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Overview

1. Introduction

This Environmental Improvement Plan (EIP) is the second EIP for Terminals Pty Ltd (Terminals) West Melbourne bulk liquid storage facility. The first EIP was in response to EPA licence conditions. Since that EIP was developed Terminals has achieved accredited licence status for the Coode Island facility. One of the cornerstones of an accredited licence is to have a current EIP, therefore the requirement to replace the current EIP which ended at end of 2004. This EIP has again been developed by Terminals in consultation with EPA, other Agencies and the Coode Island Community Consultative Committee.

This EIP will continue the work commenced in the first EIP of improving the West Side Facility through the long term upgrading of the sites:

- Upgrading the environmental systems (air, soil and groundwater);
- Upgrading the existing storage and handling equipment;
- Removing redundant equipment and pipelines;
- Segregating storm and waste water streams;
- Protection of ground water.

Now Terminals has long term tenure for its West Side sites which will remain in ongoing bulk liquid service. These sites will be comprehensively upgraded throughout the next eight years.

Terminals East Side sites were to be closed, demolished and the land remediated by January 2005, but due the Marstel facility not being open yet the end date has been extended till January 2006.

1.1 EIP Objective

With the discontinuation of the existing eastern sites, Terminals' operations will be consolidated to the west sites. Terminals will continue to handle the same chemicals it currently handles with the exception of Benzene, Crude Benzene and Propylene Oxide from April 2005 to enable demolition and remediation of those facilities by January 2006.

Terminals plans a staged multi million dollar investment over the period to 31 December 2012. Staging is necessary to:

- Minimise the safety risks in performing major works within an operating major hazards facility ie. the scale of the work must be kept manageable.
- Minimise the economic impact on the existing client base and contribute to their commercial competitiveness.
- Avoid disruption to existing business;

The upgrade has been prioritised so the key safety and environmental considerations were mostly address in the first stage. The second stage involves the continued upgrade of the tanks, drainage and bunds which are longer time frame items

The facilities and operations will comply with the requirements of the Environment Protection Authority (EPA), Worksafe and the Metropolitan Fire Brigade (MFB) as well as ISO Standards 9001 and 14001.

This EIP (No 2) will cover the period from 2005 to the end of 2008. The following EIP (No 3) will cover the final stage to the end of 2012.

1.2 Terminals Pty Ltd

Terminals is a wholly owned subsidiary of the Kaneb Pipeline Company. It provides terminaling services to its clients at four operating locations throughout Australia. These sites are located at Coode Island in Melbourne, Corio in Geelong, Port Botany in Sydney and Osborne in South Australia.

An associated company, Bulk Storage Terminals Limited, is also the leading terminal operator in New Zealand with facilities in Auckland, Wellington, New Plymouth and Mount Maunganui.

In addition to operating its own sites, Terminals has extensive experience in managing and operating cryogenic liquefied petroleum gas storing facilities on behalf of Orica at Port Botany, adjacent to Terminals Bulk Liquids Storage Facility.

Total capacity owned and operated by Terminals in Australia is 164,000 m^3. Terminals' commitment to the industry it serves began in Victoria in 1961 with the construction of its first facility on Coode Island. Since then it has provided continuous services to its clients in a professional manner.

In the past fifteen years, Terminals has improved its operating practices and procedures to rival world standards. This has been principally through the recruitment of storage and process engineering expertise from the chemical and oil industry, and the use of highly specialised consultants in risk management, loss prevention and occupational health and safety. An extensive capital works program has been undertaken on all sites to address the issues of the Major Hazards Facilities legislation and addresses the lessons learned from the fire in the Site A Coode Island facility in 1991.

2. Existing Facility – Recent Improvements

The Coode Island Bulk Liquids Storage Facility consists of two terminals commonly referred to as Plant B (54-62 Mackenzie Road) and Plant C (70-78 Mackenzie Road). The terminals were initially developed as two independently owned and operated facilities. Site C was acquired by Terminals from Powell Duffryn in 1992 and the operations of the facilities integrated under a common management and operating workforce. The combined facility comprises a total of 122 tanks generally divided into four areas, two on the east side of Mackenzie Road and two on the west side. Approximately 80 tanks are used for the storage of flammable liquids. These are dispersed across the four operational areas of both terminals.

