of 1978), and reflected in Australian and New Zealand legislation and regulations. It is anticipated that these Guidelines will be implemented by Governments and Councils through licensing and approval processes where applicable for ports, boat harbours and marinas, and other measures for ensuring effective environmental management of these facilities.

A summary of marine pollution prevention conventions, acts and regulations presented in Appendix A, is intended to provide the reader with an overview of the main legislation, its context, and its particular relevance to the planning, establishment and management of vessel waste reception facilities. Readers interested in more detailed assessment of the legislation should refer to relevant summary publications such those listed in the reference section of these Guidelines, or to the Conventions, Acts and Regulations themselves.

2. BACKGROUND

Internationally, shipping, boating and ancillary services are seen as significant contributors to degradation of the marine environment, affecting water quality, habitats and coastal amenity. Oil spills, ballast water discharges, anti-fouling paints, disposal of wastes from vessels, port dredging and port operations contribute to this in Australian and New Zealand waters.

In February 1992, the Australian and New Zealand Environment and Conservation Council (ANZECC) established a Task Force to progress issues associated with maritime accidents and pollution. Recommendations of the Task Force were adopted by the ANZECC Council in April 1994. The ANZECC Maritime Accidents and Pollution Implementation Group was established to develop the recommendations into a strategy and oversee implementation of the Strategy. The national strategy on maritime accidents and pollution, *Working together to reduce impacts from shipping operations: ANZECC strategy to protect the marine environment* was released in June 1996 by ANZECC.

One of the priority issues identified in the strategy was that waste generated from shipping and boating is a major cause of marine pollution.

The strategy recommends that all ANZECC jurisdictions should adopt and implement the IMO's *Comprehensive Manual on Port Reception Facilities* as a starting point for achieving compliance with international marine pollution prevention requirements. The ANZECC Working Group on Waste Management from Shipping and Boating was subsequently established in December 1994 to progress the implementation of the IMO Manual.

The first task of the Working Group was to carry out a comprehensive survey of ports, marinas and boat harbours in Australia to ascertain the availability and adequacy of waste reception facilities. The information on waste reception facilities obtained from this study are summarised in Appendix B and C of this document.

The second task of the Working Group was to review the IMO Manual in the context of Australian and New Zealand regulatory requirements and, if appropriate, develop an information package to facilitate the local implementation of the IMO Manual. Hyder Environmental Pty Ltd were engaged to assist the Working Group and this document, *Best Practice Guidelines for the Provision of Waste Reception Facilities at Ports, Marinas and Boat harbours in Australia and New Zealand*, is the outcome of this task.

Whilst the IMO Manual comprehensively addresses the planning and design of waste reception facilities in a generic context, it was considered that a supplementary document was required to enable Australian and New Zealand managers of commercial ports, marinas and boat harbours to plan, establish and manage facilities in accordance with local requirements. It is intended that this document will provide assistance to managers and administering authorities for this purpose.

The Guidelines focus on best practice and performance criteria for waste reception facilities and management procedures. MARPOL 73/78 approved facilities are recommended where suitable and Australian and New Zealand standards are stipulated where appropriate. It is anticipated that the Guidelines will encourage the establishment of adequate reception facilities.

The Guidelines give information on mandatory requirements but include recommended approaches considered necessary to implement MARPOL 73/78 and achieve best practice with regard to management of wastes in ports, marinas and boat harbours in Australia and New Zealand.

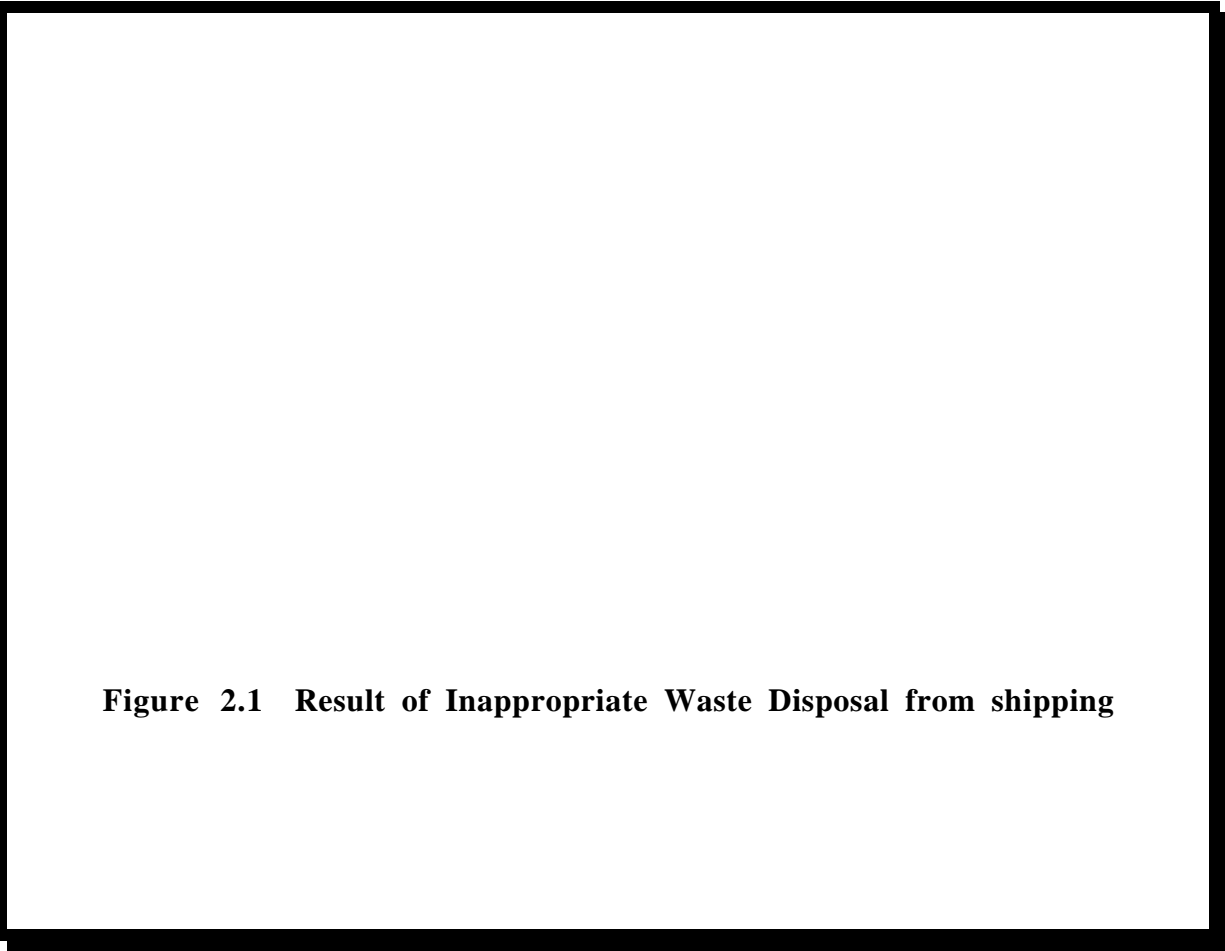


Figure 2.1 Result of Inappropriate Waste Disposal from shipping

Off-shore dumping of land generated wastes is controlled internationally by the Convention on Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972, known as the London Convention. The provisions of the London Convention are addressed in Australia in the *Environment Protection (Sea Dumping) Act 1981*. In New Zealand, the Convention has to date been implemented through the *Marine Pollution Act 1974* and the *New Zealand Nuclear Free, Disarmament and Arms Control Act 1987*. Since this issue is not relevant to the provision of land based vessel waste reception facilities, it will not be addressed further in these Guidelines.

Issues associated with the discharge of ballast water, antifoulants and gases (including ozone depleting substances) have not been included in these Guidelines as these are being addressed in other forums.

Wastes recovered from accidental spillages not associated with a waste reception facility, are not included in this document. In instances of a spillage of MARPOL 73/78 Annex III materials (harmful packaged substances) relevant authorities such as environment protection agencies and dangerous goods regulating authorities, need to be contacted.

3. RESPONSIBILITIES

The focus of these Guidelines is on the planning, establishment and management of vessel waste reception facilities and services, to facilitate a reduction in marine pollution from shipping and boating. Clearly for this to occur there needs to be widespread recognition of responsibilities by managers (providers), users (clients) and administering authorities of vessel waste reception facilities. These aspects are dealt with in more detail below.

3.1 Administering Authorities

Australia and New Zealand are signatories to MARPOL 73/78 and are required to provide adequate waste reception facilities for all wastes generated by shipping and boating activities for those Annexes which have been ratified (Appendix 1). The administering authorities of national, state, territory and local governments have varied responsibilities, including national, state and regional waste management strategies. These responsibilities are detailed in the legislation and regulations, a summary of which is given in Appendix A. It is the administering authorities' duty to ensure that all laws are upheld and that the intent of the legislation is met.

Governments need to ensure that the formalities associated with the use of reception facilities, particularly customs, health, and administrative aspects, are as simple and expeditious as possible to avoid undue delay of a vessel using a waste reception facility. It is also the responsibility of governments to ensure that costs for receiving and processing wastes are covered in such a manner that a disincentive does not exist for the use of the facility.

3.2 Clients

The potential users of vessel waste reception facilities are termed "clients" throughout the remainder of this document. Clients in this context are waste generators or transporters. That is, they have responsibility for a vessel on which waste is being, or has been generated, or is being transported. They may not be the owners of the waste but, by being the master or skipper in charge of the vessel they are responsible for the proper management of the waste on board the vessel. In the case of large ships, this responsibility may encompass making arrangements for the shoreside reception of a wide range of liquid and solid wastes, including quarantine wastes. For the skippers of recreational vessels, the proper management of wastes may require only the collection and deposit of garbage into a bin provided at the marina or boat ramp. In all cases, these clients need to be aware of their responsibilities as set out in relevant local, state, national and international requirements.

3.3 Providers

The owners, managers, and operators of vessel waste reception facilities and services are collectively termed "providers" in these Guidelines. Although there would normally be quite distinct differences in the roles and responsibilities of each of these in relation to specific sites and facilities, for the purposes of this document, no distinction is made. They are considered jointly responsible for the provision of "adequate" vessel waste reception facilities which meet the needs of the vessels using them, "without causing undue delay", and all management plans associated with waste management at their premises. The terms "adequate" and "without causing undue delay" are defined in MARPOL 73/78 and discussed in more detail in Section 5 of these Guidelines.

