
Document No.	WMT-PLN-EIP
Rev	Rev 0
Date	21/05/2018



West Melbourne Terminal

Environment Improvement Plan

[Subject]

TABLE OF CONTENTS

1	DEVELOPMENT AND ENDORSEMENT	3
	TERMINALS PTY LTD.....	3
2	INTRODUCTION	4
3	ENVIRONMENT MANAGEMENT FRAMEWORK	5
3.1	HSEQ Policy.....	5
3.2	HSEQ Management System.....	5
3.3	Environment Management Standard	6
3.4	Environment Management Plan.....	6
4	EIP FRAMEWORK	7
4.1	What is an Environment Improvement Plan (EIP)?	7
4.2	Structure.....	7
4.3	Incorporation of New items into the EIP/EAP	7
5	ENVIRONMENTAL ASPECTS	8
5.1	Overview	8
5.2	Air Quality.....	10
5.3	Energy and Greenhous Gas Emissions.....	11
5.4	Water Quality	12
5.5	Groundwater	13
5.6	Waste Management	14
5.7	Noise.....	15
6	ENVIRONMENTAL AWARENESS / COMPETENCY	16
6.1	Objective	16
6.2	Strategy	16
6.3	Induction	16
6.4	Environment Awareness Training.....	16
6.5	Environment Management	16
7	EMERGENCY RESPONSE.....	17
8	AUDIT AND REVIEW	19
8.1	Audit	19
8.2	Review	19

1 DEVELOPMENT AND ENDORSEMENT

This Environment Improvement Plan is a public commitment to continued improvement of environmental performance by Terminals Pty Ltd and has been prepared in accordance with Section 26B of the Environment Protection Act 1970.

Date: 13 June 2018

This document is authorised by:

Phil Jones
National Operations Manager

Ryan De Munk
National HSE Manager

Terminals Pty Ltd
ABN 87 000 348 407

© **Terminals Pty Ltd 2018**

This document is and shall remain the property of Terminals Pty Ltd. The document may only be used for the purposes for which it was commissioned and in accordance with the

Terms of Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

2 INTRODUCTION

Terminals, incorporated in 1960, owns and operates tank farm facilities in major ports for the import and export of bulk liquids and liquefied gases.

Products handled include non-hazardous liquids plus dangerous goods of Class 2 -Gases, Class 3 -Flammable Liquids, Class 6 -Toxic liquids, Class 8 -Corrosive liquids and Class 9 – Miscellaneous.

Terminals is not a manufacturer of goods, nor does the company own or trade the products stored and handled. It provides port side bulk liquid storage and handling services to a range of industries including the plastics, chemicals, petroleum, mining, pharmaceutical, personal care and food industries.

Services at Terminals Melbourne include:

- Transfer of products to and from ships by pipeline
- Transfer of products to and from road tankers
- Storage in bulk quantities
- Loading and discharge of road tankers
- Containing filling and despatch
- Blending products to client's requirements when required
- Transferring product to and from ISO containers
- Product heating

The site handles a mix of hazardous liquids and non-hazardous liquids.

With the storage of hazardous liquids, the company is acutely aware of the need to operate at the highest feasible standard of safety and environmental performance. Design, maintenance and operational standards within its facilities are given high priority. In addition, the company exercises a considerable duty of care to minimise product loss or contamination during the storage and handling of client products.

The company's quality management system is certified to ISO 9001 and environment management system to ISO 14001.

3 ENVIRONMENT MANAGEMENT FRAMEWORK

3.1 HSEQ Policy

OUR VISION

We believe every incident is preventable and are committed to protecting the welfare of our people, the environment and key stakeholders.