While the facilities will be upgraded, capital expenditure in excess of $20 million has been made since the fire in 1991. Features of this expenditure include:

- A fire system which exceeds regulatory requirements;
- Nitrogen blanketing to all flammable liquids (where suitable);
- Sealed loading of toxic products (TDI, PO, ACN, PHENOL);
- CCTV control security access systems;
- Dedicated tanks for high throughput products or the more hazardous products;
- Redeveloped Benzene handling facilities;
- Ground water control systems;
- Upgraded spill control systems.

In the past 3 years, the major upgrade has been in the replacement of the Vapour Emission Control (VEC) systems to improve emissions and odour performance. This investment has totalled in excess of $4 million and has included:

- Two new combustors to replace the carbon beds;
- New stainless steel vapour collection systems;
- Control valves on top of tanks to control tank pressures;
- Connection of all Benzene, Crude Benzene and Acrylate storage tanks to the new Vapour Emission Control System;
- High pressure alarms to control tank pressures during ship unloading & pigging for Acrylates and Benzene;
- Sealed truck loading of Acrylates with vapours being treated by new VECS;
- Acrylate tanks upgraded with new fill and drawoff pipework, new foundations, impermeable liner under floor and independent high level alarms;

- New hard piped exchange area at Plant C;
- Six flammable tanks upgraded with new fill & drawoff pipework, internal waste minimisation pipework, new foundations, impermeable liner under floor;
- Segregation of site stormwater at Plant C truckfill;
- Roofs over Phenol/TDI gantry, Plant B combustible gantry & pump bay, Plant C & Plant B combustible exchange area;
- Site wide emergency alarm alerting system;
- Back up power supply for new VECS and emergency equipment;

The upgrading of the sites has been and will continue to be complex, as it is a hazardous facility with ongoing commitments to customers. Despite the difficulties, it is intended to continue upgrading the facility. This upgrading will continue the work from the previous 3 years to meet regulatory compliance with EPA and WorkSafe (MHF) requirements as well as improving the operation and integrity of the facility throughout the life of the lease.

3. Improvement Description

Broad Description of the Works

3.1.1 Introduction

The improvements described in this section are to be completed by 31 December 2008. A summary of target dates is listed in Appendix 1.

This EIP is to continue the work commenced in the last EIP in particular the upgrading of the existing tanks in flammable/hazardous service. The other major focus is to improvements to the sites' waste water collection system to reduce wastes.

3.1.2 Evaluate Effectiveness of Targets from Previous EIP

Review the completed actions from the previous EIP to see if the expected targets have been achieved. The targets to be reviewed are:

- New Vapour Emission Control System
- High Pressure Alarms on tanks
- Odour Emissions from Acrylate tanks
- Impermeable liners under tanks
- New tank piping systems
- New hard piped exchange areas
- Seal bottom loading truck systems
- New internal tank stripping pipe work
- Segregation of site stormwater
- Shipping emergency shutdown system
- Independent high level alarms
- Backup power supply

3.1.3 Complete 10 Tank Expansion at Plant C

Ten storage tanks have been relocated from East Side for storage of combustible/non-hazardous materials. As part of the relocation the tanks are being upgraded. New features include:

- Under tank liner for leak detection;
- New pipe work to and from tank;
- New internal sumps and stripping pipe work that will minimise product left in tank
- Sealed truck loading systems;
- Cast steel pumps with mechanical seal.

3.1.4 Complete Combustible/Non Hazardous Upgrade at Plant B

Eight storage tanks previously used for Tallow have been upgraded for storage of combustible/non-hazardous materials. New features include:

- Under tank liner for leak detection;
- New pipe work to and from tank;
- New internal sumps and stripping pipe work that will minimise product left in tank
- Sealed truck loading systems;
- Cast steel pumps with mechanical seal.