In many of the major commercial ports in Australia and New Zealand, waste collection services are provided by private contractors rather than port managers. The contractors have no contractual obligation to the manager of the port, and the port manager has no role except to ensure that a contractor is available and operates within the environment and safety requirements of the port authority. The contractors are contacted by the ship's agent and arrangements are made for the contractor to meet the ship on arrival, to collect the waste. The contractor invoices the ships agent for the service.

SUMMARY

RESPONSIBILITIES

Administering Authorities (National, State, Territory and Local Government)

- Responsible for ensuring availability of port waste reception facilities
- Responsible for ensuring that port waste reception facilities operate in an environmentally sound manner

Clients (Users of Waste Reception Facilities)

- Responsible for the proper management of wastes generated or transported on vessels and appropriate disposal to waste reception facilities

Providers (Owners, Managers and Operators of Waste Reception Facilities)

- Responsible for the provision of adequate vessel waste reception facilities
- Responsible for ensuring that any waste disposal contractors working within their port, boat harbour or marina do so within the environmental and safety requirements of the port, boat harbour or marina
- Responsible for meeting all legislative requirements of regulating authorities

4. BEST PRACTICE GUIDELINES - WASTE MANAGEMENT PRINCIPLES

4.1 Introduction

The principles of cleaner production should be practised in the management of reception facilities as well as in the management of wastes on vessels. Wastes include solids, liquids and gases.

Waste can be categorised into various types depending on the physical properties and ultimate destination of the material. Each category may not need to be catered for at every reception facility if the need for that particular waste is not common. Alternatively, the managers of a number of sites can coordinate their waste reception facilities to ensure that shipping and boating have access to all necessary facilities within a region or port. Typical vessel waste categories are shown in Table 1. Figure 1 gives a brief summary of the MARPOL 73/78 Annexes with a full description given in Appendix A.1.1.

Table 4.1 Potential shipping and boating waste types

Waste Category	Waste Description	Reusable or Recyclable	Relevant MARPOL 73/78 Annex
Quarantine Waste	Various types	Generally No	IV, V
Solid	Hazardous substances	No	V
	Paper	Yes	V
	Metals, glass	Yes	V
	Plastics	Some	V
	Fishing nets & other equipment	No	V
	Medical wastes	No	V
	Hold sweepings	No	V
	Galley waste	No	V
	Fish, animal or livestock wastes	Some	V
	General garbage	No	V
	Liquid	Waste Oil	Yes
Oily mixtures including fuel residues		Yes	I
Oily mixtures containing chemicals		Possibly	I, II
Tank wash water		Yes	I, II
Sewage		No	IV
Grey waters		No	IV
	Noxious liquids	No	II

The following options form a hierarchy of waste management priorities, (in order of preference with the first four being the most desirable), should be considered:

- waste avoidance - practices which prevent the generation of waste altogether;
- waste reduction - practices which reduce waste produced;
- waste segregation - separate wastes making it useable or less difficult to dispose of
- waste reuse - direct reuse of waste materials for the same grade of use;
- waste recycling or reclamation - using valuable components of waste in other processes;
- waste treatment - to reduce hazard or nuisance, preferably at the site of generation; and
- waste disposal - if necessary, this should be done in the most environmentally sound manner.

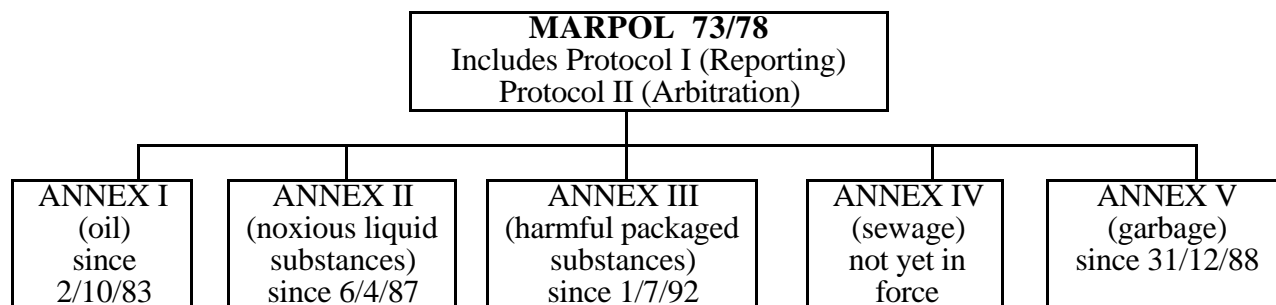


Figure 4.1 - Structure of MARPOL 73/78

The following sections detail principles which should be followed to achieve optimum waste management.

4.2 Waste Avoidance

Everyone has a responsibility to avoid waste production where possible. In the case of waste reception facilities, there is limited control that the provider can have over waste production. Regulating authorities can influence the reduction of production of wastes but the main responsibility rests with the operators of vessels not to create wastes in their normal operation of the vessel.

EXTRACT FROM
“RECREATIONAL AND SPORT FISHERS’ CODE OF PRACTICE”

“Responsible fishers respect the environment”

- *“We take our rubbish away with us, so that it doesn’t pollute the environment or endanger wildlife”*
- *“We immediately report pollution of fishing waters, especially irresponsible use of fertilisers and pesticides or runoff of toxic wastes”*

4.3 Waste Reduction

Where wastes are produced, the quantity of waste should be minimised. Implementation of waste minimisation methods in existing and proposed operations will reduce the environmental impacts. The reduction of wastes is sound economics for all parties as it means that more of a resource is being utilised and resources are not spent on handling the waste in the most suitable manner.

4.4 Waste Segregation

Both clients and providers of waste reception facilities should wherever possible segregate wastes into different categories to facilitate the reuse, recycling or disposal of the resource or wastes. With the increase in recycling and waste processing, the segregation of materials within the waste stream is becoming of increasing value. Ships and boats should have separate receptacles on board, in which to store segregated wastes.

Managers of reception facilities should ensure that wastes are not mixed by their clients or when stored within the reception facility. Quarantine wastes should be segregated from non-quarantine wastes as the mixing of these would increase the quantity of quarantine wastes to be disposed of as well as the associated costs. Section 4.9 deals with quarantine wastes in more

4.5 Waste Segregation and Reuse

Where possible, waste should be segregated for reuse or partially treated to a reusable state rather than being sent for disposal. In some areas the ability to reuse material such as organic waste is becoming an option to disposal. Where this is occurring, the manager of the reception facility should endeavour to implement this option. The precise requirement for storing the material for reuse will need to be determined with the user of this material during the planning phase of the establishment of the reception facility. Reuse of waste is feasible in some situations, such as storage of tank washings to allow their reuse for future washing of tanks.

4.6 Waste Recycling

Recycling is the preferred option to disposal. However, some reception facilities may not have access to recycling systems due to remoteness or other local reasons. New Zealand has waste recycling facilities available in most major port areas, and waste management companies nationwide that can provide recycling services.

Where plastics can be received for reuse or reprocessing, reception facilities should indicate clearly which plastics are acceptable to the local system with separate receptacles labelled as appropriate. Similarly, receptacles for all recyclable materials should be labelled clearly showing the degree of segregation required. The recycling of used oils has significantly increased in recent times and every opportunity should be taken to ensure that recycling of used oils is carried out.

Any application to recycle quarantine waste will be considered on an individual basis by the Chief Quarantine Officer of that state or the delegated representative.

4.7 Waste Treatment

Where waste treatment is required prior to reuse, recycling or disposal, this may occur at the reception facility or at the facility to which a waste contractor delivers the waste. The need for treatment and the level and type of treatment will be determined by the requirement of its use or disposal.

For example, sewage pump out wastes can be treated on site for reuse or discharge, or tankered or pumped from site to a municipal sewage treatment plant for reuse or disposal with other sewage effluents of the area.

4.8 Waste Disposal

The Commonwealth of Australia has adopted a national target of a 50% reduction by the year 2000 in waste going to landfill measured by weight per capita based on 1990 levels. Some Australian states have adopted waste reductions greater than 50%.

Waste disposal has a variety of options depending on the type of waste. In all cases waste disposal is regulated by the relevant authority and any proposed disposal or delegation of disposal, should be carried out with the full knowledge that the disposal is being done in an approved manner to acceptable environmental standards.

4.8.1 Disposal of Non-quarantine Wastes

Waste should be disposed of in an environmentally responsible manner. Approval by the local environmental authority may be required to dispose of the waste on site or to have the waste transported for disposal off site. An approved waste disposal contractor should be used to ensure that the wastes are disposed of in an approved manner. Final disposal will generally be to landfill with the possibility of incineration in some areas. In some states, Local Government has the right to set acceptance criteria for waste disposed to landfill.

In New Zealand, regional and district authorities and private companies manage waste disposal sites. Approval is required from regional councils for land use and disposal to landfills.

4.8.2 Disposal of Quarantine Wastes

Wastes that are considered to require quarantine, because of their international source or other reason, should be segregated from all other wastes and contained in an authorised manner prior to disposal. While most shipboard wastes will be classified as either quarantine or non-quarantine for a specific vessel, there may be situations where some wastes may not require the standard quarantine controls. For these and segregated wastes stored at reception facilities, attention should be given to the maintenance of this segregation.

The options for disposal which include incineration, deep burial or sterilisation, will be site specific and may be waste specific.

All methods of disposal in Australia must be authorised by Australian Quarantine and Inspection Service. In New Zealand, the Ministry of Agriculture's Regulatory Authority sets standards for the collection, transport and disposal of all quarantine wastes from ships. The Ministry of Agriculture's Quarantine Services ensures these standards are being met.

4.9 Quarantine Wastes

Australia and New Zealand are relatively free from many diseases due to their island status. It is important to maintain this situation for the protection of Australia's and New Zealand's flora and fauna, and to safeguard agricultural industries and human health. It is essential that the controls to prevent the introduction of pests and diseases be maintained and enforced. One of the controls is the management and disposal of wastes of international origin from ships and boats. The current Australian controls are described in the Australian Quarantine Inspection Service document *Draft Guidelines for the Storage, Collection, Disposal, and Monitoring of Quarantine Waste*, available from Australian Quarantine Inspection Service.

Quarantine wastes comprise a wide range of shipboard materials, including:

- organic galley and accommodation refuse including nonwashable items which may have been in contact with such wastes;
- dunnage (wood, straw, matting and other packing material) and floor sweepings in some instances;
- other organic waste which may constitute a health risk; and
- interstate food subject to quarantine.

It is essential that quarantine wastes originating from an overseas vessel are not mixed with wastes originating from a domestic vessel, otherwise all wastes will need to be classified as quarantine waste and disposed of in a more controlled and potentially, more expensive manner. Some metals such as aluminium cans are being permitted into the domestic recycling stream with appropriate controls.