PRINCIPLES

Terminals will:

- ▶ Create a proactive, compliant and mindful culture through visible leadership and commitment from management and employees
- ▶ Meet or exceed compliance with all applicable laws, regulations, standards and contractual obligations
- ▶ Design and construct and maintain our facilities to perform safely, reliably and without harm to the environment
- ▶ Implement a systematic approach to HSEQ risk management
- ▶ Conduct all operations with adequate systems and safeguards
- ▶ Maintain a balanced focus on the management of health and wellbeing, personal and process safety
- ▶ Provide our customers with service excellence and strict control over product quality
- ▶ Set objectives and targets and monitor performance to achieve excellence and drive continuous improvement
- ▶ Pro-actively engage with our employees, contractors and stakeholders with the goal of achieving best practice
- ▶ Encourage people to have positive conversations and the courage to intervene on HSEQ issues
- ▶ Provide personnel with the information, instruction and training necessary to achieve reliable operation and a safe workplace

“No task is so important that it cannot be done safely and without risk to the environment.”

3.2 HSEQ Management System

Terminals has an integrated Health, Safety, Environment and Quality System comprising 19 Standards covering all HSEQ aspects of the business and provides a framework for continuous improvement in the health, safety, environment and quality.

An audit program ensures business practices follow the requirements stipulated in the HSEQ Management Standards. Any performance gaps identified are addressed and opportunities for continual improvement are considered.

3.3 Environment Management Standard

ELEMENT 15: ENVIRONMENTAL EFFECTS MANAGEMENT

INTENT

To minimise adverse effects resulting from the company's operations.

PERFORMANCE REQUIREMENTS

- 15.1. Environmental (or HSE) hazard registers are in place for all operations, and are reviewed and updated on a regular basis. This shall cover, but is not limited to, emissions to air, discharges to water, waste, groundwater and noise.
- 15.2. Environmental management shall be consistent with a life cycle perspective.
- 15.3. All areas of the business shall be, as a minimum, ISO14001 compliant
- 15.4. Environmental risks are addressed and controlled consistent with policy, regulatory requirements and business plans.
- 15.5. An environmental management plan is in place for each facility detailing:
 - Environmental aspects
 - Management plan summaries for key environmental aspects
 - Monitoring plans
 - Environmental training
 - Incident response
 - Reporting and review
- 15.6. The effectiveness of environmental controls is monitored, measured and reported according to Terminals and regulatory requirements.
- 15.7. For any new chemical to be stored an assessment will be undertaken to ensure that regulatory obligations will be met, to ensure plant suitability and human health is not affected.
- 15.8. Plans are in place to ensure that wastes are eliminated, reduced, reused, recycled, treated or appropriately disposed. Prescribed waste is managed in accordance with Safety Data Sheet requirements and regulatory requirements.
- 15.9. An environmental awareness programme is in place to ensure all personnel are aware of environmental impacts of our operations and their management responsibilities.
- 15.10. External environmental complaints or concerns are registered and responded to in a timely manner.

3.4 Environment Management Plan

The intent of the Environment Effects Management Standard is enacted at the site level through the Environment Management Plan and associated sub-plans.

4 EIP FRAMEWORK

4.1 What is an Environment Improvement Plan (EIP)?

An EIP is a voluntary public commitment by a company to improve its environmental performance.

In 2004, EPA granted Terminals West Melbourne site an accredited EPA licence in recognition of the significant environmental improvements that had occurred.

A community endorsed EIP is also a requirement of this type of licence.

4.2 Structure

Terminals launched its first EIP in 2002, the second in 2005, the third in 2009 and the 4th in 2013.

To better adapt to the changing business environment, Terminals has adopted for 2018 an approach of an annual Environment Action Plan (EAP) which lists all the environmental improvement activities for a single calendar year.

The EAP is prepared as part of the annual business planning cycle, while including the same input and consultative approach, review and approval as for previous Environmental Improvement Plans.

The Environment Improvement Plan thus becomes an evergreen document with a 5-yearly review cycle while specific Environment Improvement Activities are listed in the Annual

Progress against the commitments in the EAP is stewarded by the HSEQ team and monitored by the Executive Leadership Team in conjunction with reviewing operational incidents and complaints as appropriate.