3.1.5 Upgrade 12 Flammable/Hazardous Storage Tanks

Twelve existing storage tanks will be upgraded. The tanks will be raised, inspected underneath and repaired if necessary. The tank foundation will be repaired or replaced as the tanks are raised and impermeable liner placed under the tank. This will provide improved groundwater protection and tank leak detection. It will allow detection of very slow leaks that may not otherwise be detected. New features include:

- Under tank liner for leak detection;
- New pipework to and from tank;
- New internal sumps and stripping pipe work that will minimise product left in tank
- Sealed truck loading systems;
- High pressure alarm;
- Cast steel pumps with mechanical seal.

3.1.6 Hard Piped Exchange Areas

Install new hard piped exchange area as has already been installed. Upgrade the exchange area at Plant B so that it is hard piped, and that the lines can be completely cleaned by pigging past all connection/disconnection points to prevent minor spillage and odours. The design will include VECS connection to ensure disconnection points will be swept to VECS eliminating fugitive emissions. VECS connection will include knock out pots with shutdown and alarms to ensure liquid cannot enter the system.

Complete the connection of all tanks at Plant C to the already installed hard piped exchange area.

3.1.7 Sealed Truck Loading

Continue the implementation of sealed truck loading systems to Plant B West Side Gantry. This will require a new gantry to be built.

3.1.8 Emergency Lighting

Conduct a lighting survey to determine what level of emergency lighting is required to maintain a safe work place in case of a power failure. This will then be used to install emergency lighting at Plants B & C.

3.1.9 Groundwater Protection

Soil contamination issues will be addressed on the western sites by remediating hot spots where able. The sparge curtain will be extended if required to prevent any contamination migration to the Maribyrnong River.

The effectiveness of the remediation of the Plant C hot spots will also be reviewed.

The existing program of 10 yearly internal and external inspection of tanks will be maintained to ensure there is no corrosion of tanks which could lead to possible soil contamination.

3.1.10 Segregate Site Stormwater

The drainage systems that handle stormwater runoff and process waste (eg truck fill spill controls) are currently common. It is proposed to separate the systems so that process waste can be collected separately therefore reduce the amount of waste disposed off site or by sewer. Roofs are to be installed over operational areas i.e. truck fills, pump bays etc to also minimise water to be disposed. The water from the roofs will be diverted to the stormwater system. Stormwater from drive way areas will be discharged to the river after the first 10 minutes is collected in a first flush holding area.

3.1.11 Sediment & Litter Traps on Bund Drains

On all outlets to the river, sediment and litter traps will be fitted where they currently are not. The design requirements of these are still to be finalised.

3.1.12 Sewer Connection

Funds have been allocated by the State Government for Coode Island to be sewered. The work has been delayed pending resolution of ownership between the MPC and City West Water on the ongoing maintenance responsibilities.

Once the sewer is in place, Terminals will:

- Connect all sewage waste sources to the sewer;
- Negotiate a trade waste agreement for low level containment waste;

3.1.13 Vapour Emission Control System

Complete connection of all remaining tanks to the new Vapour Emission Control System when East Side finally closes.

The tanks which are to be connected to the new VECS
a) are classified as Group 1, 2A or 2B carcinogens by the International Agency for Research into Cancer; or
b) are classified as a Group B1 carcinogen by USEPA; or
c) are highly odorous; or
d) are hazardous; or
e) have a vapour pressure higher than 1 kilopascal absolute at a temperature of 20 degrees Celsius unless the chemical

3.1.14 Combustion System Heat Recovery

Investigate the feasibility and implement the recommendations from the Combustion Heat Recovery Study.

The main recommendations were:

a) Investigate lowering operating temperature of combustor to minimise gas usage;

b) Investigate reducing gas usage by fine tuning excess air requirements during standby operation;

c) Investigate turning combustor off at night when plant shutdown;

d) Investigate case for cogeneration gas turbine generator use heat from combustor;

3.1.15 Plant A Groundwater Monitoring

Conduct an annual groundwater monitoring at the Plant A (28-30 Mackenzie Road, West Melbourne) as per the following conditions:

Standing water level in the bores below must be measured and recorded on each occasion that samples are obtained prior to any disturbance by sampling.

