

ALBANY PORT AUTHORITY



Environmental Management Plan



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1. Introduction

1.1 Background

The Port of Albany or Albany Port was established in 1826, and was the first port established in Western Australia. The Port is located adjacent to the City of Albany on the northern shore of Princess Royal Harbour.

The Albany Port Authority (APA) is a Western Australian State Government agency that operates the Port of Albany (the Port). The APA was established under, and operates in accordance with the *Port Authorities Act 1999*. Under the Port Authorities Act all Crown land in the port, including the seabed and shores is vested in the Port Authority. The main functions of the Port Authority, as defined by Section 30 of the Act, include:

- To facilitate trade within and through the port and plan for future growth and development of the port;
- To undertake or arrange for activities that will encourage and facilitate the development of trade and commerce;
- To be responsible for the safe and efficient operation of the port;
- To protect the environment of the port and minimise the impact of port activities on that environment.

The Port Authority's key vision is: *"To establish the Port of Albany as a world class port recognised for safe cargo handling and service facilities while securing the future for regional industry and future generations."*

Major commodities handled through the Port include bulk grain, woodchips, silica sand, fertiliser products and petroleum products. Aside from the operational shipping aspects undertaken at the Port, a number of supporting activities are also conducted including maintenance activities such as dredging, abrasive blasting and painting, road and drainage works, materials handling, oil and chemical storage and general office work.

1.2 Purpose and Scope

The Albany Port Authority is committed to operating in an environmentally responsible manner and is accountable for the effective management of the Port's environment. The potential exists for some environmental impact to occur if proper environmental management is not adopted on site. This plan will facilitate in identifying environmental issues, recognising potential risks associated with port-related activities and detailing the management and mitigation measures to minimise the risk of environmental harm.

One of the key tenants of the ISO14001 standard is operational control. Therefore, the APA's EMP applies to all port operations and activities, including those of its contractors but does not apply to the activities of lease holders or their contractors. However, while the requirements of the EMP do not prevail on port tenants, efforts are made to promote awareness of the plan and align interests of all parties wherever possible. There are other instruments the port employs to



encourage appropriate environmental management of areas not within its operational control (through lease and license conditions).

1.3 Objectives

The Albany Port Authority Environmental Management Plan will outline the environmental management objectives of all activities undertaken by the Port that have a significant environmental risk. The EMP forms an integral component of the APA Environmental Management System, which is based on the requirements of the ISO 14001 series.

The objectives of the EMP are to:

- Improve the environmental performance of the APA;
- Manage the environmental impacts of the operation and mitigate potential impacts resulting from port-related activities;
- Ensure all activities are undertaken in accordance with applicable environmental legislation and regulations;
- Integrate environmental considerations into decision making processes.

To achieve these objectives, a cooperative approach between Port tenants and the Albany Port Authority is essential. In addition, the Port must ensure that environmental consideration is integrated into all aspects of decision making, planning, design, construction and operation processes.

2. The Environment of the Albany Port

2.1 Location

The Port is located on the northern shore of Princess Royal Harbour within King George Sound and is adjacent to the City of Albany, 417 km south east of Perth. The Port has jurisdiction over approximately 90 hectares of land, including a mixture of crown and freehold land that is managed by the Albany Port Authority. The APA also has jurisdiction over all of the waters and sea bed of Princess Royal Harbour (excluding the area around the Town Jetty) and the majority of King George Sound. The APA's boundary in King George Sound is an imaginary line which runs from Limestone Head to Breaksea Lighthouse and through to Herald Point. Combined with Princess Royal Harbour, this equates to a total area of approximately 12 000 ha. The Albany Port currently has four operating berths (Berth 1, 2, 3 and 6), with a fifth available for immediate development.

2.2 The Biophysical Environment

The Albany Port is located near the entrance of Princess Royal Harbour. Princess Royal Harbour is a 28.7km² marine inlet, accessible by a narrow channel and predominantly made up of a single deep basin surrounded by shallow sand flats (Water and Rivers Commission, 1999). No major



rivers flow into Princess Royal Harbour and despite marine influences; Princess Royal Harbour displays characteristics typical of an estuarine ecosystem.

King George Sound covers an area of 110 km² and forms a large bay protected by Flinders Peninsula and Bald Head from the prevailing south-westerly swells (Water and Rivers Commission, 1999). The sound contains four islands, including the prominent Michaelmas and Breaksea Islands as well as the smaller Mistaken and Seal Islands. Water depths in the sound vary between 5-40 metres and temperatures fluctuate between 21°C in summer and 13°C in winter. The marine flora and fauna of the area are primarily temperate species, with a small proportion of endemics and tropical species (Wells *et al.*, 1990). The diverse array of marine flora and fauna is a result of habitat diversity within the marine environment.

The Albany Port basin and entrance channel is currently dredged to a depth of 12.2m Lowest Astronomical Tide (LAT). Water depth within Princess Royal Harbour becomes progressively shallower in the southern and western areas of the Harbour due to the presence of a wide sandy inter-tidal shelf of less than two metres depth. The sediment within the existing shipping channel consists of unconsolidated material of approximately 8-10 m depth into the seabed with a particle size composition of medium to coarse silica sand and some fine silt (SKM, 2007). The material from the Harbour has been described as a dark grey, fine to medium grained sand with minimal organic material (JFA Consultants, 2005).

2.3 Visual Amenity and Recreation

The landscape of the immediate port area is dominated by stockpiles, storage facilities and other associated infrastructure. In addition, the Albany Port has a number of vacant lots adjacent to the water which are to be used for future trade development.

The waters surrounding the Albany Port are popular recreational areas for tourists and residents of Albany, especially for recreational fishing. The majority of Princess Royal Harbour is assessable for private boats, with the only restrictions being the immediate zone adjacent to the berths.

Neighbouring the Port is the Town Jetty and Marina, Albany's major boat-launching and marine tourism area. Fishing, boating, sailing, diving, swimming and whale watching are some of the many recreational activities carried out in waters vested in the Albany Port Authority.



3. Environmental Policy



ALBANY PORT AUTHORITY ENVIRONMENTAL POLICY STATEMENT

As a member of the global community, the Albany Port Authority (APA) embraces its corporate responsibility to efficient and effective Port activities conducted in an environmentally responsible manner. The APA will manage the significant environmental risks of our activities, products and services and will, as a minimum, comply with all environmental legislation, regulations and codes of practice relevant to the Port industry. Where possible, we will exceed our minimum expectations and work with the community to achieve environmental benefits in the region where we operate.