4.3 Incorporation of New items into the EIP/EAP

Terminals is committed to continuous improvement of its environment performance. The EIP process is an integral part of this commitment.

Key input sources for actions for inclusion to the EIP are:

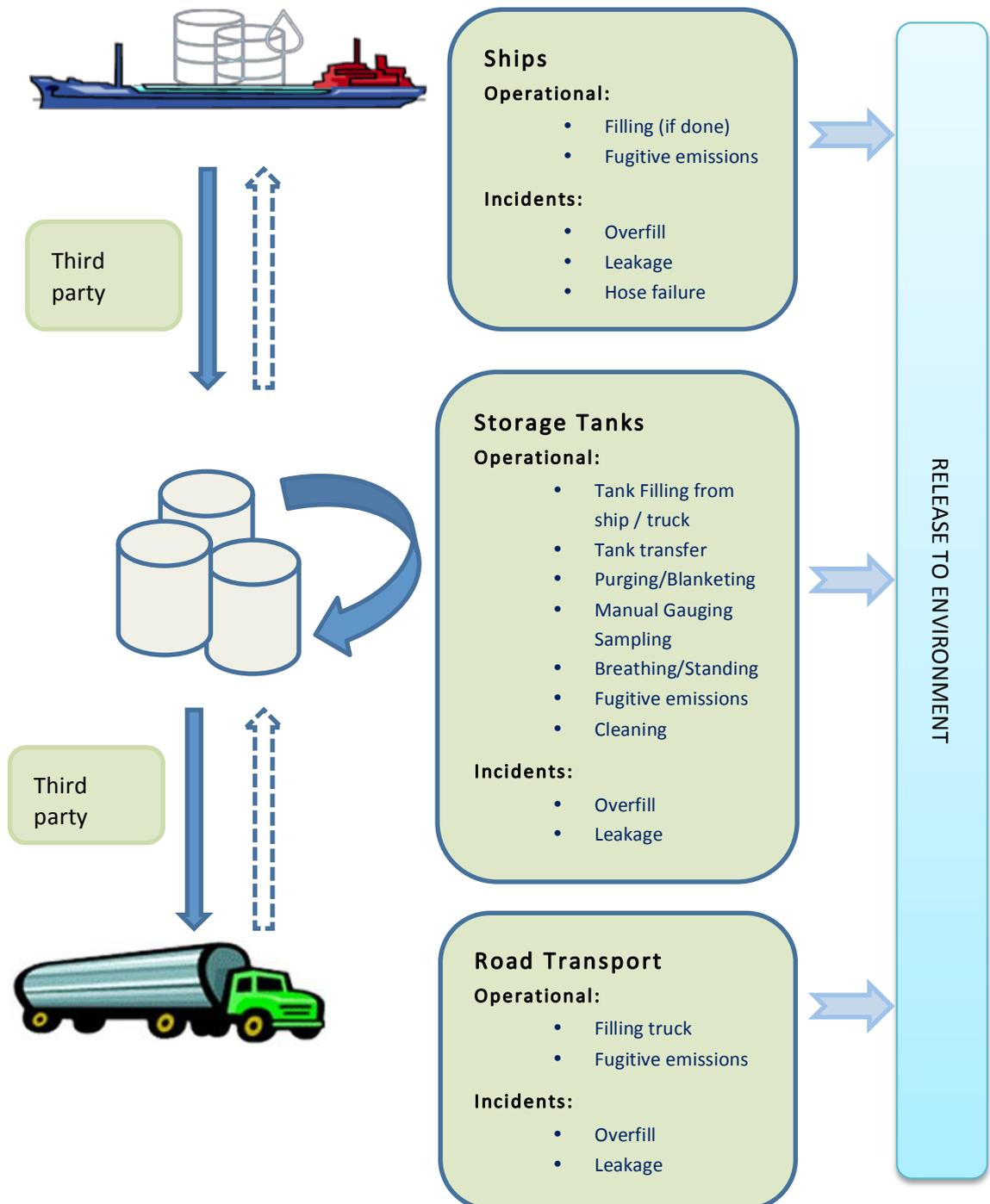
- Regulatory updates
- Community consultation
- Audit outcomes (internal and external)
- Review of Environmental Aspects Register
- Risk Assessment processes
- Incident Analysis and recommendations
- Community complaints
- Community consultation
- Employee consultation
- Reviews of environmental best practice