Samples of water must be taken from the bores numbered MW1, 4, 6 and 7 at least once during the month of August each year, and analysed or tested for:

a) total dissolved solids
b) benzene
c) toluene
d) ethyl benzene
e) xylenes
f) total petroleum hydrocarbons

All samples must be obtained by most recent relevant EPA publication number 441 or equivalent and submitted to an analytical laboratory accredited by National Association of Testing Authorities (NATA) and record of results bears a NATA stamp endorsement.

by 1st December each year a report must be submitted to the EPA on the groundwater monitoring at these premises in the previous 12 months which includes:

a) the results of the groundwater monitoring program required above
b) an assessment of the groundwater monitoring results including temporal and spatial trends in quality of groundwater.
c) the results of the groundwater monitoring program required above
d) an assessment of the groundwater monitoring results including temporal and spatial trends in quality of groundwater.

3.2 Future Works

While this EIP is for the next 4 years, ongoing redevelopment of the facility will continue over the next decade. This work as outlined broadly below will be included in future EIPs:

- Remaining tank renovations including foundations where required;
- Under tank leak detection for these tanks;
- New piping systems, pumps and sealed truck loading systems for the above tanks;
- Complete removal of redundant pipelines;
- High pressure alarms for the above tanks.
- Complete stormwater segregation facilities;
- Improved bund drainage systems;
- Clay liner for bunds.

This latter element can only occur after the civil works associated with the tank and piping upgrades have been completed.

3.3 Other Issues

3.3.1 Community Consultation

Terminals is committed to local community and other stakeholder consultation through various arrangements including CICCC, Maribyrnong Council etc. and will facilitate the involvement of the community into the future. Progress towards goals, targets and objectives will be shared regularly with the community. This will be done by producing an Improvement Action Report which will be updated regularly by Terminals and commented on by relevant regulators. The report will be maintained on the CICCC web site and discussed at community meetings if required. The community will be given information and access to verify progress themselves as they see fit. This will ensure that the local and broader community is kept abreast of proposed developments on the site, including enhanced safety measures and environmental controls. Ongoing consultation with the community will also provide opportunity for positive input as well as providing a forum to raise concerns. Terminals will carefully consider all inputs, and will accommodate these wherever practicable. Where the inputs are not accommodated in full, Terminals will provide explanations and written reasons for their decision. An environmental report detailing its health, safety and environmental performance will be posted on Terminals website and updated annually.

3.3.2 Landscape Management

The existing landscaped areas will be retained as far as practical on the west side sites. New fences will be black PVC, coated or painted enamel chainwire with black coated posts.

3.3.3 Emergency Procedures

Notwithstanding EPA related matters, the Metropolitan Fire and Brigade (MFB) is the principal emergency response group likely to be involved in any events that occur on site. Considering the nature of the materials stored and managed within the site it is likely that the MFB would attend any significant event that occurred.

The MFB will be consulted at all relevant stages during the design of the upgrades to ensure that all active and passive fire systems, product handling and tank storage control systems are adequate. The MFB will be kept aware of changes even if temporary.

The significant improvement in emergency procedures will be realised by the provision of new and revised product handling systems and equipment as the upgrades are implemented. This will ensure that the inherent safety of the terminal is improved reducing the likelihood of any incident.

3.3.4 Health, Safety & Environment Management

The existing health, safety and environment management plans will also encompass the upgraded facility. The new features and systems incorporated into the terminal would be implemented and incorporated into the systems that already exist.

Terminals currently have ISO 14001 Environmental management systems accreditation for their Melbourne, Geelong and Botany facilities.

All work (including Hot Work and Confined Space Work) will be in accordance with the Safety Management Manual and will conform with MHF requirements.

3.3.5 Security

With the adoption of the new terminal arrangement, the overall number of operational areas is reduced from four to two. This reduction, combined with vehicular traffic accessing Terminals' Bulk Liquid Storage Facility and other terminal operators on only the west side of Mackenzie Road and the reduced level of pedestrian traffic, will allow improved security arrangements to be made.

