



Division	Fuels and Infrastructure
Type	Plan
Title	Operational Environmental Management Plan Kurnell Terminal

Division: : Fuels & Infrastructure

Operational Environmental Management Plan Kurnell Terminal

Final Stage Two

Redacted Version for Ampol Public Website

Note:

Content considered to be security and/or commercially sensitive within this Kurnell Terminal Stage 2. Final Operational Environmental Management Plan (OEMP) have been blacked out prior to posting on the Ampol Public Website.

Refer to SSD5544, specifically consent condition D9

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Glossary of Terms and Abbreviations

Abbreviation	Term
ACS Cell	Asbestos Contaminated Soil Containment Cell
AMOSC	Australian Marine Oil Spill Centre
AST	aboveground storage tank
ATG	Automatic tank gauging
Ampol	Ampol Australia Petroleum Pty Ltd
CIPs	Control Improvement Plans
CLOR	Ampol Lubricating Oil Refinery
CRMF	Ampol Risk Management Framework
CSRF	Ampol Soil Remediation Facility
CSRF EMP	Ampol Soil Remediation Facility Environmental Management Plan
D&D	Decommissioning and demolition
DCS	Distributed Control Systems
DCVG	Direct current voltage gradient
DPIE	Department of Planning , Industry and Environment
EFRT	External Floating Roof Tanks
EMS	Environmental Management System
EPA	Environment Protection Agency
EPC	Emergency Planning Committee
EPL	Environment Protection Licence
IEA	Independent Environment Audit
JHA	Job Hazard Analysis
JSA	Job Safety Analysis
JUHI	Joint User Hydrant Installation
kL	Kilolitre
km	Kilometre
kPag	Kilopascal (gauge pressure)
KNT	Kurnell Terminal
L&D System	Learning and Development System
LERT	Local Emergency Response Team
LI/NLI	Loss Investigation or Near Loss Investigation
LIMS	Laboratory Information Management System
LPO	Loss Prevention Observation
LPS	Loss Prevention System
m	Metre
MHF	Major Hazard Facility
mm	Millimetre
NPI	National Pollutant Inventory
OEMP	Operational Environmental Management Plan

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OEMS	Operating Excellence Management System
OWMS	Oily Water Management System
PANSW	Port Authority NSW
PMP	Performance Management Plan
PRP	Pollution Reduction Program
ROW	Right of Way
SAP PM	SAP Preventative Maintenance
SCOLT	Terminal Operations Leadership Team
SES	Senior Environmental Specialist
SMP	Sydney Metropolitan Pipeline
SNP	Sydney Newcastle Pipeline
SPSA	Safe Performance Self-Assessment
T&I Program	Turnaround and Inspection Program
TERP	Transition Emergency Response Plan
The 'Site'	Kurnell Terminal
Site Manager	Sydney Terminals Operations Manager
UST	Underground storage tank
WWTP	Waste-Water Treatment Plant

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This Operational Environmental Management Plan (OEMP) is based on a format and framework (SD102384) developed for Ampol Fuels and Infrastructure sites which is designed to ensure compliance with various regulatory guidelines and facilitate implementation of Ampol Environment Policy. It is aligned with the requirements of ISO14001, as shown by the matrix in Appendix I.

The OEMP considers the scale of the activity, the sensitivity of the location and environmental risks. The OEMP has a continual improvement provision to ensure its ongoing suitability, adequacy and effectiveness in alignment with ongoing site activities.

This document will be reviewed and revised in accordance with the requirements of OEMS Element for Document and Records Management.

Document Review & Revision Attributes:

Document Creation and Revision Attributes are all recorded within the document management system, including creation date, last review and next review date.
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1. Introduction

This interim Operational Environmental Management Plan (OEMP) has been prepared by Ampol Australia Petroleum Pty Ltd (Ampol) to identify and provide management solutions for potential environmental impacts arising from the operation of the Kurnell Terminal located at 2 Solander Street, Kurnell, NSW, 2231 ("the Site"), along with associated Kurnell Terminal Wharf and pipeline operations.

This OEMP has been prepared and structured to:

- meet the requirements of Condition D2 of Development Consent SSD 5544, to prepare and implement an OEMP for the operations at the Terminal.
- ensure compliance with operational elements of the site Environment Protection Licence (EPL) 837, issued by NSW EPA on 12 April 2019 to conduct shipping in bulk, chemical storage (mainly petroleum finished products).
- meet the requirements of the Ampol Operational Excellence Management Systems (OEMS) and ISO14001:2015 Environmental Management Systems (EMS) requirements.

The site holds a current ISO14001:2015 EMS Certificate of Approval – No:0048680-001, issued by Lloyds Register on 01 July 2020.

1.1. Scope

The scope of this OEMP includes the operational activities undertaken by Ampol employees, contractors and subcontractors at the Site and any area under the Site's operational control.

Site operational boundaries as related to the Site's Environmental Management System are described in document titled Environmental Management System Description (CD2618).

It is the responsibility of all site personnel, including contractors and sub-contractors, to comply with the requirements of the OEMP.

All employees, and those involved in site operations are required to abide by the Ampol Environment Policy. A copy of the Ampol Policy is contained in Appendix B.

Implementation of policy commitments enables Ampol to achieve its aim to "operate in such a way as to minimise adverse impacts on the environment and communities in which it operates."

The site has one current NSW EPA Licence (EPL837) issued on 12 April 2019 to conduct shipping in bulk; petroleum product storage; chemical storage and waste generation. This OEMP has been structured to meet the conditions set within the current EPL, the Ampol Operational Excellence Management Systems (OEMS) and ISO14001:2015 Environmental Management Systems (EMS) requirements.

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1.2. Objectives

The objectives of this OEMP are to:

- Demonstrate due diligence to stakeholders and environmental regulators
- Ensure that potential environmental impacts associated with site operations are identified along with management solutions
- Provide a comprehensive overview of the environmental management strategy for site operations
- Ensure that operational activities comply with relevant regulatory requirements
- Provide a framework for continual improvement which is aligned with ISO14001

The objectives will be achieved through the management commitment, strategies and monitoring programs outlined in this OEMP.

1.3. OEMP Sub Plans

As per the required included in Condition D2 of SSD 5544, the Stage Two Final OEMP is supported by a number of Management Sub Plans to address specific environmental aspects of the Terminal. They are:

- Noise Management Plan
- Air Quality Management Plan
- Soil and Water Management Plan
- Waste and Resource Management Plan
- Traffic Management Plan
- Biodiversity, Pest and Weed Management Plan

An additional Management Sub Plan called *Biosecurity Incident Response Management Plan* (BIRMP) is included in the OEMP. It was developed in April 2019 to address the assessment outcomes from the First Point of Entry (FPOE) Regulatory Standards Assessment for international vessels entering Australia via Port facilities. The Kurnell Terminal Wharf is a designated FPOE as it provides wharf facilities to receive bulk finished petroleum product imports via medium or long range fuel tanker ships.

The BIRMP has been developed to meet the requirements of the Commonwealth Department of Agriculture, Water and Environment (DAWE) FPOE Guide document. The bulk finished fuels import activities at the Ampol owned Kurnell Wharf have been classified as “low risk” by DAWE.

These Sub Plans have been included in Appendix J of this OEMP.

Notes:

The Site Auditor approved Asbestos Contaminated Soil (ACS) Containment Cell – Long-Term Environment Management Plan is also included in Appendix K.

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The approved SSD5544 Consolidated Conditions of Consent are included in Appendix L.

2. Kurnell Terminal Site Description and Layout

Kurnell Terminal is a petroleum product import, storage and distribution facility located on the Kurnell Peninsula on the southern side of Botany Bay. The Terminal is a Major Hazard Facility (Licence No:10131-01).

Ampol import finished products (gasoline, jet fuel and diesel) through two fixed berths (KUR1 and KUR2) at a wharf and an additional sub berth (KUR3) located in Botany Bay for diesel product only. Product is then stored on Site in tanks. Product is distributed via pipeline under Botany Bay to the Ampol Banksmeadow Terminal where it is dispatched via road tankers or to Mobil Silverwater and NCT (via the Sydney/Newcastle pipeline (SNP)) or the Joint User Hydrant Installation (JUHI) at Sydney Airport for further distribution.

Please note that the management of the Sydney Metropolitan Pipeline (SMP) is discussed within the SNP OEMP.

Any slops generated as a result of Terminal operations are stored for future blending with other fuels on site, prior to distribution to the network described above.

The Site was formally a refinery and has just completed the final stage of demolishing remaining redundant infrastructure including tanks (three) and the removal of asbestos affected soils from the pipe way and placement in the on-site Asbestos Contaminated Soil (ACS) Containment Cell.

The Terminal occupies a number of Lot and DPs which are listed in Appendix A.

Pipeline operations for product receipt are discussed in Section 2.4 and pipeline operations for product distribution are discussed in Section 2.5.3. Wharf operations are discussed in Section 2.5.6.4.

Site information is summarised in the following table.

Table 2-1 Site Description

Site Address	2 Solander Street, Kurnell, NSW, 2231
Ampol SAP ID	535
Description of Core Business of the Site	Fuel Import, Storage and Distribution
Local Government Jurisdiction	Sutherland Shire Council
Landowner	Ampol Australia Petroleum Pty Ltd

Refer to Appendix A for a current site map showing the site boundaries, site infrastructure, adjacent properties, roadways, entry and exit points and licence monitoring and release points as they are applicable to this site.

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2.1. Surrounding Land Uses

The Site is bounded by Captain Cook Drive and the community of Kurnell to the North and Sir Joseph Banks Drive to the west. It is bounded to the south and east by Kamay Botany Bay National Park.

Surrounding land uses are detailed in Table 2-2.

Table 2-2 Surrounding Land Uses

Description of Surrounding Land Use	Location	Distance	Direction from Site
Sydney Desalination Plant	Sir Joseph Banks Drive	10 m	SW
Ausgrid	Captain Cook Drive	70 m	W
Village of Kurnell	Kurnell	50 m (closest receptor)	N & NE
Kurnell Primary School	Dampier St, Kurnell	600 m	NW
Kurnell Pre-School Kindergarten	Captain Cook Drive	600 m	N
Small Shopping Centre	Torres St, Kurnell	480 m	NW
Marton Park and Marton Park Wetland (part owned by Ampol)	Captain Cook Drive	50 m	N
Kamay Botany Bay National Park	Sir Joseph Banks Drive	Immediately Adjacent	S & E

The Kurnell Terminal Wharf operates in the southern side of Botany Bay. The key features in the areas surrounding the Wharf are listed in Table 2-3.

Table 2-3 Key features surrounding the Wharf

Silver Beach	Recreational beaches and seagrass beds
Quibray Bay	Wader feeding and roosting, seagrass beds, mangroves and saltmarsh, oyster leases. A large part of this bay is an aquatic reserve bordered by a Ramsar site.
Weeney Bay	Seagrass beds, mangroves and saltmarsh
Woollooware Bay	Seagrass beds, mangroves and saltmarsh, oyster leases
Georges River	Oyster leases and seagrass beds, boats and moorings
Dolls Point - Captain Cook Bridge	Seagrass beds, recreational beaches
Cooks River	Boats & moorings
Airport Extension-Botany-Banksmeadow	Wader feeding area, seagrass beds
General	All aforementioned areas are important habitats for birds other than Waders. Recreational beaches cover a significant proportion of the Botany Bay foreshores. Botany Bay is a major spawning and nursery ground for fish. Commercial fishing in the bay is banned. Natural rocky shores predominant at the heads to Botany Bay.
Industrial	Port Authority of NSW

The pipelines that bring product from the berths to the Site run along the length of the Wharf, through the eastern Right of Way and into the Terminal. The pipelines that carry finished product



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from the Terminal run back through the eastern Right of Way, briefly onto the Wharf and then drop down below the bed of Botany Bay. All of the finished product pipelines are located below ground through the eastern Right of Way.

The pipelines remain underground (water) when they reach the northern side of Botany Bay at Bonborah Point where a maintenance pit is located. From here the pipelines run below ground towards Banksmeadow Terminal and the JUHI at Sydney Airport.

2.2. Site Layout

Kurnell Terminal is owned and operated by Ampol. The main areas on Site include:

- The eastern and western tanks farms.
- The location of the former Ampol Lubricating Oil Refinery (CLOR) in the south west (demolished).
- The non- operational Landfarm in the south west corner of the Terminal. This facility is on site but is now outside Terminal Operations management. The Landfarm is currently under active remediation and managed by the Kurnell Remediation Project team. The project has a separate EMP, inclusive of all site specific environmental requirements.
- Vacant land to the south of the Terminal which the redundant Continental Carbon Pipeline had traversed through. This pipeline was removed, along with remediation works, as part of the demolition works). This land is owned by Ampol and the remediation/regenerated vegetation in this area is managed by the Terminal.
- Wetlands at the south-easterly end of the site. This land is owned by Ampol and the area is maintained by wetlands/bushland specialists under the direction of the Terminal.
- Manifold areas and pipework.
- The Waste -Water Treatment Plant (WWTP) on the north western part of the Site.
- A marine facility (the 'Wharf') accessed via Prince Charles Parade with two fixed berths and a sub berth.
- Two Rights of Way running through the Kurnell township.
- Part of the Marton Park Wetland owned by Ampol.
- Administration buildings outside of the Terminal fence line which house Supply, Fuels and Infrastructure HSE team members, Engineering Services, IT Support and Terminal Operations (including the Lab).

A site locality map has been provided in Appendix A.

2.3. Operations and Activities

The main site operations and activities comprise:

- Receipt of finished product via the wharf
- Distribution of product through the pipelines to other Ampol facilities (managed by the Ampol Pipelines team)
- Wharf operations and maintenance
- Shipping activities

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- Coordinating product movements between the Terminal, Banksmeadow Terminal, Sydney JUHI and SNP (automated)
- Filling, transferring and delivering product to/from onsite storage tanks via internal pipelines
- Inspection, monitoring and testing of all storage and product transfer equipment, including bulk storage tanks, piping systems and valves, vent systems and devices, emergency shutdown systems, control pumps, and maintenance of all storage and product transfer equipment
- Inspecting vapour lines for compliance
- Emergency Response
- Obtaining samples of product for testing, storage and disposal at the Site laboratory
- Maintenance of pipeline Right of Ways (ROWs)
- Vegetation and weed management
- Operation of a jet fuel treater
- Stormwater management and outfalls at Quibray and Botany Bay
- Oily water system capture, treatment at the Waste-Water Treatment Plant and wastewater outfall pipeline through Yena Gap
- Managing site and wharf security (including site entry and other permits)
- Inventory management and data entry/processing
- Conducting and recording routine inspections and observations
- Community and other interested party consultation – included responding to community complaints
- Management of road traffic and people movements on Site

The following activities are undertaken on Site but are not managed by Terminal Operations, therefore are outside of the scope of this OEMP:

- Remediation Project activities, including Landfarm remediation

Note: The Ampol Soil Remediation Facility ceased operations in 4th Quarter, 2018.

While these activities are not managed by Terminal Operations, a description of these activities is provided in Section 2.5.6.9. to give an overall context of operations occurring at the Site.

In addition, a recreational centre is located within Ampol owned land on the western boundary of the Terminal area. This area is not under Terminal Operations management.

2.4. Licences and Permits

The Kurnell Terminal Approvals Register (see Appendix C) identifies current licences, permits and consents obtained by Ampol for the site.

2.5. Management of Product Receipt, Storage, Delivery and Supply

Activities and operations required for the receipt, storage, delivery and supply of refined product are outlined in detailed operating procedures developed in accordance with Ampol National Standards, work instructions and manuals specific to the site. These defined operating parameters,

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including responsibility and accountability. All documents form part of the Ampol Operating Excellence Management System (OEMS), which adheres to respective Australian Standards, local authority requirements, license agreements and industry codes.

2.5.1. Product Receipt

Kurnell Terminal has two separate systems of pipelines. Product receipt pipelines which transport product from the Wharf to the Terminal as well as Terminal to Wharf for Product Export. These pipelines may also be used to send slops from the Terminal to the Wharf. In addition, the Terminal has separate pipelines for product distribution. These pipelines are discussed in Section 2.5.3. Both product receipt and distribution pipelines are maintained in accordance with the Ampol SAP Preventative Maintenance (SAP PM) system.

Product receipt pipelines which travel from the Wharf to the Terminal are identified in Table 2-4.

Table 2-4 Product Receipt

Line / Product	Length (km)	Diameter OD (mm)	Max Pumping Rate (kL/hr)	Average Pumping Rate (kL/hr)
Gasoline 1				
Fuel Oil Shipping				
24"/18" Fuel Oil Shipping				
Jet Fuel 1				
Jet Fuel 2				
Diesel 1				
Diesel 2				
Gasoline 2				
Diesel 3A				
Diesel 3B				
Sub Industrial Diesel Oil				
Sub Bunker Fuel Oil				

Prior to a vessel arriving at the Wharf, the Kurnell Terminal Shipping Scheduler prepares a Kurnell Berthing Schedule which includes timing of all vessel discharges. The Shipping Scheduler then nominates receiving tanks for the products to be discharged and issues to the Terminal Operations Specialist. The Terminal Operations Specialist then details the discharge instructions before issuing to the Terminal Operations Coordinators. Once product has been received on Site at the Terminal the tanks are sampled. Samples are sent to the Kurnell Terminal Laboratory for testing and release.

In addition, the following pipelines are owned and operated by Kurnell Terminal for distribution of slops from the Terminal to the wharf and vice versa.



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Table 2-5 Slops Pipelines to and from Kurnell Terminal to the Wharf

Line / Product	Length (km)	Diameter OD (mm)
Dry Slop 2		
Dry Slop 1		
Dry Slop 3		
Wet Slop		

All product receipt pipelines are fitted with cathodic protection. Operational surveillance is undertaken monthly of all pipelines as triggered by SAP PM. Engineering surveillance is undertaken annually of all pipelines as triggered by SAP PM. The following additional monitoring is undertaken of all pipelines:

- Cathodic protection monitoring quarterly / 6 monthly
- Direct current voltage gradient (DCVG) survey of underground sections conducted every 5 years
- Pressure testing to AS 2885 every 2 years
- Visual inspections

The Wharf Maintenance Coordinator is responsible for maintenance, inspection, testing and servicing of pipelines from the Wharf to the Terminal.

2.5.2. Product Storage

Product received via the Wharf is stored in tanks at the Terminal. Under SSD 5544 the Terminal shall not store in excess of 925 ML of refined product on Site at any one time. There are 53 aboveground storage tanks (ASTs).

A list of decommissioned tanks and tank locations are shown in the Site Layout Plans in Appendix A.

Product storage is summarised in the following table.

Table 2-6 Product Storage

Tank #	Product	Capacity (kL)	Diameter (m)	Height (m)	Roof
T3					
T4					
T10					
T11					
T12					
T13					
T102					
T103					
T104					



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Tank #	Product	Capacity (kL)	Diameter (m)	Height (m)	Roof
T105					
T127					
T128					
T138					
T145					
T148					
T157					
T158					
T159					
T166					
T168					
T169					
T204					
T205					
T209					
T251					
T252					
T318					
T319					
T320					
T404					
T405					
T406					
T407					
T408					
T409					
T410					
T411					
T412					
T413					
T502					
T512					
T513					
T601					
T603					
T611					
T612					
T613					
T633					

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Tank #	Product	Capacity (kL)	Diameter (m)	Height (m)	Roof
T634					
15D-18					
15D-26					
15D-27					
Total (kL) for refined product (not including slops / water / firewater)					

The Terminal also has a number of smaller tanks on Site which mainly contain additives, diesel supply for plant, fire foam and slops. The smaller tanks do not have overfill protection. The majority of these tanks are <5kL, although there are four tanks between 20-40 kL, used for additive, foam concentrate and wet slops. The location of these tanks / storage containers is not shown on the Site Plan in Appendix A.

Table 2-7 High level alarms based on maximum receipt pumping rates

Tank type	*Safety Factor (below overfill level)	min	mm
Floating Roof Tanks	Critical High-Level set at a minimum clearance of 150mm between the top of the roof seal to the foam pourer, overflow nozzle or rafter		150
	Tank High High Level (LAHH / LSHH) set below the critical high level	15	150
	Level Alarm High (LAH) set below the tank LAHH	10	150
	Maximum Working Level set below the LAH	5	
Fixed Roof Tanks	Critical High-Level set 75 mm below the foam nozzle or roof girder/rafter or 150 mm below the top angle of the tank (whichever is greater)		75 or 150
	Tank High High Level (LAHH / LSHH) set below critical high level	15	150
	Level Alarm High (LAH) set below the tank LAHH	10	150
	Maximum Working Level set below the LAH	5	

*For vertical tanks the tank capacity provided is the tank capacity at critical high level. For horizontal tanks the tank capacity provided is the nominal horizontal tank capacity

ASTs are fitted with the following overfill prevention safeguards:

- Automatic tank gauging (ATG)
- High Level Alarms and automated high level shut off system
- Daily Inventory reconciliation
- Multi Spot Temperature probes
- Routine monthly dipping and dips before and after product receipt
- Routine tank T&I program includes inspections of and repairs to tanks
- Tank Integrity Testing managed through the Risk Based Inspection system which sets nominal inspection periods based on previous data. For Category 6 tanks (>150kL), nominal

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inspection periods for internal inspections are 10 yearly and external are five yearly. Depending on the history the intervals are varied, i.e. shortened and extended

The ATG instantaneously provide the volume of a product in a tank. The high-high level alarms are in the form of visual and audible alarms and are located at strategic locations throughout the terminal. The high-high tank level is an emergency action alarm set sufficiently below the critical high level to enable termination of product receipt before the critical high level is reached. This shall be set at the same level as the independent high high level alarm (IHHLA). This alarm must be set below the Critical High Level by an amount equal or greater than:

- calculated HH to CH Response Time (τ_{HH-CH}) OR
- 7.5 minutes OR
- 76 mm below CH level

whichever is the greater.

For tanks with low flash materials the following additional controls are implemented:

- Explosive vapour detectors within the bunds
- Triple infrared scanners on tank roofs
- CCTV in conjunction with infrared cameras as a confirmation for alarms

Ampol undertook a review of the condition and capacity of the tank bunds at the Terminal during conversion. Ampol has committed that the bunding capacity for tanks retained in service will comply with the requirements of AS1940.

Ampol conduct regular inspection programs on Site to monitor bund walls and identify if repairs are required. The routine T&I program includes inspections of and repairs to tank bund walls, at an approximate frequency of every 8-10 years in accordance with Ampol Tank Standards.

Table 2-8 Bund Capacity and Area

Location	Total Bund Capacity (m ³)	Total Bund Area (m ²)	Bund Type	Drainage Controls
Tanks 11, 12, 13				
Tank 102				
Tank 103				
Tank 104				
Tank 105				
Tanks 125				
Tank 127				
Tanks 128, 138, 148				
Tank 145				
Tank 157				
Tank 158				

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Location	Total Bund Capacity (m ³)	Total Bund Area (m ²)	Bund Type	Drainage Controls
Tank 159				
Tank 166				
Tanks 168, 169				
Tank 204				
Tank 205				
Tank 209, 251, 252				
Tank 318				
Tank 319, 320				
Tank 404, 405				
Tank 406				
Tank 407				
Tank 408				
Tank 409				
Tank 410				
Tanks 411, 413				
Tank 502				
Tank 512, 513				
Tank 601				
Tank 603				
Tank 611				
Tank 612				
Tank 613				
Tank 633				
Tank 634				

Other products including STADIS for Jet Fuel dosing, are stored in 20 litre drums or IBC. Ampol maintain a dangerous goods manifest for the site.

2.5.3. Product Delivery / Supply - Pipeline Management

Each product is distributed via a designated subterranean pipeline under Botany Bay to the Ampol Banksmeadow Terminal or the JUHI at Sydney Airport for further distribution. These subterranean

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pipelines are only exposed within Kurnell Terminal, on the Kurnell Wharf, at Banksmeadow Terminal and at the JUHI.

These pipelines are owned and maintained by Ampol. Transfers from the Terminal happen on a daily basis depending on demand from the receiving facilities. All pipelines have cathodic protection and volumetric leak detection. Warning signs are installed on the surface to indicate their presence underground. The pipelines are registered with Dial-Before-You-Dig.

Table 2-9 Pipeline Distribution Description

Line	Description	WorkCover NSW Licence	Product	Diameter OD (mm)	Length (km)	Max Pumping Rate (kL / hr)
A Line	Kurnell Terminal to Banksmeadow Terminal	35/008406 35/011094				
B Line Section 1	Kurnell Terminal to Bumborah Point	17/1955 2004/016336				
B Line Section 2	Bumborah Point to Banksmeadow Terminal	18/1955 2004/016337				
B Line Section 3	Banksmeadow Terminal to JUHI at Sydney Airport	19/1971 2004/016338				
C Line	Kurnell Terminal to Banksmeadow Terminal	20/1955 2004/016339				
D Line	Kurnell Terminal to Banksmeadow Terminal	21/1955 2004/016340				

2.5.3.1. Pipeline Operations and Maintenance

Maintenance of the pipelines is designed to maintain the long term integrity, functionality and operating capability of the asset. Maintenance is scheduled in accordance with the Ampol SAP Preventative Maintenance (SAP PM) system. In all cases sections of the pipeline that are at greater risk of failure or high safety or environmental consequence, have a higher frequency of maintenance and inspection (e.g. areas subject to third party encroachment or overwater section).

Terminal pipelines within the Site are managed by the Infrastructure Operations Repair and Maintenance group (IO R&M group).

Pipeline monitoring inspections are undertaken regularly under the Risk based Inspection (R&I) program to ensure the maintenance of the following:

- Structure and integrity of the pipeline
- Operating conditions and practices
- Environmental condition of the easement

Monitoring inspections and reporting activities are conducted by ground surveillance by qualified contractors in accordance with the following schedule:

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Table 2-10 Monitoring and reporting of pipelines

Surveillance Activity	Location	Frequency	Reporting	Responsibility
Ground patrols	Pipeline easements	Weekly	Weekly	Pipelines Coordinator

External pipelines are managed by the Pipelines Coordinator, external to Terminal Operations. The Pipelines Coordinator is responsible for maintenance, inspection, testing and servicing of external pipelines.

2.5.4. Air Emission Management

Kurnell Terminal manages air emissions in accordance with EPL 837. The Site will be maintained in a condition which minimises or prevents the emission of dust.

Air emissions from Terminal operations relate to standing and working losses from the storage tanks, and fugitive emissions from pipes, flanges, pumps and area sources including the Ampol Soil Remediation Facility and Oily Water Treatment system.

Condition L2 of the EPL specifies Load Limits for the Site. The actual load of an assessable pollutant discharged from the Site must not exceed the load limit specified in Table 2-11. In accordance with condition M4 monitoring of actual loads of assessable pollutants is carried out through calculation rather than direct monitoring.

Table 2-11 EPL 837 - Condition L2 Load Limits

Assessable Pollutant	Load Limit (kg)
Benzene (Air)	6,000
Volatile organic compounds – Summer (Air)	-
Volatile organic compounds (Air)	3,000,000

In line with specific requirements of *Pollution Studies And Reduction Programs (PRPS)* defined in EPL837, Ampol has committed to the installation of emission reducing sleeves or seals on twelve External Floating Roof Tanks (EFRT) in Gasoline service after the transition from a Refinery to a Terminal. The NSW EPA have agreed to a three-part implementation program. Part 1 has been completed and reported on in the 2015 Annual Return. Part 2 has also been completed and reported on in the 2017 Annual Return.

Part 3 includes Tk408, Tk409, Tk318, Tk513 and Tk204 and is currently underway and will run till 2025. Progress against this requirement is reported in each Annual Return.

2.5.5. Spill Containment and Response

The following types of spill containment are present on site for minimising potential hydrocarbon impacts to surface water, groundwater, soil, and the surrounding environment.

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Table 2-12 Spill Containment

Type	Description	Site Locations
Marine Oil Spill	Oil spill equipment (booms, marine vessels and absorbent materials). Oil spill response equipment is inspected and maintained for Ampol on an ongoing basis by National Maritime Services (SAP maintenance system with an M7 maintenance program).	Oil spill store and the Wharf.
Bunding of Dangerous Goods Storage	Bunds are constructed to meet the requirements of AS1940 (capable of holding contents of largest tank plus 20 minutes of firewater)	Refer to site map in Appendix A.
	Bund drainage and drain valve operation	Refer to site map in Appendix A.
Spill Kits	Hydrocarbon spill kits are available for use in smaller scale spills however, they can be used to restrict larger spills impact area. Absorbent material is located in large bins around the Site for use in conjunction with the spill kits. Spill kits are subject to regular inspections to ensure that they are kept fully stocked.	Numerous spill kits and clean up equipment are located in different areas of the Site in case of an emergency incident Refer to site map in Appendix A.
Oily wastewater system	The oily wastewater system has significant contingency arrangements, including tertiary containment capacity available in the event of a spill.	Oily wastewater system.

Incident and emergency response procedures are detailed in Section 5.

2.5.6. Stormwater and Oily Water Management

2.5.6.1. Stormwater

Stormwater generated on the Site is collected in the Site's stormwater system, treated where necessary and discharged off-site to three receiving water bodies, including:

- Discharge by open drainage lines via the Quibray Bay stormwater basin to Quibray Bay through a narrow strip of the Towra Point Nature Reserve and the mangrove wetland;
- Discharge into Botany Bay at Silver Beach near the wharf; and
- Discharge to Marton Park Wetland primarily by infiltration.

Stormwater was initially managed under the Stormwater Management Plan, which was prepared in line with EPL 837 Pollution Reduction Program (PRP) U24.1 Stormwater Catchment and Management Plan. In line with the requirements of SSD5544: Consent Condition C12, stormwater



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management was incorporated into the new *Soil and Water Management Sub Plan*, refer to Appendix J for full details.

The key water quality management strategy adopted by the Site has been to prevent, to the extent practicable, interaction between petroleum hydrocarbons and stormwater. Consequently the stormwater system only collects runoff from areas of the Site that have been designated low risk with respect to interaction with petroleum products, such as roadways and building roofs.

Kurnell Terminal is divided into seven stormwater catchment areas. These stormwater catchments are described in Table 2-13.

Table 2-13 Stormwater Drainage System Catchments

Catchment	Location Description
A	Eastern and northern area of the Site which includes the large eastern tank area.
B	Central area of the Site which contains majority of the ex-refinery process areas as well as offices, cafe, workshops and store houses; and western part of the Site which contains the wastewater treatment plant, western tank area, LPG loading area and storage plant, the Quibray Bay Stormwater Retention Basin and parking area.
C	Northern corner of the Site which includes main offices, former staff houses, gardens, employee car park and wetland.
D	An area between the former CLOR in the south west and the former refinery area.
E	South western corner of the Site (former CLOR site), which contains yard office, workshop, laboratory, maintenance, process units and vacant tank compounds.
F	South eastern corner of the Site, which predominately comprises relatively undeveloped land and a small area of tank compound, the Landfarm area (which is a bioremediation site), a recycling area, and a sludge lagoon.
G	North eastern undeveloped area mostly outside of the Site boundary, which is part of the Kamay Botany Bay National Park.

There are various retention and treatment systems incorporated into the Site's stormwater system. The main Site catchments with the potential for interaction between petroleum products and stormwater are Catchments A and B, primarily along the pipeways. The systems incorporated into the stormwater system to regulate flow and discharge rates, and prevent discharge of impacted stormwater from the Site are as follows:

- Provision for isolation of drainage in pipeways;
- Installation of manually operated skimmer pumps at pump transfer points (with pumping to the oily water sewer system);
- Ability to redirect stormwater to the intermediate sewer (Catchment B only);
- Retention in an on-site retention basin (Catchment B only);
- Discharge via siphon systems; and
- Treatment in oil/water/solids separators.

The area where the former CLOR was located (Catchment E) discharges off site without treatment, except any water that collects in the former CLOR oily water sewer system, which is now pumped to the Terminal's Oily Water Management System (OWMS) for treatment in the WWTP.

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Catchments B, D, E & F comprise in the order of 70% of the total Site catchment area. These catchments all discharge ultimately to Quibray Bay via aboveground drainage lines passing through a narrow strip of the Towra Point Nature Reserve and the mangrove wetland on the northern side of Quibray Bay. Quibray Bay (and surrounds) is therefore the main receiving environment and is also the most environmentally sensitive of the current stormwater receiving environments.

Refer to the Soil and Water Management Sub-Plan, Appendix J for further details on how stormwater is managed on site.

2.5.6.2. Oily Water

The OWMS at the Site collects process effluent and effluent from the areas of the Site where there is potential for interaction of water flows with petroleum products, for example the tank farm bunds. Oily water from a range of sources is collected in the Site's OWMS and is transferred to the WWTP. Oily water is treated at the WWTP. The treatment process utilises physical, chemical and biological treatment to treat oily water. Treated effluent is discharged to the Tasman Sea via the ocean outfall at Yena Gap (EPL 837 Licence Point 2). Discharge from Yena Gap is monitored in accordance with EPL 837.

2.5.6.3. Groundwater

Groundwater is monitored at multiple locations across the Terminal. Quarterly groundwater monitoring is undertaken in accordance with the existing Groundwater Monitoring Plan for the Terminal. This includes quarterly gauging and monitoring of groundwater wells and testing for pH, conductivity, temperature, dissolved oxygen, TPH and BTEX.

Sampling of groundwater wells 15, 16 (for Landfarm), 28 and 29 (for ACS Cell), in accordance with EPL clauses P1 and M2 is undertaken as part of the wider quarterly Terminal monitoring rounds.

2.5.6.4. Wharf Operations

The Kurnell Wharf is located on the southern shore of Botany Bay to the west of the Kurnell Peninsula Headland and extends approximately 1 km into Botany Bay off Silver Beach. The Wharf is operated by Ampol and an area of Botany Bay around the Wharf is leased from the NSW Government. This area is used exclusively by Ampol for berthing ships to allow loading and unloading to take place. The Kurnell Wharf is the sole entry point for the Terminal's finished petroleum product imports. It comprises the Kurnell Wharf (a 1 km jetty structure), at the end of which are two fixed shipping berths (numbered: #1 and #2) located either side of a breasting island. There is also a submarine berth (sub berth), located off to the west of the fixed berths; a ship turning circle; and associated approaches that interface with the main Botany Bay Shipping Channel. The sub berth has a 'sub diesel flushing line' which is 2.4km long and connects to the Wharf. The flushing line is used for cargo/ship diesel line flushing.

In addition, slops from the Terminal are sent to the Wharf for back loading to ships before being sent for redistribution to other storage terminals. Product receipt pipelines from the Wharf to the Terminal are discussed in Section 2.5.1.

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The unloading controls are covered procedurally with Terminal Coordinators and Port Authority NSW (PANSW) overseeing the connection of the marine loading arms to ensure there are no spills and that the flanges hold when up to full pumping pressure.

The Wharf has one AST located under the Wharf which is used in the event that a pipeline needs to be drained due to a leak or other emergency. The tank capacity is 37.3 kL and has a concrete bund.

The Terminal has Distributed Control Systems (DCS) for flow/pressure indication and receiving/loading tank levels, along with local pressure indicators for reference during loading/discharge to ensure the transfer is conducted safely and closed operations as per the Australasian Ship/Shore Safety and Operational agreement signed by the Terminal Shore Officer, the PANSW Officer and the Chief Officer of the vessel.

Terminal Shore Officers are trained over a four day course run by Ampol, which involves a theoretical component and practical assessment with at least 8-10 vessels before they are signed off as a Shore Officer.

Equipment related to the maintenance is stored near the Prince Charles Parade end of the Wharf. Emergencies at the Wharf are managed in accordance with the Kurnell Terminal Marine Oil Spill Response Plan, as discussed in Section 5.9.1.

2.5.6.5. Biodiversity, Vegetation and Weed Management

The Site is extensively cleared however remnant patches of vegetation of significant ecological value are in the near vicinity of the Site, including:

- Marton Park Woodland and Wetlands (a *Groundwater Dependent Ecosystem* including fringing Swamp Oak Floodplain Forest)
- Towra Point Nature Reserve (Ramsar wetland)
- Towra Point Aquatic Reserve
- Kamay Botany Bay National Park

The Terminal Biodiversity Weed and Pest Management Plan (BWMP) provides guidelines for the management and protection of the sensitive receptors, native biota and critical habitat on the Site and on the adjacent land owned by Ampol. The plan provided weed control measures to protect native vegetation within the Terminal and prevent the spread of noxious weeds on the Site and into Kamay Botany Bay National Park.

In addition to managing weeds within the Terminal, the following areas are maintained by the Terminal:

- Eastern ROW which contains various pipelines that run between Kurnell Wharf and the Terminal. These pipelines are underground.
- Western ROW that had contained the return cooling water outlet line that ran between the Site and Botany Bay. The cooling water pipeline was removed as part of demolition works
- Land to the south of the Terminal adjacent to the Kamay Botany Bay National Park
- Part of Marton Park Wetland

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2.5.6.6. Waste Prevention, Treatment and Disposal Management

The Kurnell Terminal has an established waste prevention, treatment and disposal program in place to manage waste generated from operations and the office. Waste generated in the office is separated by type i.e. recyclable materials (cardboard/paper, drink cans, ink cartridges, batteries, etc.) or general office waste.

The petroleum slops (gasoline or diesel) generated during road tanker loading activities at the Banksmeadow Terminal are captured and returned to the Site for reintroduced into the appropriate product storage tank for blending – refer to EPL837, Limit Condition L4.5.

The Terminal Waste Management Sub Plan (WMP) identifies the waste stream for the activities listed in 2.3 of this OEMP. The WMP also reflects the requirements of the Ampol Distribution business national environmental waste management procedures to manage the classification and tracking of hazardous or trackable waste/s for on-site or off-site disposal, as required.

There are a number of regulated (trackable) waste streams arising from:

- Terminal operations, mainly select maintenance activities
- Tank periodic maintenance (T&I)
- Remediation project investigations and associated contaminated soil works

All such wastes have defined disposal pathways and removed from site by an appropriately licenced waste transporter to the licenced waste receiver, in accordance with the NSW EPA trackable waste regulations.

The hydrocarbon waste removed during the periodic maintenance of the Oily Water Interceptor Separator pits is classified as H3 or H4.2 trackable waste and removed from site by the licenced transporter/receiver.

All wastewater generated from operation is diverted to the onsite Waste-Water Treatment Plant providing secondary treatment of the site's effluent. The effluent is then tested in accordance with the Site EPA Licence. Only water tested and complying with the quality characteristics defined in Condition L3.4 of the licence is released into Yena Gap. Refer to section 2.5.6 Stormwater and Trade Waste-Water Management for more details.

Periodic infrastructure maintenance activities such as Tank inspection and cleaning program, as well as infrastructure improvement projects, can generate waste. These activities are planned events and require a project specific EMP to be written. These EMP's include instructions on how wastes will be managed. Wherever possible, tank contents are reprocessed. All non-reusable waste is classified and then disposed of in accordance with the Site's waste management procedures and in line with the NSW EPA trackable waste regulations.

2.5.6.7. Jet Fuel Treating Unit

The Jet Fuel Treating Unit treats off-spec imported jet fuel via sand filters, salt driers and clay filters. Jet fuel is introduced to the units via one of the Jet Fuel Transfer Pumps 9G-109, 9G-112 or 9G-40X. The sand filters coalesce and remove free water and larger particulates. Free water is removed to drain on automatic level control. Jet Fuel enters the salt driers through a salt bed and

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filters out the saltwater which drains on level control. In the final stage, jet fuel is treated in the clay filters which remove surfactants by chemical bonding to clay particles. Level sight glasses are installed on the vessels. Pressure differential across the treater beds is measured and indicated at the DCS with process alarms.

As jet fuel treating in Terminal mode is an irregular event, the following safeguards against loss of containment due to valve failures are implemented:

- Deviation and process alarms on flow rate, pressure and levels to alert operator to take corrective action
- Routine monitoring through DCS when unit is online
- Safe Operating Limits procedure
- Radio communication between field and panel operators
- Overpressure protection on vessels and lines with pressure safety valves
- Ability to isolate and bypass individual vessels and/or entire process unit
- Automated flow control
- Operator training
- Manning during the periods when jet fuel is treated at the plant
- Process and Instrument Diagrams are up to date and reflect what's in the field
- Personal protective equipment to be worn within process unit
- Permits must be obtained prior to work commencement

The following monitoring of the Jet Fuel Treating Unit is implemented:

- PSVs are checked on a 6-monthly schedule. Records are kept electronically by the Maintenance Coordinators
- 5 yearly remove and test of all PSVs
- Turnaround and inspection
- Real-time field measurement of flow, pressure, levels and temperature are relayed back to the Terminal control room and monitored for deviations.
- Entry to unit must be sought with Terminal Coordinators

The Terminal Coordinator is responsible for the operation of the Jet Fuel Treater. The Terminal Coordinator is trained on the normal operations, start up and shutdown of the Jet Treating Unit, loading and unloading of clay, back flushing of sand filters, preparation of vessel lock out tag out and conduct weekly checks of equipment safety box.

2.5.6.8. Laboratory

The Kurnell Terminal Laboratory is a NATA accredited laboratory and operates 5 days a week and the opening hours are from 7.30am to 4.00pm. These times can also vary according to workload or shipping schedules to cover required testing and reporting.

The Terminal Laboratory is capable of undertaking a wide range of analysis on a variety of products such as:

- Gasoline
- Jet Fuel

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- Automotive Diesel
- Effluent Monitoring

Upon arrival, samples are logged in and tests are assigned by the Terminal Chemist as per the Terminal sample schedule and/or requested testing. All samples are then allocated a unique identification number enabling tracking of results through the Laboratory Information Management System (LIMS) database.

The laboratory sample waste is currently decanted into a hydrocarbon waste tank located at the Terminal Operations Building. Retained samples are also decanted into the hydrocarbon waste tank.

2.5.6.9. Remediation Activities

Remediation activities are managed by a specialist Ampol Project team and are not part of Terminal operations. Remediation activities taking place on the Site include:

Historic Projects:

- Jet Fuel Remediation: A groundwater remediation system to remediate a jet fuel plume has been in operation since 2009. This system will continue to operate until at least 2025. The Jet Fuel Remediation system is managed in accordance with Sutherland Shire Council Development Consent conditions and Ampol's quarterly groundwater monitoring program.

2.5.6.10. New Remediation Project Works

The Site has been declared as a "significantly contaminated land" under the NSW Contaminated Lands Management Act 1997. On 17 June 2013, the EPA issued the licensee with a Preliminary Investigation Order (PIO – Notice 20131001) under Section 10 of the Act.

In consultation with the Contaminated Land section of the NSW EPA, Ampol has developed a detailed Remediation Strategy for the Site – refer to SC E9: Data Gap Investigation Plan (EPL837). Therefore, the remediation scope and management strategies will not be described in this OEMP.

Phase 1 project works involving extensive soil/water sampling and additional groundwater monitoring has already identified the main areas of concern with a details action plan for the Site. As mentioned previously, the Remediation project also has a separate Environment Management Plan to support the Remediation Strategy and Plan.

Landfarm Remediation

One area of particular concern is the Landfarm. This facility has been historically used to allow the degradation of the hydrocarbon content of oily sludges, tank bottoms, or contaminated sand/soil. Access to the Landfarm was controlled through the use of an on-site Waste Disposal Permit. The Land Farm is no longer available for the placement new oily wastes and tank sludges. The Landfarm is a lined area in order to protect the water table. EPL 837 requires monitoring of groundwater to be undertaken at Point 15 and 16 at the Landfarm and well.

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Active remediation of this area has already underway with a contaminated soils disposal pathway already established with RENEX in Victoria.

2.6. Environmental Conceptual Model

A diagrammatic conceptual site model, showing potential site environmental interactions is presented in Appendix A.

3. Enterprise Management Systems

3.1. Management Systems

All employees and those involved in site's operations are required to abide by the Ampol Environment Policy. A copy of the Ampol Policy is contained in Appendix B.

Implementation of policy commitments enables Ampol to achieve its aim to 'operate in such a way as to minimise adverse impacts on the environment and communities in which it operates.

3.2. Operational Excellence Management System (OEMS)

Ampol places the highest priority on the safety, health and security of our workforce, customers and neighbours, protection of the environment, the quality of our products, and the reliability of our assets.

The Ampol Operational Excellence Management System (OEMS) provides a framework for systematically managing personal safety and health, process safety, the environment, reliability, quality and efficiency. Through disciplined use of the OEMS, Ampol integrates OE processes, standards, procedures and behaviours into our daily operations.

The OEMS helps us identify and manage the risks we encounter in our business. The system is effective because it requires leader-driven assessment of strengths and gaps, completion of risk management actions, regular review of progress and continual improvement.

While the OEMS is designed to meet the requirements of ISO14001:2015 Environmental Management Systems; ISO45001 Occupational Health and Safety Management Systems; ISO9001: 2015 Quality Management Systems; and ISO31000:2018 Risk Management Guidelines it goes beyond the scope of these by establishing additional expectations for elements including security, reliability and efficiency.

1. **Leadership Accountability and Culture:** The foundation of success in OE is for it to be embedded in the Ampol culture. The most important factor in establishing this is strong, accountable leadership.
2. **Mandatory Management System Process (MSP):** Mandatory core elements that support the systemic management of activities and processes to consistently meet quality expectations

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and effectively minimise risk. Maintaining high performance in OE requires discipline in measuring performance and acting on the results. Integral to the continuous improvement of the OEMS, the MSP also includes ongoing work to close gaps in the processes that govern personal safety and health, process safety, environment, quality, reliability and efficiency within our business.

3. Risk Based Key Control Elements: Minimum requirements to manage the risk associated with known hazards which, if left uncontrolled, have the potential to result in a fatal injury to personnel or an adverse outcome to the organisation environment and community.

The OEMS consists of 21 processes that outline the way all operational excellence hazards are managed within our business. Each process describes an element for achieving incident-free operations and each process consists of three levels of documents. The general structure of the OEMS is as follows:

- a) OEMS Process - Processes set the objectives and specific requirements for associated components and working documents Also referred to as a Tier 1 process
- b) Component Documents - Provides more detailed requirements (where required) for particular topic and is consistent with its governing OE Process. Also referred to as a Tier 2 document
- c) Working Documents - All documents (procedures, work instructions, forms, etc) that need to meet the requirements set in OEMS processes and component documents . Also referred to as a Tier 3 document

Process 13: Environmental Management provides the necessary procedures, guidelines and operating standards for ensuring effective environmental management at the Lytton Refinery and all Terminal, Depots and Aviation facilities.

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A detailed description of the OEMS and all 21 Processes is provided in document “An Overview of the OEMS” (CD2178), located within the Ampol Document Management System.

Refer also to Figure 3-1 Operational System Overview below:

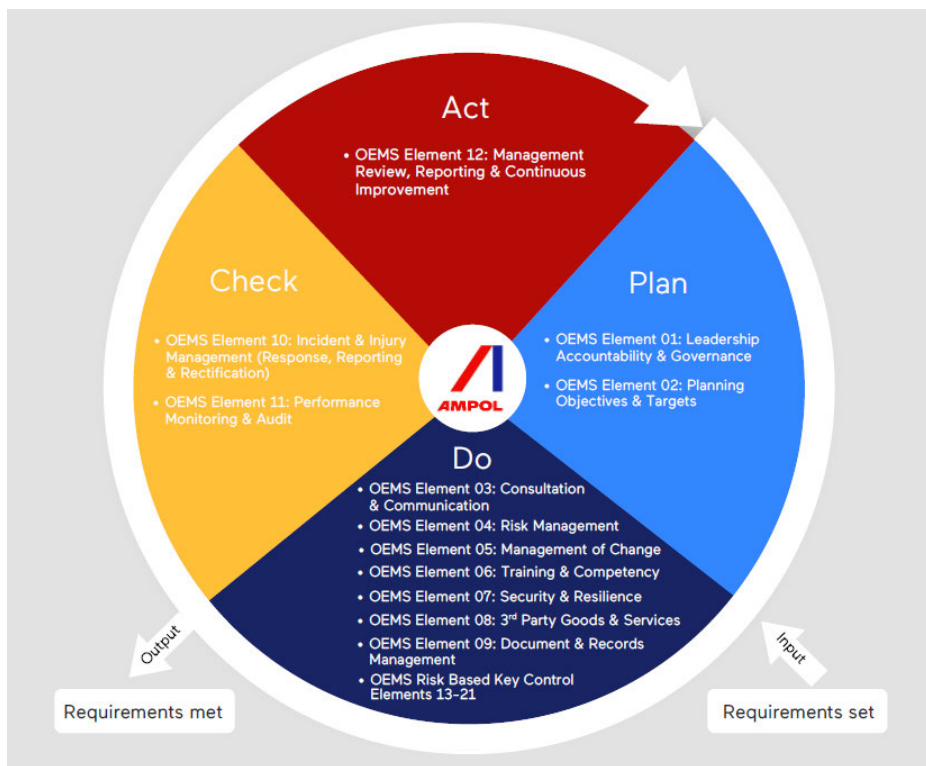


Figure 3-2 Operational System Overview

3.3. Loss Prevention System (LPS)

To assist in the management of environmental issues, the Ampol LPS has been applied as a common core of the OEMS to prevent, firstly losses from occurring, and, secondly, to ensure any spills, leaks and near misses are recorded and managed. All employees are expected to, report loss and near loss incidents associated with their work area and all employees have access to the LDS database.

For Ampol, a loss is defined as any unplanned incident that has a negative impact on people and/or business. Ampol has extended the traditional “safety”-based LPS to one which encompasses both safety and non-safety business procedures. The goal of Ampol is to prevent or reduce the occurrence of all losses, including:

- Personal injuries
- Equipment or property damage (includes motor vehicle accidents and fires)
- Product quality/supply losses (includes releases and product integrity)
- Agency inspections/warnings/violations
- Operational or system Inefficiencies

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- Financial losses (incorrect billing; incorrect vendor payment)
- Near losses
- Environmental incidents

The LPS is made up of the following five tools:

- Stewardship
- Job Safety Analysis (JSA) or Safe Work Method Statement
- Safe Performance Self-Assessment (SPSA)
- Loss Prevention Observation (LPO)
- Loss Investigation or Near Loss Investigation (LI/NLI)

Safety Alerts and Bulletins are used to capture key learning's from loss and near loss incident investigations and disseminate them throughout the organisation and relevant contractors.



Figure 3-3 Loss Prevention Systems



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4. Environmental Management System (EMS)

This OEMP incorporates and documents the EMS. The EMS consists of the following:

- A site risk assessment which establishes the site Environmental Risk Register
- Identifies the aspects and impacts associated with site activities
- Identifies significant aspects and critical controls
- Identifies of legal and other requirements
- Describes the process for review
- Appendix I provides a matrix that identifies the elements of the EMS as they relate to this document

4.1. Ampol Risk Management Framework (CRMF)

The Ampol Risk Management Framework (CRMF) is a corporate-wide management system designed to ensure that risk is addressed proactively and systematically. The CRMF consists of:

- the Ampol Risk Management Policy
- the *Ampol Risk Management Process*
- the materiality levels for risk reporting (Chevron Integrated Risk Prioritization Matrix)
- company-wide definitions that provide a common language for risk management
- the CRMF database, in which each of the identified risks and controls for a department are registered along with any associated Control Improvement Plans (CIPs)

Within Fuels & Infrastructure, the OEMS underpins and supports the CRMF. Identified risks areas are ranked and corresponding control improvement plans (CIP's) are developed and implemented. The identification, documentation and management of environmental aspects and impacts are in accordance with this system.

4.2. Ampol Risk Management Framework Reviews

The high-risk scenarios, and associated CIPs, are monitored quarterly and reported to the Board of Directors annually by the corporate Operational Excellence and Risk department. Periodic internal audits are conducted providing an independent review of the framework.

4.2.1. Site Environmental Risk Assessment

A detailed risk assessment of environmental aspects and potential impacts has been undertaken at a master risk workshop for Terminal Operations sites and forms the basis of the Kurnell Terminal Environmental Aspects and Impacts Risk Register (Appendix F). Any additional site specific environmental aspects and potential impacts have been added by the Terminal Operations Manager, and the risk levels adjusted if necessary, to reflect site conditions. In addition, Ampol has undertaken a detailed risk assessment for each site as part of the OH&S management of the site.

This risk assessment process identifies the potential environmental harm that may occur from routine operations and establishes and documents measures to mitigate the impact as far as

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reasonably practicable. The results of the risk assessment are used to develop site specific environmental management plans, environmental improvement plans and specific performance targets and objectives.

Participants in the workshop identified the environmental aspects of all site activities, products and services and significance of these aspects to Terminal Operations site operations. The identification and significance determination was undertaken using a team based risk assessment approach and includes:

- Identification of activities undertaken by Ampol;
- Identification of environmental aspects associated with each activity; and
- Determination of the inherent risk of the aspect (risk without controls put in place by Ampol).

For each aspect identified the team then determine the associated controls mechanisms in place to minimize the risk, assess the effectiveness and criticality of the controls and determine the residual risk of the aspect (risk with controls in place).

The Chevron Integrated Risk Prioritization Matrix (see Appendix E) is used for the assessment of environmental risks from an event or activity and ensures a consistent and documented process for risk classification. Table 4-1 Risk Levels and Associated Management Requirements identifies the actions required in accordance with the matrix.

Table 4-1 Risk Levels and Associated Management Requirements

Risk Level	Risk Management Requirement
1 to 4	Short-term, interim risk reduction and development of a long-term risk reduction plan.
5	Additional long-term risk reduction. If no further action can be reasonably taken, management approval must be sought to continue the activity.
6	Risk is tolerable if reasonable safeguards/management systems are confirmed to be in place.
7 to 10	Manage risk. No further risk reduction required. Risk reduction at management/team discretion

4.3. Review and Update of Environmental Risk Register

The Facility Environmental Aspects and Impacts Risk Register will be reviewed every three years at a minimum, as part of the OEMP review, changes to operations and following a major incident. Additional reviews can be undertaken as needed. Reviews are to consider changes to aspects and controls identified through the following:

- Job Hazard Analysis (JHA) records
- inspections and audit(internal and/or external) reports
- incident, near miss, aspect and non-conformance investigation reports
- identification of aspects brought about by change, such as:
 - Changes in legislative requirements
 - Management of Change processes
 - Major Hazard Facility (MHF) assessments; and

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- Hazard identification during the design process for operational modifications (e.g. HAZOP)

4.4. Identification of Mandatory (M) Rating for Environmental Aspects

For each environmental aspect the assessment team identifies and documents whether a Mandatory (M) rating is applicable. An aspect is identified as Mandatory if:

- There are compliance issues related to the impact, e.g. If there are environmental licence conditions that Ampol is required to comply with, and
- If there has been a known incident in relation to the environmental impact

This mandatory rating, by default, will give the environmental aspect a higher priority during the business planning process.

4.5. Identification of Significant Environmental Aspects

Significant environmental aspects are identified and documented in the Facility Environmental Risk Register. An aspect is considered significant if the calculated inherent risk rating has a value of:

- less than or equal to 4, or
- 5M (where M stands for “Mandatory”)

After consideration of control mechanisms each aspect is re-ranked. If the residual risk rating has a value of less than or equal to 4, the environmental aspect will be captured with an Environmental Action Plan (EAP). If the residual risk is in the range of 6 – 10, the environmental aspect will be captured in monitoring and compliance programs.

Details of environmental action plans (EAP’s) are provided in the Environmental Risk Register. Compliance to, and completion of, the EAP will be tracked and reported in accordance with the quarterly OEMS governance review process.

4.6. Identification and Classification of Control Types

The assessment team will identify the control type used to reduce environmental risks, choosing between physical, system or behavioural controls (see below). The appropriate letter (P, S or B) is documented in the Facility Environmental Risk Register.

- Physical controls (indicated by a “P”) can include physical barriers, alarm systems, increased use of mechanical equipment etc.
- System controls (indicated by an “S”) can include work permit systems, up-to-date operating procedures, internal audits or inspections etc.
- Behavioural controls (indicated by a “B”) can include the competence of staff in undertaking relevant activities, the training of staff, use of audits and LPO’s to verify the correct use of standard work procedures etc.

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The assessment team will also identify the effectiveness of the control measure used to reduce environmental risks. The appropriate letter, “H”, “M” or “L” (representing high, medium or low) is to be entered into the Register.

4.7. Legal Obligations

A summary of relevant legislation and applicable guidelines pertaining to the site is outlined in the ‘Register of Legal and Other Requirements (see Appendix D). The Register provides a paraphrased summary of the relevant aspects of the legislation or guideline. In the event of an issue being relevant to a particular situation the exact wording within the legislation will be reviewed and the Ampol legal team and Senior Environmental Specialist will be consulted.

Additionally, recognised guidelines, policies and Australian standards are to be employed during the operation of the site and the relevant guidelines and standards are also summarised in Register (see Appendix D).

A high level summary of environmental legislation relevant to all Ampol operated facilities is also contained in *Environmental Compliance Guideline* (CD1995).

The *Distribution Licence Compliance and Reporting Calendar Procedure* (CD2389) provides a site specific summary of monitoring, reporting and general operational obligations that apply for all licensed sites.

The Senior Environmental Specialist is responsible for keeping up-to-date with applicable environmental legislation and industry standards that relate to environmental aspects. Ampol prescribe to legislative updates, provided by SAI Global and other sources. The updates are reviewed to identify which legislative changes may be relevant to the various operations within Distribution. When legislation changes are assessed to be relevant to the operations the Senior Environmental Specialist will work with the Site manager, using a Management of Change (MOC) process to facilitate the review of site operations, and for management controls to be implemented/amended, to comply with legal requirements.

- Relevant legal requirements are communicated to the Site manager
- The OEMP is updated to reflect relevant legal requirements
- The *Distribution Licence Compliance and Reporting Calendar Procedure* is updated, as required

4.8. Identify Specific Legal or Other Requirements

Legal and other requirements are captured and documented in the Environmental Risk Register, using the following process.

Legal and other requirements are relevant to environmental aspects:

- An environmental aspect can have a legal impact for noncompliance, and/or
- A control related to an environmental aspect can be a legal requirement

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The relevant legal and other requirements for each environmental aspect has been identified and documented in the Environmental Risk Register, as follows:

- The details of the consequence for non-compliance with relevant legal and other requirements is detailed
- Controls are identified as a legal requirement if applicable (Y/N)
- Controls are identified as critical if applicable (Y/N)

4.9. Approvals Register

Site activities need to comply with relevant conditions of approval. The Kurnell Terminal Approvals Register (see Appendix C) identifies current licences, permits and consents obtained by Ampol for the site.

Up-to-date approval details are maintained in a central location by the Ampol Senior Environmental Specialist and by the Terminal Operations Manager at the site office.

The status of any approvals and any changes in conditions are updated in the OEMP by the Ampol Senior Environmental Specialist as part of the OEMP review and are re-distributed to relevant site personnel by the Terminal Operations Manager, as required.

4.10. Environmental Improvement Actions

Environmental improvement actions have been identified for significant aspects which require additional control or management, in line with Ampol objectives. These are documented in the Environmental Risk Register, as follows:

1. All monitoring and compliance programs identified for aspects ranked 5M or 6-10 are captured
1. All improvement programs identified for aspects ranked 1-5 are captured
2. All legal and other requirements are captured
3. Reference to the identified control mechanisms is made

5. Site OEMP Implementation

5.1. OEMP Management

Management responsibility for the implementation of this OEMP is delegated to the Terminal Operations Manager. This position oversees the management of environmental risks and is responsible for ensuring the OEMS and OEMP is reviewed and modified to accommodate changing site operations, environmental risk and legislative requirements.

Reviews and modification of this OEMP is undertaken by the Ampol Senior Environmental Specialist (Licensing), in consultation with the Terminal Operations Manager.

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A copy of this OEMP and related documents are stored electronically on SharePoint and maintained on-site by the Terminal Operations Manager. This OEMP is accessible to site personnel and sub-contractors.

5.2. Organisation Structure

The Ampol Kurnell Terminal organisational structure is shown in the Organisational Chart presented in Appendix G.

5.3. Environmental Roles and Responsibilities

Ampol OEMP's operate within the OEMS framework, and are a site-specific document related to the operation of the Kurnell Terminal facility.

It is the responsibility of all site personnel, including contractors and sub-contractors, to comply with the objectives and requirements of this OEMP and related documents. The Terminal Operations Manager is ultimately responsible for ensuring this occurs.

A description of the site team's environmental responsibilities is provided in Table 5-1.

Table 5-1 Roles and Responsibilities

Title	Name and Contact Details	Responsibility
Sydney Terminals Operations Management		<p>Overall site environmental management and due diligence.</p> <p>Direct activities in accordance with this OEMP.</p> <p>Maintenance of current OEMP at the site.</p> <p>Reporting under this OEMP (including emergency response notification and completion of the biannual Monitoring and Reporting Register).</p> <p>Approval of OEMP revisions.</p> <p>Ensure that all site personnel are aware of any changes to this OEMP.</p> <p>Ensure that all site personnel, including visitors, are appropriately inducted and comply with requirements of this OEMP.</p> <p>Compliance with permits, local council guidelines and regulatory requirements.</p> <p>Approval of any chemicals entering the site.</p> <p>Authorised to approve environmental compliance works to be undertaken.</p> <p>Authorised to approve funding (operational expenditure to implement environmental compliance works).</p> <p>Authorised to approve emergency and incident response works and funding.</p> <p>Community consultation</p>

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Title	Name and Contact Details	Responsibility
Terminal Operations Specialist (3)		<p>Plan for and supervise safe ship to shore import activity.</p> <p>Plan for and supervise the daily operations of the Terminal to receive, store and blend products and ensure safe transfer of products that result in no injuries, spills or incidents.</p> <p>Supervise pipeline operations to ensure safe and effective use of the DCS and SCADA systems, providing direction in pipeline emergencies.</p> <p>Monitoring of contractors, effective procurement within budgets, and monitoring of employee performance.</p> <p>Manage inventory by coordinating with supply/demand functions and applying product integrity processes to ensure product specifications are met.</p>
R&M Facility Engineer (Wharf)		<p>Coordinate and oversee marine equipment R&M program for Kurnell Terminal marine facilities.</p> <p>Project management of R&M preventive & repair programs via efficient planning, scheduling, execution (with safety paramount), monitoring/reporting (cost/schedule/quality), and implementing improvements from lessons learned.</p> <p>Coordinating R&M/Engineering/Operations team members/Contractors involved with preventive & repair work on marine equipment.</p>
Operations Specialist – Pipelines		<p>Responsible for Pipeline Licences for the SNP</p> <p>Operations and maintenance management and responsible for the Ampol Safety and Operating Plan (SAOP) outcomes, which are integrated into the Pipeline Management Plans.</p> <p>Integrity management requirements of the pipeline in accordance with AS 2885.3.</p> <p>Environmental management detailed in this OEMP and due diligence reporting under the OEMP.</p> <p>Approval of OEMP revisions, relevant to pipelines.</p> <p>Compliance with permits, local council guidelines, and regulatory requirements.</p> <p>Pipelines emergency response management.</p> <p>Community consultation.</p> <p>Maintain necessary registers, databases and records required by the EMP.</p> <p>Initiate non-conformance and corrective action reports and manage corrective actions as required.</p> <p>Approving Operation and Maintenance requirements of AS2885.3.</p> <p>Approving procedures for maintaining structural Integrity of pipeline and facilities.</p> <p>Ensure trained and qualified personnel carry out activities.</p> <p>Frequency of maintenance and inspections are approved.</p> <p>Patrol activities and frequency approved.</p>

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Title	Name and Contact Details	Responsibility
		Approving building developments near pipeline. Approving plans for work near pipeline by external parties.
Senior Environment Specialist (Licenced Sites)		<p>Review of this OEMP and associated documents, including distribution to site.</p> <p>Provision of professional environmental advice and services.</p> <p>Provide support and assistance for that all site identification and delivery of appropriate environmental awareness training.</p> <p>Ensuring that audits are carried out.</p> <p>Reporting to Terminal Operations Manager on performance of this OEMP and improvement opportunities.</p> <p>Development and implementation of environmental/compliance work programs.</p> <p>Authorised to identify and develop yearly budgets for environmental works.</p> <p>Reporting non-conformance or corrective actions to third party stakeholders.</p>
Environment Specialist		<p>Responsible for coordinating and leading the maintenance of environment management systems for Distribution operations ISO 14001 accredited and other ISO accreditations (9001) across selected Ampol Terminals</p> <p>This role includes but not limited to:</p> <ul style="list-style-type: none"> Plan and coordinate internal and external audits Maintenance of the quality and environment management systems and programs that support accreditation Capture and report on key quality and environment metrics employee QMS and EMS training Support to Senior Environment Specialist Licensing in the execution of environment systems and programs within Distribution operations
Senior Safety Specialist		<p>To provide safety specialist support to Kurnell Terminal Operations to achieve ongoing compliance to Ampol and legislative requirements and continuous performance improvement.</p> <p>Identification of safety system improvements and support OEMP Management.</p> <p>Provide SME input during review of the OEMP to allow system improvements to achieve continued HSE improvement</p>
All employees and Contractors	N/A	<p>Complete a site induction and other required training before commencing work on site.</p> <p>Ensuring their areas of control, works and associated personnel comply with the requirements of this OEMP and related documents.</p> <p>Respond to any environmental incidents immediately; reporting any incidents, non-conformance or corrective actions.</p>

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Title	Name and Contact Details	Responsibility
		Facilitate a 'continuous improvement' approach by raising any issues and opportunities for improvement of practice with the Terminal Operations Manager. Participate in environmental audits and implement any corrective actions.

5.4. Training, Awareness and Competence

Ampol has implemented an organisation Learning Management System (LMS), which allows individual training needs to be assigned, deliver on-line competency based training materials and track currency and completion of training requirements. The Ampol LMS helps drive organisational excellence by enabling a disciplined approach to the alignment, development and management of people. Benefits include:

- Enhanced capability to meet compliance reporting, auditing and corporate governance requirements
- Increased productivity, sales and service effectiveness
- Reduced personnel development and training costs
- Improved organisational agility and execution

Details of specific training programs relevant to distribution facilities are detailed below.

5.4.1. National Site Inductions

Ampol has adopted a national induction program for distribution terminals and depots. This package provides a standardised structure and content and format which must be completed by all staff, contractors and drivers.

Additional modules are provided for bulk transport drivers and contractors, to highlight the policies, procedures and requirements specific to each group.

The induction includes an on-line component and a site familiarity component. Inductions must be renewed every two years.

5.4.2. Permit to Work Training

Permit to work issuer training is required for all Ampol personnel who will be issuing work permits at the Kurnell Terminal site. Permit Issuer training is delivered via six computer based training (CBT) modules. Competency is assessed by completion of a quiz at the end of each module. The pass mark is set at 100%.

Cold, hot, excavation and confined space entry work is covered under the permit to work system. The modules cover all the operational, safety and environmental requirements for issuing and managing work at the Kurnell Terminal site. High risk work permits require a second person review

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and sign off before a permit is issued. There is a separate competency based CBT module for permit receivers.

5.4.3. Environmental Awareness (includes Spill Response) Training

All Ampol operations personnel are required to complete on-line environmental awareness training. This training provides information on the operation and management of environmental pollution control equipment, assessment and control of environmental risks, requirements for licence and legislative compliance and pollution incident response.

The training describes the requirements for prevention and reporting of spills and the correct process for response and clean up. This initial training is followed up with “on the ground” spills response training, as part of the annual (set scenarios) emergency response training program.

The training describes the requirements for prevention and reporting of spills and the correct process for response and clean up, in line with the requirements of the site’s *Pollution Incident Response Management Plan* (CD4187). This initial training is followed up with “on the ground” spills response training, as part of the annual (set scenarios) emergency response training program.

All Ampol operations personnel and Ampol bulk transport drivers are required to complete on-line environmental awareness training. This training provides information on the operation and management of environmental pollution control equipment, assessment and control of environmental risks, requirements for licence and legislative compliance and pollution incident response.