5 ENVIRONMENTAL ASPECTS

5.1 Overview

The nature of the business gives rise to potential impacts to air, water and ground. A conceptual model of activities and release sources is provided in Figure 1.

Figure 1 Operations Environmental Exposures Summary



The Environmental Aspects relevant to Terminals are:

- Air Quality
 - VOC
 - Odour
- Energy Efficiency and Greenhouse Gases
- Water Quality
- Groundwater
- Waste
- Noise

5.2 Air Quality

5.2.1 Objective

To minimise the impact on air quality through minimisation of emission to atmosphere.

5.2.2 Overview

The primary impacts on air quality are from the emission of Volatile Organic Compounds (VOC).

VOCs are a group of carbon-based chemicals that easily evaporate at room temperature. Common VOCs include acetone, benzene, styrene, ethanol and solvents. Different VOCs have different health effects, and range from those that are highly toxic to those with no known health effect.

Emissions sources for VOC include:

- Venting of vapours during filling of storage tanks
- Venting from road tankers when loading
- Tank breathing
- Fugitive emissions

In addition, there are the products of combustion from gas-fired appliances (e.g. boiler and Vapour Combustion System). This generates Nitrogen Oxides which can play a role in the formation of photochemical smog.

5.2.3 Air Quality Management

The West Melbourne licence has limits for the total amount of VOC, NO_x and other specific chemicals.

The quantity of VOC / NO_x is dependent on the type / mix of liquids stored, which is then dependent on market requirements.

Our strategy for managing emissions are:

- Tank and truck vents are connected to the Vapour Emission Control System (VECS) for the following chemicals:
 - Carcinogens category 1 (A and B) and 2 as per the GHS classification scheme
 - Highly odorous chemicals (e.g. acrylates)
 - Those with a vapour pressure of higher than 1 kPa at a temperature of 20 °C.
 - Those classed as hazardous based on vapour pressure and exposure limits
- Design of our equipment to minimise the potential for release (i.e. dry break couplings)
- Operating procedures to ensure that we minimise release to atmosphere
- Efficient operation of the vapour combustion system.
- Comprehensive maintenance and inspection program
- Emission monitoring.

5.3 Energy and Greenhouse Gas Emissions

5.3.1 Objectives

To minimise emergency use and reduce as opportunities arise and thereby reduce Greenhouse Gas (GHG) emissions.

5.3.2 Overview

Greenhouse gas emissions are generated primarily from:

- Combustor treatment units
- Natural gas boiler/hot water heater
- Electricity for pumps / fans /utilities and diesel for firewater pumps and vehicles.

Energy use is influenced by product mix during any period. It is affected by tank utilisation, throughput and type of chemicals (i.e. those requiring heating, volatility) and energy efficiency of the assets defined above.

5.3.3 Energy Resource Management

Our management approach is based on the EPA Protocol for Environment Management – Greenhouse Gas Emissions and Energy Efficiency in Industry – Publication 824. This protocol provides guidance for businesses on the SEPP (AQM) and its requirements for the management of greenhouse gas emissions and energy consumption.

The requirements are dependent on energy used in terms of gigajoules per annum or tonnes equivalent CO₁ per annum. As energy use increases the requirements are more stringent.

In following the EPA protocol there is a requirement to assess energy efficiency with more detailed assessments being required with increasing energy usage.

A level two energy audit was undertaken on 21st October 2003 by ERM. The energy assessment was undertaken as part of the Victorian EPA Protocol for Environmental Management (PEM) requirements.