In New Zealand, the *Biosecurity Act 1993* may require risk goods to be quarantined and disposed of as necessary. Appropriate waste reception facilities are required where the import of risk goods occurs or may occur.

SUMMARY

BEST PRACTICE GUIDELINES WASTE MANAGEMENT PRINCIPLES

WASTE MANAGEMENT HIERARCHY

In order of priority:

- **Waste avoidance:** practices which prevent the generation of waste;
- **Waste reduction:** practices which reduce waste;
- **Waste reuse:** direct reuse of waste materials for the same grade of use;
- **Waste recycling:** using valuable components of waste in other processes;
- **Waste treatment:** to reduce hazard or nuisance, preferably at the site of generation;
- **Waste disposal:** this should be done in the most environmentally sound manner.

Waste types: MARPOL 73/78, solid, liquid, quarantine, recyclable

Segregation: domestic and quarantine wastes, recyclable and non-recyclable

Waste Management Plan: essential part of overall Management Plan of port, marina or boat harbour

5. BEST PRACTICE GUIDELINES - PLANNING AND DESIGN OF SERVICES

5.1 Introduction

Waste reception facilities can be provided at regional or site specific level. If the requirement for specific types of facilities does not justify multiple facilities in a particular region or location, a management agreement between providers should ensure that arrangements are in place to make adequate and viable installations available. This and the following section address basic requirements of planning, design, construction and operation and maintenance.

In New Zealand there is only limited scope for regional waste reception facilities to be developed (ie Bay of Islands, Marlborough Sounds). There is, however, scope for the disposal of wastes collected from site specific facilities at a regional level.

While these Guidelines attempt to give detailed information on the planning and design of waste reception facilities, they do not give complete details for every eventuality. Hence, it may be appropriate in many situations to use additional expert services to adequately plan and design a functional reception facility.

5.2 Adequacy

All reception facilities, regardless of size should be able to receive MARPOL 73/78 Annex V wastes (garbage) and Annex I wastes (waste oils and oily mixtures), as well as be capable of handling any other wastes in the quantities that would normally be handled or discharged within that port, marina or boat harbour. The planning and design processes should ensure that the facility has sufficient capacity to handle the peak load that would be imposed on the facility.

The hours of operation and availability of the reception facility should be appropriate to the needs of the vessels using the facility. Both the vessel and the facility should ensure that the systems used by each are compatible so that the safe and environmentally sound transfer of wastes can occur. Where special events such as a major yacht race occur, a contingency plan is required.

5.3 Undue delay

Undue delay could be considered to apply when the time spent in port disposing of wastes exceeds the normal turn-around time of the vessel in that port, unless the delay is caused by the fault of the vessel, its master, its owner or authorised representative, safety requirements or the normal port procedures.

The master, owner or the owner's representative should contact the providers in good time, generally not less than 24 hours before expected discharge of wastes. The transfer of information on the type and quantity of waste and the time and place of transfer of the waste should be made in advance at the initial time of contact.

This level of detail would not normally be required for small and recreational vessels using facilities at marinas and boat harbours. The operation of a facility should address these issues (refer to Section 6.4).

5.4 Overview of Planning

The planning approvals and licences required to provide and operate a port, marina or boat harbour are different between Australia and New Zealand, and may be different between states within Australia.

In Australia, there is a Commonwealth National Waste Minimisation and Recycling Strategy. The environment protection systems, including statutory framework, vary between States and Territories. Approaches include State waste management strategies, State environment protection policy, and licensing and regulation of facilities and operations that have the potential to pollute the environment. Best practice guidelines provide assistance for stakeholders to implement policy and conform with statutory requirements. An overview of legislation and statutory requirements for ports, marinas and boat harbours is provided in Appendix A.

In New Zealand no legislation exists to require a national waste minimisation strategy nor provide for licensing of facilities. Legislation does exist requiring regional policies and plans that may address waste management issues, resource consents, and the district councils are required to prepare a Waste Management Plan (refer to Appendix A for a summary of relevant legislation). The implementation of these Guidelines would be through these management plans, conditions on consents for new facilities, or through voluntary compliance.

5.5 Process

When planning and designing a new port, marina or boat harbour, or redeveloping an existing facility, the following steps are recommended for inclusion:

- Step 1: Scoping of the project including:
- i) the information requirements on relevant matters;
 - ii) likely environmental effects;
 - iii) approvals and consents required and administering authorities; and
 - iv) key interest groups requiring consultation.
- Step 2: Initial design of the facility including:
- i) the location of facilities;
 - ii) facility standards and design; and
 - iii) solutions to avoid, remedy or mitigate any adverse environmental effects.
- Step 3: Preparation of a draft Management Plan covering:
- i) types of waste to be received and reception facilities to be provided;
 - ii) methods of collection and disposal;
 - iii) environmental effects and methods to avoid, remedy or mitigate any adverse effects;
 - iv) operational procedures for cleaning and maintaining facilities;
 - v) emergency procedures;
 - vi) administrative matters including documentation requirements; signage; protocol for selection of waste disposal contractors;
 - vii) contracts and agreements between waste disposal contractors;
 - viii) training programmes for operators, relevant workers and clients; and
 - ix) conditions on approvals and methods to comply with conditions, including monitoring of any adverse environmental effects.
- Step 4: Consultation with Key interest groups including:
- i) administering authorities to determine their information requirements, timing for approvals, initial reaction to the project, and any major issues that require addressing in the Management Plan;
 - ii) user groups to determine their interests and needs; and
 - iii) the wider community to determine their major concerns and to identify supporters and opposers of the project.
- Step 5: Finalising of design and the management plan incorporating matters raised

Step 6: Drafting and lodging of applications for approvals.

Step 7: Construction and commissioning.

5.6 Scoping

In designing and planning an acceptable facility it may be necessary to obtain and assess information on the following matters:

- port or boat harbour characteristics - size; type; traffic; services (eg vessel repair); environment; commodities handled;
- vessel characteristics - existing and future traffic and vessel characteristics;
- waste characteristics - types and quantities from clients and within facility;
- port waste handling characteristics - existing capacity; standard and type of reception facilities; reception times; transport, access and parking requirements; available registered or approved waste transport contractors; waste recycling; treatment and disposal facilities;
- hazard and risk assessment of facility and wastes to be processed by the facility;
- occupational health and safety requirements;
- environmental objectives and other environment protection requirements;
- emergency response and clean up requirements;
- material for preparation of operational instructions;
- locations and other requirements for signs; and
- applicable laws, regulations, rules, guidelines, policies and approvals required.

The above information needs to be analysed from the following perspectives:

- technical, engineering and scientific;
- operational;
- financial, economic;
- environmental; and
- socio-cultural.

The likely environmental effects should be identified as part of the scoping exercise through a review of environmental impacts such as an environmental impact assessment or equivalent. These investigations may be required to support the development application, and may be obligatory in some areas.

All relevant approvals from administering authorities such as local, district, regional or state governments as appropriate must be applied for and obtained prior to construction and setting into operation. An example of conditions for a recent New Zealand marina development is given below. These can be equally applied in Australia as a starting point.

**EXAMPLE NEW ZEALAND RESOURCE CONSENT CONDITIONS
WASTE MANAGEMENT AT MARINAS**

The following is an example of resource consent conditions which may be applicable to future marina developments, relative to waste reception facilities.

SEWAGE PUMP OUT FACILITY

1. *Common user facilities for sewage pump-out, handling and disposal to service boats shall be provided at a suitable location in the marina.*
2. *Sewage pump-out facilities shall be designed and operated at all times to ensure the risk of spillage from operations is minimised.*
3. *Appropriate equipment to contain and remove spillages of sewage shall at all times be kept stored in a convenient position near the facility and be available for immediate use.*
4. *Marina rules shall require that all boats using the marina shall use the facility with due care, and shall prohibit the discharge of sewage and waste water from boats into the harbour waters.*
5. *A contingency plan to deal with sewage spills shall be approved by the General Manager of the Regional council or delegate before the sewage pump-out facility and associated structures are constructed*

CONTROL OF DISCHARGES

1. *Facilities for the reception of rubbish from craft arriving directly from overseas ports shall be provided.*
2. *Sufficient rubbish receptacles shall be provided and maintained around the marina. These receptacles shall be designed and maintained in such a manner that birds are not attracted to the marina by inappropriate rubbish disposal.*
3. *A receptacle for the collection of waste oil shall be provided and emptying of the receptacle to an approved recycling area on a regular basis will be carried out.*

MARINA MANAGEMENT PLAN

A management plan for the marina, approved by the General Manager of the regional Council or delegate, shall exist. The plan shall include but is not limited to:

1. *The berth contract provisions (marina agreement) which are directed at ensuring berth holders act in an environmentally appropriate manner. Penalty provisions for inappropriate actions should also be included.*
2. *A description of the facilities provided to ensure that the natural environment is not contaminated by the operation of the marina which should include:*
 - a) *a description of their operation*
 - b) *their maintenance requirements*
 - c) *contingency measure associated with their operation*
 - d) *those responsible for their operation including any training required*

Source: Environment BOP Decision 04 0148

Key interest groups that require consultation will include:

- administering authorities;
- port, marina and boat harbour users (including recreational fishers);
- waste management contractors;
- boating associations or clubs;
- fishing and marine related companies;
- indigenous groups;
- local community;
- waste treatment and disposal bodies (e.g. landfills, sewerage authorities); and
- facility associations (where they exist).

It is essential that the planning team has the relevant level and blend of expertise to ensure that all of these scoping matters are considered.

5.7 Design

The design of the facilities should address the matters identified through the scoping exercise. These Guidelines provides guidance on design aspects relating to: location of facilities; facility standards; and types of waste.

Location of Facilities

The location of ship waste reception facilities (refer to IMO Manual - Page 125) within the port, marina or boat harbour will be influenced by:

- the types and volumes of waste being received;
- the frequency of use and emptying requirements;
- the disposal methods to be used;
- the environmental and amenity values of the area; and
- the access and security requirements.

The planning of the location of the ship waste reception facilities should therefore:

- balance the operational requirements for easy access for use and for emptying facilities with the need to preserve environmental and amenity values of the area;
- avoid or reduce any adverse environmental effects of providing and operating waste reception facilities (such as visual, noise, odour, attraction of rodents and birds, cleaning discharges etc) through proper design, location and operation; and
- require monitoring of any adverse environmental effects associated with the location of ship waste reception facilities.