This environmental policy, consistent with international standards, is appropriate to the nature, scale and environmental impacts of the Albany Port Authority and will provide the foundation for setting and reviewing our environmental objectives and targets. An Environmental Management System (EMS) will ensure this policy is documented, implemented, maintained and communicated to all persons working for or on behalf of the APA and the public. Importantly, the APA is also committed to continuously improving all aspects of our operations and overall environmental performance into the future. More specifically, the APA is committed to:

- Avoiding the pollution of waterways by strict compliance with government regulations and undertaking Port operations in a way that does not adversely affect water quality
- Minimising potential environmental impacts related to dust, noise, waste, land and water pollution or contamination, exotic species and loss of native habitat.
- Monitoring operations to provide the benchmark for setting environmental objectives and measurable targets, evaluate compliance with legal and other requirements and measure progress against environmental objectives
- Continual improvement in environmental performance through periodic management reviews and internal audits to detect necessary preventative or corrective actions
- Consistent communication within the organisation, including informing personnel of the environmental requirements associated with their roles, and informing relevant personnel of changes to Port activities, services, legal and other requirements which will affect the Port operations
- Communicating environmental performance openly with employees, regulators and external stakeholders
- Educating all APA personnel and contractors of their environmental obligations through inductions and consultation.

Brad Williamson
Chief Executive Officer
Albany Port Authority



4. Legislative Framework

The Albany Port Authority has identified State, Commonwealth and International legislation that is applicable to the environmental management of the Albany Port's activities and services.

4.1 State Legislation

Key State legislation applicable to the Port includes the:

- *Port Authorities Act 1999*
- *Environmental Protection Act 1986*
- *Environmental Protection Regulations 1987*
- *Environmental Protection (Abrasive Blasting) Regulations 1998*
- *Environmental Protection (Unauthorised Discharges) Regulations 2004*
- *Environmental Protection (Diesel and Petrol) Regulations 1999*
- *Environmental Protection (Noise) Regulations 1997*
- *Environmental Protection (Controlled Waste) Regulations 2004*
- *Contaminated Sites Act 2003*
- *Conservation and Land Management Act 1984*
- *Waterways Conservation Act 1999*
- *Western Australian Marine (Sea Dumping) Act 1981*
- *Pollution of Waters by Oil and Noxious Substances Act 1987*
- *Wildlife Conservation Act 1976*

4.2 Commonwealth Legislation

Key Commonwealth legislation applicable to the Port includes the:

- *Environmental Protection and Biodiversity Conservation Act 1999*
- *Environmental Protection (Sea Dumping) Act 1981*
- *Quarantine Act 1908*
- *Australian Ballast Water Management Requirements (AQIS) 2001*
- *Protection of the Sea (Prevention of Pollution from Ships) Act 1983*

4.3 International Conventions and Law

International conventions and laws applicable to the Port include the:

- *International Convention for the Control and Management of Ships' Ballast Water and Sediments 2004*
- *International Convention for the Prevention of Pollution from Ships 1973 (MARPOL 73/78)*
- *China – Australia Migratory Bird Agreement (CAMBA)*
- *Japan-Australia Migratory Bird Agreement (JAMBA)*
- *Bonn Convention – Conservation of Migratory Species*
- *Basel Convention - Control of Transboundary Movements of Hazardous Wastes and Their Disposal*



5. Environmental Risk Assessment

Environmental risks are potential or actual aspects that have the ability to result in environmental disturbances and possibly negative impacts. The overall risk level is an outcome of the likelihood of occurrence, severity of potential consequences and the estimated level of risk.

The Albany Port Authority is committed to identifying and assessing the risks associated with its activities and services that may have an impact on the environment. The Port undertook a risk workshop in December 2012 and has since identified the key environmental risks associated with its activities and services. The purpose of the assessment was to identify key environmental issues and to ensure that appropriate management strategies are in place.

The risk assessment (Appendix 1) has been an important tool in the development of the management strategies contained in this EMP.

5.1 Significant Environmental Risks

The following table lists activities identified as having a potential to significantly impact on the environment as well as their associated environmental risk. To assist in the management of the port environment, each of the environmental risks is aligned with an environmental management area.

Table 1: Significant Environmental Risks associated with Port-related activities.

Port-Related Activity	Environmental Risk	Environmental Management Area (see Section 6)
Ship Loading/Unloading	Dust emissions from loading/unloading	Emissions
	Spillage of product to marine environment	Water Quality
	Introduction of marine pests	Coastal Habitat
	Oil or chemical spill	Water Quality
	Incorrect disposal of ship waste	Energy, Resource & Waste
Landside Operations and Maintenance	Dust emissions from stockpiles/traffic etc.	Emissions
	Contaminated stormwater discharge	Water Quality
	Spillage of stored oil and chemical items	Soil and Groundwater
	Incorrect disposal of waste materials	Energy, Resource & Waste
Construction and Development	Dust emissions from traffic/construction	Emissions
	Destruction/alteration of bush due to site clearing	Coastal Habitat
	Excessive noise from construction activities	Emissions
	Emissions/spills due to poor product compatibility/storage (inadequate infrastructure).	Emissions/Water quality
Dredging	Destruction of benthic habitat	Coastal Habitat
	Turbidity from dredging	Water Quality
	Sea and land disposal of dredge material	Water Quality
Demobilisation of historic trade/port infrastructure	Asbestos contamination	Soil and Groundwater
	Soil and groundwater contamination	Soil and Groundwater
	Leakage of hydrocarbons from old/unknown tanks	Soil and Groundwater
	Pollution from unidentified source	Energy, Resource & Waste



6. Management of Significant Environmental Risks

The Albany Port Authority is committed to operating in an environmentally responsible manner to minimise the actual and potential impacts on the environment that may be caused by its activities and services.