The recommendations for this audit have been implemented apart from minimising night time duty for the combustor while no transfers. This was not done due to safety concerns of restarting the combustor on demand and the potential impact of temperature variations on the refractory.

On completion of these recommendations there is minimal opportunity for further energy reduction.

Our strategy for managing energy is:

- Implementation of monitoring and reporting program
- Implementing energy efficient equipment (i.e. motors) when purchased
- Implementing cost effective energy efficiency projects

5.4 Water Quality

5.4.1 Objectives

To prevent contamination of water offsite and minimise impact to the environment and health of people.

Note: this section excludes groundwater effects

5.4.2 Overview

The dominant source of water release from the site is stormwater run-off. There is no routine release of water from the site. Water may be used for washing down however this is disposed of as waste.

5.4.3 Water Quality Management

Our strategy for the management of surface water runoff involves separate collection of surface waters from the operational areas (i.e. truck filling bays) and storage compounds.

The operational areas have sealed surfaces to prevent contaminated water. To be conservative water from these areas are assumed to be contaminated and any water collected is pumped to a waste tank and disposed of as waste. This volume is minimised by roofed structures.

The tank storage compounds (i.e. bunded areas) are considered to present a low potential for contamination of stormwater due to very low leak likelihood and wash waters are pumped to waste water tanks. The bunded areas around the tanks are controlled with separate valves and a pump out facility.

Stormwater is released according to a risk based monitoring plan, as required by EPA Victoria. This requires verifying that the water is not contaminated prior to release.

5.5 Groundwater

5.5.1 Objective

Avoid contamination of soil and groundwater and prevent off site impact of existing contamination.

5.5.2 Overview

Soil and groundwater contamination has been identified as both Plant B and Plant C. This is related to historical practices from twenty plus years ago. More recently (2017) a spill of Aluminium Sulphate solution has also resulted in contamination of soil and groundwater.

No off-site migration of historical groundwater above groundwater acceptance criteria has been occurring.

EPA Victoria is aware of the soil and groundwater contamination issues and remediation works undertaken at the site.

Remediation is a difficult activity due to site access and engineering issues relating to the on-going operation of the facility. The remediation of works conducted to date have minimised the presence of LNAPL (I.e. Light non-aqueous phase liquid) and have mitigated any potential off-site impact to surrounding receptors.

A review of remediation options was conducted in 2016 by Environmental Strategies and this confirmed the current approach as appropriate.

Clean-up measures taken since 2001 include:

- Infrastructure engineering and management improvements
- Operation of an air sparge “curtain” along the boundary of plant B
- Light non-aqueous phase liquids (LNAPL) monitoring and removal
- Monitored natural attenuation of organic contaminants

5.5.3 Groundwater Management

Our strategy for avoiding contamination:

- Storage to recognised storage standards
- Provision of secondary containment to prevent leaks and spills from reaching the soil and groundwater
- A robust asset integrity program
- Using fixed equipment and processes to ensure that no product is released to grade when taking equipment out of service or placing in service
- Having contingency procedures in the event of a spill or leak

Existing contamination is controlled by:

- Monitoring and reporting of groundwater quality with investigation of findings where required
- Use of air sparge curtain adjacent to Plant B
- Removal / remediation of contamination where considered necessary

5.6 Waste Management

5.6.1 Objective

To drive continual improvement in environmental waste management, reduction and resource recovery.