The existing perimeter fencing and closed security gates with automatic remote control gates with operator access have been adopted with the use of CCTV surveillance systems. It is proposed that this would continue.

Wharf security would remain as is, under the control of the MPC.

3.3.6 Noise

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.

It is anticipated that there will be no overall increase in noise generation as a result of the upgrades. 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 no reduction targets are proposed.

Noting the above comments, any noise considerations would be incorporated into a detailed design 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.

4. Management and Operations

4.1 Philosophy and Procedures

Terminals is a major operator within the Australian Petrochemical Industry, providing storage and handling services for bulk liquids, chemicals, petroleum, solvents, vegetable oils, tallow and liquefied gas. The current philosophy of providing a high standard, cost effective service to clients with a commitment to health, safety and environment issues will be applied to the upgraded West Melbourne facility.

4.2 Current Operations

4.2.1 Product Stewardship

Terminals regards one of its prime contractual roles is to ensure the quality and quantity of our clients products is maintained as it passes through the terminal.

To this end the redeveloped terminal is being appropriately engineered to operate as a multi-product import/export terminal.

4.2.2 EPA Accredited Licence

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

An accredited licence gives the licence holder a slight reduction in annual fees and the ability to do minor works on site without the need to obtain a works approval.

The three major requirements for an accredited licence are:

- An environmental management preferably to an environmental standard such as ISO 14001;
- An EPA approved external auditing program;
- A community endorsed EIP (such as this one).

4.2.3 Major Hazard Facility Licence

In 2000, Victoria introduced new legislation titled the Occupational Health and Safety (Major Hazard Facilities) Regulations 2000. This legislation requires facilities storing certain materials (flammable, explosive or toxic substances called Schedule 1 materials) above specified quantities to be registered as Major Hazard Facilities (MHF) and to submit a Safety Case to the Government to obtain a MHF licence. This facility is one of 48 sites that are currently designated MHFs in Victoria.

In December 2002 we obtained a five-year licence to operate as an MHF.

One condition of this licence is any proposed changes to the facility, which can impact on its safety requires the safety case to be updated and submitted to Worksafe for their approval.

4.2.4 Quality Assurance

Quality certification to ISO 9001 through Lloyd's Register for all of Terminals facilities has been achieved. In addition, ISO 14001 accreditation for the environmental management systems has been achieved at Melbourne, Botany and Geelong. It acknowledges a high standard of consistent operations and safety in supplying our services. The following key safety and environment areas are included:

- Occupational Health and Safety;
- Operating Procedures;
- Training;
- Modification Form changes;
- Incident Reporting and Investigation;
- Contractor and Driver Inductions;
- Licence/Regulations/Standards Control;
- Maintenance;
- Contract Review;
- Purchasing.

4.2.5 Responsible Care

Terminals has been a long standing associate member of the Plastics and Chemical Industry Association (PACIA). As such, it has been an active participant in the Responsible Care program and has supported this industry movement for improved performance through this program. Terminals' Melbourne facilities have achieved 100% compliance with the responsible care guidelines.

Terminals also supported the Community Right to Know Code of Practice, by active participation in the chemical industry "Open Door" program. Safety and operating statistics have been provided to PACIA for the preparation of annual industry statistics on safety performance.

To ensure the long term maintenance of high standards, that the community is adequately informed about the facility and its operations and to provide an opportunity for the community to express any concerns, Terminals will continue to support the Coode Island Consultative Committee. Terminals takes a significant role in the committee and provides all relevant operating statistics and details of incidents occurrences, injuries etc. as requested.

4.2.6 Maintenance

Terminals operators are multi-skilled. Consequently they undertake routine maintenance inspections to meet the following objectives:

- Regulatory requirements;
- Achieve maximum serviceable life from the company's assets;
- Maintain an acceptable level of customer service through the minimisation of plant and equipment down-time;
- Maintain plant and equipment in such a way that the risk of personnel injury is minimised;
- Standardise the maintenance system throughout the company's terminals;
- Develop and maintain a reliable system for the recording of maintenance work.

These maintenance procedures and checks are documented and form part of the ISO9001 Quality System.