The EMP has been structured to ensure comprehensive management of the significant environmental risks associated with the Albany Port. The environmental risks have been grouped into 5 environmental management areas. These include:

1. Emissions Management
2. Soil and Groundwater Management
3. Water Quality Management
4. Coastal Habitat Management
5. Energy, Resource and Waste Management

To provide the best environmental management outcome, each environmental management area has been structured as follows:

- Introduction;
- Environmental Objective;
- Significant Environmental Risks;
- Environmental Targets;
- Key Performance Indicators;
- Monitoring;
- Reporting; and
- Mitigation measures.

Organisational responsibilities and timing will be identified and assigned for each of the above criteria. The following organisational positions have been recognised as having a key role in the implementation of the EMP. However, all employees and port users will be made aware of the EMP and the importance of achieving compliance and aligning interests with the Albany Port Authority's Environmental Policy and Environmental Management Plan.

CEO	Chief Executive Officer
BDM	Business Development Manager
EM/EO	Environment Manager/Environment Officer
FAM	Finance and Administration Manager
WM	Wharf Manager
SSO	Safety and Security Officer
HM	Harbour Master
DHM	Deputy Harbour Master
PE	Port Engineer



6.1 Emissions Management

6.1.1 Introduction

The main emissions from the Albany Port include dust, noise and light.

The Albany Port is a bulk commodity port, handling products such as grain, woodchips, silica sand and fertiliser. These materials have the potential to generate elevated levels of dust which may cause both nuisance and potential health-related impacts.

Past noise modelling has indicated that Port noise is substantially buffered, largely due to the low topography of the Port site and shielding from the CBH grain storage facilities.

Sources of emissions from the Albany Port include:

- Dust from product storage areas, including material stockpiles;
- Dust from ship loading and conveyor systems;
- Dust from roads and trafficable areas;
- Dust from construction and maintenance activities (i.e abrasive blasting);
- Noise from heavy machinery and construction activities;
- Noise from road and rail traffic;
- Light from night time port operations;
- Vehicle and vessel emissions (including NO_x and SO_x)

6.1.2 Environmental Objective

The Albany Port aims to minimise emissions resulting from port operations and port-related activities. The Port will ensure that all emissions from activities undertaken at the Albany Port are within legislative guidelines and standards both independently and through cooperation with other port users.

6.1.3 Significant Environmental Risks

Emissions from product loading/unloading

As the Albany Port is dominated by bulk commodity products, the highest likelihood of elevated dust, noise and light is associated with product storage, loading and unloading activities. Dust from conveyers, ship loading equipment and material stockpiles can cause environmental impacts if not appropriately managed.

Emissions from maintenance activities

In addition to emissions from product storage, loading and unloading, emissions from general day-to-day port operations can also become a significant issue if not managed correctly.



Activities such as abrasive blasting and painting, truck movements and plant and machinery have the potential to become major point sources of emissions, particularly dust and noise.

6.1.4 Environmental Targets

Ref.	Target	Responsibility	Timing
EM1	Continue dust monitoring to ensure dust levels comply with <i>National Environment Protection Measure for Ambient Air Quality</i> standards.	EM/EO	Ongoing
EM2	Continue liaison with port users and relevant stakeholders around dust management	EM/EO	Ongoing
EM3	Implement noise and dust monitoring programs for construction activities as required.	BDM/EM/EO	Ongoing
EM4	Treat unsealed trafficable areas with dust treatments where required.	BDM/EM/EO	Ongoing
EM5	Audit noise emissions from port-related operations or from high risk port-users as required.	EM/EO	Every 3 years as required

6.1.5 Key Performance Indicators

- Daily average of PM10 emissions remains less than 50 ug/m³ with no more than 5 exceedances per year.
- No written complaints received from neighbouring community relating to noise and dust emissions from APA operations.
- No change in APA employee health levels as a result of dust and noise exposure in the workplace.

6.1.6 Monitoring

Dust levels will be continually monitored by permanent dust monitoring equipment and records collected via the Envista Air Resources Manager computer system on a fortnightly basis. Additional campaign dust monitoring will be carried out using the portable DustTrak aerosol monitor if and when required.

6.1.7 Reporting

All incidents relating to dust, noise and light emissions to be recorded on the APA Environmental Incident Records interactive spread sheet.

All monitoring data is to be stored electronically. Any dust exceedances will require a written report that summarises the monitoring results and potential causes of the exceedance.

Relevant documents: *DustTrak Standard Operating Procedure; Thermo FH62 Beta Attenuation Dust Monitor (BAM) Standard Operating Procedure; APA Abrasive Blasting Checklist; APA Operational Requirements for Fertiliser Discharge*



6.1.8 Mitigation Measures

- Avoid particularly dusty activities during unfavourable climatic conditions.
- Minimise the exposure of bare earth and soil during site works and on all vacant sites.
- Ensure effective dust management of material stockpiles and material loading facilities including conveyors and ship loaders.
- Ensure all port users have completed the *Abrasive Blasting Checklist* if abrasive blasting activities are planned to be undertaken within port areas.
- Ensure all lease holders and port users operate under Operational Environmental Management Plans.
- Maintain roads and wharf areas at all times through regular cleaning/sweeping.
- Plan to undertake noisy activities outside of noise sensitive periods where practicable.
- Eliminate any unnecessary sounding of horns or other noise emitting equipment.

6.2 Soil and Groundwater Management

6.2.1 Introduction

Groundwater levels are high in the vicinity of the foreshore with the majority of the Port built on reclaimed land. Groundwater investigations at the former Borthwicks Site (Lot 898) have indicated that PAH (polyaromatic hydrocarbons) contaminants associated with independent fuel depots may be present in the groundwater of the Port.

Many of the activities undertaken at the Port have the potential to impact on soil and groundwater. These activities range from fuel storage and cargo storage to construction. It is important to maintain relatively clean soil and groundwater as to not restrict current and future land use requirements.

6.2.2 Environmental Objective

The Albany Port will manage the potential contamination of soil and groundwater by maintaining the quality of land within its jurisdiction. The Port will also manage and attempt to improve any soil and groundwater that is determined to be contaminated and requiring remediation in accordance with the *Contaminated Sites Act 2003*.

6.2.3 Significant Environmental Risks

Hydrocarbon Contamination

A number of lessees and port users store and handle bulk hydrocarbons and chemicals. If not managed correctly, contamination of soil and groundwater can occur through the improper



storage of fuel drums and containers. Smaller levels of contamination can also occur through oil and hydrocarbon spills.