In particular, the following matters should be considered when designing the location of specific facilities:

Fixed Reception Facilities

Fixed facilities will need to address all the local planning and environmental approval and performance requirements. This may require environmental impact assessment especially if long term storage or onsite treatment facilities are incorporated into the facility. Consideration needs to be given to the ability of the vessels being serviced by the reception facility to load and unload concurrent with discharging wastes. In larger ports this may not be feasible and the mobile facilities discussed below may be more appropriate. In smaller ports, there may be a

location of facilities in smaller ports need to therefore consider some of the adverse environmental effects identified above.

Vehicles

In larger ports, the use of land based waste removal contractors is commonly used as it allows flexibility for loading and unloading of cargo and negates the need to relocate the vessel to discharge wastes or each berth having waste reception facilities. The most common type of vehicle for this purpose is a road tanker fitted with a vacuum pumpout system. Vehicle access and parking need to be considered. In smaller ports, road vehicles are commonly used for the collection and disposal of waste from reception facilities. The location of the facilities should therefore take into account vehicle access to facilities with adequate turn around and parking bays provided. In some cases waste may be transported to a transfer station, and the size of the vehicle requiring access may be smaller.

Barges

Where waste collection is by barge, specific attention should be given in the design of the equipment to prevent spillage and provide containment and clean up devices in the event of a spill. This is particularly so for Annex I, II and IV wastes. Fendering systems should also be included in all barge design. Barge mounted reception facilities are able to service vessels that are located at a dock or buoy where reception facilities do not exist or where vehicle access is not possible. Potential for spill incidents, servicing, emptying and cleaning the barges should be considered when planning and designing floating reception facilities.

Facility Standards

The facility standards and design will relate to the port, marina and boat harbour characteristics established in Step 1: Scoping.

***EXTRACT FROM
“IMO COMPREHENSIVE MANUAL ON PORT RECEPTION FACILITIES”***

The following considerations are important when selecting a site:

- 1. Other port operations should not be hindered;*
- 2. The risk for wastes to enter the water should be minimised;*
- 3. The site should be at a convenient place both for seafarers and for port personnel and vehicles;*
- 4. The site should have sufficient lighting to allow for and encourage garbage collection 24 hours a day;*
- 5. Garbage reception areas need to be clearly marked and easily located;*
- 6. Garbage reception areas must be secure to prevent abuse or misuse and to ensure the safety of seafarers and port personnel using them;*
- 7. The impact of the facilities on the surrounding community should be minimised, especially with respect to noise, odour and outer appearance;*
- 8. The facilities must comply with national, local and other applicable legislation on garbage collection and processing.*

Source: IMO Manual

The following design principles should be followed:

- reception facilities, pump out points and receptacles or containers will need to be positioned at locations convenient for use by clients and waste transport contractors;
- all reception points and containers should be well labelled and directions to these points should be well sign posted;
- information on the correct use of each facility should be displayed on a readily visible sign adjacent to the operating controls, containers or receptacles;
- Australian Standard AS 3962 - 1991, *Guidelines for design of marinas*, Clauses 5.4 and 5.5 makes reference to the need for liquid and solid waste disposal - requirements of this standard have been incorporated into these Guidelines;
- standardised (international) connection fittings are required to ensure that fittings on visiting vessels are compatible with the hose fittings at the port or marina waste reception facilities;
- appropriate location should be provided for protective clothing for handling wastes, wash down facilities, etc; and
- facilities should allow for tidal variations as appropriate to the port, boat harbour or marina as practically possible.

CAPACITY REQUIREMENTS BASED ON FREQUENCY OF USE

- *Capacity shall be capable of receiving those residues and mixtures which are handled within that port and which must be discharged to reception facilities.*
- *All ports including marinas and fishing ports will need to provide adequate facilities to receive Annex V wastes (garbage) and waste oil from engines.*
- *Receptacle capacity should meet demand in terms of size, the number of receptacles required, and space availability*
- *Requirements for handling seasonal fluctuations in demand for waste disposal should be considered when determining receptacle capacity*
- *Container size will affect the servicing schedule which has implications for labour and collection vehicle requirements. More frequent collection reduces health and safety concerns and requires less storage space, but may increase costs through the use of more vehicles and labour.*
- *The receiving capability should be at least appropriate in time and availability to respond to the continuing needs of ships using the port.*

Source: IMO Manual

As part of the planning and design process, matters (including adverse environmental effects) associated with the provision of facilities will be identified. There may be a variety of methods to avoid, remedy or mitigate some of these matters including engineering, operational or the inclusion of landscape solutions depending on the effects being addressed. The initial design stage should identify these matters and resolution methods for inclusion in the draft management plan and consultation steps.

In some areas specific waste management conditions may apply (e.g. requirements for sewage containment on all vessels with appropriate treatment or transfer to land based sewerage systems).

Types of Waste

Specific design of waste reception facilities will be required for the following types of waste:

TYPES OF RECEPTION FACILITIES

Liquid Waste (MARPOL 73/78 Annex I, II and IV)

Reception of both Annex I and II wastes needs to be followed by the treatment of these wastes as illustrated in Figure ? of a typical layout of a reception facility for these wastes.

Annex I - Waste oil

Reception of oily wastes can be carried out in a number of ways. Barges are a good option for floating facilities. On-shore collection can be carried out by tank trucks or at a central collection facility. In all cases, storage tanks with pumping facilities for oily wastes will be required to which ships, collection barges or collection vehicles can discharge their (collected) wastes.

Annex II - Noxious liquid substances

These wastes usually result from tank cleaning activities. It is feasible to combine tank cleaning facilities with reception facilities which require pumps and storage tanks. The most important aspect for reception of Annex II wastes is ensuring chemicals are not mixed, as they may create very dangerous situations.

Annex IV - Sewage

If the port area is served by a sewerage system, it may be possible to discharge ship-generated sewage into the sewer system either by direct connection (e.g. by hose or pipe) or by transfer using tanker trucks

If there is not an adequate sewerage system then a waste management strategy should facilitate an integrated approach to the collection, treatment and disposal of sewage generated both on land and on ships.

Solid Waste (MARPOL 73/78 Annex V)

Annex V - Garbage

- A variety of containers/bins and dumpsters can be used for the collection of garbage. These need to be functional in terms of their capacity, type and transportation. Figure ? illustrates the various types of containers and other receptacles.
- Segregation of various types of garbage may be useful or in some cases necessary (eg quarantined wastes). Receptacles used for the collecting of recyclables should be easily distinguishable from those used for non-recyclable garbage.
- Receptacles should be chosen with characteristics to discourage their abuse or misuse.
- Receptacles for garbage disposal may be placed on the ships while in port, therefore requiring wire sling attachments. Receptacles must be compatible with the maximum load of the available cranes and constructed of durable materials and equipped with lids to contain vermin, prevent litter spreading and offensive odours.
- Stationary compacters or baling equipment may be used to reduce the volume of the garbage.

Source: IMO Manual

Quarantine Wastes

A designated secure area and/or receptacles are required for wastes classified as quarantine wastes. Quarantine wastes require receptacles that are permanently marked with the word “Quarantine” printed in black 15 mm high on a yellow background and securely covered to effectively prevent the spillage of material or access by birds or animals.

The design should allow for access for the approved quarantine contractor to remove the quarantined waste to an approved quarantine waste disposal site. The facility should also have a suitable process to clean the receptacle after the collection of quarantined waste and handle any wastes produced from the cleaning process.

Quarantine waste from cruise vessels should be transferred from the vessel to the transport vehicle by a chute (plastic or canvas). Under no circumstances should the design include the provision for dropping bags of waste over the side of the vessel into the transport vehicle.

Liquid Wastes

Provision should be made for the reception of liquid wastes of types required by prospective clients. Specific attention should be given to the following:

- type of liquid waste being received, any risks associated with storage of combinations of liquid wastes, segregation where necessary;
- use of standard fittings, with adaptors if necessary;
- treatment or disposal methods;
- transport access; and
- statutory approvals to install and operate.

In the case of sewage, the reception facility will have to consider the following:

- type of sewage, namely: septic sewage, sullage, galley waste, chemical toilet sewage, grey water, sludge from aerobic treatment systems;
- frequency of use and necessary capacity;
- constraints of the receiving sewerage and treatment systems such as maximum delivery rates;
- limitations of sewage transfer such as pump capacity and pumping rates;
- minimisation of odour release to the surrounding environment;
- protection from accidental spillage during waste transfer;
- provision of a freshwater hose for flushing out vessel sewage holding tanks; and
- salt water flushed toilets.

Connections

The IMO Manual along with other guidelines commonly specify a 1_ inch NPT, 1_ inch BSP or 40 mm sizes for sewage discharge connections from small vessels. All these are equivalent and generally similar although technically not interchangeable. In Australia, 1_ inch BSP fittings for liquid suction is commonly available and is recommended as the standard for small vessels where sewage pumpout is required. The International standard is ISO 228/1 for pipe threads where pressure-tight joints are not made on the threads.

Storage Tanks

Adequate storage tanks should be considered for tank washings for ships carrying Annex II cargoes, including vegetable oils. This will allow vessels to comply with Annex II. Direct removal by a waste disposal contractor from the producing vessel is common, especially for commercial shipping. Where this is the proposed method of disposal of wastes from a vessel, provision for suitable access for the contractor's vehicle is necessary. In large ports, these types of wastes are normally handled by the bulk liquids terminal as part of its agreement with the receiver of the product. A typical marina waste oil reception facility is shown in Figure 5.1.

Discharge to local sewage systems

If the sewage or liquid waste is being discharged to a sewerage authority sewer, approvals for the collection system, pretreatment, quality and quantity limits and any storage requirements may be required along with agreement on any fees that may be applicable. In the case of a large marina in a small town, the volume and strength of ship waste may be equivalent to or more than the amount generated by the town, and design and pre-approval investigations will be critical. It will be necessary to liaise with the relevant sewage treatment plant management for discharges of sewage of an acceptable quality and at a rate compatible with the plant capacity.



Figure 5.1 Oil Waste Disposal and Underground Storage Example

Similar comments apply to other liquid wastes but it is rare for these to be discharged directly to a treatment system from a port reception facility. Typical treatment methods for non-sewage liquid wastes (eg oily mixtures) may consist of a settling tank or pit which may double as a flow equalisation tank, followed by a corrugated plate interceptor, then a filter designed to suit the waste. Discharge standards will vary depending on the receiving environment and the regulating authority but suspended solids limits below 20 mg/L and no visible oil and grease, are typical. The design of a reception facility where discharge to the sewer or receiving environment does not occur, will require consideration of the pattern of receipt of waste and pick up by waste contractors so that storage tanks, if required, can be designed and sized appropriately. Where practical, pumpout facilities should be provided adjacent to fuel dispensing facilities. This will save time for the vessel operator as well as encourage the use of the pumpout facility.