5.4.4. Notification of Environmental and Pollution Incidents

All Ampol operations personnel and Ampol bulk transport drivers are required to complete on-line notification of environmental and pollution incidents training. This training provides employees with the correct process to follow for the internal and external notification of environmental and pollution incidents.

5.4.5. Contractor Prequalification Program

All major contractors who require site access are assessed for pre-qualification before the site can engage them to undertake work. Information, such as environmental and safety plans, injury and incident rates, environmental licences and insurances, are provided and assessed by IS Network against Ampol and standard global criteria. An Ampol contract owner is then assigned to each contractor.

IS Network assign a grading to each contractor and track the currency of all documents and send an automatic prompt to contractors when information is due to expire. Contractors conducting high risk work must achieve a grade of A or B before they can be engaged by Ampol.

If the information expires, that contractor is no longer registered for use by Ampol. Ampol has also implemented an Environmental Consultant and Remediation Works Contract, which establishes a panel of selected and approved environmental consultants for undertaking environmental works. Panel members engaged must be registered on the system and have achieved a grade of A or B.

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Documents, relating to engagement of appropriately-licensed contractors, have been issued by Ampol. These documents are titled "Third Party Services" and "Contractor Safety Management."

5.5. Site Communications

Effective communications between management and staff is essential for ensuring successful implementation of the OEMP. This is undertaken through media such as regular informal meetings, reporting, site visits, and bulletins. Existing communication methods include:

- Daily, weekly, monthly reports prepared by the site for distribution to the wider organisation and/or senior management
- Toolbox talks
- Poster boards, communication centres
- Communications with major contractors
- Team meetings
- Cross functional meetings, intra-company seminars, etc.
- Half yearly reviews

The Terminal Operations Manager maintains regular contact with staff members at the Site. The National Terminal Operations Manager makes regular (minimum quarterly) trips to the Site to review operations and conditions. During these trips, the Site is inspected and issues are discussed directly with Site personnel.

At the beginning of each calendar year, all Terminal personnel develop a Performance Management Plan (PMP), which lists key objectives to achieve for the year. This PMP is reviewed regularly during the year.

5.6. Community Concerns and Complaints

Terminal Managers and Coordinators are responsible for ensuring that community concerns and/or complaints associated with site operations are recorded within LPS, in accordance with the requirements detailed in *Responding to Environmental Community Concerns* (CD2015) and OEMS Element: *Incident and Injury Investigation* as well as all licence reporting requirements.

The Terminal Manager will address all complaints received, which will include an investigation to determine the source of the complaint. Investigations are to be undertaken as soon as practicable and within 24-hours of receipt. Implementation of any corrective actions and contacting the complainant will also be undertaken by the Terminal Manager.

The minimum complaint information is described below. External third party stakeholders will be notified of community complaints that are received by the site by the Ampol Senior Environmental Specialist (Licensing) or the regional Safety Specialist, within 24 hours.

There is a 24-hour hotline available for community complaints **(1800 033 111)** and all complaints are managed in accordance with the Ampol Crisis Management Framework.

Minimum Details Required for Complaints

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- Date and time
- Complainant name and contact details
- Nature of Complaint - Detail of particular issue/reason, people involved; location of incident or concern
- Conclusions formed - An analysis of the likely cause of the incident. Is the complaint valid?
- Action Taken or Required - the action proposed or undertaken to address the complaint

5.7. External Communications

Ampol has a companywide approach to external communications. Ampol will not be communicating to external parties on its significant environmental aspects, unless authorised by senior management. Communication of significant environmental aspects will be in accordance with the Ampol Information Release Policy.

Processes for external communication are provided in the following documents:

- Ampol Environmental Policy
- OEMS Element: Environmental Management
 - *Environmental Community Consultation* (CD2555)
 - *Responding to Community Environmental Concerns* (SD2015)
- OEMS Element Incident and Injury Management
 - *Incident and Injury Management* (CD3166)
- Procedures for responding to and communicating with state regulators:
 - *Environmental Compliance Guideline* (CD1995)

These external communication procedures are available to all staff via the Ampol DMS and SharePoint.

Specific parties to whom Ampol have legislative consultation commitments may include the local community, emergency services, regulatory authorities and other duty holders. The Ampol OE support team and legal team shall provide advice when such consultation is required and what form the consultation should take.

In the event of an environmental incident the Regional HSSE Manager is responsible for:

- Coordinating emergency response, as required
- Immediate notification to regulators for reportable incidents; and
- To make notification to Environmental Specialist and internal stakeholders, in accordance with the self-reporting and reporting of environmental harm obligations – refer to *Environmental Compliance Guideline* (CD1995)

In addition to following the requirements for notification of environmental incidents, the National Terminal Operations Manager, with the support of the Senior Environmental Specialist is responsible for:

- Notifying the Environmental Regulator immediately of any potential or actual environmental harm

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Specific interested parties to whom Ampol have legislative consultation commitments may include the local Kurnell community, emergency services, regulatory authorities such as the EPA or DPE and other duty holders. The Fuels & Infrastructure HSE teams, Corporate and Communications and legal teams provide advice when such consultation is required and what form the consultation should take.

In the event of an environmental incident the Senior Environmental Specialist and Safety Specialist, as needed are responsible for:

- Supporting the coordinating emergency response, as required
- Immediate notification to regulators for reportable incidents; and
- To make notification to other agencies and internal stakeholders, in accordance with OEMS Element: Incident, Non-Conformances and Action Management

In addition to the above communications strategies, and in line with the requirements of the Kurnell Community Relations Stakeholder Engagement Plan, the site undertakes the following external communications with interested parties via:

- Site meetings with the Community Representative(s) every 3 months
- Community leaflets / newsletters on an “as needs” basis
- Letter box drop prior to activities occurring on Site that might affect adjoining landowners / neighbours
- Meetings and correspondence with interested parties including the Local Council and EPA on an as needs basis
- Discussions with adjoining landowners / neighbours and the community on an as needs basis
- Quarterly meetings with WorkCover (MHF branch)

5.8. Ampol Crisis and Emergency Management

Ampol has a companywide approach to emergency response and additional off-site resources are available to assist facilities, as required (including specialist emergencies services, legal and media advisors). Emergency response resources are provided through the Ampol Crisis Management Framework, which ensures that incidents, including community complaints, are categorised according to standardised definitions and escalated to the correct corporate level to ensure an appropriate, timely and coordinated response. The emergency management structure and escalation process is detailed in the Ampol Crisis Management Handbook and indicated below:

1. Ampol Crisis Management Team – Class A Emergencies
2. Regional Emergency Response Team – Class B Emergencies
3. Local Emergency Response team – Class C Emergencies

The Ampol Crisis Management handbook is available to all staff via the Emergency Management page on SharePoint. Ampol utilise a third party emergency services provider, IXOM, to receive the

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initial emergency notification from the first responder, and uses the relevant Ampol call out list, to call the correct Ampol personnel and escalate the notification through to the Ampol management teams, so that the correct internal and external resources can be deployed.

5.9. Site Emergency Planning and Response

Within Terminal Operations a formal process exists for emergency planning and response, which identifies extraordinary factors, such as abnormal operation and emergencies that may cause damage to property and harm to human health and the environment. It also establishes and documents contingency plans to deal with these factors.

Ampol Kurnell Terminal has an extensive Emergency Response Plan (ERP) – SD103598. The ERP set out the standards and procedures for the management of emergencies at the Kurnell Terminal facility including associated pipelines and the Wharf operations, as well as remediation project works and tanks inspections and maintenance, as they arise. There are a number of supporting documents that deal with specific emergency scenarios guidelines, mutual aid registers and MOU's, fire plans, etc.

The ERP is applicable to emergency response for all emergencies either:

- occurring at the Terminal site including the wharf, right of way or as a result of pipeline operations to Bumborah Point,
- occurring off the Terminal site but having the potential to adversely affect the Terminal.

The ERP is implemented in conjunction with Ampol's Regional Emergency Management Plan, Crisis Management Procedures and with Ampol's OEMS procedures relating to general safe operation and incident management.

The Emergency Planning Committee (EPC) is responsible for ensuring the ultimate effectiveness of the emergency plan, emergency response procedures and the Local Emergency Response Team (LERT).

The ERP primarily documents the processes, arrangements and provision of resources for maintaining preparedness and effective response procedures for an emergency at the Kurnell Terminal. The Incident Controller is responsible for directing response activities in an emergency situation to ensure evacuation of non-essential personnel from the area at risk, gather information about the situation, initiate shutdown or protection systems and assist the attending emergency services to bring the situation under control, without risking harm to themselves or other persons.

The types of incidents detailed in the ERP are incidents unlikely to cause injury or significant damage (Class C – Incidents). Examples include small, localised terminal fire, or spill contained on the Terminal property. In the event of a Class B Emergency or Class A Crisis the Regional Emergency Management Plan or Ampol Crisis Management Plans will be triggered.

The ERP is available to Ampol employees in hard copy format at several locations at Kurnell Terminal including the Terminal Operations Building (at entrance), Emergency Operations Centre, Ampol Wharf Control Room and the Ampol Fire House. The ERP is also provided to a number of

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external agencies and stored on the Ampol Intranet and the Document Management System (DMS), via links on the Kurnell Key Facility Information Page.

The EPC is responsible for coordinating reviews and revisions of the ERP every three years as a minimum. The ERP will also be reviewed following a major incident, following an emergency training exercise, when roles or responsibilities are altered, or at the direction of a Regulator. Records detailing the review and approval process are retained in Cintellate.

The Terminal Operations Manager is responsible for ensuring ERP processes are implemented and maintained. Employees are to receive training in relation to safety and emergencies at the Terminal on initial induction to the Site and at least an annual basis. In addition to annual training specific testing of the ERP shall be carried out within one month of any pollution incident occurring in accordance with relevant NSW regulatory requirements. The type of training may include, but is not limited to “hands on” firefighting, emergency response management, evacuation procedures or first aid and wherever possible, Emergency Services are to be included in training exercises.

Emergency Services and other pertinent external authorities should be included in ERP training exercises at least every three years.

Kurnell Terminal is equipped with a fire protection system and equipment. The Terminal has a fixed fire foam fire protection system for all 600 series tanks, the eastern tank farm has a foam ring main, and there are also semifixed foam installations (dry risers) located on Site. The Wharf has a 10 kL foam tank. A summary of these systems is provided in the *Kurnell Terminal Fire Equipment Sub Plan* (to the ERP).

5.9.1. Kurnell Terminal Marine Oil Spill Response Plan

Marine oil spills are managed under the Kurnell Terminal Marine Oil Spill Response Plan (KNT-EP-A) which should be read in conjunction with the Kurnell Terminal ERP. The Terminal maintains a group of skilled individuals who are able to respond to an oil spill including Australian Marine Oil Spill Centre (AMOSC) Core Group Members and Oil Spill Equipment Response Technicians.

All personnel involved in oil spill response must undertake regular training (at least every year) to ensure skills are maintained. The Kurnell Terminal Marine Oil Spill Response Plan and PIRMP will be reviewed following a marine oil spill or at least every 2 years.

5.9.2. Emergency Response Testing Process

Within Terminal Operations a formal process exists for providing direction to Ampol managers on conducting emergency response exercises. The Guidelines for Selecting and Conducting Emergency Response Exercise provide detailed scope and guidance on six types of emergency response exercise, including how to deploy the exercise and assess the effectiveness of the response at different facilities. Regular conduct of the emergency response testing process helps ensure site managers and staff are familiar with the notification and response actions required in a real emergency, and allows site plans, procedures and equipment to be tested.

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5.10. Pollution Incident Response Management Plan

As required under Part 5.7A of the Protection of the Environment Operations Act 1997 the Kurnell Terminal has a *Pollution Incident Response Management Plan* (PIRMP) provides additional details of the process for communication of environmental incidents which cause or threaten material harm to external stakeholders or the environment.

A copy of the Kurnell Terminal PIRMP is located in the Emergency Operations Centre (EOC) and published on the Ampol Public Website.

5.11. Biosecurity Incident Response Management

Kurnell Terminal receipts product via international tanker ships with international crews. All aircraft and maritime vessels arriving in Australia territories from overseas are subject to Australian biosecurity requirements. Ports (air and sea) are designated as first points of entry (FPOE). Given product is discharged from such vessels from the Wharf, the site must comply with the Commonwealth Biosecurity Act 2015 and its subordinate legislation, the Biosecurity Regulation 2016. Section 58 of the Regulation required FPOE operatives to have appropriate procedures in place for managing the level of biosecurity risk (including waste management) associated with port operations. Although the Kurnell Terminal is assessed to be a low risk activity, a site specific Biosecurity Incident Response Plan (BIRP) has been developed and implemented- refer to Appendix J.

6. Monitoring and Reporting

Kurnell Terminal has established a Monitoring and Reporting Register (see Appendix H) as part of this OEMP.

This register is designed to be used by the Terminal Operations Manager on a six-monthly basis as a prompt to ensure monitoring and reporting, required by the approvals for the site, are completed when and as required, thus assisting Ampol achieve compliance. Copies of the completed the registers will be kept as an environmental record and significant non-conformances will be reported and managed through the LPS.

A SAP M7 notification will be issued every six months to notify the Terminal Operations Manager of the requirement. SAP records will also be used to assess and track completion for all sites.

6.1. Site Inspection Program

Site inspections are undertaken by the Terminal Operations Manager and the National Terminal Operations Manager to ensure compliance with approval requirements. As a minimum these inspections are documented on the 'Loss Prevention Observation – Manager Walk Around' checklist which are maintained on the LPS database. Additional documentation may be kept on site if applicable. Actions identified are tracked and reported as part of the LPS reporting process.

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6.2. Preventative Maintenance Program

Ampol has implemented a planned and preventative maintenance program, called SAP PM. This process facilitates scheduled and preventative maintenance of site assets and infrastructure. Testing and maintenance requirements for the pipelines, tanks, interceptors and other equipment, necessary for effective operation of the site, are undertaken. The electronic SAP Maintenance Program database is used to automatically generate a notification and track progress for preventative maintenance of critical safety items. Completed SAP records are signed by the relevant facility coordinator and maintained on site. Progress against plan, number of outstanding tasks and days overdue are reported through line management to the National Terminal Operations Manager on a monthly basis.

6.3. Environmental Monitoring Program

The following environmental monitoring is undertaken on site:

Table 6-1 Site Monitoring

Monitoring Program	Frequency	Comments
Wastewater (Oily water)	Every 6 days, 30 days and daily during specific discharges	Stormwater must be tested in accordance with section M2 (Point 27) EPL 837. Exceedances must be reported to the NSW EPA as part of the annual return
Groundwater – regulatory requirement	Quarterly	Groundwater point 15 and 16 must be monitored in accordance with section M2 of EPL 837. Monitoring results must be submitted to the NSW EPA as part of the annual return.
Groundwater	Quarterly	Quarterly groundwater monitoring program in areas that are known to contain contamination.

As mentioned previously, environmental monitoring required under an Environmental Protection Licence is summarised on the Ampol Public website – refer to *Kurnell Environmental Monitoring* tab and for the Terminal for each site in the *Distribution Licence Compliance and Reporting Calendar Procedure*.

6.4. Evaluation of Compliance

Critical legislative compliance has been assessed during the development of the Aspects and Impacts Risk Register for all sites and no major non-compliances have been identified. Compliance with minor legislation will be periodically assessed.

In addition, compliance against the requirements detailed in this OEMP (including Sub-Plans) and licence is assessed throughout the year as applicable to the site, including:



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- After each monitoring event, by the Senior Environmental Specialist (Licenced Sites) and the Terminal Operations Manager
- The Monitoring and Reporting Register is completed on a six monthly basis by the Terminal Operations Manager
- Annual compliance is reported to the environmental regulator as part of the licence annual return
- Annual compliance against the SSD5544 consent conditions is reported to the DPIE in the Annual Environmental Review report – with reference to condition D4 requirements

Any OEMP and Licence non-compliances are reported via the LPS system and investigated to identify corrective and preventative actions. Non-compliances are reported to management via the weekly performance reports and the monthly OEMS performance reports.

6.5. Key Performance Indicator Monitoring Program

OEMS Element: Environmental Management identifies corporate lead and lag indicators, which are monitored by the Process Advisor. The critical KPI's are formally monitored and reported to the Fuels & Infrastructure Leadership Team (F&I LT) during the quarterly governance reviews, in accordance with OEMS Element: Performance Monitoring and Auditing. The OEMS indicators have been adopted for the Terminal facility and are outlined below.

EMS key performance indicators are described in the OEMS Element: Planning Objectives and Targets.

6.5.1. Leading Indicators:

- Implementation of this OEMP and associated Sub-Plans
- Completion of three-yearly reviews of the Aspect and Impact Register, unless triggered earlier
- Implementation of environmental improvement plans for significant environmental aspects
- Completion of training

6.5.2. Lagging Indicators:

- Licence exceedences and non-compliances
- Loss incidents reported (major and minor)
- Number of Community complaints
- UPSS release (number of confirmed failed SIRA)

6.6. Environmental Record Keeping

The following environmental records are maintained by Ampol:

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Table 6-2 Environmental Records

Activity	Location / Reference Document	Manager Responsible
Additional Training	Ampol LMS	Terminal Operations Manager
Environmental Incidents	LPS Database	Terminal Operations Manager
Non-conformances and Corrective Actions	LPS Database	Terminal Operations Manager
Complaints	LPS Database	Terminal Operations Manager
Site Inspections	Key Facility Info Page	Terminal Operations Manager / F&I HSE
Audits	Audit Reports - Cintellate	Terminal Operations Manager
Waste Tracking Records	Provided by licensed contractor and retained on site. Details are transferred to the Waste Log.	Terminal Operations Manager
Contaminated Land Analysis Records	Reporting provided by Ampol Environmental Specialist and available through the Key Facility Info Page	Terminal Operations Manager / F&I Senior Environment Specialist
Other Environmental Monitoring Records	Key Facility Info Page	Terminal Operations Manager / F&I Senior Environment Specialist

Environmental records are maintained for a minimum of 7 years, in accordance with licence and regulatory requirements. Active LPS reports can be edited until they are closed. LPS records which are closed are never removed from the LPS database.

LPS reports are given a control number for identification and tracking purposes. The other records listed above are not given a reference number. The records stored in the Key Facility Info Page library on Sharepoint are categorised by site and functionality to facilitate identification and access.

In addition, the on-line training records are categorised by person and accessed through the Ampol LMS by either the Training Specialist or the Facility Manager.

Sharepoint records are assigned owners and stored within dedicated libraries. All records are protected via a restricted access process which prevents them from being changed or deleted. Sharepoint records can be assigned a review period and archived if needed, or they can be retained in perpetuity.

7. Auditing

The Ampol audit program comprises the following audits. Additional audits, such as fire and safety audits, are also undertaken but not details in this OEMP.

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7.1. Environmental Audits

7.1.1. Independent Environment Audit (IEA)

In line with the requirements of DPIE Development SSD5454, specifically Consent Condition D7, IEA's are required two years after the Terminal operations commenced and every three years thereafter. These audits include the Wharf, as a fully integrated component of effective Terminal operations. The audit is conducted by third party auditors who must be formally approved by the DPIE.

The first IEA (overdue) was completed in April 2016 and the second was undertaken in August 2017. The third audit was deferred with DPIE approval until January 2021. The auditor has conducted the site based inspections and interviews with the report now being prepared for submission to DPIE.

Audit results and records are kept electronically in the Cintellate Database with any assigned actions tracked to completion. Once approved by the DPIE, the IEA report is published on the Ampol Public Website, along with the Ampol response to any findings.

7.1.2. Internal OEMS Health Check Audits

An annual environmental stewardship audit is to be completed as part of the OEMS Health Check process, in consultation with the Ampol Senior Environmental Specialist (Licensing) and Integrated Management Systems Specialist, in alignment with the OEMS review period.

These audits focus on regulatory compliance, OEMP compliance and conformance with the OEMS Process elements, including environmental procedures and standards. Audit results and records are kept electronically in the Cintellate Database, and assigned actions are tracked to completion. Significant non-compliances are also entered into the LPS system, allowing a formal investigation and corrective actions to be developed.

7.1.3. Environmental Management System Effectiveness Review

A periodic Kurnell Terminal Environmental Management System effectiveness review is required by ISO 14001:2015, against which the Terminal environmental management system is accredited. This audit is conducted by National Environment and Sustainability Manager. As with other audits, results and records are kept electronically in Cintellate, with assigned actions tracked to completion. Significant non-compliances are also entered into the LPS system allowing a formal investigation and corrective actions to be developed.

7.1.4. ISO14001:2015 Audits

The site is also subjected to ISO14001:2015 EMS surveillance audits on a nine monthly basis and in accordance with the schedule agreed between Lloyds Register and Ampol Australia.

As with other audits, results and records are kept electronically in Cintellate, with assigned actions tracked to completion. Significant non-compliances are also entered into the LPS system allowing a formal investigation and corrective actions to be developed.

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7.2. Energy and Resource Use Audits

Engineers consider energy efficiency when replacing equipment and upgrading distribution facilities. In addition, energy reporting is undertaken, which is the general energy auditing approach as outlined below. Any further energy audits are arranged as required to meet corporate or statutory requirements.

7.2.1. National Pollutant Inventory Reporting

Energy use and emission of NPI pollutants is monitored annually as part of National Pollutant Inventory (NPI) reporting.

7.2.2. National Greenhouse and Energy Reporting

Ampol has been working for several years to develop strategies to help the company meet the challenge of climate change, such as development of alternative, lower-emission fuels and working with the government to develop and refine climate change policies and initiatives.

Ampol is already Australia's leading supplier of biofuel blends (petrol/ethanol and diesel/biodiesel blends) and has developed a ten-point plan to expand that supply. Ampol believes that biofuels can be a significant part of Australia's future fuel supply and help address the challenges of climate change and energy security.

Ampol submit the National Greenhouse and Energy Report annually, as per the National Greenhouse and Energy Reporting Act 2007. This report is compiled for each business unit; Manufacturing and Distribution. Within Distribution (including airport refuelling facilities) the main emission sources are fuel usage and electricity consumption. These sources are reported to the F&I Senior Environment Specialist each month and the reportable emissions are determined.

7.3. Ampol Internal Audit Program

Ampol Internal Audit team provide an independent and objective assessment of the adequacy, effectiveness and efficiency of Ampol's risk management, control and governance processes in accordance with the Ampol Internal Audit Charter. The internal audit team aim to improve the adequacy, efficiency and effectiveness of Ampol's controlled environment through the development and execution of flexible, risk based audit plans, performing reviews across the business and reporting the results to the Board and Ampol management.

The Ampol Internal Audit team develop two risk based rolling three-year audit plans on an annual basis: a Financial Audit Plan, dealing with financial and business risks, and an OHS&E Audit Plan, dealing with OHS&E risks and targeting Ampol Risk Management Framework (CRMF) Category 3 risks.

A copy of the current risk plan is available on the OE Internal Audit Sharepoint page.

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7.4. Non-conformance, Corrective or Preventative Action

Significant non-conformances identified from audits, and associated corrective or preventative actions, are to be documented using the Audit Near-Loss Notification form and progress against action plans reported through the quarterly OEMS Element Leadership: Governance and Continuous Improvement process.

7.5. Continual Improvement

Continual improvement is achieved through a number of processes, detailed below:

- In accordance with OEMP section 4.11
- By the application of the LPS and systematically correcting the root causes of incidents, in addition to a formal process for review and update of the OEMS processes and OEMP.
- Identification and tracking of improvement actions in accordance with the OEMS Element Performance Monitoring and Audit.

7.6. OEMS Reviews

Review of the OEMS is the key requirement for continual improvement of the Environmental Management System for the site. OEMS reviews are conducted every three years by the Environmental Specialist and the OEMS Environmental Stewardship sponsor. The reviews focus on environmental performance and review of the Facility Environmental Aspects and Impacts Risk Register.

7.7. OEMP Management and Review

The OEMP is a living document and, as such, is subject to review at any stage during site operations. The review and update of procedures referenced in this OEMP will be undertaken when:

- environmental management controls are identified as either outdated or insufficient.
- OEMS Health Check outcomes identify a deficiency or gap in the OEMP.

In the absence of the first two triggers:

- on a five-yearly basis (in line with Ampol document management standards)

The OEMP review and update will be undertaken by the Integrated Management Systems Specialist and F&I Senior Environment Specialist (Licensing), in consultation with the Terminal Operations Manager. This document will be reviewed and revised in accordance with the requirements of OE Element: Document Management.

All changes to the OEMP shall be authorised by the Operations Manager prior to reissue of the document. An up-to-date version of the OEMP will be maintained on the Ampol Document Management System (DMS), in the site office and relevant personnel notified of changes.

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Appendix A: Site Maps and Diagrams

a) Kurnell Terminal Lot and DPs number for all area under Terminal Operations management:

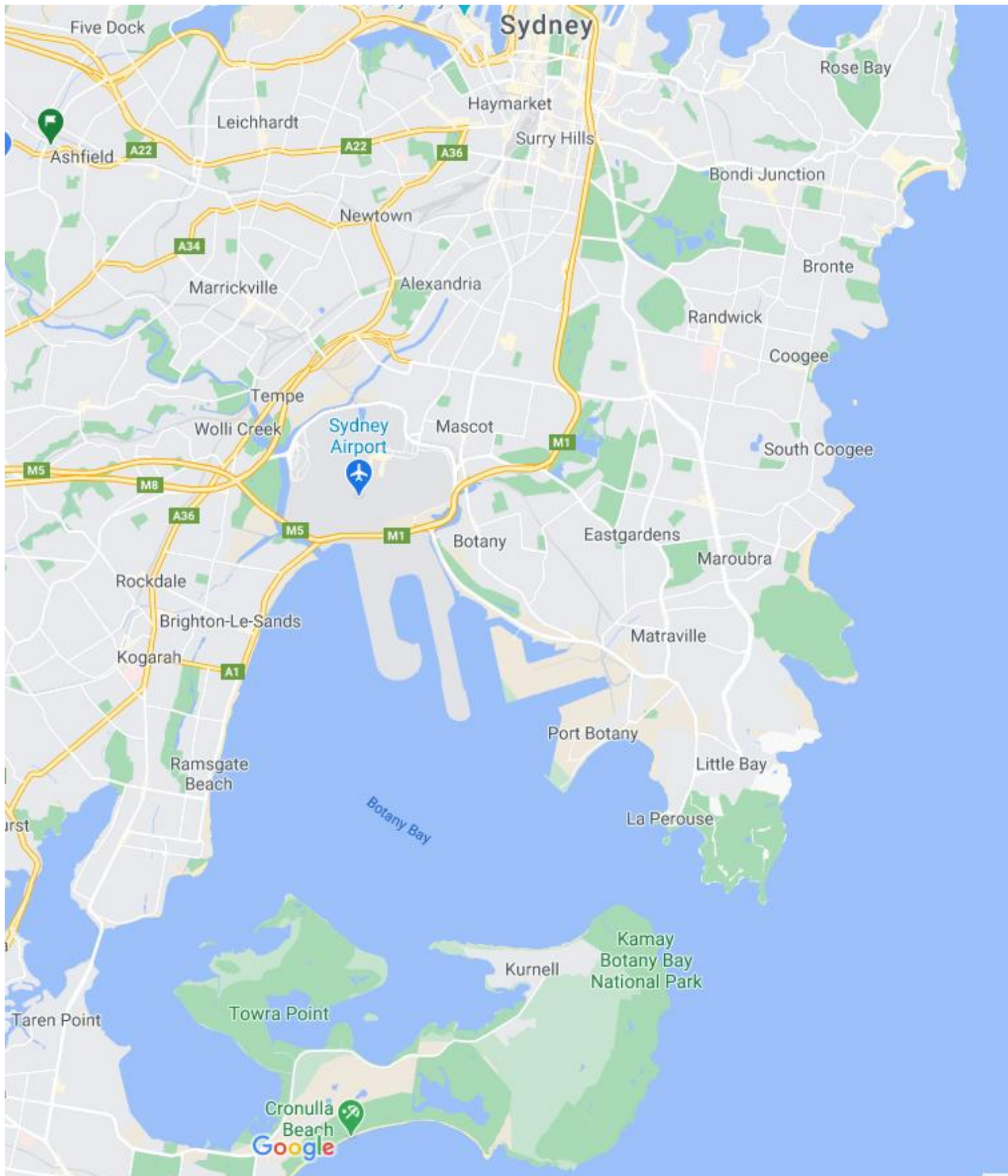
LOT 56 DP 908	LOT 137 DP 8135	LOT J DP 362655
LOT 57 DP 908	PART LOT 138 DP 8135	LOT K DP 362655
LOT 62 DP 908	LOT 151 DP 8135	LOT H DP 362655
PART LOT 11 DP 7632	LOT 152 DP 8135	PART LOT 146 DP 455883
PART LOT 12 DP 7632	LOT 48 DP 9564	LOT 147 DP 455883
LOT 189 DP 7632	LOT 77 DP 9564	LOT 148 DP 455883
LOT 190 DP 7632	LOT 78 DP 9564	LOT 1 DP 652262
LOT 43 DP 8135	LOT 81 DP 9564	LOT 139 DP 662996
LOT 44 DP 8135	LOT 1 DP 126647	LOT 139 DP 662997
LOT 45 DP 8135	LOT 2 DP 126647	LOT 283 DP 752064
LOT 46 DP 8135	LOT 1 DP 132055	LOT 570 DP 752064
PART LOT 77 DP 8135	PART LOT 1 DP 215818	LOT 24 DP 776328
LOT 78 DP 8135	LOT 2 DP 215818	LOT 25 DP 776328
LOT 79 DP 8135	LOT 1 DP 215819	LOT 1 DP 1044690
PART LOT 122 DP 8135	LOT B DP 338897	LOT 1 DP 1087718
PART LOT 123 DP 8135	LOT D DP 361103	PART LOT 2 DP 1087718
PART LOT 124 DP 8135	PART LOT F DP 361103	LOT 3 DP 1087718
PART LOT 125 DP 8135	LOT G DP 361103	PART LOT 4 DP 1087718
LOT 5 DP 1087718	LOT 6 DP 1087718	LOT 1 DP 1087807
LOT 2 DP 1087807	LOT 1 PO1963/147	LOT 1 PO1967/168

b) List of decommissioned tanks at Kurnell Terminal

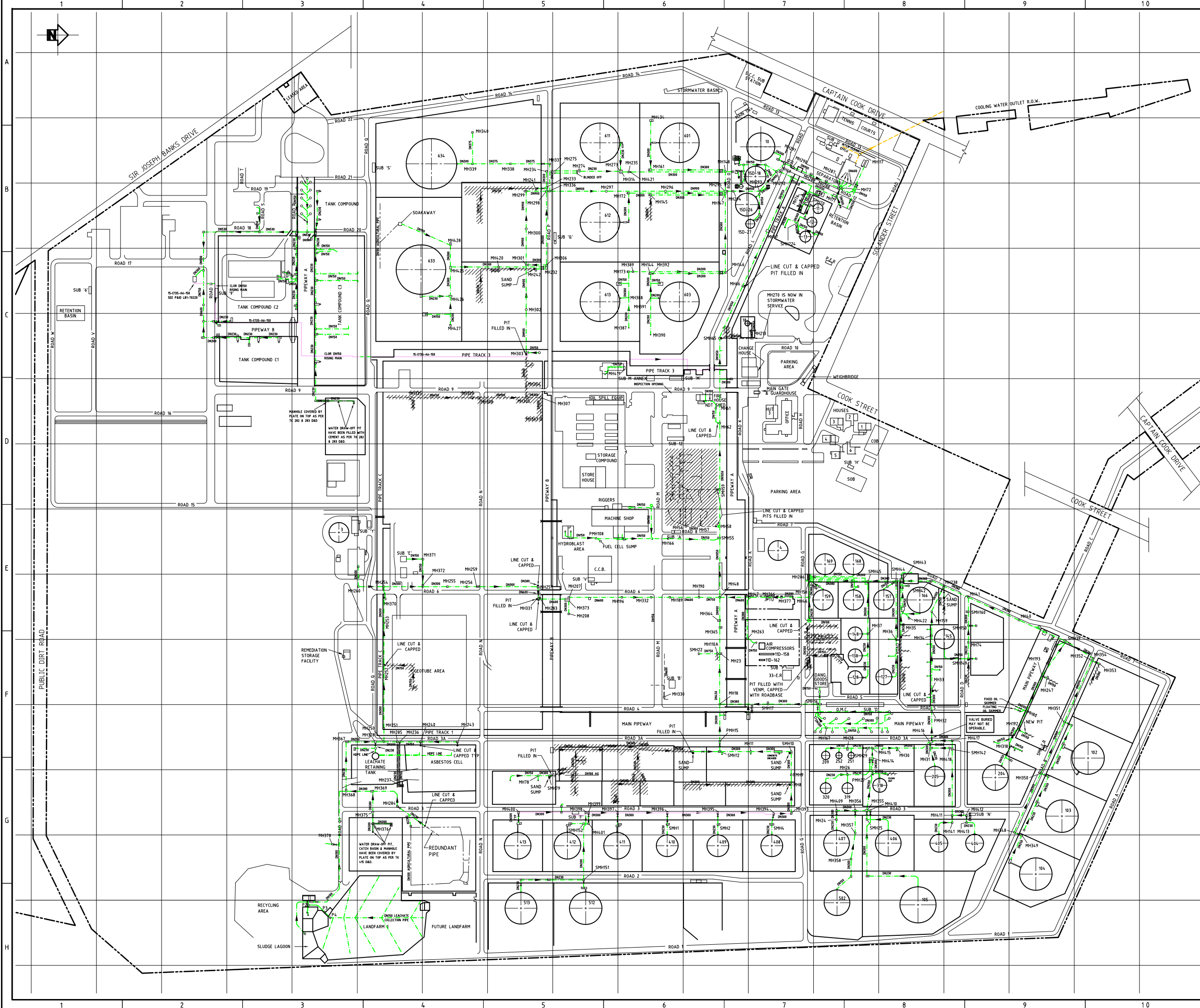


KURNELL TERMINAL – OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN

Regional Locality Map



 CALTEX TERMINAL OPERATIONAL BOUNDARY[illegible]



NOTES:

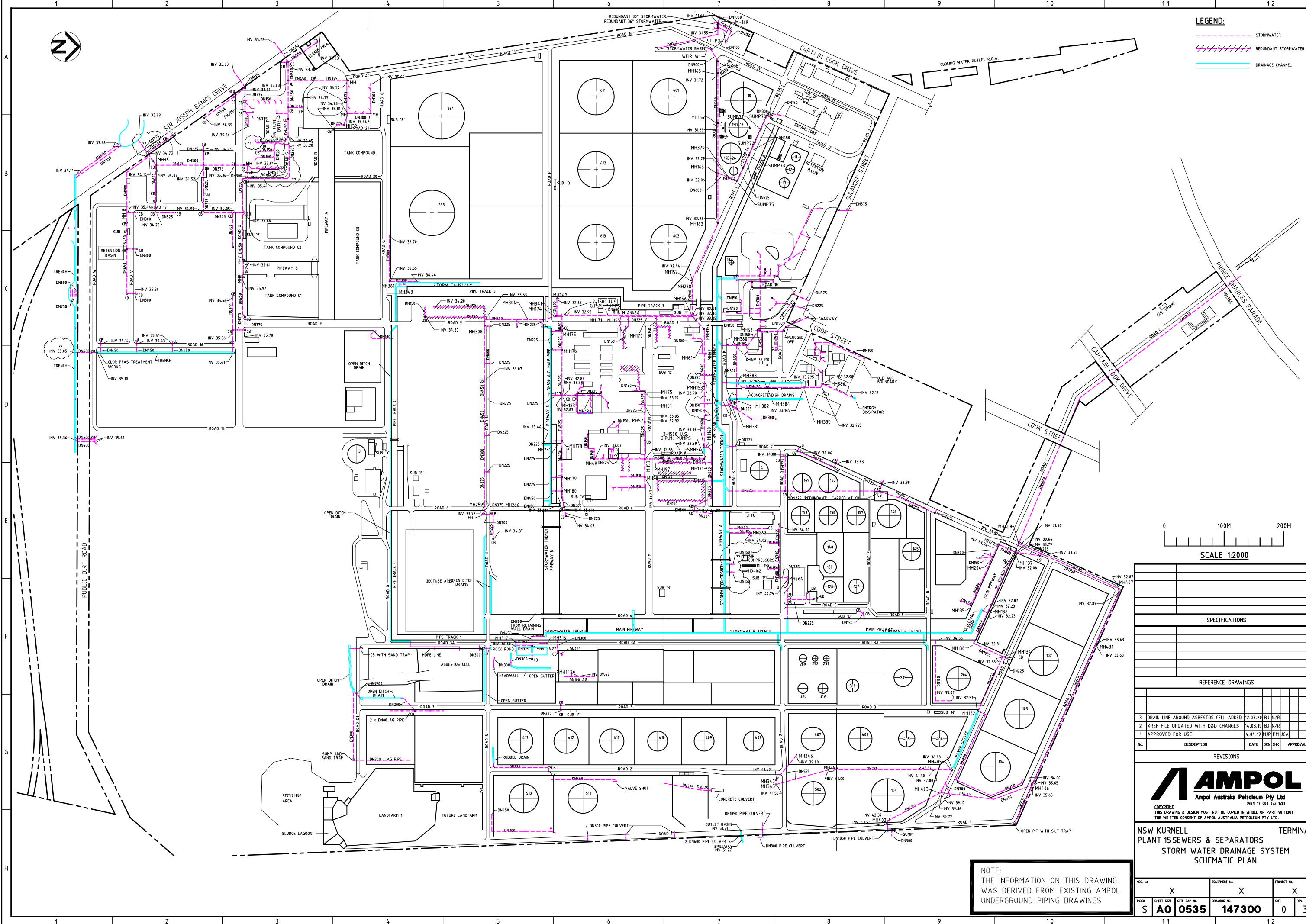
1. RISING MAIN FROM CLOR SEPARATORS TO MANHOLE AT PLANT 45.7 SEE DRG. LA1-93161

- LEGEND:**
- TRADEWASTE/OILY WATER UNDERGROUND
 - TRADEWASTE/OILY WATER ABOVEGROUND
 - OILY WATER PIPE REDUNDANT (UNDERGROUND)
 - OILY WATER PITS
 - OILY WATER CATCH BASINS
 - OILY WATER ISOLATION VALVES



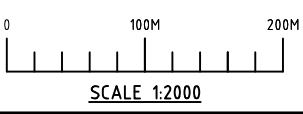
SCALE 1:2000

SPECIFICATIONS			
REFERENCE DRAWINGS			
21	REVISED AS MANHOLE SCHEDULE FIELD CHECK	11.03.20	BJ N/R
20	TH600s A/G OWS PRODUCT PUMP SLAB ADDED	31.01.20	BJ N/R
19	REVISED AS MOC-0002849 (TK 282/283 DEMOLITION)	1.07.19	BJ N/R
18	REVISED AS MOC-0002830 (TK 415 DEMOLITION)	6.06.19	BJ N/R
17	DRAWINGS/REVISED CHANGED TO TERMINAL STD.	3.04.19	MJP PM
REVISIONS			
No.	DESCRIPTION	DATE	DRN CHK APPROVALS
<div><div></div><div>Ampol Australia Petroleum Pty Ltd (ABN 17 000 932 128)</div></div>			
NSW KURNELL PLANT 15 SEWERS & SEPARATORS OILY WATER SEWER SYSTEM CRN & CLOR			
TERMINAL			
MOC No. X		EQUIPMENT No. X	
SHEET No. 0535		PROJECT No. 137770	
INDEX	SHEET SIZE	SITE SAP No.	REV
S	A0	0535	0 21



LEGEND:

- STORMWATER
- REDUNDANT STORMWATER
- DRAINAGE CHANNEL



SPECIFICATIONS				
REFERENCE DRAWINGS				
3	DRAIN LINE AROUND ASBESTOS CELL ADDED	12.03.20	BJ	N/R
2	XREF FILE UPDATED WITH D&D CHANGES	14.08.19	BJ	N/R
1	APPROVED FOR USE	4.04.19	MJP	PM JCA
No.	DESCRIPTION	DATE	DRN	CHK
REVISIONS				

AMPOL
Ampol Australia Petroleum Pty Ltd
(ABN 17 000 932 128)

NSW KURNELL
PLANT 15 SEWERS & SEPARATORS
STORM WATER DRAINAGE SYSTEM
SCHEMATIC PLAN

TERMINAL

NOTE:
THE INFORMATION ON THIS DRAWING
WAS DERIVED FROM EXISTING AMPOL
UNDERGROUND PIPING DRAWINGS

VOC No.		CULPOT No.		PROJECT No.	
X		X		X	
INDEX	SHEET SIZE	SITE SAP No.	DRAWING No.	SHT.	REV.
S	A0	0535	147300	0	3



Division	Fuels and Infrastructure
Type	Plan
Title	Operational Environmental Management Plan Kurnell Terminal

Appendix B: Ampol Environmental Policy

Electronically Controlled Document. Refer to online document for current version.			
Custodian: Amanda Basten	Owner: Kurnell Terminal Ops Manager	Document No.: CD4190	Page: 56 of 69
Approved: 10/09/2021	Published: 11/09/2021	Periodic Due Date: 10/09/2026	Version: 2.0

Legacy ID: SD207187

Environmental Policy

Ampol is committed to operating in such a way as to protect the environment and minimise adverse impacts on the communities in which we operate. To achieve this Ampol will:

- **Promote environmental leadership**, responsibilities and behaviours as an integral part of the duties of management.
- **Integrate environmental responsibilities and considerations** into business decision making and planning processes.
- **Evaluate risks, hazards and impacts** of our operations that have the potential to adversely affect the environment.
- **Implement appropriate objectives, targets and controls** to prevent pollution, conserve resources, increase energy efficiency and minimise waste to an acceptable level.
- **Maintain systems, standards and processes** that seek to manage risk, ensuring so far as is reasonably practical that these are adhered with in order to protect the environment.
- **Monitor, review and report** environmental performance to drive continuous improvement including evaluating progress against this policy and objectives and targets set.
- **Allocate adequate and competent resources** to effectively manage Ampol's environmental impacts.
- **Comply with applicable environmental laws and regulations** together with internal policies and standards.
- **Audit environmental systems** regularly to verify compliance with applicable environmental legislation and this policy.
- **Review management systems and processes** to maintain continued suitability, adequacy and effectiveness.
- **Communicate openly and engage** with all stakeholders on environmental issues and provide adequate training, instruction and tools to enable relevant personnel to comply with this policy.
- **Actively participate** in the development of environment laws and regulations relevant to our business to support informed decision making.
- **Be prepared for emergencies** so that the environmental outcome of any incident may be mitigated quickly and effectively.
- **Investigate incidents** and implement actions to prevent recurrence in order to drive continuous improvement.
- **Understand the risks and opportunities** that climate change presents to our transport fuels business and play a role in the transition to a low carbon future.
- **Hold all employees and contractors accountable** for environmental performance and compliance with this policy.

Publication

This policy will be made available on the Ampol website (www.ampol.com.au).

Document change history

Version number	Conducted by	Approved by	Date	Description of changes
1		Board	23/08/2019	
2	Secretariat	Board	14/05/2020	Update references from Caltex to Ampol



Division	Fuels and Infrastructure
Type	Plan
Title	Operational Environmental Management Plan Kurnell Terminal

Appendix C: Facility Approvals Register

Electronically Controlled Document. Refer to online document for current version.			
Custodian: Amanda Basten	Owner: Kurnell Terminal Ops Manager	Document No.: CD4190	Page: 57 of 69
Approved: 10/09/2021	Published: 11/09/2021	Periodic Due Date: 10/09/2026	Version: 2.0

Legacy ID: SD207187

Ampol Kurnell Terminal Approvals Register (Licences, Permit & Consents)

Permit Type	Reference	Issuing Authority	Date of Issue	Date of Expiry
Environment Protection Licence 837	EPL 837	NSW EPA	21 April 2021	-
Development Consent – Kurnell Refinery Conversion	SSD 5544	NSW Government	07-Jan-2014	07-Jan-2019
Development Consent – Notice of Modification to include Kurnell Refinery Demolition	SSD 5544 (MOD 1)	NSW Government	10-Aug-2015	10-Aug-2018
Development Consent – Notice of Modification to include Asbestos Contaminated Soil (ACS) Management Works	SSD 5544 (MOD 2)	NSW Government	27-Oct-2017	30-Apr-2019
Development Consent – Notice of Modification to include Tank 101 Demolition	SSD 5544 (MOD 3)	NSW Government	17-Nov-2017	-
Development Consent – Notice of Modification to Extend of Demolition Works Period	SSD 5544 (MOD 4)	NSW Government	9-Aug-2018	10-Jun-2019
Development Consent – Notice of Modification to Asbestos Contaminated Soil (ACS) Management Works and Cooling Water Pipeline Removal	SSD 5544 (MOD 5)	NSW Government	10-July-2019	30-Mar-2020
Development Consent – Notice of Modification to Extend of Demolition Works Period	SSD 5544 (MOD 6)	NSW Government	21-Jan-2020	30-Mar-2020
Development Consent – Port and Berthing Works	SSD 5353	NSW Government	19-Sep-2013	19-Sep-2018
Instrument of Approval - Jet fuel Pipeline Upgrade Project	MP 11_0004	NSW Government	5-Sep-2011	-
Major Hazard Facility	10131-01	SafeWork NSW	7-May-2018	6 May 2023



Environment Protection Licence

Licence - 837

Licence Details	
Number:	837
Anniversary Date:	02-May

Licensee
AMPOL REFINERIES (NSW) PTY LTD
LOCKED BAG 2000
TAREN POINT NSW 2229

Premises
AMPOL REFINERIES (NSW) PTY LTD
2 SOLANDER STREET
KURNELL NSW 2231

Scheduled Activity
Chemical storage
Shipping in bulk

Fee Based Activity	Scale
Chemical storage waste generation	> 100 T annual volume of waste generated or stored
Petroleum products storage	> 100000 kL storage capacity
Shipping in bulk	> 500000 T of annual capacity to load and unload

Region
Regional South - Wollongong
Level 3, NSW Govt Offices, 84 Crown Street
WOLLONGONG NSW 2500
Phone: (02) 4224 4100
Fax: (02) 4224 4110
PO Box 513
WOLLONGONG EAST NSW 2520



Environment Protection Licence

Licence - 837

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Information about this licence

Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act);
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).



Environment Protection Licence

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The EPA publication “A Guide to Licensing” contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

This licence is issued to:

AMPOL REFINERIES (NSW) PTY LTD
LOCKED BAG 2000
TAREN POINT NSW 2229

subject to the conditions which follow.

Environment Protection Licence

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1 Administrative Conditions

A1 What the licence authorises and regulates

- A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity	Fee Based Activity	Scale
Chemical storage	Chemical storage waste generation	> 100 T annual volume of waste generated or stored
Chemical storage	Petroleum products storage	> 100000 kL storage capacity
Shipping in bulk	Shipping in bulk	> 500000 T of annual capacity to load and unload

A2 Premises or plant to which this licence applies

- A2.1 The licence applies to the following premises:

Premises Details
AMPOL REFINERIES (NSW) PTY LTD
2 SOLANDER STREET
KURNELL
NSW 2231
LOT 56 DP 908, LOT 57 DP 908, LOT 62 DP 908, LOT 11 DP 7632, LOT 12 DP 7632, LOT 189 DP 7632, LOT 190 DP 7632, LOT 43 DP 8135, LOT 44 DP 8135, LOT 45 DP 8135, LOT 46 DP 8135, LOT 77 DP 8135, LOT 78 DP 8135, LOT 79 DP 8135, LOT 122 DP 8135, LOT 123 DP 8135, LOT 124 DP 8135, LOT 125 DP 8135, PART LOT 137 DP 8135, PART LOT 138 DP 8135, LOT 151 DP 8135, LOT 152 DP 8135, LOT 48 DP 9564, LOT 77 DP 9564, LOT 78 DP 9564, PART LOT 81 DP 9564, PART LOT 1 DP 126647, PART LOT 2 DP 126647, LOT 1 DP 132055, LOT 1 DP 215818, LOT 2 DP 215818, PART LOT 1 DP 215819, LOT B DP 338897, LOT D DP 361103, LOT F DP 361103, LOT G DP 361103, LOT J DP 362655, LOT K DP 362655, LOT H DP 362655, LOT 146 DP 455883, LOT 147 DP 455883, LOT 148 DP 455883, LOT 1 DP 652262, LOT 139 DP 662996, LOT 139 DP 662997, LOT 283 DP 752064, LOT 570 DP 752064, LOT 24 DP 776328, LOT 25 DP 776328, LOT 1 DP 1044690, LOT 1 DP 1087718, LOT 2 DP 1087718, LOT 3 DP 1087718, LOT 4 DP 1087718, LOT 5 DP 1087718, LOT 6 DP 1087718, LOT 1 DP 1087807, LOT 2 DP 1087807



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LOT 1 PO1967/168

THE PREMISES, TO WHICH THE LICENCE APPLIES, ALSO INCLUDES:
(A) THE KURNELL WHARF AND ASSOCIATED PIPELINES AS SHOWN ON FIGURE 4.1 PROVIDED IN THE ENVIRONMENTAL IMPACT STATEMENT TITLED "KURNELL PORTS AND BERTHING FACILITY - MAIN REPORT - VOLUME 1" DATED FEBRUARY 2013.
(B) THE SUBMARINE PIPELINES CONNECTING THE SUB BERTH TO THE KURNELL WHARF AS SHOWN ON THE ABOVE FIGURE; AND
(C) ANY VESSEL BERTHED AT FIXED BERTHS NO. 1, 2 AND/OR THE SUB BERTH AS SHOWN ON THE ABOVE FIGURE FOR THE PURPOSE OF UNDERTAKING THE SCHEDULED ACTIVITY OF SHIPPING IN BULK.

A2.2 The premises location is shown on the map below.

A3.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

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In this condition the reference to "the licence application" includes a reference to:

- a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
- b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

2 Discharges to Air and Water and Applications to Land

P1 Location of monitoring/discharge points and areas

P1.1 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

P1.2 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

Water and land

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
2		Discharge to waters	Submerged ocean outfall at Yena Gap labelled "2" on Ampol drawing No. 144163 titled "Land Title Boundary & Lot Plan" provided on 19 March 2021. Note: Monitoring is at Point 27.
15	Groundwater quality monitoring		Bioremediation plot (landfarm) - permanent monitoring well PWM 8 labelled "15" on Ampol drawing No. 144163 titled "Land Title Boundary & Lot Plan" provided on 19 March 2021.
16	Groundwater quality monitoring		Bioremediation plot - (landfarm) permanent monitoring well (PMW) 33 labelled "16" on Ampol drawing No. 144163 titled "Land Title Boundary & Lot Plan" provided on 19 March 2021.
27	Effluent quality and volume monitoring		Sampling port in wastewater treatment plant labelled "27" on Ampol drawing No. 144163 titled "Land Title Boundary & Lot Plan" provided on 19 March 2021. Note: Discharge is at Point 2.

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28	Groundwater quality monitoring	Asbestos Contaminated Soil Containment Cell - Permanent monitoring well labelled "28 - Pipetrack 1" on Ampol drawing No. 144163 titled "Land Title Boundary & Lot Plan" provided on 19 March 2021.
29	Groundwater quality monitoring	Asbestos Contaminated Soil Containment Cell - Permanent monitoring well labelled "29 - Causway" on Ampol drawing No. 144163 titled "Land Title Boundary & Lot Plan" provided on 19 March 2021.

3 Limit Conditions

L1 Pollution of waters

- L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L2 Load limits

- L2.1 The actual load of an assessable pollutant discharged from the premises during the reporting period must not exceed the load limit specified for the assessable pollutant in the table below.

Note: An assessable pollutant is a pollutant which affects the licence fee payable for the licence.

- L2.2 The actual load of an assessable pollutant must be calculated in accordance with the relevant load calculation protocol.

Assessable Pollutant	Load limit (kg)
Benzene (Air)	6000.00
Volatile organic compounds - Summer (Air)	
Volatile organic compounds (Air)	3000000.00

L3 Concentration limits

- L3.1 For each monitoring/discharge point or utilisation area specified in the table below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.
- L3.2 Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.



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- L3.3 To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table\.
- L3.4 Water and/or Land Concentration Limits

POINT 2

Pollutant	Units of Measure	50 percentile concentration limit	80 percentile concentration limit	90 percentile concentration limit	100 percentile concentration limit
Arsenic	milligrams per litre				0.07
BOD	milligrams per litre	20			30
BOD (Wet)	milligrams per litre				350
Lead	milligrams per litre				0.025
Nickel	milligrams per litre				0.03
Nitrogen (ammonia)	milligrams per litre				7.5
Oil and Grease	milligrams per litre			10	-
Oil and grease (Wet)	milligrams per litre				70
pH	pH			6.5-8.5	6.0-9.0
Phenols	milligrams per litre	0.3			2.7
Phenols (Wet)	milligrams per litre				5
Polycyclic aromatic hydrocarbons	milligrams per litre	0.03			0.5
Temperature	degrees Celsius				40
Total suspended solids	milligrams per litre	35			50

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TSS (Wet)	milligrams per litre	100
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Note: The pH limit specified for Point 2 is based on a 6 minute rolling average.

L3.5 For the purposes of Condition L3.4, for periods when the biotreater wastewater treatment plant is under bypass conditions as specified in Condition O6.3 of this licence, only the concentration limits for pH and Temperature and those which include the term “Wet” applies for discharges from Point 2.

L3.6 For the purposes of Condition L3.4, phenols at Point 2 should be read as total phenolics.

L4 Waste

L4.1 The licensee must not cause, permit or allow any waste to be received at the premises, except the wastes expressly referred to in the column titled “Waste” and meeting the definition, if any, in the column titled “Description” in the table below.

Any waste received at the premises must only be used for the activities referred to in relation to that waste in the column titled “Activity” in the table below.

Any waste received at the premises is subject to those limits or conditions, if any, referred to in relation to that waste contained in the column titled “Other Limits” in the table below.

This condition does not limit any other conditions in this licence.

Code	Waste	Description	Activity	Other Limits
NA	General or Specific exempted waste			NA
NA	Waste			NA
J120	Waste oil/hydrocarbons mixtures/emulsions in water			Generated from licensee activities and/or transferred via pipeline from Caltex Banksmeadow Terminal

L4.2 The licensee may receive used ballast and tank washing water from ships associated with the premises. The received ballast and tank washing water may be appropriately treated at the premises by the wastewater treatment plant. For the purposes of this licence, used ballast and tank washings from ships associated with the premises are not considered to be wastes.

L4.3 The licensee may receive water and/or wastewater generated from the maintenance of product transfer pipelines associated with the premises. The received water and/or wastewater generated from the product transfer pipelines may be appropriately treated at the premises by the wastewater treatment plant. For the purpose of this licence water and/or wastewater received from product transfer pipelines is not considered to be a waste.

L4.4 The licensee may receive biotreater sludge from another biological wastewater treatment plant in quantities sufficient for re-seeding (inoculating) the biological wastewater treatment plant (less than 500

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tonnes per annum). For the purposes of this licence biotreater sludge is not considered to be a waste.

- L4.5 The licensee may receive petroleum product mixtures known as “slops” from the Caltex Sydney Terminal at Banksmeadow (Licence 6950). The petroleum product mixtures must be received via pipeline only and either processed onsite or transferred to another refinery for reprocessing back into individual petroleum products. For the purposes of this licence, petroleum product mixtures are not considered to be a waste.

Note: “Slops” is a general term used to describe petroleum product/s which do not meet the required product specification. It can be a mixture of two different petroleum products generated within a transfer pipeline when the remainder of one petroleum product is pushed through the pipeline using a second different product.

L5 Noise limits

- L5.1 Noise from the premises must not exceed:
- An LAeq(15 minute) noise emission criterion of 60dB(A) (7:00am to 6:00pm) seven days a week; and
 - An LAeq(15 minute) noise emission criterion of 50dB(A) at all other times, and
 - An LMax noise emission criterion of 55dB(A) (10:00pm to 7:00am)
- except as expressly provided by this licence.
- L5.2 Noise from the premises is to be measured or computed at any point within one metre of any affected residence to determine compliance with condition L5.1. 5dB(A) must be added if the noise is tonal or impulsive in character
- L5.3 Where it can be demonstrated that direct measurement of noise from the premises is impractical, the EPA may accept alternative means of determining compliance. See Chapter 11 of the NSW Industrial Noise Policy January 2000 for general guidance on determining compliance.
- L5.4 For the purposes of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.
- L5.5 The noise emission limits identified in Condition L5.1 of this licence, apply under meteorological conditions of:
- Wind speed up to 3 m/s at 10 metres above ground level; and
 - Temperature inversion conditions up to 3 degrees Celsius/100 metres and wind speed up to 2 m/s at 10 metres above the ground.

L6 Potentially offensive odour

- L6.1 The licensee must not cause or permit the emission of offensive odour beyond the boundary of the premises.
- L6.2 No condition of this licence identifies a potentially offensive odour for the purposes of section 129 of the Protection of the Environment Operations Act 1997.

Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the

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emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

4 Operating Conditions

O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.

This includes:

- a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
- b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:

- a) must be maintained in a proper and efficient condition; and
- b) must be operated in a proper and efficient manner.

O3 Dust

O3.1 The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.

O3.2 All operations and activities occurring at the premises must be carried out in a manner that will minimise the emission of dust from the premises.

O4 Emergency response

O4.1 The licensee must maintain, and implement as necessary, a current emergency response plan for the premises. The licensee must keep the emergency response plan on the premises at all times. The emergency response plan must document systems and procedures to deal with all types of incidents (e.g. spills, explosions or fire) that may occur at the premises or that may be associated with activities that occur at the premises and which are likely to cause harm to the environment. If a current emergency response plan does not exist at the date on which this condition is attached to the licence, the licensee must develop an emergency response plan within three months of that date.

O5 Processes and management

O5.1 The licensee must ensure that any liquid and/or non liquid waste generated and/or stored at the premises is assessed and classified in accordance with the EPA Waste Classification Guidelines as in force from time to time.

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O5.2 The licensee must ensure that waste identified for recycling is stored separately from other waste.

O6 Other operating conditions

O6.1 Use of the biotreater wastewater treatment plant bypass

O6.2 All wastewater must be treated using the biotreater wastewater treatment plant or the oil/water separators and induced air flotation system prior to discharge at point 2 (Yena Gap).

O6.3 Wastewater that has passed through the oil/water separator can only bypass the biotreater wastewater treatment plant for treatment in the induced air flotation unit (IAF) when:

1. The influent flowrate exceeds the biotreater operational maximum treatment capacity and both the effluent diversion tank and the equalisation tank are more than 85% full, or
2. The transfer capacity of the diversion pumps and the equalisation tank feed pumps are insufficient to deal with the wastewater flow, or
3. The biotreater wastewater treatment plant is off line for essential maintenance, or
4. The pump capacity of the bypass pumps (number 15G-27) is being conducted to check maximum pump capacities and equipment availability, or
5. The influent flowrate to the biotreater falls below its operational minimum treatment capacity (150kL/h).

Note: The above bypass conditions may be varied in discussion with the licensee. In reviewing these conditions the EPA will take into consideration information including the frequency and duration of bypass events, monitoring data obtained under Condition M2 and the "Terminal Operations Wastewater Characterisation" Pollution Reduction Program.

O6.4 Whenever wastewater bypasses the biotreater wastewater treatment plant and is discharged at Point 2 (Yena Gap), the licensee must maintain the flowrate through the biotreater wastewater treatment plant at its operational maximum treatment capacity, unless the biotreater wastewater treatment plant is off-line for essential maintenance or the influent flow rate to the biotreater falls below 150kL/h.

Note: The biotreater bypass system (including the oil/water separators and induced air flotation system) is intended to act as a back-up system for the biotreater wastewater treatment plant.

The intention of Conditions O6.1 to O6.4 is to ensure that the biotreater wastewater treatment plant is treating wastewater within its operational maximum and minimum treatment capacities before wastewater is directed to the biotreater bypass system.

The "operational maximum treatment capacity" for the biotreater wastewater treatment plant is notionally 600kL/h. It may be less than 600kL/h depending on the number of "healthy" organisms in the biotreater wastewater treatment plant and the volume of wastewater stored in the equalisation tank.

O6.5 The licensee must record the time, date, duration and reason of each biotreater wastewater treatment plant bypass event.

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5 Monitoring and Recording Conditions

M1 Monitoring records

- M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.
- M1.2 All records required to be kept by this licence must be:
- a) in a legible form, or in a form that can readily be reduced to a legible form;
 - b) kept for at least 4 years after the monitoring or event to which they relate took place; and
 - c) produced in a legible form to any authorised officer of the EPA who asks to see them.
- M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
- a) the date(s) on which the sample was taken;
 - b) the time(s) at which the sample was collected;
 - c) the point at which the sample was taken; and
 - d) the name of the person who collected the sample.

M2 Requirement to monitor concentration of pollutants discharged

- M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:
- M2.2 Water and/ or Land Monitoring Requirements

POINT 15,16

Pollutant	Units of measure	Frequency	Sampling Method
Benzene	milligrams per litre	Quarterly	Grab sample
Ethyl benzene	milligrams per litre	Quarterly	Grab sample
Lead	milligrams per litre	Quarterly	Grab sample
pH	pH	Quarterly	Grab sample
Standing Water Level	metres	Quarterly	Special Method 1
Toluene	milligrams per litre	Quarterly	Grab sample
Total Phenolics	milligrams per litre	Quarterly	Grab sample
TRH	milligrams per litre	Quarterly	Grab sample
Xylene	milligrams per litre	Quarterly	Grab sample

POINT 27

Pollutant	Units of measure	Frequency	Sampling Method
2,4-dimethylphenol	milligrams per litre	Monthly	Grab sample

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Arsenic	milligrams per litre	Monthly	Grab sample
Benzene	milligrams per litre	Monthly	Grab sample
BOD	milligrams per litre	Special Frequency 1	Grab sample
BOD (Wet)	milligrams per litre	Special Frequency 2	Grab sample
Ethyl benzene	milligrams per litre	Monthly	Grab sample
Lead	milligrams per litre	Monthly	Grab sample
Naphthalene	milligrams per litre	Monthly	Grab sample
Nickel	milligrams per litre	Monthly	Grab sample
Nitrogen (ammonia)	milligrams per litre	Special Frequency 1	Grab sample
Oil and Grease	milligrams per litre	Special Frequency 1	Grab sample
Oil and grease (Wet)	milligrams per litre	Special Frequency 2	Grab sample
pH	pH	Continuous	In line instrumentation
Phenanthrene	milligrams per litre	Monthly	Grab sample
Phenols	milligrams per litre	Special Frequency 1	Grab sample
Phenols (Wet)	milligrams per litre	Special Frequency 2	Grab sample
Polycyclic aromatic hydrocarbons	milligrams per litre	Monthly	Grab sample
Sulfide (un-ionised hydrogen sulfide)	milligrams per litre	Special Frequency 1	Grab sample
Temperature	degrees Celsius	Continuous	In line instrumentation
Toluene	milligrams per litre	Monthly	Grab sample
Total suspended solids	milligrams per litre	Special Frequency 1	Grab sample
TSS (Wet)	milligrams per litre	Special Frequency 2	Grab sample

POINT 28,29

Pollutant	Units of measure	Frequency	Sampling Method
Benzene	milligrams per litre	Quarterly	Grab sample
Ethyl benzene	milligrams per litre	Quarterly	Grab sample
Lead	milligrams per litre	Quarterly	Grab sample
Mercury	milligrams per litre	Quarterly	Grab sample
Naphthalene	milligrams per litre	Quarterly	Grab sample
pH	pH	Quarterly	Grab sample
Polycyclic aromatic hydrocarbons	milligrams per litre	Quarterly	Grab sample
Standing Water Level	metres	Quarterly	Special Method 1
Toluene	milligrams per litre	Quarterly	Grab sample
Total Phenolics	milligrams per litre	Quarterly	Grab sample
TRH	milligrams per litre	Quarterly	Grab sample
Xylene	milligrams per litre	Quarterly	Grab sample

Note: For the purposes of the table above for Point 27:

a) **Special Frequency 1** means once during any discharge.

b) **Special Frequency 2** means daily only during any discharge under biotreater wastewater treatment

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plant bypass conditions as specified in condition O6.3.

c) any monitoring required for phenols is to be read as total phenolics

d) the monitoring conducted at Point 27 is conducted to determine compliance with limits specified in Condition L3.4 for discharges from Point 2.

Note: For the purposes of the table above for Points 15, 16, 28 and 29 above:

a) **Special Method 1** means recording of standing water level by measuring the depth to groundwater using an electronic dip meter with 1mm graduated tape; and

b) The Standing Water Level is to be measured in metres as the depth below the top of the monitoring well casing.

M3 Testing methods - concentration limits

M3.1 Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

M4 Testing methods - load limits

Note: Division 3 of the *Protection of the Environment Operations (General) Regulation 2009* requires that monitoring of actual loads of assessable pollutants listed in L2.2 must be carried out in accordance with the relevant load calculation protocol set out for the fee-based activity classification listed in the Administrative Conditions of this licence.

M5 Recording of pollution complaints

M5.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

M5.2 The record must include details of the following:

- a) the date and time of the complaint;
- b) the method by which the complaint was made;
- c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
- d) the nature of the complaint;
- e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
- f) if no action was taken by the licensee, the reasons why no action was taken.

M5.3 The record must be produced to any authorised officer of the EPA who asks to see them.

M5.4 The record of a complaint must be kept for at least 4 years after the complaint was made.



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M6 Telephone complaints line

- M6.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.
- M6.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.
- M6.3 The preceding two conditions do not apply until 3 months after the date of the issue of this licence.

M7 Requirement to monitor volume or mass

- M7.1 For each discharge point or utilisation area specified below, the licensee must monitor:
- a) the volume of liquids discharged to water or applied to the area;
 - b) the mass of solids applied to the area;
 - c) the mass of pollutants emitted to the air;
- at the frequency and using the method and units of measure, specified below.

POINT 27

Frequency	Unit of Measure	Sampling Method
Continuous during discharge	kilolitres per day	In line instrumentation

6 Reporting Conditions

R1 Annual return documents

- R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:

- 1. a Statement of Compliance,
- 2. a Monitoring and Complaints Summary,
- 3. a Statement of Compliance - Licence Conditions,
- 4. a Statement of Compliance - Load based Fee,
- 5. a Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan,
- 6. a Statement of Compliance - Requirement to Publish Pollution Monitoring Data; and
- 7. a Statement of Compliance - Environmental Management Systems and Practices.

At the end of each reporting period, the EPA will provide to the licensee notification that the Annual Return is due.

- R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the

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Annual Return until after the end of the reporting period.

R1.3 Where this licence is transferred from the licensee to a new licensee:

- a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
- b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:

- a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
- b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

R1.5 The Annual Return for the reporting period must be supplied to the EPA via eConnect *EPA* or by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

R1.6 Where the licensee is unable to complete a part of the Annual Return by the due date because the licensee was unable to calculate the actual load of a pollutant due to circumstances beyond the licensee's control, the licensee must notify the EPA in writing as soon as practicable, and in any event not later than the due date. The notification must specify:

- a) the assessable pollutants for which the actual load could not be calculated; and
- b) the relevant circumstances that were beyond the control of the licensee.

R1.7 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

R1.8 Within the Annual Return, the Statements of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:

- a) the licence holder; or
- b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

R2 Notification of environmental harm

Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.