Stormwater Contamination

The Albany Port receives a large portion of runoff from surrounding industrial and residential areas. There are multiple stormwater lines which appear outside of the Port’s boundaries and converge to two major outfalls into Princess Royal Harbour. As the Port receives stormwater from a number of sources, there is potential for contaminants to unknowingly enter the stormwater system and impact on the marine environment.

Asbestos Contamination

Whilst the use of asbestos in new buildings has ceased, the presence of asbestos containing materials (ACMs) in older buildings remains in some areas. Although the majority of asbestos in the Port environment is in a stable condition, a number of vacant sites may contain soils affected by ACMs. Maintenance and construction activities have the potential to disturb ACMs which could result in minor contamination or health risks.

6.2.4 Environmental Targets

Ref.	Target	Responsibility	Timing
SG1	Liaise with lessees and port users on groundwater and soil management requirements, particularly new applicants for trade of new products.	EM/EO/BDM	Ongoing
SG2	Ensure all lessees undertake all investigations as required by the <i>Contaminated Sites Act 2003</i>	EM/EO/FAM	Ongoing
SG3	Maintain contaminated sites database for all land vested in the Port Authority	EM/EO	Ongoing
SG4	Undertake investigation of Lot 898 (former Borthwick’s site) as required by the Department of Environment and Conservation	EM/EO	May 2012- Dec 2013
SG5	Remove and remediate all asbestos containing buildings/infrastructure and asbestos-contaminated soil that has been identified as posing a significant risk.	EM/EO/BDM	Ongoing
SG6	Maintain the Asbestos Register for the Port, identifying all ACM in the workplace	SSO	Ongoing

6.2.5 Key Performance Indicators

- No significant environmental incidents relating to contamination of soil and groundwater with mitigation measures to be used if deemed to be significant.
- All contaminated sites listed and classified under the *Contaminated Sites Act 2003* and maintained on a *Port Contaminated Sites Register*.
- All sites listed under the CS Act as ‘potentially contaminated-investigation required’ have completed baseline surveys.



- All sites listed under the CS Act as 'contaminated –remediation required' are remediated within regulatory agency appropriate timeframes.
- Groundwater monitoring implemented for Port areas with high risk of contamination as required by the Department of Environment and Conservation Contaminated Sites Branch.
- All new products and trades reviewed and assessed prior to being handled through the Port.

6.2.6 Monitoring

Periodic monitoring/sampling of groundwater from permanent Lot 898 bores as required.

Soil and groundwater monitoring as required by regulatory agencies and/or permits.

6.2.7 Reporting

All contaminated sites will be recorded under the *Contaminated Sites Act 2003* with all potentially contaminated sites listed on the *Port Contaminated Sites Register*.

Related documents: *Port of Albany Emergency Response Plan August 2012; Port of Albany Oil Spill Contingency Plan July 2012; Sampling and Analysis Plan Lot 898 Brunswick Road Port Albany August 2012; Albany Port Authority Asbestos Management Plan April 2011.*

6.2.8 Mitigation Measures

- Ensure all new storage facilities for hydrocarbons and hazardous liquids comply with Australian Standards and Licensing requirements.
- Ensure all asbestos containing materials are identified and labelled accordingly with the high risk materials removed and/or isolated.
- Ensure effective control and management of contaminated sites through lease documentation and operational EMPs.

6.3 Water Quality Management

6.3.1 Introduction

Historically, industrial and domestic discharges into Princess Royal Harbour have led to the deterioration of its water quality (Ecologia, 2007). During the 1970s and 1980s, continual pollution of industrial waste resulted in a severe decline in seagrass meadows and contamination of marine biota in the Harbour. However, since this time, the water quality in Princess Royal Harbour has significantly improved and in general, is well flushed (EPA, 2008).



Water quality within King George Sound and Princess Royal Harbour responds to oceanographic influences, port operations and anthropogenic inputs. Nutrient inputs into the waters are a result of groundwater discharge and catchment runoff through stormwater drains (EPA, 2008).

The potential sources of water pollution within the Port include wastewater releases, product and oil spills, runoff from material stockpiles and unauthorised discharges into the harbour. In addition, maintenance and capital dredging activities have the potential to impact on water and sediment quality.

6.3.2 Environmental Objective

The Albany Port will not significantly impact the water and sediment quality of both, Princess Royal Harbour and King George Sound by effectively managing port activities and any potential impacts on the marine environment. However, it is acknowledged that dredging both, capital and maintenance may cause short-term excursions with this objective.

6.3.3 Significant Environmental Risks

Shipping & Product unloading

Shipping and the handling of bulk materials such as fuel and fertiliser poses a number of risks to the marine environment. Of specific concern at Albany Port is the risk of pollution resulting from the unloading of petroleum products, particularly diesel. Tankers discharge diesel to a fuel line that connects to the Caltex fuel storage facility on Brunswick Road. If not managed correctly, there is a potential for diesel to spill into marine waters during discharge operations.

Berth cleaning

During the loading and unloading of vessels, material may be spilt from the ship loading system onto the ship's deck or, berth. Cleaning of the berths is periodically required to ensure the working environment is maintained in a user-friendly and clean condition. High pressure hoses are used to clean the berths before the arrival of cruise ships and after the loading/unloading of bulk products such as fertiliser. This activity has the potential to discharge process water into the receiving marine environment.

Dredging

Dredging and the disposal of dredge material at sea or, on land are port-related activities that have a high potential to significantly impact the marine environment if poorly managed. Depending on the nature, extent and location of the dredging methodology, the activities will require an approval from the WA(write in full) Environmental Protection Authority, Department of Environment and Conservation, Department of Water and the Commonwealth Department of Sustainability, Environment, Water, Population and Communities to minimise any associated environmental impacts.