If on site disposal is proposed, the approval of the environmental regulating authority will normally be required. The level of detail on the proposed treatment system will depend on the requirements of the approving authority.

Chemical and Salt Water Toilets

It is inadvisable to discharge chemical toilet wastes directly to small sewage treatment systems as the chemicals contained therein, can be detrimental to a treatment plant performance if they are discharged directly and form a significant proportion of the sewage feed. This is also applicable to saline based sewage. There are acceptable methods of designing holding and pumping systems that will ensure that the potential to upset the sewage treatment system is minimised. Advice should be sought from the local sewerage authority.

EXAMPLE SEWAGE PUMPOUT FACILITY REGULATION

In Sydney Harbour, the River Murray and other inland waterways of NSW, marinas with over eight berths must provide sewage pumpout facilities. Marinas outside these areas are encouraged to provide facilities in the same manner to allow boat owners to dispose of sewage in a legally and environmentally acceptable manner. Boat owners can be prosecuted for pollution if any liquid waste is discharged into any NSW waterway. Such a service can be on a cooperative basis with a group of marinas in the same locality. A typical sewage pump out facility is shown in Figure 5.2.

Source: Waterways Authority

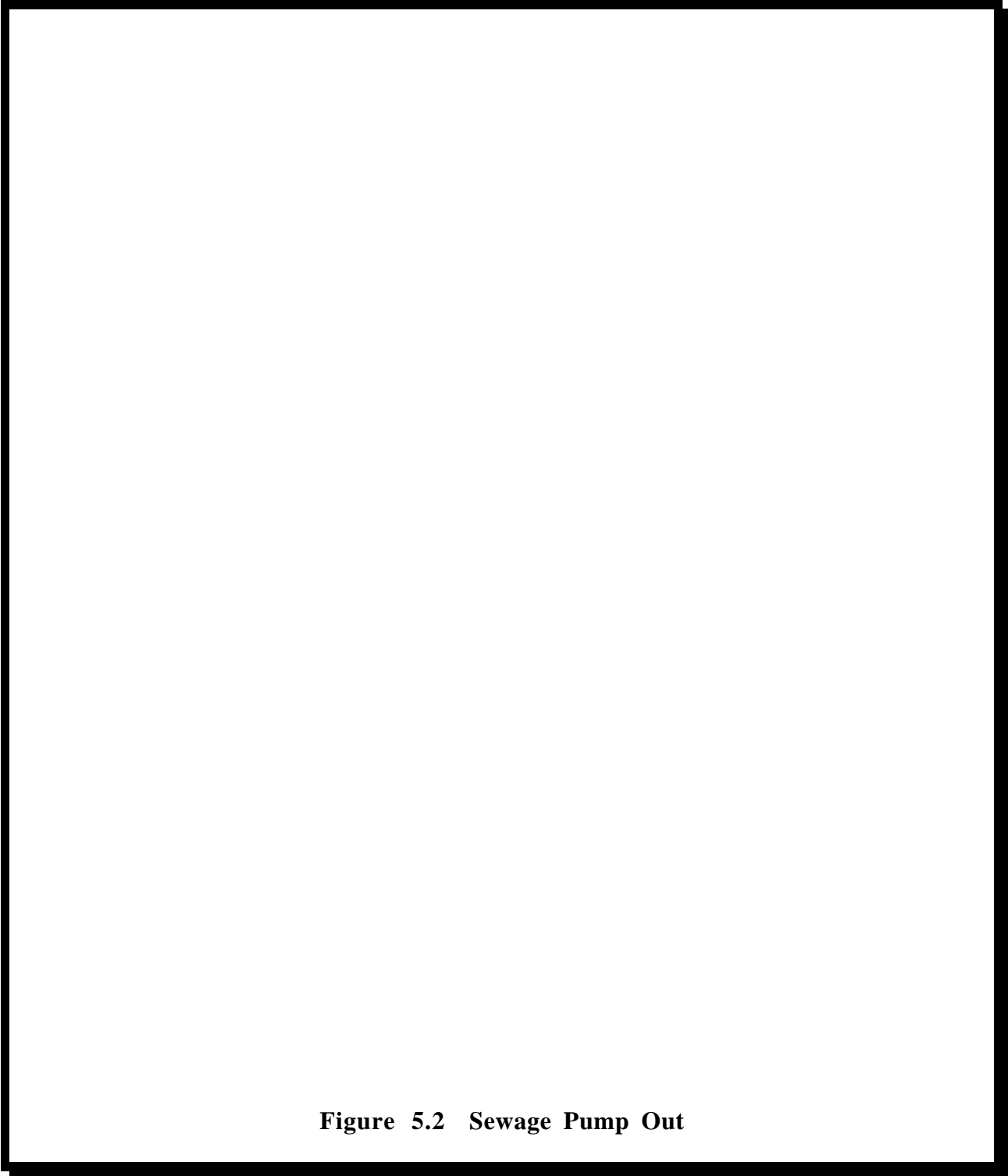


Figure 5.2 Sewage Pump Out

Solid Wastes

Solid wastes will include general garbage (Annex V) as well as specific wastes from time to time. For general solid wastes and for quarantined solids, specific receptacles or containers will need to be supplied. Location of the waste containers should be accessible to both client and waste removal contractor. Receptacles for all types of wastes received at the facility should be available and clearly labelled and sign posted. Generally, waste storage areas should be designed so that wind and vermin including birds and animals, cannot cause the spreading of wastes and disease. A typical facility for harbour cruise vessels is shown in Figure 5.3.

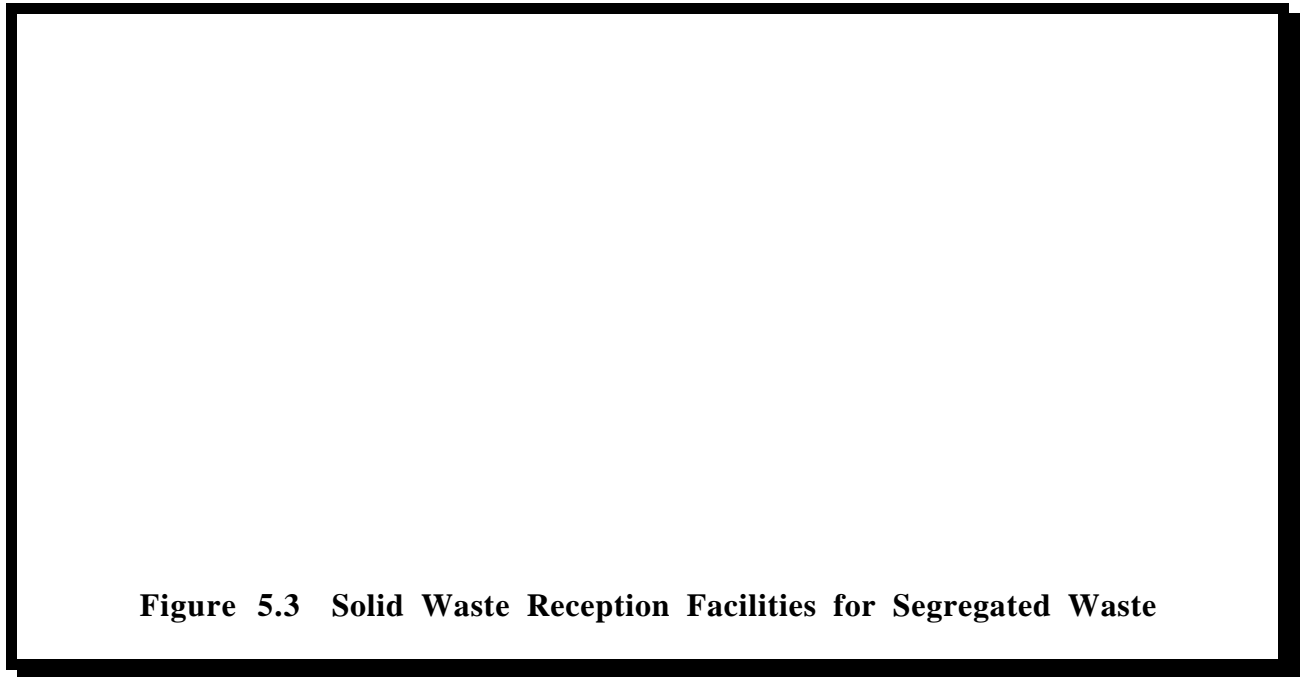


Figure 5.3 Solid Waste Reception Facilities for Segregated Waste

Some wastes, such as food wastes or fish can become obnoxious quite rapidly and hence should not be stored for long periods in significant volumes. Planning of the site to suit waste contractor services and the suitable design of the storage area can minimise the effects of odours.

Spare bins should be available to replace local bins within any marina site to ensure that there is always capacity for clients' use. In the event that receptacles become full before the scheduled collection time, procedures should exist to have an unscheduled collection. Telephone numbers on the receptacle, or in a suitable location within the reception facility, will allow quick notification to the appropriate collector so that an unscheduled collection can be made.

Incineration is an alternative method of disposal and is the Australian Quarantine Inspection Service preferred method of disposal of quarantined wastes. Therefore, full attention should be given to the use of the best available technology with suitable integrated air pollution control systems to gain community and regulatory approval for such a method of disposal of wastes.