R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

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R3 Written report

- R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
- a) where this licence applies to premises, an event has occurred at the premises; or
 - b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,
- and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.
- R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.
- R3.3 The request may require a report which includes any or all of the following information:
- a) the cause, time and duration of the event;
 - b) the type, volume and concentration of every pollutant discharged as a result of the event;
 - c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
 - d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
 - e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
 - f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
 - g) any other relevant matters.
- R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

7 General Conditions

G1 Copy of licence kept at the premises or plant

- G1.1 A copy of this licence must be kept at the premises to which the licence applies.
- G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.
- G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

G2 Signage

- G2.1 The location of EPA point number(s) 2, 15, 16, 27, 28 and 29 must be clearly marked by signs that indicate the point identification number used in this licence and be located as close as practical to the point.

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G3 Other general conditions

G3.1 Completed Programs

Program	Description	Completed Date
PRP 1: Mandatory Environmental Audit	To investigate environmental monitoring systems, identify deficiencies and recommend solutions to monitoring system deficiencies	20-October-2003
PRP 2: Noise Assessment Report	To assess the noise impact of the activities of the premises.	31-January-2004
PRP 3: CEM System Certification Testing	To ensure CEMs installed at Point 8 are accurate.	31-January-2004
PRP 4: Review of Environmental Impact of Cooling Water Discharge at Point 1	To ensure that any impacts from residual chlorine in cooling water discharge at Point 1 are minimised	19-December-2003
PRP 5: Water Quality to Stormwater	To improve the quality of stormwater discharging through the stormwater treatment system to achieve no visible oil and grease release in the waters adjacent to Gate 5 and within Quibray Bay.	30-March-2005
PRP 6: Septic Effluent Study	To reduce the environmental impacts of septic waste release from the premises to Yena Gap and Tabbigai Gap.	24-December-2004
PRP 7: Air Impact Assessment	Assess the impact of air pollutant emissions from the premises.	04-April-2005
PRP U1: Leak Detection and Repair Program (LDAR)	To minimise emissions of benzene and VOCs from process equipment within the premises. The reduction program will first focus on the significant areas of benzene emissions at the premises through a Focussed Leak Detection and Repair (FLDAR) Program and then progress to a Leak Detection and Repair (LDAR) Program to relevant process equipment across the whole of the premises.	28-January-2009
PRP U2: Interim Sulfur Dioxide (SO ₂) Mitigation	To develop and design sulfur dioxide (SO ₂) mitigation options to minimise 1-hour average ground level concentrations of SO ₂ under normal operating conditions using the results of year 2002 dispersion modelling completed to date.	27-June-2006
PRP U3: Sulfur Recovery Unit (SRU) - Reliability Improvement Report and Program	To improve the reliability of the Sulfur Recovery Unit (SRU) to minimise unplanned shutdowns of the SRU Back End, which result in Acid Gas Diversion to the SRU #1 Waste Gas Incinerator (45F-453), and thus reduce ground level concentrations of sulfur dioxide (SO ₂).	29-November-2009
PRP U4: Ambient Sulfur Dioxide (SO ₂) Monitoring Stations	To determine the actual concentrations of SO ₂ in the Kurnell community through the establishment of ambient SO ₂ monitoring stations.	29-September-2007

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PRP U5: Identification of Major Sources of Sulfur Dioxide (SO ₂)	To define and identify the major, non-major and negligible sources of SO ₂ at the premises.	31-May-2006
PRP U6: Sulfur Dioxide (SO ₂) Emissions Inventory	To quantify the major, non major and negligible sources of SO ₂ from the premises.	31-January-2008
PRP U7: Sulfur Dioxide (SO ₂) Impact Assessment and Risk Assessment	To undertake an air quality impact assessment to ensure that the premises can comply with the EPA's SO ₂ impact assessment criteria and to characterise SO ₂ emissions from all sources using risk analysis.	30-May-2008
PRP U8: Sulfur Dioxide (SO ₂) Mitigation	To identify the most cost-effective mitigation measures that will ensure compliance with the EPA's sulfur dioxide (SO ₂) health based impact assessment criteria under all operating and meteorological conditions and to develop site specific SO ₂ emission limits for Points 7 and 8 and all other all major sources at the premises.	28-November-2008
PRP U9: Common Stack (45F-10) H ₂ S Emissions Study	To investigate the emissions of hydrogen sulfide (H ₂ S) from the common stack (45F-10) under acid gas diversion for the current operation of the refinery and with the Clean Fuels Project implemented and compare the emissions with the requirements of the POEO (Clean Air) Regulation 2002.	06-October-2007
PRP U10: Validation of Boiler Performance and Oxides of Nitrogen (NO _x) Emission Limits Study	To establish individual oxides of nitrogen emission limits for discharge points 29,30,31 and 32 to replace the existing average emission concentration limit. The emission limits will reflect the operation and maintenance of the boilers in a proper and efficient manner, and ensure compliance with the EPA's health based impact assessment criteria for nitrogen dioxide.	30-May-2008
PRP U11: Noise Impact Assessment	To assess the impact of noise from the refinery including the operation of Clean Fuels Plant.	15-August-2006
PRP U12: Solid Particles and Hazardous Substances Impact Assessment	to undertake an air quality impact assessment to ensure the premises can comply with the EPA's environmental outcomes for solid particles and hazardous substances	01-June-2008
PRP U13: Contaminated Sites Assessment, Classification and Risk Ranking Requirement.	To develop upon existing contaminated site management practice and to develop and implement a comprehensive risk reduction program comprised of: <ul style="list-style-type: none"> - a preliminary soil and groundwater contamination risk reduction plan - a comprehensive contaminated site assessment and risk ranking - a stakeholder consultation plan - procedures for on-going management of contaminated site risk, and - an on-going review, update and implementation of a soil and groundwater monitoring plan 	04-June-2007

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PRP U14: Contaminated Sites Risk Reduction Program	To establish a program for reduction of risk to human health or any other aspect of the environment associated with contaminated soil and/or groundwater. Risk reduction measures may include preventing further contamination from sources identified in Condition U13 of this licence, by installing long term contamination controls, and minimising the human and environmental impact existing contamination by undertaking site remediation works.	10-December-2007
PRP U15: Odour Reduction Program	To continue to implement current odour mitigation measures and to undertake an odour assessment of the premises and develop an odour reduction program to further prevent the emission of any offensive odours from the premises.	02-May-2014
PRP U16: VOC Emissions from Petroleum Storages	To assess the effectiveness of sleeves on slotted guidepoles in reducing reported benzene and VOC emissions from storage tanks.	18-December-2020
PRP U18: Threatened Species Management Plan	To assess the risk of harm to threatened species, populations and EECs from actual or potential pollution from the premises and to identify management options to minimise any potential harm.	14-December-2015
PRP U23: Integrated Waste Management Strategy	To develop and implement an Integrated Waste Management Strategy to track and manage all waste materials generated and stored at the premises. This Pollution Reduction Program is closely linked to PRP U21 "Landfarm Management Plan".	14-December-2012
PRP U24: Stormwater Catchment & Management Program	To assess the existing stormwater and waste water collection systems and identify appropriate management strategies where necessary to prevent the discharge of contaminated waters from the premises at all times.	05-October-2012
PRP U25: Terminal Operations Wastewater Characterisation	To characterise the wastewater being discharged to Yena Gap during the transition from refinery operations to terminal operations and to help inform future requirements for wastewater treatment	23-March-2016

Completed Special Conditions

Special Condition	Description	Completed Date
SC E2: Investigations to Reduce Soot Blowing Activities & Associated Air Emissions	To review the current soot blowing activities for the two FCCUs and investigate options to: a) reduce the need for soot blowing b) reduce particulate emissions associated with soot blowing, and c) comply with CAR Group 5 standards.	31 August 2011

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SC E3: Feasibility Study for Particle Monitoring	To investigate the feasibility of replacing continuous opacity monitoring with continuous TSP and PM10 emission monitoring for both FCCUs and the four Powerplant Boilers and to identify a preferred option for implementation.	14 December 2011
SC E6: Vegetation Monitoring Program	To engage a suitably qualified ecological practitioner and developed a Vegetation Monitoring Program (VMP) to monitor any potential impacts on the Towra Point Nature Reserve as well as the adjacent Towra Point Aquatic Reserve over a 12 month period following the discharge of oily waters from the premises in June 2010.	31 August 2011
SC E7: Mandatory Environmental Audit	To undertake an independent environmental audit of the systems and procedures in place for the importation of "primary imported products" to ensure the activities can reliably and robustly comply with Section 129 of the POEO Act at all times. The audit is in response to the odour incident which occurred between April and June 2010.	<p>Draft Report submitted: 28 September 2012</p> <p>Final Report submitted: 20 November 2012</p> <p>Implementation Report submitted: 26 April 2013</p> <p>Progress Report submitted: 18 December 2013</p>
SC E8: Bio-Pile Pilot Trial	To assess the feasibility, sustainability and benefits of a constructed Bio-Pile at the Kurnell Refinery for the treatment, remediation and reuse of hydrocarbon impacted soils sourced from offsite locations	Final Report submitted: 18 December 2015
SC E9: Data Gap Investigation Plan	To assess the data gaps related to the identification and management of contamination on, and related to, the refinery site	20 December 2018
SC E11: Polyfluoroalkyl substances (PFAS) Data Gap Investigation	To address data gaps identified in relation to the PFAS assessment undertaken at the site	31 March 2017
SC E12: Continuous Noise Monitor at the Kurnell Wharf	To trial the use of a noise monitor at the Kurnell wharf for a period of six months to continually monitor noise from shipping activities, assess compliance with the project approval noise limits and to encourage the licensee to proactively implement mitigation measures to address noise impacts on the Kurnell community.	31 July 2018
SC E13: Per- and Poly-fluoroalkyl substances (PFAS) Investigations	To prepare a PFAS Action Plan to delineate the extent of PFAS contamination offsite, assess risks to offsite receptors and prevent further offsite migration of PFAS from the site.	30 October 2019
SC E14: PFAS Sampling and Analysis Quality Plan	To identify, respond and report on PFAS that has the potential to migrate off the site via groundwater and/or stormwater.	28 June 2019

Deleted PRPs and Special Conditions

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PRP or Special Condition	Description	Original Completion Date	Date Removed	Reason
PRP U17: Noise Impact Assessment and Mitigation	To continue to implement and evaluate noise mitigation measures installed at the premises and to undertake a Noise Impact Assessment to assess other significant noise sources to achieve an agreed level of noise reduction across the plant.	15 December 2014	13 November 2012	Removed from licence due to closure of the Refinery announced on 26 July 2012. Refinery to be converted into a fuel terminal by end of 2014. Noise issues will be assessed in the EIS for the terminal conversion project. Noise levels will reduce significantly in terminal mode.
PRP U19: Wastewater Survey - Yena Gap Discharge	To characterise the wastewater being discharged to Yena Gap and to assess the environmental risks.	15 December 2013	13 November 2012	Removed from licence due to closure of the Refinery announced on 26 July 2012. Refinery to be converted into a fuel terminal by end of 2014. Wastewater discharges will be assessed in the EIS for the terminal conversion project. A PRP addressing wastewater and its treatment may be negotiated and included as part of the Caltex terminal licence.
PRP U22: Major Oil Spill Clean Up Contingency Plan	To develop a contingency plan for the management and interim storage of oily and/or various other waste streams in the event of a major spill incident occurring outside of the Kurnell Refinery.	30 March 2015	13 November 2012	Removed from licence due to closure of the Refinery announced on 26 July 2012. Refinery to be converted into a fuel terminal by end of 2014. A similar PRP may be negotiated and included as part of the Caltex terminal licence.

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SC E4: Air Quality Impact Assessment	To demonstrate that current operations at the premises can continue to achieve acceptable environmental outcomes for solid particles (PM10 and TSP) and hazardous substances.	13 December 2013	13 November 2012	Removed from licence due to closure of the Refinery announced on 26 July 2012. Refinery to be converted into a fuel terminal by end of 2014. Air Quality to be assessed in the EIS for the terminal conversion project.
SC E5: Cost Benefit Analysis for Upgrading Plant and Equipment to Meet Group 5 Standards	To undertake a cost benefit analysis for upgrading the two Fluidised Catalytic Cracking Units and four power plant Boilers to meet Group 5 standards and emission standards consistent with best available techniques (BAT).	13 June 2014	13 November 2013	Removed from licence due to closure of the Refinery announced on 26 July 2012. Refinery to be converted into a fuel terminal by end of 2014. Air Quality to be assessed in the EIS for the terminal conversion project.
PRP U20: Soil/Groundwater Risk Reduction Program	To review and update the soil and groundwater contamination risk assessment and Groundwater Monitoring Plan developed in accordance with the Contaminated Sites Risk Reduction Program.	15 December 2015	15 January 2015	Removed from the licence due to the completion of the Preliminary Investigation Order (PIO) (Notice 20131001) issued under section 10 of the Contaminated Land Management Act 1997 on 17 June 2013. Special Condition SC E9 has been added to the licence as an outcome of the PIO.
PRP U21: Landfarm Management Plan	To evaluate alternative options for the sustainable management of oily wastes/sludges that will facilitate Caltex to cease landfarming at the premises.	31 March 2013	15 December 2017	Removed from the licence due to PRP being reassessed as part of the EIS for the terminal conversion project. Assessment of the landfarm has been integrated with Special Condition SC E9: Data Gap Investigation Plan.

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SC E10: Soil Regeneration Facility	Operation of the soil regeneration facility to receive and treat hydrocarbon contaminated soils from offsite sources and reuse the treated soil at the Kurnell Terminal for engineering purposes.	Ongoing	26 February 2018	Removed from the licence following a decision by the licensee to close the facility due to operational matters.
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8 Special Conditions

E1 SC E15: PFAS Sampling and Analysis Quality Plan

- E1.1 The licensee must implement the Caltex Kurnell Terminal: Per- and poly-fluoroalkyl substances (PFAS) Sampling and Analysis Quality Plan (SAQP)" dated June 2019 or as otherwise revised by recommendations by the appointed Contaminated Site Auditor accredited by the EPA under the Contaminated Land Management Act 1997.

The Plan provides a program of works that the licensee must undertake to identify, respond and report on PFAS that has the potential to migrate off the premises via groundwater and/or stormwater. The plan provides a program of regular monitoring and assessment of PFAS for the broader Kurnell Terminal site.

Reporting

Unless otherwise agreed in writing by the EPA, the licensee must prepare and submit to the EPA a written report by **30 October 2021** detailing:

- the outcomes of the PFAS SAQP;
- an update on the sampling works to evaluate the performance of onsite PFAS controls to prevent further offsite migration via surface waters and/or groundwater. This includes the permeable reactive barrier (PRB) installed in the stormwater drain that runs south from the former fire training area; and
- an update on the review of potential disposal options for PFAS fire-fighting foams remaining on the site.

Note: The SAQP should be revised based on changes in the contaminant profile/distribution and/or updates to regulatory guidance. Unless otherwise agreed in writing by the EPA, the licensee must submit a revised copy of the plan to the EPA within 7 days of the plan being updated.

Note: The SAQP must be accompanied by evidence of endorsement of the SAQP by a Contaminated Sites Auditor accredited under the Contaminated Land Management Act 1997.

Note: Should the licensee identified a change in the assessed exposure pathway or an increase in the level of risk as a result of the offsite monitoring program, the licensee must notify the EPA in writing within 7 days and identify any contingency measures that will be implemented.

E2 SC E16: Remediation Action Strategy

- E2.1 The licensee must implement the "Caltex Kurnell Remediation Action Strategy" (RAS) dated December

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2019 or as otherwise revised (including subsequent addendum reports referred to in the Strategy). The RAS provides details of remediation works which will be undertaken by the licensee to address legacy contamination at the site.

Reporting

Unless otherwise agreed in writing by the EPA, the licensee must prepare and submit to the EPA an annual written report by the end of November each year providing updates on the progress of the remediation works detailed in the RAS, including any changes to timeframes identified in the RAS.

Completion Date: 30 November each year

Note: The licence may be varied in discussion with the licensee should any additional data gaps be identified through the implementation of the RAS.

E3 SC E17: Tank Turnaround and Inspection Program

E3.1 Pollution Reduction Program U16.2: Implementation of the Tank Sleeve Program required the licensee to upgrade a number of gasoline storage tanks with emissions reduction devices to reduce emissions of benzene and Volatile Organic Compounds (VOC) emissions.

During the program, the licensee expanded the scope of the program to include number of additional tanks that would be upgraded at the premises as part of the licensee's maintenance/turnaround and inspection program (T&I). These tanks included 204, 318, 408, 409, and 513. The licensee has committed to continue upgrading these tanks in accordance with the T&I schedule.

The licensee must prepare and submit to the EPA a written report providing an update on the progress of the following:

- a) identification of the tanks that have been upgraded
- b) identification of the remaining tanks requiring upgrade
- c) an update of the tank upgrade program schedule

Completion Date: 30 October each year

Note: The licensee has advised that the inspection frequencies and maintenance programs at the premises are reviewed from time to time and optimised based on a risk-based inspection program. The program schedule may be subject to change as a result of the review process. The program schedule will be completed upon the upgrade of the five identified tanks.

Environment Protection Licence

Licence - 837

Dictionary

General Dictionary

3DGM [in relation to a concentration limit]	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
AM	Together with a number, means an ambient air monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
AMG	Australian Map Grid
anniversary date	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
BOD	Means biochemical oxygen demand
CEM	Together with a number, means a continuous emission monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
COD	Means chemical oxygen demand
composite sample	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
general solid waste (non-putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997

Environment Protection Licence

Licence - 837

flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
general solid waste (putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
grab sample	Means a single sample taken at a point at a single time
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
licensee	Means the licence holder described at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
MBAS	Means methylene blue active substances
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997
O&G	Means oil and grease
percentile [in relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997
premises	Means the premises described in condition A2.1
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
reporting period	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 months. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
restricted solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
special waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TM	Together with a number, means a test method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .



Environment Protection Licence

Licence - 837

TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste type	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non - putrescible), special waste or hazardous waste

Mr Niall Johnston

Environment Protection Authority

(By Delegation)

Date of this edition: 30-November-2000

Environment Protection Licence

Licence - 837

End Notes

- 1 Licence varied by notice 1003972, issued on 21-Feb-2001, which came into effect on 23-Feb-2001.
- 2 Licence varied by notice 1006939, issued on 04-May-2001, which came into effect on 29-May-2001.
- 3 Licence varied by change of LGA to Sutherland, issued on 02-Aug-2001, which came into effect on 02-Aug-2001.
- 4 Licence varied by notice 1012295, issued on 16-May-2002, which came into effect on 10-Jun-2002.
- 5 Licence varied by Admin corrections to archived record, issued on 02-Dec-2002, which came into effect on 02-Dec-2002.
- 6 Licence varied by notice 1023716, issued on 24-Mar-2003, which came into effect on 18-Apr-2003.
- 7 Licence varied by notice 1026788, issued on 24-Nov-2003, which came into effect on 19-Dec-2003.
- 8 Licence varied by notice 1050241, issued on 22-Sep-2005, which came into effect on 22-Sep-2005.
- 9 Licence varied by notice 1054156, issued on 30-Mar-2006, which came into effect on 24-Apr-2006.
- 10 Licence transferred through application 143874, approved on 01-May-2006, which came into effect on 02-May-2005.
- 11 Licence varied by notice 1060525, issued on 25-May-2006, which came into effect on 25-May-2006.
- 12 Licence varied by updating references to the Clean Air Reg, issued on 25-Jul-2006, which came into effect on 25-Jul-2006.
- 13 Licence varied by notice 1064972, issued on 07-Sep-2006, which came into effect on 07-Sep-2006.
- 14 Licence varied by notice 1071603, issued on 02-Nov-2007, which came into effect on 02-Nov-2007.
- 15 Licence varied by change to legislation, issued on 07-Nov-2007, which came into effect on 07-Nov-2007.
- 16 Condition A1.3 Not applicable varied by notice issued on <issue date> which came into effect on <effective date>
- 17 Licence varied by notice 1103985, issued on 01-Dec-2009, which came into effect on 01-Dec-2009.
- 18 Licence varied by notice 1112284, issued on 01-Sep-2010, which came into effect on 01-Sep-2010.

Environment Protection Licence

Licence - 837

19 Licence varied by notice 1120888, issued on 10-Jan-2011, which came into effect on 10-Jan-2011.

20 Licence varied by notice 1500503 issued on 13-Sep-2011

21 Licence varied by notice 1501631 issued on 29-Sep-2011

22 Licence varied by notice 1505019 issued on 27-Apr-2012

23 Licence varied by notice 1506097 issued on 02-Jul-2012

24 Licence varied by notice 1509964 issued on 15-Nov-2012

25 Licence varied by notice 1514299 issued on 14-Jun-2013

26 Licence varied by notice 1516944 issued on 12-Sep-2013

27 Licence varied by notice 1519229 issued on 17-Jan-2014

28 Licence varied by notice 1521556 issued on 21-May-2014

29 Licence varied by notice 1523965 issued on 25-Aug-2014

30 Licence varied by notice 1524900 issued on 16-Jan-2015

31 Licence varied by notice 1530185 issued on 01-May-2015

32 Licence varied by notice 1538422 issued on 10-Mar-2016

33 Licence varied by notice 1538820 issued on 31-Mar-2016

34 Licence varied by notice 1544521 issued on 26-Sep-2016

35 Licence varied by notice 1547864 issued on 10-Feb-2017

36 Licence varied by notice 1553331 issued on 18-Jul-2017

37 Licence varied by notice 1559992 issued on 20-Dec-2017

38 Licence varied by notice 1560268 issued on 22-Dec-2017

39 Licence varied by notice 1564430 issued on 02-May-2018

40 Licence varied by notice 1565709 issued on 26-Jun-2018

41 Licence varied by notice 1571458 issued on 07-Mar-2019

42 Licence varied by notice 1577724 issued on 12-Apr-2019

43 Licence varied by notice 1606490 issued on 21-Apr-2021

Consolidated Consent

As delegate of the Minister for Planning and Infrastructure under delegation from the Minister dated 14 September 2011, the Planning Assessment Commission of New South Wales (the Commission) approves the development application referred to in Schedule A, subject to the conditions specified in Schedules A to D.

These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts including economic and social impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the development.

MODIFICATIONS

MOD 1 2015 – Demolition of Redundant Refinery Infrastructure

MOD 2 2017 – ACS Management Works

MOD 3 2017 – Tank 101 Demolition Works

MOD 4 2018 – Extension of Demolition Works Period

MOD 5 2019 – ASC Containment Cell and CWO Pipeline

MOD 6 2020 – Extension of ACS Management Works Period

Sydney

2013

SCHEDULE A

Application No:

SSD 5544

Applicant:

Caltex Refineries (NSW) Pty Ltd

Consent Authority:

Minister for Planning & Infrastructure

Land:

Caltex Terminal – 2 Solander Street, Kurnell

Lot 56, DP 908	Lot 79, DP 8135	Lot D, DP 361103
Lot 57, DP 908	Part Lot 122, DP 8135	Part Lot F, DP 361103
Lot 62, DP 908	Part Lot 123, DP 8135	Lot G, DP 361103
Part Lot 11, DP 7632	Part Lot 124, DP 8135	Lot J, DP 362655
Part Lot 12, DP 7632	Part Lot 125, DP 8135	Lot K, DP 362655
Lot 189, DP 7632	Lot 48, DP 9564	Lot H, DP 362655
Lot 190, DP 7632	Lot 77, DP 9564	Lot 570, DP 752064
Lot 43, DP 8135	Lot 78, DP 9564	Lot 24, DP 776328
Lot 44, DP 8135	Lot 81, DP 9564	Lot 1, DP 1044690
Lot 45, DP 8135	Part Lot 1, DP 215818	Lot 25, DP 776328
Lot 46, DP 8135	Part Lot 2, DP 215818	Lot 283, DP 752064
Part Lot 77, DP 8135	Lot 1, DP 215819	Lot 1, DP 132055
Lot 78, DP 8135	Lot B, DP 338897	

Continental Carbon Pipeline – Lot 2, DP 215818

Silver Beach – Lot 3, DP 1665618

Kurnell Wharf – Lot 456, DP 1413279

Development:

Conversion of the existing Kurnell Refinery to a finished product import and distribution terminal.

MOD 6 2020 – Extension of ACS Management Works Period

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DEFINITIONS

Applicant	Caltex Refineries (NSW) Pty Ltd, or its successor
ACS	Asbestos Contaminated Soils
ACS management works	Asbestos Contaminated Soils management works as described in section 1.4 of the <i>Response to Submissions - ACS Management Works</i> prepared by Aecom Australia Pty Ltd, dated June 2017, and as modified by MOD 5 and MOD 6
BCA	Building Code of Australia
Blue Book Volume 1	<i>Managing Urban Stormwater: Soils and Construction Volume 1 4th Edition (Landcom 2004)</i>
Construction	The carrying out of works including minor excavation works, conversion works, the erection of other infrastructure and/or commissioning works covered by this consent
Council	Sutherland Shire Council
CQAP	Construction Quality Assurance Plan, titled Containment Cell Construction Works Construction Quality Assurance Plan – Kurnell Asbestos Contaminated Soil Management Project, Revision Draft, prepared by AECOM Services Pty Ltd, dated March 2017
Day	The period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays
Department	Department of Planning and Environment
Demolition	The demolition, excavation and removal of redundant refinery processing units, tanks, pipeways/pipelines and other infrastructure, covered by this consent, including the ACS management works
Development	The development described in the EIS and RTS and depicted in Appendix A, being for the conversion of the existing Kurnell Refinery to a finished product import and distribution terminal, as modified by the conditions of this consent
Eastern ROW	Eastern Right of Way, which contains various pipelines that run between Kurnell Wharf and the Caltex Terminal
EIS	Environmental Impact Statement titled <i>Kurnell Refinery Conversion</i> , prepared by URS Australia Pty Ltd, dated May 2013, as modified by the Response to Submissions report.
EMP	Environment Management Plan
ENM	Excavated Natural Materials
EPA	Environment Protection Authority
EP&A Act	<i>Environmental Planning & Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning & Assessment Regulation 2000</i>
EPL	Environmental Protection Licence
EFRT	External Floating Roof Tank
Evening	The period from 6pm to 10pm
Feasible	Feasible relates to engineering considerations and what is practical to build
Heritage	Encompasses both Aboriginal and historic heritage including sites that predate European settlement, and a shared history since European settlement
Heritage Item	An item as defined under the <i>Heritage Act 1977</i> , and assessed as being of local, State and/ or National heritage significance, and/or an Aboriginal Object or Aboriginal Place as defined under the <i>National Parks and Wildlife Act 1974</i>
Heritage Management Strategy	Heritage Management Strategy titled <i>Caltex Kurnell Refinery Demolition: Heritage Impact Statement</i> , prepared by Australian

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	Museum Consulting for URS Australia Pty Ltd, dated February 2014, version 3
HRA	Hazard Risk Analysis titled Hazard and Risk Analysis of the proposed Caltex Kurnell Refinery Demolition Works (HRA), prepared by Planager Pty Ltd dated November 2014 and enclosed in Appendix B of the SEE
Incident	An incident causing or threatening material harm to the environment, and/or an exceedance of the limits or performance criteria in this consent
Land	In general, the definition of land is consistent with the definition in the EP&A Act
LGA	Local government area
Material harm to the environment	Harm to the environment is material if it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial
Minister	Minister for Planning, (or delegate)
Mitigation	Activities associated with reducing the impacts of the Project
MOD 1	Modification application to SSD 5544 for demolition works, as described in the SEE and as generally depicted in Appendix A, being the demolition and removal of redundant tanks, pipelines and infrastructure
MOD 2	Modification application to SSD 5544 for the ACS Management Works, as described in the <i>Statement of Environmental Effects ACS Management Project</i> , prepared by Aecom Australia Pty Ltd, dated October 2016, as modified by the Response to Submissions prepared by Aecom Australia Pty Ltd, dated January 2017
MOD 3	Modification application to SSD 5544 for the Tank 101 demolition works, as described in the <i>Statement of Environmental Effects Tank 101 Demolition Works</i> , prepared by AECOM Services Pty Ltd, dated August 2017, as modified by the letter dated 3 October 2017 from AECOM Services Pty Ltd
MOD 4	Modification application to SSD 5544 for the extension of the demolition works period, as described in <i>Section 4.55(1A) Modification – Extension of Time for SSD 5544 MOD 1 Demolition Works</i> , prepared by AECOM Australia Pty Ltd, dated 15 June 2018
MOD 5	Modification application to SSD 5544 for amendments to the ACS management works and CWO Pipeline removal works, as described in the <i>Modification Report Kurnell Refinery Conversion Project SSD 5544 Modification 5</i> , prepared by AECOM Australia Pty Ltd, dated 11 February 2019, as modified by the letter dated 20 March 2019 from AECOM Services Pty Ltd
MOD 6	Modification application to SSD 5544 for the extension of the ACS management works period, as described in the <i>Modification Report Kurnell Refinery Conversion Project SSD 5544 Modification 6</i> , prepared by AECOM Australia Pty Ltd, dated 14 November 2019
Negligible	Small and unimportant, such as to be not worth considering
NEPM	National Environment Protection (Assessment of Site Contamination) Measure established by the National Environment Protection Council 2013
Night	The period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays
NOW	NSW Office of Water in the Department of Primary Industries
OEH	Office of Environment and Heritage
Operation	Means the operation of the Development once the construction works have been fully completed and the Site has reached its end state terminal operations, but does not include commissioning trials

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	of equipment or temporary use of parts of the Development during construction.
Planning Secretary	The Secretary of the Department of Planning and Environment, or nominee
PHA	Preliminary Hazard Analysis
POEO Act	Protection of the Environment Operations Act 1997
Privately-owned Land	Land not owned by the Proponent or where a private agreement does not exist between the Proponent and the land owner
RAP	Remedial Action Plan titled Draft – ACS – Modification Works – Remediation Action Plan, Revision 1, prepared by Aecom dated June 2017
Refined Product	Gasoline (Unleaded Petrol, Premium Unleaded Petrol, and Super Premium Unleaded Petrol), Diesel, Jet Fuel and Fuel Oil.
Reasonable	Reasonable relates to the application of judgment in arriving at a decision, taking into account: mitigation benefits, costs of mitigation versus benefits provided, community views, and the nature and extent of potential improvements.
RMS	Roads and Maritime Services
RTS	Response to Submissions report with the title “Response to Submissions - Kurnell Refinery Conversion” prepared by URS Australia Pty Ltd and dated September 2013.
SEE	Statement of Environmental Effects titled Kurnell Refinery Demolition, prepared by URS Australia Pty Ltd, dated November 2014, as modified by the Response to Submission report titled Kurnell Refinery Demolition Response to Submissions prepared by URS Australia, dated March 2015
Sensitive Receiver	Residence, education institution (e.g. school, university, TAFE college), health care facility (e.g. nursing home, hospital), religious facility (e.g. church) and children’s day care facility.
Site	The land listed in Schedule A, and as depicted in Appendix A
Site Auditor	As defined in the Contaminated Land Management Act 1997
Site Audit Report	As defined in the Contaminated Land Management Act 1997
Site Audit Statement	As defined in the Contaminated Land Management Act 1997
Western ROW	Western Right of Way, which contains the Cooling Water Outlet Pipeline that runs between the Caltex Terminal and Botany Bay.
VENM	Virgin Excavated natural materials
VOC	Volatile organic compounds

SCHEDULE B

ADMINISTRATIVE CONDITIONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

- B1. The Applicant **must** implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the construction or operation of the development.

TERMS OF CONSENT

- B2. The Applicant **must** carry out the Development **generally** in accordance with the:
- (a) EIS;
 - (b) RTS;
 - (c) site layout plans and drawings in the EIS (see Appendix A);
 - (d) **MOD 1;**
 - (e) **MOD 2;**
 - (f) **MOD 3;**
 - (g) **MOD 4;**
 - (h) **MOD 5; and**
 - (i) **MOD 6.**
- B3. If there is any inconsistency between the above documents, the most recent document **must** prevail to the extent of the inconsistency. However, the conditions of this Consent **must** prevail to the extent of any inconsistency.
- B4. The Applicant **must** comply with any reasonable requirement(s) of the **Planning Secretary** arising from the Department's assessment of:
- (a) any reports, plans or correspondence that are submitted in accordance with this consent; and
 - (b) the implementation of any actions or measures contained within these reports, plans or correspondence.
- B5. Subject to confidentiality, the Applicant **must** make all documents required under this consent available for public inspection on request.

LIMITS OF CONSENT

- B6. The Applicant **must** not store in excess of 925 megalitres (ML) of refined product on the Site at any one time, unless otherwise agreed to in writing by the **Planning Secretary**.
- B7. The construction works associated with the Development **must** not extend beyond five (5) years from the date of approval.

B7A. The demolition works associated with the development must not extend beyond 10 June 2019.

B7B. Notwithstanding Condition B7A, the ACS Management Works must not extend beyond 31 March 2020.

LAPSE OF CONSENT

- B8. This consent **must** lapse five years from the date of this consent unless any part of the Project is physically commenced (within the meaning of section 95 of the EP&A Act) on or before that day, in accordance with any consent or development consent, on the Land to which the consent relates.

SURRENDER OF EXISTING DEVELOPMENT CONSENTS

- ~~B9. Within six (6) months of ceasing refining operations, or as otherwise agreed in writing by the Director-General, the Applicant must surrender all existing development consents for the site listed in Appendix B in accordance with Clause 97 of the EP&A Regulation.~~

MOD 6 2020 – Extension of ACS Management Works Period

- B10. Within six (6) months of the issue of a Compliance Certificate or Occupation Certificate for the following development consents, or as otherwise agreed in writing by the [Planning Secretary](#), the Applicant **must** surrender the following consents in accordance with Clause 97 of the EP&A Regulation.
- (a) DA 13/0195 – Stormwater Drainage Upgrade; and
 - (b) DA 12/0238 – Construction of a switch room.
- B11. Nothing in this consent alters or modifies the following development consents:
- (a) SSD 5353 – Port and Berthing Works;
 - (b) DA 13/0335 – Construction and operation of a Bio-Pile Pilot Trial to treat Hydrocarbon impacted soils;
 - (c) DA 09/840 – Jet Fuel Remediation;
 - (d) DA 11/1090 – Remediation of Limestone Pits; and,
 - (e) MP 11/0004 – Caltex Jet Fuel Pipeline Upgrade Project.

STATUTORY REQUIREMENTS

- B12. The Applicant **must** ensure that all licences, permits and approval/consents are obtained as required by law and maintained as required throughout the life of the Development. No condition of this consent removes the obligation for the Applicant to obtain, renew or comply with such licences, permits or approval/consents.

AMENDED ENVIRONMENT PROTECTION LICENCE (EPL) REQUIREMENT

- B13. Prior to the commencement of construction, the Applicant must apply to the EPA to vary the Environment Protection Licence (EPL) for the Kurnell Refinery (Licence No. 837) to permit the Development.

B13A. The Applicant **must apply to the EPA to vary the EPL if additional scheduled activities are required to be undertaken as result of the demolition works.**

STRUCTURAL ADEQUACY

- B14. The Applicant **must** ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures are constructed in accordance with the relevant requirements of the BCA.

Notes: Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works.

DEMOLITION

B15. Deleted

OPERATION OF PLANT AND EQUIPMENT

- B16. The Applicant **must** ensure that all plant and equipment used for the Development is:
- (a) maintained in a proper and efficient condition; and
 - (b) operated in a proper and efficient manner.

COOLING WATER OUTLET PIPELINE REMOVAL

B16A. The cooling water outlet pipeline must be removed from beneath Silver Beach north of Prince Charles Parade and up to 20 metres seaward from the low tide mark in Botany Bay as shown in Appendix A of this consent.

PROTECTION OF PUBLIC INFRASTRUCTURE

- B17. Prior to the commencement of construction, the Applicant **must**:
- (a) prepare a dilapidation report of the public infrastructure in the vicinity of the site (including roads, gutters and footpaths); and
 - (b) submit a copy of this report to the [Planning Secretary](#) and Council.

B17A. Prior to the commencement of demolition works, the Applicant **must:**

MOD 6 2020 – Extension of ACS Management Works Period

- (a) prepare a dilapidation report of the public infrastructure in the vicinity of the site (including roads, gutters and footpaths); and
- (b) submit a copy of this report to the Planning Secretary and Council.

B18. The Applicant **must**:

- (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the development; and
- (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.

STAGED SUBMISSION OF PLANS OR PROGRAMS

B19. With the approval of the Planning Secretary, the Applicant may:

- (a) submit any strategy, plan or program required by this consent on a progressive basis; and/or
- (b) combine any strategy, plan or program required by this consent.

Notes:

- If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program **must** clearly describe the specific stage to which the strategy, plan or program applies, the relationship of this stage to any future stages and the trigger for updating the strategy, plan or program.
- There must be a clear relationship between the strategy, plan or program that are to be combined.

DISPUTE RESOLUTION

B20. In the event that a dispute arises between the Applicant and Council or a public authority other than the Department, in relation to a specification or requirement applicable under this consent, the matter must be referred by either party to the Planning Secretary, or if not resolved, to the Minister, whose determination of the dispute **must** be final and binding to all parties. For the purpose of this condition, 'public authority' has the same meaning as provided under Section 4 of the Act.

COMPLIANCE

- B21. The Applicant **must** ensure that employees, contractors and sub-contractors are aware of, and comply with, the conditions of this consent relevant to their respective activities.
- B22. The Applicant **must** be responsible for environmental impacts resulting from the actions of all persons that it invites onto the site, including contractors, sub-contractors and visitors.

SCHEDULE C

ENVIRONMENTAL PERFORMANCE AND MANAGEMENT

HAZARDS AND RISKS

Terms of Approval

C1. The Applicant **must**:

- (a) carry out the Development in accordance with the PHA;
- (b) implement all control measures proposed in the PHA;
- (c) implement all actions proposed by Caltex in response to the recommendations from the Buncefield incident investigation report (Kurnell Buncefield Review - Final, submitted to the Department May 2013).
- (d) implement all proposed actions listed in Caltex's response to the Department's requests for additional information and clarifications (Caltex Response to D&I Queries of Caltex Submitted QRA – August 2013).

C1A. The Applicant **must** implement the recommendations in section 6 of the document titled Hazard and Risk Analysis of the proposed Caltex Kurnell Refinery Demolition Works (HRA), prepared by Planager Pty Ltd and enclosed in Appendix B of the SEE.

Demolition

C1B. The Applicant **must** ensure that relevant demolition work associated with the development is carried out in accordance with Australian Standard AS 2601:2001: The Demolition of Structures, or its latest version and the requirements of the Work Health and Safety Regulation 2011.

C1C. The Applicant **must** ensure that major demolition works as defined under the Work Health and Safety Regulation 2011 are undertaken by licensed demolition experts.

Commissioning

C2. The Applicant must commission the Development in accordance with Table 1 below:

Table 1: Development Commissioning

System Description	Estimated Commencement of Commissioning	Estimated Commencement of Operation of System
Jet	1 March 2014	1 June 2014
Diesel	1 April 2014	1 July 2014
Gasoline	1 May 2014	1 August 2014
Slop	1 May 2014	1 August 2014

Pre-construction

C3. At least one month prior to the commencement of construction of the Development (except for construction of those preliminary works that are outside the scope of the hazard studies), or within such further period as the Planning Secretary may agree, the Applicant must prepare, in consultation with WorkCover NSW, and submit for the approval of the Planning Secretary, the studies set out under subsections (a) to (d) (the pre-construction studies) of this Condition. Construction, other than for preliminary works, must not commence until approval has been given by the Planning Secretary and, with respect to the Fire Safety Study, approval has also been given by Fire and Rescue NSW.

- (a) Construction Safety Study

A Construction Safety Study, consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 7, 'Construction Safety'. For developments in which the construction period exceeds six (6) months, the commissioning portion of the Construction Safety Study may be submitted two months prior to the commencement of commissioning.

- (b) Fire Safety Study

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A Fire Safety Study for the Development. This study must cover the relevant aspects of the Department of Planning's Hazardous Industry Planning Advisory Paper No. 2, 'Fire Safety Study Guidelines' and the New South Wales Government's 'Best Practice Guidelines for Contaminated Water Retention and Treatment Systems'. The study must also be submitted for approval to Fire and Rescue NSW.

(c) Hazard and Operability Study/s

A Hazard and Operability Study/s for the Development, chaired by an independent qualified person. The study/s must be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 8, 'HAZOP Guidelines'.

The study report/s must be accompanied by a program for the implementation of all recommendations made in the report. If the Applicant intends to defer the implementation of a recommendation, reasons must be documented.

(d) Final Hazard Analysis

A Final Hazard Analysis of the Development, consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 6, 'Hazard Analysis'.

The FHA must re-evaluate and confirm all relevant data and assumptions from the Preliminary Hazard Analysis.

Pre-Demolition

C3A. At least one month prior to the commencement of demolition works (except for those preliminary works that are outside the scope of the hazard studies), or within such further period as the Planning Secretary may agree, the Applicant must prepare and submit for the approval of Planning Secretary the studies set out under subsections (a) to (b). Demolition, other than of preliminary works, must not commence until approval has been given by the Planning Secretary.

(a) FIRE WATER SYSTEM REVIEW

A review of the Firewater System to detail which parts of the system will be removed and/or retained. This review must include a list of measures that will be implemented to ensure that the firefighting capabilities of the Caltex Terminal will not be compromised during or as a result of the demolition works.

(b) DEMOLITION SAFETY STUDY

The study must report on the status of implementation of the recommendations outlined in the HRA for the demolition works, enclosed as Appendix B of the SEE. The study must include examples of the hazards control plans developed for high risk activities and task based risk assessments of the process safety related hazards.

C3B. Prior to commencement of the Tank 101 demolition works described in MOD 3, the Applicant must update the Demolition Safety Study prepared by Caltex (approved 11 December 2016), required under Condition C3A(b) to include a demolition management plan for the Tank 101 demolition works. The demolition management plan for the Tank 101 demolition works must be prepared in consultation with the Department.

Pre-commissioning

C4. The Applicant must develop, in consultation with WorkCover NSW, and implement the plans and systems set out under subsections (a) to (b) of this Condition. No later than two months prior to the refinery process units shutting down, or within such further period as the Planning Secretary may agree, the Applicant must submit, for the approval of the Planning Secretary, documentation describing those plans and systems.

(a) Emergency Plan

A comprehensive Emergency Plan and detailed emergency procedures for the Development. This plan must include consideration of the safety of all people outside of the Development who may be at risk from the Development. The plan must be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 1, 'Emergency Planning'.

(b) Safety Management System

A document setting out a comprehensive Safety Management System, covering all on-site operations and associated transport activities involving hazardous materials. The document must clearly specify all

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safety related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to the procedures. Records **must** be kept on-site and **must** be available for inspection by the **Planning Secretary** upon request. The Safety Management System **must** be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 9, 'Safety Management'.

An inspection, testing and preventive maintenance program should be developed, implemented and maintained to ensure the reliability and availability of the key safety critical equipment is, at a minimum, consistent with the data estimated in the PHA.

- C4A. No later than one month prior to the commencement of the demolition works, or within such a further period as the Planning Secretary may agree, the Applicant must submit for the approval of the Planning Secretary an updated Emergency Plan and detailed emergency procedures. The plan must be in accordance with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 1, 'Industry Emergency Planning Guidelines' and must provide information of the emergency arrangements during the demolition works.
- C4B. Prior to commencement of the Tank 101 demolition works described in MOD 3, the Applicant must update and implement the Emergency Plan required under Condition C4(a) to incorporate the Tank 101 demolition works. The plan must include information of the emergency arrangements during the tank demolition works and a copy of the plan must be submitted to the Planning Secretary.
- C5. Prior to the commencement of commissioning the first asset within each system (see Condition C2), the Applicant must submit a Pre-Commissioning Plan and Pre-Startup Safety Review Checklists to the Planning Secretary.

Pre-Startup

C6. Pre-Startup Compliance Report

One month prior to the commencement of operation of the first asset in each of the four systems (see Condition C2), the Applicant must submit to the Planning Secretary, a report detailing compliance with Conditions C3, C4 and C5 of this consent. The report must be prepared in consultation with WorkCover NSW, and must include:

- (a) dates of study/plan/system submission, approval, commencement of construction and commissioning;
- (b) actions taken or proposed, to implement the recommendations and safety-related control measures in the studies/plans/systems; and
- (c) responses to each requirement imposed by the Planning Secretary under Condition C7 of this consent.

Note: Compliance with Condition C4 may not be achievable until after such time as the documentation describing the plans and systems required under that condition have been developed. A subsequent report may therefore be required to be prepared and submitted after the documentation required by Condition C4 has been developed.

Post-Startup

C7. Post-Startup Compliance Report

Three months after the refinery process units shut down, the Applicant must submit to the Director- General, a report that has been prepared in consultation with WorkCover NSW verifying that:

- (a) the Emergency Plan required under Condition C4(a) is effectively in place and that at least one emergency exercise has been conducted; and
- (b) the Safety Management System required under Condition C4(b) has been fully implemented and that records required by the system are being kept.

The report must be prepared in consultation with WorkCover NSW.

C7A. Fire Safety Study Review

One month prior to the completion of demolition works, or within such further period as the Planning Secretary may agree, the Applicant must submit for the approval of the Planning Secretary, a revised Fire Safety Study for the Caltex Terminal. This study must cover the relevant aspects of the Department's Hazardous Industry Planning Advisory Paper No. 2, 'Fire Safety Study Guidelines' and the New South Wales Government's 'Best Practice Guidelines for Contaminated Water Retention and Treatment Systems'. The study must also be submitted to NSW Fire and Rescue for approval.

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Ongoing

C8. Hazard Audit

Twelve months after all four systems being fully operational and every three years thereafter, or at such intervals as the **Planning Secretary** may agree, the Applicant **must** carry out a comprehensive Hazard Audit of the Development and within one month of each audit submit a report to the **Planning Secretary**.

The audits **must** be carried out at the Applicant's expense by a qualified person or team, independent of the Development, approved by the **Planning Secretary** prior to commencement of each audit. Hazard Audits **must** be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 5, 'Hazard Audit Guidelines' (HIPAP No. 5).

The audit reports **must**, in addition to the requirements provided in HIPAP No 5:

- (a) verify implementation of all actions proposed by Caltex in response to the recommendations from the Buncefield incident investigation report (*Kurnell Buncefield Review - Final*, submitted to the Department May 2013).
- (b) verify implementation of all actions listed in Caltex's response to the Department's requests for additional information and clarifications (*Caltex Response to DP&I Queries of Caltex Submitted QRA – August 2013*).
- (c) confirm that the throughput and storage quantities of potentially hazardous materials are consistent with the PHA.
- (d) verify that an inspection, testing and preventative maintenance program has been developed, implemented and maintained to ensure the reliability and availability of the key safety critical equipment.
- (e) verify implementation of any measures arising from the reports submitted in respect of Conditions C2 to C5 of this consent.

The audit report must be accompanied by a program for the implementation of all recommendations made in the audit report. If the Applicant intends to defer the implementation of a recommendation, reasons must be documented.

C9. Further Requirements

The Applicant **must** comply with all reasonable requirements of the **Planning Secretary** in respect of the implementation of any measures arising from the reports submitted in respect of Conditions C1 to C8 of this consent inclusive, within such time as the **Planning Secretary** may agree.

Fire Risk Management During Demolition

C9A. The Applicant **must**:

- (a) ensure the emergency procedures detailed in condition C4A, address and mitigate, as far as reasonably practical, the consequences of potential fire and hazmat incidents during demolition works and the potential health risks to firefighters undertaking emergency operations in relation to foreseeable fire/hazmat scenarios;
- (b) ensure two copies of the emergency procedures detailed in condition (a) above are located at the demolition areas;
- (c) ensure appropriate first aid firefighting equipment is provided on site;
- (d) ensure that plant operators and demolition contractors are trained to undertake first aid firefighting in the event of an incident; and
- (e) ensure that comprehensive and specific risk control measures are developed and implemented for Scenario 5 detailed in Table 3, Section 4 of the HAZDEM. The control measures developed must incorporate comprehensive training of demolition contractors in regard to the requirements for the control of ignition sources at the site.

SOIL AND WATER

Discharge of Water

- C10. The Development **must** comply with section 120 of the *Protection of the Environment Operations Act 1997*, which prohibits the pollution of waters, except as expressly provided in an EPL.

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Erosion and Sediment Control

C11. During the construction and demolition works associated with the Development, the Applicant must implement suitable erosion and sediment control measures on-site, in accordance with the relevant requirements in the latest version of the Managing Urban Stormwater: Soils and Construction Guideline and the relevant Management and Mitigation measures contained within Appendix C of this consent.

Imported Soil

C11A. The Applicant must:

- (a) ensure that only VENM or any other material approved in writing by the EPA is used as fill in the Eastern ROW and Western ROW;
- (b) ensure that the material used as backfill for Silver Beach is of similar grain size and colour characteristics;
- (c) be permitted to use only VENM or any other material that meets all of the conditions of a Resource Recovery Order issued by the EPA under the Protection of the Environment Operations (Waste) Regulation 2014 for use in the Caltex Terminal.
- (d) ensure that any VENM or other materials used by the Applicant are fit for purpose and are only used as specified by the relevant Resource Recovery Exemption issued by the EPA.
- (e) keep accurate records of the volume and type of fill to be used; and
- (f) make these records available to the Department upon request.

C11B. During demolition works, the Applicant must implement suitable erosion and sediment control measures for managing temporary stockpiles, in accordance with the relevant requirements in the latest version of the Managing Urban Stormwater: Soils and Construction – Volume 1 and the relevant Management and Mitigation measures contained within Appendix C of this consent.

Water Management Plan

C12. The Applicant must prepare and implement a Water Management Plan for construction works and site operations to the satisfaction of the Planning Secretary. The plan(s) must:

- (a) be prepared in consultation with the EPA;
- (b) be approved by the Planning Secretary (refer to Conditions D1 and D2 for timing);
- (c) In addition to the standard requirements for management plans (see Condition D3), this plan must include a Surface Water Management Plan, that:
 - includes a description of the water management system on site, including the:
 - stormwater system; and,
 - oily water / wastewater system.
 - includes plans for the above two components of the systems; and
 - demonstrates compliance with any requirements of the EPL and/or the EPA.

C12A. The Applicant must update and implement the Soil and Water Management Plan for the demolition works to the satisfaction of the Planning Secretary. This plan is to update the plan approved under condition C12 and must also:

- (a) be submitted to the Planning Secretary for approval (See condition D1A for timing);
- (b) include a description of soil and water issues associated with the demolition works;
- (c) include measures for managing soils that are excavated and stockpiled on site including erosion and sediment control measures for stockpiles and disturbed areas;
- (d) include details of water management and monitoring requirements during demolition works; and
- (e) include procedures for corrective action in the event that potential contaminants of concern are identified in the groundwater from the quarterly groundwater monitoring program.

Groundwater

C13. In the event that groundwater is intersected during construction and demolition works the Applicant must:

- (a) obtain the necessary water licences or approvals from NOW;
- (b) develop a Groundwater Management Plan for the testing, dewatering, storage, movement and treatment of any groundwater in consultation with the NOW, to the satisfaction of the Planning Secretary.

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Acid Sulphate Soils (ASS) Management Plan

- C14. If Acid Sulfate Soils (ASS) are encountered during construction **demolition works**, the Applicant **must** take steps to prevent further oxidation of exposed ASS, and will cease all excavation work until an ASS Management Plan is prepared for the Development to the satisfaction of the **Planning Secretary**. This Plan must:
- (a) be prepared in consultation with the EPA and Council by a suitably qualified and experienced expert;
 - (b) be approved by the **Planning Secretary** prior to the continuation of any excavation works;
 - (c) outline the investigations that have been undertaken to test for the presence of ASS in accordance with the NSW State Government's *Acid Sulphate Soils Manual* (ASSMAC 1998);
 - (d) detail the protocols to be put in place and followed;
 - (e) detail how the ASS will be tested, handled and stockpiled;
 - (f) detail measures to prevent erosion and sedimentation of ASS; and, if necessary
 - (g) outline how the ASS will be disposed of off-site (e.g. at a licensed facility).

Contamination Management

- C15. The Applicant **must** prepare and implement a Contamination Management Plan for the construction works. The Plan **must**:
- (a) be prepared in consultation with the EPA and NSW Health;
 - (b) be to the satisfaction of the **Planning Secretary** (refer to Condition D1 for timing);
 - (c) outline measures for managing potentially contaminated soil and groundwater, including soil testing, classification, handling, storing and disposal;
 - (d) detail the measures that will be employed to prevent erosion and sedimentation of contaminated soil;
 - (e) detail measures for periodically testing surface water run-off that may accumulate during excavation works for elevated levels of contamination, with any water that is found to have elevated levels of contaminants being disposed of via the on-site Wastewater Treatment Plant.
 - (f) detail measures for managing asbestos encountered during works, including disturbances of soil and release of asbestos into the air;
 - (g) outline how all contaminated soil and associated waste material would be managed in accordance with the *Protection of the Environment Operations Act 1997* and associated regulations and characterised in accordance with the EPA's *Waste Classification Guidelines*;
 - (h) detail how the storage, disposal and transport of asbestos waste would be undertaken in accordance with the *Protection of the Environment Operations (Waste) Regulations*; and
 - (i) assess any likely impact on existing remediation projects and, if any impacts are identified, provide details as to the measures that **must** be taken to reduce or avoid that impact.
- C15A. The Applicant **must** update and implement the Contamination Management Plan for the demolition works to the satisfaction of the **Planning Secretary**. This plan is to update the plan approved under condition C15 and **must** also:
- (a) be submitted to the **Planning Secretary** for approval (See condition D1A for timing);
 - (b) detail measures for the identification and monitoring of potentially contaminated soils and groundwater including the use of excavation visual and olfactory indicators; and
 - (c) include measures for managing potentially contaminated soils and groundwater during ground disturbance and excavation works;

Asbestos Management

- C15B. The Applicant **must** ensure that any asbestos encountered during the demolition works is monitored, handled, transported and disposed of by appropriately qualified and licensed contractors in accordance with the requirements of WorkCover and relevant guidelines, including:
- (a) *Work Health and Safety Regulation 2011*;
 - (b) *Model Code of Practice – How to Manage and Control Asbestos in the Workplace, 2011 Safe Work Australia*;
 - (c) *Model Code of Practice – How to Safely Remove Asbestos, 2011 Safe Work Australia*; and
 - (d) *Protection of the Environment Operations (Waste) Regulation 2005*.

NOISE AND VIBRATION

Construction Noise Limits

C16. The Applicant **must** ensure that the construction noise generated by the Development does not exceed the criteria defined in Table 2 below.

Table 2: Construction Noise Criteria(dB(A))

Location	Day	Evening
	LAeq (15 min)	LAeq (15min)
R2-30D Cook Street	46	40
At any other residence or other noise sensitive receiver	50	45

Notes:

- To identify a residential receiver location, refer to Appendix F of the EIS.
- Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.

Operational Noise Limits

C17. The Applicant **must** ensure that the operational noise generated by the Development does not exceed the Criteria for residential receivers are summarised in Table 3 below:

Table 3: Operational Noise Limits dB(A)

Location	Day	Evening	Night	
	LAeq (15 min)	LAeq (15 min)	LAeq (15 min)	L _{Amax}
At any private residential receiver	60	50	50	55

Notes:

- To identify a residential receiver location, refer to Appendix F of the EIS.
- Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.
- These criteria have been developed for this specific Development, however it is recognised that the site is zoned for heavy industrial purposes and that ultimately the amenity of the area should be controlled by the criteria contained in Table 2.1 of the Industrial Noise Policy.

Hours of Construction and Operation

C18. With the exception of works identified in conditions C19 and C20, the Applicant **must** comply with the hours detailed in Table 4.

Table 4: Construction, Demolition & Operation Hours

Activity	Day	Time
Construction	Monday – Sunday	7:00am to 10:00pm
Demolition	Monday – Sunday	7:00am to 10:00pm
Operation	Monday – Sunday	24 hours

C19. High noise generating construction and demolition works, including the pipeline removal works within the Eastern and Western Right of Ways, and the Tank 101 demolition works described in MOD 3, **must** be confined to less sensitive times of the day, and **must** not be undertaken on Sundays or public holidays or outside of the hours 7:00am and 6:00pm Monday to Saturday.

C20. Construction works outside of the work hours identified in condition C18 above may be undertaken in the following circumstances:

- (a) works that are inaudible at nearest sensitive land receivers;
- (b) works that are consistent with Caltex's existing maintenance procedures and are in accordance with the existing EPL;
- (c) works agreed to in writing by the EPA or the Department;
- (d) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or
- (e) where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm.

Operating Conditions

C21. The Applicant **must**:

- (a) implement all reasonable and feasible noise management and mitigation measures to prevent and minimise operational, low frequency and traffic noise generated by the proposal;
- (b) minimise the noise impacts of the development during adverse meteorological conditions when noise criteria do not apply;
- (c) maintain the effectiveness of any noise suppression equipment on plant at all times and ensure defective plant that may generate offensive noise is not used operationally until fully repaired; and
- (d) regularly assess noise monitoring data and relocate, modify and/or stop operations to ensure compliance with the relevant conditions of this consent.

Noise Management Plan

C22. The Applicant **must** prepare and implement a Noise Management Plan for construction works and site operations. The plan(s) **must**:

- (a) be prepared and implemented by a suitably qualified and experienced person, in consultation with the EPA;
- (b) be approved by the **Planning Secretary** (refer to Conditions D1 and D2 for timing);
- (c) describe the measures that will be implemented to minimise noise from the construction and operation of the development including:
 - all reasonable and feasible measures being employed on site;
 - maintain equipment to ensure that it is in good order;
 - traffic noise is effectively managed; and
 - the noise impacts of the development are minimised during any meteorological conditions when the noise criteria in this consent do not apply;
 - identification of high noise generating construction activities, including proposed times when these works will be carried out (including respite periods if required) and mitigation measures to minimise adverse impacts from these activities;
 - compliance with the relevant conditions of this consent.
- (d) includes a noise monitoring program that:
 - **must** be carried out until otherwise agreed to in writing by the **Planning Secretary**;
 - is capable of evaluating the performance of the Development; and,
 - includes a protocol for determining exceedances of the relevant conditions of this consent and responding to complaints.

C22A. The Applicant must update and implement the Noise Management Plan for the demolition works to the satisfaction of the Planning Secretary. This plan is to update the plan approved under condition C22 and must also:

- (a) be approved by the Planning Secretary (refer to conditions D1A and D2 for timing);**
- (b) outline the procedures for the notification of all potentially affected persons at least one week prior to and during high noise generating works;**
- (c) implement reasonable and feasible noise and vibration management and mitigation measures during the demolition activities within the Caltex Terminal;**
- (d) implement reasonable and feasible noise and vibration monitoring and management measures during removal of the pipelines from the Eastern and Western ROW to minimise noise and vibration impacts generated by the pipeline removal works; and**
- (e) include strategies for monitoring vibration impacts on buildings with medium to high heritage significance proposed to be retained within the Caltex Terminal.**

Construction Vibration

C23. The Applicant **must** aim to achieve the following construction **and demolition** vibration goals:

- (a) for structural damage, the vibration limits set out in the *German Standard DIN 4150-3: Structural Vibration - effects of vibration on structures*; and
- (b) for human exposure, the acceptable vibration values set out in the *Environmental Noise Management Assessing Vibration: A Technical Guideline* (Department of Environment and Conservation, 2006).

AIR QUALITY MANAGEMENT

Dust Generation During Construction

C24. The Applicant **must** carry out all reasonable and feasible measures to minimise dust generated during construction **and demolition works**.

C25. During Construction **and demolition works**, the Applicant **must** ensure that:

- (a) all trucks entering or leaving the site have their loads covered;
- (b) trucks associated with the Development do not track dirt onto the public road network; and
- (c) any dirt on public roads as a result of the development is promptly removed.

Offensive Odour

C26. The Applicant **must** not cause or permit the emission of offensive odours from the site, as defined under Section 129 of the POEO Act.

Operating Conditions

C27. The Applicant **must**:

- (a) implement all reasonable and feasible dust and odour mitigation measures to prevent and minimise odour and dust emissions from operations;
- (b) prevent and minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events;
- (c) minimise any visible off-site air pollution; and
- (d) minimise surface disturbance of the site, other than as permitted under this consent.

Air Quality Management Plan

C28. The Applicant **must** prepare and implement an Air Quality Management Plan for the proposed construction works. The plan **must**:

- (a) be prepared and implemented by a suitably qualified and experienced expert in consultation with the EPA and NSW Health;
- (b) be approved by the **Planning Secretary** prior (refer to Condition D1 for timing);
- (c) describe the measures that would be implemented on site to ensure:
 - i. the control of air quality and odour impacts of the Development;
 - ii. that these controls remain effective over time;
 - iii. that all reasonable and feasible air quality management practice is employed;
 - iv. the air quality impacts are minimised during adverse meteorological conditions and extraordinary events; and
 - v. compliance with the relevant conditions of this consent.
- (d) describes the air quality & odour management system;
- (e) includes an air quality monitoring program that:
 - i. is capable of evaluating the performance of the proposal;
 - ii. includes a protocol for determining any exceedances of the relevant conditions of consent and responding to complaints;
 - iii. adequately supports the air quality management system; and
 - iv. evaluates and reports on the effectiveness of the air quality management system.

C28A. The Applicant must update and implement the Air Quality Management Plan for the demolition works to the satisfaction of the Planning Secretary. This plan is to update the plan approved under condition C28 and must also:

- (a) be approved by the Planning Secretary (refer to conditions D1a and D2 for timing);
- (b) outline procedures for VOC, odour and dust deposition monitoring and suppression methods during excavation works and where potential hydrocarbon contamination is present; and
- (c) include dust suppression measures and procedures for dust monitoring during operation of the concrete crusher.

Air Quality Verification

C29. The Applicant must carry out an air quality verification study for the development. The study must:

- (a) be prepared by a suitably qualified expert;
- (b) be completed within 24 months of the commencement of operations, or as otherwise agreed to by the Planning Secretary;
- (c) be based on the average of emissions over a continuous 12 month period after commencement of operations, taking into account the throughput and type of fuel;
- (d) include a validation of the accuracy of the modelling predictions in the EIS;
- (e) verify that compliance with any limits or conditions in the EPL are achieved;
- (f) verify, using reasonable means, the effectiveness of any emission control measures that have been implemented to minimise air quality impacts; and
- (g) demonstrate compliance with the relevant regulatory criteria.

HERITAGE MANAGEMENT

Archival Record

C30. The Applicant must commission an appropriately qualified heritage expert to undertake an archival photographic recording of the existing fabric and operation of the Kurnell Refinery while the plant is still operational and during the decommissioning process. The recording should include a range of media and must be undertaken in accordance with the current Heritage Council Guidelines on Photographic Recording of Heritage Items Using Film or Digital Capture (2006).

The archival recording must be submitted to the Heritage Council of NSW, Sutherland Shire Library and the NSW State Library within 12 months of the closure of the refinery and prior to the removal or demolition of any existing elements.

Heritage Management Strategy

C31. The Applicant must prepare and implement a Heritage Management Strategy for the Australian Oil Refinery site prior to shut-down of the refinery plant. The Strategy must:

- (a) be prepared by a suitably qualified person in consultation with Council and the Heritage Council of NSW;
- (b) be submitted to the Planning Secretary for approval at least 2 months prior to the shut-down of the refinery plant;
- (c) review the heritage significance of the Australian Oil Refinery site; and
- (d) set out a framework to minimise or mitigate the loss of heritage value during the decommissioning process, and for the ongoing management of the Site's heritage during present and future works.

C31A. The Applicant must:

- (a) continue to implement the Heritage Management Strategy prior to and during the demolition works; and
- (b) implement the recommendations stated in Chapter 4 and 5 of the document titled: *Caltex Kurnell Refinery Demolition: Heritage Impact Statement by Australian Museum Consulting for URS Australia Pty Ltd, October 2014.*

Other Heritage Management and Mitigation Measures

C32. The Applicant must, prior to shut-down of the refinery:

- (a) form an in-house team to manage documentation and interpretation of the history of the refinery, including the production of a colour book;

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- (b) liaise with the Mitchell Library to prepare a photographic record of the site and people associated with the refinery for inclusion in the library's archives; and
- (c) engage a professional photographer to prepare a photographic exhibition of the refinery. The location(s) and duration of the exhibition must be to the satisfaction of Council and the NSW Heritage Council.

C32A. Within two months of its scheduled demolition, the Applicant must undertake a final review of the adaptive reuse capabilities of highly significant buildings which are proposed to be demolished as per the recommendations of the Heritage Management Strategy.

C32B. Within two months of its scheduled demolition, the Applicant must complete appropriate archival records of items to be demolished as per the recommendations of the Heritage Management Strategy and other initiatives supported by the Heritage Division of the OEH.

~~C32C. The Applicant must implement the recommendations in section 5.2 of the document titled *Caltex Kurnell Refinery Demolition: Heritage Impact Assessment*, prepared by Australian Museum Consulting and enclosed in Appendix F of the SEE, for the pipeline removal works on Silver Beach to the satisfaction of Council.~~

Potential for Discovery of Aboriginal and Non-Aboriginal Heritage Objects

C33. If during the course of construction and demolition the Applicant becomes aware of any previously unidentified heritage object(s), all work likely to affect the object(s) must cease immediately and the Heritage Council of New South Wales must be notified immediately in accordance with section 146 of the *Heritage Act 1977*. Relevant works must not recommence until written authorisation from the Heritage Council of NSW is received by the Applicant.

C34. If during the course of construction and demolition the Applicant becomes aware of any previously unidentified Aboriginal object(s), all work likely to affect the object(s) must cease immediately and the OEH informed in accordance with section 89A of the *National Parks and Wildlife Act 1974*. Relevant works must not recommence until written authorisation from OEH is received by the Applicant.

ENERGY EFFICIENCY AND GREENHOUSE GAS EMISSIONS

Managing Energy Efficiency & Greenhouse Gas Emissions

C35. The Applicant must implement all reasonable and feasible measures to minimise:

- (a) energy use; and
- (b) greenhouse gas emissions;

throughout the life of the development, to the satisfaction of the Planning Secretary.

TRANSPORT AND ACCESS

Traffic Management Plan

C36. The Applicant must prepare and implement a Traffic Management Plan for construction and operations, to the satisfaction of the Planning Secretary. The plan must:

- (a) be prepared in consultation with Council and implemented by a suitably qualified and experienced person;
- (b) be approved by the Planning Secretary (Refer to Conditions D1 and D2 for timing);
- (c) detail the measures that would be implemented to ensure road safety and network efficiency during construction and operation including (but not limited to):
 - installation of signage and implementation of maximum speeds limits on internal roads; and
 - final details of the proposed traffic control measures;
 - details for the rationalisation of the entry and exit to the Site, particularly if the weigh station is no longer required, to improve the management of traffic and parking for members of the general public in this area;
- (d) include a plan showing the route to be used by heavy vehicles during construction and operation;
- (e) detail the access and parking arrangements for the site during construction and operation;
- (f) include a Driver Code of Conduct that details the traffic management measures to be implemented during construction and operation to:
 - minimise the impacts of the development on the local and regional road network;
 - minimise conflicts with other road users; and

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- ensure truck drivers use specified routes.
- (g) describe the measures that will be implemented to ensure:
 - the nominated heavy vehicle route is used;
 - drivers adhere to the code of conduct; and
 - compliance with the relevant conditions of this consent.
- (h) include a program to monitor the effectiveness of these measures; and
- (i) if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.

C36A. The Applicant **must** update and implement the Traffic Management Plan for the demolition works to the satisfaction of the **Planning Secretary**. This plan is to update the plan approved under condition C36 and **must** also:

- (a) be prepared in consultation with Council;
- (b) be approved by the **Planning Secretary** (refer to conditions D1A for timing);
- (c) include the designated routes for demolition traffic to the demolition areas within the site;
- (d) include details of traffic management arrangements for the cooling water outlet and intake pipeline removal works within the road reserves; and
- (e) outline the procedures for the notification of all potentially affected persons prior to and during the pipeline removal works within the road reserves.