6.3.4 Environmental Targets

Ref.	Target	Responsibility	Timing
WQ1	Continue marine water quality monitoring of Princess Royal Harbour in conjunction with the Department of Water and the Department of Transport.	EM/EO	Ongoing
WQ2	Where appropriate, meet the standards of the ANZECC/ARMCANZ Guidelines for Water and Sediment Quality (2000)	EM/EO	Ongoing
WQ3	Continue to prevent runoff or leachate from stockpile or storage areas from entering the stormwater drains within the Port area.	PE/BDM/EO	Ongoing
WQ4	Undertake annual review of the Oil Spill Contingency Plan and Emergency Response Plan	HM/DHM	Annual
WQ5	Obtain environmental approval for dredge and dredging operations.	EM/EO	Ongoing
WQ6	Maintain oil spill response equipment and capabilities through management and training.	HM/DHM/WM	Ongoing
WQ7	Continue to map stormwater assets and progress toward the introduction of hydrocarbon 'smart pads'	PE/EM/EO	Dec 2014
WQ8	Continue development of Marine Management Plan for port waters (King George Sound and Princess Royal Harbour)	EM/EO	Dec 2015

6.3.5 Key Performance Indicators

- No port attributable significant fauna or flora incidents as a result of oil spills or reduced water quality.
- Maintain clean sediments suitable for ocean disposal.
- No exceedances of high trigger values for metal and nutrient concentrations in water and sediment.
- Minimal port-related incidents relating to marine pollution via stormwater/runoff/leachate.
- Compliance with all legislative and Ministerial requirements.

6.3.6 Monitoring

Quarterly water quality monitoring program for Princess Royal Harbour as per the Department of Water's protocol.

Additional monitoring of water quality or sediment quality parameters as required by regulatory agencies or in the event of a significant spill or contamination-related incident.



6.3.7 Reporting

Significant oil spills will be reported by the Harbour Master or Deputy Harbour Master to the Department of Transport and the Australian Maritime Safety Authority (AMSA).

Data on the water quality of Princess Royal Harbour will be compiled and provided to regulatory agencies on request.

Related documents: *Port of Albany Emergency Response Plan August 2012; Port of Albany Oil Spill Contingency Plan July 2012; APA Operational Requirements for Fertiliser Discharge*

6.3.8 Mitigation Measures

- Minimise spillage of product into harbour through the use of spill plates and other appropriate measures.
- Regularly review and update the Oil Spill Contingency and Emergency Response plans.
- Train staff in effective oil spill response and undertake oil spill scenarios to generate preparedness.
- Regularly maintain spill response equipment.
- Ensure all necessary permits are obtained for dredging and dredge spoil disposal with all conditions met.
- Liaise with lessees and other port users on oil spill response protocol and water quality management.
- Ensure all port tenants using the wharf facilities have operational EMPs.
- Regularly review and update the APA Operational Requirements for Fertiliser Discharge.
- Engage with and assist regulatory agencies such as the Department of Water in relation to water and sediment quality monitoring within Port waters.

6.4 Coastal Habitat Management

6.4.1 Introduction

The Albany Port Authority is responsible for managing both its terrestrial and marine environment, including the flora and fauna of the Port area. There is a wide range of habitats in Princess Royal Harbour and King George Sound, resulting in a diversity of biota.

The Port's marine environment covers an extensive area and comprises the majority of Princess Royal Harbour and King George Sound. The marine habitat of the Port area is dominated by native seagrass meadows (*P.sinuosa*, *P.australis* and *P.amphibolis*) and two major reef systems (Gio Batta Patch and Micahelmas Reef) which support an array of invertebrates and fish species. As well as supporting fish and invertebrate marine life, the Port waters are also home to a variety of species such as humpback whales, southern right whales, bottle-nose dolphins, seals, little penguins and other coastal avifauna.



The Port's terrestrial environment is highly fragmented and heavily infested with non-native weed species such as Sydney Golden Wattle, Taylorina, Gorse and Pampas Grass. However, small pockets of native vegetation do occur in the northern section of the Port, providing refuge for small populations of native mammals, marsupials and birds. The Port's terrestrial environment also supports feral pigeons and rats which are attracted to the grain transported to and handled through the CBH facility.

Port activities have the potential to impact on the coastal habitat through incidental introduction of marine pests and disturbances of natural habitats.

6.4.2 Environmental Objective

The Albany Port Authority and Port users will minimise the impact of port-related activities on coastal habitat values. It will manage exotic and pest species where practicable and appropriate, such that port activities are conducted in a manner that minimises impact to native flora and fauna.

6.4.3 Significant Environmental Risks

Feral Animals – Pigeons

The infrastructure at the port provides an ideal habitat for the feral pigeon population in Albany. A regular feed source in the form of grain storage also contributes to the population. The pigeons present both quality assurance, health and hygiene issues for the port and its leaseholders. The Albany Port Authority along with CBH have committed to a co-operative approach to managing the pigeon population based on the advice of the Department of Agriculture and Food.

Introduced Marine Pests

Introduced Marine Species (IMs) are animals and plants that are not native to Australia (or particular habitats within Australia) but have been transferred to local waters. These species have the potential to establish within the marine environment and have the potential to pose a significant risk to environmental values such as biodiversity and ecosystem health.

At present, there are approximately 30 introduced marine species known to exist in the Albany region. These figures are based on results from two studies undertaken by McDonald *et al.* 2009 and Huisman *et al.* 2008. Of particular interest is the marine alga *Codium fragile ssp.* (Dead man's fingers) which has recently been confirmed to exist in the tug marina of the Albany Port. Attempts at eradication of this pest have been made under the guidance of the Department of Fisheries and they proved to be impractical. A monitoring program is in place to track the colony, but to this point in time there appears to be no significant increase in the population or any nuisance impacts.



6.4.4 Environmental Targets

Ref.	Target	Responsibility	Timing
CH1	Where practical, assist DAFF and DoF to monitor existing marine pests (particularly <i>Codium fragile ssp.</i>) and prevent further marine pest incursions at the Port.	EM/EO	Ongoing
CH2	Undertake ongoing feral animal control with CBH, especially in relation to pigeons and rodents.	WM/SSO/EO	Ongoing
CH3	Continue to enforce a 10 knot speed restriction on all ships within port limits during whale migration season (July-November)	DHM/HM	Ongoing
CH4	Maintain fish populations within the wharf by banning fishing from vessels at berth.	DHM/HM/WM	Ongoing
CH5	Undertake ongoing management and monitoring of weeds on Port land through the Denmark Weed Action Group's Weed Management Strategy	WM/EO	Ongoing
CH6	Contribute to the development of the Albany Harbours Planning Strategy led by the Department of Water	EM/EO	Ongoing
CH7	Participate in marine pest research projects conducted by local Universities and the Department of Fisheries	EM/EO	Ongoing
CH8	Protect current pockets of remnant vegetation that are adjacent to the Mt Clarence A Class Reserve (particularly Lots 5 and 10)	EM/EO	Ongoing
CH9	Monitor transplanted hectare of seagrass for shoot density and % coverage as required by Ministerial 846.	EM/EO	Annually 2013-2017

6.4.5 Key Performance Indicators

- No significant fauna deaths or incidents as a result of port-related activities.
- No vessel strikes with marine mammals eg. Whales/dolphins.
- Feral animal abundance remains stable or is lowered.
- Population of weeds of national significance remains stable or is lowered.
- Marine pest abundance remains stable or is lowered with no new introductions of previously unknown species.
- 75% coverage of transplanted seagrass in Princess Royal Harbour by the year 2023.
- Compliance with all legislative and regulatory requirements.