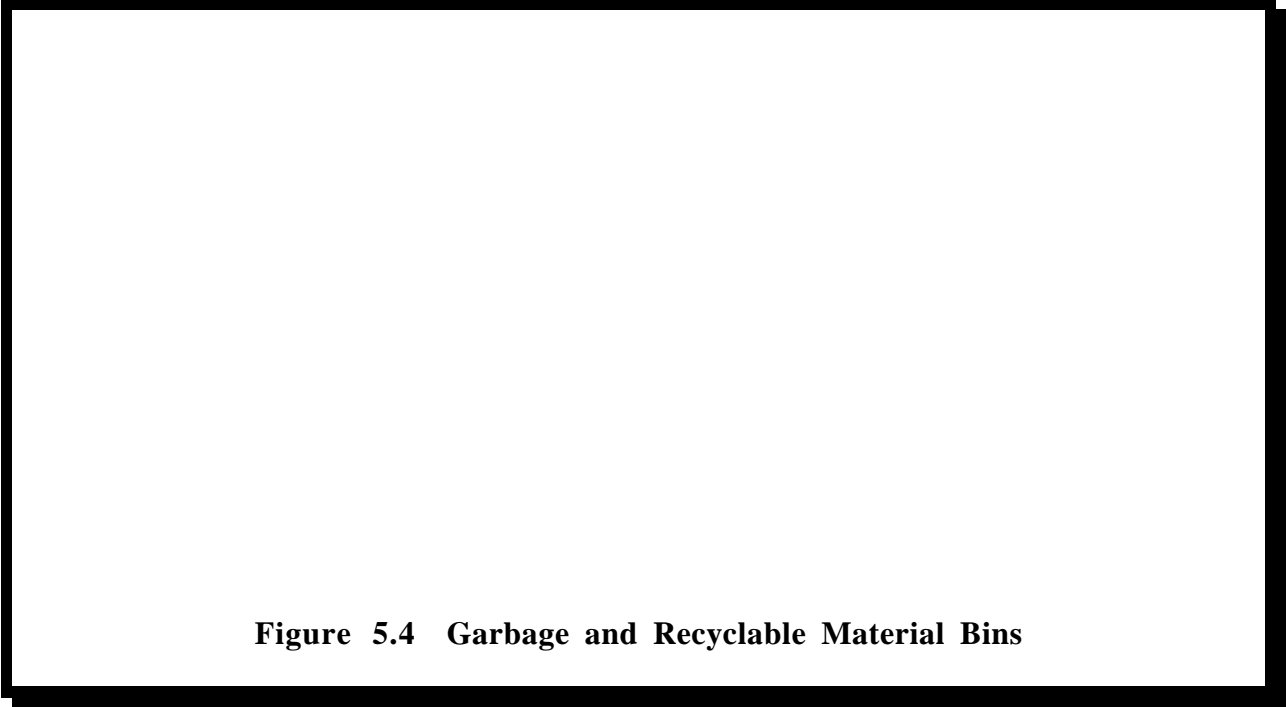


Figure 5.4 Garbage and Recyclable Material Bins

5.8 Waste Management Plan

The main objective of waste management planning is to ensure that the design and operation of facilities minimises the risk of adverse environmental impacts. The development of a waste management plan for a facilities involves: identifying risks to the environment from activities at the facility, identifying options for reducing that risk, and evaluating options for managing the facility to reduce risks. Operational matters are addressed further in Section **6.4 Operation and Maintenance**.

It is expected that the waste management plan would outline management objectives for:

1. **OPERATIONAL:**
 - waste management, including consideration of seasonal variations
 - facility management/maintenance
 - responsibilities/contractual arrangements
 - emergency responses
 - infrastructure
 - signage
 - compliance with approval conditions, including auditing
 - training and education
2. **TECHNICAL:**
 - facility requirements
 - standards for equipment/capacities, incorporation of new technologies
3. **ENVIRONMENTAL:**
 - avoid, remedy or mitigate any adverse environmental effects
 - water quality, including stormwater management
 - noise
 - visual
 - odour
 - natural character
 - coastal processes
4. **COMMUNITY:**
 - public access
 - recreational use
 - consultation

The waste management plan will need to include at least the following sections relative to waste reception facilities:

- waste management including types of waste to be received and facilities to be provided, methods of collection, etc;
- environmental effects and methods to avoid, remedy or mitigate adverse effects;
- operational matters for cleaning and maintaining the facilities;
- sections for inclusion in marina agreements regarding waste management;
- signage for location and use of facilities;
- protocol for selection of waste disposal contractors;
- safety and emergency response plans;

- documentation for recording and tracking wastes;
- training programmes for operators, relevant workers and clients; and
- conditions on approvals and methods to comply with conditions.

METHODS OF DISPOSAL OF DIFFERENT TYPES OF WASTES

Oily Wastes (MARPOL 73/78 Annex I)

The choice of disposal methods should be based on environmental outcomes of the options. Where several potential options exist the costs need to be considered against the benefits of each option.

- ***Incineration***
 - *there are several types of incinerators for oily wastes. Not every type of waste can be handled by a specific incinerator;*
 - *pollution should not be transferred to the air as waste compounds can cause serious air pollution.*
- ***Land farming***
 - *the naturally occurring microbial population in the soil degrades oil; 80-90% of the oil is destroyed within 2-3 year;*
 - *More expensive than landfill as more land is needed and more maintenance of the disposal site is required.*
- ***Landfill Storage***
 - *should only be applied to oily wastes with a low hydrocarbon content and a high solids content. Oil or liquid oily wastes should never be dumped on a landfill. Waste can be treated with binding agents such as lime with additives to render it more suitable to serve as filling material;*
 - *groundwater should regularly be checked for contamination.*

Chemical Wastes (MARPOL 73/78 Annex II)

The industry for which the cargo is shipped generally has the best facilities to dispose /recycle chemical wastes, resulting from the tank washing of their chemical carriers. Chemicals which can neither be discharged into the sea nor be treated biologically or chemically will have to be disposed of in another way:

- ***Incineration***
 - *preferred option as it converts wastes into harmless substances and substantially reduces the waste volume;*
 - *certain components in the waste will require special techniques, leading to higher incineration costs eg the presence of chlorine, sulphur, sodium, potassium, PCB's, volatile metals, and brine wastes.*
- ***Landfill Storage***
 - *May require extra provisions which are dependent on percolation behaviour of the waste and its hazardous characteristics.*

Garbage (MARPOL 73/78 Annex V)

- *The disposal of garbage is very closely linked with the municipal disposal system and should be incorporated into this.*
- *Garbage received in a reception installation in a port will generally be transported to a shore waste disposal facility unless possibilities for recycling exist - the reception installation for Annex V type wastes serves as a link between the ships and the land disposal systems.*
- *Some wastes e.g. quarantined wastes may not be easily transportable to normal land disposal systems and may require special provisions.* *Source: IMO Manual*

***OPERATING STANDARDS RELATING TO MAINTENANCE, CLEAN OUT
DURATION, CLEANING MATERIAL etc***

1. *In order to plan waste disposal in Ports, it is important that advance notification is received as to when wastes a particular ship will want to discharge in the Port.*
2. *Whenever possible, waste should be delivered while the ship does other gainful activities such as loading or unloading.*
3. *The management of Port reception facilities should keep records of all inadequacies occurring during operation of the facilities e.g. occurrence of waste spills during discharge, adequacy of waste reception procedure.*
4. *When discharging waste to Port reception facilities the operation must not lead to unsafe situations. Safety regulations for the discharge of waste should be based on national legislation, international conventions and recommendations, accepted industry standards and guidelines and safe practices.*

Source: IMO Manual

Other methods that could be included in the management plan to ensure integrated operation and management include instructions/directions for clients and visitors. Typical instructions should include as appropriate, equivalent statements to the following:

- all waste oil is to be placed or pumped as appropriate into the waste oil receptacles or tanks;
- all oily waters are to be placed or pumped as appropriate into the oily waste reception facility;
- all noxious liquid substances (MARPOL 73/78 Annex II wastes) are to be deposited in the facilities provided;
- sewage (MARPOL 73/78 Annex IV wastes) from holding tanks or waste sludges from biological treatment systems are to be pumped out into the sewage disposal system;
- sewage wastes from chemical toilets are to be disposed of in the designated trough;
- all garbage (MARPOL 73/78 Annex V wastes) shall be disposed of in the appropriate recycling bins or waste containers provided;
- all quarantine wastes are to be placed in the receptacles that are permanently marked with the word “Quarantine”; and
- during transfer of wastes to reception facilities, all spills and leakages must be reported and action taken immediately the incident occurs, to prevent the continuance of the spill or leakage and initiate clean up of the spill or leakage.

In many situations, especially at larger ports and specialist docks, detailed requirements specific to the site will need to be developed, supplied and posted as appropriate for staff and clients.

The management plan will have a major focus on waste management and should incorporate the following:

- delegation of the responsible person for waste management within the facility
- records of the quantity and nature of each waste received and method of tracking to approved disposal
- the current method of disposal of each waste
- the proposed methods of treatment or disposal if improvements are required
- the expected reduction in quantity of waste produced through waste minimisation and cleaner production
- the provision to carry out a waste audit within 2 years of implementation of the plan and thereafter every 3 years
- contingency plan to cope with incidents
- a revision for the plan at specified intervals or on an as required basis should the plan be found to be lacking in any way.

TYPICAL MARINA AGREEMENT OR BERTH CONTRACT CONDITIONS

Typical clauses regarding waste management for insertion in a Marina Agreement for berthing a vessel, follow:

1. *“Refuse, garbage, plastic bags, boxes, beverage containers and papers must not be thrown overboard, but should be placed in the rubbish and recycling receptacles provided. If the refuse items are too large, the management will advise or assist in arranging for their disposal.”*
2. *“Toilets on boats are not to be used under any conditions unless provisions exist for pumping out sewage stored in tanks via a sewage pump out facility.”*
3. *“Oil, spirit, flammables and oily bilge waters may not be discharged into Marina waters. Waste oils and oily waters must be disposed of in the receptacles provided.”*

Source: A Queensland Marina Agreement

As part of the Management Plan, appropriate training programmes will need to be developed, including training and education of all personnel involved with the management and handling of waste within the facility. These should be implemented at the start of the use of the facility, employment of new staff, on a regular basis as a refresher course and at the implementation of new procedures or equipment. Access to the training program should also be made available to Clients.

In addition, each facility should have appropriate procedures and equipment for emergency response and clean up. Such procedures should be site specific and cater for incidents such as solid waste spillage and liquid waste leaks. This may need to involve appropriate authorities such as environment protection authorities and fire brigades. Appropriate protective clothing should be provided for handling wastes. These should be stored in an accessible location with suitable signage highlighting the location and correct method of use.

The waste management plan should also outline an implementation strategy for how the availability and proper use of the facilities will be communicated to the facility users. Such methods will include information on the type, location and rules controlling the operation of the facility being readily available to staff and clients of a facility. This can be in the form of signs, leaflets or equivalent or combinations of any of these as suitable for the facility.

- i) advice at all points of initial vessel contact on the waste reception services available;
- ii) direction to receptacle or disposal point location;
- iii) labelling of all receptacles and disposal points as to the wastes to be deposited;
- iv) contact numbers for waste contractor services at disposal point or receptacle; and
- v) emergency procedures for the containment and clean up of spills as appropriate.

These signs should be incorporated into the design phase of the project. Good design such as height, use of symbols, general consistency and good location, is essential to maximise effectiveness. If not in existence, or inadequate at an existing facility, additional signs should be added.

Notices, signs and checklists should be provided to each waste reception facility in appropriate languages and with appropriate international symbols.