C36B. The Applicant **must** ensure that the pipeline removal works along the road reserves on Captain Cook Drive, Prince Charles Parade and Cook Street are undertaken in consultation with Council and do not take place during public events or public holidays in Kurnell.

Car Parking

C37. The Applicant **must** provide sufficient parking facilities on-site for construction, **demolition** and operational personnel, and heavy vehicles, to ensure that construction, **demolition** and operational traffic associated with the Development do not utilise public and residential streets or public parking facilities for parking.

C37A. Within 18 months after commencement of the demolition works, the Applicant **must**:

- (a) complete a review, in consultation with Council, of the Cook Street approach to the Caltex Terminal site considering issues relating to signage, car parking arrangements, vehicle flows and the future of the weighbridge; and
- (b) include a timetable of implementation of the findings of this review.

Note: The implementations of the findings of this review may require further approval under the EP&A Act.

WASTE MANAGEMENT

Waste Management On-Site

C38. The Applicant **must**

- (a) minimise the waste generated on site; and
- (b) ensure that the waste generated by the development is appropriately stored, handled and disposed of, to the satisfaction of the **Planning Secretary**.

C39. The Applicant **must** ensure that any waste generated on the site during construction and **demolition** is classified in accordance with the EPA's Waste Classification Guidelines and disposed of to a facility that may lawfully accept the waste.

C39A. The Applicant **must** ensure that all hazardous materials identified in the structures to be demolished are removed prior to demolition where it is safe and practical to do so.

C39B. The Applicant **must** ensure that the reuse of any materials (including soil, scrap metal or building materials) on site must be fit for purpose and must not result in any adverse impacts to the environment.

C39C. Where it is safe and practical to do so, the Applicant should as far as practicable sort all waste materials generated during demolition works to maximise opportunities for the beneficial reuse and recycling of such waste materials.

MOD 6 2020 – Extension of ACS Management Works Period

Waste Management Plan

- C40. The Applicant **must** prepare and implement a Waste Management Plan for the construction works and site operations to the satisfaction of the **Planning Secretary**. This Plan **must**:
- (a) be prepared in consultation with the EPA;
 - (b) be approved by the **Planning Secretary** (refer to timing in Conditions D1 and D2);
 - (c) detail the type and quantity of waste to be generated by construction and operational phases of the development;
 - (d) detail the materials to be reused or recycled, either on or off site; and
 - (e) detail the procedures for handling, storage, collection of recycling and disposal of waste.

Demolition Waste and Resource Management Plan

- C40A. The Applicant **must** prepare and implement a Demolition Waste and Resource Management Plan for the demolition works to the satisfaction of the **Planning Secretary**. This plan is to update the plan approved under condition C40 and **must** also:
- (a) be prepared in consultation with the EPA;
 - (b) be approved by the **Planning Secretary** (refer to condition D1a for timing);
 - (c) outline the measures for the removal, storage and disposal of all waste materials generated during the demolition works; and
 - (d) outline the waste reuse and recovery strategy for the demolition works.

Waste Received from Off-Site

- C41. The Applicant **must** not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence under the *Protection of the Environment Operations Act 1997*, if such a licence is required in relation to that waste.
- C41A. The Applicant **must** ensure that the removal of the cooling water outlet pipeline 20 metres seaward from the low tide mark in Botany Bay is carried out in a manner that minimises the potential for disturbance and/or spread of *Caulerpa taxifolia*.

BIODIVERSITY & ECOLOGY

Biodiversity Management Plan

- C42. The Applicant **must** prepare and implement a Biodiversity Management Plan for the development to the satisfaction of the **Planning Secretary**. This plan **must**:
- (a) be prepared in consultation with the Council;
 - (b) be approved by the **Planning Secretary** (Refer to Conditions D1 and D2 for timing);
 - (c) include measures to be taken to minimise impacts on flora and fauna;
 - (d) include a program with timeframes for implementation of the relevant recommendations contained in the Ecology Impact Assessment in Appendix I of the EIS, and the Management and Mitigation Measures contained in Chapter 19 of the EIS to minimise impacts on flora and fauna and maintain the biodiversity value of the site and surrounding environment.

Pest, Vermin & Noxious Weed Management

- C43. The Applicant **must**:
- (a) implement suitable measures to manage pests, vermin and declared noxious weeds on site;
 - (b) measures to be taken to prevent the spread of any identified noxious/exotic weeds off site; and
 - (c) inspect the site on a regular basis to ensure that these measures are working effectively, and that pests, vermin or noxious weeds are not present on site in sufficient numbers to pose an environmental hazard, or cause the loss of amenity in surrounding area.

Note: For the purposes of this condition, noxious weeds are those species subject to an order declared under the Noxious Weed Act 1993.

C43A. The Applicant **must** update and implement the Biodiversity and Weed Management Plan for the demolition works to the satisfaction of the **Planning Secretary**. This plan is to consolidate the plans approved under conditions C42 and C43 and **must** also:

- (a) be prepared in consultation with the OEH;
- (b) be approved by the **Planning Secretary** (Refer to condition D1A for timing); and
- (c) include details of pre-clearing inspections and frog exclusion measures to be undertaken prior to excavation along the Continental Carbon Pipeway Right of Way.

Continental Carbon Pipeline

C43B. Within three months after the removal of the Continental Carbon Pipeline, the Applicant **must** prepare a strategy, in consultation with the OEH, for the active management of the former pipeline route including a program for weed management and removal as outlined in Management and Mitigation Measure K6 in Appendix C of this consent. The Applicant **must** have commenced implementation of this strategy six months after the removal of the Continental Carbon Pipeline.

Cooling Water Outlet Management Plan

C43C. The Applicant **must** prepare and implement a Cooling Water Outlet Management Plan for the demolition works. The plan must:

- (a) be prepared in consultation with Council;
- (b) be approved by the **Planning Secretary** (see condition D1A for timing);
- (c) include details of the timing and excavation program for pipeline removal, demolition methods, details of stockpiling, removal or reuse of excavated materials and the use of imported soils; and
- ~~(d) outline the measures to be taken to minimise potential marine ecology impacts including measures to:~~
 - ~~• minimise sediment plumes particularly during backfilling activities;~~
 - ~~• minimise the potential for hydrocarbon contamination from the pipeline;~~
 - ~~• minimise disturbance and impact on any seagrass communities; and~~
 - ~~• maintain machinery and equipment; and~~
 - ~~• exclude people and animals from the works both landward and seaward;~~
- (e) include details of the odour suppression measures during the pipeline removal works.
- ~~(f) include details of the works on Silver Beach including:~~
 - ~~• measures to minimise impacts to the affected sand dunes on Silver Beach including dune erosion and damage to vegetation; and~~
 - ~~• strategies for stabilising and restoring the affected sand dunes including exclusion measures and revegetation strategies.~~

Protection of Marton Park Wetland

C44. To ensure that the measures implemented to protect Marton Park Wetland from sedimentation, erosion and possible contaminants related to the stormwater drainage upgrade works approved by Sutherland Shire Council (DA 13/0195), are successful, monitoring of Marton Park Wetland must be undertaken after completion of the stormwater upgrade works, until otherwise agreed with Council, to ensure there are no detrimental impacts on the wetland. Caltex is to prepare a monitoring plan and submit it to Council for approval prior to completion of stormwater drainage upgrade works.

VISUAL

Lighting

C45. The Applicant **must** ensure that the lighting associated with the development:

- (a) complies with the latest version of AS 4282(INT) – *Control of Obtrusive Effects of Outdoor Lighting*; and
- (b) is mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.

Signage and Fencing

- C46. The Applicant **must** not install any advertising signs on site without the written Consent of the **Planning Secretary**.

SITE SECURITY

Site Security

- C47. The Applicant **must** ensure that:
- (a) site fencing and security gates are installed to the satisfaction of the **Planning Secretary**; and
 - (b) the security gates on site are locked whenever the site is unattended.

ACS MANAGEMENT WORKS

Site Auditor

- C48. Prior to commencement of the ACS management works, the Applicant **must** provide evidence that an EPA accredited Site Auditor has been appointed to review and approve the RAP and long-term environmental management plan (LTEMP) (see Conditions C54 and C55, respectively).

Remedial Action Plan

- C49. Prior to commencement of the ACS management works, the Applicant **must** ensure the RAP is reviewed and approved by the Site Auditor. The Site Auditor **must** be satisfied the design and construction methods outlined in the CQAP will achieve a level of containment which meets the remedial objectives described in the RAP.

A copy of the Site Audit Report, Site Audit Statement **must** be provided to the EPA and Planning Secretary, which demonstrates the appropriateness of the RAP.

Note: The Site Auditor should consider the Construction Quality Assurance Procedures in relation to the Environmental Guidelines: Solid Waste Landfills (EPA, 2nd Edition, 2016)

Containment Cell

- C50. Prior to commencement of the ACS management works, the Applicant **must** prepare a Containment Cell Management Plan (CCMP) for the ACS management works. The plan **must** be prepared in accordance with Condition D3 and **must**:
- (a) be prepared by a suitably qualified and experienced person(s), in consultation with the EPA;
 - (b) be approved by the **Planning Secretary**;
 - (c) describe details of the cell construction and filling activities including soil acceptance criteria for the containment cell;
 - (d) describe the measures that will be implemented to ensure the control of soil, surface water, groundwater, air quality and noise impacts associated with the ACS management works;
 - (e) include a register to detail the type and volume of material excavated and disposed of as part of the ACS management works; and
 - (f) include details of dust, asbestos, waste and groundwater monitoring requirements.
- C51. The Applicant **must** only place ACS sourced from within the site in the containment cell.
- C52. Upon completion of the construction aspects associated with the ACS management works (which includes closure of the containment cell), the Applicant **must** prepare a Containment Cell Final Report. The report **must**:
- (a) be submitted to the EPA;
 - (b) confirm the containment cell has been constructed in accordance with the CQAP; and
 - (c) include a summary of the waste classification data (including characterisation and tracking) and monitoring data required under Condition C50 (e) and (f).

Long Term Environmental Management Plan

- C53. Prior to the completion of the construction aspects associated with the ACS management works, the Applicant in consultation with the EPA, must prepare a LTEMP for the containment cell, to the satisfaction of the Site Auditor. A copy of the Site Audit Report and Site Audit Statement must be provided to the EPA and Planning Secretary, which demonstrates the appropriateness of the LTEMP.
- C54. Upon completion of the construction aspects associated with the ACS management works (which includes closure of the containment cell) closure of the containment cell, the Applicant must:
- (a) implement the approved LTEMP and manage the containment cell in accordance with the approved LTEMP; and
 - (b) ensure the containment cell is listed on the relevant planning certificate for the land, issued under Section 149(5) of the EP&A Act, for the site.

Pipeway Validation

- C55. Upon completion of the construction aspects associated with the ACS management works, the Applicant must prepare a Validation Report of the pipeways. The report must:
- (a) be submitted to the EPA and the Planning Secretary for review;
 - (b) be prepared in accordance with the RAP and the *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites* (OEH 2011);
 - (c) include details of the following:
 - (i) sampling and analysis plan and sampling methodology; and
 - (ii) results of any validation sampling, compared to relevant guidelines/criteria.

SCHEDULE D

ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

ENVIRONMENTAL MANAGEMENT

Construction Environment Management Plan

D1. The Applicant must prepare and implement a Construction Environmental Management Plan for the Development to the satisfaction of the Planning Secretary. The Plan must:

- (a) be prepared in consultation with Sutherland Shire Council and the EPA;
- (b) be submitted to the Planning Secretary for approval no later than four (4) weeks prior to the commencement of construction, or within such period otherwise agreed by the Planning Secretary;
- (c) identify the statutory Consents that apply to the Development;
- (d) consolidate all relevant management plans and monitoring programs required in the conditions of this Consent;
- (e) outline all environmental management practices and procedures to be followed during construction and demolition works associated with the Development;
- (f) describe all activities to be undertaken on the site during construction of the Development, including a clear indication of construction stages;
- (g) incorporate all relevant management and mitigation measures contained in the EIS and RTS;
- (h) detail how the environmental performance of the construction works will be monitored, and what actions will be taken to address identified adverse environmental impacts. In particular, the following environmental performance issues must be addressed in the Plan:
 - (i) Human Health and Ecological Risk management - which must be mitigated and managed in accordance with Section 6.2 of the *"Human Health and Ecological Qualitative Risk Assessment"* report prepared by URS, dated 28 February 2013 and the relevant Management and Mitigation Measures contained in Appendix C of this consent;
 - (ii) Biodiversity management (See Condition 42);
 - (iii) Pest, Vermin & Noxious Weed management (See Condition C43);
 - (iv) Soils and Erosion management (See Condition C11);
 - (v) Contamination management (See Condition C15);
 - (vi) Noise and Vibration management (See Condition C22);
 - (vii) Air Quality management (See Condition C28);
 - (viii) Stormwater and Wastewater management (See Condition C12);
 - (ix) Traffic management (See Condition C36);
 - (x) Heritage management (Aboriginal and non-Aboriginal) (See Condition 33 & 34);
 - (xi) Waste and Resource management (See Condition C40);
 - (xii) Groundwater management, including measures which are consistent with the relevant Management and Mitigation Measures contained in Appendix C of this consent;;
 - (xiii) Acid Sulfate Soils management – if required (See Condition C14);
 - (xiv) Emergency (including spill) management;
 - (xv) means for assessing (and where identified) for managing interactions and cumulative impacts from the concurrent construction of other development works in the area should these coincide with the Development (e.g. the Caltex Ports and Berthing upgrade, remediation projects);
- (i) describe the roles and responsibilities for all relevant employees involved in construction and demolition works associated with the Development;
- (j) include arrangements for community consultation, including consultation with the NSW Department of Education and local schools at key stages of the development that may affect school operations, to identify issues and mitigate impacts throughout the course of the Development.
- (k) Include a complaints handling procedure during construction and demolition and operation; and,
- (l) include appropriate procedures to allow the regular review of the requirements of each plan to ensure that they are effective and allow for adaptive management to address contingencies that may arise over the life of the development.

The approval of a Construction Environmental Management Plan does not relieve the Applicant of any requirement associated with this development consent. If there is an inconsistency with an approved Construction Environmental Management Plan and the conditions of this development consent, the requirements of this development consent prevail.

Construction of the Development must not commence until written Consent of this plan has been received from the Planning Secretary.

Demolition Environmental Management Plan

D1A. The Applicant **must** prepare and implement a Demolition Environmental Management Plan for the demolition works to the satisfaction of the **Planning Secretary**. This plan must:

- (a) be prepared in consultation with Council, EPA and NSW Health;
- (b) be submitted to the **Planning Secretary** for approval no later than four (4) weeks prior to the commencement of the demolition works, or within such period otherwise agreed by the **Planning Secretary**;
- (c) identify the statutory approvals and consents that apply to the development;
- (d) consolidate all relevant management plans and monitoring programs required in the conditions of this Consent;
- (e) outline all environmental management practices and procedures to be followed during demolition works associated with the development;
- (f) describe all activities to be undertaken on the site during demolition works associated with the development, including a clear indication of demolition stages;
- (g) incorporate all relevant management and mitigation measures contained in the SEE;
- (h) detail how the environmental performance of the demolition works will be monitored, and what actions will be taken to address potentially adverse environmental impacts. In particular, the following environmental performance issues **must** be addressed in the Plan:
 - i. Biodiversity and weed management (See Condition C43A);
 - ii. Soils and water management (See Condition C12A);
 - iii. Contamination management (See Condition C15A);
 - iv. Noise and vibration management (See Condition C22A);
 - v. Air quality management (See Condition C28A);
 - vi. Stormwater and wastewater management (See Condition C12A);
 - vii. Traffic management (See Condition C36A);
 - viii. Demolition waste and resource management (See Condition C40A);
 - ix. Groundwater management, including measures which are consistent with the relevant Management and Mitigation Measures contained in Appendix C of this consent;
 - x. Acid sulfate soils management (See Condition C14);
 - xi. Heritage management strategy (See Condition C31);
 - xii. Cooling water outlet management (see Condition C42B);
 - xiii. pipeline removal works on Kurnell Wharf, including details of the timing and program of works, demolition and removal techniques, and the measures to manage traffic and access to the wharf.
 - xiv. means for assessing (and where identified) for managing interactions and cumulative impacts from the concurrent construction of other development works within the site should these coincide with the Development (e.g. the Caltex Ports and Berthing upgrade, remediation projects);
 - xv. describe the roles and responsibilities for all relevant employees involved in the demolition works associated with the Development;
- (i) include details of a community notification protocol to notify potentially affected persons (including the local community and surrounding industries) of works which are likely to cause significant adverse impacts to the environment;
- (j) include a complaints handling procedure; and
- (k) include appropriate procedures to allow the regular review of the requirements of each plan to ensure that they are effective and allow for adaptive management to address issues that may arise over the life of the development.

The approval of a Demolition Environmental Management Plan does not relieve the Applicant of any requirement associated with this development consent. If there is an inconsistency with an approved Demolition Environmental Management Plan and the conditions of this development consent, the requirements of this development consent prevail.

Demolition works **must** not commence until written approval of this plan has been received from the **Planning Secretary**.

Operational Environmental Management Plan

- D2. The Applicant **must** prepare and implement an Operational Environmental Management Plan for the project to the satisfaction of the **Planning Secretary**. This Plan must:
- (a) be approved by the **Planning Secretary** prior to the commencement of operations;
 - (b) provide the strategic framework for environmental management of the Development;
 - (c) identify the statutory approvals that apply to the Development;
 - (d) include a copy of all relevant management plans and monitoring programs relevant under this consent, including:
 - (i) Water Management Plan (See Condition C12);
 - (ii) Noise Management Plan (See Condition C22);
 - (iii) Traffic Management Plan (See Condition C36);
 - (iv) Waste Management Plan (See Condition C40);
 - (v) Biodiversity Management Plan (See Condition 42); and,
 - (vi) Pest, Vermin & Noxious Weed Management (See Condition C43).
 - (e) outline all environmental management practices and procedures to be followed during operation;
 - (f) describe all activities to be undertaken on the site during operation;
 - (g) detail how the environmental performance of the operation of the project will be monitored, and what actions will be taken to address identified adverse environmental impacts;
 - (h) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project;
 - (i) describe the procedures that will be implemented to:
 - keep the local community and relevant agencies informed about the operation and environmental performance of the project;
 - receive, handle, respond to, and record complaints;
 - resolve any disputes that may arise during the course of the project;
 - respond to any non-compliance; and
 - respond to emergencies; and
 - (j) include:
 - copies of any strategies, plans and programs approved under the conditions of this consent; and
 - a clear plan depicting all the monitoring required to be carried out under the conditions of this consent.
 - (k) a copy of the Long Term Environmental Management Plan (see Condition 53) for the ACS management works.

Management Plan Requirements

- D3. The Applicant **must** ensure that the Management Plans required under this consent are prepared in accordance with any relevant guidelines, and include:
- (a) detailed baseline data;
 - (b) a description of:
 - the relevant statutory requirements (including any relevant approval, licence or lease conditions);
 - any relevant limits or performance measures/criteria; and
 - the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;
 - (c) a description of the measures that will be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;
 - (d) a program to monitor and report on the:
 - impacts and environmental performance of the development; and
 - effectiveness of any management measures (see (c) above);
 - (e) a contingency plan to manage any unpredicted impacts and their consequences;
 - (f) a program to investigate and implement ways to improve the environmental performance of the development over time;
 - (g) a protocol for managing and reporting any:
 - incidents;
 - complaints;
 - non-compliances with statutory requirements; and
 - exceedances of the impact assessment criteria and/or performance criteria; and
 - (h) a protocol for periodic review of the plan.

*Note: The **Planning Secretary** may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*

Annual Review

- D4. By 31 December 2014 and annually thereafter, or as otherwise agreed in writing by the **Planning Secretary**, the Applicant **must** review the environmental performance of the Development to the satisfaction of the **Planning Secretary**. This review must:
- (a) describe the development that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year;
 - (b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against:
 - the relevant statutory requirements, limits or performance measures/criteria;
 - the monitoring results of previous years; and
 - the relevant predictions in the EIS;
 - (c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
 - (d) identify any trends in the monitoring data over the life of the Development;
 - (e) identify any discrepancies between the predicted and actual impacts of the Development, and analyse the potential cause of any significant discrepancies; and
 - (f) describe what measures will be implemented over the current calendar year to improve the environmental performance of the Development.

Revision of Strategies, Plans & Programs

- D5. Within three months of:

- (a) an approval of a modification;
- (b) a submission of an incident report under Condition D6;
- (c) an approval of an Annual Review under Condition D4; or
- (d) a completion of an audit under Condition D7.

the Applicant must review, and if necessary revise, the strategies, plans, and programs required under this consent to the satisfaction of the **Planning Secretary**.

Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the development.

REPORTING

Incident Reporting

- D6. The Applicant **must** notify the **Planning Secretary** and any other relevant agencies of any incident or potential incident with actual or potential significant off-site impacts on people or the biophysical environment associated with the development as soon as practicable after the Applicant becomes aware of the incident. Within 7 days of the date of this incident, the Applicant **must** provide the **Planning Secretary** and any relevant agencies with a detailed report on the incident.

INDEPENDENT ENVIRONMENTAL AUDIT

- D7. Within a year of the date of this consent, and every 3 years thereafter, unless the **Planning Secretary** directs otherwise, the Applicant **must** commission and pay the full cost of an Independent Environmental Audit of the development. This audit must:
- (a) be conducted by suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the **Planning Secretary**;
 - (b) include consultation with the relevant agencies;
 - (c) assess the environmental performance of the development and whether it is complying with the relevant requirements in this consent and any relevant EPL and/or Water License (including any assessment, plan or program required under these approvals);
 - (d) review the adequacy of any approved strategy, plan or program required under these approvals; and

- (e) recommend measures or actions to improve the environmental performance of the development, and/or any assessment, plan or program required under these approvals.

Note: This audit team must be led by a suitably qualified auditor and include experts in any fields specified by the Planning Secretary.

- D8. Within 3 months of commissioning this audit, or as otherwise agreed by the Planning Secretary, the Applicant **must** submit a copy of the audit report to the Planning Secretary, together with its response to any recommendations contained in the audit report.

ACCESS TO INFORMATION

- D9. The Applicant **must**, to the satisfaction of the Planning Secretary:

- (a) make the following information publicly available on its website:

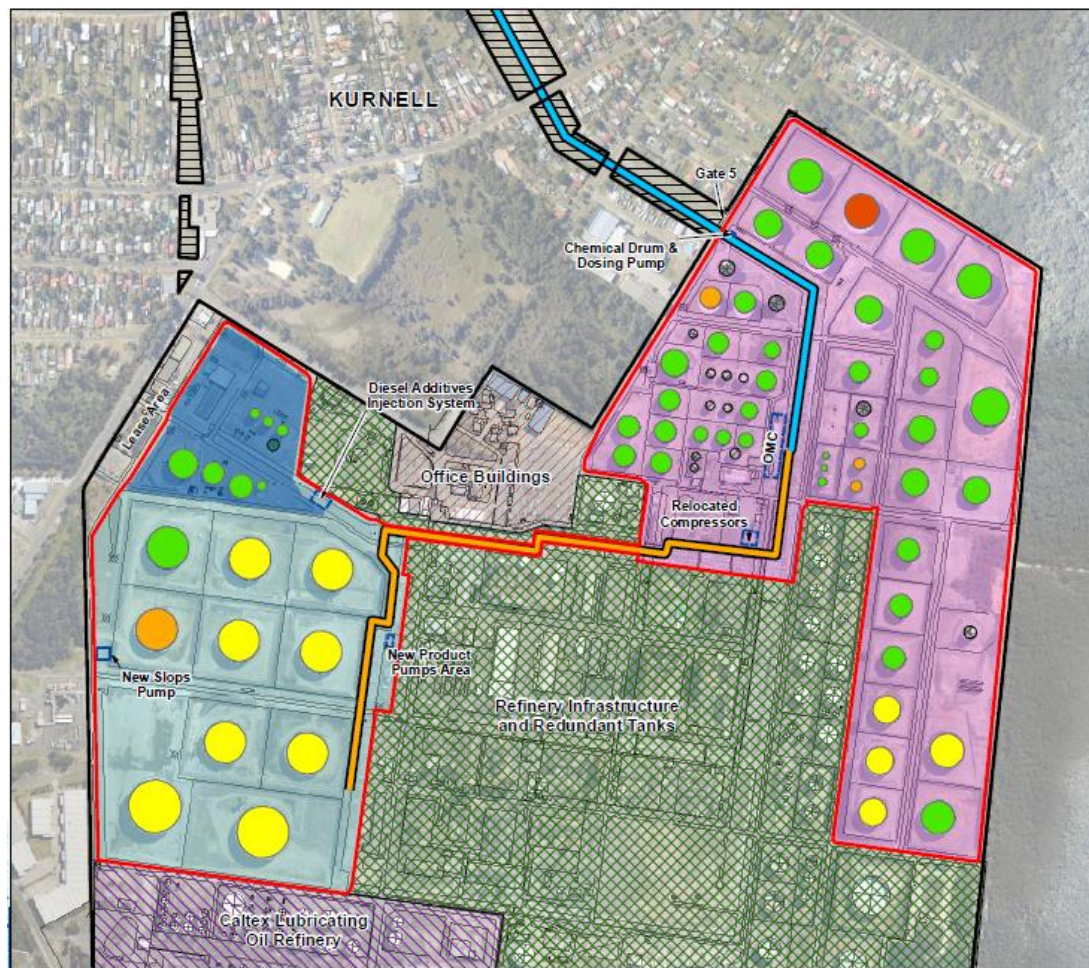
- the EIS;
 - MOD 1 and its accompanying documents;
 - MOD 2 and its accompanying documents;
 - MOD 3 and its accompanying documents;
 - MOD 4 and its accompanying documents;
 - MOD 5 and its accompanying documents;
 - MOD 6 and its accompanying documents;
 - current statutory approvals for the Development;
 - approved strategies, plans or programs;
 - a summary of the monitoring results of the Development, which have been reported in accordance with the various plans and programs approved under the conditions of this consent;
 - a complaints register, updated on a quarterly basis;
 - copies of any annual reviews (over the last 5 years);
 - any independent environmental audit, and the Applicant's response to the recommendations in any audit; and
 - any other matter required by the Planning Secretary; and
- (b) keep this information up-to-date,

Note: This requirement does not require any confidential information to be made available to the public.

APPENDIX A - PLANS



Figure 1: The Site and Development Area.



Legend

- The Site
- Project Area
- New Infrastructure

Pipeline

- Pipeline Easement 1
- Pipeline Easement 2

Tank Conversion

- Conversion Required
- No Works Required
- Change of Service
- Restore in Kind

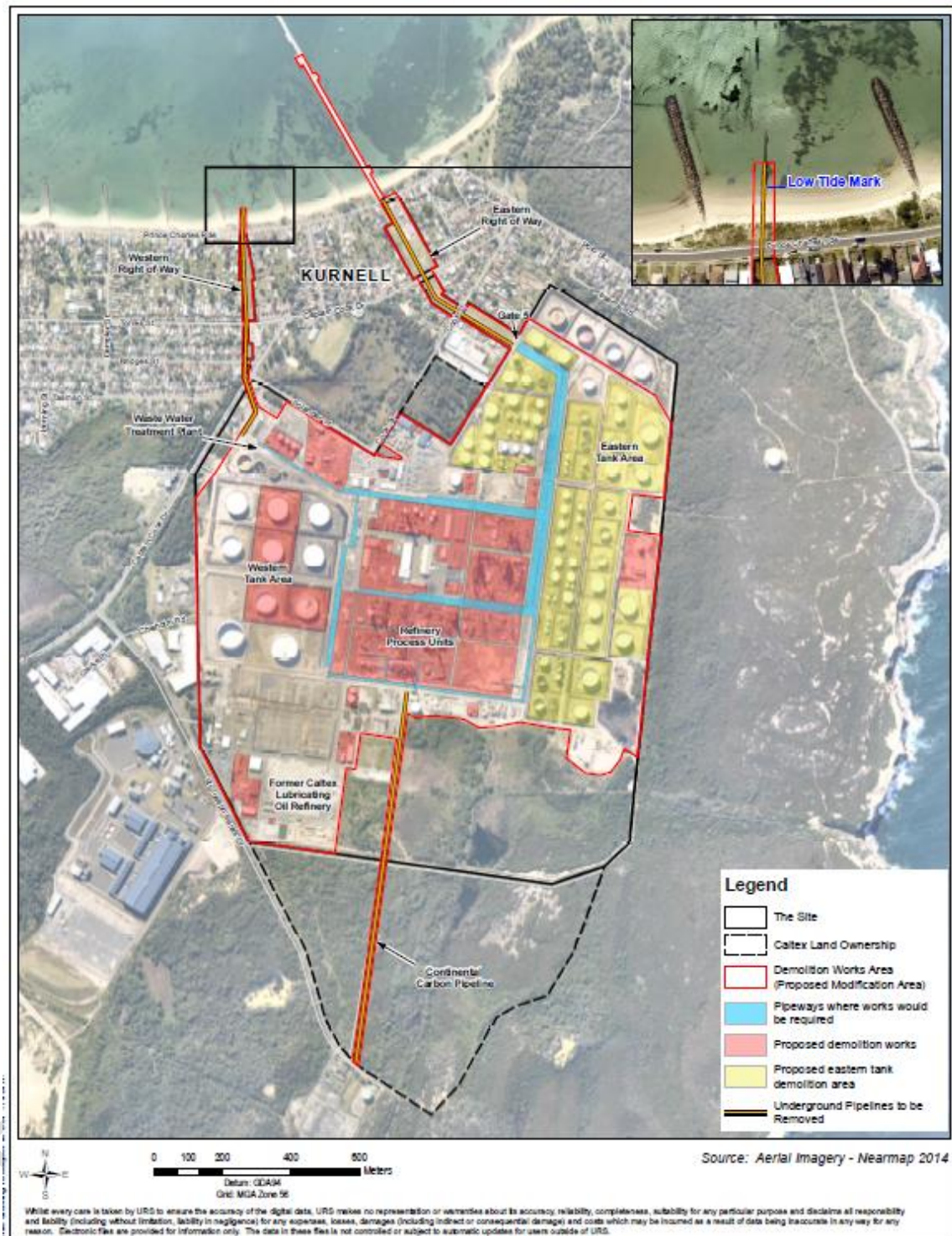
Tank Areas

- Eastern Tanks Area
- Western Tanks Area
- Office Buildings
- Refinery Infrastructure and Redundant Tanks
- Caltex Lubricating Oil Refinery (CLOR)
- Pipeline Right of Way
- Waste Water Treatment Plant (WWTP)



Figure 2 – Proposed Development

Proposed Demolition Works



CALTEX
REFINERIES
ASIAN PETRO

KURNELL REFINERY
CONVERSION MODIFICATION

PROPOSED
DEMOLITION WORKS

Figure 3: Proposed demolition works

MOD 6 2020 – Extension of ACS Management Works Period

**APPENDIX B-
CONSENTS TO BE SURRENDERED**

DA #	Description
DA13/0727	Demolition of Transfer Pump House
DA12/0111	Demolition of CLOR Satellite Control Building
DA12/0635	Construction of Boundary Fence
DA12/0880	Replacement of an existing Motor Control Centre
DA11/1135	Remediation of Service Station
DA10/0999	Modification to existing Jet Fuel Facilities
DA10/0690	Demolition of existing structures and construction of new temporary contractor facilities
DA10/0272	New Substation Building
DA09/0835	Erection of two (2) new two (2) storey buildings and one (1) single storey building and relocation of an existing building to be used for office and amenities.
MA10/0171	Modification to approved consent
MA10/0007	Modification to DA09/0840
DA09/0480	Extend operating hours of existing lab
MA 07/0310	Amendment to Development consent
P3A 06/0160	Crude Storage Tank
MA 06/0429	Amendment to DA06/0873
DA06/0873	Diesel Storage Tank
DA06/0917	Construction of an LPG Odorant Hut
DA06/1490	Electricity Substation
DA05/0241	Bitumen Storage Tank
DA05/1443	Ancillary Development to Carbon Black Plant
DA04/0554	Decommissioning and Dismantling of the Stand-by Flare
DA30_2_2004	Clean Fuels Project
MOD-120-8-2005-i	Clean Fuels MOD 1
MOD-112-9-2006-i	Clean Fuels MOD 2
MOD 30-2-2004-i	Clean Fuels MOD 3
MOD 30-2-2004-i	Clean Fuels MOD 4
DA02/2151	Furnace Replacement
DA01/2696	Replacement Electrical Substation
DA01/2482	Demolition of Redundant Plant
DA01/2019	Stormwater Pipeline
DA 99/1816	Storage Tanks — Ampol
DA 99/0452	Extensions to existing switch room
DA 99/0266	Advertising
DA 98/0053	Secondary water treatment facilities
DA 94/1497	Provision of a new fire water system
DA 93/849	Installation of facilities for the production, storage and tanker loading of propylene rich Liquid Petroleum Gas (LPG) material
DA 91/0088	Addition to shop
DA 139/79	Construction of two storage tanks

**APPENDIX C -
Consolidated Management and Mitigation Measures**

FOR INFORMATION ONLY

Development Consent

Section 89E of the *Environmental Planning and Assessment Act 1979*

As delegate of the Minister for Planning and Infrastructure under delegation from the Minister dated 14 September 2011, the Planning Assessment Commission of New South Wales (the Commission) approves the development application referred to in Schedule A, subject to the conditions specified in Schedules B to F.

These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts including economic and social impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the development.



Gabrielle Kibble
Member of the Commission



Jan Murrell
Member of the Commission

Sydney

19 September 2013

SCHEDULE A

Application No:

SSD_5353

Applicant

Caltex Refineries (NSW) Pty Ltd

Consent Authority:

Minister for Planning & Infrastructure

Land:

Off Prince Charles Parade in Botany Bay

Development:

Upgrade of the Kurnell ports and berthing facility including:

- dredging berths, turning circle and approaches;
- reuse of a proportion of the dredged material to cover an exposed section of the subsea fuel pipelines and a former anchor point;
- disposal of the remaining dredged material offshore;
- upgrade of the fixed berth infrastructure;
- upgrade of the sub berth; and
- use of this infrastructure.

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DEFINITIONS

Act, the	<i>Environmental Planning and Assessment Act, 1979</i>
Ancillary Facility	Temporary facility for construction, including for example an office and amenities compound, construction compound, batch plant (concrete or bitumen), materials storage compound, maintenance workshop, testing laboratory or material stockpile area.
Applicant / Applicant	Caltex Refineries (NSW) Pty Ltd
Conditions of consent	The Minister's conditions of consent for the Development
Construction	<p>Includes all work in respect of the Development other than:</p> <ul style="list-style-type: none"> • survey, acquisitions, building/ road dilapidation surveys; • investigative drilling, excavation, or salvage; • establishing ancillary facilities/ construction work sites (in the locations nominated in the EIS, unless otherwise agreed to by the Director General); • installation of environmental impact mitigation measures and fencing; • other activities determined by the Environmental Representative to have minimal environmental impact (e.g. minor access roads, minor adjustments to services/ utilities, minor clearing or translocation of native vegetation etc). <p>Note: work where heritage, threatened species, populations or endangered ecological communities would be affected is classified as construction, unless otherwise approved by the Director General.</p>
Department, the	Department of Planning and Infrastructure
Development	The Development the subject of this development consent as generally described in Schedule A
Director General, the	Director General of the Department of Planning and Infrastructure
Director General's approval, agreement or satisfaction	<p>A written approval from the Director General (or delegate).</p> <p>Where the Director General's approval, agreement or satisfaction is required under a condition of this consent, the Director General will endeavour to provide a response within one month of receiving an approval, agreement or satisfaction request. The Director General may ask for additional information if the approval, agreement or satisfaction request is considered incomplete. When further information is requested, the time taken for the Applicant to respond in writing will be added to the one month period.</p>
DPI	Department of Primary Industries
Dust	Any solid material that may become suspended in air or deposited
EEC	Endangered ecological community(ies)
EIS	Environmental Impact Statement
EPA	Environment Protection Authority.
EPL	Environment Protection Licence under the <i>Protection of the Environment Operations Act 1997</i> .
Feasible and Reasonable	<p>Consideration of best practice taking into account the benefit of proposed measures and their technological and associated operational application in the NSW and Australian context. Feasible relates to engineering considerations and what is practical to build. Reasonable relates to the application of judgement in arriving at a decision, taking into account mitigation benefits and cost of mitigation versus benefits provided, community views and nature and extent of potential improvements.</p> <p>Where requested by the Director General, the Applicant shall provide evidence as to how feasible and reasonable measures were considered and taken into account.</p>
Heritage	Encompasses both Aboriginal and historic heritage including sites that predate European settlement, and a shared history since European settlement such as a shared associations in pastoral landscapes as well as associations linked with the mission period.

Heritage Item	An item as defined under the <i>Heritage Act 1977</i> , and assessed as being of local, State and/ or National heritage significance, and/or an Aboriginal Object or Aboriginal Place as defined under the <i>National Parks and Wildlife Act 1974</i> .
Minister, the	Minister for Planning and Infrastructure.
NTU	Nephelometric Turbidity Units
OEH	Office of Environment and Heritage
Operation	Means the operation of the Development, but does not include commissioning trials of equipment or temporary use of parts of the Development during construction.
Publicly available	Available for inspection by a member of the general public (for example available on an internet website).
Relevant council(s)	Sutherland Shire Council
RMS	Roads and Maritime Services
Sensitive marine receivers	Aquaculture lease number ALDI/098, the seagrass communities shown on Figure 10-2 of the EIS, the intertidal areas around Kamay Botany Bay National Park and other intertidal habitat used by threatened and migratory shorebirds along the eastern shore of Botany Bay.
Sensitive land receivers	Residence, education institution (e.g. school, university, TAFE college), health care facility (e.g. nursing home, hospital), religious facility (e.g. church) and children's day care facility.
Site	Land to which Development Application SSD_5353 applies.
SPC	Sydney Ports Corporation
TBT	Tributyltin

SCHEDULE B

ADMINISTRATIVE CONDITIONS

TERMS OF CONSENT

- B1. The Applicant shall carry out the development generally in accordance with the:
- (a) State Significant Development Application No_5353;
 - (b) Environmental Impact Statement, Kurnell Ports and Berthing Facility (URS, February 2013);
 - (c) Response to Submissions, Kurnell Ports and Berthing Facility (URS, June 2013);
 - (d) Proposed Change to the Kurnell Port and Berthing Facility Upgrade (SSD:5353) (URS, 30 August 2013);and
 - (e) conditions of this consent.
- B2. In the event of an inconsistency between:
- (a) the conditions of this consent and any document listed from condition B1(a) to B1(d) inclusive, the conditions of this consent shall prevail to the extent of the inconsistency; and
 - (b) any document listed from condition B1(a) to B1(d) inclusive, and any other document listed from condition B1(a) to B1(d) inclusive, the most recent document shall prevail to the extent of the inconsistency.
- B3. The Applicant shall comply with any reasonable requirement(s) of the Director General arising from the Department's assessment of:
- (a) any reports, plans or correspondence that are submitted in accordance with this consent; and
 - (b) the implementation of any actions or measures contained within these reports, plans or correspondence.
- B4. Subject to confidentiality, the Applicant shall make all documents required under this consent available for public inspection on request.

LIMITS OF CONSENT

- B5. The Applicant may carry out dredging for a period of no more than six (6) months, unless otherwise agreed to in writing by the Director-General.

LASPING OF CONSENT

- B6. This consent shall lapse five (5) years from the date of this approval unless the works associated with the development have physically commenced.

STATUTORY REQUIREMENTS

- B7. The Applicant shall ensure that all licences, permits and approval/consents are obtained as required by law and maintained as required throughout the life of the Development. No condition of this consent removes the obligation for the Applicant to obtain, renew or comply with such licences, permits or approval/consents.

STAGING

- B8. The Applicant may elect to construct and/ or operate the Development in stages. Where staging is proposed, the Applicant shall submit a Staging Report to the Director General prior to the commencement of the first proposed stage. The Staging Report shall provide details of:
- (a) how the Development would be staged, including general details of work activities associated with each stage and the general timing of when each stage would commence; and
 - (b) details of the relevant conditions of consent, which would apply to each stage and how these shall be complied with across and between the stages of the Development.
- B9. Where staging of the Development is proposed, these conditions of consent are only required to be complied with at the relevant time and to the extent that they are relevant to the specific stage(s).
- B10. The Applicant shall ensure that an updated Staging Report (or advice that no changes to staging are proposed) is submitted to the Director General prior to the commencement of each stage, identifying any changes to the proposed staging or applicable conditions.
- B11. The Applicant shall ensure that all plans, sub-plans and other management documents required by the conditions of this consent and relevant to each stage (as identified in the Staging Report) are submitted to the Director General no later than one month prior to the commencement of the relevant stages, unless otherwise agreed by the Director General.

Note: Conditions B8 to B11 do not relate to staged development within the meaning of section 83B of the Act.

COMPLIANCE

- B12. The Applicant shall ensure that employees, contractors and sub-contractors are aware of, and comply with, the conditions of this consent relevant to their respective activities.
- B13. The Applicant shall be responsible for environmental impacts resulting from the actions of all persons that it invites onto the site, including contractors, sub-contractors and visitors.
- B14. In the event of a dispute between the Applicant and a public authority, in relation to an applicable requirement in this consent or relevant matter relating to the Development, either party may refer the matter to the Director General for resolution. The Director General's determination of any such dispute shall be final and binding on the parties.

End of Schedule B

SCHEDULE C
ENVIRONMENTAL PERFORMANCE AND MANAGEMENT

SEDIMENT, WATER QUALITY AND HYDROLOGY

- C1. The Development shall comply with section 120 of the *Protection of the Environment Operations Act 1997*, which prohibits the pollution of waters, except as expressly provided in an EPL.
- C2. The Applicant shall implement all feasible and reasonable mitigation and management measures for the duration of dredging to minimise the dispersion of dissolved and sediment-bound TBT and suspended sediment concentrations outside the Development site during construction, including:
- (a) no overflow dredging within the fixed berths and in the front of the submarine berths; and
 - (b) installing and maintaining a silt boom around the dredger head to capture sediment that falls into the water across the slewing zone.

Sediment and Water Quality Management Plan

- C3. Prior to commencement of construction, or as otherwise agreed by the Director-General, the Applicant shall prepare (and implement following approval) a **Sediment and Water Quality Management Plan** in consultation with the EPA and DPI (Fisheries). The Plan must:
- (a) be prepared by a suitably qualified expert and be approved in writing by the Director-General;
 - (b) identify representative monitoring locations which can be used to determine the extent to which TBT in the water column (dissolved) and sediment-bound TBT, suspended sediment concentrations, pH and Dissolved Oxygen generated and dispersed by dredging has affected the distribution and condition of sensitive marine receivers;
 - (c) identify specific measures to minimise the generation and dispersion of these sediments outside the Development site during dredging in addition to those identified in Condition C2;
 - (d) include dry weather baseline water quality monitoring data at these locations, including dissolved and sediment-bound TBT and suspended sediment concentrations against which levels during construction can be compared;
 - (e) include a sediment and water quality monitoring program to be followed during and post dredging including the frequency and procedures for water quality monitoring (including in real-time) of dissolved and sediment bound TBT and suspended sediment concentrations, and other water quality parameters at the identified water quality monitoring locations; and
 - (f) establish upper threshold water quality performance criteria and interim threshold water quality performance criteria and identify contingency measures to be implemented where these water quality performance criteria are triggered at sensitive marine receivers, including temporarily ceasing and reducing the rate of dredging (including overflow dredging) operations.
- C4. Within three (3) months of completing the post-dredging water quality monitoring required by Condition C3(e), the Applicant shall submit a report to the Director-General, the EPA, DPI (Fisheries) and SPC documenting the results of the baseline water quality monitoring undertaken before construction and the sediment and water quality monitoring program to be followed during and post dredging, to confirm that residual sediment and water quality is consistent with the predictions made in the EIS, with particular consideration to dissolved and sediment-bound TBT concentrations and impacts to the aquatic health of sensitive marine receivers (condition C8).

BIODIVERSITY

Aquatic Weeds

- C5. The Applicant shall implement all mitigation and management measures during construction to avoid the introduction or spreading of pest flora and fauna species including *Caulerpa taxifolia* consistent with the *NSW Control Plan for the Noxious Marine Alga Caulerpa taxifolia* (DII, 2009).

Marine Fauna

- C6. The Applicant shall implement measures and management to minimise the risk of ship collision and minimise underwater noise generation with marine fauna with particular consideration of cetaceans, pinnipeds, marine turtles and dugongs. This shall include (but not necessarily be limited to):
- (a) carrying out observations for cetaceans, pinnipeds, marine turtles and dugongs within 420 metres of dredging, piling or rock revetment works;
 - (b) temporary cessation of dredging and dredger tugboat reduced to a speed of 4 knots if the marine fauna comes within the 420 metres of dredging;
 - (c) the temporary cessation of underwater noise generating activities associated with piling and rock revetment where marine fauna comes within the 250 metres of these activities. Noise generating activities shall not recommence until 30 minutes after the fauna has left the zone; and
 - (d) the temporary cessation of dredging where marine fauna comes within the 150 metres of dredging. Dredging shall only recommence when marine fauna has moved out of this zone. Noise generating activities would not commence until 30 minutes following the fauna leaving the zone.

Ausgrid Seagrass Rehabilitation Project

- C7. Prior to commencement of construction, the Applicant shall notify DPI (Fisheries) and Ausgrid of the commencement date and schedule of dredging operations and keep them informed during dredging operations.

Aquatic Health Management Plan

- C8. Prior to commencement of construction, or as otherwise agreed by the Director-General, the Applicant shall prepare (and implement following approval) an **Aquatic Health Management Plan** in consultation with OEH and DPI (Fisheries). The Plan must:
- (a) be prepared by a person who has been approved in writing by the Director-General;
 - (b) include baseline aquatic surveys and data to confirm the distribution and condition of sensitive marine receivers, with appropriate consideration of seasonal variations, and identification of potential no-go areas;
 - (c) identify representative monitoring locations which can be used to determine the distribution and condition of sensitive marine receivers, taking into account the Ausgrid seagrass rehabilitation project;
 - (d) identify performance measures to assess the distribution and condition of the sensitive marine receivers during dredging; and
 - (e) include an aquatic health monitoring program to be followed for the duration of dredging including the frequency and procedures for surveys, monitoring and visual observations.
- C9. Within twelve (12) months of completing the post dredging water quality monitoring required by Condition C3(e), unless otherwise agreed to in writing by the Director-General, the Applicant shall submit a report to the Director-General, EPA, OEH, DPI (Fisheries) and SPC setting out whether dissolved and sediment-bound TBT and suspended sediment concentrations generated and dispersed by dredging are likely to have affected the distribution and condition of the sensitive marine receivers compared to baseline conditions drawing on all sediment and water quality and aquatic health monitoring data required to be collected by conditions C3 and C8.
- C10. If considered necessary by the Director-General, the Applicant shall identify rehabilitation (and monitoring) or offset measures to be implemented to compensate for any adverse impacts to sensitive marine receivers identified in the report required by condition C9 attributable to the Development to the written satisfaction of the Director-General.

COASTAL AND HYDRODYNAMICS

- C11. Pre, during and post dredging, the Applicant shall (unless otherwise agreed to in writing by the Director General) undertake monitoring of coastal and hydrodynamic processes on Silver Beach.
- C12. Within three (3) months of completing the post dredging monitoring, the Applicant shall submit a report to the Director General and SPC documenting the results of this monitoring to confirm that impacts to coastal and hydrodynamic processes on Silver Beach are no greater than those predicted in the EIS and will not result in significant ongoing residual impacts to the beach (including impacts to associated aquatic habitat such as intertidal habitat at Silver Beach).
- C13. Where Development related impacts are identified to be significantly higher than those predicted, the Applicant shall identify measures to counteract any beach depletion impacts at Silver Beach and identify whether monitoring of other locations in Botany Bay are warranted and/or require rehabilitation.
- C14. If considered necessary by the Director-General, the Applicant shall identify rehabilitation (and monitoring) or offset measures to be implemented to compensate for any adverse impacts to coastal and hydrodynamic processes identified in the report required by condition C13 attributable to the Development to the written satisfaction of the Director-General.

NOISE AND VIBRATION

Construction Hours

- C15. With the exception of dredging and sub berth upgrade works, all construction works including all high noise generating works (such as piling and rock revetment) shall be confined to standard working hours:
- (a) 7:00am to 6:00pm Mondays to Fridays, inclusive; and
 - (b) 8:00am to 1:00pm Saturdays; and
 - (c) at no time on Sundays or public holidays.

The upgrade of the sub berth may be undertaken during the additional hours of 1.00 pm and 6.00 pm on Saturdays and 8.00 am and 6.00 pm on Sundays. Dredging associated with the Development may be undertaken on a 24 hour basis, 7 days a week.

- C16. Construction works outside of the work hours identified in condition C15 may be undertaken in the following circumstances:
- (a) works that are inaudible at nearest sensitive land receivers;
 - (b) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons;
 - (c) where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm;
 - (d) works approved through an approved EPL; or
 - (e) works as approved through the out-of-hours work protocol outlined in the Construction Noise and Vibration Management Plan required under condition C36(b).

Construction Noise and Vibration

- C17. The Development shall be constructed with the aim of achieving the construction noise management levels detailed in the *Interim Construction Noise Guideline* (DECC, 2009). All feasible and reasonable noise mitigation measures shall be implemented and any activities that could exceed the construction noise management levels shall be identified and managed in accordance with the Construction Noise and Vibration Management Plan required under condition C36(b). This shall include the implementation of respite periods in response to noise complaints, particularly in relation to high noise generating activities (including piling and rock revetment).
- C18. The Applicant shall undertake attended monitoring on a monthly basis during construction works outside of standard construction hours and at the commencement of and during high noise generating works (including piling and rock revetment) to confirm noise levels at residences along Prince Charles Parade and at the Ranger's residence at Kamay Botany Bay National Park.
- C19. The Development shall be constructed with the aim of achieving the following construction vibration goals:
- (a) for structural damage, the vibration limits set out in the *German Standard DIN 4150-3: Structural Vibration - effects of vibration on structures*; and
 - (b) for human exposure, the acceptable vibration values set out in the *Environmental Noise Management Assessing Vibration: A Technical Guideline* (Department of Environment and Conservation, 2006).

HERITAGE MANAGEMENT

Maritime Heritage

- C20. Prior to the commencement of construction, the Applicant shall commission an appropriately qualified maritime archaeologist to:
- (a) undertake magnetic or side sonar scans of the Development site to determine the presence of any previously unidentified items of maritime heritage (including ship wrecks) to the satisfaction of the Heritage Council of NSW; and
 - (b) should any items be identified, develop a management strategy for the items during the construction and operation of the Development in consultation with the Heritage Council of NSW.
- C21. The management strategy shall be submitted for the Director General's approval providing written evidence of consultation and agreement with the recommendations from the Heritage Council of NSW. Construction must not commence in the area where items have been uncovered until written approval has been received from the Director General for the management strategy.

Archival Record

- C22. Prior to the commencement of construction, the Applicant shall commission an appropriately qualified heritage expert to undertake archival recording of the existing fabric and operation of the Kurnell Wharf, in particular the existing infrastructure at Fixed Berth 1, which would be replaced as part of the Development. The archival recording shall be submitted to the Heritage Council of NSW Library prior to the removal or demolition of any existing elements.

Potential for Discovery of Aboriginal and Non-Aboriginal Heritage Objects

- C23. If during the course of construction the Applicant becomes aware of any previously unidentified heritage object(s), all work likely to affect the object(s) shall cease immediately and the Heritage Council of New South Wales shall be notified immediately in accordance with section 146 of the *Heritage Act 1977*. Relevant works shall not recommence until written authorisation from the Heritage Council of NSW is received by the Applicant.
- C24. If during the course of construction the Applicant becomes aware of any previously unidentified Aboriginal object(s), all work likely to affect the object(s) shall cease immediately and the OEHS informed in accordance with section 89A of the *National Parks and Wildlife Act 1974*. Relevant works shall not recommence until written authorisation from OEHS is received by the Applicant.

AIR QUALITY MANAGEMENT

Odour Impacts

- C25. The Applicant shall implement an odour screening protocol for sediments excavated during dredging and implement all feasible and reasonable mitigation measures to ensure that odour generation during dredging do not exceed an odour limit of 2 odour units at the nearest residential receivers during the construction works.

Dust Generation

- C26. The Applicant shall implement all feasible and reasonable mitigation measures to ensure that the Development is constructed in a manner that minimises dust emissions from the site, including wind-blown and traffic-generated dust and tracking of material onto public roads. All works shall be undertaken with the objective of preventing visible emissions of dust from the site. Should such visible dust emissions occur at any time, the Applicant shall identify and implement all feasible and reasonable dust mitigation measures, including cessation of relevant works, as appropriate, such that emissions of visible dust cease.

TRANSPORT AND ACCESS

Construction Access

- C27. The designated construction access route for the delivery of materials for construction purposes shall be via Captain Cook Drive, Prince Charles Parade and Solander Street. Unless otherwise agreed to by the Director General (supported by appropriate traffic and transport justification), at no time shall construction vehicles use residential streets in Kurnell for construction access. Should any additional roads be agreed to by the Director General for construction access, these roads would be subject to the requirement for a road dilapidation survey and report to be prepared prior to their use as identified in condition C28.

Road Dilapidation

- C28. Prior to the commencement of construction, The Applicant shall commission an independent and qualified person or team to undertake a road dilapidation survey of all roads proposed to be used for construction material haulage as specified in condition C27 and prepare a Road Dilapidation Report. The report shall assess the current condition of the road and describe mechanisms to restore any damage that may result due to traffic and transport related to the construction of the Development. The Report shall be submitted to the relevant road authority for review prior to the commencement of construction vehicle haulage.

Following completion of construction, a subsequent report shall be prepared to assess any damage that may have resulted from the construction of the Development.

Measures undertaken to restore or reinstate roads affected by the Development shall be undertaken in a timely manner, in accordance with the reasonable requirements of the relevant road authority, and at the full expense of the Applicant.

- C29. The Applicant shall provide sufficient parking facilities at its temporary laydown facility for construction personnel and heavy vehicles to ensure that construction traffic associated with the Development does not utilise public and residential streets or public parking facilities for parking.

PROPERTY IMPACTS

- C30. Any damage caused to property or public infrastructure as a result of the Development shall be rectified or the property or asset owner appropriately compensated, within a reasonable timeframe, with the costs borne by the Applicant.

WASTE MANAGEMENT

Waste Management On-site

- C31. The Applicant shall not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence under the *Protection of the Environment Operations Act 1997*, if such a licence is required in relation to that waste.
- C32. The Applicant shall maximise the reuse and/or recycling of waste materials generated on site, to minimise the need for treatment or disposal of those materials outside the site.
- C33. The Applicant shall ensure that all liquid and/or non-liquid waste generated on the site is assessed and classified in accordance with *Waste Classification Guidelines* (DECC, 2008), or any future guideline that may supersede that document and where removed from the site is only directed to a waste management facility lawfully permitted to accept the materials.

ENVIRONMENTAL REPRESENTATIVE

- C34. Prior to the commencement of construction, or as otherwise agreed by the Director General, the Applicant shall nominate for the approval of the Director General a suitably qualified and experienced Environmental Representative(s) that is independent of the design, construction and operational personnel. The Applicant shall employ the Environmental Representative(s) for the duration of construction, or as otherwise agreed by the Director General. The Environmental Representative(s) shall:
- (a) be the principal point of advice in relation to the environmental performance of the Development;
 - (b) monitor the implementation of environmental management plans and monitoring programs required under this consent and advise the Applicant upon the achievement of these plans/ programs;
 - (c) have responsibility for considering and advising the Applicant on matters specified in the conditions of this consent, and other licences and consents related to the environmental performance and impacts of the Development;
 - (d) be given the authority to review and confirm whether works associated with the Development are classified as Construction (or not) under this development consent, and if classified as Construction, advise on the relevant pre-Construction and Construction requirements that the works would be subject to under this consent;
 - (e) be given the authority to approve/ reject minor amendments to the Construction Environment Management Plan. What constitutes a “minor” amendment shall be clearly explained in the Construction Environmental Management Plan required under condition C35;
 - (f) be given the authority and independence to require reasonable steps be taken to avoid or minimise unintended or adverse environmental impacts, and failing the effectiveness of such steps, to direct that relevant actions be ceased immediately should an adverse impact on the environment be likely to occur; and
 - (g) be consulted in responding to the community concerning the environmental performance of the Development where the resolution of points of conflict between the Applicant and the community is required.

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

- C35. Prior to the commencement of construction, or as otherwise agreed by the Director General, the Applicant shall prepare and implement (following approval) a Construction Environmental Management Plan for the Development. The Plan shall outline the environmental management practices and procedures that are to be followed during construction, and shall be prepared in consultation with the relevant government agencies and in accordance with the *Guideline for the Preparation of Environmental Management Plans* (Department of Infrastructure, Planning and Natural Resources, 2004). The Plan shall include, but not necessarily be limited to:
- (a) a description of activities to be undertaken during construction of the Development (including staging and scheduling);
 - (b) statutory and other obligations that the Applicant is required to fulfil during construction, including approval/consents, consultations and agreements required from authorities and other stakeholders under key legislation and policies;
 - (c) a description of the roles and responsibilities for relevant employees involved in the construction of the Development, including relevant training and induction provisions for ensuring that employees, including contractors and sub-contractors are aware of their environmental and compliance obligations under these conditions of consent;
 - (d) an environmental risk analysis to identify the key environmental performance issues associated with the construction phase; and
 - (e) details of how environmental performance would be managed and monitored to meet acceptable outcomes, including what actions will be taken to address identified potential adverse environmental impacts (including any impacts arising from the staging of the construction of the Development). In particular, the following environmental performance issues shall be addressed in the Plan:
 - (i) sediment and water quality management within the Bay;
 - (ii) marine ecology management;
 - (iii) noise and vibration;
 - (iv) odour and air quality management;
 - (v) traffic and access;
 - (vi) management of Aboriginal and non-Aboriginal heritage;
 - (vii) waste management;
 - (viii) emergency, including spill management;
 - (ix) compounds and ancillary facilities management;
 - (x) operational and navigation safety during construction within the Bay; and
 - (xi) means for assessing (and where identified) for managing interactions and cumulative impacts from the concurrent construction of other development works in the area should these coincide with the Development (e.g. the Caltex Refinery upgrade works).
 - (f) The Plan shall be submitted for the approval of the Director General prior to the commencement of construction. The Plan may be prepared in stages, however, construction works shall not commence until written approval has been received from the Director General.

The approval of a Construction Environmental Management Plan does not relieve the Applicant of any requirement associated with this development consent. If there is an inconsistency with an approved Construction Environmental Management Plan and the conditions of this development consent, the requirements of this development consent prevail.

C36. As part of the Construction Environmental Management Plan for the Development required under condition C35 the Applicant shall prepare and implement (but not necessarily be limited to) the following:

- (a) a **Dredging and Spoil Management Plan** to address the management of sediment and water quality during dredging within the Bay, prepared in consultation with the EPA and including, but not necessarily be limited to:
 - (i) a Sediment and Water Quality Monitoring Program in accordance with the requirements of condition C3;
 - (ii) measures to address the management and monitoring of any potential acid sulfate soils excavated during dredging in the Bay to prevent their oxidation into actual acid sulfate soils prior to final re-use or disposal, including contingency measures to be implemented in case of acid generation; and
 - (iii) a Spill Control Plan;
- (b) a **Construction Noise and Vibration Management Plan** to detail how construction noise and vibration impacts will be minimised and managed. The Plan shall be consistent with the guidelines contained in the *Interim Construction Noise Guidelines* (DECC, 2009) be prepared in consultation with the EPA. The Plan shall include, but not necessarily be limited to:
 - (i) identification of sensitive land receivers and relevant construction noise and vibration goals applicable to the Development stipulated in this consent;
 - (ii) details of construction activities and an indicative schedule for construction works; including the identification of key noise and/or vibration generating construction activities (based on representative construction scenarios, including at ancillary facilities) that have the potential to generate noise and/or vibration impacts on surrounding sensitive land receivers, particularly residential areas;
 - (iii) identification of feasible and reasonable measures proposed to be implemented to minimise and manage construction noise and vibration impacts, with particular consideration to works outside of standard construction hours;
 - (iv) a description of how the effectiveness of these actions and measures would be monitored during the proposed works, clearly indicating how often this monitoring would be conducted, the locations where monitoring would take place, how the results of this monitoring would be recorded and reported, and, if any exceedance is detected, how any non-compliance would be rectified; and
 - (v) an out-of-hours work (OOHW) protocol for the assessment, management and approval of works outside of standard construction hours (not already allowed under this consent) as defined in condition C16, including a risk assessment process under which an Environmental Representative may approve out-of-hour construction activities deemed to be of low environmental risk and refer high risk works for the Director General's approval. The OOHW protocol shall detail standard assessment, mitigation and notification requirements for high and low risk out-of-hour works, and detail a standard protocol for referring applications to the Director General;
- (c) an **Air Quality Management Plan** outlining procedures to be implemented to monitor and manage odour and dust generation from the Development site in accordance with conditions C25 and C26; and
- (d) a **Construction Traffic and Access Management Plan** to manage and minimise access and traffic impacts associated with the Development particular to residential streets at Kurnell, focusing on those periods (such as the concrete pour period) when peaks in traffic generation are expected to occur. The sub-plan shall include, but not necessarily be limited to:
 - (i) identification of designated construction traffic access routes and periods of high traffic generation;
 - (ii) details of designated vehicle parking, turning areas and ingress and egress points into temporary construction work compounds/ laydown areas; and
 - (iii) how shift changes and delivery times shall be restricted to standard day time hours where practicable;
 - (iv) details of management measures to minimise traffic impacts, including avoiding vehicle queuing and parking on public roads, safe pedestrian access and disruptions to traffic.

End of Schedule C

SCHEDULE D COMMUNITY INFORMATION AND REPORTING

COMMUNITY INFORMATION, CONSULTATION AND INVOLVEMENT

Community Consultation

- D1. The Applicant shall continue the existing community consultative committee for the life of the Development with the Kurnell community.
- D2. Prior to the commencement of construction the Applicant shall prepare (and following approval) implement a Community Consultation Plan, for the approval of the Director General to identify the consultation and notification procedures that would be undertaken during the construction of the Development to keep the general community and stakeholder groups informed of the construction works and measures to minimise impacts to these groups. The Plan shall include but not be limited to:
- (a) identification of key stakeholder groups that require notification and engagement on the construction works including (but not necessarily limited to):
 - (i) recreational users of the Bay such as recreational fishing and boating groups and divers;
 - (ii) users of Silver Beach;
 - (iii) residents along Prince Charles Parade;
 - (iv) the local community at Kurnell;
 - (v) DPI (Fisheries) personnel working on the Ausgrid cable laying project seagrass rehabilitation site; and
 - (vi) Local Council;
 - (b) key matters on which these stakeholder groups would be kept informed of including: the commencement of construction works, access restrictions and exclusion zones within the Bay and near Silver Beach, the commencement and location of dredging, high noise generating works, traffic disruptions and means for providing comment or complaints on the Development;
 - (c) procedures for engagement with and notification of these stakeholder groups by means that best targets each stakeholder group (e.g. on site signage, newspaper notifications, letter box drops, website updates, community meetings, notifications in stakeholder specific websites such as recreational fishing posts etc.), including frequency of notification; and
 - (d) the means for ongoing engagement (as required) with relevant public authorities (e.g. EPA, OEH, DPI (Fisheries), Sydney Ports Corporation, Council and the Department) and notification in the case of an environmental incident.

Complaints and Enquiries Procedure

- D3. Prior to the commencement of construction, or as otherwise agreed by the Director General, the Applicant shall ensure that the following are available for community enquiries and complaints for the duration of construction:
- (a) a 24 hour telephone number(s) on which complaints and enquiries about the Development may be registered;
 - (b) a postal address to which written complaints and enquires may be sent;
 - (c) an email address to which electronic complaints and enquiries may be transmitted; and
 - (d) a mediation system for complaints unable to be resolved.
- D4. The telephone number, the postal address and the email address shall be published in newspaper(s) circulating in the local area prior to the commencement of construction and prior to the commencement of operation. This information shall also be provided on the website (or dedicated pages) required by this consent.
- D5. Prior to the commencement of construction, or as otherwise agreed by the Director General, the Applicant shall prepare and implement a **Construction Complaints Management System** consistent with AS 4269: *Complaints Handling* and maintain the System for the duration of construction and up to 12 months following completion of the Development. Information on all complaints received, including the means by which they were addressed and whether resolution was reached, with or without mediation, shall be maintained as part of the System and included in the construction compliance reports required by this consent. The information contained within the System shall be made available to the Director General on request.

Provision of Electronic Information

- D6. Prior to the commencement of construction, or as otherwise agreed by the Director General, the Applicant shall establish and maintain a new website, or dedicated pages within an existing website, for the provision of electronic information associated with the Development, for the duration of construction and for 12 months following completion of the Development. The Applicant shall, subject to confidentiality, publish and maintain up-to-date information on the website or dedicated pages including, but not necessarily limited to:
- (a) information on the current implementation status of the Development;

- (b) a copy of the documents referred to under condition B1 of this consent, and any documentation supporting modifications to this consent that may be granted from time to time;
- (c) a copy of this consent and any future modification to this consent;
- (d) a copy of each relevant environmental approval/consent, licence or permit required and obtained in relation to the Development;
- (e) a copy of each current strategy, plan, program or other document required under this consent;
- (f) the outcomes of compliance tracking in accordance with condition D7 of this consent; and
- (g) details of contact point(s) to which community complaints and enquiries may be directed, including a telephone number, a postal address and an email address.

COMPLIANCE MONITORING AND TRACKING

Compliance Tracking Program

- D7. The Applicant shall develop and implement a **Compliance Tracking Program** to track compliance with the requirements of this consent. The Program shall be submitted to the Director General for approval prior to the commencement of construction and operate for a minimum of one year following commencement of operation, subject to the Director General's review of the outcomes of the environmental auditing referred to in condition F1. The Program shall include, but not necessarily be limited to:
- (a) provisions for the notification of the Director General prior to the commencement of construction and prior to the commencement of operation of the Development (including prior to each stage, where works are being staged);
 - (b) provisions for periodic review of the compliance status of the Development against the requirements of this consent;
 - (c) provisions for periodic reporting of compliance status to the Director General, including a Pre-Construction Compliance Report, construction reporting, and a Pre-Operation Compliance Report;
 - (d) a program for independent environmental auditing in accordance with *ISO 19011:2003 - Guidelines for Quality and/ or Environmental Management Systems Auditing* during construction;
 - (e) mechanisms for recording environmental incidents during construction and actions taken in response to those incidents;
 - (f) provisions for reporting environmental incidents to the Director General and relevant public authorities during construction;
 - (g) procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management; and
 - (h) provisions for ensuring all employees, contractors and sub-contractors are aware of, and comply with, the conditions of this consent relevant to their respective activities.

Incident Reporting

- D8. The Applicant shall notify the Director General of any incident with actual or potential significant off-site impacts on people or the biophysical environment within 24 hours of becoming aware of the incident. The Applicant shall provide full written details of the incident to the Director General within seven days of the date on which the incident occurred.
- D9. The Applicant shall meet the requirements of the Director General to address the cause or impact of any incident, as it relates to this consent, reported in accordance with condition D8 of this consent, within such period as the Director General may require.

End of Schedule D

SCHEDULE E
OPERATION ENVIRONMENTAL MANAGEMENT

HAZARD AND RISK

Safety Management System

- E1. At least two months prior to the commencement of commissioning, the Applicant shall update its Safety Management System to include any changes due to the development. The document shall clearly specify all safety related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to the procedures. Records shall be kept on-site and shall be available for inspection by the Director General upon request. The updated Safety Management System shall be developed in accordance with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 9, 'Safety Management'.