4.3 Health, Safety and Environment Management

4.3.1 Overview

Health, safety and environmental (HS&E) performance is Terminals' highest priority.

Terminals are committed to ensuring the health and safety of its staff and the community, to preserve the environment and to protect property and materials stored.

Performance in these areas is achieved through a comprehensive and systematic management system, called Process Safety Management, to ensure barriers are in place, in use, demonstrable and effective to prevent significant incidents, and minimise consequences from the inherent hazards of the business.

The following four sections provide an introduction to this subject and then cover the HS&E management systems current performance and trends and achievement steps over the last five years.

4.3.2 Introduction

Terminals is the largest independent bulk liquid chemical storage and handling company in Australia, providing product handling and storage services for over 90 companies in as many different chemicals for many diverse industries.

From a HS&E perspective, the range of chemicals handled differs greatly and involves the following types of hazards:

- Flammable;
- Poisonous;
- Toxic;
- Known and suspected human carcinogens;
- Corrosive;
- Polymerisable;
- Combustible;
- Oxidising agent;
- Highly volatile.

4.3.3 Safety, Health and Environment Management

It is the corporate objective of Terminals to be the acknowledged leader within its industry in the quality of services provided and in its safety, health and environmental performance.

In order to operate safely and effectively, the company has a defined management structure, which implements policies set by senior management. These policies are detailed in comprehensive management systems that comprise manuals, programs, procedures and plans on activities such as Occupational Health and Safety, Operations, Maintenance, Engineering, Training, Quality, Safety Audits, Environmental Management and Emergency Procedures.

4.3.4 Safety Management Systems

Process Safety Management is a systematic approach to the identification, understanding, assessment and ultimately control of process hazards. The major focus is to minimise, if not prevent, incidents and accidents.

The system is based on the "Technical Management of Chemical Process Safety" developed by the centre for Chemical Process Safety of the American Institute of Chemical Engineers.

4.3.5 Environment Management Plan

An Environment Management Manual (EMM) has been developed for Terminals' facilities in Australia. Terminals has ISO 14001 accreditation for its Melbourne, Geelong and Port Botany facilities. Its purpose is to cover the requirements for environmental protection, and management of the operations of Terminals in relation to routine on-site and off-site activities. This plan will continue to be applied to the redeveloped facility and will include the setting of emission and environmental goals and the ongoing audit of the site environmental and operating systems.

4.3.6 Safety Performance

The "continued improvement" philosophy is entrenched in the Process Safety Management Model. It is essential to Terminals' business success to monitor parameters for performance, set objectives then develop and implement plans to achieve nominated targets.

Action plans developed from incidents and audits are monitored to completion using a computer based management follow up system.

Terminals encourages investigation of near misses as well as minor and significant incidents. This "root cause" analysis ensures the greater number of lessons can be learned and improvements made. Severity and frequency of incidents are reduced using this method.

An active Occupational Hygiene and Health Program is in place. Annual medical checks are conducted on all operating personnel. Noise, and on older sites asbestos assessments, have been independently carried out by external professional occupational hygienists, and all recommendations have been implemented.

4.4 Manuals

The following Terminals' manuals are available for review.

- Quality Systems Manual
- Safety Management Manual
- Quality Manual
- Training Manual
- Emergency Procedures Plan
- Environmental Management Manual
- Occupational Health and Safety Manual
- Operations Procedures Manual
- Maintenance Inspections and Procedures Manual
- Engineering Procedures and Policies Manual.
- Critical Control Performance Manual
- Safety Case Manual