5.9 Consultation

The aim of good consultation is to provide interested groups and the wider community with information on the project being planned, to identify matters of concern or interest to these groups, and to identify a number of solutions to meet their concerns or interests. Good consultation should ensure that no major concerns or matters arise at the approval stage that have not already been identified and addressed in some way. Provision of draft reports and summaries of investigations to Key interest groups (where appropriate) may also facilitate consultation and assist with the approval process.

The consultation methods used will be determined by a number of factors including:

- the nature and scale of the project;
- any statutory or legislative requirements;
- the expectations and availability of the key interest groups; and
- the timeframes and budgets available.

There are a wide range of consultation methods with varying levels of effectiveness. The most acceptable methods of consultation (depending on the key interest group to be consulted) include:

- meetings - public and/or private;
- written correspondence through letter or fax;
- verbal through telephone; and
- establishment of working groups.

Other methods that could be used to ensure wider comment is gained (where required) include:

- surveys and questionnaires (postal and street corner);
- public workshops;
- advertising through a range of media; and
- marketing campaigns.

5.10 Finalising Design and Management Plan

The final design of the facilities and the management plan should incorporate any matters raised through consultation. It is important to be able to demonstrate at the approval stage how matters raised by the Key interest groups have been addressed through either changes in the design or through intended management policies and procedures. The inclusion of design changes to accommodate matters should facilitate a quicker approval process. Finalising of the design and management plan may include the preparation of supporting documentation that outlines the matters raised, options considered, and logic behind the final design and management plan.

5.11 Drafting and Lodging Applications for Approval

To avoid delays at the approval stage, all approvals required for the project, and the inclusion of the supporting information required by consenting authorities, should be included with applications as they are drafted and lodged. A good understanding of the consenting authority's operating procedures, and the procedures prescribed in the legislation, will also assist applicants to provide adequate application. Depending on the scale of the project being proposed, providing drafts of summaries of investigations and the application documents to be lodged to the consenting authorities (where appropriate) is a good way to keep them well informed of progress, and will allow them to identify any gaps or concerns at an early stage.

5.12 Construction and Commissioning

Construction should only begin when all requirements have been considered, the design has been completed and approvals obtained from licensing and approval authorities. Some construction may be phased, with augmentation of the facility by addition of treatment or handling systems for additional waste streams. It is essential that each phase be planned and designed adequately prior to initiation of construction.

The operator training sessions and commissioning should be planned so that the waste management system is fully operational from the start of business of a new facility or augmentation of an existing facility.

SUMMARY

BEST PRACTICE GUIDELINES PLANNING AND DESIGN OF SERVICES

Issues requiring attention by suitably qualified persons prior to building a waste reception facility:

Adequacy - ability to receive garbage, waste oils and any other wastes as appropriate

Undue delay - facilities should be able to receive wastes while other port functions are occurring

Planning Process

1. *Scoping* - consideration of the following from the technical, operational, financial, environmental, economic, and socio-cultural perspectives: port, vessel and waste characteristics; hazard and waste risk assessment; Occupational Health & Safety, environmental, emergency and clean up requirements; signs, documentation, legislation; approvals; Environmental Impact Statement.
2. *Design*
 - Location of Facilities - Fixed, Mobile (Barges or Land-based Vehicle)
 - Facility Standards
 - Capacity of facility
 - Types of Waste and reception facilities
 - Quarantine Wastes - containment, segregation and labelling
 - Liquid Wastes - containment, type, access, treatment, air quality, vessel connection
 - Solid Wastes - containment, access, appropriate receptacles, collection frequency
3. *Management Plan - incorporating Waste Management Plan*
 - Methods of disposal of different types of waste
 - Operating Standards
 - Marina Agreements regarding waste management
 - Emergency response plans - procedures and equipment
 - Protocol for contractor selection
 - Training
 - Signs and other information
 - Conditions on approvals
4. *Consultation* - information provision to interested and affected groups
5. *Planning Approvals*- understand consenting authorities and legislative procedures. Keep authorities informed of investigations.
6. *Construction* - after approvals received and provision for augmentation addressed
7. *Commissioning* - after training and Operation & Maintenance manual available

6. BEST PRACTICE GUIDELINES - OPERATION OF SERVICES

6.1 Waste Management Procedures

6.1.1 Management Plan

As described in 5.6.1 and 5.6.2, it is essential that an overall management plan exists for the port, marina or boat harbour. This should include a section on environmental management and waste management.

6.1.2 Quarantine Waste

The following principles are recommended for the storage and handling of quarantine wastes:

- on board vessels, quarantine waste should be stored in watertight, durable and vermin proof containers with lids designed to be easily used to fill, empty and clean. The use of an internal plastic bag will facilitate the removal and containment of the waste;
- the containers are not to be multipurpose. Once used for quarantine waste, a container must be cleaned before use for general waste;
- at reception facilities, quarantine waste may be stored provided the storage area is secured and the containers are permanently marked and securely covered and bunded to effectively prevent spillage or access by birds or animals;
- the quarantine waste may only be removed to an approved quarantine waste disposal area by a contractor who has been authorised by the Chief Quarantine Officer of that state; and
- records of type and quantity of quarantine waste should be kept as specified by legislation and reflected in the Waste Management Plan.

6.1.3 Non-quarantine Waste

The waste management hierarchy as detailed in Section 4.1 should be adhered to both by the clients and the providers. The provision of suitable receptacles compatible with the waste type and quantity, needs to be considered carefully at each facility. If on operation of the facility, these needs are found to be inadequate or inappropriate, augmentation of the facility will be necessary.

6.2 Documentation

Documentation should where necessary include the following:

- facility waste management procedures;
- records of wastes by time and volume received by facility;
- records of wastes by time and volume treated by facility;
- records of waste removed by contractors and method of treatment and disposal;
- maintenance procedures; and
- cleaning procedures, including frequency and cleaning agents.

A “cradle-to-grave” system of notification allows the tracking of a waste from its collection from the waste producer to its final disposal or reuse. This is more commonly implemented by authorities. A number of Australian states have implemented or are about to implement waste tracking systems. The facility should encourage such systems and interface in wherever possible with appropriate documentation.

With the introduction of shipboard waste management plans and record books it is possible to ensure that wastes on large vessels are being managed appropriately.

6.3 Training

All relevant staff and those using a facility for the first time, should be trained in the purpose and operation of the system and the relevant equipment. Clients also should be informed about the purpose and use of the facilities.

All relevant staff should undergo revision training on the operation of the waste management system and the facility, as part of a formal training schedule. This training should be provided to a wide cross-section of shore terminal and port/boat harbour personnel. Training should include the fundamentals of piping, pumping, tank arrangements, tank cleaning methods and constraints, facility operation, monitoring and emergency response procedures. Personnel using a facility should not only monitor its output performance, but also the proper function of the facility being aware of its operating capacity, so that overloads resulting in incidents causing potential environmental harm, do not occur.

A general environmental awareness of all associated with a facility, should be undertaken by staff and contractors, including being made aware of the penalties for infringement imposed by the facility or regulating authorities.

All contractors coming onto the site need to be made aware of management and safety requirements while on the site.

Assistance should be sought especially in relation to updating knowledge base with new developments from bodies such as United Nations Environment Programme (UNEP), the technical development services of IMO, environment protection authorities, transport departments and associations connected with maritime issues. In particular, information should be sought on waste reception facilities in other ports and countries in the region.

Shore personnel should be made very aware of hazards related to certain types of vessels and cargoes. They can be assisted by reference to the latest edition of “ISGOTT”, the International Safety Guide for Oil Tankers and Terminals, if they work in terminals handling petroleum products.

Information about MARPOL 73/78 and its Annexes is readily available from AMSA for terminal, port, boat harbour and marina operators.

Ships’ agents and Organizations such as boat and fishing clubs, should be made aware not only by information sheets but also by familiarisation visits to reception facilities.

6.4 Operation and Maintenance

A number of procedural matters should be implemented as part of the operation of the reception facilities and these should be an integral part of the management plan.

These are as follows:

- an operations and maintenance manual for the system and the machinery incorporated into the system should be in an accessible location. This may be an integral part of the overall management plan;
- a capable manager should be assigned the responsibility for waste management with adequate and trained staff to implement the waste management plan;
- All personnel involved with the management and operation of the facility should be trained in all aspects of the facility;
- appropriate protective clothing and equipment should be provided for staff handling wastes;
- signs, notices and checklists should be provided at each waste reception facility in appropriate languages and with appropriate international symbols;
- the facility should be maintained in a functional manner so that it operates at the required standard at all times;
- the plant and its operation, including its throughput, should be monitored to ensure that it is maintained and used in a satisfactory manner and the facility is being used in the most efficient manner; and
- a constant review of the facility, its standard of discharges, throughputs and administration should be carried out.

***BOATING INDUSTRY ASSOCIATION
EXTRACTS FROM CODE OF PRACTICE***

“AIMS & OBJECTIVES OF THE CODE OF PRACTICE”

“Clause 1.2.9 - To promote effective and practical management procedures which will mitigate any harmful environmental effects.”

“MEMBERS OBLIGATIONS”

“Clause 2.1.17 - Implement and maintain a Management Plan and Work Practices, to ensure safety, as well as to prevent adverse environmental impacts.”

“Clause 2.1.18 - Conduct business in a manner conducive to protecting the environment in which the member and its customers operate.”

“MARINA OPERATORS’ ADDITIONAL OBLIGATIONS”

“Clause 5.2.1 - Waste control

- Direct marina patrons as to the proper disposal of sewage, galley waste and other liquid materials (fuel, oil, bilge) through the use of signs, printed regulations, by-laws and other means.*
- Encourage patrons to use onshore or mobile pumping stations, holding tanks or “portapotties” to keep sewage out of the water.*
- Implement a “strict” no discharge in Marina” policy and inspection programme.*
- Direct marina patrons to the litter and recycling facilities.*
- Incorporate traps, bunds or other controls to prevent litter, drainage and other pollutants coming from slipways, hardstand areas and car parks, from reaching the waterways. Clean traps and other devices regularly to ensure effectiveness.”*

6.5 Waste Transfer Timing

wastes without causing undue delay to ships and boats. Recommended procedures could include:

- i) detailed communication between shore and ship possibly through ship's agents if the vessel is a commercial, large ship;
- ii) persons in charge of vessels advising the shore of the nature and quantities of substances intended to be discharged;
- iii) persons in charge of vessels advising the shore of the intended activities, for example, cargo handling and berthing arrangements for the vessel, so that the reception facility can plan for reception without causing undue delay to the vessel;
- iv) detailed procedures and checklists should be drawn up for each waste reception facility to receive wastes as early as practicable from the vessel; and
- v) adequate training and delegation of authority to operators to ensure that formalities are kept to a minimum and operations are carried out as simply and efficiently as practicable to avoid undue delay to vessels while still controlling the waste reception in a suitable manner.