OPERATIONAL ENVIRONMENTAL MANAGEMENT

- E2. Prior to the commencement of operation, the Applicant shall incorporate the Development into any existing environmental management systems administered by the Applicant and prepared in accordance with the *AS/NZS ISO 14000 Environmental Management System* series.

End of Schedule E

SCHEDULE F
ENVIRONMENTAL MONITORING AND AUDITING

ENVIRONMENTAL AUDITING

- F1. Within one year of the commencement of operations and for a period of at least 5 years thereafter (unless otherwise agreed to by the Director General), the Applicant shall fund a full independent environmental audit. The audit shall be undertaken by a suitably qualified person/team approved by the Director General. The audits shall be made publicly available and would:
- (a) be carried out in accordance with ISO 14010 – Guidelines and General Principles for Environmental Auditing and ISO 14011 – Procedures for Environmental Auditing;
 - (b) assess compliance with the requirements of this consent, and other licences and approvals that apply to the development;
 - (c) assess the construction against the predictions made and conclusions drawn in the development application and EIS;
 - (d) review the effectiveness of the environmental management of the development, including any environmental impact mitigation works and mitigation implemented to address matters identified in previous audits; and
 - (e) where required identify any additional or ongoing monitoring or mitigation measures to be put in place to manage residual environmental impacts associated with the Development.

A copy of the audit report and the measures proposed by the Applicant to respond to matters identified in the audit including timeframe for their implementation shall be submitted for the Director General's approval within three months of the completion of the audit, unless otherwise agreed to by the Director General.

End of Schedule F

5 September 2011

Caltex Jet Fuel Pipeline Upgrade Project

The Proposal

The proposal is to upgrade the existing Caltex infrastructure to supply jet fuel to Sydney Airport. The project includes:

- Kurnell Refinery works - installation of new pumps, coalescer filters & associated instruments and a new pigging station;
- Kurnell B Line - replacement of around 1.5km of piping between the refinery and Caltex's wharf on the southern side of Botany Bay; and
- Banksmeadow terminal - installation of new booster pumps, piping modifications and an electrical switch room.

Construction works would be undertaken concurrently over a period of 9-10 months.

Delegation to the Commission

The Director General of the Department of Planning and Infrastructure (the Department) referred the application to the Planning Assessment Commission for determination as it meets the Ministerial delegation issued on 28 May 2011 because the Proponent has declared a reportable political donation.

The Commission consisted of Ms Janet Thomson (chair) and Mr Joe Woodward.

The Director General's Assessment Report

The proposed project received a total of 13 submissions, 9 from public authorities and 4 from the general public. The Department identified the key issues were:

- Potential hazards and risk,
- Noise and vibration,
- Soil contamination; and
- Water contamination.

Other minor issues included flora and fauna, air quality, Aboriginal and non-Aboriginal heritage, greenhouse gas emissions, transport, socio-economic impacts and cumulative construction impacts.

The Department's assessment report canvassed the key issues extensively and concluded that the proposal would improve the safety, efficiency and reliability of jet fuel supply from the Caltex Refinery to Sydney Airport. Potential environmental impacts can be mitigated or managed to meet relevant statutory environmental criteria. The recommended conditions of consent together with the safeguards and recommendations of the EA and Preliminary Hazards Analysis will ensure the project will not pose an unacceptable risk to the surrounding area and be implemented at acceptable level of environmental performance.

Meeting with the Department of Planning and Infrastructure

On 2 September 2011 the Commission met with Ms Felicity Greenway, Ms Lilia Donkova-Vassileva and Mr Andrew Hartcher from the Department for a briefing on the proposal. The focus of the meeting was to seek clarification on the issues of noise, risk level, potential odour from contaminated soil, and spill management.

In response to the Commission's question about risk level the Department advised that there was an error in the report (page 12), ie the "800,000 to 1" and this should be deleted. Thus the risk level should read "... site boundary is 0.08×10^{-6} a year, and negligible at the terminal site..."

Commission's Comments

The Commission has considered the Department's assessment report and associated documents, including the recommended conditions of consent. The Commission found the Department has carried out a thorough assessment of key issues raised in submissions.

Following discussion with the Department on the issues of potential odour arising from contaminated soil and spill management, the Commission considered two additional conditions should be included to ensure these issues will be appropriately managed. The additional conditions are:

Schedule 3

- 19(f) *detail the measures that would be put in place to ensure residents are not subject to offensive odour;*
- 19(g) *detail the measures that would be put in place to manage and contain potential spills during cleaning and commissioning of the pipeline;*

The Commission also required a modification to Condition 2 in Schedule 4 to ensure the relevant local councils will be notified of any exceedance of the approval criteria. Condition 2 should read:

- 2. *As soon as practicable after detecting an exceedance of the criteria in this approval or the occurrence of an incident that causes (or may cause) harm to the environment, the Proponent shall notify the Department, relevant agencies and relevant local councils of the exceedance/incident.*

Commission determination

The Commission considered the Department's recommendation to approve the application is reasonable. Consent is granted subject to conditions in Attachment 1.



Ms Janet Thomson
Member



Mr Joe Woodward
Member

Attachment 1

Instrument of Approval

Project Approval

Section 75J of the *Environmental Planning and Assessment Act 1979*

Under the Minister for Planning and Infrastructure's delegation of 28 May 2011, the Planning Assessment Commission of New South Wales approves the project application referred to in Schedule 1, subject to the conditions in Schedules 2 to 4.

These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the project.



Janet Thomson
Member of the Commission



Joe Woodward
Member of the Commission

Sydney

5 September 2011

SCHEDULE 1

Application Number:

11_0004

Proponent:

Caltex Refineries (NSW) Pty Ltd

Approval Authority:

Minister for Planning and Infrastructure

Land:

Kurnell Refinery - Lot 25 DP776328, Lot 570 DP752064, Lot 283 DP752064, Lot 1 DP132055, Kurnell Wharf - Lot 3 DP1165618, Kurnell Right of Way - Lot 122 DP8135, Lot 123 DP8135, Lot 124 DP8135, Lot 125 DP8135, Lot 77 DP8135, Lot 78 DP8135, Lot 79 DP8135, Lot 43 DP8135, Lot 44 DP8135, Lot 45 DP8135, Lot 46 DP8135, Lot K DP362655, Lot F DP361103, Lot G DP361103, Lot B DP338897, Lot H DP362655, Lot J DP362655, Lot D DP 361103 and Banksmeadow Terminal - Lot 1 DP1050144.

Project:

Caltex Jet Fuel Pipeline Upgrade Project

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DEFINITIONS

AHD	Australian Height Datum
BCA	Building Code of Australia
CEMP	Construction Environmental Management Plan
Council	City of Botany Bay Council and Sutherland Shire Council, unless referred to separately
Day	The period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays
OEH	Office of Environment and Heritage
Department	Department of Planning and Infrastructure
Director-General	Director-General of Department of Planning and Infrastructure, or delegate
EA	Environmental Assessment titled <i>Environmental Assessment: Kurnell B Line Upgrade</i> , prepared by URS Australia Pty Ltd dated 14 April 2011, the Response to Submissions Report titled <i>Submissions Report – Kurnell B Line Upgrade</i> prepared by URS Australia Pty Ltd dated 28 June 2011 and the <i>Caltex Construction Noise & Vibration Assessment of Jet Fuel Pipeline</i> , prepared by Renzo Tonin & Associates (NSW) Pty Ltd dated 2 August 2011
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPL	Environmental Protection Licence
Evening	The period from 6pm to 10pm
Feasible	Feasible relates to engineering considerations and what is practical to build
KBL	Kurnell B Line
Land	The whole of a lot, or contiguous lots owned by the same landowner, in a current plan registered at the Land Titles Office at the date of this approval
Minister	Minister for Planning and Infrastructure, or delegate
NOW	Department of Primary Industries – NSW Office of Water
Night	The period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays
Project	The development as described in the EA
Proponent	Caltex Refineries (NSW) Pty Ltd, or its successors in title
Reasonable	Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements.
RTA	Roads and Traffic Authority
Site	The land referred to in Schedule 1 and shown with a red line on the plans in Appendix A
SPC	Sydney Ports Corporation
Statement of Commitments	The Proponent's commitments for the project in Appendix B
WorkCover	WorkCover NSW

SCHEDULE 2 ADMINISTRATIVE CONDITIONS

Obligation to Minimise Harm to the Environment

1. The Proponent shall implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation or decommissioning of the project.

Terms of Approval

2. The Proponent shall carry out the project generally in accordance with the:
 - (a) EA;
 - (b) project plans (see Appendix A);
 - (c) statement of commitments (see Appendix B); and
 - (d) conditions of this approval.
3. If there is any inconsistency between the above documents, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.
4. The Proponent shall comply with any reasonable requirement/s of the Director-General arising from the Department's assessment of:
 - (a) any audits, reports, plans, programs, strategies, studies or correspondence that are submitted in accordance with this approval; and
 - (b) the implementation of any actions or measures contained in these audits, reports, plans, programs, strategies, studies or correspondence submitted by the Proponent.

Management Plans/Monitoring Programs

5. With the approval of the Director-General, the Proponent may:
 - (a) submit any management plan or monitoring program required by this approval on a progressive basis; and
 - (b) combine any management plan or program required by this approval with any similar management plan or program that have been approved under previous consents or approvals.

Structural Adequacy

6. The Proponent shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, on the site are constructed in accordance with the relevant requirements of the BCA.

Notes:

- Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for the proposed building works.
- Part 8 of the EP&A Regulation sets out the requirements for the certification of the project.

Demolition

7. The Proponent shall ensure that all demolition work is carried out in accordance with Australian Standard AS 2601:2001: The Demolition of Structures, or its latest version.

Protection of Public Infrastructure

8. The Proponent shall:
 - (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the project; and

- (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the project.

Operation of Plant and Equipment

- 9. The Proponent shall ensure that all plant and equipment used for the project is:
 - (a) maintained in a proper and efficient condition; and
 - (b) operated in a proper and efficient manner.

End of Schedule 2

SCHEDULE 3 SPECIFIC ENVIRONMENTAL CONDITIONS

HAZARDS AND RISK

Pre-Construction Studies

1. At least one month prior to the commencement of construction of the proposed project (except for construction of those preliminary works that are outside the scope of the hazard studies), or within such further period as the Director General may agree, the Proponent shall prepare and submit for the approval of the Director General the studies set out under subsections a) to d) below, namely:
 - (a) a **Fire Safety Study** for the proposed project. This study shall cover the relevant aspects of the Department of Planning and Infrastructure's Hazardous Industry Planning Advisory Paper No. 2, 'Fire Safety Study Guidelines' and the New South Wales Government's 'Best Practice Guidelines for Contaminated Water Retention and Treatment Systems'. The study shall also be submitted for approval to Fire and Rescue NSW. The study should specifically consider and implement, if necessary, further measures to ensure acceptable fire protection levels at the foam pump house at Banksmeadow Terminal in case of a major fire at the booster pump station;
 - (b) a **Hazard and Operability Study** for the proposed project, chaired by a qualified person, independent of the project, approved by the Director General prior to the commencement of the study. The study shall be consistent with the Department of Planning and Infrastructure's Hazardous Industry Planning Advisory Paper No. 8, 'HAZOP Guidelines'. The study report must be accompanied by a program for the implementation of all recommendations made in the report. If the Proponent intends to defer the implementation of a recommendation, reasons must be documented;
 - (c) a **Final Hazard Analysis** of the proposed project, consistent with the Department of Planning and Infrastructure's Hazardous Industry Planning Advisory Paper No. 6 'Guidelines for Hazard Analysis'; and
 - (d) a **Construction Safety Study**, consistent with the Department of Planning and Infrastructure's Hazardous Industry Planning Advisory Paper No. 7 'Construction Safety Study Guidelines'. For projects in which the construction period exceeds six (6) months, the commissioning portion of the Construction Safety Study may be submitted two months prior to the commencement of commissioning.

Construction, other than of preliminary works, shall not commence until approval of (b) to (d) has been given by the Director General and, with respect to the Fire Safety Study, approval has also been given by Fire and Rescue NSW.

Pre-Commissioning Studies

2. No later than two months prior to the commencement of commissioning of the proposed project, or within such further period as the Director General may agree, the Proponent shall submit the following for the approval of the Director-General:
 - (a) an updated **Emergency Plan/s** and detailed emergency procedures for Caltex Refinery, Banksmeadow Terminal and Kurnell B Line (KBL) to incorporating any changes due to the project. These plans shall be consistent with the Department of Planning and Infrastructure's Hazardous Industry Planning Advisory Paper No. 1, 'Emergency Planning'; and
 - (b) an updated **Safety Management System/s** for the Caltex Refinery, Banksmeadow Terminal and KBL including any changes due to the project. These documents shall clearly specify all safety related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to the procedures. Records shall be kept on-site and shall be available for inspection by the Director General upon request. The Safety Management System shall be developed in accordance with the Department of Planning and Infrastructure's Hazardous Industry Planning Advisory Paper No. 9, 'Safety Management'.

Commissioning of the project shall not commence until approval of each of these plans has been given by the Director General and following approval, the Proponent shall implement each of the approved plans set out in subsections a) to b) above.

Pre-Startup Compliance

3. One month prior to the commencement of operation of the project, the Proponent shall submit to the Director General, a report detailing compliance with conditions 1 and 2 of this schedule, including:
 - (a) dates of study/plan/system submission, approval, commencement of construction and commissioning;
 - (b) actions taken or proposed, to implement recommendations made in the studies/plans/systems; and
 - (c) responses to each requirement imposed by the Director General under conditions 1 and 2 of this schedule.

Post-Startup Compliance

4. Three months after the commencement of operation of the project, the Proponent shall submit to the Director General, a report verifying that:
 - (a) the updated Emergency Plan/s required under condition 2 a) of this schedule are effectively in place and that at least one emergency exercise related to the project has been conducted at the Caltex Refinery and Banksmeadow Terminal; and
 - (b) the updated Safety Management System/s required under condition 2 b) of this schedule for the Caltex Refinery and Banksmeadow Terminal have been fully implemented and that records required by the system are being kept.

Hazard Audit

5. Twelve months after the commencement of operations of the proposed project and every three years thereafter, or at such intervals as the Director General may agree, the Proponent shall carry out a comprehensive **Hazard Audit** of the proposed project and within one month of each audit submit a report to the Director General.

The audits shall be carried out at the Proponent's expense by a qualified person or team, independent of the project, approved by the Director General prior to commencement of each audit. Hazard Audits shall be consistent with the Department of Planning and Infrastructure's *Hazardous Industry Planning Advisory Paper No. 5 'Hazard Audit Guidelines'*.

The audit report must be accompanied by a program for the implementation of all recommendations made in the audit report. If the Proponent intends to defer the implementation of a recommendation, reasons must be documented.

The Hazard Audit may be incorporated with any existing requirements for Hazard Audits of Caltex Refinery, Banksmeadow Terminal or KBL.

NOISE AND VIBRATION

Construction Noise Criteria

6. The Proponent shall ensure that construction noise generated by the project does not exceed the criteria in Table 1.

Table 1: Construction noise criteria dB(A)

Receiver	Day <i>L_{Aeq}(15 minute)</i>
1	75
2	51
3	51
4	51
5	70

Notes:

- To identify the receiver locations referred to in Table 1, see the figures in Appendix C.
- Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.

Operating Hours

7. The Proponent shall only carry out the project during the operating hours specified in Table 2, unless otherwise agreed to in writing by the Director-General.

Table 2: Operating Hours

Activity	Day	Hours
Construction	Monday – Friday	7 am – 6 pm
	Saturday	8 am – 1 pm
	Sunday & Public Holidays	Nil
Operations	Monday – Sunday	24 hours, 7 days a week

Operating Conditions

8. The Proponent shall:
- implement best practice noise and vibration management during construction, including all reasonable and feasible noise and vibration mitigation measures to minimise construction noise and vibration generated by the project; and
 - regularly assess the noise monitoring data and relocate, modify and/or stop operation on-site to ensure compliance with the relevant conditions of this approval,
- to the satisfaction of the Director-General.

Noise and Vibration Management Plan

9. The Proponent shall prepare and implement a Noise and Vibration Management Plan for the project to the satisfaction of the Director-General. This Plan must:
- be prepared in consultation with OEH by a suitably qualified and experienced expert;
 - be submitted to the Director-General for approval prior to the commencement of construction;
 - identify the nature, location and duration of works (including scheduled construction times);
 - identify construction activities that are expected to generate offensive noise and vibration;
 - identify the location of potentially affected sensitive receivers;
 - set out all reasonable and feasible noise and vibration mitigation to minimise construction noise and vibration generated by the project;
 - include a noise monitoring program that can be used to demonstrate compliance with the construction noise criteria in condition 6 of this schedule; and
 - detail what management and/or contingency actions will be taken if noise emissions are found to be approaching or exceeding the construction noise criteria in condition 6 of this schedule.

Community Consultation Plan

10. The Proponent shall prepare and implement a Community Consultation Plan for the project to the satisfaction of the Director-General. This Plan must:
- be submitted to the Director-General for approval prior to the commencement of construction;
 - include procedures for notifying and consulting nearby residents prior to the commencement of construction activities (or particularly noisy works) including local community groups;
 - provide details of a telephone complaints line (all hours) and relevant site personnel responsible for following up complaints;
 - include procedures for handling and monitoring all complaints received; and
 - detail what management and/or contingency actions will be taken if complaints are received.

Vibration Intensive Plant

11. The Proponent shall develop and implement safe site-specific working distances for all vibration intensive plant to be used for the project to avoid human discomfort and structural damage.

SOIL AND WATER

Discharge Limits

12. Except as may be expressly provided in the EPL for the site, the Proponent shall comply with Section 120 of the POEO Act.

Stormwater

13. The Proponent shall ensure that all clean stormwater is diverted away from any contaminated areas of the site and beneficially re-used or directed into existing stormwater drains. The clean areas must be maintained to a satisfactory level to ensure pollution of waters does not occur.
14. The Proponent shall ensure that all contaminated water from the site is captured and stored at the site and beneficially re-used where safe and practicable to do so or removed off-site, appropriately treated and disposed of by a licensed waste disposal contractor.

Water Conservation

15. The Proponent shall ensure that where possible, opportunities to replace potable water with captured stormwater, or treated process water from the site is maximised where it is safe and practicable to do so.

Spillage Control

16. The Proponent shall store all chemicals, fuels and oils used on-site in appropriately bunded areas, with impervious flooring and sufficient capacity to contain 110% of the largest container stored within the bund, unless double-skinned tanks are used. Any bunds shall be designed and installed in accordance with the requirements of all relevant Australian Standards, and/or OEH's *Environmental Protection Manual: Technical Bulletin Bunding and Spill Management*.
17. The Proponent shall ensure that any contamination of stored/piped products into the ground as a result of the project is reported to OEH and SPC upon detection.

Erosion and Sediment Control

18. During the construction of the project, the Proponent shall implement suitable erosion and sediment control measures on-site, in accordance with the relevant requirements in the latest version of the *Managing Urban Stormwater: Soils and Construction Guideline*.

Soil and Water Management Plan

19. The Proponent shall prepare and implement a Soil and Water Management Plan for the project to the satisfaction of the Director-General. This Plan must:
 - (a) be prepared in consultation with OEH and NOW by a suitably qualified and experienced expert;
 - (b) be submitted to the Director-General for approval prior to the commencement of site preparation;
 - (c) outline the preliminary investigations that have been undertaken to test for the presence of contamination;
 - (d) detail the protocols to be put in place and followed in the event that contaminated soil or water is encountered during construction;
 - (e) detail how excavated soil will be tested, handled and stockpiled;

- (f) detail the measures that would be put in place to ensure residents are not subject to offensive odour;
 - (g) detail the measures that would be put in place to manage and contain potential spills during cleaning and commissioning of the pipeline;
 - (h) detail the measures that will be employed to prevent erosion and sedimentation of contaminated soil; and, if necessary,
 - (i) outline how contaminated soil and water will be disposed of off-site (e.g. at a licensed facility).
20. Prior to the commencement of site preparation or construction works, the Proponent shall:
- (a) undertake Acid Sulfate Soil (ASS) testing for areas of the site to be disturbed during site preparation and construction in accordance the NSW State Government's Acid Sulfate Soils Manual (ASSMAC 1998);
 - (b) provide all results of this testing to OEH; and
 - (c) should testing indicate that any potential or actual ASS may be disturbed during the life of the project, the Proponent shall prepare and implement an ASS Management Plan in accordance with condition 21 of this schedule (see below).
21. Prior to the commencement of any site preparation or construction works on the site, but only if potential or actual ASS are identified on the site (refer to condition 20 of this schedule, above), the Proponent shall prepare and implement an ASS Management Plan for the project to the satisfaction of the Director-General. This Plan must:
- (a) be prepared in consultation with OEH and NOW by a suitably qualified and experienced expert;
 - (b) be submitted to the Director-General for approval prior to the commencement of any site preparation or construction works;
 - (c) outline the preliminary investigations that have be undertaken to test for the presence of ASS;
 - (d) detail the protocols to be put in place and followed in the event that ASS is encountered;
 - (e) detail how the ASS will be tested, handled and stockpiled;
 - (f) detail measures to prevent erosion and sedimentation of ASS; and, if necessary
 - (g) outline how the ASS will be disposed of off-site (e.g. at a licensed facility).

AIR QUALITY AND GREENHOUSE GAS

Odour

Discharge Limits

22. The Proponent shall not cause the emission of offensive odours from the site, as defined under Section 129 of the POEO Act.

Operating Conditions

- (a) implement best practice air quality management during construction including all reasonable and feasible measures to minimise odour, fume and dust emissions generated by the project; and
 - (b) minimise any visible air pollution generated by the project, to the satisfaction of the Director-General.
23. During construction, the Proponent shall ensure that:
- (a) all trucks entering or leaving the site with loads have their loads covered; and
 - (b) all trucks do not track dirt onto the public road network.

Air Quality Management Plan

24. The Proponent shall prepare and implement an Air Quality Management Plan for the project to the satisfaction of the Director-General. This Plan must:
- (a) be prepared in consultation with OEH by a suitably qualified and experienced expert;
 - (b) be submitted to the Director-General for approval prior to the commencement of construction;

- (c) outline all reasonable and feasible measures that will be implemented to minimise site odour, fume and dust emissions to ensure that dust emissions are no greater than predicted in the EA.

Greenhouse Gas

25. The Proponent shall implement all reasonable and feasible measures to minimise:
- (a) energy use on-site; and
 - (b) the greenhouse gas emissions produced on-site,
- to the satisfaction of the Director-General.

FLORA AND FAUNA

Flora and Fauna Management Plan

26. The Proponent shall prepare and implement a Flora and Fauna Management Plan for the project to the satisfaction of the Director-General. This Plan must:
- (a) be prepared in consultation with OEH by a suitably qualified and experienced expert;
 - (b) be submitted to the Director-General for approval prior to the commencement of construction;
 - (c) outline all reasonable and feasible measures to mitigate and manage impacts on flora and fauna including sediment, erosion and pollutant run-off management measures; and
 - (d) include a Weed Management Plan outlining all reasonable and feasible measures to identify noxious/exotic weeds on-site, prevent their spread and ensure their appropriate management/disposal during construction.

Vegetation Clearing

27. During the construction of the project, the Proponent shall
- (a) minimise vegetation clearing as far as practicable; and, if necessary,
 - (b) replant with a similar species any trees that are removed during the construction of the project.

WASTE

Waste Management Plan

28. The Proponent shall prepare and implement a Waste Management Plan for the project to the satisfaction of the Director-General. This Plan must:
- (a) *be prepared in consultation with OEH by a suitably qualified and experienced expert;*
 - (b) *be submitted to the Director-General for approval prior to the commencement of construction;*
and
 - (c) outline all reasonable and feasible measures that will be implemented to manage and appropriately dispose of construction waste.

TRAFFIC

29. The Proponent shall ensure that the project is undertaken in accordance with the Deed of Agreement between Caltex Refineries (NSW) Pty Ltd and the RTA dated 29th January 2003 to lay, construct and operate a steel pipeline, for the carriage of liquid jet fuel in, under and across parts of the Sydney road network.

HERITAGE

Heritage Management Plan

30. The Proponent shall prepare and implement a Heritage Management Plan for the project to the satisfaction of the Director-General. This Plan must:
- (a) be prepared in consultation with OEH by a suitably qualified and experienced expert;
 - (b) be submitted to the Director-General for approval prior to commencement of construction;

- (c) include programs/procedures for:
 - i. managing the discovery of previously unidentified heritage relics including halting of works in the vicinity, assessment of the significance of the item(s), notification of OEH and the Department, and determination of appropriate management and mitigation measures including when works can re-commence;
 - ii. managing the discovery of human remains including halting of works in the vicinity, notification of the NSW Police, the Department, the OEH and the Aboriginal stakeholders and not-recommencing any works in the area unless authorised by the Department and/or the NSW Police (whichever is relevant); and
 - iii. heritage inductions for construction personnel (including procedures for keeping records of inductions).

VISUAL AMENITY

Visual Mitigation

- 31. During the life of the project, the Proponent shall mitigate the visual impacts of the project in such a manner that it does not create nuisance to surrounding properties or the public road network, or operations associated with Sydney Airport.

End of Schedule 3

SCHEDULE 4 ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

ENVIRONMENTAL MANAGEMENT

Construction Environmental Management Plan

1. The Proponent shall prepare and implement a Construction Environmental Management Plan for the project to the satisfaction of the Director-General. The Plan must:
 - (a) be submitted to the Director-General for approval no later than two weeks prior to the commencement of construction or demolition or within such period otherwise agreed by the Director-General;
 - (b) identify the statutory approvals that apply to the project;
 - (c) consolidate all relevant management plans and monitoring programs required in the conditions of this approval;
 - (d) outline all environmental management practices and procedures to be followed during construction and demolition works associated with the project;
 - (e) describe all activities to be undertaken on the site during construction of the project, including a clear indication of construction stages;
 - (f) detail how the environmental performance of the construction works will be monitored, and what actions will be taken to address identified adverse environmental impacts;
 - (g) describe of the roles and responsibilities for all relevant employees involved in construction and demolition works associated with the project; and
 - (h) include arrangements for community consultation and complaints handling procedures during construction and demolition.

Construction of the project shall not commence until written approval of this plan has been received from the Director-General.

ENVIRONMENTAL REPORTING

Incident Reporting

2. As soon as practicable after detecting an exceedance of the criteria in this approval or the occurrence of an incident that causes (or may cause) harm to the environment, the Proponent shall notify the Department, relevant agencies and relevant local councils of the exceedance/incident.
3. Within six (6) days of notifying the Department and other relevant agencies of an exceedance/incident, the Proponent shall provide the Department and these agencies with a written report that:
 - (a) *describes the date, time, and nature of the exceedance/incident;*
 - (b) *identifies the cause (or likely cause) of the exceedance/incident;*
 - (c) *describes what action has been taken to date; and*
 - (d) *describes the proposed measures to address the exceedance/incident.*

Access to Information

4. From the commencement of construction, the Proponent shall make the following information publicly available on its website as it is progressively required by the approval:
 - (a) *a copy of all current statutory approvals;*
 - (b) *a copy of the current plans and programs required under this approval;*
 - (c) *a summary of the monitoring results of the project, which have been reported in accordance with the relevant conditions of this approval;*
 - (d) *a complaints register, which is to be updated on a monthly basis; and*
 - (e) *any other matter required by the Director-General.*

End of Schedule 4

APPENDIX A
SITE PLANS



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APPENDIX B STATEMENT OF COMMITMENTS

Mitigation Measure and Commitment	Implementation of mitigation measures		
	Design	Construction	Operation
General			
Caltex would carry out the construction and operation of the Project in accordance with the EA and the approval conditions.	✓	✓	✓
Caltex would implement all practicable measures to avoid, or minimise, any impacts to the environment that may arise from the construction and operation of the Project.	✓	✓	✓
Caltex would ensure that the Contractor prepares and implements a Construction Environmental Management Plan (CEMP) that would be reviewed and approved by an EMR.		✓	
Caltex would appoint an EMR to monitor the implementation of all environmental management measures. The Environmental Management Representative (EMR) would ensure that all mitigation measures are being effectively applied during construction and that the work is being carried out in accordance with the CEMP and all environmental approval and legislative conditions.		✓	
Caltex personnel would undergo training in accordance with the CEMP and any other training commitments agreed as part of Project Approval.		✓	
Contact details for Sydney Ports Corporation would be included within the CEMP.	✓	✓	
All works would be carried out in a manner that would comply with the existing Environmental Protection Licences (EPL) held by the Proponent for each site. Caltex would amend the EPLs in consultation with OEHL, in line with the recommendations of Appendix B of the OEHL Submission.		✓	✓
Soil			
A Site specific contamination management plan would be prepared.	✓	✓	
Any contaminated soils would be tested and disposed of within one month of excavation.		✓	
Soils would be tested for contamination as they are stockpiled. Any contaminated soils would be stored within Kurnell Refinery at least 800m from any properties within Kurnell.		✓	
Contaminated soil would be disposed of off-site to appropriately licensed landfill facility once it has been classified in accordance with the DECC, NSW (2009) Waste Classification Guidelines: Part 1: Classifying Waste		✓	
Any soil excavated and stockpiled on-site would be appropriately validated prior to reuse as backfill.		✓	
Stockpiled soils would be appropriately managed (in accordance with 'Blue Book' requirements to reduce the risk of soil erosion and/or dust creation and propagation. Silt fences would be installed around the stockpiles where necessary and stockpiles would be covered and wetted down as required.		✓	
A Preliminary assessment would be carried out to assess the presence of potential acid sulphate soils (PASS)	✓	✓	

An Acid Sulphate Soils Management Plan would be prepared in accordance with the Acid Sulphate Soil Manual (ASS Management Advisory Committee 1998) if ASS are encountered	✓	✓	
The pipeline would be maintained and repaired as required to ensure public safety, EPA licence compliance and to maintain high levels of system reliability.			✓
Ground and Surface Water			
The proposed relocation of pigging launching system from the Wharf to within the boundaries of the Kurnell Refinery avoids the risk of any pollution events affecting Botany bay.	✓		✓
Groundwater removed by dewatering, and any runoff that may accumulate in excavations, would be periodically tested for elevated levels over contamination. Any water removed by dewatering that was considered contaminated would be disposed of into the oily water system and treated in the Waste Water Treatment Plant (WWTP).		✓	
Clean water removed through the dewatering process would be collected and re-used onsite where possible to minimise discharges to the stormwater drainage system.		✓	
A Groundwater Management Plan (GWMP) would be developed to manage contaminated groundwater and prevent the infiltration of contaminated runoff. This plan would be included as part of the CEMP.	✓	✓	
Erosion control measures would be implemented at each work site as per Chapter 6 Soil, Geology and Topography for the EA		✓	
Any required dewatering activities would be carried out in strict compliance with NSW Office of Water licensing conditions.		✓	
In the event of prolonged wet conditions creating vulnerability for water quality impacts, Caltex would direct the contractor to cease work at any location where it is considered that there is a significant risk to water quality until conditions improve.	✓		
Platforms will be attached to the wharf as the new pipeline is installed to intercept any rust or metals falling from the works.		✓	
Spill teams will be placed along the route of the new pipeline as it is hydro-tested to check for leaks and ensure a swift response in the unlikely event of a leak.		✓	

Ecology			
<i>Flora Management</i>			
<p>A Weed Management Plan will be developed as part of the CEMP if noxious/ exotic weeds are identified on site during construction. This plan would include:</p> <ul style="list-style-type: none"> wash down procedures to reduce the spread of weeds via vehicles and machinery; target areas of potential new outbreaks including soil stockpiles and any other disturbed areas; recommend measures including cleaning of vehicle tyres before leaving a property, cleaning of footwear and minimising soil movement between locations; monitoring programs for noxious and problematic weeds on sites and in the surrounding areas; and measures to mitigate noxious and problematic weeds, should they be found, would be in accordance with the DII specifications for the Sutherland Shire and Botany Bay Council area. 		✓	
<p>Standard industry measures for sediment runoff on urban developments would be implemented according to the 'The Blue Book Volumes 1 and 2 (Landcom 2004), and <i>Managing Urban Stormwater: Soils and Construction Volume 1</i>, and (DECC, 2008). Specifically, sediment and pollutant run-off controls would be managed to protect sensitive ecological receptors in adjacent areas to the footprint. Management methods would include:</p> <ul style="list-style-type: none"> stockpiling to be appropriately sediment fenced to avoid scouring and runoff into adjoining creeklines and vegetated areas; if excavated soils are found to be contaminated they would be removed from site as soon as possible and taken to an appropriate waste facility. In circumstances where soils need to be temporarily stored on site, contaminated materials would be stockpiled on non-permeable sheeting and covered with plastic sheeting to prevent infiltration of rain water and possible run-off; and wash down protocols of construction vehicles and machinery to prevent the spread of root-rot fungus (<i>Phytophthora cinnamomi</i>). 		✓	
<i>Fauna Management</i>			
Frog-friendly and wetland friendly herbicides such as Roundup Biactive or Weedmaster DUO will be used for the control of noxious weeds.		✓	✓
Wash down protocols In accordance with DECCW guidelines (DECC, 2008b) to prevent the spread of amphibian chytrid disease <i>chytridiomycosis</i> would be included. Wash down would occur whenever vehicles enter or leave an excavation area.		✓	
Indigenous Heritage			
Should any previously unidentified Aboriginal objects or sites be uncovered during the course of construction, work in that area would cease and DECCW would be informed to seek advice on how to best proceed. If burials are uncovered, the NSW police would be informed immediately. Should the remains be then identified as archaeological in context, DECCW would be informed to clarify how to best proceed.		✓	

Non-Indigenous Heritage			
Burying and returfing the new pipeline with existing soil, where possible, through the Kurnell Refinery right of way.		✓	
Traffic and Transport			
Vehicle movements would be limited to the designated routes to minimise impacts to road users caused by the Project.	✓		
All construction traffic will drive in a safe and responsible manner at all times to reduce the risk of accidents occurring.		✓	
Local Government councils and local residents will be contacted for concurrence to any work which will affect the road network.		✓	
A Traffic Management Plan will be developed for the construction phase. The Traffic Management Plan will comply with all relevant Regulations and By-Laws and in particular address safe access and egress to the public road network.	✓	✓	
Noise			
<p>A Construction Noise and Vibration Management Plan (CNVMP) would be developed and included in the CEMP for the Project. This plan would be incorporated into the CEMP. Together these plans would:</p> <ul style="list-style-type: none"> • provide details of the project; • outlines the nature, duration and location of the works; • estimate construction times; • identify construction activities that are expected to generate offensive noise; • identify the location of potentially sensitive receptors; • provide an assessment of the construction noise levels and potential impacts on sensitive receivers; • detail reasonable and feasible work practices and control measures to minimise potential noise impacts; and • detail performance evaluation procedures to assess the effectiveness of implemented site controls and mitigation measures. <p>The CNVMP would be developed in line with the ICNG.</p>	✓	✓	
Low-noise plant and equipment would be selected in order to minimise potential for noise and vibration, all equipment would be regularly checked to ensure that the mufflers and other noise reduction equipment is working correctly.		✓	
Alternatives to reversing alarms and horns, such as manually adjustable or ambient noise sensitive types ("smart" reversing alarms) and closed circuit TV systems would be considered.		✓	
Equipment would be located to take advantage of the noise screening provided by existing site features and structures, such as embankments, storage sheds and/or boundary fences.		✓	
Acoustic engineers would work closely with the construction contractors and carry out preliminary testing of construction equipment prior to commencement of construction works.		✓	
Concrete trucks, rock breakers, pneumatic jack hammers, and bulldozers will not be used in the pipeline Right of Way or Wharf.		✓	
Caltex would operate no more than three items of plant in close proximity to a sensitive receiver at any one time during the Kurnell construction work		✓	
Acoustic enclosures would be constructed and implemented for the bevelling machine and hand held grinders when in use during the Kurnell construction work.		✓	

If required following testing, mobile screens would be used to reduce noise levels at nearby sensitive receivers when the beveling machine and hand held grinders are being used.		✓	
Community consultation with local residents would be undertaken to assist in the alleviation of community concerns. A complaints register would be maintained.		✓	
Any noise complaint(s) would be investigated immediately and noise monitoring would be undertaken to ascertain the extent of any exceedance at the locations concerned. Reasonable and feasible measures would then be implemented to reduce noise impacts.		✓	
Construction works would be carried out during the hours of 7.00am to 6.00pm Monday to Friday and 8.00am to 1.00pm on Saturdays, as is outlined in the ICNG, except for: <ul style="list-style-type: none"> the delivery of materials which is required outside these hours as requested by the RTA or other authorities for safety reasons; emergency work to avoid the loss of lives, property and/or prevent environmental harm; any works which do not cause emissions to be audible at any nearby residential property; any other work as agreed through negotiations between Caltex and potentially affected noise receivers. Work outside standard hours would require the formal written consent of Caltex. Caltex would notify potentially affected neighbours at least five days in advance of such works. General notification of the planned works (including peak and noisy construction activities undertaken during standard working hours) would be provided to potentially affected parties.		✓	
Construction work outside standard hours requires a further noise reduction to meet the noise management level of 35 dB(A). Further reduction in noise levels can be achieved by programming quieter works during these hours: <ul style="list-style-type: none"> by reducing number of truck movements and equipment used at the same time on site; and not operating noisy equipment such as a bulldozer. 		✓	
Construction stages would be scheduled to minimise the multiple use of the noisiest equipment or plant items near noise sensitive receptors.	✓	✓	
Plant items would be strategically positioned to reduce the noise emission to noise sensitive receptors, wherever possible.	✓	✓	
Awareness training of staff and contractors in environmental noise issues would be undertaken.		✓	
Any equipment not in use for extended periods during construction work would be switched off.		✓	✓
Heavy vehicle entry and exit from site would be restricted to the nominated construction hours, except where the RTA or other authorities require movements to be outside these hours.		✓	
Should any unexpected construction activities occur which could potentially generate significant noise not described in this report, monitoring would be undertaken to ensure equipment noise emission levels do not deteriorate.		✓	
Where noise level exceedances cannot be avoided, consideration would be given to applying time restrictions and/or providing quiet periods for nearby residents.		✓	

<p>Caltex would produce a Community Consultation Plan (CCP) as part of the CEMP. Together these documents would:</p> <ul style="list-style-type: none"> provide procedures for consulting and notifying nearby residents of the commencement of the construction activities. This would include providing written notification to residents around the Kurnell ROW area.; Provide regular updates to Kurnell Progress and Precinct Committee; outline procedures for consulting and notifying nearby residents at appropriate stages throughout the construction activities of any specific works that may result in potential noise impacts; provide details of a telephone complaints line (including a daytime and after hours contact phone number) for the purposes of receiving any complaints or enquiries for members of the public in relation to the construction activities; provide contact details of relevant site persons responsible for following up complaints; outline procedures for handling and monitoring all complaints received by the proponent; and provide details of contingency measures to be implemented when complaints are received. <p>The CCP would be developed in line with the ICNG.</p>	✓	✓	
Air Quality			
Vehicles on the right of way would be subject to a speed limit of 10km/h		✓	
Vehicle movements on unsealed roads would be minimised where practical.		✓	
Haul vehicle tailgates would be properly sealed, such that they do not deposit loose dirt onto the road surface.		✓	
Vehicles would be loaded to less than the height of the side and tailboards, and loads of fill will be covered during transport.		✓	
Any soil adhering to the undercarriage and wheels of trucks would be removed prior to departure from the site.		✓	
All vehicles would travel on designated roadways where feasible.		✓	
Vehicles would not be left with engines idling for extended periods.		✓	
Vehicles would be properly maintained to operate in an efficient manner.		✓	
Material transfer requirements would be optimised through excavation planning, such that material double handling will be avoided where possible and work areas will be minimised.	✓	✓	
Soils would be tested for contamination and odour as they are stockpiled. Any contaminated soils would be stored within the Caltex Lubricating Oil Refinery (CLOR). The soils would be placed into uniquely identified stockpiles on plastic sheeting and appropriately covered and bunded.		✓	
Stockpiles within along the proposed pipeline route would be continually monitored for odour.		✓	
Excavation rates would be controlled in order to manage potential VOC and odour emissions.		✓	
Where visible dust emissions are present during unloading/loading events near to sensitive receptors, water sprays and/or mists would be used.		✓	

Operations would be minimised or ceased during undesired weather conditions or forecasts (e.g. periods of high winds) near sensitive receptors or when offensive odours are noticed by receptors.		✓	
In unfavourable weather conditions (e.g. dry and windy conditions), water sprays would be used to dampen down soils prior to excavation and handling in locations likely to impact on sensitive receptors. Exposed surfaces and stockpiles would also be watered, sprayed or covered where required, to minimise nuisance dust to sensitive receptors.		✓	
Soil stockpiles would be covered as required.		✓	
Works will be undertaken during favourable meteorological conditions.		✓	
Exposed soil on completed areas would be re-vegetated.		✓	
Workers would maintain a visual awareness of dust emissions.		✓	
Excavations would be inspected for hydrocarbon odours.		✓	
In the Right of way, portable aerosol monitoring (e.g. DustTrak) would be used to monitor particulate matter levels where dust emissions are present near to residential receptors.		✓	
VOC monitoring would be used near to excavations.		✓	
Hazard and Risk			
All pipes outside of contained areas will be full welded not flanged.		✓	
Emergency Response Plans for Kurnell Refinery, Banksmeadow Terminal and the KBL will be updated prior to the Project being commissioned.	✓	✓	
The final Fire Safety Study will be reviewed prior to the Project being commissioned to ensure that any further risk reduction measures are appropriately implemented.	✓	✓	
Greenhouse Gas			
Equipment will be inspected and maintained to ensure efficient running and so it is appropriately sized for the task in hand.	✓	✓	
Local supplies and/or facilities will be utilised to minimise vehicle kilometres travelled (where reasonable and feasible)	✓	✓	
Energy efficiency opportunities will be identified and implemented (where reasonable and feasible) during construction and operation of the Project.	✓	✓	✓

APPENDIX C NOISE RECEIVER LOCATIONS







Division	Fuels and Infrastructure
Type	Plan
Title	Operational Environmental Management Plan Kurnell Terminal

Appendix D: Register of Legal and Other Requirements

Electronically Controlled Document. Refer to online document for current version.			
Custodian: Amanda Basten	Owner: Kurnell Terminal Ops Manager	Document No.: CD4190	Page: 58 of 69
Approved: 10/09/2021	Published: 11/09/2021	Periodic Due Date: 10/09/2026	Version: 2.0

Legacy ID: SD207187

Ampol Kurnell Terminal

Legal Register

The register provides a paraphrased summary of the relevant aspects of the legislation or guideline. In the event of an issue being relevant to a particular situation the exact wording within the legislation will be reviewed and the Ampol legal team and the Senior Environmental Specialist will be consulted. Italics indicate revisions to the register. Last updated 7 April 2020.

AIR

Document	Condition	Requirement
General		
Protection of the Environment Operations (POEO) Act 1997	115	Waste must not be wilfully or negligently disposed of in a manner that harms or is likely to harm the environment.
POEO Act 1997	116	Substances must not be caused to leak, spill or otherwise escape (whether or not from a container) in a manner that harms or is likely to harm the environment.
POEO Act 1997	124 - 126	Air pollution must not be caused by the occupier's failure to: <ul style="list-style-type: none"> maintain plant in an efficient condition operate or carry out maintenance work on the plant in a proper and efficient manner deal with materials in / on the premises in a proper and efficient manner.
POEO Act 1997	128	Activities and operation of plant must be conducted so that emissions of air impurities do not exceed any emissions concentrations or rates prescribed by regulations. If no rates or concentrations have been set, the activity / plant must be operated to prevent or minimise air pollution.
POEO Act 1997	129	Emission of offensive odour from premises where scheduled activities (Schedule 1) are carried on under a licence is an offence, unless the emission <ul style="list-style-type: none"> was in accordance with the licence; or only affected persons engaged in the management or operation of the premises
POEO (Clean Air) Regulation 2010	63	Large storage tanks (>150 kL) in the Sydney, Newcastle or Wollongong metro areas must be fitted with a drainage system under each water draw-off valve connected to a totally enclosed drain
POEO (Clean Air) Regulation 2010	63	Large storage tanks (>150 kL) in the Sydney, Newcastle or Wollongong metro areas must be fitted with <ul style="list-style-type: none"> a floating metal roof, floating cover or vapour disposal or recovery system (liquids with vapour pressure below 75 kilopascals) a vapour disposal or recovery system (liquids with vapour pressure above 75 kilopascals) The equipment must meet the specifications of the relevant parts of Reg 63.
POEO (Clean Air) Regulation 2010	64	Large loading plant (for loading >30 ML p/a) in the Sydney metro area must be fitted with <ul style="list-style-type: none"> vapour collection system interlock system on delivery points vapour-tight fittings on the connections between liquid / vapour lines and delivery tanks vapour recovery or disposal system The equipment must meet the specifications of the relevant parts of Reg 64.

Document	Condition	Requirement
POEO (Clean Air) Regulation 2010	65	<p>Small storage tanks (8-150 kL) in the Sydney metro area must be fitted with</p> <ul style="list-style-type: none"> vapour transfer system vapour-tight fittings on the connections between vapour lines and delivery tanks liquid-tight fittings on the connections between liquid lines and delivery tanks overfill protection system (for gravity filled tanks) pressure vacuum valves on all atmospheric vents on above ground tanks <p>The equipment must meet the specifications of the relevant parts of Reg 65.</p>
POEO (Clean Air) Regulation 2010	65	Hatches, manholes or other covers on small storage tanks (8-150 kL) in the Sydney metro area must not be opened except in an emergency, for tank gauging or sampling, or for maintenance.
POEO (Clean Air) Regulation 2010	66	<p>Loading of large tank vehicles (>12 kL) in the Sydney metro area must not be done unless the vehicle is fitted with</p> <ul style="list-style-type: none"> vapour handling system overfill protection device liquid-tight fittings on the connections between liquid transfer lines and tank vehicle hatch covers on any openings that are vapour-tight when closed pressure vacuum valves on all atmospheric vents <p>The equipment must meet the specifications of the relevant parts of Reg 66</p>
POEO (Clean Air) Regulation 2010	67	<p>Loading of large tank vehicles (>12 kL) in the Sydney metro area must not be done unless the vapour return hose is connected.</p> <p>Liquid hoses must be emptied before disconnection and hoses must be connected / disconnected to avoid spillage.</p> <p>Hatches, manholes or other covers on delivery tanks must not be left open.</p>
EPL 837*	L2.1, L2.2	<p>Discharge of pollutants to air must not exceed:</p> <ul style="list-style-type: none"> 6,000.00 kg Benzene 3,000,000.00 kg VOCs <p>assessed in accordance with the relevant load calculation protocol</p> <p>Testing methods for load limits must be comply with Condition M4.</p>
AS1940 – Storage & Handling of Flammable and Combustible Liquids	5.4	Tanks must be fitted with vents that meet the requirements of Section 5.4 appropriate to the type of fuel and type of tank.
NPI		
POEO (General) Regulation 2009	65, 67, 68	<p>Facilities which exceed relevant NPI thresholds in any reporting period (financial year) must provide the information listed in regulation 65 within 2 months of the end of that period.</p> <p>Calculations must be made using the methods described in Reg. 67, or by another method approved in writing by EPA.</p>
POEO (General) Regulation 2009	66	<p>Data used to determine if thresholds are triggered in any period must be retained for 4 years after the end of that period.</p> <p>Data used in emissions calculations must be retained for 4 years after submission.</p>
Ozone Depleting Substances		
POEO Act 1997	117	Controlled substances (as defined by the Ozone Protection Act 1989) must not be wilfully or negligently emitted into the atmosphere in contravention in a manner that is likely to harm the environment.

WATER

Document	Condition	Requirement
General		
POEO Act 1997	115	Waste must not be wilfully or negligently disposed of in a manner that harms or is likely to harm the environment.
POEO Act 1997	116	Substances must not be caused to leak, spill or otherwise escape (whether or not from a container) in a manner that harms or is likely to harm the environment.
POEO Act 1997	120	Waters must not be caused or permitted to be polluted.
Water Act 1912	21A	Discharging or allowing to be discharged the following into a river or lake is an offence: <ul style="list-style-type: none"> any noisome, noxious, poisonous or unwholesome matter, or any foul water, slop water or household waste water, refuse, garbage, sewage, sludge, slime, or solid refuse of any factory, manufacturing process, trade works or business any water or liquid proceeding from any factory, manufacturing process or business, charged with chemicals, sludge, slime, silt, soil or other matter as to render the water of the river or lake unfit for human consumption, domestic purposes, watering stock or irrigation
Marine Pollution Act 1987	25-27	Discharge of oil, oily mixture or liquid from a ship, apparatus or purpose-built pipeline during transfer operations is an offence. Note: this Regulation does not apply to releases on the landward side of the first isolating valve on land of the apparatus or pipeline. Note: The Banksmeadow pipeline is classified as a "purpose built pipeline" under the Act.
EPL 837*	P1.2, G2	An effluent quality and volume monitoring device must be located in wastewater treatment plant labelled '27' on drawing no 18588, EPL EPA Identification Points. The discharge point must be clearly marked by a sign that indicates the EPA point identification number.
EPL 837*	L3.1, L3.4	Water concentration limits from Discharge Point 2 must not exceed: <ul style="list-style-type: none"> Biological oxygen demand: 30 mg/L Oil and grease: 10 mg/L pH: 6.5 - 8.5 Total suspended solids: 50 mg/L (90 percentile concentration)
EPL 837*	M2.3, M3.1,	Monitoring of pollutants at points 15, 16, 27, 28 and 29 is to be conducted in accordance with Condition M2.2 and M3.1
EPL 837*	M7.1	In line instrumentation must be used to continuously monitor flow at Discharge Point 27 during discharge.
Wastewater Treatment		
EPL 837*	O6.2	All wastewater must be treated using the biotreater wastewater treatment plant or the oil/water separators and induced air flotation system prior to discharge at point 2 (Yena Gap).
EPL 837*	O6.3, O6.4, O6.5	Wastewater can bypass the biotreater wastewater treatment plant in accordance with the conditions listed in EPL O6.3 (points 1-5). Records must be kept when a bypass event has occurred.
Discharge to Sewer		
Sydney Water Act 1994	49	Discharge into Sydney Water Corporation works is prohibited except with the written agreement of the Corporation.

WATER / SOIL & GROUNDWATER

Document	Condition	Requirement
General		
POEO Act 1997	115	Waste must not be wilfully or negligently disposed of in a manner that harms or is likely to harm the environment.
POEO Act 1997	116	Substances must not be caused to leak, spill or otherwise escape (whether or not from a container) in a manner that harms or is likely to harm the environment.
Environmentally Hazardous Chemicals Act 1995	26	Conducting a prescribed activity in contravention of a chemical control order is an offence.
Work Health and Safety Regulations 2017	363, 379	Sufficient information, training and instruction must be given to persons who operate test, maintain or decommission system for the use, handling or storage of hazardous chemicals for the activity to be carried out safely.
AS1940 – Storage & Handling of Flammable and Combustible Liquids	3.2	Any installation for the storage and handling of flammable or combustible liquids must be designed and constructed so that it is safe and suitable for the conditions of use, including consideration of emergency situations.
AS1940 – Storage & Handling of Flammable and Combustible Liquids	5.2.1, 5.11	Storage tanks must be designed and constructed to comply with AS 1692. Above ground tanks must be installed and supported to the specifications in Section 5.11.
AS1940 – Storage & Handling of Flammable and Combustible Liquids	9.17.1	Tanks and fittings (including vents and valves) must be inspected and maintained regularly in accordance with Section 9.17.1.
AS1940 – Storage & Handling of Flammable and Combustible Liquids	9.17.2	Vertical bulk storage tanks must be inspected and tested in accordance with Table 9.1 and a permanent record of inspection and testing retained. Where defects are identified, the tank must not be operated until it is repaired, unless precautions to limit filling to a safe level are in place. Tank repairs must be in accordance with Section 9.17.2. Repaired tanks must be hydrostatically tested in accordance with AS 1692 before being returned to service.
AS1940 – Storage & Handling of Flammable and Combustible Liquids	9.16	Procedures for installation and maintenance of pipework must be established in accordance with Section 9.16.
AS1940 – Storage & Handling of Flammable and Combustible Liquids	9.11	Records of testing, maintenance, repairs, incidents, training and emergency drills must be retained as set out in Section 9.11.
AS1940 – Storage & Handling of Flammable and Combustible Liquids	9.14	Packaged liquids must be handled in a manner that will reduce the likelihood of spills and leaks
AS1940 – Storage & Handling of Flammable and Combustible Liquids	3.10	Transit storage of flammable and combustible liquids must be done in accordance with the requirements of Section 3.10.

Document	Condition	Requirement
API653 – Tank Inspection, Repair, Alteration, and Reconstruction	4 & 5	If a tank inspection shows a change from the original physical condition of a tank, an evaluation must be made to determine its suitability for continued use. Evaluations of tanks for continued service, for a change of service, or when making decisions involving repairs, alterations, dismantling, relocating, or reconstructing a tank must be in accordance with Sections 4&5 of API653.
API653 – Tank Inspection, Repair, Alteration, and Reconstruction	7, 8, 9	All new materials used for repair, alterations, or reconstruction of tanks must conform to current applicable tank standards (as set out in Section 7). Repairs and alterations to tank must be in accordance with Section 9 and API Std 650, and must be approved by an authorised inspector before commencement, during works and after completion. Reconstructed tanks must meet the standards in Section 8.
API653 – Tank Inspection, Repair, Alteration, and Reconstruction	10.1, 13.1	If welded tanks are to be relocated from their original site, it must be done in accordance with Section 10 of API 653. All reconstruction work must be authorized by the authorized inspector or an engineer experienced in storage tank design. A name plate meeting the requirements of Section 13.1 must be attached to the reconstructed tank.
API653 – Tank Inspection, Repair, Alteration, and Reconstruction	12.3, 12.4, 12.5	A full hydrostatic test, held for 24 hours, must be performed on <ul style="list-style-type: none"> • A reconstructed tank • Any tank that has undergone major repairs or alterations (unless exempted by Section 12.3.2) • Any tank where an engineering evaluation indicates the need due to an increase in the severity of service Where settlement is anticipated, the foundation of a tank receiving a hydrostatic test must be checked for settlement. New or altered reinforcing plates of shell penetrations must be given an air leak test in accordance with API Std 650.
API653 – Tank Inspection, Repair, Alteration, and Reconstruction	6.1-6.4, 12.1, 12.2	Periodic in-service inspection of tanks must be performed, with inspection intervals based on the factors in Section 6.2.1. External visual inspection of tank condition from the ground must be done at least monthly by competent personnel. If evidence of leaks, distortions, settlement, corrosion, or damage is identified, these should be documented for follow-up action by an authorized inspector. External inspection of tank condition by an authorized inspector must be done at least every 5 years (or more frequently in some cases). This may include ultrasonic thickness inspections. Internal inspection of tank condition by an authorized inspector must be done <ul style="list-style-type: none"> • at least every 10 years; or • at a frequency based on known corrosion rates from previous inspections (up to 20 years); or • at a frequency based on risk based assessment – the RA must be in accordance with Section 6.4 and be approved by an authorised inspector, with review and approval at least every 10 years. Where exterior tank bottom corrosion is controlled by a cathodic protection system, the system must be inspected periodically by competent personnel in accordance with API RP 651. Non-destructive examinations must be performed by suitably qualified personnel in accordance with API Std 650 and Section 12 of API 653.
Containment of Dangerous Goods & Hazardous Substances		
Work Health and Safety Regulations 2017	357	Provision must be made for spill containment that will, as far as practicable, contain within the workplace any hazardous chemical that spills or leaks, and any resulting effluent.
Work Health and Safety Regulations 2017	358	Containers of hazardous chemicals and any associated pipe work or attachments must be protected against damage caused by an impact or excessive loads.

Document	Condition	Requirement
Work Health and Safety Regulations 2017	363	Hazardous chemicals handling or storage systems must be: <ul style="list-style-type: none"> used only for purposes for which they were designed, manufactured, modified, supplied or installed; operated, tested, maintained, installed, repaired and decommissioned having regard to health and safety
Work Health and Safety Regulations 2017	364	Bulk containers for hazardous chemicals and any associated pipe work or attachments must have stable foundations and supports and must be secured to the foundations and supports to prevent any damage to the container, the associated pipe work or attachments.
Work Health and Safety Regulations 2017	365	Where a hazardous chemicals handling or storage system is no longer intended to be used, the system must be free of hazardous chemicals when it stops being used. If it is not reasonably practicable to remove the hazardous chemicals from the system, the system must be correctly labelled.
AS1940 – Storage & Handling of Flammable and Combustible Liquids	5.8, 5.9	Tanks must be provided with containment that meets the requirements of Section 5.8. Tanks with integral secondary containment must comply with AS 1692 and the requirements of Section 5.9.
AS1940 – Storage & Handling of Flammable and Combustible Liquids	4	Package stores must be provided with containment that meets the requirements of Section 4. Packages must not be stacked more than three high unless suitably secured or on purpose-built racking. Packages must be stored so that they cannot fall and cause spillage outside the compound.
AS1940 – Storage & Handling of Flammable and Combustible Liquids	9.2.10	Bunds must be maintained so as to retain their designated capacity and in a condition which will prevent the escape of liquid from the compound. For earthen bunds, original height markers must be checked regularly and the bund height maintained to those levels.
Controls on Transfer of Dangerous Goods		
Dangerous Goods (Road and Rail Transport) Regulations 2014	113	Bulk transfer of DG must not be done if the receiving receptacle or transfer equipment is incompatible with the DG or contains incompatible goods
Dangerous Goods (Road and Rail Transport) Regulations 2014	113	If DG leak, spill or accidentally escape during a bulk transfer, the person transferring the goods must: <ul style="list-style-type: none"> immediately stop the transfer; take all practicable steps to avert, eliminate or minimise risk; and not re-start the transfer until the cause of the leak, spill or escape has been rectified
Dangerous Goods (Road and Rail Transport) Regulations 2014	114	Occupiers of premises where a bulk transfer of DG occurs must ensure that any hose assembly used for the transfer has been constructed, assembled, maintained, inspected and tested in accordance with ADG Code Chapter 10.1.
Dangerous Goods (Road and Rail Transport) Regulations 2014	114	Occupiers of premises where a bulk transfer of DG occurs must ensure that the goods are transferred in a way that averts, eliminates or minimises risk, and in accordance with ADG Code Chapter 10.2.
Dangerous Goods (Road and Rail Transport) Regulations 2014	118	The ullage in any tank vehicle must comply with section 10.3.1 of the ADG Code.
AS1940 – Storage & Handling of Flammable and Combustible Liquids	5.3	Tank fill points must be designed and constructed to the specifications in Section 5.3. Tanks must be fitted with an appropriate gauge or monitoring system that meets the requirements of Section 5.3.3.

Document	Condition	Requirement
AS1940 – Storage & Handling of Flammable and Combustible Liquids	5.2.4, 6.1, 6.2	Pipework must be designed and constructed to the specifications in Sections 5.2.4, 6.1 and 6.2.
AS1940 – Storage & Handling of Flammable and Combustible Liquids	6.2.4	Transfer hoses and couplings must comply with AS 2683 and AS 3664
AS1940 – Storage & Handling of Flammable and Combustible Liquids	6.3	Valves and pumps must meet the requirements of Sections 6.3 / 6.4.
AS1940 – Storage & Handling of Flammable and Combustible Liquids	8.2	Tank vehicle filling areas must be contained in accordance with Section 8.2. Fuel flow rates must not exceed the values in Section 8.2.7. An emergency stop must be fitted to the pumps. For other tanks, inspection and maintenance procedures must be established in accordance with Section 9.17.3.
AS1940 – Storage & Handling of Flammable and Combustible Liquids	8.4, 9.18	Bottom filling facilities must be equipped in accordance with Section 8.4, including preset meters, automatic overfill protection on vehicle compartments, dry-break couplings and interlocks. Tank vehicles must be constructed specifically for the purpose and must meet the requirements of AS 2809.2 and AIP CP6 as appropriate. Bottom filling of tank vehicles must be done in accordance with Section 9.18.
AS1940 – Storage & Handling of Flammable and Combustible Liquids	7.2, 7.4	An emergency stop control must be provided for fuel dispensing operations. The control must be easily accessible, clearly identified and remote from the dispensing area. Fuel dispensing areas must be contained so that spilled liquid will flow away from any building and will not flow off the site. Delivery nozzles on fuel dispensers must meet the requirements of Section 7.4. Operating procedures for fuel dispensing must include the items in Section 7.6.2.
AS1940 – Storage & Handling of Flammable and Combustible Liquids	7.6	Inventory records of liquids received, stored and dispensed, must be maintained and reconciled. Where any discrepancy in records indicates possible leakage, the installation must be checked and any leaks found repaired.
Spill & Emergency Response		
Work Health and Safety Regulations 2017	43	An emergency plan must be prepared and maintained for the workplace that includes <ul style="list-style-type: none"> • emergency procedures, including emergency evacuation, notification, provision of medical assistance and communication; • testing of the emergency procedures, including the frequency of testing; and • information, training and instruction to relevant workers in relation to implementing the emergency procedures
Work Health and Safety Regulations 2017	360	Equipment must always be available at the workplace for use in an emergency.
Work Health and Safety Regulations 2017	361	A copy of the emergency plan must be provided to the emergency services.
EPL 837*	O4.1	The facility must have a current emergency response plan for potential incidents

Document	Condition	Requirement
AS1940 – Storage & Handling of Flammable and Combustible Liquids	9.4	Every endeavour must be made to prevent leaks or spills, and to control them if they do occur. Clean-up action must be initiated immediately. Sufficient and appropriate clean-up equipment, neutralizing or decontaminating, and absorbent materials must be kept at premises on which flammable or combustible liquids are kept or handled. Leaked or spilled liquids and used absorbents must be kept and disposed of in accordance with Section 12 and in compliance with local legislation.
AS1940 – Storage & Handling of Flammable and Combustible Liquids	9.4.3, 10.2.2	A detailed plan for combating emergencies that could occur on-site must be prepared and kept up to date. The plan must meet the requirements of Section 10.2.2, and should be developed in consultation with the emergency services and relevant regulatory authorities. The emergency plan should be implemented any time a leak or spill occurs, and the emergency services should be notified in the circumstances listed in Section 9.4.3.

SOIL & GROUNDWATER

Document	Condition	Requirement
General		
POEO Act 1997	115	Waste must not be wilfully or negligently disposed of in a manner that harms or is likely to harm the environment.
POEO Act 1997	116	Substances must not be caused to leak, spill or otherwise escape (whether or not from a container) in a manner that harms or is likely to harm the environment.
POEO Act 1997	142A	Pollution of land is an offence.
EPL 837*	P1.2, G2	Groundwater monitoring points must be located at points identified in the EPL (Points 15, 16, 28 and 29). Each point must be clearly marked by a sign that indicates the EPA point identification number.
Underground Storage Tanks		
Work Health and Safety Regulations 2017	366	Where a system for handling or storage of hazardous chemicals underground, is no longer intended to be used the system must be removed. If it is not reasonably practicable to remove the system, the system must be without risks to health and safety, as far as is reasonable practicable.
Work Health and Safety Regulations 2017	367	Where a system for handling or storage of hazardous chemicals underground, is abandoned (not used for flammable liquid or gas storage for > 2 years and not intended for re-use), the regulator must be notified of the abandonment on the tank.
AS1940 – Storage & Handling of Flammable and Combustible Liquids	5.12	Underground tanks must be protected from corrosion by means of protective coatings or wrappings, by cathodic protection, or by use of corrosion-resistant construction materials.
Management of Contaminated Land & Groundwater		
Contaminated Land Management Act 1997	28	Failure to comply with an ongoing maintenance order for contaminated land is an offence.

Document	Condition	Requirement
Contaminated Land Management Act 1997	60	<p>If activities have contaminated land the EPA must be notified of the following, in writing, as soon as practicable:</p> <ul style="list-style-type: none"> the location the activities that have contaminated the land the nature of the contamination the nature of the risk posed by the contamination <p>The requirement to notify applies to both a person who has contaminated the land or the owner of the land even if contamination predates their ownership.</p>

WATER USE

Document	Condition	Requirement
Water Act 1912	112	Bores must not be commenced, enlarged, deepened, or altered unless in accordance with an appropriate licence.

WASTE

Document	Condition	Requirement
General		
POEO Act 1997	143	Waste must not be transported / permitted to be transported to a place that cannot lawfully be used as a waste facility for that waste.
POEO Act 1997	145	Waste must not be discharged into a public place or an open private place.
POEO (Waste) Regulation 2014	41, 43, 54	Waste of types listed in Schedule 1 must not be consigned for transport and disposal unless a consignment authorisation has been obtained. A completed waste transport certificate (WTC) must be provided to the waste transporter. Consignment authorisations and WTC must be retained for at least 4 years.
POEO (Waste) Regulation 2014	65, 68	If non-hazardous, solid waste is transported interstate for disposal from the metropolitan levy area, the information in Reg 68 must be provided to EPA within 3 days after the transportation of the waste commences.
POEO (Waste) Regulation 2014	67	Waste must not transported to an interstate waste facility unless the facility can lawfully receive waste of the type concerned.
POEO (Waste) Regulation 2014	76	If waste tyres are consigned for disposal, the information in Part 6 must be provided to EPA.
POEO (Waste) Regulation 2014	79, 80	If asbestos waste is consigned for disposal, the information in Part 7 must be provided to EPA. Asbestos waste must only be disposed of at a landfill site that can lawfully receive the waste.
POEO (Waste) Regulation 2014	84-89	Packaging materials must be recovered and reused or recycled where practicable in accordance with any applicable recovery targets under either the regulations or the Australian Packaging Covenant. A waste action plan must be prepared and the records required by Reg 89 retained for at least 5 years.
POEO (Waste) Regulation 2014	112	If waste is stored on premises (whether or not the waste was generated on the premises) it must be stored in an environmentally safe manner.

Document	Condition	Requirement
EPL 837*	L4.1, L4.2, L4.3, L4.4	Waste generated on or outside the premises must not be stored, treated, or disposed at the premises unless authorised.
EPL 837*	L4.5	Petroleum product mixtures (slops) from Ampol Sydney Terminal (Banksmeadow) may be received via pipeline.
EPL 837*	O1.1	Activities including handling and storage of materials and wastes must be done in a competent manner.
EPL 837*	O5.1, O5.2	Any liquid or non-liquid waste is to be assessed and classified in accordance with EPA Waste Classification Guidelines. Recyclable waste must be stored separately from other waste.
AS1940 – Storage & Handling of Flammable and Combustible Liquids	12.2, 12.4	Facilities must be in place for storage of wastes and contaminated items. These facilities must comply with the same requirements as stores for other flammable and combustible liquids. Wastes should be handled with the same precautions as apply for flammable liquids.
AS1940 – Storage & Handling of Flammable and Combustible Liquids	12.4	Waste flammable liquids and contaminated solids must be stored in accordance with Section 12.4. Wastes should not be allowed to accumulate, but should be removed by a specialist hazardous waste disposal contractor.

NOISE

Document	Condition	Requirement
POEO Act 1997	139	Noise pollution must not be caused by the occupier's failure to: <ul style="list-style-type: none"> maintain the plant in an efficient condition operate the plant in a proper and efficient manner deal with materials in /on the premises in a proper and efficient manner.
EPL 837*	L5.1, L5.2	Noise must not exceed: <ul style="list-style-type: none"> An LAeq(15 minute) noise emission criterion of 60dB(A) (7:00am to 6:00pm) seven days a week; and An LAeq(15 minute) noise emission criterion of 50dB(A) at all other times, and An LMax noise emission criterion of 55dB(A) (10:00pm to 7:00am) except as expressly provided by this licence. Noise is to be measured at any point within one metre of any affected residence and 5dB(A) is to be added if the noise is tonal or impulsive.