Appendix 1

Summary of Targets

SUMMARY OF TARGETS 2005 - 2008

Element	Target Objective	Due
Evaluate Effectiveness of Targets from first EIP	- New Vapour Emission Control System	4th QTR 2005
	- High Pressure Alarms on tanks	4th QTR 2005
	- Odour Emissions from Acrylate Tanks	4th QTR 2005
	- Impermeable liners under tanks	4th QTR 2005
	- New piping systems	4th QTR 2005
	- New Exchange areas	4th QTR 2005
	- Seal Truck Loading System	4th QTR 2005
	- New Internal Waste Minimisation pipe work	4th QTR 2005
	- Segregation of Site Stormwater	4th QTR 2005
	- Shipping Emergency Shutdown	4th QTR 2005
	- Independent High Level Alarms	4th QTR 2005
	- Back up Power Supply	4th QTR 2005
Complete 10 tank Expansion at Plant C	- Refurbish tanks and upgrade foundations	2nd QTR 2005
	- Install HDPE or impermeable liners under tank floors	2nd QTR 2005
	- Install new piping systems including internal tank pipe work to minimise waste	2nd QTR 2005
	- Connect new pipe work to sealed truck loading system	2nd QTR 2005
	- Install clay liner on tank floor bund	4th QTR 2005
Complete Combustible/Non Hazardous Upgrade at Plant B	- Refurbish tanks and upgrade foundations	2nd QTR 2005
	- Install HDPE or impermeable liners under tank floors	2nd QTR 2005
	- Install new piping systems including internal tank pipe work to minimise waste	2nd QTR 2005
	- Connect new pipe work to sealed truck loading system	2nd QTR 2005
Upgrade 12 Flammable/Hazardous Storage Tanks	- Refurbish tanks and upgrade foundations	4th QTR 2008
	- Install HDPE or impermeable liners under tank floors	4th QTR 2008
	- Install new piping systems including internal tank pipe work to minimise waste	4th QTR 2008
	- Connect new pipe work to sealed truck loading system	4th QTR 2008
	- Install high pressure alarm on tank	4th QTR 2008

Element	Target Objective	Due
Hard Piped Exchange Areas	- Install hard pipe exchange area at Plant B - Connect 12 tanks to new exchange area Plant B - Connect all tanks to exchange area Plant C	4th QTR 2005 4th QTR 2008 4th QTR 2005
Sealed Truck Loading	- Install new truckfill infrastructure at Plant B to allow seal truck loading - Connect 12 upgraded tanks to new seal truck loading system	4th QTR 2006 4th QTR 2008
Emergency Lighting	- Carry out emergency lighting survey - Install emergency Lighting Plant B - Install emergency Lighting Plant C	2nd QTR 2005 4th QTR 2005 4th QTR 2006
East Side Remediation	- Remove all product and gas free tanks and associated equipment - Demolish and remove all tanks, associated equipment and buildings - Remediate east Side as per Remediation Action Plan - Monitor groundwater after remediation complete - Handover East Side to MPC - Obtain statement of Environmental Audit - Review accredited EPA licence in light of closure of East Side	2nd QTR 2005 3rd QTR 2005 2nd QTR 2005 4th QTR 2005 1st QTR 2006 2nd QTR 2006 4th QTR 2006
Groundwater Protection	- Conduct further delineation work - Remediate hotspots by install recovery trenches if required - Extend sparge curtain if required - Monitor effectiveness of remediation at Plant C - Continue 10 yr tank inspection program	4th QTR 2006 TBA TBA 4th QTR 2006 Ongoing
Segregate Site Stormwater and Operational Area	- Contain Plant B truckfill /drumfill & pump slabs - Install roofs over operational areas - Install First Flush Pits (subject to sewer availability)	3rd QTR 2005 4th QTR 2005 TBA
Sediment and Litter Traps on Bund Drains	- Install to Plant B & C bund outlets	4th QTR 2005

Element	Target Objective	Due
Sewer Connection	- Site Sewerage Sources & Stormwater First Flush	TBA
Vapour Emission Control System	- Connect remaining tanks to new VECS after closure of East Side	4th QTR 2005
Combustion System Heat Recovery (Greenhouse Action Plan Items)	- Shutdown Boiler and VECS on East Side - Investigate lowering operating temperature of combustor - Investigate fine tuning excess air requirements - Investigate turning combustor off at night - Investigate case for cogeneration gas turbine generator use heat from combustor	2nd QTR 2005 4th QTR 2005 4th QTR 2005 4th QTR 2005 4th QTR 2006
Plant A Groundwater Monitoring	- Conduct groundwater monitoring at Plant A site	Ongoing