6.6 Emergency Response

At any waste reception facility emergency response procedures and equipment should be readily available to all operators and clients for implementation in a prompt manner.

SUMMARY

BEST PRACTICE GUIDELINES OPERATION OF SERVICES

- Management Plan incorporating Waste Management section in place
- Domestic and quarantine wastes to be treated separately
- Operational requirements: Operation & Maintenance Manual; Responsible manager with adequate staff; Appropriate protective clothing; Suitable signage visible
- Documentation in place to record quantity, type, source and destination of waste and incidents
- Adequate training for all operators and users
- Waste transfer from vessels to reception facility at and in optimum time
- Emergency response procedures and equipment in readiness
- Regular review of waste reception operation

7. AVAILABILITY OF RECEPTION FACILITIES

7.1 Commercial Ports

The Australian Maritime Safety Authority (AMSA) has produced a booklet entitled "Waste Reception Facilities in Australian and New Zealand Ports" which summarises the waste reception available at each of the commercial ports in Australia. The booklet also provides contact details for the relevant regulatory authority and where relevant, waste collection contractors. The booklet is updated annually and is obtainable from AMSA. A copy of the booklet is included with this document.

7.2 Small Boat Harbours and Marinas

A comprehensive summary of the waste reception facilities available at marinas and boat

*Best Practice Guidelines for the Provision of Waste Reception Facilities
at Ports, Marinas and Boat harbours in Australia and New Zealand*

report on available facilities in a particular state or region, the reader should contact the state marine or waterways authority. Contact details for all of these Organizations in Australia and New Zealand are provided with this document.

8. REFERENCES

The prime reference is the International Maritime Organization *Comprehensive Manual on Port Reception Facilities*, International Maritime Organization, London, 1995. (Available from Boat Books in capital cities) Other key references include state legislation, regulations and guidelines.

ANZECC (1996) *Working together to reduce impacts from shipping: ANZECC strategy to protect the marine environment*. Volumes 1, 2 and 3. AGPS, Canberra.

ANZECC (1996) *Survey of Waste Reception Facilities in Australian Ports, Boat harbours and Marinas: Main Report and Appendices*, ANZECC Working Group on Waste Management from Shipping and Boating.

ANZECC (1996) *Survey of Waste Reception Facilities in Australian Ports, Boat harbours and Marinas: Summary Report*. ANZECC Working Group on Waste Management from Shipping and Boating.

ANZECC (1996) *The Australian Marine Debris Status Review - Main Report and Appendices*. ANZECC Working Party on Marine Debris.

ANZECC (1996) *The Australian Marine Debris Status Review - Summary Report*. ANZECC Working Party on Marine Debris.

Australian Maritime Safety Authority (1996) *Waste Reception Facilities in Australian and New Zealand Ports* April 1997.

Australian Quarantine and Inspection Service (undated) *Quarantine Waste Management Guidelines*. Australian Quarantine and Inspection Service.

Boating Industry Association of Queensland (undated) *Code of Practice*. Boating Industry Association of Queensland.

International Maritime Organization (1992) *International Convention for the Prevention of Pollution from Ships, 1973 and the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973. MARPOL 73/78 Consolidated Edition, 1991*. International Maritime Organization, London

International Maritime Organization (1995) *Comprehensive Manual on Port Reception Facilities*. International Maritime Organization, London.

New Zealand Fishing Industry, et al (1992) *Code of Practice for Commercial and Non-commercial Users of Fiordland*. New Zealand.

New Zealand Fishing Industry, et al (1993) *Code of Practice for Commercial Fishers in the Hauraki Gulf*. New Zealand.

Marina Association of NSW (undated) *A Model for Marinas, Environmental Guidelines for Marinas, Boat Servicing and Boat Owners*. Boating Industry Association of NSW.

NSW Environment Protection Authority, Draft “*Environmental Guidelines for (Private and Commercial) Marinas and Slipways*”, NSW Environment Protection Authority, 8 September 1995

Recfish Australia (1996) *We fish for the Future - The National Code of Practice for Recreational and Sport Fishing*. Recfish Australia, Dickson, ACT.

White, M W D (1994) *Marine Pollution Laws of the Australasian Region*. The Federation Press

9. ACKNOWLEDGMENTS

The following are acknowledged for support in the preparation of these Guidelines:

Association of Australian Ports and Marine Authorities
Australian Chamber of Shipping
Australian Maritime Safety Authority
Australian Ship Owners Association
Department of Environment, Queensland
Department of Environment and Land Management, Tasmania
Department of Lands, Planning and Environment, Northern Territory
Department of Environmental Protection, Western Australia
Department of Transport, Queensland
Environment Australia, Environment Protection Group (Commonwealth)
Environment Protection Authority, New South Wales
Environment Protection Authority, South Australia
Environment Protection Authority, Victoria
Great Barrier Reef Marine Park Authority
Local Government Association
Marina Association of NSW
Ministry of the Environment, New Zealand
New Zealand Maritime Safety Authority
Royal Australian Navy
The Queensland Port Authorities Association

Consultative Group - Sydney

Andrew Gilbert, Sydney Harbour Recycling Services
Erik Lielkajis, Australian Quarantine and Inspection Service
Glen Mathias, Office of Ports Policy, New South Wales
Hugh Shanks, New South Wales Marine Association
Kevin Davis, Sydney Ports Corporation
Kathy Ridge, Oceanwatch (Commercial Fisherman of NSW)
Kushy Athureliya, Australian Chamber of Shipping
Shane Hobday, Sydney Ports Corporation

Consultative Group - Brisbane

Barry McIntosh, Queensland Sport and Recreational Fishing Council
Ed Boast, Queensland Small Craft Council
Glen Allan, Runaway Bay Marina, Queensland
Helen Akee, Department of Transport, Townsville, Queensland, (Indigenous peoples)
Mark Pattermore, Redland Shire Council, Queensland
Ross Worrall, Port of Brisbane Corporation
Stephen Tapsall, Queensland Commercial Fishermen's Organization
Steve Price, Gold Coast City Council, Queensland
Steven Raaymakers, Queensland Ports Corporation

Consultants

The staff of Normarine Services Pty Ltd, Queensland
The staff of Tonkin Taylor Ltd, New Zealand
The staff of Hyder Consulting Pty Ltd, Australia

10. GLOSSARY

Annex	An Annex to MARPOL 73/78 containing regulations for the prevention of pollution by various sources of pollution. Annex I Oil Annex II Noxious liquid substances carried in bulk Annex III Harmful substances carried in packaged form (this does not need reception services or facilities) Annex IV Sewage (not yet in force internationally) Annex V Garbage
Adequate facilities	The nature of the facility will depend on the type of terminal and the nature of the use of the terminal by visiting ships.
ANZECC	Australian and New Zealand Environment and Conservation Council, made up of the Environment and Conservation Ministers of the Commonwealth of Australia, its States and Territories and New Zealand.
AQIS	Australian Quarantine and Inspection Service
Baseline	the lowest astronomical tide along the coast but it includes straight lines enclosing bays and indentations that are not bays and straight baselines that depart from the coastline
Cargo handling	The loading, discharging and transferring of cargo.
Cargo Record Book	This is a document that is carried and maintained on ships that carry oil and noxious liquid substances in bulk as cargo. The book needs to be completed on a tank-to-tank basis when various operations take place in the ship. These specified operations include disposal of residues to reception facilities ashore.
Crude oil	A naturally occurring petroleum liquid consisting mainly of different types of hydrocarbons and containing varying proportions of other substances; unrefined petroleum.
Draft	The distance between the waterline and the keel of the vessel.
Harmful substances	These includes any substance which, if it introduced into the sea, is likely to create hazards to human health, to harm living resources and marine life and to damage amenities or to interfere with other proper uses of the sea.
Hazardous substances	These are also harmful substances but are more dangerous because of their toxicity, flammability, or other physical and chemical characteristics.
Hold sweepings	The residues of dry cargo to be removed after normal discharge.
IMO	International Maritime Organization.
Manual	“Comprehensive Manual on Port Reception Facilities” published by IMO in 1995
MARPOL 73/78	International Convention for the Prevention of Pollution from Ships 1973 as modified in 1978. This important international agreement regulates operational discharges from ships and also obliges governments which agree to the Convention to ensure that adequate waste reception facilities are provided in ports, boat harbours and marinas and bulk liquid terminals.

Master	The person in charge of a vessel.
MEPC	Marine Environment Protection Committee of IMO
Noxious liquid substances	A “noxious” substance is a substance which if discharged into the sea would present a hazard to either marine resources or human health or cause harm to amenities or other legitimate uses of the sea.
Oily mixtures	A mixture with any oil content. See also “Oily wastes”.
Oily wastes	Oily wastes are either undiluted oil or water from a ship that is contaminated by oil. It can include waste from machinery spaces of ships such as residues from fuel oils and lubricating oils and also oily water in ships’ bilges. Oily wastes can also include contaminated ballast water and water that has been used to wash tanks of tankers. Oily wastes can also contain detergents and other chemical additives.
Petroleum	Crude oil and liquid hydrocarbon products derived from it such as the various types of fuel and diesel oils.
Reception facilities	Fundamentally a reception facility is any system or even any container that can receive ship-generated residues and mixtures containing oil, noxious liquids, sewage and garbage.
Residue	Any substance, for example a noxious liquid substance, that remains on board the ship after discharge and/or washing and is to be disposed.
Ship	This means a vessel of any type whatsoever operating in the marine environment.
Ship’s Agent	A person or business usually appointed by a ship owner or person in charge of a ship to act on behalf of the ship in various matters in a port.
Slop tank	A tank on a ship used to store oily waste for later environmentally acceptable disposal.
Slops	Residual oil which has been transferred to a collecting tank (a “slop tank” on a ship). This is usually mixed with other recovered oils and/or water.
Sludge	Residues from various oils and chemical cargoes after discharge and sewage treatment systems.
Tanker	A ship designed to carry liquids in bulk, whether these liquids are petroleum cargo, chemicals, agricultural oils or other liquids.
Terminal	A place in a port where ships are berthed or moored for the purpose of handling cargo or for other purposes such as bunkering or repairs.
Undue delay	Undue delay occurs when a ship is unable to proceed because of formalities or unavailability of reception facilities where the ship is berthed.
Waste Management	This is a systematic approach of receiving and treatment of ship-generated wastes.