NUISANCE

Document	Condition	Requirement
EPL 837*	M5.1 – M5.4	A record of complaints, including the information in Condition M5.2, must be kept for at least 4 years.
EPL 837*	M6.1-M6.3	The licensee must provide a telephone complaints line and notify the public of its existence.
EPL 837*	L6.1	Offensive odour must not be emitted beyond the boundary of the premises.

DEVELOPMENT

Document	Condition	Requirement
Flora & Fauna		
<i>Biodiversity Conservation Act 2016</i>	2.1	<i>Harming or attempting to harm, a threatened species, endangered ecological community or protected animal is prohibited.</i>
<i>Biodiversity Conservation Act 2016</i>	2.2	<i>Picking any plant that is, or is part of, a threatened species, endangered ecological community or protected plant is prohibited.</i>
<i>Biodiversity Conservation Act 2016</i>	2.3	<i>A person must not damage a declared area of outstanding biodiversity value.</i>
<i>Biodiversity Conservation Act 2016</i>	2.4	<i>A person must not damage any habitat of a threatened species or threatened ecological community if the person knows that the habitat concerned is habitat of that kind.</i>
<i>Biosecurity Act 2015</i>	21	<i>A biosecurity risk must be minimised, prevented or eliminated on the land.</i>
<i>Biosecurity Act 2015</i>	30, 36, 38	<i>The presence of prohibited matter, biosecurity matter and event must be notified in accordance with the requirements of the Biosecurity Regulation 2017.</i>
<i>Local Land Services Act 2013</i>	60N, 60O, 60S, 60X, Sch 5A	<i>Native vegetation must not be cleared except in accordance with an approval issued under the Act or an allowable activity under Schedule 5A of the Act.</i>
Animal Disease and Animal Pests (Emergency Outbreaks) Act 1991 Control (Red Imported Fire Ant) 2014	27L	Movement of Red Imported Fire Ants, nesting material (soil, turf, grass or other organic matter) and/or machinery into, within or out of Control Area (includes the Terminal) is prohibited unless the treatment measures listed in Schedule 1 of the Order are met.
Heritage		
Heritage Act 1977	57	A place, building, work, relic, moveable object, precinct, or land, listed on the State Heritage Register, must not be damaged, moved, altered, or compromised by development, without approval from the Heritage Council of NSW.
National Parks and Wildlife Act 1974	86, 89A	A person must not harm or desecrate an Aboriginal object or place. If an Aboriginal object is identified, the regulator must be notified.

LICENSING

Document	Condition	Requirement
POEO Act 1997	47-48	Scheduled Activities (as defined by Schedule 1 of the Act) must not be conducted without an environmental protection licence (EPL). Any change which causes the facility to become, or become capable of being, a Scheduled Activity must not be made, unless an EPL has been granted.
POEO Act 1997	64	Breach of any condition of an EPL is an offence.
POEO Act 1997	86	Failure to comply with a notice of breach of licensing requirements is an offence.
POEO Act 1997	91, 97, 102	Breach of a clean-up notice, environmental protection notice or prohibition notice is an offence.
Environmentally Hazardous Chemicals Act 1995	32	Failure to comply with a licence for an environmentally hazardous chemical of declared chemical waste is an offence.
Environmental Planning and Assessment Act 1979	4.2	If an environmental planning instrument requires development consent for any development, the development must not be carried out except in accordance with such a consent.
EPL 837*	A1.1	Chemical storage waste generation onsite must not exceed >100 T annual volume.
EPL 837*	A1.1	Chemical storage of petroleum products onsite must not exceed >100,000 kL.
EPL 837*	A1.1	Shipping in bulk must not exceed >500,000 T loaded and unloaded.

PIPELINES

Document	Condition	Requirement
Work Health and Safety Regulations 2017	389	The owner of a pipeline used to transfer hazardous chemicals must <ul style="list-style-type: none"> manage risks associated with the transfer of the hazardous chemicals through that pipeline; and ensure that activities, structures, equipment or substances that are not part of the pipeline do not affect the hazardous chemicals or the pipeline in any way that increases risk.
Work Health and Safety Regulations 2017	391	The operator of a pipeline used to transfer hazardous chemicals must <ul style="list-style-type: none"> manage risks associated with the transfer of the hazardous chemicals through that pipeline; and so far as is reasonably practicable, ensure that the hazardous chemical is identified by a label, sign or another way on or near the pipeline.

ADMINISTRATION & REPORTING

Document	Condition	Requirement
General		
POEO Act 1997	147, 148, 150	If material environmental harm from pollution is caused or threatened, each relevant authority must be notified verbally immediately and in writing within 7 days of the incident occurring.

Document	Condition	Requirement
POEO (General) Regulation 2009	101	The notification must include the information listed in Section 150 Material environmental harm is defined as actual or potential <ul style="list-style-type: none"> non-trivial harm to the health or safety of humans or ecosystems, or loss or property damage exceeding \$10,000 This requirement does not apply to odour emissions.
POEO Act 1997 POEO (General) Regulation 2009	148(8), 153A 98C	The holder of an environment protection licence must prepare a pollution incident response management plan (PIRMP). The PIRMP must include the following: <ul style="list-style-type: none"> procedures for notification of a pollution incident to nearby premises, the local authority and any other relevant authority (Section 148(8)) detailed description of actions to be taken immediately after a pollution incident to reduce or control any pollution, procedures for co-ordinating pollution control actions with the authorities or persons that have been notified and, in particular, the persons through whom all communications are to be made, the information listed in Reg. 98C
POEO Act 1997 POEO (General) Regulation 2009	153D 98D	The PIRMP must be kept at the premises to which the relevant environment protection licence relates, or where the relevant activity takes place. The PIRMP must be made publicly available within 14 days after it is prepared on a publicly accessible website of the person who is required to prepare the plan.
POEO Act 1997 POEO (General) Regulation 2009	153E 98E	The PIRMP must be tested at least every 12 months, or within 1 month of any pollution incident.
POEO Act 1997	153F	If a pollution incident occurs so that material harm to the environment is caused or threatened, the PIRMP must be immediately implemented.
Marine Pollution Act 1987	28	If a discharge of oil, oily mixture or liquid occurs from a ship, apparatus or purpose-built pipeline during transfer operations, the Minister must be notified immediately, with a written report if requested.
EPL 837*	O2.1, O3.1	Plant and equipment must be maintained in a proper and efficient condition and operated in a proper manner. The premises is to be maintained to minimise or prevent dust emissions from the premises.
EPL 837*	M1.1, M1.2	Monitoring results must be retained for at least 4 years
EPL 837*	M1.3	Details of any samples taken must be recorded as set out in condition M1.3
EPL 837*	R1.1 – R1.8	An annual return document must be submitted to EPA.
EPL 837*	R2.1, R2.2	All relevant authorities must be notified of incidents causing or threatening material harm to the environment. Notifications must be made by telephoning the Environment Line service on 131 555, with written details within 7 days of the date on which the incident occurred.
EPL 837*	E2.1	The Ampol Kurnell Terminal - PFAS Action Plan, Aug 2017 must be implemented. Monitoring is to be carried out in accordance with the Plan. A report on the progress of the Plan must be submitted to the EPA.
Underground Storage Tanks		
Work Health and Safety Act 2017	35-38	WorkCover must be notified immediately if an uncontrolled escape, spillage or leakage of a substance has occurred. A record of each incident must be retained for at least 5 years.

Document	Condition	Requirement
Work Health and Safety Regulations 2017	367	A person must notify the regulator of the abandonment of any underground tank that was used to store flammable gases or flammable liquids as soon as practicable after the tank is abandoned (has not been used to store flammable gases or flammable liquids for 2 years and is not intended for such use again).
AS1940 – Storage & Handling of Flammable and Combustible Liquids	9.3	Safe systems of work must be developed, documented and implemented, including procedures for operation and maintenance of the facility and for emergency situations. The procedures must cover the topics listed in Section 9.3.
AS1940 – Storage & Handling of Flammable and Combustible Liquids	9.10	All personnel employed on the premises, including contractors, must be trained in accordance with Section 9.10.
API653 – Tank Inspection, Repair, Alteration, and Reconstruction	6.8, 6.9, 13.2, 13.3	Records must be retained of tank construction, inspections, repairs and alterations. Reports of inspections and recommending repairs must include the information in Section 6.9. When a tank is evaluated, repaired, altered, or reconstructed in accordance with API 653, the information listed in Section 13.2 and 13.3 must be retained.

HAZARDOUS SUBSTANCES

Document	Condition	Requirement
Asbestos		
Work Health and Safety Regulations 2017	420, 422, 424, 425-430	All asbestos containing material (ACM) must be identified by a competent person. An asbestos register and management plan must be prepared and kept up to date, with review at least 5 yearly. The asbestos register must be accessible to persons carrying out works that involve a risk of exposure to airborne asbestos. Identified asbestos must be clearly indicated, if practicable by a label. The risk of exposure to airborne asbestos must be eliminated, or (if not reasonably practical) minimised as far as reasonably practical.
PCBs		
<i>Polychlorinated Biphenyl (PCB) Chemical Control Order 1997</i>	6	<i>All PCB materials or PCB waste must be kept in accordance with the chemical control order.</i>

PENALTIES

Offences under the legislation listed can attract the following penalties.

Act / Regulation	Section(s)	Penalty
Marine Pollution Act 1987	25-27	<ul style="list-style-type: none"> Corporations – up to \$10,000,000 Individuals – up to \$250,000
Protection of the Environment Operations Act 1997	Wilful discharges	<ul style="list-style-type: none"> Corporations – up to \$5,000,000 Individuals – up to \$1,000,000 or 7 years' imprisonment
	Negligent discharges	<ul style="list-style-type: none"> Corporations – up to \$2,000,000 Individuals – up to \$500,000 or 4 years' imprisonment
	Other offences	<ul style="list-style-type: none"> Corporations – up to \$1,000,000 plus \$120,000 per day for continuing offences Individuals – up to \$250,000 plus \$60,000 per day for continuing offences
Contaminated Land Management Act 1997	60	<ul style="list-style-type: none"> Individuals - \$250,000 and a further penalty of \$33,000 for each day the offence continues Corporations - \$1,000,000 and a further \$77,000 for each day the offence continues
Work Health and Safety Regulations 2017	Any	<ul style="list-style-type: none"> Body corporate – \$30,000 Individuals – \$6,000
Heritage Act 1977	Any	<ul style="list-style-type: none"> Up to 10,000 penalty units or up to 6 months imprisonment
National Parks and Wildlife Act 1974	Any	<ul style="list-style-type: none"> Up to 2,000 penalty units and/or imprisonment for 2 years or both, plus additional penalty units in respect of each animal or plant that is harmed
Biodiversity Conservation Act 2016	2.1-2.4	<ul style="list-style-type: none"> Tier 1 monetary penalty or imprisonment for 2 years, or both
Protection of the Environment Operations (Clean Air) Regulations 2010	Any	<ul style="list-style-type: none"> Body corporate – Up to 400 penalty units Individuals – Up to 200 penalty units
Offences against other legislation listed	-	<ul style="list-style-type: none"> Up to 1,000 penalty units, depending on the nature and severity of the offence. Some corporate offences also attract executive liability for a director or other person involved in the management of the corporation

*As part of the 2020 review, AECOM was provided with a copy of the NSW EPA Environment Protection Licence - 837, dated 12 April 2019. This licence was reviewed as part of the 2020 update. Ampol advised that there were no changes to other permits, approvals or licences for the Kurnell Terminal and so other permits, approvals or licences were not provided to AECOM for review. The Kurnell Terminal legal register was updated into a new format to be consistent with the other sites, as requested by Ampol.



Division	Fuels and Infrastructure
Type	Plan
Title	Operational Environmental Management Plan Kurnell Terminal

Appendix E: Ampol Integrated Risk Prioritisation Matrix

Electronically Controlled Document. Refer to online document for current version.			
Custodian: Amanda Basten	Owner: Kurnell Terminal Ops Manager	Document No.: CD4190	Page: 59 of 69
Approved: 10/09/2021	Published: 11/09/2021	Periodic Due Date: 10/09/2026	Version: 2.0

Legacy ID: SD207187



For the Assessment of Health, Safety, Environmental, Regulatory, Public Perception and Asset Risks For an Event or Activity

This matrix is issued for use for Ampol Manufacturing. It is not a substitute for any relevant legal obligations. This matrix identifies health, safety, environmental, public perception, regulatory and asset risks and is to be used only by qualified, authorised and competent personnel. Every scenario must capture the highest ranking out of health, safety, environmental and regulatory risks and separately capture reputation or asset risks as appropriate. This matrix should not be used solely to justify mitigating asset and/or public perception risks if there is no health, safety, environment or regulatory impact.

Table 1: Further Guidance To Aid Team Calibration On Likelihood

Likelihood Index	Likelihood Description	Guidance Notes
Likely	Event can reasonably be expected to occur at the Facility during its lifetime; OR There are no effective safeguards in place or existing safeguards have a high likelihood of failure.	Any of the following may also apply to the Event being considered: (i) This Event has occurred previously within the Facility; (ii) The probability of the Event occurring in the remaining life of the facility is assessed as >50%.
Occasional	Conditions may allow the Event to occur at the Facility during its lifetime; OR There are significant deficiencies in safeguards.	Any of the following may also apply to the Event being considered: (i) The Event has occurred previously at Ampol; (ii) The probability of the Event, occurring in the remaining life of the Facility is assessed as ~ 10%.
Seldom	Exceptional conditions may allow the Event to occur within the Facility during its lifetime; OR There are some deficiencies in safeguards to prevent the initiating event from occurring.	Any of the following may also apply to the Event being considered: (i) There is evidence that the initiating Event has occurred previously within Ampol, (ii) This Event has occurred several times within Industry; (iii) The probability of the Event, occurring in the remaining life of the facility is assessed as ~1%.
Unlikely	Reasonable to expect that the event will not occur at the Facility during its lifetime; OR Several robust safeguards exist to prevent the initiating Event from occurring.	This Event has occurred within Industry, but not at Ampol.
Remote	Has occurred once or twice within Industry.	Only one or two cases of a similar Event occurring are known of and these have not occurred at Ampol facilities.
Rare	Rare or unheard of; OR The event type is barely credible, with members often questioning the validity for inclusion.	A thorough review of incident history for the industry reveals no known history of the Event type.

Note: Likelihood descriptors and probabilities are based on guidance within the Ampol Distribution Environmental Sensitivity Ranking and Site Prioritisation Tool Standard_CD6849 and Hazard Identification, Risk Assessment and Control Measures Standard_CD3161. These documents is located in Ampol Doco

Table 2: Further Guidance To Aid Team Calibration On Risk Rank (for HSE risks)

Risk Level	Supporting Statements To Test The Level of Determined Risk Rank	Accountability for Accepting Ongoing Risk of Activity and Mitigation Plan
Risk Rank 3	<ul style="list-style-type: none">- Study team will almost certainly recommend immediate short term action to mitigate the risk.- Generally this determination will have come about due to a significant revelation in the potential consequence or detection of a significant defect in controls (e.g. non-functional process trip). <p>If a risk rank 3 item has been identified:</p> <ul style="list-style-type: none">- Inform GM Distribution (or authorised delegate) immediately of the risk.- Appropriate treatment may include shut down of the process until the risk is rectified or treated.	EGM Fuels & Infrastructure
Risk Rank 4	<ul style="list-style-type: none">- For ‘Major’ consequence events a risk rank 4 typically means that 2 layers of protection which would normally be expected are absent or poorly maintained.- For a risk rank 4, the study team will generally feel that although the event + consequence is not imminent, they are uncomfortable with taking no action in the short term.- It would be appropriate that resource be immediately directed to planning the implementation of the short term interim risk mitigation as soon as reasonably practicable. This may involve un-budgeted break- in work. <p>If a risk rank 4 item has been identified:</p> <ul style="list-style-type: none">- Inform GM Distribution (or authorised delegate) immediately of the risk.- Short- term actions should be implemented as soon as reasonably practicable and not more than six months after identification of the risk. The goal of interim risk reduction should be to implement all reasonable risk reduction measures to reduce risk below elevated levels as soon as practicable.	GM Distribution
Risk Rank 5	<ul style="list-style-type: none">- A single safeguard is absent or poorly maintained. Other safeguards are in place & effective.- The team feels that the compromised safeguard should be repaired as soon as reasonably practicable. This may be at the next shutdown or maintenance period. <p>If a risk rank 5 item has been identified:</p> <ul style="list-style-type: none">- Inform Asset Owner of the risk.- Action to reduce the risk to at least a risk rank 6 would be expected within the maintenance cycle (e.g. the next scheduled shutdown or maintenance period), or in any event, within 5 years of identification.- GM Distribution approval is required if the risk is not planned to be mitigated to risk rank 6 or lower.	Asset Owner
Risk Rank 6	<p>Typical safeguards are in place and well managed. The team does not see need for further risk reduction in order to continue safe operations. Recommendation will normally be obvious & low cost.</p> <p>If a risk rank 6 item has been identified:</p> <ul style="list-style-type: none">- The existing safeguards should be confirmed to be in place and should be subject to ongoing verification.- Reduce risk so far as reasonably practicable by identifying and implementing obvious, low cost risk reductions.	Asset Owner
Risk Rank 7-10	<p>Typical safeguards are in place and well managed. There is a good level of understanding about the risk with relevant personnel.</p> <p>If a risk rank 7-10 item has been identified:</p> <ul style="list-style-type: none">- There is no need for further risk reduction in order to continue safe operations.- Continue to monitor critical controls and validity of assumptions. Undertake periodic review as required.	Asset Owner

Note: Risk descriptions are based on guidance within the Ampol Distribution Environmental Sensitivity Ranking and Site Prioritisation Tool Standard_CD6849 and Hazard Identification, Risk Assessment and Control Measures Standard_CD3161. These documents is located in Ampol Doco.



Division	Fuels and Infrastructure
Type	Plan
Title	Operational Environmental Management Plan Kurnell Terminal

Appendix F: Facility Environmental Risk Register

Electronically Controlled Document. Refer to online document for current version.			
Custodian: Amanda Basten	Owner: Kurnell Terminal Ops Manager	Document No.: CD4190	Page: 60 of 69
Approved: 10/09/2021	Published: 11/09/2021	Periodic Due Date: 10/09/2026	Version: 2.0

Legacy ID: SD207187



Environmental Aspects Register for Terminals - Kurnell Site - August 2021

Sl#	Register ID No.	Activity	Aspect	Impact	Existing Control and Mitigation Measures (Identify Critical Controls [CC])						Improvement Plan/Corrective Action Reference	Procedural Reference and Related Records
					Control	Legal Requirements	Consequence	Likelihood	Risk Ranking	Signposted		
1	Pipeways Issue 1	Wharf gate to tankage - product pipeline - above ground, mainly over unsealed ground and also pipeline underground Also includes use of flexible hoses and associated concerns.	Leaks from valves, flanges, holes, corrosion, nipples. Reference incident LI 618814 Spill of product to pipeways (Reference incidents: LI319330, 14/01/12, 16/01/12, incident LI335562, 11/11/12)	Leak of product to soil/groundwater contamination or to grade, potential leak to stormwater, potential odour complaint, licence non-compliance. Waste cleanup and disposal costs.	Regular checking of tanks once a shift by operators in conjunction with planned M7 operator planned inspections that are recorded as e-shift logs. DCS allows for the monitoring of the tanks. Contaminated stormwater in Pipeway A travels through a separator and can be stopped in the Stormwater Retention Basin. Contaminated Stormwater in the Main Pipeway can be stopped by the Gate 5 shutter that can be closed. Monthly Maintenance Meeting (MMM) is held monthly with participation from Maintenance, Operations, Engineering Services and other support Departments - review of inspection calendar requirements, M7 7 M8's, reliability threats and detected Leaks will be reviewed and actions prioritized appropriately. Clean up crews on call as required. Risk based) line repair program in place (prioritised list of lines based on LOC risk at MMM or earlier). The philosophy is to remove the need for Clamps and where issues are identified, they will be managed as actions arising out of M8's.	1,17,18,19,20,4,22,27,32,37,39,51,52,64,75	5 Minor	1 Likely	5			EPL No.837 – L1 Pollution of Waters EPL No.837 – L6 Potentially offensive odour
2	Pipeways Issue 2	Isolation of pipeline for maintenance	Isolation not conducted correctly or failure of a valve or blind (LI323655)	Soil and groundwater contamination. Release to stormwater and Botany Bay or Quibray Bay. Licence non-compliance. Waste cleanup and disposal costs	Written procedure, marked-up P&ID and isolation certificate prepared by Terminal Operations Specialist for line isolations (in preparation for maintenance or other) in accordance with new Isolation Standard implemented in 2013. All drains and vents should be plugged prior to or during commissioning. General operator surveillance. Contaminated stormwater in Pipeway A travels through a separator and can be stopped in the Stormwater Retention Basin. Contaminated Stormwater in the Main Pipeway travels through siphons and can be stopped by the Gate 5 shutter that can be closed. Clean up crew are on call as required.	1,4,17,18,19,20,22,27,32,37,39,45,46,51,52,64	5 Minor	3 Seldom	7			EPL No.837 – L1 Pollution of Waters EPL No.837 – L6 Potentially offensive odour
3	Pipeways Issue 3	Leak in bleeder nipple	Product leaking to bund, potential for odours developing	Community complaints, soil and groundwater contamination.	Regular checking of tanks once a shift by operators in conjunction with planned M7 operator planned inspections that are recorded as e-shift logs. If leaks are identified they will be fixed through M8 Notifications. Clean up crews are "on call" as required.	1,17,18,19,20,4,22,27,32,37,38,39,51,52,64	6 Incidental	2 Occasional	7			EPL No.837 – L1 Pollution of Waters EPL No.837 – L6 Potentially offensive odour
4	Pipeways Issue 4	Five sub - pipelines under Botany Bay - Bumborah Point	Leaks from flanges, holes, corrosion, and nipples	Contamination of Botany Bay, flora and fauna impacts, non-compliance with Marine Pollution Act or POEO Act, soil/groundwater contamination, potential reputation/business impacts for offsite locations.	Inspected externally in Pipeways and in Wharf where visible. Periodic Inspection by Grey Diving Contractors (Divers check under bay). Intelligent pigging at regular intervals. Pigging of these lines completed in 2014.	1,17,18,19,20,39,4,22,27,32,37,45,46,51,52,64,7	3 Major	4 Unlikely	6	D		EPL No.837 – L1 Pollution of Waters EPL No.837 – L6 Potentially offensive odour
5	Pipeways Issue 5	Continuation of Five sub-pipelines on land to Banksmeadow Terminal or to the airport (JUHI).	Leaks from valves, flanges, holes, corrosion, nipples, pumps	Land Contamination, non-compliance with the POEO Act, potential reputation/business impacts for offsite locations.	Inspected externally in Pipeways. Leak detection on lines . The lines are designed to shut the system if there is a leak through the use of valves and instrumentation. Reliability inspections.	1,17,18,19,20,39,4,22,27,32,37,45,46,51,52,64,8	3 Major	4 Unlikely	6	D		EPL No.837 – L1 Pollution of Waters EPL No.837 – L6 Potentially offensive odour
6	Terminal Tankfarm Issue 1	Liquid finished product (ie diesel, gasolines, fuel oils) pipelines to and from Gate 5 to tankage and between tanks, mainly above ground This includes transferring, back loading and regrading/blending	Leaks from valves, flanges, holes, corrosion to grade or underground. Ref LI 617860 & LI 629646	Soil / groundwater contamination, potential leak to stormwater, potential odour complaint, Licence non-compliance	Regular checking of tanks once a shift by operators in conjunction with planned M7 operator planned inspections that are recorded as e-shift logs. DCS allows for the monitoring of the tanks. Contaminated stormwater in Pipeway A travels through a separator and can be stopped in the Stormwater Retention Basin. Contaminated Stormwater in the Main Pipeway can be stopped by the Gate 5 shutter that can be closed. Monthly Maintenance Meeting (MMM) is held monthly with participation from Maintenance, Operations, Engineering Services and other support Departments - review of inspection calendar requirements, M7 7 M8's, reliability threats and detected Leaks will be reviewed and actions prioritized appropriately. Clean up crews on call as required. Risk based line repair program in place (prioritised list of lines based on LOC risk at MMM or earlier). The philosophy is to remove the need for Clamps and where issues are identified, they will be managed as actions arising out of M8's.	1,17,18,19,20,4,22,27,32,37,38,39,64,75,51,52	5 Minor	2 Occasional	6			EPL No.837 – L1 Pollution of Waters EPL No.837 – L6 Potentially offensive odour
7	Terminal Tankfarm Issue 2	Degassing tanks when taking tank out for maintenance	Discharge to atmosphere of hydrocarbons when degassing (3 or 4 times a year). Fire if an ignition source	Discharge to atmosphere of hydrocarbons, fire/explosion, odour complaints	Wind direction checks. Earthed equipment. Compressors have spark arrestors and located upwind. Common procedures for all tank types for removing tanks from service for maintenance.	1,2,3,14,17,18,19,21,4,22,27,37,38,39,51,52,62,75,76	6 Incidental	1 Likely	6			SD202769:Safe Entry Cleaning Of Petroleum Storage Tanks Procedure Kurnell Terminal - Section 8. EPL No.837 – L6 Potentially offensive odour

Sl#	Register ID No.	Activity	Aspect	Impact	Existing Control and Mitigation Measures (identify Critical Controls [CC])						Improvement Plan/Corrective Action Reference	Procedural Reference and Related Records
					Control	Legal Requirements	Consequence	Likelihood	Risk Ranking	Signposted		
8	Terminal Tankfarm Issue 3	Floor leak on tank	Product leaking to bund, potential for odours developing	Community complaints, upset OWS, soil and groundwater contamination	Tank inspection and repair program (risk based T&I intervals). Leak detection system on some tanks	1,17,18,19,20,4,22,27,32,37,38,39,51,52,64,75	6 Incidental	1 Likely	6			EPL No.837 – L6 Potentially offensive odour
9	Terminal Tankfarm Issue 4	Sample point left open	Product leaking to bund, potential for odours developing	Community complaints, upset OWS, soil and groundwater contamination	Operating procedures. LPO's. Regular checking of tanks once a shift by operators in conjunction with planned M8 operator planned inspections that are recorded as e-shift log. Gas detection systems in some tank compounds.	1,17,18,19,20,4,22,32,37,38,39,51,52,64	6 Incidental	1 Likely	6	D		SD202755:General Operations Procedure Kurnell Terminal EPL No.837 – L6 Potentially offensive odour
10	Terminal Tankfarm Issue 5	Storage in approx 50 tanks (some with floating roofs)	Tank rupture, floating roof failure, roof drain failure, water draw valve left open, many bund sewers are common (no individual isolation).	Discharge into soil bund, odour complaints, licence non-compliance, can go to OWS, fire/explosion, spread of fire through OWS.	High and low tank level alarms. Bunds. Manual isolation valves outside bunds. Regular checking of tanks once a shift by operators in conjunction with planned M7 operator planned inspections that are recorded as e-shift log. Tank T&Is. Operating procedures for water drawing. Emergency fire fighting equipment and procedures for each tank are in place. Bund Sewers were upgraded as part of the conversion project. Procedure in place. Reduction of emissions from gasoline tanks by installing guidepole sleeves and roof legs socks	1,17,18,19,20,4,22,27,33,37,38,39,64,75	6 Incidental	1 Likely	6	D	Continue implementation of PRP U1.2 the Tank Sleeve Program	SD202755:General Operations Procedure Kurnell Terminal SD103339: Water Draining of Storage Tanks Work Instruction Kurnell Terminal EPL No.837 – L6 Potentially offensive odour
11	Terminal Tankfarm Issue 6	Water drawing of tanks (Jet, Gasoline, Diesel) on site	Potential for odour release from product during water draw tasks	Community odour complaints, Licence non-compliance	Wind direction observation by operator with delay for better wind conditions (from the northern direction preferable) where possible. Generic procedures for all tank types - some specific to KNT supported by National procedures, training, task analysis, etc. Refer to: Kurnell Specific: Water Draining of Tanks Assessment Kurnell Terminal - CD2464 KNT Water Draining of Storage Tanks Work Instruction - CD2433 KNT Jet Fuel Fast Flush WI - CD2065 National: Water Draining of Storage Tanks by Gravity Procedure - CD2207 Water Draining Tanks using Fast Three Monthly - CD2570 Water Draining of Tanks using Fast Flush Assessment - CD2054 Water Draining of Tanks using Fast Flush Task Analysis - CD2184 Water Draining of Tanks using Fast Flush Training Package - CD2053 Water Draining of Tanks using Fast Flush Procedure - CD2191 Jet Fuel Fast Flush Procedure - CD2052 Water Draining of Storage Tanks using Temporary Hoses Procedure - CD2198 Jet Fuel Fast Flush Procedure Task Analysis - CD2051	27,38,62	6 Incidental	1 Likely	6			SD202755:General Operations Procedure Kurnell Terminal SD103339: Water Draining of Storage Tanks Work Instruction Kurnell Terminal EPL No.837 – L6 Potentially offensive odour
12	Terminal Tankfarm Issue 7	Storage in tanks with mixers/also use drums to collect leaks	Mixer leaks	Discharge of product into bund, Fire/explosion risk if large volume lost to bund in event of catastrophic mixer failure. Noise from Mixers especially T202 can lead to complaints as its mixers have not been upgraded	Regular checking of tanks once a shift by operators in conjunction with planned M7 operator planned inspections that are recorded as e-shift log. Trained personnel to identify leaks - quick identification. Clean up crew on call as required. On-site fire fighting equipment. Emergency response. Gasoline tank mixers have leak detection that alarms to OMC control.Monthly Maintenance Meeting (MMM) is held monthly with participation from Maintenance, Operations, Engineering Services and other support Departments - review of inspection calendar requirements, M7 7 M8's, reliability threats and detected Leaks will be reviewed and actions prioritized appropriately. Most mixers have been upgraded and now operate intermittently. Standing order in place to operate the mixers between 6AM and 10PM only. Operators aware of operating the mixer in a manner to reduce noise and shut the mixers and take appropriate action if excessive noise is observed.	1,17,18,19,20,4,22,27,32,37,39,51,52,59,64,72	5 Minor	2 Occasional	6			
13	Terminal Tankfarm Issue 8	Tank bunds	Leakage of product from tank bund due to inadequate construction or bund reestablishment following T&I	Soil and groundwater contamination, Licence non-compliance, remediation costs	Quarterly groundwater monitoring program along Terminal boundary hydraulically downgradient of tank farms.	1,2,3,14,17,18,19,21,4,22,27,37,38,39,51,52,62,76	6 Incidental	1 Likely	6	D		
14	Terminal Tankfarm Issue 9	OWS connection in tank bunds	During heavy rain the OWS backs up into tanks bunds (ROM313600)	Soil contamination, odour, Licence non-compliance, remediation costs	OWS M7 maintenance program. Water drawing from bunds will be communicated to WWTP operations and will be undertaken as part of the permit system and detailed in the generic procedure for water drawing from bunds. Northern Tank Bunds - 2021 Action plan developed in consultation with NSW EPA and implemented to manage potential odour concerns from nearby residents. Refer to Action Plan and supporting photos in Cintellate Ref: MEET-006151	1,2,3,14,17,18,19,21,4,22,27,37,38,39,51,52,62,76	6 Incidental	1 Likely	6	D		SD202755:General Operations Procedure Kurnell Terminal EPL No.837 – L6 Potentially offensive odour
15	Terminal Tankfarm Issue 10	Grit blasting, blow-down during tank T&I	Dust released into environment (Recent incident: LI346633)	Dust pollution, potential air contamination, Licence non-compliance	Environmental Management Plan requiring monitoring of wind conditions, as well as a spotter (Hopper Operator) to monitor dust emissions as the discretion of the Maintenance Supervisor. Permit System in place to control risk	1,2,3,19,21,33,,37,39,62	6 Incidental	1 Likely	6			

Sl#	Register ID No.	Activity	Aspect	Impact	Existing Control and Mitigation Measures (identify Critical Controls [CC])						Improvement Plan/Corrective Action Reference	Procedural Reference and Related Records
					Control	Legal Requirements	Consequence	Likelihood	Risk Ranking	Signposted		
16	Terminal WWTP Issue 1	Separator shutters inadequate	Odour release from Separators	Community complaints, Licence non-compliance	Full covers on Separator Bays.	33,38	5 Minor	4 Unlikely	8			SD203223: Contamination of Oily Water System. EPL No.837 – L6 Potentially offensive odour
17	Terminal WWTP Issue 2	Clarifier	Overflow from clarifier to stormwater if outlet flow backs up due to hydraulic limitations of IAFs	Stormwater contamination	Trained operators, updated WWTP Procedures for changed operation of WWTP. Stormwater siphon and Stormwater Retention Basin. Clean up crews "on call" as required..	1,17,18,19,20,4,22,32,37,39,51,52,64	6 Incidental	1 Likely	6	D		EPL No.837 – L1 Pollution of Waters.
18	Terminal WWTP Issue 3	Operation backing up and inflow into WWTP too large or flooding due to heavy rain	WWTP overflowing to land and neighbouring properties	Contamination of soil and groundwater, flora and fauna impacts, Licence non-compliance.	Regularly capacity testing of WWTP equipment. Bund capacity to discharge stormwater at a controlled rate.	1,17,18,19,4,22,32,37,39,51,52	3 Major	4 Unlikely	6	D		SD100398: Caltex Groundwater Monitoring Guideline
19	Terminal WWTP Issue 4	OWS underground pipelines, Oil water separator bays, Retention basin, Pump pits - 15G28s, 15G27, 15G50s, 15G14s	Leak due to crack in structure	Soil/groundwater contamination	Leak detection via boundary groundwater monitoring wells. June 2015: As result of of the outcome of the preliminary investigation order (PIO) additional wells have been installed in the vicinity of the WWTP	1,17,18,19,20,4,22,27,32,37,39,51,52,64	6 Incidental	1 Likely	6			SD100398: Caltex Groundwater Monitoring Guideline
20	Terminal WWTP Issue 5	Retention basin	Normal operation	Odour	One part of retention basin is covered. Super suckers remove odourous substances 1 to 3 times per year.	1,27,37,75	5 Minor	3 Seldom	7			EPL No.837 – L6 Potentially offensive odour
21	Terminal WWTP Issue 6	Skimmers operation	Too much oil influent to Separators Forebay to effectively separate the oil. Oil to Tk10.	Biotreater upset leading to licence exceedence	Second skimmer in Main Bay. Divert influent streams from G28 and/or G50 to Buffer Tank (Currently TK601). In the event of Biotreater upset, divert effluent from G14 pit to Buffer Tank (currently Tk601).	1,17,18,19,20,4,22,64,27,32,33,37,39,51,52	6 Incidental	1 Likely	6			SD203127: Oil Water Separators Operating Work procedures. EPL No.837 – L1 Pollution of Waters and L3 Concentration limits
22	Terminal WWTP Issue 7	Material "dumped" without permission to WWTP	Effect on treatment of effluent	Biotreater upset, potential Licence exceedance of water pollutants.	Analysers at the separators (pH, temperature). Monitoring programs for licence parameters. Operator competency and experience. Site-wide training and communication as part of induction for D&D and Terminals.	1,17,18,19,4,22,32,33,37,39,51,52,64	6 Incidental	1 Likely	6	D		
23	Terminal WWTP Issue 8	Operation of IAFs	Odour generation from operation	Community complaints	IAF's used intermittently. Management of community concern as per the Community Stakeholder Engagement Plan. Transitioned Terminal Operating Procedures are in place.	33,38	6 Incidental	1 Likely	6	D		EPL No.837 – L6 Potentially offensive odour
24	Terminal WWTP Issue 9	Rakes in IAFs functioning inefficiently	Diminished removal of O&G	Potential Licence exceedance of water pollutants.	Terminal operators inspect IAF and instigate maintenance notification as required prior to operation of the IAF's. As the water volume has decreased since the closure of the Terminal, there is sufficient buffer capacity in tank to delay operation of the IAF's for maintenance work to occur to reduce the risk.	1,17,18,19,20,51,52,4,22,32,33,37,39,64	6 Incidental	1 Likely	6	D		
25	Terminal WWTP Issue 10	No. 1 and 2 IAF	Overflow to OWS due to incorrect valve setting or other reasons	Soil contamination	High level alarm on #2 IAF. Terminal operators inspect IAF and take appropriate actions. As the water volume has decreased since the closure of the Terminal, there is sufficient buffer capacity in tank to delay operation of the IAF's for maintenance work to occur to reduce the risk.	1,17,18,19,20,4,22,27,32,37,39,51,52,64	6 Incidental	1 Likely	6			
26	Terminal WWTP Issue 11	Digester	Becoming anaerobic due to power failure	Odour	Minimise the power outage. Digester hydraulic and organic capacity is more than required for the operation during the D&D and Terminal phases and provides an oppoturity to recycle higher DO solutions from elsewhere in the WWTP or aerated water to extend the time prior to onset of anerobicity in the digester. trained operators.	1,33,37,75	6 Incidental	1 Likely	6			
27	Terminal WWTP Issue 12	Digester	Pump-out to vac-truck in unbunded area, hose leak or spill	Stormwater contamination, pollution of Botany Bay, Licence non-compliance	Minimise the power outage. Digester hydraulic and organic capacity is more than required for the operation during the D&D and Terminal phases and provides an oppoturity to recycle higher DO solutions from elsewhere in the WWTP or aerated water to extend the time prior to onset of anerobicity in the digester. trained operators.	1,17,18,19,20,52,4,22,27,32,37,39,51,64	5 Minor	1 Likely	5	D		
28	Terminal WWTP Issue 13	Tank 11 slop oil storage	Failure of nitrogen blanket or overfilling of tanks resulting in odour emissions	Odour	High and Low level Alarms in place. 24 hour Community Complaints Hotline and Stakeholder engagement plan will be implemented. Regular 4 hourly checks by Terminal operator.	1,27,37,75	6 Incidental	1 Likely	6			
29	Terminal WWTP Issue 14	Oil water separators	If the discharge rate from Tank 601 to oil water separators is too great	Odour	The buffer capacity and WWTP treatement capacity relative to the hydraulic loading is high and this allows the Terminal operators to reduce the occurrence of this substantially. Experience Terminal operators.	1,27,37,75	6 Incidental	1 Likely	6			

Sl#	Register ID No.	Activity	Aspect	Impact	Existing Control and Mitigation Measures (Identify Critical Controls [CC])						Improvement Plan/Corrective Action Reference	Procedural Reference and Related Records
					Control	Legal Requirements	Consequence	Likelihood	Risk Ranking	Signposted		
30	Terminal WWTP Issue 15	Outlet tank	Normal operation	Odour	Periodic tank maintenance including draining of the tank bottom, maintaining appropriate operating conditions to minimise odours, reduced organic and inorganic loading (of the pollutants) as a result of the Terminal closure, WWTP operating procedures and trained operators	1,27,37,75	6 Incidental	1 Likely	6			
31	Terminal WWTP Issue 16	Samples not taken correctly	Samples taken at incorrect time or on incorrect days	Licence breach	Experience Terminal operators are aware of the requirements. Considering setting up an electronic Dairy for reminding the Terminal operators	21,33	6 Incidental	1 Likely	6	D		
32	Terminal WWTP Issue 17	Operation of WWTP, specifically the air blowers	Noise generating from process equipment, 121 dB(A)	Noise complaints	Blowers are enclosed and noise muffler has been installed on discharge stack. 24 Hour Community Hotline Procedure in place and is operating effectively. Trained operators. Note: Historically minimal noise complaints from the WWTP	27,38,74	6 Incidental	3 Seldom	8			
33	Terminal Storm Water System Issue 1	Pipeways with spoon drain for collecting stormwater	Contamination of the stormwater with Terminal products (raw and final) from the pipelines in the pipeway or from ss units (eg PSV)	Discharge of contaminants to Botany Bay and Quibray Bay, non-compliance with licence, odour complaints	Pits on Pipeways A and B that contain pumps and skimmer that can direct product to either OWS, the intermediate system or stormwater system. Contaminated stormwater in Pipeway A travels through a separator and can be stopped in the Stormwater Retention Basin. Contaminated Stormwater in the Main Pipeway travels through siphons and can be stopped by the Gate 5 shutter that can be closed. Valve in final stormwater pit at end of the ROW. Clean up crews "on call" as required..	1,17,18,19,20,4,22,27,3 2,33,37,39,45,46,51,52, 64	6 Incidental	1 Likely	6	D		SD202807: Storm Water System Process Description SD202782: Storm Water/Sewer System Systems Operating Procedure EPL No.837 – L1 Pollution of Waters
34	Terminal Storm Water System Issue 2	Stormwater catchment areas (collected in pits - pumped to stormwater system)	Contamination of the stormwater with products and saltwater from the pipelines in the pipeway.	Discharge of contaminants to Botany Bay and Quibray Bay, non-compliance with licence, odour complaints	Contaminated stormwater in Pipeway A travels through a separator and can be stopped in the Stormwater Retention Basin. Contaminated Stormwater in the Main Pipeway travels through siphons and can be stopped by the Gate 5 shutter that can be closed. Valve in final stormwater pit at end of the ROW. Clean up crews "on call" as required..	1,17,18,19,20,4,22,27,3 2,33,37,39,45,46,51,52, 64	6 Incidental	1 Likely	6	D		
35	Terminal Storm Water System Issue 3	Stormwater pipes underground	Leaking stormwater pipelines resulting in release of stormwater to soil/groundwater and/or ingress of groundwater into stormwater system	Soil/groundwater contamination if stormwater is contaminated; or contamination of stormwater if groundwater is contaminated, resulting in discharge of contaminants to Botany Bay, non-compliance with licence.	Operator Surveillance including daily checks of stormwater pits/basins. Contaminated stormwater can be stopped at the Stormwater Retention Basin and at Gate 5. Valve in final stormwater pit at end of the ROW. Clean up crews "on call" as required.	1, 17, 18, 19, 20, 21, 4, 2 2, 27, 32, 37, 39, 51, 52, 64	6 Incidental	1 Likely	6	D		
36	Terminal Storm Water System Issue 4	Management of firewater	Contaminated firewater discharging off-site via stormwater	Discharge of contaminants to Botany Bay and Quibray Bay, non-compliance with licence	Firewater, which may be contaminated, that enters the stormwater system in Pipeway A travels through a separator and can be stopped in the Stormwater Retention Basin. Contaminated Stormwater in the Main Pipeway travels through siphons and can be stopped by the Gate 5 shutter that can be closed. Valve in final stormwater pit at end of the ROW. Clean up crews "on call" as required.	1,17,18,19,20,4,22,27,3 2,33,37,39,45,46,51,52, 64	6 Incidental	2 Occasional	7	D		
37	Terminal Storm Water System Issue 5	Stormwater catchment areas hydraulic capacity	Excess inflow of National Parks stormwater, increases hydraulic loading, Terminal flooding	Flooding, WWTP capacity exceeded, Biotreater Bypass, discharge of contaminants to Botany Bay and Quibray Bay and community, non-compliance with licence, odour complaints	Weather warnings may help allow for pits to be pumped out to provide more time. Emergency diesel back-up generator Level indicators and alarms on the pits will alert Operators to high levels in the pits Operator Training and Competency Procedures for responding to flooding events at the Waste Water Treatment Plant (which includes bypassing and pumping to tankage) Siphon and skimmer system. Quibray Bay Stormwater Retention Basin and overflow area. Several Stormwater Projects Implemented. Stormwater Modelling completed confirming fit for a 20 ARI.	1,17,18,19,20,4,22,27,3 2,33,37,39,45,46,51,52, 64	3 Major	4 Unlikely	6	D	The concern is the potential for flooding to impact on the separators at the Waste Water Treatment Plant, which could result in overflow of wastewater leading to environmental impact and environmental licence exceedance. The team notes that a review is currently being conducted for the Waste Water Treatment Plant, the team endorses completion of this review and implementation of recommendations.	
38	Terminal Wharf Issue 1	Pipelines on wharf above water from wharf gate to fixed berth	Leakage from flanges, over pressure, rust, holes. LI0001606	Pollution of Botany Bay, licence non-compliance, community complaints, soil contamination.	Inspection program by NMS for leaks in flanges or joints as well as loading arm maintenance, hydrotest every two years, on going line maintenance managed by Caltex Maintenance and Utilities Team Leader. Vacuum system to control. Ongoing maintenance / repair and coating protection program as per M7 and/or M8 Notification. Two sets of flanges over water at the cross over of A&B Lines. Two PSV's to protect pipes from overpressuring. Cathodic protection on all product lines. Marine Oil spill procedure in place.	33,37,38,39,51,52,64,1, 17,18,19,20,4,22,27,32	5 Minor	2 Occasional	6	D	Wharf Inspection & Repair Program (ongoing)	Inspection Group has Capstone Program that informs them when pipeline inspections are required.AS/NZ Standards with procedures for inspections – PPL700 Inspection and Testing and PPL 6000-E Field Inspection Guide. EPL No.837 – L6 Potentially offensive odour

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39	Terminal Wharf Issue 2	Dead leg under the water surface (30-40m long, approx. 13 to 14m deep under the Bay and 2m under the sand), pipeline containing diesel (former line to Boral Terminal at Banksmeadow). Approximately thirty years old.	Leakage from flanges, over pressure during hydrotesting, corrosion, line failure	Pollution of Botany Bay, licence non-compliance, community complaints.	Pressure test annually with a hose changeout, every six months the hoses are pressure tested as per DG regulations. Changed the valves at the hose outlet in Dec. 2013. Vacuum System in place. The line is flushed with Diesel to confirm readiness as part of the preparation for the conversion to Terminal.	1,17,18,19,20,14,22,27,32,33,37,38,39,45,46,51,52,64	5 Minor	2 Occasional	6	D	PHA action item. CapEx K0529 (currently unscreened).	SD207455: Testing at Submarine Berth Wharf Hoses and Discharge LPG Hoses Work Instruction SD103108: Wharf and Marine Equipment Inspection Procedure EPL No.837 – L1 Pollution of Waters and M4 Recording of pollution complaints
40	Terminal Wharf Issue 3	Overflow from ships tankage	Leak from overflow to Botany Bay	Pollution of Botany Bay, licence non-compliance, community complaints.	Pre-berth checks of shipping systems. Ship vetting system by Caltex/Chevron. Emergency shutdown system for wharf side. Oil spill system to boom. Ability to contain spill on ship. NB: it is difficult to determine what controls each individual ship will have on board. Retractable Cantilever and Gantry for Deep Water Boom hoist at turning dolphin (allows quick deployment of boom equipment if there is a spill at the sub berth). Terminal Berth Operational and Safety Information Booklet (procedures) is issued to all ships for sign-off and the sign-off sheets are available for sighting. Also, Australian Ship/Shore Safety Checklist/Operational Agreement is completed by each ship on each visit. Regular checks are carried out as per the operation agreement. Handled by the Wharf Contractor in consultation with Caltex Terminal Operations Specialist (Marine) on behalf of the TOM.	1,17,18,19,20,4,22,27,32,33,37,39,45,46,51,52,64	6 Incidental	1 Likely	6	D		SD 206887: Inspection Of Wharf Loading Arms Maintenance Instruction SD202790: Wharf Structure And Facilities Procedure Kurnell Terminal SD103599: Kurnell ERP - Marine Spill Response Plan SD103502: Kurnell ERP Scenario Guidance Note - Oil Spill to Waterways EPL No.837 – L1 Pollution of Waters
41	Terminal Wharf Issue 4	Underdeck of jetty sloping to basins	Failure of pumps if a total power or air failure during pumping of contents of basin to ballast Oily and accessible to birds. If there is air or power failure the fire system activates resulting in water deluge of underdeck that could wash product to Botany Bay.	Pollution of Botany Bay, licence non-compliance, community complaints, fauna impacts (birds).	Underdeck is banded. Procedure is for Wharf Master/Wharf Operations Coordinator to assess situation and decide whether to isolate the fire water system manually. Slop tanks have high levels alarms. When the tanks fill, these are pumped automatically to Tk 601. Operator on site when the ship is in. Routine patrols/inspection of the wharf. Back-up Diesel Generator (proposed)	1,17,18,19,20,4,22,27,32,33,37,38,39,45,46,51,52,64,69	5 Minor	2 Occasional	6	D		SD 206887: Inspection Of Wharf Loading Arms Maintenance Instruction SD202790: Wharf Structure And Facilities Procedure Kurnell Terminal SD103599: Kurnell ERP - Marine Spill Response Plan SD103502: Kurnell ERP Scenario Guidance Note - Oil Spill to Waterways EPL No.837 – L1 Pollution of Waters
42	Terminal Wharf Issue 5	Utilities - fire fighting foam	Leakage from flanges, over pressure during testing or operation. Tank is currently not banded.	Potential pollution of Botany Bay with foam, aquatic ecosystem impact, licence non-compliance	Reliability M7 Inspections. The tank contents are circulated through the pipework periodically or at appropriate duration by operators to identify any leaks and fix them should they occur. Records of inspection are kept. New tank has been installed to contain the <u>AFFF 1% Foam</u> .	1,17,18,19,20,4,22,27,32,33,37,39,45,46,51,52,64	6 Incidental	1 Likely	6	D	Phase 1 AFFF (PFAS) change over to Fluorine free Foam - starting in 2023.	SD103599: Kurnell ERP - Marine Spill Response Plan SD103502: Kurnell ERP Scenario Guidance Note - Oil Spill to Waterways EPL No.837 – L1 Pollution of Waters
43	Terminal Wharf Issue 6	Pipelines underground (beneath road) including ROW from Gate 5 before wharf (in same easement as a stormwater line)	Leakage from flanges, over pressure, pipeline corrosion from groundwater.	Soil contamination, potential pollution of Botany Bay, licence non-compliance	Control leak by pulling vacuum on the lines from the Wharf. Reporting odours. Rates on lines if it is a big leak. The line is hydrotested every two years by pressure testing with water (except jet fuel lines use jet fuel). If contaminated spoil is identified it can be removed before contamination reaches water table. Clean Up Crew "on Call" as required. Cathodic protection. Review of the periodic walk of the ROW to inspect as per the M7 operator inspections recorded on e-shift log. Maintenance carried out as required per M8 Notification.	1,17,18,19,20,4,22,27,32,37,39,45,46,51,52,64	6 Incidental	2 Occasional	7			SD103475: Kurnell ERP Scenario Guidance Note - Major Spill Loss of Containment Inspection Group has Capstone Program that informs them when pipeline inspections are required.AS/NZ Standards and Chevron Standards with procedures for inspections – PPL700 Inspection and Testing and PPL 6000-E Field Inspection Guide. SD100398: Caltex Groundwater Monitoring Guideline EPL No.837 – U13.4 Groundwater Monitoring Plan

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44	Terminal Wharf Issue 7	Ballast line from tankers to Tk10/Tk601	Leakage from flanges, over pressure, pipeline corrosion from groundwater.	Pollution of Botany Bay, Licence non-compliance, community complaints, soil/groundwater contamination	Observations during loading/unloading. Control leak by pulling vacuum on the lines from the Wharf. Manual shutdown valve to stop leak. The line is hydrotested every two years by pressure testing with water. Inspection program. Cathodic protection.	1,17,18,19,20,4,22,27,32,33,37,38,39,45,46,51,52,64	6 Incidental	4 Unlikely	9	D		SD205908: Berthing Preparing And Unberthing Ships At Fixed Berth Procedure Kurnell Terminal SD103599: Kurnell ERP - Marine Spill Response Plan SD103502: Kurnell ERP Scenario Guidance Note - Oil Spill to Waterways EPL No.837 – L1 Pollution of Waters
45	Terminal Wharf Issue 8	4 x Drums' (1,000 L and 1,500 L) collecting rainwater/slops from jetty 1 and 2	Failure of pumps and back up pumps during pumping of contents of slop to ballast. Oily and accessible to birds. If there is air or power failure the fire system activates resulting in water deluge of underdeck that could wash product to Botany Bay.	Pollution of Botany Bay, community complaints re odour or visual impact, licence non-compliance.	Preventative maintenance. Oil spill procedure in place. Sump has a high level alarm. Gas detector sensors for smell if there is a leak. Underdeck is banded. Procedure is for Wharf Contractor Lead/Wharf Master to assess situation and decide whether to isolate the fire water system manually. Slop tanks have high levels alarms. Electric Pump is used as redundancy to the Air Pump in case of air failure.	1,17,18,19,20,4,22,23,32,33,37,38,39,45,46,51,52,64,75	5 Minor	2 Occasional	6	D		SD206561: Wharf Fire Systems Basis of Design Process Description Kurnell Terminal SD208638: Wharf Foam Concentrate Line Flushing Work Instruction Kurnell Terminal SD103599: Kurnell ERP - Marine Spill Response Plan SD103502: Kurnell ERP Scenario Guidance Note - Oil Spill to Waterways EPL No.837 – L1 Pollution of Waters
46	Terminal Wharf Issue 9	Four pipelines on wharf under water (beneath surface) to sub berth below the water	Leakage from flanges, over pressure	Pollution of Botany Bay, licence non-compliance, community complaints.	Hydrotest every 12 months with hose changeout, observations during loading/unloading. Six monthly check as per DG regulations. If there is a big loss changes in flow rates will be observed at the OMC.Ship crews check on an hourly basis.	1,17,18,19,20,4,22,27,32,33,37,38,39,45,46,51,52,64	4 Moderate	3 Seldom	6	D		SD103108: Wharf and Marine Equipment Inspection Procedure Kurnell Terminal SD103599: Kurnell ERP - Marine Spill Response Plan SD103502: Kurnell ERP Scenario Guidance Note - Oil Spill to Waterways EPL No.837 – L1 Pollution of Waters
47	Terminal Wharf Issue 10	Fixed berth - ships made fast (turning dolphin)	Damage ship/facility	Pollution of Botany Bay, licence non-compliance, community complaints.	During berthing all operations are shutdown. All ships have segregated ballast and product ships are double hulled. Ships are extremely robust. Oil spill procedure in place. Weather updates are provided to the ships, Release coupling mechanism disconnects the ship automatically. Chagned to procedure s made recently and communicated to the Ship personnelwhich includes the wind flow conditions that are more conservative. Ship runs three lines to the stern and three to the Bow.	1,15,4,16,20,32,37,45,46,49,64	5 Minor	3 Seldom	7	D		SD205908: Berthing Preparing And Unberthing Ships At Fixed Berth Procedure Kurnell Terminal SD103599: Kurnell ERP - Marine Spill Response Plan SD103502: Kurnell ERP Scenario Guidance Note - Oil Spill to Waterways EPL No.837 – L1 Pollution of Waters
48	Terminal Wharf Issue 11	Ship breaks from berth	Leakage from hoses / loading arms (I341049/338425)	Pollution of Botany Bay, licence non-compliance, community complaints.	Berthing control due to weather conditions (heavy weather procedure s), vacuum on berth. No. 2 berth has emergency shutdown system on the loading arms. Quick release hooks on No. 2 berth. Oil spill procedure in place. Preparations should include cessation of discharge/loading and disconnection of all loading arms with sufficient time prior to arrival of the extreme weather event. Upgraded Berth Warning system installed (Oct 2015)	1,15,4,16,17,18,19,20,22,27,32,33,37,38,39,45,46,49,51,52,64,75	5 Minor	4 Unlikely	8	D		SD208092: Monitoring Weather Conditions at Kurnell Wharf SD205883: Wharf General Operations Standing Orders Guideline Standard Kurnell Terminal SD103599: Kurnell ERP - Marine Spill Response Plan SD103502: Kurnell ERP Scenario Guidance Note - Oil Spill to Waterways EPL No.837 – L1 Pollution of Waters
49	Terminal Wharf Issue 12	Routine hose change out underwater at Sub-berth	Oily substance leaking from hose and/or butterfly valve and/or flanges to Botany Bay (LI309066)	Pollution of Botany Bay, licence non-compliance	Ship operations. Marine Oil spill procedure in place.	1,17,18,19,20,4,11,27,32,33,37,39,45,46,51,52,64	6 Incidental	1 Likely	6	D		SD103599: Kurnell ERP - Marine Spill Response Plan SD103502: Kurnell ERP Scenario Guidance Note - Oil Spill to Waterways EPL No.837 – L1 Pollution of Waters

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50	Terminal Wharf Issue 13	Operation of submerged manifold	Oily substance leaking from hose and/or butterfly valve and/or flanges to Botany Bay (LI352742)	Pollution of Botany Bay, licence non-compliance	Hydrotesting of pipeline and manifold. Annual visual inspection of valves and change out of hoses. Visual inspection for surface sheens. Shut off valves at the end of the hoses (new) to reduce the risk of spillages into Botany Bay.	1,17,18,19,20,4,11,27,32,33,37,39,45,46,51,52,64	6 Incidental	2 Occasional	7	D		SD103599: Kurnell ERP - Marine Spill Response Plan SD103502: Kurnell ERP Scenario Guidance Note - Oil Spill to Waterways EPL No.837 – L1 Pollution of Waters
51	Terminal Wharf Issue 14	Pressurising the transfer pipelines when pumping continues from the source post activation of the ESD/High Level Alarm in Tanks to prevent overflow	Rupture of Pipes and spillage outside of Bunds, Loss of product	Pollution of Botany Bay, licence non-compliance, Soil and groundwater Contamination	Procedure to prevent pumping after the ESD has been activated in the tank to prevent overflow. The pipelines can be isolated if there is excess pressure. Communication between the Tank Operator and Source Operator occurs immediately post activation of the ESD. High Level Alarms. Routine Checking of the Alarms. Planned Pumping operation and the associated protocols and experienced operators. Hydrotesting of the flexible hoses. Reliability Inspections. Routine replacement of the hoses. Wharf valves that can be shut down	1,17,18,19,20,4,11,27,32,33,37,39,45,46,51,52,64	3 Major	5 Remote	7			
52	Terminal Wharf Issue 15	Hydrotesting (first flushed with water except jet) of all product	Line failure during hydrotesting	Pollution of Botany Bay, licence non-compliance, community complaints re odour or visual impact, soil contamination	As per Marine Oil Spill Response Plan. Personnel on site during hydrotesting. Spill Kits at the wharf.	1,17,18,19,20,4,22,27,32,33,37,38,39,45,46,51,52,64,75	6 Incidental	1 Likely	6	D		D103599: Kurnell ERP - Marine Spill Response Plan SD103502: Kurnell ERP Scenario Guidance Note - Oil Spill to Waterways EPL No.837 – L1 Pollution of Waters
53	Terminal Wharf Issue 16	Connecting and testing hoses prior to delivery/unloading/transfers at the wharf	Leakage from hoses/loading arms. LI613362	Pollution of Botany Bay, licence non-compliance, community complaints re odour or visual impact	As per Marine Oil Spill Response Plan. Personnel on site during the activity. Spill Kits at the wharf.	1,15,4,16,17,18,19,20,4,22,27,32,33,37,38,39,45,46,49,51,52,64,75	6 Incidental	1 Likely	6	D		SD103599: Kurnell ERP - Marine Spill Response Plan SD103502: Kurnell ERP Scenario Guidance Note - Oil Spill to Waterways EPL No.837 – L1 Pollution of Waters
54	Terminal Wharf Issue 17	Connecting loading arm and or hoses on jetty	Leakage from hoses/loading arms	Pollution of Botany Bay, licence non-compliance, community complaints re odour or visual impact	As per Marine Oil Spill Response Plan. Personnel on site during the activity. Spill Kits at the wharf.	1,17,18,19,20,4,22,27,32,33,37,38,39,45,46,51,52,64,75	6 Incidental	1 Likely	6	D		SD103599: Kurnell ERP - Marine Spill Response Plan SD103502: Kurnell ERP Scenario Guidance Note - Oil Spill to Waterways EPL No.837 – L1 Pollution of Waters
55	Terminal Wharf Issue 18	Discharging or receiving products from all 3 berths	Leakage from hoses/loading arms and pipelines	Pollution of Botany Bay, licence non-compliance, community complaints re odour or visual impact	Loading arms/hoses are hydrotested every twelve months, inspection program carried out by the contractor.	1,17,18,19,20,4,22,27,32,3337,38,39,45,46,51,52,64,75	6 Incidental	1 Likely	6	D		SD103599: Kurnell ERP - Marine Spill Response Plan SD103502: Kurnell ERP Scenario Guidance Note - Oil Spill to Waterways EPL No.837 – L1 Pollution of Waters
56	Terminal Wharf Issue 19	Discharging or receiving products at berth 1 or 2 as well as berthing and departure of ships	Noise generation during discharge	Noise complaints	24hr Customer Complaints Hotline. Permanent predicted noise monitoring system at Wharf (SoundScience). Ship Instructions to Captain re noise mitigation requirements during discharge. Shore Officers use monitoring system to identify any potential elevation in noise output from ship. Letter of Protest issued if ship exceeds noise limits (EPL837) and/or community complaints. Feedback from Shore Officer to Marine Operations Specialist re noise exceedances and/or noise complaints. Identify quick fixes once noise is identified in consultation with the Ship Captain. EPA and DPIE notifications (via email) for all ship noise exceedences. Marine Assurance notified if ship exceed EPL limits. System in place to identify "repeat offenders " - more that 3 events resulting in ship being removed fromAmpol Chartering list. Refer to Noise Management Sub Plan for additional details of process.	15,4,16,17,18,19,22,27,38,39,49,51,52,74	6 Incidental	1 Likely	6	D		Marine Assurance ship record Ampol Chartering list Noise Management Sub Plan (KNT OEMP) EPL No.837 – L5 Noise Limits
57	Terminal Wharf Issue 20	Disconnection of loading arms on jetty and/or hoses at all three berths	Leakage from hoses/loading arms	Pollution of Botany Bay, licence non-compliance, community complaints re odour or visual impact	Skills of employees and contractors, procedure s, JSAs, disconnections over a bunded area	1,17,18,19,20,4,22,27,32,33,37,38,39,45,46,51,52,64,75	6 Incidental	1 Likely	6	D		

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58	Terminal Wharf Issue 21	Four 'drums' (1,000 L and 1,500 L) collecting rainwater/slops from jetty 1 and 2	Leakage from overfilling, corrosion, cracks in concrete (10D-7)	Pollution of Botany Bay, licence non-compliance, community complaints re odour or visual impact	High level alarms on drums, pumps to pump out	1,17,18,19,20,4,22,23,32,33,37,38,39,45,46,51,52,64,75	6 Incidental	1 Likely	6	D		
59	Terminal Wharf Issue 22	Collection of sewerage in two fibreglass 205L drums and pumping to main sewer system	Overflow of drums, pump failure, fibreglass tank failure	Pollution of Botany Bay, licence non-compliance	Sewerage tanks have high level alarms and are monitored via the wharf DCS. Once tank hit high level it is pumped to main sewerage on Prince Charles Pde. Both sewer pits on the wharf are on auto cut in on high level. If these fail and the High High alarm is reached then arrangements would be made for manual suck out..	1,17,18,19,20,4,22,32,33,37,39,45,46,51,52,64	6 Incidental	1 Likely	6	D		SD205912: Wharf General Operations Procedure EPL No.837 – L1 Pollution of Waters
60	Terminal Wharf Issue 23	Maintenance of jetty (concrete repair, painting of pipeline, needle gunning) by contractors	Storage of paints/thinners in right of way. Loss of diesel from tank on mobile equipment. LI 619635.	Soil contamination & spill to water Pollution of Botany Bay, licence non-compliance	Equipment checks prior to use. Portable bund in place Operator Present during decanting. Use of drip trays during day tank refuelling and burst hose. Check the hoses and fittings to prevent leakage by creating a periodic M7 check appropriate to the duty	1,17,18,19,20,4,22,27,37,39,51,52,64	6 Incidental	1 Likely	6	D		
61	Terminal Wharf Issue 24	Oil reservoirs in equipment (2 to 3L) - gear box on winch	Unbunded, leakage	Pollution of Botany Bay, licence non-compliance	Contractor checks and managed through M7 and M8 checklists. Consideration being given to providing containment of any leaks (e.g. Oil Absorbent Pads or Trays) where feasible.	1,17,18,19,20,4,22,27,32,33,37,39,45,46,51,52,64	6 Incidental	1 Likely	6	D		
62	Terminal Wharf Issue 25	Management of biosecurity waste from ships	Storage of biosecurity waste in quarantine (yellow) bins and transfer via licenced waste receiver to licenced autoclave facility.	Breach of biosecurity laws Human health exposure	Quarantine garbage from ships stored in Yellow bins and is transferred to the autoclave facility. Include the management of Biosecurity Waste from Ships into PROC 5.06.11.001 Kurnell Waste Management.	1,14,17,18,19,22,4,23,37,51,52,59,72,75	6 Incidental	1 Likely	6	D		
63	Terminal Wharf Issue 26	Garbage generation	Storage in bins	Litter, odour	Covered Bins. Garbage emptied at appropriate durations to reduce odour and litter at the wharf	14,23,4,59,72,75	6 Incidental	3 Seldom	8			
64	Terminal Wharf Issue 27	Diesel Generator (backup) in old Pump House	storage of diesel (780 L) over water	Spills to water	double skinned tank, concrete bund, inspection and maintenance, emergency response and spills management	33	5 Minor	3 Seldom	7	D		
65	Terminal JFTU (Plant 49) Issue 1	Jet fuel piped to plant 49	Leak in pipeline	Soil, stormwater and groundwater contamination (pipeway A), water pollution, Licence non-compliance	Regular checking of tanks once a shift by operators in conjunction with planned M7 operator planned inspections that are recorded as e-shift logs. DCS allows for the monitoring of the tanks. Contaminated stormwater in Pipeway A travels through a separator and can be stopped in the Stormwater Retention Basin. Contaminated Stormwater in the Main Pipeway can be stopped by the Gate 5 shutter that can be closed. Monthly Maintenance Meeting (MMM) is held monthly with participation from Maintenance, Operations, Engineering Services and other support Departments - review of inspection calendar requirements, M7 & M8's, reliability threats and detected Leaks will be reviewed and actions prioritized appropriately. Clean up crews on call as required. Risk based) line repair program in place (prioritised list of lines based on LOC risk at MMM or earlier). The philosophy is to remove the need for Clamps and where issues are identified, they will be managed as actions arising out of M8's.	1,17,18,19,20,4,51,22,27,32,37,39,52,64	5 Minor	2 Occasional	6	D		Inspection Group has Capstone Program that informs them when pipeline inspections are required. AS/NZ Standards and Chevron Standards with procedures for inspections – PPL700 Inspection and Testing and PPL 6000-E Field Inspection Guide. EPL No.837 – L6 Potentially offensive odour
66	Terminal JFTU (Plant 49) Issue 2	Plant 49 vessels	Air emissions of PSVs from 49C-4 on plot vent pot. Preparing vessels for filter bed change out.	Air quality, odour complaints, leak to OWS of jet fuel	Water spray and dispersion steam ring in the vent pot. Operating and maintenance procedures.	17,18,19,27,51,52	6 Incidental	1 Likely	6			
67	Terminal JFTU (Plant 49) Issue 3	Stadis injection - contains toluene (max 1,000L on site)	Leak of Stadis.	Air emission, drain to OWS if outside of bund and Biotreater upset, localised odour issues	Bunded. Clean-up Crews on call when required.	1,2,3,14,17,18,19,21,4,22,32,37,39,51,52,62,75,76	6 Incidental	1 Likely	6			
68	Terminal JMU (Plant 49) Issue 4	Filling Stadis IBC during transfer from toluene drums on back of supply truck. Same applies for Lubricity.	Leak of toluene during pumping from 205L drums (drums on back of truck)	Air emission, drain to stormwater, drain to OWS if outside of bund and Biotreater upset, odour	Done under permit issue. Bunded. Clean-up Crews on call when required.	1,2,3,14,17,18,19,20,21,4,22,27,32,37,39,51,52,62,75,76	6 Incidental	1 Likely	6			
69	Terminal JMU (Plant 49) Issue 5	Stadis injection - contains toluene (max 1,000L on site)	Leak of toluene, bund drain is open	Drain to OWS if outside of bund and Biotreater upset. Valve installed on the bund and instruction to close the valve would decrease the risk	Valve is tagged closed. A written instruction to keep the valve closed is in place.	1,2,3,14,17,18,19,21,4,22,32,37,39,51,52,62,75,76	6 Incidental	3 Seldom	8			
		Landfarm and Limestone Pit Area										
70	Other Areas Landfarm and Limestone Pit Issue 2	CLOR landfarm (historical)	Leaching contaminants to groundwater	Contamination of soil and groundwater	Contaminated Site Risk Reduction Plan (PRP U14.1)	4,20,37,48,64	6 Incidental	1 Likely	6	D	Part of Site wide remediation	
71	Other Areas Landfarm and Limstone Pit Issue 4	Sorting bays	Storage of solid and liquid waste.	Surface water, groundwater and soil contamination. Impact on fauna.	Segregation of materials in sorting bays. Operating and maintenance procedures in place. Regular inspections and removal of wastes.	4,20,33,37,39,64	6 Incidental	1 Likely	6		Part of Site wide remediation	
72	Other Areas Landfarm and Limstone Pit Issue 7	"RPIP Mountain" Soil stockpile	Potential asbestos contamination of soil	Asbestos fibres washed into the stormwater system. Dust, air quality (asbestos fibres)	Contaminated Site Risk Reduction Plan (PRP U14.1) Included in CLOR Closure plans	1,24,37,64,79,80	6 Incidental	1 Likely	6		Part of Site wide remediation	