5.6.2 Overview

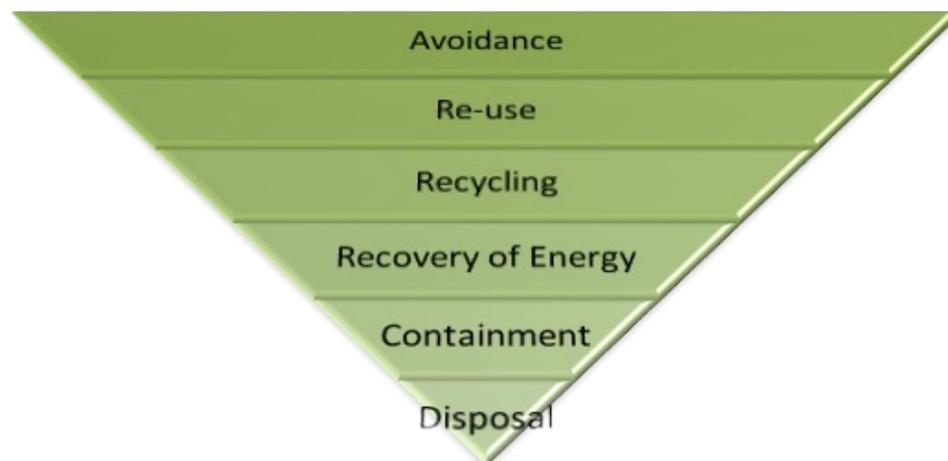
The main sources of prescribed liquid waste are slops from the ship sampling procedure, liquid waste generated from line washings and the cleaning of storage vessels.

Slopping and line cleaning is required to ensure product quality as it is not possible to have a single dock line for each product. Slops generated from ship sampling and line washing have been reduced to the absolute minimum as Terminals recognises that slops represent lost product and hence lost revenue and both water and waste treatment is costly.

The types of solid wastes produced range from non-hazardous materials such as paper and scrap metal to potentially hazardous waste including contaminated pigs (used for clearing dock lines), sample jars, contaminated gloves and rags.

5.6.3 Waste Management

The Terminal has maintained a waste management approach for many years to control the handling, treatment and disposal of liquid and solid waste streams. Waste streams are addressed in accordance with the “Waste hierarchy”:



Our strategy for managing waste is:

- To have a logistics planning process on arrival of ships aims to minimise waste through the sequence of products to be unloaded (i.e. reduced cleaning requirements).
- Where possible treat liquid waste using the combustor which allows some recovery of heat and reducing gas usage.
- Where wastes are not suitable for treatment via the combustor and these are sent to an approved prescribed waste treatment facility.
- Segregating waste where desirable
- Transport and disposal via appropriately licenced facilities and vehicles
- Monitoring of waste generation
- Periodic review of waste generation and management

5.7 Noise

5.7.1 Objective

To minimise impact on local community.

5.7.2 Overview

The existing terminal operations are not generally considered to be a significant noise source, particularly when the surrounding and unrelated heavy industrial uses are taken into consideration. The predominant noise sources within the current facility are generated primarily by truck movements within the site and operating equipment such as pumps, fans, etc.

5.7.3 Noise Management

It is noted that even with a change to 24-hour operations, the nature of the surrounding industrial uses and the location of the site being remote from any sensitive uses, it is unlikely that noise emission would be an issue.

Therefore, it is unlikely that improvements will be planned.

Noting the above comments, any noise considerations would be incorporated into a detailed design and be able to comply with relevant Environment Protection Authority, (EPA), State Environment Protection Policy (SEPP), N-1 and N-2 noise levels which apply to such facilities operating over a 24-hour period.

6 ENVIRONMENTAL AWARENESS / COMPETENCY

6.1 Objective

All personnel have the required knowledge and competence to carry out their duties without environmental impact.

6.2 Strategy

The methods used to ensure competence are:

- Recruitment and Induction
- Supervision
- Position descriptions with HSE competencies
- Environmental awareness and leadership training
- Environmental performance feedback via reports and audit

General aspects of environmental awareness are described below.

6.3 Induction

All employees and contractors shall complete the induction. The induction shall include, but not be limited to, the following:

- Awareness of the Health, Safety and Environment Policy
- Understanding the environmental aspects and impacts of our operations
- Roles and responsibilities with respect to environmental management
- Outline of incident notification procedure and complaints handling.