6.4.6 Monitoring

Periodic marine pest monitoring of *Codium fragile* by counting, locating/marketing and photographing.



Monitoring of the presence, distribution and abundance of weeds as per the strategy undertaken by the Denmark Weed Action Group.

Annual monitoring of transplanted seagrass as required by Condition 6 of Ministerial Statement 846.

6.4.7 Reporting

The Port's Environment Officer will report any significant increases or changes in the marine pest *Codium fragile* population to the Department of Fisheries Marine Biosecurity Unit.

Reports on seagrass will be provided to the regulatory agencies as required by permit conditions.

All significant incidents relating to fauna will be recorded on the interactive APA Environmental Incident Recording spread sheet.

Relevant documents: *Albany Port Authority Weed Management Strategy 2001; Albany Harbours Planning Strategy; Albany Port Expansion Project Seagrass Rehabilitation and Monitoring Management Plan 2011.*

6.4.8 Mitigation Measures

- Increase awareness of marine pests through identification dive-slates and communication with other port users.
- Assess all potential new commodities for the Port according to the risk they pose on the environment/health/safety/economic development of the Port.
- Encourage community and research projects related to the coastal habitat of the Port, including weeds, feral animals, seagrass, marine pests and native flora and fauna.
- Support measures undertaken by lessees such as CBH to control pigeon and rodent numbers.

6.5 Energy, Resource and Waste Management

6.5.1 Introduction

Energy and resource use has the potential to impact local and regional environments. Energy usage at the Port includes the consumption of fossil fuels and the use of electricity. The major resource utilised at the Port is potable water, which is heavily used by ships and for equipment, vehicle and berth cleaning.

In addition to using energy and resources, Port activities generate a variety of different waste types including scrap metal, hazardous waste such as batteries and liquid waste such as paint. To minimise the impacts on the environment, waste will be managed appropriately.



6.5.2 Environmental Objective

The Albany Port will endeavour to use energy, water and other resources as efficiently and effectively as possible.

In addition, the Albany Port will minimise the amount of waste generated using the principal of reduce, reuse and recycle .

6.5.3 Significant Environmental Risks

Solid Inert Waste

A variety of solid inert wastes are produced from various activities at the Port, including general office waste. This waste is sorted into general waste and recycling before being routinely disposed of through the City of Albany's Cleanaway Waste Service.

Liquid Waste

Liquid wastes produced at the Albany Port can include waste oils, paints, thinners and other various chemicals. Currently liquid wastes can be disposed of adequately at the Hanrahan Road Landfill facility however it is important that all liquid wastes are stored, handled and transferred safely and appropriately.

6.5.4 Environmental Targets

Ref.	Target	Responsibility	Timing
ERW1	Continue to monitor annual energy and water use at the Port.	FAM/EO	Ongoing
ERW2	Identify necessary areas for clean-up activities and undertake regular cleaning.	WM/EO	Ongoing
ERW3	Provide appropriate waste storage facilities to Port users within the Maritime Security Zone.	WM	Ongoing
ERW4	Continue to undertake recycling of paper, plastic and metals in the office and at the wharf.	EM/EO/WM	Ongoing
ERW5	Investigate the potential to harvest rainwater and replace scheme water in certain areas, including equipment, vehicle and berth washdown.	EM/EO	2015

6.5.5 Key Performance Indicators

- No environmental incidents relating to energy consumption, resource use or waste management.
- No written complaints regarding energy consumption, resource use or waste management.



- No aesthetic impacts to the port as a result of waste generation.
- Minimal damage to the Port environment as a result of waste generation and storage.

6.5.6 Monitoring

The Albany Port will monitor its waste management facilities to ensure they are functioning effectively.

The Albany Port will track the number of environmental incidents or written complaints relating to energy consumption, resource use or waste management.

6.5.7 Reporting

Any significant environmental incident relating to energy, resource or waste management will be recorded on the interactive APA Environmental Incident Recording spread sheet.

6.5.8 Mitigation Measures

- Ensure the port is maintained in a clean and tidy state.
- Review and remain up-to-date on various techniques for energy and resource savings.
- Ensure all waste is stored in appropriate containers and clearly marked if containing hazardous substances.
- Ensure waste is removed from site frequently to prevent a build-up over time.
- Locate waste receptors away from environmentally sensitive areas to prevent waste entering the marine environment.

7. Environmental Performance Evaluation Program

In accordance with Environmental Management System requirements, the Albany Port Authority monitors, measures and reports on the various facets of its overall environmental performance. With the intent to continually progress the system, recognition of deficiencies will be noted and opportunities taken to improve environmental management.

The Albany Port's Environmental Management Plan shall be reviewed annually and updated bi-ennially or as deemed appropriate by the Environmental Manager, Chief Executive Officer and Board of Directors.

Any relevant observations, conclusions and recommendations for necessary changes to the Port's Environmental Management Plan, Policy or System shall be identified and incorporated in the updated version of the EMP.