Sl#	Register ID No.	Activity	Aspect	Impact	Existing Control and Mitigation Measures (identify Critical Controls [CC])						Improvement Plan/Corrective Action Reference	Procedural Reference and Related Records
					Control	Legal Requirements	Consequence	Likelihood	Risk Ranking	Signposted		
73	Other Areas Landfarm and Limstone Pit Issue 8	Metal recycling yard	Metal sheared with excavator, Residual chemicals	Noise, Localised soil impacts	as above	33,37,39,71	6 Incidental	1 Likely	6		Part of Site wide remediation	
74	Other Areas Landfarm and Limstone Pit Issue 11	Empty drum storage in drum yard	Potential for leakage from residuals in drums	Surface water, groundwater and soil contamination		1,22,79,80,33,37,39 ,48,64	6 Incidental	1 Likely	6		Part of Site wide remediation	
75	Other Areas Landfarm and Limstone Pit Issue 12	Cleaning equipment at truck wash and hydroslab	Contaminated wash waters produced	Discharge to OWS and upset of WWTP	Use of surfactant/degreaser material prohibited. Operating procedures in place. Washing only to occur on slab.	1,22,79,80,33,37,39 ,48	6 Incidental	1 Likely	6		Part of Site wide remediation	
76	Other Areas Landfarm and Limstone Pit Issue 18	Landfarm and Geobag area	Odorous materials placed into the Geobags	Odour generation from geobags affecting local off site areas.	Use of deodorant spray applications over geobags, regular inspections of geobags. Ordour patrols along boundary fenceline.	1,17,18,19,21,4,37,45 ,51,52,75	6 Incidental	3 Seldom	8		Part of Site wide remediation	Ref: U3.1 PRP U21.1 Landfarm Mgmt Plan Kurnell EPA Licence 837
		Bushland										
77	Other Areas Bushland Issue 1	Pest control - Rabbits/Rats/Foxes	Inadequate control of pests/population spill over to adjacent land	Threat to threatened/endangered species, soil erosion, undermine buildings, attract snakes, damage to insulation	Development plans contain flora and fauna assessments, and plans are adjusted accordingly	1,37,39,44,45,54,55,	6 Incidental	6 Rare	10			
78	Other Areas Bushland Issue 2	Weeds in Marton Park and National Park adjoining Caltex	Spread of weeds, use of pesticides	Reduction of biodiversity, groundwater contamination	Weed Management Plan including treatment for weeds	1,20,37,39,44,45,54,55,64	6 Incidental	2 Occasional	7			
79	Other Areas Bushland Issue 3	Impact on threatened and endangered species	Reduction of biodiversity	Reduction of biodiversity	Vegetation and Weed Management and Monitoring Plan, Flora and Fauna Assessments are conducted as required.	1,37,39,44,45,54,55,	2 Severe	6 Rare	7		Threatened Species Management - refer to BWMP	
80	Other Areas Bushland Issue 4		Management of orchid	Loss of species		1,37,39,44,45,54,55,	2 Severe	6 Rare	7	D		
		Stores										
81	Other Areas Stores Issue 1	Dry goods storage	Contained within store	Spill of solid material	Compliant Storage, Procedures in place and review of the stores by HSE personnel periodically , no decanting allowed in the store	n/a	6 Incidental	2 Occasional	7			
82	Other Areas Stores Issue 7	Storage - chemical/solvents - Class 3 DG	In Class 3 DG Store and Giovenco Paint Store	Spills into OWS and Stormwater, Venting of stores to Atmosphere	Compliant Storage, Procedures in place and review of the stores by HSE personnel periodically , no decanting allowed in the store	n/a	6 Incidental	3 Seldom	8			
		Workshop										
83	Other Areas Workshop Issue 1	Generation of oily rags	Waste control	Legal non-compliance	Compliantflammable storage container with lid. Reguar removal from site and waste log	37,	6 Incidental	1 Likely	6			
		Terminal laboratory										
84	Other Areas New Laboratory Issue 1	Storage - chemical/solvents (<205L) & gas(g size)	Spills and leaks	Emissions to air, contamination of soil, groundwater, OWS, stormwater		1,22,79,80,33,37,39 ,48,64	5 Minor	2 Occasional	6			
85	Other Areas New Laboratory Issue 4	Waste Oil in aboveground storage tank	Leak from tank	Contamination of soil and groundwater	Tank is now on Inspection List as per Inspection Program.	1,22,79,80,33,37,39 ,48,64	6 Incidental	1 Likely	6			
		Offices and Amenities (incl CCB)										
86	Other Areas Offices and Amenities Issue 1	offices and training rooms, guard house, bathrooms and toilets and change rooms	Solid Waste and Waste to Sewage spill	Soil contamination, stormwater contamination		1,22,79,80,33,37,39 ,48,64	6 Incidental	3 Seldom	8			
87	Other Areas Offices and Amenities Issue 3	Air conditioning - CCB only	Potential to contract Legionaires Disease	Loss of containment Bacterial Air emissions	System covered by M7 activities that involve dosing, strict cleaning and monitoring/testing. Reports to SSC, in line with NSW Health Reg 2012 and Public Health Act 2010. Cooling gases are collected, returned to the maintenance company and disposed of appropriately	14,33,37,39,58,61	6 Incidental	2 Occasional	7			
88	Other Areas Offices and Amenities Issue 4	Plume of jet fuel under car park (contractors)	Plume not yet remediated	Contamination of soil/groundwater	Pumping of groundwater and Jet fuel	1,22,79,80,33,37,39 ,48,64	6 Incidental	1 Likely	6		These remediation works will be part of site wide remediation program	
89	Other Areas Offices and Amenities Issue 6	Printers	Empty printer cartridges	Soil contamination, stormwater contamination	Cartridges returned to supplier and disposing/reusing as appropriate	1,22,79,80,33,37,39 ,48,64	6 Incidental	1 Likely	6			
		Fire Station										
90	Other Areas Fire Station Issue 1	Oil Spill Equipment	Maintenance	Inadequate response/containment of spills	Operating and maintenance procedures in place.	37	6 Incidental	1 Likely	6			
91	Other Areas Fire Station Issue 2	Boats / booms	Maintenance	Inadequate response/containment of spills	Operating and maintenance procedures in place.	37	6 Incidental	1 Likely	6			

SI#	Register ID No.	Activity	Aspect	Impact	Existing Control and Mitigation Measures (identify Critical Controls [CC])						Improvement Plan/Corrective Action Reference	Procedural Reference and Related Records
					Control	Legal Requirements	Consequence	Likelihood	Risk Ranking	Signposted		
		Other										
92	Organisational changes Issue 1	New employees	Unfamiliar with environmental aspects and requirements (including legal obligations) of the site	Potential contamination of soil, storm and groundwater and emissions to air, odours	Induction, training in role and written procedures to support role Training in emergency response and spills mgmt	19,21,33,37,39,62	5 Minor	4 Unlikely	8			



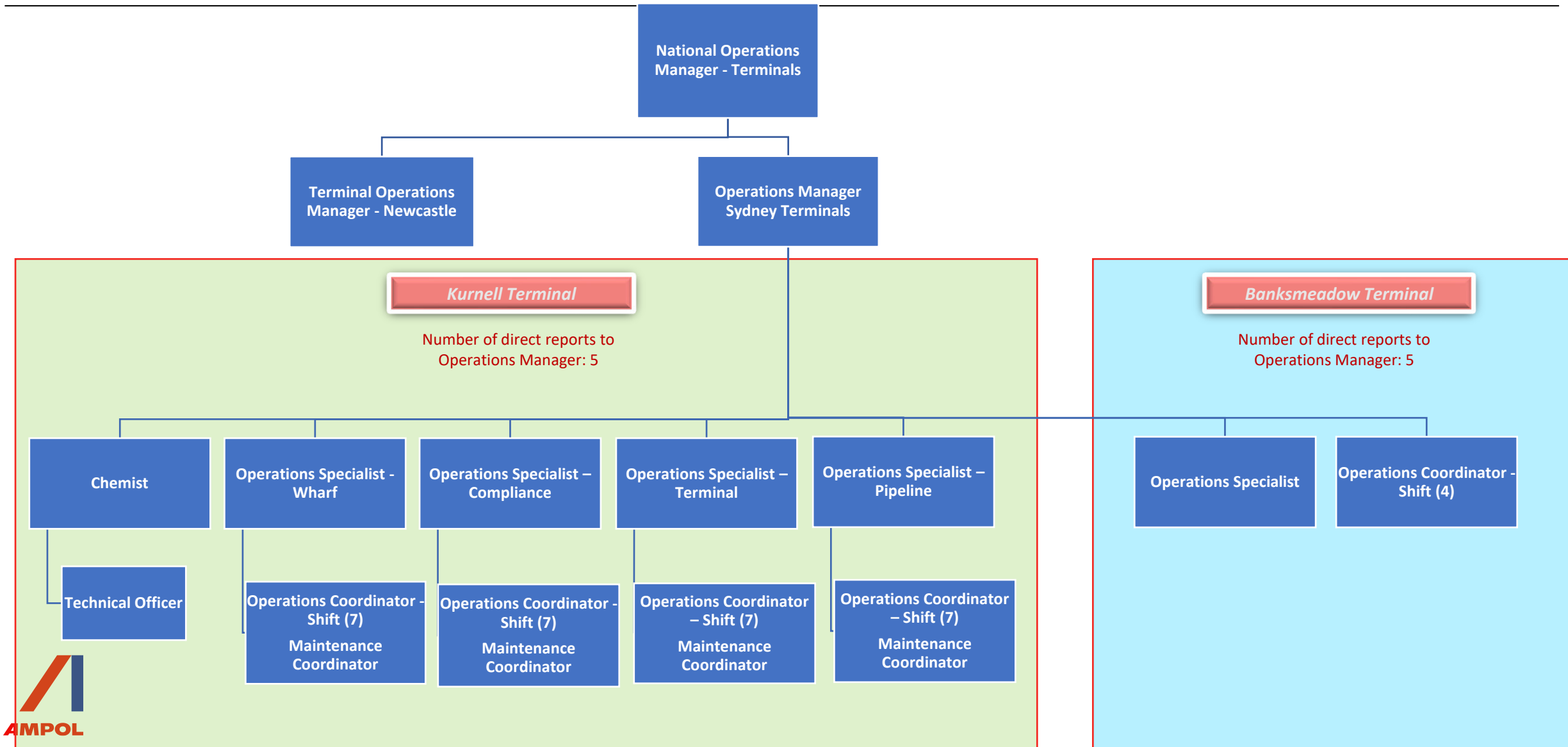
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Appendix G: Organisational Chart

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NSW Terminals – Operations Org structure





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Appendix H: Monitoring and Reporting Register

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Ampol Kurnell Terminal

Monitoring and Reporting Register

Performance Measure(s): Environment Protection Licence 837, Development Consents (SSD 5544, SSD 5544 (MOD1, 2, 3, 4, & 5), SSD 5353), Instrument of Approval MP 11_0004, DA 13/0335,

Review Date:

Reviewer Name:

Document	Condition	Requirement	June	Dec	Comments
EPL 837 Licence period 2 nd May – 1 st May	Stormwater quality as per licence condition O1, L3 and M2	<u>Licence Point 2</u> Stormwater must be tested in accordance with section M2 (Point 27) in the licence. Sampling frequencies vary by parameter and include continuous, every 6 days, monthly and daily during specific discharges. Results are compared with licence discharge limits in L3 (for Point 2) and exceedances must be reported to the NSW EPA as part of the annual return.			
	Groundwater as per licence conditions O1 and M2.	<u>Licence Points 15 and 16</u> Groundwater (Point 15 and 16) must be monitored quarterly in accordance with section M2 (Point 15 and 16). Groundwater monitoring is undertaken by consultants. The results of groundwater monitoring must be submitted to the NSW EPA as part of the annual return.			
	Air Emissions as per licence conditions L2 and M4.	<u>Air emissions</u> The mass of pollutants must be calculated in accordance with the relevant load calculation protocol. This result is compared with a licence discharge limit and exceedances must be reported to the EPA. <u>Air limits</u> Benzene 6,000 kg/annum Volatile organic compounds 3,000,000 kg/annum			
	Biotreater WWTP Bypass use as per licence conditions O6.1 to O6.5	<u>Influent flowrate to the biotreater</u> Influent flowrate should be maintained between 150 and 600 kL/h. Records of biotreater bypass events must be kept, including flow rates.			
	Annual reporting as per licence condition R1.1 - R1.8	An annual return document must be submitted to EPA by 30th June.			

Document	Condition	Requirement	June	Dec	Comments														
SSD 5544 MP 11_0004	Hazard audit as per consent condition C9 and MP 11_0004 condition 5	<p>The site is to undertake a Hazard Audit for the Terminal (including the Jet fuel pipeline).</p> <ul style="list-style-type: none">• The first audit is to occur within 12 months after fully operational (nominally 3 November 2015) and then every three years.• The audit must be undertaken by a qualified, external consultant.• An audit report must be submitted within 1 month of conducting each audit to the Secretary.																	
SSD 5544	Annual review as per consent condition D4	Annual review and reporting of the environmental performance of the Development (Terminal Operations) to the Secretary, DPIE Due 31 December each year																	
SSD 5544 MP 11_0004	Noise management plan SSD 5544 – C17, C22, D2 (d) (ii) MP 11_0004 (9)	<p>Refer to the KNT Noise Management Sub Plan</p> <p>Noise is not to exceed the criteria defined in Condition C17 of SSD 5544.</p> <table border="1"><thead><tr><th rowspan="2">Location</th><th>Day</th><th>Evening</th><th colspan="2">Night</th></tr><tr><th>L_{Aeq} (15 min)</th><th>L_{Aeq} (15 min)</th><th>L_{Aeq} (15 min)</th><th>L_A (maz)</th></tr></thead><tbody><tr><td>At any private residential receiver</td><td>60</td><td>50</td><td>50</td><td>55</td></tr></tbody></table> <p>Review to include the performance of the SoundScience 'SmartaData' noise monitoring system, exceedance reporting to DPE and EPA and relationship between Site and AMAS</p>	Location	Day	Evening	Night		L _{Aeq} (15 min)	L _{Aeq} (15 min)	L _{Aeq} (15 min)	L _A (maz)	At any private residential receiver	60	50	50	55			
Location	Day	Evening		Night															
	L _{Aeq} (15 min)	L _{Aeq} (15 min)	L _{Aeq} (15 min)	L _A (maz)															
At any private residential receiver	60	50	50	55															
SSD 5544	Traffic management plan SSD 5544 - C36, D2 (d) (iii)	Annual review of the environmental performance of the Traffic Management Sub Plan (TMP)																	
SSD 5544	Waste management plan SSD 5544 - C40, D2 (d) (iv)	Six monthly review of the environmental performance of the Waste Management Sub Plan (WMP) Confirm records of types, volumes and destination of all trackable waste are held in Terminal Environmental Waste Log. Report waste transfers annually for NPI substances which trip Threshold 1 or 3 through NPI																	
SSD 5544	Biodiversity management plan SSD 5544 - C42, D2 (d) (v)	Annual review of the environmental performance of the Biodiversity, Weed and Pest Management Sub Plan (BWPMP)																	

Document	Condition	Requirement	June	Dec	Comments
SSD 5544	Pest, vermin & noxious weed management SSD 5544 - C43, D2 (d) (vi)	Annual review of the environmental performance of the Pest, vermin & noxious weed Management Sub Plan (part of BWMP)			
SSD5544 MOD2	ACS Containment Cell (ACS CC) Long Term Management Plan SSD5544 MOD2 D5	Six monthly review of the environmental performance of the Long Term (ACS- CCMP) Management Plan In particular, determine that the M7 maintenance and inspection activities and any corrective actions arising from those activities, have been completed			
SSD 5544	Independent Environmental Audit as per consent D7, D8	Undertake an independent environmental audit of terminal operations, every three years Provide the audit report (together with Ampol response to audit recommendations) to the Secretary within 3 months of commissioning the audit Note: Wharf activities included in IEA scope. Note: Completed 2016; 2017 and 2021 – next due Feb 2024			
POEO Act 1997 POEO (General) Regulation 2009	153E 98E	The PIRMP must be tested at least every 12 months, or within 1 month of any pollution incident. The PIRMP must be reviewed every year and remain current			
Work Health and Safety Regulations 2017	420, 422, 424-430	Review the asbestos register and management plan at least 5 yearly.			

Document	Condition	Requirement	June	Dec	Comments
AS1940 – Storage & Handling of Flammable and Combustible Liquids	9.17	<p>Inspect and maintain tanks and fittings in accordance with AS1940 Section 9.17.</p> <p>AS1940 specifies the following minimum inspection frequencies for vertical tanks >2,500L</p> <ul style="list-style-type: none"> • Tanks, valves & vents – monthly visual inspection • Tanks - 10 yearly non-destructive testing (for tanks >150m3) • Valves and vents – 10 yearly testing • Other tank fittings – quarterly visual inspection (for tanks >150m3) • External foundations and tank supports – annual visual inspection • Level controls – 6-monthly physical testing • Internal and external floating roof seals – 10 yearly physical testing • Cathodic protection – 10 yearly physical testing <p>Other tanks should be inspected and maintained regularly on a risk based programme.</p>			
API653 – Tank Inspection, Repair, Alteration, and Reconstruction	6.1-6.4, 12.1, 12.2	<p>Inspect and test tanks in accordance with API653.</p> <ul style="list-style-type: none"> • External visual inspection – at least monthly • External inspection by authorized inspector – at least every 5 years • Internal inspection by authorized inspector – at least every 10 years (unless an alternative frequency is calculated by risk assessment) <p>Inspect cathodic protection system on tank bottom periodically.</p>			

Appendix I: ISO14001:2015 Cross Reference to OEMP Matrix

ISO 14001:2015 Section Number	ISO 14001:2015 Section Title	OEMP Section Number	OEMP Section Title
4.1	Context of the Organisation	1.1	Scope
		1	Introduction
4.2	Understand needs and expectations of interested parties	5.5	Site Communications
		5.6	Community Complaints
		5.7	External Communications
4.3	Determining scope of environmental management	1.1	Scope
		3	Enterprise management systems
4.4	Environmental management system	3	Enterprise Management Systems
		4	Environmental management system
5.1	Leadership and Commitment	1.1	Scope
		5.3	Environmental Roles and Responsibilities
5.2	Environmental Policy	Appendix B	Ampol Environmental Policy
5.3	Organizational roles, responsibilities and authorities	5.2	Organisational Structure
		5.3	Environmental Roles and Responsibilities
		Appendix G	Organisational Chart
6.1	Actions to address risks and	4.4	Review and Update of Environmental Risk
6.1.2	Environmental aspects	4.4	Review and update of Environmental Risk
		4.5	Identification of Mandatory (M) Rating for
		4.6	Identification of Significant Environmental
		4.7	Identification and Classification of Control
		Appendix E	Ampol Integrated Risk Matrix
		Appendix F	Facility Environmental Risk Register
6.1.3	Compliance Obligations	4.10	Approvals Register
		4.8	Legal Obligations
		4.9	Identify Specific Legal or Other
		Appendix C	Facility Approvals Register
		Appendix D	Register of Legal and Other Requirements
6.1.4	Planning Action	7	Auditing
		Appendix H	Monitoring and Reporting Register
6.2.1	Environmental objectives	1.2	Objectives
6.2.2	Planning actions to achieve environmental objectives	4.11	Environmental Improvement Actions
		7.5	Continual Improvement
7.1	Resources	5.2	Organisational Structure
		5.3	Environmental Roles and Responsibilities
		Appendix G	Organisational Chart

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7.2 7.3	Competence awareness	5.4	Training, Awareness and
		5.4.1	National Site Inductions
		5.4.2	Permit to Work Training
		5.4.3	Safe Load Pass
		5.4.4	Environmental Awareness Training
		5.4.5	Notification of Environmental and
		5.4.6	Spill Response Training
		5.4.7	Contractor Prequalification Program
7.4.1	Internal	5.5	Site Communications
7.4.1	External communication	5.6	Community Complaints
7.4.3		5.7	External Communications
7.5.1	Documentation	5	Site OEMP Implementation
7.5.3	Control of documents	6.6	Environmental Record Keeping
8.1	Operational planning and control	2	Site Description and Layout
		2.1	Surrounding Land Uses
		2.2	Site Layout
		2.3	Operations and Activities
		2.4	Licences and Permits
		2.5	Management of Product Receipt, Storage,
		2.5.1	Product Receipt
		2.5.2	Product Storage
		2.5.3	Product Delivery / Supply – Pipeline
		2.5.4	Air Emission Management
		2.5.5	Spill Containment and Response
		2.5.6	Stormwater and Trade Waste Water
		2.5.7	Groundwater
		2.5.7	Pipeline Management
		2.5.8	Waste Prevention, Treatment and Disposal
		2.5.9	Vegetation and Weed Management
		2.5.10	Fire Fighting Training Area
		2.5.11	Permanent Sustainable Soil Regeneration Facility
		2.5.12	Jet Fuel Treating Unit
		2.5.13	Laboratory
		2.5.14	Activities Undertaken on the Site Outside of Terminal Operations
		2.6	Environmental Conceptual Model
		Appendix A	Site Maps and Diagrams
		Appendix J	Terminal Manager Sub Plans
		Appendix K	Asbestos Contaminated Soil (ACS) Containment Cell - Long Term Environment Management Plan
		Appendix L	SSD 5544 Consolidated Consent Conditions - (Includes MODS 1-6)
8.2	Emergency preparedness and response	5.8	Ampol Crisis and Emergency Management
		5.9	Site Emergency Planning and Response

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9.1.1	Monitoring, measurement, analysis and evaluation	6	Monitoring and Reporting
		6.1	Site Inspection Program
		6.2	Preventative Maintenance Program
		6.3	Environmental Monitoring Program
		6.4	Evaluation of Compliance
		6.5	Key Performance Indicator Monitoring
		6.5.1	Leading Indicators
		6.5.2	Lagging Indicators
9.1.2	Evaluation of compliance	7	Auditing
		7.1	Environmental Audits
		7.2	Energy and Resource Use Audits
		7.2.1	National Pollutant Inventory Reporting
		7.2.2	National Greenhouse and Energy Reporting
9.2	Internal audit	7.3	Ampol Internal Audit Program
		Appendix H	Monitoring and Reporting Register
9.3	Management review	3	Enterprise Management Systems
		3.1	Management Systems
		3.2	Operational Excellence Management System
		3.3	Loss Prevention System (LPS)
		4	Environmental Management System (EMS)
		4.1	Ampol Risk Management Framework (CRMF)
		4.2	Ampol Risk Management Framework Reviews
		4.3	Site Environmental Risk Assessment
		5.1	OEMP Management
		7.7	OEMS Reviews
		7.8	OEMP Reviews
10.1	Improvement - General	6	Monitoring and Reporting - all
	Nonconformity, corrective action	7	Auditing – all
		7.4	Non-conformance, Corrective or Preventative Action
	Continual Improvement	7.5	Continual Improvement
9.1.2	Evaluation of compliance	7	Auditing
		7.1	Environmental Audits
		7.2	Energy and Resource Use Audits
		7.2.1	National Pollutant Inventory Reporting
		7.2.2	National Greenhouse and Energy Reporting

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Division	Fuels and Infrastructure
Type	Plan
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9.2	Internal audit	7.3	Ampol Internal Audit Program
		Appendix H	Monitoring and Reporting Register
9.3	Management review	3	Enterprise Management Systems
		3.1	Management Systems
		3.2	Operational Excellence Management System
		3.3	Loss Prevention System (LPS)
		4	Environmental Management System (EMS)
		4.1	Ampol Risk Management Framework (CRMF)
		4.2	Ampol Risk Management Framework Reviews
		4.3	Site Environmental Risk Assessment
		5.1	OEMP Management
		7.7	OEMS Reviews
		7.8	OEMP Reviews
10.1	Improvement - General	6	Monitoring and Reporting - all
		7	Auditing – all
	Nonconformity, corrective action	7.4	Non-conformance, Corrective or Preventative Action
	Continual Improvement	7.5	Continual Improvement

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Appendix J: Terminal Management Sub Plans

Includes:

- Noise Management Plan (NMP)
- Air Quality Management Plan (AQMP)
- Soil and Water Management Plan (SWMP)
- Waste Management Plan (WMP)
- Traffic Management Plan (TMP)
- Biodiversity, Weed and Pest Management Plan (BWMP)
- Biosecurity Incident Response Management Plan (BIRMP)

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Division	Fuels & Infrastructure
Type	Sub-Plan
Title	Noise Management Sub-Plan

Kurnell Terminal (KNT) - Noise Management Sub-Plan (NMP)	
Site Location	2 Solander Street, Kurnell, NSW, 2231 (includes operational Wharf facility on Prince Charles Parade, Kurnell, NSW 2231)
Operations Hours	Operation times are 24 hours seven days a week.
Objective	<p>The objectives of the NMP are to:</p> <ul style="list-style-type: none"> • Prevent and minimise high noise generating activities during all operation (within safety limitations) at the Kurnell Terminal (the 'Site'), Wharf and associated pipeline operations as well as other project works (as defined in Kurnell Terminal OEMP, Chapter 1 Introduction). • Manage community expectations regarding noise emissions. • Compliance with the Site's Environment Protection Licence 837 (EPL 837) noise limits and relevant guidelines. • Compliance with Conditions of Consent (CoC) and associated Management and Mitigation Measures (MMMs). • Compliance with relevant regulatory requirements (identified in the <i>Kurnell Terminal OEMP, Appendix D</i>). <p>To address these objectives, the NMP documents:</p> <ul style="list-style-type: none"> • The management measures, actions and associated performance indicators, that will be implemented throughout the life of the site • The implemented noise management monitoring program as it applies to the operation of the Site; and • Roles and responsibilities and reporting requirements.
Management Strategy	<ul style="list-style-type: none"> • Manage Site operations so that: • Manage and minimise noise generated by the Site, Wharf and associated pipeline operations, as far as practicable. • Continue community consultation and respond to notifications in line with established procedures. • Control non-routine potential noise generating activities. • Respond to unpredicted noise generating activities. • Maintain an effective noise monitoring system (Wharf) and the NSW Regulator (DPIE and EPA) reporting standards for the SoundScience ship noise (predicted) monitoring system based at the Wharf.

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Legislative and Other Requirements	<ul style="list-style-type: none">• NSW Protection of the Environment Operations Act 1997• NSW Protection of the Environment Operations (Noise Control) Regulation 2008• NSW EPA Noise Policy for Industry, Oct 2017• NSW EPA EPL 837;• Development Consent – SSD 5544 (as identified in Kurnell Terminal OEMP, Appendix C);• Notice of Modification – SSD 5544 MOD 1 (as identified in Kurnell Terminal OEMP, Appendix C);• Instrument of Approval – MP 11_0004 (as identified in <i>Kurnell Terminal OEMP, Appendix C</i>)														
Supporting Documentation	<p>The following supporting documents have been referenced in this Sub Plan:</p> <ul style="list-style-type: none">• Kurnell Terminal Operational Environmental Management Plan (OEMP);• Shipping Forms Kurnell Terminal - SD103111• Kurnell Wharf Noise Minimisation Program – Kurnell Wharf Noise Management Letter - SD205843• NSW EPA EPL 837;• DPE Development Consent – SSD 5544 (as identified in Kurnell Terminal OEMP, Appendix C);														
Regulatory Requirements															
SSD5544	<p><u>Consent Condition C17: Operational Noise Limits</u></p> <p>The Applicant shall ensure that the operational noise generated by the Development does not exceed the Criteria for residential receivers are summarised in Table 3 below:</p> <p>Table 3: Operational Noise Limits dB(A)</p> <table><tr><th rowspan="2">Location</th><th>Day (0700-1800)</th><th>Evening (1800-2200)</th><th colspan="2">Night (2200-0700)</th></tr><tr><th>LAeq (15 min)</th><th>LAeq (15 min)</th><th>LAeq (15 min)</th><th>LAmx</th></tr><tr><td>At any private residential receiver</td><td>60</td><td>50</td><td>50</td><td>55</td></tr></table> <p>Notes:</p> <ul style="list-style-type: none">• To identify a residential receiver location, refer to Appendix F of the EIS for SSD 5544.• Noise generated by the development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy. <p>These criteria have been developed for this specific development; however it is recognised that the site is zoned for heavy industrial purposes and that ultimately the amenity of the area should be controlled by the criteria contained in Table 2.1 of the Noise Policy for Industry</p>	Location	Day (0700-1800)	Evening (1800-2200)	Night (2200-0700)		LAeq (15 min)	LAeq (15 min)	LAeq (15 min)	LAmx	At any private residential receiver	60	50	50	55
Location	Day (0700-1800)		Evening (1800-2200)	Night (2200-0700)											
	LAeq (15 min)	LAeq (15 min)	LAeq (15 min)	LAmx											
At any private residential receiver	60	50	50	55											

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Regulatory Requirements - *continued*

EPA EPL837:

Section L5 Noise Limits

L5.1 Noise from the premises must not exceed:

- a) An LAeq (15 minute) noise emission criterion of **60 dB(A)** (07:00am to 6:00pm) seven days a week; and
- b) An LAeq (15 minute) noise emission criterion of **50 dB(A)** at all other times, and
- c) An L_{Amax} noise emission criterion of 55 dB(A) (10:00pm to 7:00am)

except as expressly provided by this licence.

L5.2 Noise from the premises is to be measured or computed at any point within one metre of any affected residence to determine compliance with condition L5.1 5 dB (A) must be added if the noise is tonal or impulsive in character.

L5.3 Where it can be demonstrated that direct measurement of noise from the premises is impractical, the EPA may accept alternative means of determining compliance. See Chapter 11 of the NSW Industrial Noise Policy January 2000 for general guidance on determining compliance.

L5.4 For the purpose of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.

L5.5 The noise emission limits identified in Condition L5.1 of this licence, apply under meteorological conditions of:

- a) Wind speed up to 3 m/s at 10 metres above ground level; and
- Temperature inversion conditions up to 3 degrees Celsius/100 metres and wind speed up to 2m/s at 10 metres above the ground.

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Operations and Activities	<p>In this context, Operation refers to the operation of the Site, Wharf and associated pipelines but does not include commissioning trials of equipment or temporary use of parts of the Site (such as during construction or maintenance activities) and the SNP. The main operations and activities at the Site, Wharf and associated pipelines comprise:</p> <ul style="list-style-type: none"> • Receipt and back load of products via the Wharf (KUR1, KUR2 and KUR3 (Sub-Berth)); • Wharf operations and maintenance; • Distribution of products from the Site through the pipelines to other Ampol facilities (Pipeline managed by the Ampol Pipelines team); • Coordinating product movements between the Terminal, Banksmeadow Terminal, Sydney Joint User Hydrant Installation (JUHI) and Sydney Newcastle Pipeline (SMP) – system is automated; • Transfer of slops via underground pipeline to the wharf for transport by ship to other locations, as needed; • Receipt of slops via underground pipeline from the Banksmeadow Terminal to the onsite storage tanks • Filling, transferring and delivering product to/from onsite storage tanks via internal pipelines; • Laboratory QA testing (NATA certified) of products on receipt and prior to release to pipeline • Inspection, monitoring and testing of all storage and product transfer equipment, including bulk storage tanks, piping systems and valves, vent systems and devices, emergency shutdown systems, control pumps, and maintenance of all storage and product transfer equipment; • Inspecting vapour lines for compliance; • Emergency Preparedness and Response; • Maintenance of pipeline Right of Ways (ROWs); • Vegetation and weed management; • Heritage management • Operation of a jet fuel treater; • Stormwater management and outfalls at Quibray and Botany Bay; • Oily water system capture, treatment at the Wastewater Treatment Plant and wastewater outfall pipeline through Yena Gap
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Operations and Activities <i>continued</i>	<ul style="list-style-type: none"> Managing site security (including site entry to Wharf and Terminal and other permits); Inventory management and data entry/processing; Conducting and recording routine inspections and observations; Regular community consultative meetings and responding to community complaints; Management of road traffic and people movements on Site;
Key Operational Noise Sources	<p>Based on Site operations and experience, review of recent noise assessment reports and review of calls to the KNT community hotline, the following are considered to be the key potential noise sources for the Site:</p> <ul style="list-style-type: none"> Wharf operations, specifically during shipping and product discharging activities at the fixed berths (KUR1 and KUR2); Maintenance of wharf infrastructure; Fans, motors and pumps on Terminal plant and equipment; Mixers on some storage tanks; and Larger vehicles entering and leaving the Terminal

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Controls and Mitigation Measures for Management of Operational Noise

The operational area with the most potential to generate elevated noise levels and community complaints is the wharf. The plant and equipment situated at the wharf is general quiet. The international ships that bring finished product to the Site, can on occasions exceed the set noise limits during shipping activities associated with product discharge and back loading, primarily during the night-time period 06:00pm to 07:00am

The controls and mitigation measures will be detailed below.

Wharf Operations - Shipping

Aspect	Actions	Accountability	Timing
Operations at the Wharf	<ul style="list-style-type: none"> The effectiveness of noise suppression equipment on plant will be maintained at all times. Defective plant that may generate offensive noise will not be used until fully repaired. The availability of low-noise emitting equipment will be assessed and selected when purchasing or hiring additional equipment, where possible. Equipment that is not needed to operate and/or unnecessary will be stopped and/or shut down, particularly between the hours of 1800 to 0700. Weather conditions (particularly wind direction) and forecasts will be monitored regularly to ensure that Ampol is prepared to respond in the case of increased noise levels at nearby sensitive residential receptor during shipping activities. Pumps etc. will be used selectively where possible such that noise reaching any sensitive residential receptor is minimised where possible. Unnecessary openings will be kept closed e.g. pump coverings etc., where closure could result in reduced noise levels at nearby sensitive residential receptors, except as required for safety and operational reasons. Filters and fans and their driving motors, gears, bearings etc., will be maintained in good working order so as to minimise noise. Maintain and update as needed the <i>Shipping Forms Kurnell Terminal</i> and <i>Kurnell Wharf Noise Minimisation Program – Kurnell Wharf Noise Management Letter</i> documents. Inform ship master and ships owners of these documents at time of chartering and monitor compliance with the requirements outlined in them. 	Terminal Operations Manager or delegate	At all times
		Shore Officers	At all times
		Maintenance Team Lead or delegate	At all times

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Aspect	Actions	Accountability	Timing
Ship Operations	<p>The KNT Shipping Noise Control and Minimisation Program has a number of elements and must be implemented and complied with by the ship captain and agents/owners of vessels berthing at the Wharf.</p> <p><u>Prior to Berthing</u></p> <p>Ampol Marine Assurance are responsible for the chartering of ships for product transport to Kurnell Terminal. The ship captain and agents/owners of chartered vessels must submit specific written Noise Reduction and Control Plans at the time of each chartering event. These plans detail the actions the ship captain will be taking during its next charter to Kurnell, thus enabling their operational noise level to remain compliant with the KNT EPL noise limits.</p> <p>Such plans shall detail the sequencing of the ship's generators, engine room blower fans and pumps that will be used while berthed at the wharf and the "at sea" maintenance activities to ensure optimum plant and equipment operation (clean filters, etc.). It should include scheduling of the noisier maintenance tasks to be completed whilst at sea.</p> <p>To support the ship captain and agents/owners understanding of the KNT requirements, the "Kurnell Wharf Noise Management Letter" (Ampol, 2018) is provided. The purpose of this letter is to advise and:</p> <ul style="list-style-type: none"> • communicate the environmental noise limits imposed on the Terminal operations by the NSW EPA, • point out the Wharf's proximity to the Kurnell residence precinct and the community expectations that their amenity will not be affected by shipping operations, • set out the minimum noise control and mitigation measures vessel operators must comply with while berthed at the wharf 	Ship Captains and Agents/Owners	Each chartering event

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Aspect	Actions	Accountability	Timing
Ship Operations <i>continued</i>	The submitted NRCP need to reflect the requirement set out in the Ampol letter. Once accepted by Ampol Marine Assurance and KNT Operations Specialist (Shipping), the NRCP is included in the Kurnell Terminal Ship Discharge Instructions pack for the Kurnell Terminal Shore Officer to reference.	Ship Captains and Agents/Owners	Each chartering event
Berthed Vessels	<u>During Vessel's Berth at KNT:</u> <ul style="list-style-type: none"> Fans and their driving motors, gears, bearings etc., will be maintained in good working order so as to minimise noise. Unnecessary openings will be kept closed e.g. pump coverings etc., where closure could result in reduced noise levels at nearby receptors except as required for crew safety and operational reasons. Pumps etc. will be used selectively where possible, such that noise reaching any sensitive residential receptor is minimised where possible. Filters in the airway trunking for pumps to be kept clean. 	Ship Captains and Crew	At all times
Noise Monitoring - Berthed Ship/s			
Aspect	Monitoring System Features		
SoundScience 'SmartaData' Noise Monitoring System	<p>The SoundScience 'SmartaData' noise monitoring system is installed permanently at the wharf (first floor verandah) and is configured to continuously monitor and record single channel 1/3 octave noise levels, audio and coinciding meteorological data (precipitation, wind speed and wind direction).</p> <p>Based on the measured wharf noise levels and coinciding meteorological conditions, the system predicts real-time noise levels on-shore, external to the six set residences located on Prince Charles Parade, Kurnell. Based on this prediction, the system estimates compliance with Condition C17 of the Site's Development Consent and the Environment Protection Licence 837– refer back to Regulatory Requirements.</p>		

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Aspect	Noise Monitoring System Features		
SoundScience 'SmartaData'	The system's principal value is considered to be its ability to provide cues to operations staff, namely the Shore Officer located at the Wharf, to respond in circumstances where a ship's noise emission level, in combination with noise-enhancing wind conditions, has the potential to result in on shore noise level exceedances against the licence.		
Noise Monitoring System	The SoundScience "SmartaData" system also provides objective information on the ship's noise output whilst berthed. The availability of timely and accurate ship noise level output enables the Shore Officers to engage more proactively with the ship captain and crew in real time (particularly during the product discharge period) to reduce any noise impact as much as practicable while berthed and more importantly, prior to arrival of each ship.		
<i>continued</i>	<p>Using the data, they can work with the ship captain when decisions are made regarding pump discharge rates (in cases where the monitor indicates the ship noise output is likely to exceed the noise limit if operational changes are not made). Radio communications between the Shore Officer and ship captain included regular discussions on the noise monitoring readings.</p> <p>These discussions can be initiated by the ship captain. Communicating the noise level reading is proving to be particularly useful when the ships discharge pumps are moving to maximum rate or when the discharge pump rate needs to be reduced in response to elevated noise levels. The Shore Officers are authorised by the KNT Operations Manager to issue a Letter of Protest (LoP) to the ship captain for elevated noise levels above the Kurnell EPL noise limits, even if no community complaints are received. This is a significant tool that reinforces the seriousness of the noise level exceedance event.</p> <p>The system's on-going use assist in the identification of long-term trends, i.e. the identification of ships that repeatedly exceed the noise limit, under a range of meteorological conditions, or conversely, the identification of ships that manage to reduce their emissions over time (return vessel movements) through engineering or operational changes.</p> <p>The system has provided an increased awareness of the operational noise issues associated with berthed ships and its use over the six-month trial between December 2017 and May 2018 has led to the fostering of improved proactive noise management practices and communications between:</p> <ul style="list-style-type: none"> Ampol Kurnell Terminal Shore Officer and the ship's captain and crew Ampol Kurnell Terminal Operational Specialist and the Terminal Operations Manager, Ampol Supply and Ampol Marine Vetting 		

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Shipping Noise Monitoring System			
Aspect	Actions	Accountability	Timing
Berthed Vessels	<ul style="list-style-type: none"> Ship Captain/s and their crew must comply with the requirements of their submitted NRCP at all times whilst berthed Ship Captain must compile with all requests by the Ampol Shore Officer to reduce noise levels when directed, if safe to do so Fans and their driving motors, gears, bearings etc., will be maintained in good working order so as to minimise noise. Unnecessary openings will be kept closed e.g. pump coverings etc., where closure could result in reduced noise levels at nearby receptors except as required for crew safety and operational reasons. Pumps etc. will be used selectively where possible, such that noise reaching any sensitive residential receptor is minimised where possible. Filters in the airway trunking for pumps to be kept clean. 	Ship Captains and Crew	At all times
	<p>Ampol Shore Officer must:</p> <ul style="list-style-type: none"> monitor the SoundScience “SmartaData” system whilst ships/s are berthed to identify any potential for the ship noise levels to approach the EPL noise limits provide timely feedback to the Ship Captain/s regards elevations in noise levels that are approaching the EPL noise limits provide directions to the Ship Captain/s to reduce pumping rates, etc to assist in reducing the ships noise levels Request that the Ship Captain/s confirm they have complied with their NRCP Document all interactions with the Ship Captain/s regards noise Issue a Letter of Protest when a ship exceeds the Noise Limits set by the EPL 	Ampol Shore Officers	Whilst ships are berthed

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Controls and Mitigation Measure for Management of Operational Noise – Land Based Activities			
Aspect	Actions	Accountability	Timing
Terminal	<ul style="list-style-type: none"> Ensure plant and equipment is maintained in good working order and conforms to industry standards. Defective plant that may generate offensive noise will be tagged “out of service” and not used until fully repaired. The availability of low-noise emitting equipment will be assessed and selected when purchasing or hiring additional equipment, where possible. Weather conditions and forecasts will be monitored regularly to ensure that Ampol is prepared to respond in the case of increased noise levels at nearby receptors. High noise works such as lawn moving activities in the Right of Ways are restricted to 7am-6pm Monday to Saturday 	<p>Terminal Operations Manager or delegate</p> <p>Maintenance Team Lead or Delegate</p>	<p>At all times</p> <p>At all times</p>
Remediation Works	<ul style="list-style-type: none"> High noise works such as excavation works involving large excavators in the Right of Ways are restricted to 7am-6pm Monday to Saturday Residents of adjoining properties and local community groups are to be consulted prior to commencing high noise works (including work at Kurnell Right of Ways, Silver Beach and the Wharf) with timing and respite periods discussed. Such work is to be restricted to 7am-6pm Monday to Saturday <p>Refer to Remediation Project Environment Management Plan (EMP) for specific details of those works considered high noise works, along with the details of the and the control and mitigation measures</p>	Remediation Project Lead or Delegate	At all times

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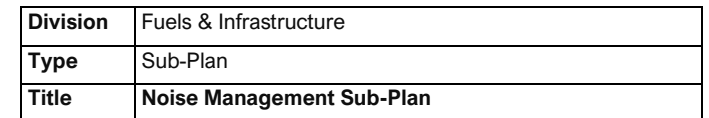
Aspect	Actions	Accountability	Timing
Traffic (Vehicles, Plants and Equipment)	<p>Ampol will ensure that operations vehicles used on the Terminal are:</p> <ul style="list-style-type: none"> • Maintained in a proper and efficient condition; and • Operated in a proper and efficient manner <p>Ampol will ensure that all contractors bringing vehicles and other mobile plant and equipment on the Terminal are made aware of their obligations to:</p> <ul style="list-style-type: none"> • Maintain such vehicles /plant/equipment in a proper and efficient condition; and • Operate them in a proper and efficient manner 	Terminal Operations Manager or delegate	At all times
Unpredicted Noisy Activity	<ul style="list-style-type: none"> • Should an operational activity result in the potential for the set noise limits to be exceeded, Ampol will stop the activity and investigate other options for doing the work or reducing the noise at the source. • If this cannot be achieved, Ampol will either monitor the noise to understand its potential impact and/or engage in community consultation as required. Reasonable and feasible noise mitigation measures will be implemented as required. 	Terminal Operations Manager or delegate	At all times

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Other Noise Management Requirements			
Aspect	Actions	Accountability	Timing
Community and Consultation	<ul style="list-style-type: none"> Quarterly community consultation meetings held in Kurnell with local residents and other interested parties will be undertaken to maintain on-going dialogue and assist in the alleviation of community concerns , as they arise. Should feedback and/or complaints about the Site's noise (shipping and general) management practices be received, these will be recorded in the Site's Complaints Register and investigated in accordance with Ampol and Site procedures. Reasonable and feasible measures will be implemented to reduce air quality impacts from the Site operations (includes remediations works). <p>Refer to Kurnell Terminal OEMP Section 5.6 Community Complaints and the Ampol <i>Environmental Community Consultation Standard</i> SD101939 for additional details.</p>	Terminal Operations Manager or delegates	Quarterly and, as required
Monitoring Program			
Aspect	Actions	Accountability	Timing
Contractor Obligations	<p>All contractors are required to:</p> <ul style="list-style-type: none"> undertake the Ampol and Terminal specific Induction before they can commence work on the Site. Comply with the requirements of this Management Plan. Comply with the requirements of the Work Permit/s at all times Only use plant and equipment for which they are trained to use Report all environmental incidents as they occur. Attend environmental inductions or any other training as required 	Contractors	At all times

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Aspect	Actions	Accountability	Timing
Non-Compliance Reporting	<p><u>Shipping Noise Specific Reporting</u></p> <p>Reporting to both the NSW EPA and NSW DPE will be by email and undertaken when:</p> <ul style="list-style-type: none"> A ship/s noise output is assessed via the SoundScience monitoring system to be above the EPL noise level limit, as well as when; Kurnell Community Hotline calls are received, relating to shipping activities <p>Should noise complaints be received, the Community Complaints Register will be updated and managed in line with the existing <i>Kurnell Terminal Community Engagement and Consultation Strategy</i>.</p> <p>A standard email template has been developed for reporting purposes. It includes the following details:</p> <ul style="list-style-type: none"> Ship Name Date Berthed (1st Line) KUR Berth No Activity at Time. Time and Date that Noise Level Elevation Observed. Predominant Wind Direction SoundScience Monitoring System Reading Community Hotline Call/s Received Time of Call/s Action Outcome/s <p>Reporting to both the NSW EPA and NSW DPE will be by email, at the time the Noise exceedance has been confirmed.</p>	Terminal Operations Manager or delegates	As required, for each event

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Aspect	Actions	Accountability	Timing
Non- Compliance Reporting <i>continued</i>	General Reporting: <ul style="list-style-type: none"> In line with the requirements of SSD5544, D4 <i>Annual Review</i>, a summary of the ships reported to have exceeded to night-time noise limit will be included in the report. 	Senior Environment Specialist, Licensed Sites	Annually
Periodic Sub-Plan Review/ Continuous Improvement	<ul style="list-style-type: none"> Impacts and environmental performance of the development and effectiveness of the noise management measures described in this Sub-Plan will be monitored and reported. This will include a review of the shipping records and notifications to DPIE and EPA <p>Refer to Kurnell Terminal OEMP, Chapter 6 Monitoring and Reporting.</p>	Terminal Operations Manager or Delegate	Six Monthly and, as required
Records to be maintained in Terminal and Ampol Files	<ul style="list-style-type: none"> Held in the Cintellate database (LPS): All environmental incidents, site inspections and audits – held in Cintellate. All non-conformance and corrective actions. All noise complaints <p>Ampol Marine Assurance System AMAS):</p> <ul style="list-style-type: none"> Shipping Vessel Noise Performance Review records (including noise exceedance events, LoC 's, <i>Vessel Evaluation Terminal Feedback Reports</i> and community complaints) data for each ship 	<p>Terminal Operations Manager or delegates</p> <p>Ampol Marine Assurance Team</p>	<p>As required</p> <p>All Shipping Record</p>

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Division	Fuels & Infrastructure
Type	Sub-Plan
Title	Air Quality Management Sub Plan

Kurnell Terminal (KNT) - Air Quality Management Sub-Plan (AQMP)	
Site Location	2 Solander Street, Kurnell, NSW, 2231 (includes operational Wharf facility on Prince Charles Parade, Kurnell, NSW 2231)
Operations Hours	Operation times are 24 hours seven days a week.
Objectives	<p>The objectives of the AQRMP are to:</p> <p>The objective of the AQMP is to ensure that the Terminal (the 'Site') operations and other site based project works do not result in decreased air quality or impacts to the surrounding environment as detailed in the SEEs. As an environmental outcome for the Site, Ampol shall not cause or permit the emission of offensive odours from the Site, as defined under Section 129 of the POEO Act.</p> <ul style="list-style-type: none"> • Implement all reasonable and feasible dust and odour mitigation measures to prevent and minimise odour and dust emissions from operations; • Prevent and minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events; • Minimise any visible off-site air pollution; • Minimise surface disturbance of the Site, other than as permitted under this consent and Site's Environment Protection Licence 837 (EPL 837); • Minimise energy use; and • Minimise greenhouse gas emissions • Manage the community expectations regards the prevention of air quality impacts to their amenity <p>To address these objectives, the AQMP documents:</p> <ul style="list-style-type: none"> • The management measures, actions and associated performance indicators, that will be implemented throughout the Site's operations; • The agreed monitoring program that will be implemented; and • Key Site roles and responsibilities and reporting requirements.

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Objectives <i>continued</i>	<p>Additionally, this AQMP documents:</p> <ul style="list-style-type: none"> • Odour monitoring and mitigation processes for Remediation project works identified with higher potential for odour generation. <p>Note:</p> <p>The Site has been declared as a “significantly contaminated land” under the NSW Contaminated Lands Management Act.</p> <p>In consultation with the Contaminated Land section of the NSW EPA, Ampol has developed a detailed Remediation Action Plan for the Site. Therefore, the remediation scope and management strategies will not be described in this Sub-Plan. The Remediation project also has a separate Environment Management Plan to support the Remediation Plan.</p>
Management Strategy	<p>The demolition works associated with the conversion of the Site from a Refinery to a finished petroleum goods import Terminal has now concluded (including the construction of the Asbestos Contaminated Soil (ACS) Containment Cell).</p> <p>A number of additional remediation activities are planned for the Site over the coming years. The key remediation project works with the potential to create odours will be:</p> <ul style="list-style-type: none"> • the removal of Land farm soils • ‘hot spot’ areas where heavier hydrocarbon contamination has been identified (through repeated soils sampling and analysis) • the use of Geobags for dewatering of hydrocarbon impacted soils <p>These potential risks will be managed by:</p> <ul style="list-style-type: none"> • implementation of the specific control measures required to undertake the remediation works including the performance objectives and actions, monitoring, reporting and corrective actions , as required. • Provision of suitable equipment, facilities, training, work practices and other necessary precautions to minimise impacts to the environment and the risk of pollution. • All Ampol and Contractors personnel implementing reasonable and practicable measures to avoid or minimise impacts to the environment that may arise from the above mentioned works.

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Legislative and Other Requirements	<ul style="list-style-type: none"> • Protection of the Environment Operations Act 1997 • SSD 5544 • NSW EPA EPL 837 • NSW Contaminated Lands Management Act
Supporting Documentation	<p>The following supporting documents have been referenced in this Sub Plan:</p> <ul style="list-style-type: none"> • Kurnell Terminal Operational Environmental Management Plan (OEMP); • Ampol Environmental Compliance Guideline SD101206 • Ampol Environmental Aspects , Impacts and Significance Identification Procedure – SD103487 • NSW EPA EPL 837; • Development Consent – SSD 5544 (as identified in Kurnell Terminal OEMP, Appendix C);
Regulatory Requirements	
SSD5544	<p><u>Consent Condition C28</u></p> <p>The Applicant shall prepare and implement an Air Quality Management Plan for the proposed construction works and terminal operations. The plan shall:</p> <p>(a) be prepared and implemented by a suitably qualified and experienced expert in consultation with the EPA and NSW Health;</p> <p>(b) be approved by the Director-General prior to commencement of construction;</p> <p>(c) describe the measures that would be implemented on site to ensure:</p> <ol style="list-style-type: none"> i. the control of air quality and odour impacts of the Development; ii. that these controls remain effective over time; iii. best management practice is employed; iv. the air quality impacts are minimised during adverse meteorological conditions and extraordinary events; and v. compliance with the relevant conditions of this consent. <p>(d) describes the air quality & odour management system;</p> <p>(e) includes an air quality monitoring program that:</p> <ol style="list-style-type: none"> i. is capable of evaluating the performance of the proposal; ii. includes a protocol for determining any exceedances of the relevant conditions of consent and responding to complaints; iii. adequately supports the air quality management system; and iv. evaluates and reports on the effectiveness of the air quality management system. <p><i>Note: NSW EPA representative reviewed the updated AQMP in November 2019</i></p>

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EPA EPL837:	<p>L6 Potentially offensive odour</p> <p>L6.1 The licensee must not cause or permit the emission of offensive odour beyond the boundary of the premises.</p> <p>L6.2 No condition of this licence identifies a potentially offensive odour for the purposes of section 129 of the Protection of the Environment Operations Act 1997.</p> <p>Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.</p>
Operations and Activities	<p>In this context, Operation refers to the operation of the Site, Wharf and associated pipelines but does not include commissioning trials of equipment or temporary use of parts of the Site (such as during construction or maintenance activities) and the SNP. The main operations and activities at the Site, Wharf and associated pipelines comprise:</p> <ul style="list-style-type: none"> • Receipt and back load of products via the Wharf (KUR1, KUR2 and KUR3 (Sub-Berth)); • Wharf operations and maintenance; • Distribution of products from the Site through the pipelines to other Ampol facilities (Pipeline managed by the Ampol Pipelines team); • Coordinating product movements between the Terminal, Banksmeadow Terminal, Sydney Joint User Hydrant Installation (JUHI) and Sydney Newcastle Pipeline (SMP) – system is automated; • Transfer of slops via underground pipeline to the wharf for transport by ship to other locations, as needed; • Receipt of slops via underground pipeline from the Banksmeadow Terminal to the onsite storage tanks • Filling, transferring and delivering product to/from onsite storage tanks via internal pipelines; • Laboratory QA testing (NATA certified) of products on receipt and prior to release to pipeline • Inspection, monitoring and testing of all storage and product transfer equipment, including bulk storage tanks, piping systems and valves, vent systems and devices, emergency shutdown systems, control pumps, and maintenance of all storage and product transfer equipment; • Inspecting vapour lines for compliance;

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Operations and Activities <i>continued</i>	<ul style="list-style-type: none"> • Maintenance of pipeline Right of Ways (ROWS); • Vegetation and weed management; • Heritage management • Operation of a jet fuel treater; • Stormwater management and outfalls at Quibray and Botany Bay; • Oily water system capture, treatment at the Wastewater Treatment Plant and wastewater outfall pipeline through Yena Gap • Managing site security (including site entry to Wharf and Terminal and other permits); • Inventory management and data entry/processing; • Conducting and recording routine inspections and observations; • Regular community consultative meetings and responding to community complaints; • Management of road traffic and people movements on Site;
Key Air Emission Sources	<p>Under normal Site operations, the potential for air emissions and impacted air quality are considered to be low. The main potential soil contaminant emissions and air quality risks are considered to be associated with the proposed remediation works within contaminated areas of the Site. They are:</p> <ul style="list-style-type: none"> • Movement/reworking of odourous soils/sludges from the redundant refinery Landfarm area • Odourous stockpiles and use of Geobags for dewatering of sludges • Vehicle generated dust especially when traversing in off-road areas; • Wind-blown dust generated from temporary stockpiles; • VOCs and/or odours from the operation of vehicles, movement/excavation of potentially contaminated soil and stockpiles, and hydrocarbon spills during soil movements • Particulate matter and soil contaminant emissions (including asbestos) from the excavation, handling, transport of contaminated soils. • Particulate matter from transport of ACS on internal roadways. • Combustion emissions from mobile plant (e.g. trucks, excavators, dozers).

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Controls and Mitigation Measure for Management of Air Quality

In addition to the general requirements detailed in the Kurnell Terminal OEMP, specific control measures required to undertake excavation works with the potential to generate air quality impacts (including remediation project works) including actions, performance indicators, monitoring, reporting and incident management set out in the following sections.

Suitable equipment, facilities, training, work practices and other necessary precautions will be taken to minimise air quality impacts to the environment and the risk of pollution.

All Ampol and Contractors personnel will implement reasonable and practicable measures to avoid or minimise air quality impacts to the environment that may arise from their activities on site.

Ampol Permit Issuers will communicate expectations to contractors undertaking the following activities that they implement reasonable and practicable measures to avoid or minimise air quality impacts to the environment that may arise from such activities.

Controls and Mitigation Measure

Aspect	Actions	Accountability	Timing
Truck and Equipment Movements	<ul style="list-style-type: none"> Vehicles will only travel on designated roads to the maximum extent possible. The speed will be limited to 10 km/hr in off-road areas; 25 km/hr in all internal road areas, unless otherwise signposted. All soil loads entering or leaving the Site will be covered and all tailgates will be securely fastened. Vehicles will not be loaded higher than the sides and tailboard. Trucks associated with the remediation works must not track dirt onto the public road network. Dirt on public roads as a result of the development will be promptly removed. All plant will be maintained and operated in line with the manufacturer's specifications in order to minimise the emission of air pollutants and offensive odours. Plant and construction vehicles will be turned off when not in use. 	Truck and vehicle drivers	At all times
		Truck drivers	At all times

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Aspect	Actions	Accountability	Timing
Excavation Activities	<ul style="list-style-type: none"> Potentially dust generating demolition activities will be minimised during high wind events (i.e. >8 m/s (or 28.8km/hr) hourly average or in severe wind gust conditions). In unfavourable weather conditions (e.g. > 8 m/s hourly average or in severe wind gust conditions) or where dust sources are present near sensitive receivers and work is required to proceed, water sprays will be used to dampen down soils prior to excavation, handling and/or loading/unloading materials. All exposed surfaces (from recent excavations) and stockpiles (of excavated material) will also be watered, sprayed or covered where required, to minimise nuisance dust and odours. Excavation will be staged to manage potential VOC and odour emissions. Excavations of contaminated soils will not commence prior to 8am nor after 4pm as weather conditions at these times are generally conducive to adverse odour air quality situations from fugitive emissions. Odourous stockpiles will be covered, wetted down and/or odour suppressant applied where required. During unfavourable weather conditions (e.g. > 8 m/s hourly average) and extraordinary weather events (as defined by the Bureau of Meteorology weather warnings) such where elevated background dust is present, additional mitigation measures will be employed and will include, but not be limited to, implementing the following: <ul style="list-style-type: none"> reducing working surface area; commencing excavation during favourable wind conditions; increase wetting agents for exposed surfaces; and increase covering of exposed surface areas. Where visible dust emissions are observed, management actions will be implemented to prevent impact including: <ul style="list-style-type: none"> reducing working surface area; 	<p>Maintenance Team Lead or delegate</p> <p>Remediation Project lead or delegates</p> <p>Contractors involved in excavation work</p> <p>Contractors involved in excavation work</p> <p>Contractors involved in excavation work</p>	<p>As required</p> <p>As required</p> <p>As required</p> <p>As required</p> <p>As required</p>

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Aspect	Actions	Accountability	Timing
Excavation Activities <i>continued</i>	<ul style="list-style-type: none"> • halting excavation until there are favourable wind conditions (i.e. when winds drop below 8m/s (hourly average) and/or when severe wind gusts have ceased and/or when visual monitoring has confirmed that there are no more visible dust emissions); <ul style="list-style-type: none"> ○ increasing wetting agents for exposed surfaces; and ○ covering of exposed surface areas. • Soils or concrete with significant hydrocarbon staining or obvious hydrocarbon odours will be transported to designated area of the Site and stored and managed in line with the Blue Book (refer to the Soil and Water Management Plan). Stockpiles of contaminated soil stored on-site will be covered to prevent odorous VOC emissions and windblown particulate emissions • Surface disturbance will be minimised. Exposed ground will be rehabilitated as soon as practicable (refer to Soil and Water Management Plan) • All concrete cutting and coring will be undertaken using “wet tools”. • If ACM is suspected to be present in the soils, appropriate and effective ACM mitigation measure will be implemented in line with the Ampol ACM Management Plan. • ACS will be managed by a licensed asbestos contractor as per the specific Asbestos Removal Control Plan. 	<p>Contractors involved in excavation work</p> <p>Contractors involved in excavation work</p> <p>Contractors involved in these activities</p>	<p>As required</p> <p>As required</p> <p>At all times</p>

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Aspect	Actions	Accountability	Timing
Odourous Soils/Sludges-Landfarm and Geobags	<ul style="list-style-type: none"> • Movement/reworking of odourous soils/sludges will be staged where possible to manage potential VOC and odour emissions. Works will not commence prior to 7:30am nor after 4pm as weather conditions at these times may be conducive to adverse odour air quality situations from fugitive emissions. • Odourous stockpiles will be wetted down and/or odour suppressant applied where required. • Periodic VOC and odour monitoring will be undertaken by Remediation Project lead or delegates (i.e. olfactory monitoring) and where required, using portable monitoring equipment (PID or similar) during sludge management / movement activities. Olfactory monitoring will be undertaken at a series of locations downgradient of the work area to assess potential for migration of odour beyond the site. • If any significant odours of VOCs (observable odours at the site boundary) are identified, measures for Remediation Works outlined in Section 4.1 will be implemented. Further, if mitigation measures do not work, works will be stopped until suitable measures can be employed to manage this issue. 	Remediation Project lead or delegates	As required
		Remediation Project lead or delegates	As required
		Remediation Project lead or delegates	As required

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Monitoring Program			
Aspect	Actions	Accountability	Timing
Air Quality Monitoring	<p>A number of monitoring methods will be used during the Remediation project works, works including:</p> <ul style="list-style-type: none"> Weather/dust/asbestos monitoring; and Odour and VOC monitoring. During activities that have the potential to generate dust and/or during adverse weather conditions, visual observations of downwind dust emissions to the community or local residents will be undertaken. Further, an anemometer may be used, at 2 m above ground level, to verify when adverse weather conditions are occurring (i.e. where there are severe wind gusts or an hourly average wind of over 8 m/s). A temporary halt to dust generating activities will occur during adverse weather conditions and/or where visual dust emissions are sighted and/or when sensitive receptors are likely to be affected by dust emissions. Appropriate measures will be taken to mitigate/manage the potential for adverse air quality impacts, such as wetting down area, etc. During works with significant potential to generate dust beyond the site boundary and/or during adverse weather conditions, real-time dust monitoring using a DustTrak unit or dust deposition monitoring (e.g. a dust deposition gauge as per the AS/NZS 3580) will be undertaken. Locations will be selected, based on prevailing conditions. Stockpiled material will be assessed for the potential to cause dust emissions. During asbestos contaminated soils works, air monitoring will occur in accordance with the requirements detailed within Section 8, Division 1 of the <i>Work Health and Safety Regulations 2017</i> for asbestos during excavations and stockpiling. The disturbance area will be monitored continuously for asbestos using four monitors (one upwind and three downwind). The results of the air monitoring will be provided to the relevant internal stakeholders. <p>Refer also to the SWMP and the Ampol Asbestos Management Plan.</p>	Remediation Project lead or delegates	As required
		Remediation Project lead or delegates	As required
		Occupational Hygienist or delegate	As required
		Occupational Hygienist	At all times (specific to this risk)

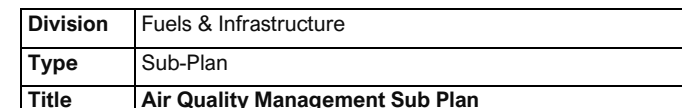
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Other Air Quality Management Requirements			
Aspect	Actions	Accountability	Timing
Community and Consultation	<ul style="list-style-type: none"> Quarterly community consultation meetings held in Kurnell with local residents and other interested parties will be undertaken to maintain on-going dialogue and assist in the alleviation of community concerns , as they arise. Should feedback and/or complaints about the Site's air quality management practices be received, these will be recorded in the Site's Complaints Register and investigated in accordance with Ampol and Site procedures. Reasonable and feasible measures will be implemented to reduce air quality impacts from the Site operations (includes remediations works). <p>Refer to Kurnell Terminal OEMP Section 5.6 Community Complaints and the Ampol <i>Environmental Community Consultation Standard</i> SD101939 for additional details.</p>	<p>Terminal Operations Manager or delegates</p> <p>and</p> <p>Remediation Project lead or delegates</p>	Quarterly and, as required
Monitoring Programs			
Aspect	Actions	Accountability	Timing
Contractor Obligations	<p>All contractors are required to:</p> <ul style="list-style-type: none"> undertake the Ampol and Terminal specific Induction before they can commence work on the Site. Comply with the requirements of this Management Plan. Comply with the requirements of the Work Permit/s at all times Only use plant and equipment for which they are trained to use Report all environmental incidents as they occur. Attend environmental inductions or any other training as required 	Contractors	At all times

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Aspect	Actions	Accountability	Timing
Performance Indicators	<p>The following performance indicators will be implemented during Site operations and Remediation project works:</p> <ul style="list-style-type: none"> No unacceptable air quality complaints (odour, dust) received in relation to the Terminal and remediation works; and No visible emissions of dust beyond the Terminal boundary in relation to the works being undertaken. No exceedance of exposure or control limits for asbestos. 	<p>Terminal Operations Manager or delegates</p> <p>Maintenance Team Lead or delegate</p> <p>Remediation Project lead or delegates</p>	<p>At all times</p> <p>At all times</p> <p>At all times</p>
Non-Compliance Reporting	<ul style="list-style-type: none"> In line with the requirements of SSD5544, D4 <i>Annual Review</i>, a summary of any non-compliances against the requirements of this Management Sub-Plan that have occurred during the reporting period will be included in the annual report. The NSW EPA will be notified, in cases where an air emission or odour causes or threatens to cause material harm to the environment, as set out in Part 5.7 of the Act 	<p>Senior Environment Specialist, Licensed Sites</p> <p>Terminal Operations Manager or Delegate</p>	<p>Annually</p> <p>Immediately upon becoming aware of event</p>
Periodic Sub-Plan Review/ Continuous Improvement	<ul style="list-style-type: none"> Impacts and environmental performance of the development and effectiveness of the air quality management measures described in this Sub-Plan will be monitored and reported. This will include a review of the Site specific Management Sub Plan. <p>Refer to Kurnell Terminal OEMP, Chapter 6 Monitoring and Reporting.</p>	Terminal Operations Manager or Delegate	Six Monthly and, as required
Records to be maintained in Terminal and Ampol Files	<p>Held in the Cintellate database (LPS):</p> <ul style="list-style-type: none"> All environmental incidents associated with the Site's maintenance and remediation project management practices. All non-conformance and corrective actions. 	Terminal Operations Manager or delegates	As required

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Division	Fuels & Infrastructure
Type	
Title	Soil and Water Management Sub Plan

Kurnell Terminal (KNT) - Soil and Water Management Sub-Plan (SWMP)	
Site Location	2 Solander Street, Kurnell, NSW, 2231 (includes operational Wharf facility on Prince Charles Parade, Kurnell, NSW 2231)
Operations Hours	Operation times are 24 hours seven days a week.
Objective	<p>The objectives of the SWMP are to:</p> <ul style="list-style-type: none"> Minimise the potential for impacts to surrounding water bodies and groundwater as a result of the Terminal's operations ('the Site') which includes the Right of Ways (ROW) and wharf areas; Describe the water management system on the site including both; storm water and oily water systems; Describe the potential soil and water issues associated with Terminal operations; Include measures for management soils that are excavated and stockpiled on Site; Identify water management and monitoring requirements for the Site; Demonstrate compliance with EPL 837 and prevent pollution of waters and soil at all times. Compliance with Conditions of Consent (CoC) and associated Management and Mitigation Measures (MMMs). Compliance with relevant regulatory requirements (identified in the Kurnell Terminal OEMP, Appendix D) <p>To address these objectives, the SWMP documents:</p> <ul style="list-style-type: none"> The management measures, actions and associated performance indicators, that will be implemented throughout the life of the Terminal The implemented soil and water (includes groundwater) management monitoring program Roles and responsibilities and reporting requirements. <p>Notes:</p> <p>The Site has been declared as a "significantly contaminated land" under the NSW Contaminated Lands Management Act.</p> <p>In consultation with the Contaminated Land section of the NSW EPA, Ampol has developed a detailed Remediation Plan for the Site. Therefore, the remediation scope and management strategies will not be described in this Sub-Plan. The Remediation project also has a separate Environment Management Plan (EMP) to support the Remediation Strategy and associated Plan.</p>

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Management Strategy	<p>Manage soil and water by:</p> <ul style="list-style-type: none"> • Compliance with the specific requirements detailed in EPL 837 • Prevention of pollution to land and water by: <ul style="list-style-type: none"> - maintain plant and equipment in good working order - control of work undertaken on site through the Permit to Work system • Undertaking the ground water monitoring , as per the schedule specified in EPL 837 <p>Notes:</p> <ol style="list-style-type: none"> 1. Refer to the <u>Remediation Project Environmental Management Plan (EMP)</u> for specific management strategies to deal with identified contaminated soils and water bodies. 2. Refer to the <u>Asbestos Contaminated Soils Containment Cell (ACS C/Cell) Long-term Environment Management Plan (LTEMP)</u> for specific details of stormwater, groundwater and leachate management and monitoring
Legislative and Other Requirements	<ul style="list-style-type: none"> • Protection of the Environment Operations Act 1997 • NSW Contaminated Lands Management Act • Protection of the Environment Operations (Water) Regulation 2014 • NSW EPA EPL 837
Supporting Documentation	<p>The following supporting documents have been referenced in this Sub Plan:</p> <ul style="list-style-type: none"> • Kurnell Terminal Operational Environmental Management Plan (OEMP) SD207187 • Ampol Environment Policy • Ampol Asbestos Management Plan- Asbestos and Synthetic Mineral Fibres SD206868 • Ampol Groundwater Monitoring Standard SD100398 • Ampol Kurnell Terminal Pollution Incident Response Plan SD207180 • NSW EPA EPL 837; • Development Consent – SSD5544 (as identified in Kurnell Terminal OEMP, Appendix L); • ‘The Blue Book’ Managing Urban Stormwater – Soils and Construction Volume 1 and 2 (Landcom, 2004). • Managing Urban Stormwater: Soils and Construction - Volume 2A: Installation of services (DECC 2008) • Acid Sulphate Soil (ASS) in accordance the NSW State Government's Acid Sulfate Soils Manual (ASSMAC 1998) • Sutherland Shire Council (SSC) – ASS Location Map

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Regulatory Requirements

SSD5544

Water Management

Consent Condition C10:

The Development shall comply with section 120 of the Protection of the Environment Operations Act 1997, which prohibits the pollution of waters, except as expressly provided in an EPL.