6.4 Environment Awareness Training

Environment awareness training shall be completed by all site employees and contractors as appropriate. This should include:

- Overview of the HSEQ system
- Legislative requirements
- Environment management plans
- Control procedures to minimise environmental impacts
- Roles and responsibilities

6.5 Environment Management

Key HSE critical staff may also undertake detailed training on:

- The Environment Management Plan and sub-plans
- Incident notification requirements including external notification
- Specific procedures for managing environmental aspects
- Incident investigation.

6.5.1 Emergency Response

As specified in the Emergency Response Standard, all new employees receive general emergency response training at the beginning of their employment.

Specific training is provided to appropriate staff.

7 EMERGENCY RESPONSE

While our approach is to prevent incidents from occurring it is important to have contingency / emergency response arrangements in place.

Terminals has a comprehensive Emergency Response Plan. The Plan comprises actions and guidelines to enable Terminals to:

- Utilise available resources to bring any emergency situation under control as quickly as possible
- Support any response in the field, providing operational assistance and advice where the event may have an impact that cannot be managed through normal business processes
- Facilitate appropriate notifications to and communications with relevant key stakeholders (both internal and external) in accordance with legal and ethical requirements (including Emergency Services, affected personnel and neighbouring facilities)
- Coordinate sourcing and deployment of additional resources as required as well as corporate assistance (e.g. communications, specialist technical input, input from subject matter experts)
- Identifying actions which need to be taken on a broader scale than can be envisaged/managed by those involved in overcoming the immediate hazards
- Undertake recovery activities to allow normal operations to resume as soon as practicable.

Terminals supports the integration and proactive application of the “Comprehensive” approach as defined by Emergency Management Australia and illustrated below.



- **Prevention** – strategies include hazard and community risk assessment aiming to prevent or mitigate the effects of the incident.
- **Preparedness** – development of strategies including action plans, exercising and reviewing plans, training and awareness campaigns to ensure staff and the community are prepared to deal with any incident.
- **Response** – a coordinated implementation of action plans, systems and processes, including issuing warnings, communications and deploying resources in a timely and effective manner.

- **Recovery** – reconstruction of assets, restoration of systems and services to a position where activities revert to ‘business as usual’ and can be managed by normal business processes and resources. Recovery operations occur concurrently with response efforts but can continue for a protracted periods of time.

The ERP provides coordinated and effective response to an emergency by:

- Establishing processes to maintain a high level of emergency preparedness;
- Identifying potential emergency scenarios that could occur;
- Documenting the overall emergency response process and key interfaces;
- Outlining measures to maintain interoperability with emergency services and other support organizations;
- Detailing the procedures that will be implemented to manage emergency events;
- Defining the roles and responsibilities of personnel in an emergency event;
- Training in emergency response; and
- Emergency exercises including those with statutory emergency bodies.

8 AUDIT AND REVIEW

The Audit and Review process is an important feed into the EIP. Findings from these sources feed in the EIP

8.1 Audit

8.1.1 Internal Audit

An annual compliance audit is conducted to review the overall implementation and effectiveness of the EMP, related site-specific plans, procedures and associated documentation and overall standard of onsite compliance with legislative requirements.

8.1.2 ISO 14001 Audit

Lloyds register conduct an external audit once every 9 months as part of a 3-yearly accreditation cycle.

8.1.3 Accredited Licence Audits

The EMS is also audited at least every 5 years by an Industrial Facilities Environmental Auditor appointed pursuant to Environment Protection Act. This is a requirement of the Accredited licence maintained by the West Melbourne facility.

The scope of the West Melbourne Terminal Environmental Audit was to:

- Assess the requirements of EPAV Licence No. 11058 and the Terminals West Melbourne Environmental Management Plan (EMP) and the Environment Improvement Plan (EIP)
- Assess relevant industry codes of practice or best practice environmental management guidelines
- Identify environmental hazards that have inappropriate or inadequate management systems in place.

8.2 Review

Internal reviews also occur as part of:

- Review of Environmental Aspects register
- Annual review of EMS (regulatory review, audit outcomes)