8. References

- Huisman, J.M., Jones, D.S., Wells, F.E., and Burton, T. (2008) 'Introduced Marine Biota in Western Australia', *Records of the Western Australian Museum*, Vol. 25, pp. 1-44.
- JFA Consultants (2005) *Southdown magnetite iron ore project: Albany Port Upgrade. Dive sampling report*, Unpublished report prepared for Grange Resources, August 2005.
- McDonald, J.I., Wells, F.E., and Travers, M.J., (2009) *Results of the 2007 survey of the Albany Marine Area for Introduced Marine Species*, Fisheries Research Report No. 188, Department of Fisheries, Western Australia.
- SKM (2007) Albany Iron Ore Project - *Albany Port Expansion Proposal - Sampling and Analysis Plan and Benthic Primary Producer Habitat Report*, Prepared for Grange Resources Limited & Albany Port Authority by Sinclair Knight Merz, Report no. Rev 7, Perth, Western Australia, August 2007.
- Water and Rivers Commission (1999) *Albany Waterways Resource Book: The Albany Waterways and Their Catchments*, Western Australia [online].
- Wells F.E., Walker D.I., Kirkman H., Lethbridge R., (Eds) (1990), *The Marine Flora and Fauna of Albany*, Western Australia Volume 1, Perth: WA Museum.

9. Appendix 1 – Environmental Risk

Ref	Environmental Risk	Potential Cause(s)	Potential Impact (s)	Consequence Category	Consequence Rating	Likelihood Rating	Overall Level of Risk
2.1.2	Dust and spillage from trucks or storage units.	Shiploading activities, stockpile management and operations, construction, traffic, product conditioning, truck design.	Complaints, business interruption, regulatory intervention/loss of business reputation. Exceedance of AIR NEPM guidelines.	Environment Reputation and Image	Insignificant (1) Insignificant (1)	Moderate (3) Moderate (3)	Low (3)
2.1.3	Failure to identify contamination of port site from current and historical sources, including APA owned and leased land .	Historical port usage results in contaminated site; Unidentified underground tanks leaking; poor leaseholder management, negligence of leaseholder	Contamination to the water or soil/environmental damage, restricted use of sites, increased cost for remediation and/or investigations	Environment Financial Loss Reputation and Image	Major (4) Major (4) Minor (2)	Unlikely (2) Unlikely (2) Unlikely (2)	Moderate (8)
2.1.6	Noise complaints from community impact Port operations and/or reputation.	Road design, proximity of noise sensitive receptors, truck noise, conveyor systems at CBH, rail movements and bulldozer movements	Complaints, intervention, business reputation, increased community pressure to change operations, business interruption and reputation impacts.	Environment Reputation and Image	Insignificant (1) Insignificant (1)	Likely (4) Moderate (3)	Low (4)
2.2.2	Incorrect disposal of ship waste, discharge/spillage of material from ship into marine environment.	Contractor not following procedures; lack of supervision, ship scuppers not closed/blocked off.	Pollution, quarantine or health issue, community complaints, potential harm to marine biota, DEC fine for water pollution/illegal discharge	Environment Reputation and Image	Minor (2) Insignificant (1)	Moderate (3) Moderate (3)	Moderate (6)
2.3.1	Failure to identify asbestos contamination of port site (including current lessees and Port)	Inadequate due diligence in the identification of environmental issues	Reputational damage, legal/insurance costs escalation; rectification costs	Reputation and Image Financial Loss Injuries Environment	Minor (2) Moderate (3) Insignificant (1) Insignificant (1)	Unlikely (2) Moderate (3) Rare (1) Rare (1)	Moderate (9)
2.3.2	Pollution or contamination occurs and is not identified, monitored or managed.	Ignorance of issue, poorly stored or handled cargo, failure to identify contamination issues, lack of procedures and controls, sewage leaks and spillage	Fine or prosecution, damage to environment, poor publicity, regular intervention	Environment Reputation and Image	Minor (2) Insignificant (1)	Unlikely (2) Rare (1)	Low (4)



Ref	Environmental Risk	Potential Cause(s)	Potential Impact (s)	Consequence Category	Consequence Rating	Likelihood Rating	Overall Level of Risk
2.3.2	Pollution or contamination occurs and is not identified, monitored or managed.	Ignorance of issue, poorly stored or handled cargo, failure to identify contamination issues, lack of procedures and controls, sewage leaks and spillage	Fine or prosecution, damage to environment, poor publicity, regular intervention	Environment Reputation and Image	Minor (2) Insignificant (1)	Unlikely (2) Rare (1)	Low (4)
ER1	Loss of antifouling paints into the marine environment	Use of illegal antifouling paints. Poor vessel maintenance. Older ships entering port.	Accumulation of TBT in sediments affecting sediment quality and invertebrate populations.	Environment	Minor (2)	Unlikely (2)	Low (4)
ER2	Destruction or alteration of bush during site clearing/construction activities	Construction activities, poor planning, lack of management of lessee/tenant development proposals.	Loss of habitat and wildlife, community complaints, potential increase in noise and/or dust emissions.	Environment Reputation and Image	Insignificant (1) Insignificant (1)	Moderate (3) Unlikely (2)	Low (3)
ER3	Destruction of benthic habitat/turbidity/disposal of dredge material	Dredging activities and poor management of dredging activities. Failure to identify contaminated sediments and dispose of dredge material correctly.	Loss of marine habitat and wildlife, mobilisation of sediment contaminants, community complaints, regulator intervention. Requirement to offset impacts.	Environment Reputation and Image Financial loss	Moderate (3) Minor (2) Moderate (3)	Unlikely (2) Unlikely (2) Unlikely (2)	Moderate (6)
ER4	Introduction of marine pest species via ballast water/hull fouling	Non-compliance with AQIS ballast water requirements. Poor vessel maintenance. Lack of inspections of dredgers and dredge equipment prior to arrival.	Introduction of marine pest, negative impacts on aquaculture and native flora/fauna. Fine or prosecution, regulator intervention and high costs for management.	Environment Reputation and Image Financial Loss	Major (4) Minor (2) Moderate (3)	Unlikely (2) Unlikely (2) Rare (1)	Moderate (8)
ER5	Population increase of feral animals including pigeons and rats.	Increased food availability, lack of feral animal control, increased breeding potential, negligence.	Negative impacts or fatalities on native flora and fauna, infrastructure or bulk material/cargo damage, human health impacts	Environment Injuries Financial Loss	Insignificant (1) Minor (2) Insignificant (1)	Moderate (3) Unlikely (2) Moderate (3)	Low (4)
ER6	Vessel strike/collision with marine mammals eg whales/dolphins	Accidental strike, non-compliance with speed restrictions during whale season, recklessness.	Fauna injuries and fatalities. Loss of reputation and negative image, community complaints.	Environment Reputation and Image	Minor (2) Major (4)	Rare (1) Rare (1)	Low (4)
ER7	Benthic habitat destruction from ship anchorage	Ongoing movement of anchor, over-use of one anchorage, anchorage outside of designated anchorage zones.	Loss of marine benthic habitat, potential regulatory investigation	Environment	Minor (2)	Moderate (3)	Moderate (6)

Ref	Environmental Risk	Potential Cause(s)	Potential Impact (s)	Consequence Category	Consequence Rating	Likelihood Rating	Overall Level of Risk
ER8	Illegal fishing from vessels at berth and at anchorage	Non-compliance with Port restrictions on fishing at berths. Non-compliance with DoF laws and regulations while fishing at anchorage. Negligence.	Overfishing, reduction in fish stocks, dumping of fishing equipment/litter, fine from DoF	Environment Financial Loss	Insignificant (1) Insignificant (1)	Unlikely (2) Rare (1)	Low (2)
ER9	Spillage of bulk material into the harbour during loading/unloading	Non-compliance with port operational EMPs, recklessness/negligence, failure to utilise spill plates, failure to clean-up product.	Reduced water and sediment quality, community complaints, regulatory intervention.	Environment Reputation and Image	Minor (2) Insignificant (1)	Moderate (3) Unlikely (2)	Moderate (6)
ER10	Discharge of products during maintenance activities on wharf/over water including abrasive blasting	Non-compliance with abrasive blasting checklist and regulations. Failure to correctly enclose work area. Poor clean-up and lack of management.	Reduced water and sediment quality. Breach of Environmental Protection Act/Regulations. Additional-clean up and possibly regulator intervention.	Environment Financial Loss	Insignificant (1) Insignificant (1)	Likely (4) Unlikely (2)	Low (4)
ER11	Excessive light emissions during night time operation	Increased need for lighting, incorrect use of available lighting, poor light management/technical design	Public concern/complaints. Impact on marine wildlife/ship navigation.	Environment Reputation and Image	Insignificant (1) Insignificant (1)	Unlikely (2) Unlikely (2)	Low (2)
ER12	Hydrocarbon soil/groundwater contamination from land-based storage units/fuel pipelines	Construction activities, poor planning, lack of management of lessee/tenant development proposals, pipe design, and unidentified leakage/seepage.	Contamination of soil or groundwater, financial loss, need to upgrade equipment/facilities.	Environment Financial Loss Business Interruption	Moderate (3) Moderate (3) Moderate (3)	Moderate (3) Moderate (2) Unlikely (2)	Moderate (9)
ER13	Negative visual impact of port grounds or lease sites/vacant lots.	Lack of maintenance of grounds including gardens/vegetation, poor management of vacant lots, construction activities/demobilisation of sites, poor leaseholder management	Public concern, negative media attention, community complaints, degradation of pocket remnant vegetation.	Environment Reputation and Image	Minor (2) Insignificant (1)	Unlikely (2) Likely (4)	Low (4)
ER14	Increase in abundance of non-native weed species on Port grounds, especially in remnant vegetation.	Poor weed management. Failure to utilise the Denmark Weed Action Group and local resources. Transportation of weed species via dumping of organic material.	Negative impact on native flora and fauna, community complaints, increase in the need for more intense weed management	Environment Reputation and Image Financial Loss	Minor (2) Insignificant (1) Insignificant (1)	Likely (4) Moderate (3) Moderate (3)	Moderate (8)
ER15	Significant oil or chemical spill from diesel unloading/ship collision/ship grounding	Negligence, Non-compliance with operation EMPs, accidental, navigational error.	Negative impact on flora and fauna, community and media concern, decrease in water quality, financial loss, poor business reputation, regulator intervention, fine or prosecution.	Environment Reputation and Image Financial Loss Business Interruption	Major (4) Moderate (3) Moderate (3) Moderate (3)	Rare (1) Rare (2) Rare (1) Rare (1)	Moderate (6)



QUALITATIVE MEASURES OF LIKELIHOOD			
LEVEL	DESCRIPTOR	DETAILED DESCRIPTION	FREQUENCY
1	Rare	May occur only in exceptional circumstances	Less than once in 30 years
2	Unlikely	Could occur at some time	Once every 10 years
3	Moderate	Should occur at some time	Once every 5 years
4	Likely	Will probably occur in most circumstances	Once every year
5	Almost Certain	Is expected to occur in most circumstances	More than once a year

QUALITATIVE MEASURES OF CONSEQUENCE					
CATEGORY	1-INSIGNIFICANT	2-MINOR	3-MODERATE	4-MAJOR	5-CATASTROPHIC
INJURIES	No injuries	First aid required	Medical treatment required	Death or extensive injury	Multiple deaths or permanent disablements
FINANCIAL LOSS	Less than \$10k	Greater than \$10k but less than \$50k	Greater than \$50k but less than \$500k	Greater than \$500k but less than \$5M	Greater than \$5M
BUSINESS INTERUPTION	Damage to significant infrastructure-reinstatement to take up to 1 month	Damage to significant infrastructure-reinstatement to take 1-3 months	Damage to significant infrastructure-reinstatement to take 3-6 months	Damage to significant infrastructure-reinstatement to take 6-12 months	Damage to significant infrastructure-reinstatement to take greater than 12 months
REPUTATION & IMAGE	Reporting (not front page) in local newspapers	Reporting (not front page) in state newspapers	Reporting in state newspaper and/or regulatory inquiry	Reporting on state TV and/or regulator investigation	Reporting on National TV and/or Regulator investigation
ENVIRONMENT	Brief pollution with no environmental harm	Minor transient environmental harm	Significant release of pollutants with mid-term recovery	Significant long term environmental harm	Catastrophic long term environmental harm

RISK ACCEPTANCE CRITERIA TABLE		
LEVEL OF RISK	DESCRIPTOR	INFORMATION
1 - 5	Low	Requires adequate control, semi-annual monitoring.
6 - 9	Moderate	Requires adequate controls BEFORE an acceptance decision can be made, quarterly monitoring.
10 - 14	Significant	Requires excellent controls PRIOR to an acceptance decision, monthly monitoring.
15 - 25	Extreme	Requires excellent controls and all treatment plans to be explored and implemented (where possible) PRIOR to an acceptance decision, continuous monitoring.