Consent Condition C12:

The Applicant shall prepare and implement a Water Management Plan for the Development to the satisfaction of the Secretary. This plan must:

- (a) be prepared in consultation with the EPA;
- (b) be approved by the Secretary (refer to Conditions D1 and D2 for timing);
- (c) In addition to the standard requirements for management plans (see Condition D3), this plan must include a Surface Water Management Plan, that:
 - i. includes a description of the water management system on site, including the:
 - stormwater system; and,
 - oily water / wastewater system.
 - includes plans for the above two components of the systems:
 - ii. demonstrates compliance with any requirements of the EPL and/or the EPA.

Excavation Note:

SSD5544 C33 and C34 addresses the requirements regarding the discovery of aboriginal and non-aboriginal objects during construction and demolition. Although not specifically stated in SSD5544, these reporting requirements will continue to be observed, particularly during excavation activities associated with Terminal maintenance and remediation works, as follows:

1. If during the course of excavations, workers become aware of any previously unidentified heritage object(s), excavation works likely to affect the object(s) must cease immediately and the Heritage Council of New South Wales must be notified immediately in accordance with section 146 of the Heritage Act 1977. Excavation works must not recommence until written authorisation from the Heritage Council of NSW is received by the Sydney Terminals Operations Manager and Ampol F&I Senior Environment Specialist, Licences Sites.
2. If during the course of excavations, workers become aware of any previously unidentified aboriginal object(s), excavation works likely to affect the object(s) must cease immediately and the OEHL informed in accordance with section 89A of the National Parks and Wildlife Act 1974. Excavation works must not recommence until written authorisation from OEHL is received by the Sydney Terminals Operations Manager and Ampol F&I Senior Environment Specialist, Licences Sites.

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EPA EPL837:	<p><u>L1.1</u> Except as may be expressly provided in any other condition of this licence, the licensee must comply with Section 120 of the Protection of the Environment Operations Act 1997.</p> <p>The Terminal currently operates in accordance with an Environment Protection Licence (EPL 837) issued by the NSW Environment Protection Authority (EPA). EPL 837 contains numerous operational conditions and Pollution Reduction Programs (PRPs). Refer to the EPL for additional details.</p>
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Operations and Activities	<p>In this context, Operation refers to the operation of the Site, Wharf and associated pipelines but does not include commissioning trials of equipment or temporary use of parts of the Site (such as during construction or maintenance activities) and the SNP. The main operations and activities at the Site, Wharf and associated pipelines comprise:</p> <ul style="list-style-type: none"> • Receipt and back load of products via the Wharf (KUR1, KUR2 and KUR3 (Sub-Berth); • Wharf operations and maintenance; • Distribution of products from the Site through the pipelines to other Ampol facilities (Pipeline managed by the Ampol Pipelines team); • Coordinating product movements between the Terminal, Banksmeadow Terminal, Sydney Joint User Hydrant Installation (JUHI) and Sydney Newcastle Pipeline (SMP) – system is automated; • Transfer of slops via underground pipeline to the wharf for transport by ship to other locations, as needed; • Receipt of slops via underground pipeline from the Banksmeadow Terminal to the onsite storage tanks • Filling, transferring and delivering product to/from onsite storage tanks via internal pipelines; • Laboratory QA testing (NATA certified) of products on receipt and prior to release to pipeline • Inspection, monitoring and testing of all storage and product transfer equipment, including bulk storage tanks, piping systems and valves, vent systems and devices, emergency shutdown systems, control pumps, and maintenance of all storage and product transfer equipment; • Inspecting vapour lines for compliance; • Emergency Preparedness and Response; • Maintenance of pipeline Right of Ways (ROWs); • Vegetation and weed management; • Heritage management • Operation of a jet fuel treater; • Stormwater management and outfalls at Quibray and Botany Bay; • Oily water system capture, treatment at the Wastewater Treatment Plant and wastewater outfall pipeline through Yena Gap
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Operations and Activities <i>continued</i>	<ul style="list-style-type: none"> Managing site security (including site entry to Wharf and Terminal and other permits); Inventory management and data entry/processing; Conducting and recording routine inspections and observations; Regular community consultative meetings and responding to community complaints; Management of road traffic and people movements on Site; 																
Surface Water Management																	
Stormwater	<p><u>Stormwater Management</u></p> <p>The Kurnell Terminal can be divided into seven different stormwater catchment areas as shown below. Within each catchment, stormwater can flow either into an aboveground or underground stormwater drain or pipe or an open stormwater drain. A schematic plan of the Kurnell Stormwater Drainage System is also provided in Appendix 1. The majority of demolition works took place in Catchments A and B.</p> <table border="1"> <thead> <tr> <th>Catchment</th><th>Location</th></tr> </thead> <tbody> <tr> <td>A</td><td>Eastern and northern area of the Site which includes the large eastern tank area.</td></tr> <tr> <td>B</td><td>Central area of the Site which had contained majority of the former refinery process areas as well as CCB workshop/ storehouse; and western part of the Site which contains wastewater treatment plant, western tank area, the Quibray Bay Stormwater Retention Basin and parking area.</td></tr> <tr> <td>C</td><td>Northern corner of the Site which includes main offices, former staff houses, gardens, visitor and employee car park and wetland.</td></tr> <tr> <td>D</td><td>An area between the former CLOR and refinery which contained a flare stack and concrete channel.</td></tr> <tr> <td>E</td><td>South western corner of the Site occupied by the area that had contained the former CLOR, and which had contained yard office, workshop, laboratory, maintenance, process units and tank compounds.</td></tr> <tr> <td>F</td><td>South eastern corner of the Site, which predominately comprises relatively undeveloped land and a small area of tank compound, the landfarm area (which is a bioremediation site), a recycling area, and a sludge lagoon.</td></tr> <tr> <td>G</td><td>North eastern undeveloped area mostly outside of the Site boundary, which is part of the Kamay Botany Bay National Park.</td></tr> </tbody> </table> <p>Stormwater generated on the Site is collected in the Site's stormwater system, treated where necessary and discharged off-site to three receiving water bodies, Marton Park Wetland, Quibray Bay and Botany Bay. The key water quality management strategy adopted by the Site has been to prevent, to the extent practicable, interaction between petroleum hydrocarbons and stormwater.</p>	Catchment	Location	A	Eastern and northern area of the Site which includes the large eastern tank area.	B	Central area of the Site which had contained majority of the former refinery process areas as well as CCB workshop/ storehouse; and western part of the Site which contains wastewater treatment plant, western tank area, the Quibray Bay Stormwater Retention Basin and parking area.	C	Northern corner of the Site which includes main offices, former staff houses, gardens, visitor and employee car park and wetland.	D	An area between the former CLOR and refinery which contained a flare stack and concrete channel.	E	South western corner of the Site occupied by the area that had contained the former CLOR, and which had contained yard office, workshop, laboratory, maintenance, process units and tank compounds.	F	South eastern corner of the Site, which predominately comprises relatively undeveloped land and a small area of tank compound, the landfarm area (which is a bioremediation site), a recycling area, and a sludge lagoon.	G	North eastern undeveloped area mostly outside of the Site boundary, which is part of the Kamay Botany Bay National Park.
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<p>Stormwater</p> <p><i>continued</i></p>	<p>Consequently the stormwater system only collects runoff from areas of the Site that have been designated low risk with respect to interaction with petroleum products, such as roadways and building roofs.</p> <p>Topography within the Site is generally flat, although steeper areas exist on the eastern boundary. Soils within the Site are sandy and overly sandstone bedrock. Stormwater runoff generally flows from the eastern boundary through pipes and open channels towards the northwest into the Quibray Bay, Botany Bay, and some Ampol owned land adjacent to the Site and Marton Park. Some stormwater flows onto the Site across the eastern Site boundary from the Kamay Botany Bay National Park.</p> <p>There are various retention, retarding and treatment systems incorporated into the Site's stormwater system. The main Site catchments with the potential for interaction between petroleum products and stormwater are Catchments A and B, primarily along the pipeways. The systems incorporated into the stormwater system to regulate flow and discharge rates and prevent discharge of impacted stormwater from the Site are as follows:</p> <ul style="list-style-type: none"> • Provision for isolation of drainage in pipeways; • Installation of manually operated skimmer pumps at pump transfer points (pumping to the oily water sewer system); • Ability to redirect stormwater to the intermediate sewer (Catchment B only); • Retention in an on-site retention basin (Catchment B only); • Discharge via siphon systems; and • Treatment in oil/water/solids separators. <p>Stormwater from the Site is discharged, ultimately, to three receiving environments. These include:</p> <ul style="list-style-type: none"> • Discharge by open drainage lines to Quibray Bay through a narrow strip of the Towra Point Nature Reserve and the mangrove wetland; • Discharge into Botany Bay at Silver Beach near the wharf; and • Discharge to Marton Park Wetland primarily by infiltration. <p>In addition to the measures implemented to address potential impacts from the demolition works, to fulfil the EPA requirement for additional stormwater improvement investigations within <i>PRP U24.1: Stormwater Catchment and Management Plan</i>, Ampol has prepared a Stormwater Management Plan (SMP) to prevent the discharge of contaminated waters from the Site.</p>
<p>Stormwater</p>	

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<i>continued</i>	<p>This plan includes implementation of a stormwater management strategy and completing a number of stormwater management measures in a staged manner.</p> <p>In summary, the strategy and related actions nominated in the plan were, as follows:</p> <ol style="list-style-type: none"> 1. Maintenance of the existing stormwater system (ongoing). 2. Implementing a number of projects to improve the infrastructure, reduce the potential for the Site to flood, and prevent contaminated stormwater leaving the Site (commenced in 2012 and completed in 2014). 3. Updating the Site's stormwater system performance model to account for the changes to the stormwater system infrastructure that can then be used as a tool to assess future modifications, as necessary. 4. Carry out further stormwater system hydraulic performance monitoring and review the model, as necessary, following the implementation of the proposed projects to reassess the adequacy of the stormwater system for meeting the objective to "prevent the discharge of contaminated waters from the premises at all times". Depending on the outcome of the review, further projects may be developed to improve the stormwater system. <p>There has been a significant reduction in the volume and contaminant load in the oily water sewer system from the shutdown of the refinery and subsequent demolition of the refinery infrastructure. The significant reduction of wastewater volume and contaminant load has resulted in the existing WWTP being reassessed to determine the potential for related changes in design to efficiency and performance.</p> <p>In consultation with the EPA, a PRP condition, was developed and included in the Terminal EPL with the following requirements:</p> <ul style="list-style-type: none"> • characterised the Terminal wastewater streams; • identify and assess Terminal wastewater management options; • recommend preferred options; and • confirm applicable EPL conditions, including those related to discharge points, quality and monitoring; and • continue consultation with the EPA <p>At the time of submitted this Management Sup-Plan, the treated water effluent continues to be discharged to Yena Gap, in accordance with the current EPL conditions of discharge. The characterised the Terminal wastewater streams was repeated in late 2019. In consultation with the NSW EPA, the design works for the "future state" WWTP is currently underway.</p>
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Oily Water	<p><u>Oily Water Management</u></p> <p>The Site has a separate Oily Water System to handle water that is or may be impacted by petroleum products, including a proportion of stormwater runoff collected from areas where there may be interaction with petroleum products such as tanks bunds and former refinery process areas that have not been remediated yet.</p> <p>Oily water is drained to the on-site WWTP where it is subjected to secondary treatment prior to being discharged to the submerged ocean outfall at Yena Gap (EPL Point 2).</p> <p>The existing Oily Water Management System (OWMS) at the Site collects process effluent and stormwater from areas of the Site where there is potential for interaction of water flows with petroleum products. Oily water from a range of sources is collected in the Site's oily water sewer system and is transferred to the WWTP.</p> <p>Oily water is treated in the WWTP, in accordance with strict EPL837 requirements. The treatment process utilises physical, chemical and biological treatment. Treated effluent must meet strict discharge limits with samples sent to a NATA accredited Lab independent of Ampol. Treated effluent is discharged to the Tasman Sea via the Yena Gap outfall under the conditions of the EPL.</p> <p>The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the Site:</p> <table border="1"> <tr> <td><u>EPA Identification Number 2.</u></td><td>Submerged ocean outfall at Yena Gap labelled "2" on drawing No. 18588 titled "Environment Protection Licence EPA Identification Points" dated 21 July 2015. Note: Monitoring is at Point 27.</td></tr> <tr> <td><u>EPA Identification Number 27.</u></td><td>Sampling port in wastewater treatment plant labelled "27" on drawing No. 18588 titled "Environment Protection Licence EPA Identification Points" dated 21 July 2015. Note: Discharge is at Point 2.</td></tr> </table> <p>A schematic plan of the Kurnell Oily Water Sewer System is also provided in Appendix 2.</p>	<u>EPA Identification Number 2.</u>	Submerged ocean outfall at Yena Gap labelled "2" on drawing No. 18588 titled "Environment Protection Licence EPA Identification Points" dated 21 July 2015. Note: Monitoring is at Point 27.	<u>EPA Identification Number 27.</u>	Sampling port in wastewater treatment plant labelled "27" on drawing No. 18588 titled "Environment Protection Licence EPA Identification Points" dated 21 July 2015. Note: Discharge is at Point 2.
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Controls and Mitigation Measure for Management of Surface Water			
In order to prevent contamination of stormwater during maintenance works, the following controls and mitigation measures will be implemented:			
Aspect	Actions	Accountability	Timing
Excavation work	<ul style="list-style-type: none"> Where practicable, stormwater or groundwater ponded in excavations will be sent to the WWTP, unless it is tested and is of suitable quality to be directed to stormwater, in accordance with EPL 837 Where practicable, stormwater or groundwater ponded in excavations will be sent to the WWTP, unless it is tested and is of suitable quality to be directed to stormwater, in accordance with EPL 837 Where practicable, stormwater that is captured in the bunds around contaminated soil stockpiles will be collected and sent to the WWTP Regular inspections will be undertaken of soils/excavation areas, particularly after rain events to ensure pooled stormwater does not overflow Regular inspections will be undertaken of stormwater drains down hydraulic gradient of disturbed areas If stormwater quality is impacted in areas that have been disturbed by excavation work, water will be diverted to the oily water sewer system where practical Stormwater within the ACS Containment Cell will be directed to the Oily Water sewer system During any prolonged rainfall events (over three days) or following heavy rainfall events over a shorter timescale, water sampling will be completed at the stormwater retention basin to ensure that the quality of the water is of an appropriate standard to be discharged from the Site. Water that is not of an appropriate quality will be either treated in situ or directed to the WWTP. <p>NB: Stop Work procedures will apply during the excavation works if any heritage and/or aboriginal object/s are discovered or suspected. Report immediately to your supervisor and the Terminal Permit Officer.</p>	<p>Maintenance Team lead or delegates</p> <p>Maintenance workers</p> <p>Terminal Operations Coordinators</p> <p>WWTP Terminal Operators</p>	<p>As required</p> <p>As required</p> <p>As required</p> <p>As required</p>

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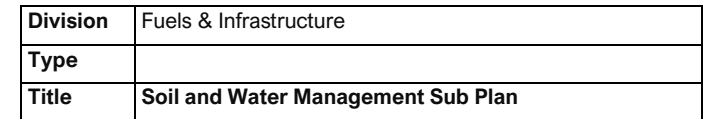
Regular Monitoring and Inspection	<ul style="list-style-type: none">During the regular inspections of the surface water management system, any issues identified with the control measures, such as silt fencing or ponding of water, corrective actions will be implemented in accordance with this Plan.	Terminal Operations Maintenance Team lead or delegates	As required As required
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Controls and Mitigation Measure for Management of Excavated Soils			
In order to prevent further contamination of land on the Site during maintenance works, the following controls and mitigation measures will be implemented.			
Aspect	Actions	Accountability	Timing
Stockpiling of Excavated Soils	<ul style="list-style-type: none"> Excavated soils must be tested for contaminants before being allowed to be used as backfill If accepted, excavated soils can be stockpiled next to the excavation if required for backfill If the stockpiles show visual or olfactory signs of hydrocarbon contamination, they must not be stored next to the excavation Silt fencing and/or alternate sediment control measures will be installed around soil stockpiles, across stormwater drains in proximity to excavation areas, and other disturbed areas or areas where dust suppression is being undertaken to reduce suspended solids in stormwater runoff Stockpiling of soils next to excavation should only be a short term measure and the pile must be covered if not be used as backfill on the same day of the excavation If excavated material cannot be re-used or managed on-site, it will be classified in accordance with EPL condition O5 before being removed off-site as waste to an appropriately licensed facility, as discussed in the Terminal Waste and Resource Management Plan If backfilling is required using soil from off-site, only virgin excavated natural material (VENM), or any other material that meets all of the conditions of a Resource Recovery Order issued by the EPA under the Protection of the Environment Operations (Waste) Regulation 2014 for use in the Ampol Terminal 	Maintenance Team lead or delegates	As required
		Senior Environment Specialist or delegate	As required

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Contaminated Soils Management

The primary Contaminants of Potential Concern (COPC) at the Site are:

- Total petroleum hydrocarbons (TPH)
- Benzene, toluene, ethylbenzene and xylene (BTEX)
- Polycyclic aromatic hydrocarbons (PAH)
- Phenols
- Lead (Pb); and
- Asbestos

Work Permits are required to work in areas where potential soil and groundwater contamination exists. The work permit includes requirements such as air monitoring and PPE. No authorised entry into these areas is permitted without a permit.

Asbestos in Soils:

Residual asbestos contamination is of relevance to areas of historical spoil stockpiling. The Demolition Project program of works included the removal of ACM contaminated soils from the various pipeways on the Site and the creation of the ACS C/Cell. An additional number of locations around the Site have confirmed ACM and/or hydrocarbon contamination. These areas are included in the Remediation project program of works - details of which will not be included in this Sub-Plan.

The Site manages asbestos in accordance with the Ampol Asbestos Management Plan – Asbestos and Synthetic Mineral Fibres – SD206868. This plan identifies the steps which will be undertaken in the event that asbestos is identified in soils during the maintenance works. The Site also has an established workplace Asbestos Register with a number of maps held by the Remediation Project that showed where remaining potential sources of ACS is located.

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Controls and Mitigation Measure for Management of ACM Soils			
In order to prevent further contamination of land on the Site during maintenance and remediation works, the following controls and mitigation measures will be implemented.			
Aspect	Actions	Accountability	Timing
Soils Impacted with Asbestos Containing Materials (ACM)	<ul style="list-style-type: none"> The Ampol responsible person shall ensure that the Ampol Hazmat Administrator is supplied with the following information: <ul style="list-style-type: none"> Specific Ampol location ID Specific locations and any details relating to the asbestos or ACM present in the soil A copy of all confirmatory laboratory reports The soil will be managed as asbestos or ACM contaminated soil Asbestos impacted soil will be removed from the Site as soon as practicable If these soils need to be temporarily stockpiled, they will be stored at a defined location, covered and labelled as asbestos waste During excavation visual and olfactory indicators of impact will be monitored Where there is potential for volatile organic contaminants (based on known ground conditions) or where hydrocarbons are seen or smelt during excavations, soils will be inspected for hydrocarbon impacts using a PID and/or testing Asbestos impacted soil being removed from the Site, will be classified in accordance with NSW EPA guidelines for transport and disposal at a licensed landfill (and in accordance with the Site waste management system and the Waste and Resource Management Sub-Plan Asbestos impacted soil being removed from the Site, will be classified in accordance with NSW EPA guidelines for transport and disposal at a licensed landfill (and in accordance with the Site waste management system and the Waste and Resource Management Sub-Plan <p>The excavation will be undertaken by a licenced contractor and comply with NSW SafeWork requirements</p>	Maintenance Team lead or delegates	As required
		Senior Environment Specialist or delegate	As required

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Acid Sulfate Soils (ASS)

A review of the NSW Acid Sulfate Soil Map (Department of Infrastructure, Planning and Natural Resources (DIPNR)) and previous reports, indicated that the proposed demolition works were on ground classified as 'Low Probability' of containing Potential Acid Sulfate Soils (PASS) (URS, 2011). Environmental problems associated with PASS occur as a result of development works which expose soil with the potential to undergo oxidation reactions on contact with oxygen and water. The result of the oxidation reactions typically produces low pH runoff which in turn acidifies soil, groundwater and surface waters.

Acid sulfate soils have also been recorded and classified by Sutherland Shire Council¹ across areas of the Kurnell Peninsula. Sutherland Shire Council has provided the following definitions of Class 3, Class 4, and Class 5 areas:

Class 3 area	Acid sulfate soils are likely to be found beyond 1 metre below the natural ground surface. Any works that extend beyond 1 metre below the natural ground surface, or works which are likely to lower the water table beyond 1 metre below the natural ground surface, will trigger the requirement for assessment and may require management (Sutherland Shire Council, 2010).
Class 4 area	Acid sulfate soils area are likely to be found beyond 2 metres below the natural ground surface. Any works that extend beyond 2 metres below the natural ground surface, or works which are likely to lower the water table beyond 2 metres below the natural ground surface, will trigger the requirement for assessment and may require management (Sutherland Shire Council, 2010).
Class 5 area	Acid sulfate soils are not typically found. Areas classified as Class 5 are located within 500 metres of adjacent Class 1, 2, 3 or 4 land. Works in a Class 5 area that are likely to lower the water table below 1 metre AHD on adjacent Class 1, 2, 3 or 4 land will trigger the requirement for assessment and may require management.

Refer to the following link to the SSC website for the latest ASS Map:

<https://maps.ssc.nsw.gov.au/ShireMaps/?layerTheme=Planning/Zoning>

ASS are of particular concern for Site based remediation project works. This has been accounted for in the Remediation Strategy and associated Action Plan/s..

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Controls and Mitigation Measure for Management of ASS Soils			
In order to prevent further contamination of land on the Site during maintenance works, the following controls and mitigation measures will be implemented.			
Aspect	Actions	Accountability	Timing
Soils Impacted with ASS	<ul style="list-style-type: none"> For stockpiled soils, any collected water within the bunded areas will be field tested for pH. Treatment will be required if less than pH 6.5 Field screening of either in-situ soils or stockpiles as soon as practicable following excavation will be undertaken. The field screening procedure will be undertaken in general accordance with ASSMAC (1998) guidance. Where field screening identifies potential presence of PASS or actual ASS, this soil will be managed as ASS and laboratory testing will be undertaken to provide treatment Following testing, Verification testing will need to be undertaken in general accordance with ASSMAC (1998) to confirm a suitable amount of lime has been applied The appointed ASS Consultant supervising the treatment of the PASS will report to the Environment Representative on a weekly basis (or sooner if appropriate) on the performance of the ASS monitoring These reports will detail the following: <ul style="list-style-type: none"> Performance of sediment retention features Results of the treatment verification and site monitoring, and the associated success of the treatment methods proposed amount of PASS disposed offsite (if undertaken); Recommendations for corrective actions to improve the effectiveness and/or efficiencies for the treatment approaches; and Implementation and success of previously recommended corrective actions On completion of all works associated with the treatment and monitoring of PASS, a final report will be issued to the Ampol Remediation Specific and the Ampol Senior Environment Specialist <p>Note: An alternative to treatment of the PASS will be immediate disposal to a landfill licensed to receive untreated PASS. This normally requires the excavated material to be transported to the landfill within 24 hours of excavation. Refer to the WRMP for requirement.</p>	Ampol appointed ASS Consultant	As required
		Senior Environment Specialist or delegate	As required

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Controls and Mitigation Measure for Management of Hazardous Liquids Storage			
To manage the storage of Terminal specific liquids on the Site, the following controls and mitigation measures will be implemented			
Aspect	Actions	Accountability	Timing
Storage Requirements	<ul style="list-style-type: none">• All hazardous chemicals will be accompanied by the relevant Material Safety Data Sheets (MSDS) required by work health and safety regulations• Fuels and chemicals will be stored in self-containing bunding• Spill kits will be located next to fuel and chemical storage areas• Where possible, a minimum volume of each chemical will be kept on Site• All Ampol staff and contractors will be inducted to Site including training on storage of liquids and response to spills (in accordance with the Site's Pollution Incident Response Management Plan (PIRMP))	Terminal Operations Manager or Delegate	At all times

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Division	Fuels & Infrastructure
Type	
Title	Soil and Water Management Sub Plan

Management of Groundwater			
In the event that groundwater is intersected during Terminal excavation works, and the groundwater requires extraction/disposal, the following procedure will be followed.			
Aspect	Actions	Accountability	Timing
Testing	<ul style="list-style-type: none"> Testing for contamination in accordance with B1 Guidelines, Investigation Levels for Soil and Groundwater, National Environment Protection Measure (Assessment of Site Contamination) Amendment Measure 2013 If the tested groundwater is found to be of suitable quality, it will be discharged to stormwater, in accordance with EPL 837. If it is not suitable, it will be treated at the WWTP. 	Senior Environment Specialist or delegate	As required
<p><u>Kurnell Groundwater Monitoring Program:</u></p> <p>Groundwater is monitored at multiple locations across the Terminal. Quarterly groundwater monitoring is undertaken in accordance with the existing Groundwater Monitoring Plan for the Terminal, in accordance with the Ampol Groundwater Guideline – SD100398. This includes quarterly gauging and monitoring of groundwater wells and testing for pH, conductivity, temperature, dissolved oxygen, TPH and BTEX.</p> <p>Sampling of groundwater wells 15 and 16 (associated with Bioremediation Plot) and groundwater wells 28 and 29 (associated with the ACS C/Cell), in accordance with EPL clauses P1 and M2 is undertaken as part of the wider quarterly Terminal monitoring rounds. Refer to the ACS C/Cell Long-term Management Sub-Plan for details of the leachate tank and other construction features of the Cell.</p> <p>The location of the licenced groundwater wells on the Site is referenced in Appendix 4.</p>			

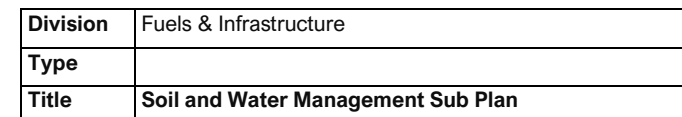
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Division	Fuels & Infrastructure
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Title	Soil and Water Management Sub Plan

Other Soil and Water Management Requirements			
Aspect	Actions	Accountability	Timing
Community and Consultation	<ul style="list-style-type: none"> Quarterly community consultation meetings held in Kurnell with local residents and other interested parties will be undertaken to maintain on-going dialogue and assist in the alleviation of community concerns , as they arise. Should feedback and/or complaints about the Site's air quality management practices be received, these will be recorded in the Site's Complaints Register and investigated in accordance with Ampol and Site procedures. Reasonable and feasible measures will be implemented to reduce air quality impacts from the Site operations (includes remediations works). <p>Refer to Kurnell Terminal OEMP Section 5.6 Community Complaints and the Ampol <i>Environmental Community Consultation Standard</i> SD101939 for additional details.</p>	<p>Terminal Operations Manager or delegates</p> <p>and</p> <p>Remediation Project lead or delegates</p>	Quarterly and, as required
Monitoring Program			
Aspect	Actions	Accountability	Timing
Contractor Obligations	<p>All contractors are required to:</p> <ul style="list-style-type: none"> undertake the Ampol and Terminal specific Induction before they can commence work on the Site. Comply with the requirements of this Management Plan. Comply with the requirements of the Work Permit/s at all times Only use plant and equipment for which they are trained to use Report all environmental incidents as they occur. Attend environmental inductions or any other training as required 	Contractors	At all times

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Monitoring Program			
Aspect	Actions	Accountability	Timing
Performance Indicators	<p>The following performance indicators will be implemented during Site operations, as far as practicable:</p> <ul style="list-style-type: none"> • All stockpiles managed in accordance with this Plan. • No silt runoff from stockpiles beyond the silt fencing. • No significant increase in COPC levels in groundwater. • No impacts to the environment from ASS or PASS. • No environmental soils and/or water pollution incidents. 	Terminal Operations Manager or Delegate	At all times
Non-Compliance Reporting	<ul style="list-style-type: none"> • In line with the requirements of SSD5544, D4 <i>Annual Review</i>, a summary of any non-compliances against the requirements of this Management Sub-Plan that occurred during the reporting period will be included in the annual report. • The NSW EPA will be notified, in cases where an air emission or odour causes or threatens to cause material harm to the environment, as set out in Part 5.7 of the Act 	Senior Environment Specialist or delegate	Annually
Periodic Sub-Plan Review/ Continuous Improvement	<ul style="list-style-type: none"> • Impacts and environmental performance of the development and effectiveness of the soil and water management measures described in this Sub-Plan will be monitored and reported. This will include a review of the Site specific Environmental Waste Log entries. <p>Refer to Kurnell Terminal OEMP, Chapter 6 Monitoring and Reporting</p>	Terminal Operations Manager or Delegate	Six Monthly and, as required

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Aspect	Actions	Accountability	Timing
Records to be maintained in Terminal and Ampol Files	Held in Cintellate (LPS): <ul style="list-style-type: none"> All environmental incidents associated with the Site's soil and water management practices All non-conformance and corrective actions 	Terminal Operations Manager or delegates	As required
	Ampol TANK (Sharepoint) - <u>Kurnell Key Facility Information</u> Sections: <ul style="list-style-type: none"> Groundwater monitoring reports Environmental Waste Logs (including contaminated soil and water transport and disposal documents) Analytical results for COPC Reports prepared for COPC pertaining soils and water on the Site 	Senior Environment Specialist or delegate	As required

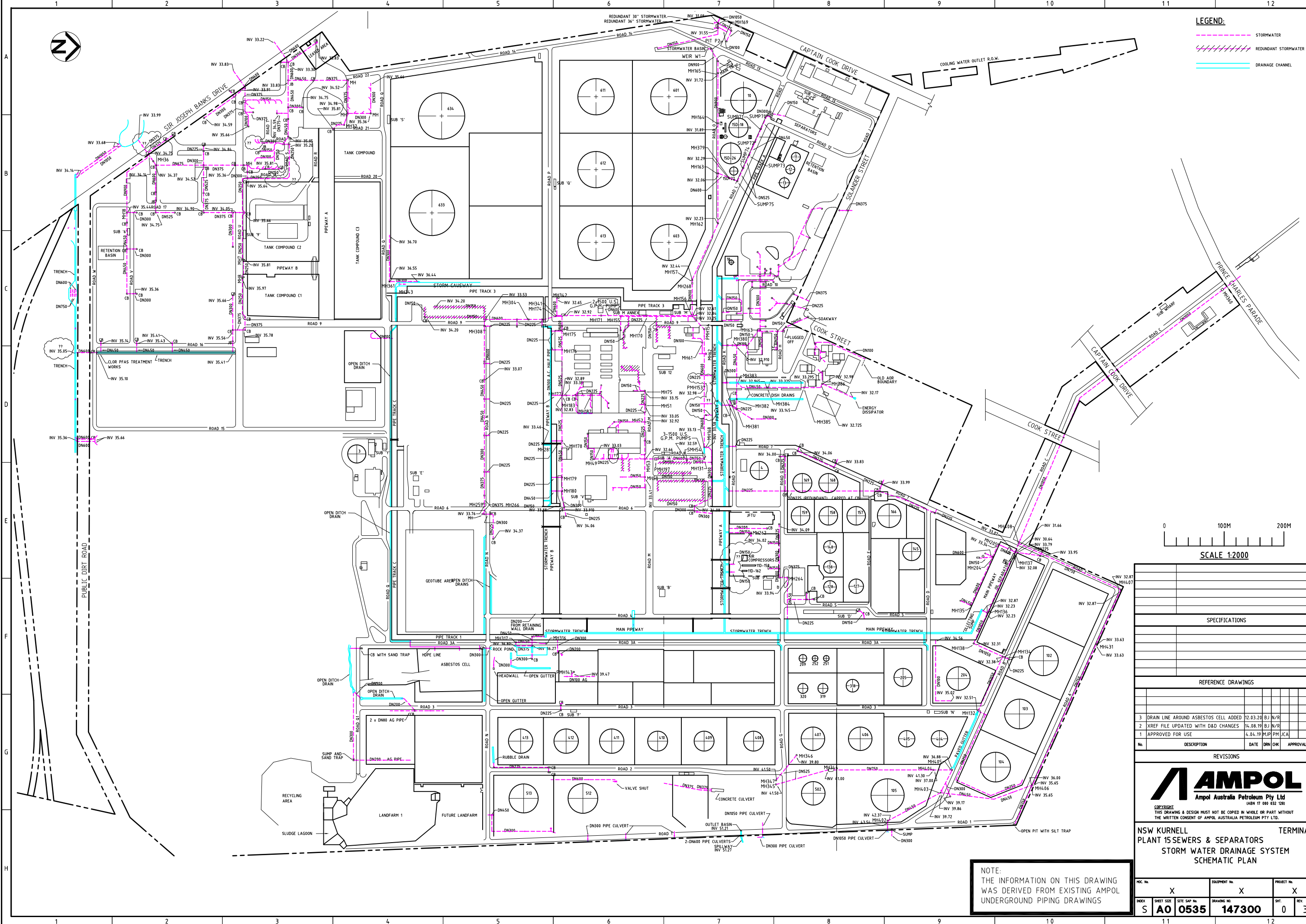
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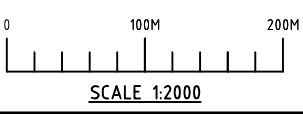
Appendix 1. Kurnell Terminal - Stormwater System

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LEGEND:

- STORMWATER
- REDUNDANT STORMWATER
- DRAINAGE CHANNEL



SPECIFICATIONS				
REFERENCE DRAWINGS				
3	DRAIN LINE AROUND ASBESTOS CELL ADDED	12.03.20	BJ	N/R
2	XREF FILE UPDATED WITH D&D CHANGES	14.08.19	BJ	N/R
1	APPROVED FOR USE	4.04.19	MJP	PM JCA
No.	DESCRIPTION	DATE	DRN	CHK
REVISIONS				

AMPOL
Ampol Australia Petroleum Pty Ltd
(ABN 17 000 932 128)

NSW KURNELL
PLANT 15 SEWERS & SEPARATORS
STORM WATER DRAINAGE SYSTEM
SCHEMATIC PLAN

TERMINAL

NOTE:
THE INFORMATION ON THIS DRAWING
WAS DERIVED FROM EXISTING AMPOL
UNDERGROUND PIPING DRAWINGS

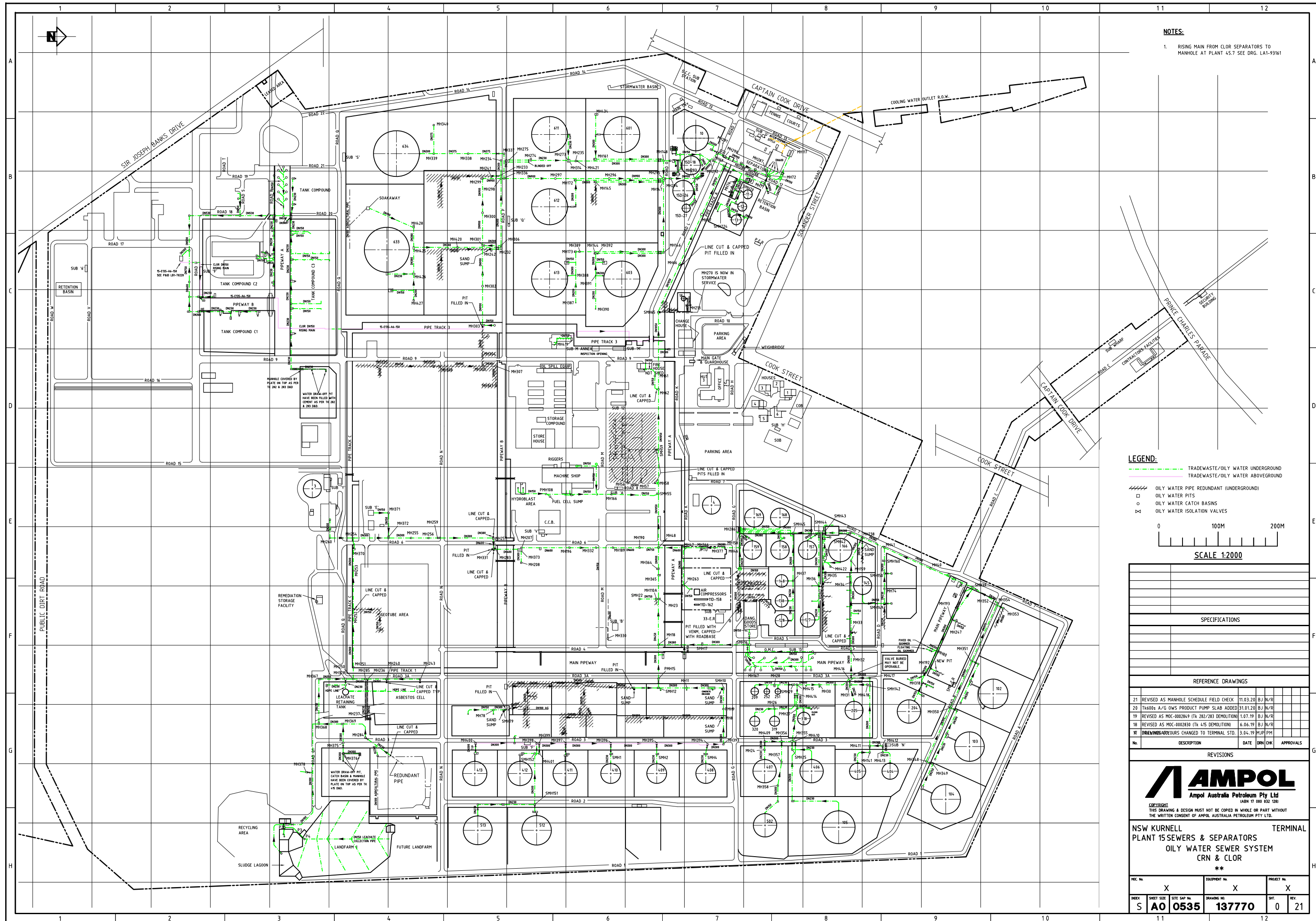
VOC No.		CULPOT No.		PROJECT No.	
X		X		X	
INDEX	SHEET SIZE	SITE SAP No.	DRAWING No.	SHT.	REV.
S	A0	0535	147300	0	3



Division	Fuels & Infrastructure
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Appendix 2. Kurnell Terminal - Oily Water System

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Appendix 3. Kurnell Terminal - Licenced Groundwater Monitoring Points

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Division	Fuels & Infrastructure
Type	Sub-Plan
Title	Waste Management Sub Plan

Kurnell Terminal (KNT) - Waste Management Sub-Plan (WMP)	
Site Location	2 Solander Street, Kurnell, NSW, 2231 (includes operational Wharf facility on Prince Charles Parade, Kurnell, NSW 2231)
Operations Hours	Operation times are 24 hours seven days a week.
Objective	<p>The objectives of the WRMP are to:</p> <ul style="list-style-type: none"> • Minimise the potential for impacts of waste generated as a result of the Terminal operations (“the Site”) and maximise the reuse and recycling of waste materials produced wherever possible; and • The disposal of waste materials to landfill is considered as the last resort where all other avenues have been investigated • Store, handle, transport, and dispose of waste in an environmentally responsible manner that does not cause harm or contamination to soil, air or water. • Compliance with the Site’s Environment Protection Licence 837 (EPL 837) pertaining to waste management and relevant guidelines. • Compliance with Conditions of Consent (CoC) and associated Management and Mitigation Measures (MMMs). • Compliance with relevant regulatory requirements (identified in the Kurnell Terminal OEMP, Appendix D) • Manage community expectations around the responsible disposal of wastes <p>To address these objectives, the WMP documents:</p> <ul style="list-style-type: none"> • The management measures, actions and associated performance indicators, that will be implemented throughout the life of the site • The implemented waste management monitoring program that records product slops reprocessing and the disposal of general and hazardous waste from the site; and • Roles and responsibilities and reporting requirements

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Division	Fuels & Infrastructure
Type	Sub-Plan
Title	Waste Management Sub Plan

Management Strategy	<p>The waste management hierarchy is a framework for prioritising waste and resource recovery management practices to achieve the best environmental outcome.</p> <p>The preferred order of adoption for site waste is:</p> <ol style="list-style-type: none">1. Avoid waste by identifying appropriate materials and effective procurement2. Reduction of waste by optimising product storage methods3. Reuse waste by identifying sources that can utilise the waste i.e. “slops” be blended into saleable products4. Recycle waste by identifying facilities that are able to recycle waste5. Recover energy from waste, where feasible to do so6. Dispose of waste by licenced transport to an appropriate licensed facility <p>To deliver waste management across the Site, the following strategies will be implemented:</p> <ol style="list-style-type: none">1. Cleaner Production – involves identifying and reducing environmental impacts along the entire product “receipt (by ship), storage and dispatch to pipeline” life cycle by conserving resources (delivered product, energy and water), eliminating toxic materials and reducing the quantity and toxicity of all emissions and wastes. The following cleaner production techniques should be considered by the site:<ol style="list-style-type: none">a. provision of separate waste containers/skips to ensure waste material segregation and maximise the opportunities for re-use and recycling; andb. safe storage and disposal of residual demolition waste ensuring least amount of harm to surrounding environment.2. Source Separation - identification and separation of solid waste will be carried out at the point of generation to aid the maximum re-use and recycling of materials. Where practical, appropriate containers and bins will be provided in designated locations for the source separation of materials and to aid the separation of re-useable and recyclable materials. If it is not practical to provide containers and bins at the point of generation, a designated area on the Site would be identified and communicated to the relevant personnel.
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Type	Sub-Plan
Title	Waste Management Sub Plan

Legislative and Other Requirements	<ul style="list-style-type: none"> • Protection of the Environment Operations Act 1997 • Protection of the Environment Operations (Waste) Regulation 2014 • Waste Avoidance and Resource Recovery Act 2001 • EPA's Waste Classification Guidelines 2009
Supporting Documentation	<p>The following supporting documents have been referenced in this Sub Plan:</p> <ul style="list-style-type: none"> • Kurnell Terminal Operational Environmental Management Plan (OEMP); • Ampol Environmental Waste Log Work Instruction – SD102656 • NSW EPA EPL 837; • Development Consent – SSD 5544 (as identified in Kurnell Terminal OEMP, Appendix C); •
Regulatory Requirements	
SSD5544	<p><u>Consent Condition C40:</u> The Applicant shall prepare and implement a Waste Management Plan for the development to the satisfaction of the Secretary. This Plan shall:</p> <ul style="list-style-type: none"> (a) be prepared in consultation with the EPA; (b) be approved by the Secretary (refer to timing in Conditions D1 and D2) (c) detail the type and quantity of waste to be generated by construction and operational phases of the development; (d) detail the materials to be reused or recycled, either on or off site; and (e) detail the procedures for handling, storage, collection of recycling and disposal of waste. <p><u>Consent Condition C41:</u> The Applicant shall not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence under the Protection of the Environment Operations Act 1997, if such a licence is required in relation to that waste.</p> <p><u>Mitigation Measures:</u> E6 – Project generated wastes will be segregated at the source and stored in accordance with current Site practices. Site management practiced would potentially need adapting to consider additional storage requirements. Regardless, all waste would be stored in suitable containers and designated waste management areas.</p>

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Division	Fuels & Infrastructure
Type	Sub-Plan
Title	Waste Management Sub Plan

EPA EPL837:

L4 Waste

L4.1 The licensee must not cause, permit or allow any waste to be received at the premises, except the wastes expressly referred to in the column titled “Waste” and meeting the definition, if any, in the column titled “Description” in the table below.
Any waste received at the premises must only be used for the activities referred to in relation to that waste in the column titled “Activity” in the table below.
Any waste received at the premises is subject to those limits or conditions, if any, referred to in relation to that waste contained in the column titled “Other Limits” in the table below. This condition does not limit any other conditions in this licence.

Code	Waste Type	Other Limits
NA	General or Specific exempted wastes	NA
NA	Waste	NA
J120	Waste oil/hydrocarbons mixtures/emulsions in water	Generated from licensee activities and /or transferred via pipeline from Ampol Banksmeadow Terminal

L4.2 The licensee may receive used ballast and tank washing water from ships associated with the premises.
The received ballast and tank washing water may be appropriately treated at the premises by the wastewater treatment plant. For the purposes of this licence, used ballast and tank washings from ships associated with the premises are not considered to be wastes.

L4.3 The licensee may receive water and/or wastewater generated from the maintenance of product transfer pipelines associated with the premises. The received water and/or wastewater generated from the product transfer pipelines may be appropriately treated at the premises by the wastewater treatment plant. For the purpose of this licence water and/or wastewater received from product transfer pipelines is not considered to be a waste.

L4.4 The licensee may receive biotreater sludge from another biological wastewater treatment plant in quantities sufficient for re-seeding (inoculating) the biological wastewater treatment plant (less than 500 tonnes per annum). For the purposes of this licence biotreater sludge is not considered to be a waste

L4.5 The licensee may receive petroleum product mixtures known as “slops” from the Ampol Ampol Sydney Terminal at Banksmeadow (Licence 6950). The petroleum product mixtures must be received via pipeline only and either processed onsite or transferred to another refinery for reprocessing back into individual petroleum products. For the purposes of this licence, petroleum product mixtures are not considered to be a waste.

Note:

“Slops” is a general term used to describe petroleum product/s which do not meet the required product specification. It can be a mixture of two different petroleum products generated within a transfer pipeline when the remainder of one petroleum product is pushed through the pipeline using a second different product.

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Title	Waste Management Sub Plan

Operations and Activities	<p>In this context, Operation refers to the operation of the Site, Wharf and associated pipelines but does not include commissioning trials of equipment or temporary use of parts of the Site (such as during construction or maintenance activities) and the SNP. The main operations and activities at the Site, Wharf and associated pipelines comprise:</p> <ul style="list-style-type: none"> • Receipt and back load of products via the Wharf (KUR1, KUR2 and KUR3 (Sub-Berth)); • Wharf operations and maintenance; • Distribution of products from the Site through the pipelines to other Ampol facilities (Pipeline managed by the Ampol Pipelines team); • Coordinating product movements between the Terminal, Banksmeadow Terminal, Sydney Joint User Hydrant Installation (JUHI) and Sydney Newcastle Pipeline (SMP) – system is automated; • Transfer of slops via underground pipeline to the wharf for transport by ship to other locations, as needed; • Receipt of slops via underground pipeline from the Banksmeadow Terminal to the onsite storage tanks • Filling, transferring and delivering product to/from onsite storage tanks via internal pipelines; • Laboratory QA testing (NATA certified) of products on receipt and prior to release to pipeline • Inspection, monitoring and testing of all storage and product transfer equipment, including bulk storage tanks, piping systems and valves, vent systems and devices, emergency shutdown systems, control pumps, and maintenance of all storage and product transfer equipment; • Inspecting vapour lines for compliance; • Emergency Preparedness and Response; • Maintenance of pipeline Right of Ways (ROWs); • Vegetation and weed management; • Heritage management • Operation of a jet fuel treater; • Stormwater management and outfalls at Quibray and Botany Bay; • Oily water system capture, treatment at the Wastewater Treatment Plant and wastewater outfall pipeline through Yena Gap
Operations and Activities <i>continued</i>	<ul style="list-style-type: none"> • Managing site security (including site entry to Wharf and Terminal and other permits); • Inventory management and data entry/processing; • Conducting and recording routine inspections and observations; • Regular community consultative meetings and responding to community complaints; • Management of road traffic and people movements on Site;

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Key Waste Sources	Based on Site operations and experience since terminal operations commenced, waste is generated by the following operational sources:	
	<ul style="list-style-type: none"> Waste Type 	<ul style="list-style-type: none"> Operational Sources
	<ul style="list-style-type: none"> General Municipal Waste 	<ul style="list-style-type: none"> Office area, kitchen, contractor crib rooms, bathrooms in TOB, SOB and contractor change rooms
	<ul style="list-style-type: none"> Sewerage Effluent 	<ul style="list-style-type: none"> Bathrooms in TOB, SOB and contractor change rooms
	<ul style="list-style-type: none"> Tradewaste effluent (via OWS) 	<ul style="list-style-type: none"> Wastewater Treatment Plant
	<ul style="list-style-type: none"> Residual Materials (metal, insulation, wiring, etc) 	<ul style="list-style-type: none"> Maintenance activities (whole of site)
	<ul style="list-style-type: none"> Leachate (ACS Cell) 	<ul style="list-style-type: none"> ACS Containment Cell
	<ul style="list-style-type: none"> Stormwater 	<ul style="list-style-type: none"> Non-operations roadways, carpark, building roofs
	<ul style="list-style-type: none"> Asbestos contaminated soils (ACS) 	<ul style="list-style-type: none"> Pipeway and other operational areas on site, ACS Containment Cell
	<ul style="list-style-type: none"> Hydrocarbon contaminated soils 	<ul style="list-style-type: none"> Pits, Pipeway and other operational areas on site
	<ul style="list-style-type: none"> Petroleum and other hydrocarbon waste 	<ul style="list-style-type: none"> Laboratory wastes, product retention samples that cannot be reprocessed as "slops"
	<ul style="list-style-type: none"> Empty Drums (Stadis) 	<ul style="list-style-type: none"> Stadis used as static inhibitor in JET product (dosing system)
	<ul style="list-style-type: none"> Biosecurity wastes 	<ul style="list-style-type: none"> International tanker vessels (from personal, kitchen, bathroom, dining) Terminal - medical/first aid areas
	<ul style="list-style-type: none"> Paper/Cardboard/Plastics wastes 	<ul style="list-style-type: none"> General office activities, kitchen consumables

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Type	Sub-Plan
Title	Waste Management Sub Plan

Waste Storage and Handling	<p>The following key on-site waste management facilities will be utilised for management of waste generated from Site activities:</p> <ul style="list-style-type: none"> • Empty Drum Storage Area: The Empty Drum Storage Area will be used for the storage of empty drums prior to sending them for recycling (if possible). • Waste-Water Treatment Plant (WWTP): Water treatment involves three stages of treatment from physical to chemical and biological. The unit allows on-site treatment of all effluent, spent caustic waste, second and third flush water. • Biosecurity Waste Bins: provided at the Wharf to safely and securely store all ship wastes designated as a “biosecurity waste” • Table 1 outlines the management strategy for each of the primary waste streams to be generated from Site operations 		
	• Waste Type	• Classification	• Management Strategies
	General Municipal Waste	General Solid Waste Putrescible (Food Waste)	Food waste would be collected on-site in designated waste collection bins. No recyclable or contaminated materials are to be placed in this bin. A waste contractor would pick up the bin(s) and take it off-site as required to a licensed off-site waste facility.
		General Solid Waste Non-Putrescible (Paper, Cardboard, Glass, Plastic)	Paper, cardboard, glass and plastic waste would be collected on-site in designated recycling collection bins. A waste contractor would pick up the bin(s) and take it off-site to a licensed recycling facility.
	Sewerage Effluent	Liquid Waste	Sewage would be sent to existing sewerage infrastructure.
	Tradewaste effluent	Liquid Hazardous Waste	Processing via Wastewater Treatment Plant, then discharged via Point 2 (Yena Gap)
	Residual Materials (e.g. metal)	General Solid Waste (Non-Putrescible)	Where appropriate the project manager/contractor would identify options for reuse or recycling and/or disposal by a licensed waste contractor.
	Leachate (ACS Cell)	Liquid Waste	ACS Containment Cell designed so that runoff from these areas is directed through the oily water sewer system (OWSS) and treated at the wastewater treatment plant (WWTP), in accordance with EPL 837. Refer to SWMP and ACS-LTMP for specific details
	Stormwater	Liquid Waste	Clean stormwater, from outside the bunded areas would be diverted to the on-site stormwater system. Refer to SWMP for further information
	ACS (+hydrocarbon)	Restricted and Hazardous Special Waste	Transported in a covered, leak proof truck to appropriately licenced waste facility
	ACS	Restricted Special Waste	Transported in a covered, leak proof truck to appropriately licenced waste facility
	Hydrocarbon in soils	Hazardous Special Waste (J120)	Transported in a covered, leak proof truck to appropriately licenced waste facility
	Biosecurity wastes	Special Waste	Transported in 200lt bins labelled “biosecurity waste” to appropriately licenced waste facility
	Paper/Cardboard/	General Solid waste	Transported in skips to general landfill sites
	• Plastics	• Recycling	Transported in skips to recycling facility
	• Empty Drums (Stadis)	• Liquid and Solid Hazardous Waste	Stored in DG store and transported on pallets to covered, leak proof truck to appropriately licenced waste facility

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Title	Waste Management Sub Plan

Controls and Mitigation Measure for Management of Hazardous Materials

The removal of hazardous materials arising from the decommissioning and demolition of the refinery process plants and associated infrastructure has concluded with the end of the project with all such materials removed from the Site. A Hazardous Materials assessment has been undertaken for all buildings retained for terminal use, with records retaining in the Ampol Hazmat system called Lupinsystems.

The Lupinsystems shall be referred to whenever construction/maintenance work is to be undertaken. All such work is undertaken under the control of the Ampol Permit to Work System

Aspect	Actions	Accountability	Timing
Project Works - Periodic Tank Inspection/Maintenance	<ul style="list-style-type: none"> Any residual aqueous waste from tank and pipe cleaning will be disposed of through the oily water sewer system to the WWTP, where possible. Sediment and scale will be separated from the aqueous waste and disposed of to a licensed landfill. Any materials used to remove paint from tanks surfaces e.g. garnet will be collected in appropriate, labelled containers for reuse, recycling, treatment or disposal at approved EPA licensed locations. Waste oil, solvents and toxic material If not will be collected in appropriate, labelled containers for reuse, recycling, treatment or disposal at approved EPA licensed locations. 	Tank Project Team Lead or Delegates	As required during life of project
General Terminal Maintenance Work	<ul style="list-style-type: none"> Any hazardous waste generated as a result of maintenance activities will be assessed, in accordance with the NSW EPA waste classifications guidelines 	Maintenance Team lead or delegates	As required
Contaminated Soils	<ul style="list-style-type: none"> Acid Sulphate Soils (ASS) - details of where ASS may be encountered, and their managed is discussed in detail in the Soil and Water Management Plan. Where possible ,ASS encountered during excavations will be managed on-site. Where on-site management is not possible the ASS will be disposed off-site at an appropriately licenced waste facility 	Maintenance Team lead or delegates Tank Project Team Lead or Delegates	As required

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Aspect	Actions	Accountability	Timing
Contaminated Soils continued	<ul style="list-style-type: none"> Hydrocarbon contaminated excavation soils -soils excavated during maintenance activities which are thought to be contaminated will be stored in accordance with the requirements detailed in the Soil and Water Management Plan Stockpiled contaminated soils will be classified in accordance with the NSW (2009) Waste Classification Guidelines, and disposed of to an appropriately licensed facility. Asbestos contaminated soils - these soils will be excavated and removed from site as soon as practicable by a licenced contractor. If these soils need to be temporarily stockpiled ,they will be stored at a defined location, covered and labelled as asbestos waste. All asbestos impacted soil will be classified in accordance with NSW EPA guidelines for transport and disposal at a licensed landfill (and in accordance with Ampol procedure 'Management of Asbestos, Asbestos Containing Materials and Synthetic Mineral Fibres'). 	<p>Maintenance Team lead or delegates</p> <p>Tank Project Team Lead or Delegates</p>	As required
General Wastes	<ul style="list-style-type: none"> General waste will be transported to a local licensed landfill for disposal in line with NSW regulatory requirements 	Maintenance Team lead or delegates	In accordance with agreed pick up schedule

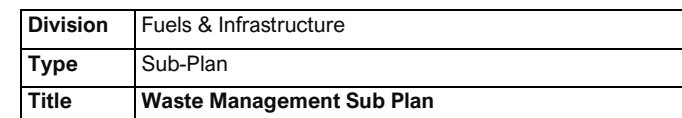
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Waste Disposal			
Aspect	Actions	Accountability	Timing
Hazardous or Restricted Waste	<ul style="list-style-type: none"> Restricted and hazardous wastes will be handled in accordance with the requirements of the Environmental Waste Log Work Instruction SD102656 Only appropriately licensed waste contractors can be used to transported to an appropriate licenced waste facility. Only appropriately EPA licensed waste management facilities will be engaged to dispose of these identified waste streams arising from Site operations and project works Any unidentifiable waste streams would be analysed and sent for testing by an accredited laboratory to assess the risks associated with handling and disposal of the waste. In line with the requirements of SD 102656, the Environmental Waste Log is to be used to track all restricted and hazardous wastes leaving the wharf 	<p>Maintenance Team lead or delegates</p> <p>Tank Project Team Lead or Delegates</p>	<p>As required</p> <p>Each transport event</p>
Biosecurity Wastes	<ul style="list-style-type: none"> All wastes leaving international vessels is to be placed in the designated "Biosecurity waste" bins located at the wharf The Terminal Shore Officers are responsible for arranging the timely swap out of the full bins with replacement bins Only appropriately licensed waste contractors (DAWR) shall be used to transported to an appropriate licenced waste facility Only appropriately DAWR licensed waste management facilities will be engaged to dispose of biosecurity waste In line with the requirements of SD 102656 , the Environmental Waste Log is to be used to track all biosecurity wastes leaving the wharf 	<p>Ship Captain or crew</p> <p>Shore Officers</p> <p>Terminal Operations Specialist (Shipping)</p> <p>Terminal Operations Specialist (Shipping) or delegate</p>	<p>At time of berth</p> <p>In line with shipping events</p> <p>As required</p> <p>Each transport event</p>

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Other Waste Management Requirements			
Aspect	Actions	Accountability	Timing
Community and Consultation	<ul style="list-style-type: none"> Quarterly community consultation meetings held in Kurnell with local residents and other interested parties will be undertaken to maintain on-going dialogue and assist in the alleviation of community concerns , as they arise. Should complaints about the Site's waste management practices be received, these will be recorded and investigated in accordance with Ampol and Site procedures. Reasonable and feasible measures will be implemented to reduce noise impacts. <p>Refer to Kurnell Terminal OEMP Section 5.6 Community Complaints and the Ampol <i>Environmental Community Consultation Standard</i> SD101939 for additional details.</p>	Terminal Operations Manager or delegates	Quarterly and, as required
Monitoring Programs			
Aspect	Actions	Accountability	Timing
Contractor Obligations	<p>All contractors are required to:</p> <ul style="list-style-type: none"> undertake the Ampol and Terminal specific Induction before they can commence work on the Site. Comply with the requirements of this Management Plan. Comply with the requirements of the Work Permit/s at all times Only use plant and equipment for which they are trained to use Report all environmental incidents as they occur. Attend environmental inductions or any other training as required 	Contractors	At all times

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Monitoring Program			
Aspect	Actions	Accountability	Timing
Incident and Complaints Management	<ul style="list-style-type: none"> In line with the Ampol Incident Reporting, Recording and Investigation Requirements Standard SD 206603, the Site will continue to follow the Ampol incident management procedures, including response to and investigation of each event with appropriate follow up of all actions arising from the investigation. A comprehensive emergency management system is implemented at the Terminal with associated response and safety equipment held on site on site. In the event of a waste incident causing environmental harm, the Kurnell Pollution Incident Response Management Plan (PIRMP) will be activated. The PIRMP is designed to manage environmental incidents which may occur on site. In the case of transport incidents involving hazardous wastes that have been collected from the site, the site will notify the Ampol ERS service provider IXOM and work in conjunction with them and the Ampol Crisis Management Duty (CMT) Officer The Site operates a 24-hour hotline number (1800 802 385 toll free) to receive feedback and complaints associated with the operations (including the wharf). Calls are received by Security who is then responsible for activating a notification via the WHISPIR platform, to site operations on shift, the Terminal Operations Manager and others listed. Any feedback and complaint records will be logged in the Site's Complaints Register, tracked in the Ampol LPS and where relevant, responded to. Responses to complaints will be made, where reasonably possible, within 48 hours of receiving the complaint The Ampol Loss Prevention System (LPS) will be used to record and investigate all incidents and complaints made via the community hotline or any other mechanism. 	Terminal Operations Manager or delegates	As required, for each event
		Terminal Operations Manager or delegates	As required, for each event
		Terminal Operations Manager or delegates	As required, for each event

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Aspect	Actions	Accountability	Timing
Performance Indicators	<p>The following performance indicators will be implemented during Site operations and remediation project works, as far as practicable:</p> <ul style="list-style-type: none"> No litter present on or around work areas. Appropriate segregation, storage and management of all waste, stockpiles and recyclable material. Timely removal of redundant materials from the Site Effective use of available off-site recycling opportunities to be employed wherever practicable Environmental Waste Logs up to date with all necessary details included, such as Transport waste dockets, licence details , etc. 	<p>Terminal Operations Manager</p> <p>Remediation Project Lead or delegate</p> <p>Tank Project Lead</p> <p>Laboratory Chemist</p>	<p>At all times</p> <p>At all times</p>
Non-Compliance Reporting	<ul style="list-style-type: none"> In line with the requirements of SSD5544, D4 Annual Review, a summary of any non-compliances against the requirements of this Management Sub-Plan reported to have occurred during the reporting period will be included in the annual report. The NSW EPA will be notified, in cases where an waste management activity causes or threatens to cause material harm to the environment, as set out in Part 5.7 of the Act 	Senior Environment Specialist, Licensed Sites	Annually
Periodic Sub-Plan Review/ Continuous Improvement	<ul style="list-style-type: none"> Impacts and environmental performance of the development and effectiveness of the waste management measures described in this Sub-Plan will be monitored and reported. This will include a review of the Site specific Environmental Waste Log entries. Refer to Kurnell Terminal OEMP, Chapter 6 Monitoring and Reporting. 	Terminal Operations Manager or delegate	Six Monthly and, as required

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Aspect	Actions	Accountability	Timing
Records to be maintained in Terminal and Ampol Files	<p>Held in Cintellate (LPS):</p> <ul style="list-style-type: none"> All environmental incidents associated with the Site's waste management practices All non-conformance and corrective actions. Kurnell Key Facility Information Section: Environmental Waste Log entries -type of waste generated, source of type, volume/weight, transport license details, waste facility license details, method of disposal or destruction, copies of transport documents and certificates of disposal/destruction 	<p>Terminal Operations Manager or delegates</p> <p>Terminal Operations Specialist</p> <p>Maintenance Team Lead or delegate</p> <p>Remediation Project Lead or delegate</p> <p>Tank Project Lead</p> <p>Laboratory Chemist</p>	<p>As required</p> <p>As required</p>

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Division	Fuels & Infrastructure
Type	Sub-Plan
Title	Traffic Management Sub Plan

Kurnell Terminal (KNT) – Traffic Management Sub-Plan (TMP)	
Site Location	2 Solander Street, Kurnell, NSW, 2231 (includes operational Wharf facility on Prince Charles Parade, Kurnell, NSW 2231)
Operations Hours	Operation times are 24 hours seven days a week.
Objective	<p>The objectives of the TMP are to:</p> <p>Minimise traffic interactions and appropriately manage traffic interfaces with regards the normal Terminal operations (the 'Site') - including wharf activities, as well as during any project work e.g. remediation activities – refer to the Remediation EMP for specific details. This includes the management of commercial vehicles used for the delivery and removal of equipment and the vehicles reserved for Terminal operations. With the end of demolition works, particularly the completion of the removal of the Cooling Water pipeline, the need of heavy vehicle movement in and around the Kurnell community is unlikely.</p> <p>To address these objectives, the TMP includes:</p> <ul style="list-style-type: none">• The management measures, actions and associated performance indicators, that will be implemented by the Site;• The monitoring program that will be implemented;• The roles and responsibilities and reporting requirements for Site operations; and• The triggers for the development of specific Traffic Control Plans (TCPs), including traffic management measures which would be generated for works which require permitting or would require amendments or alterations to the existing public road system.

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Management Strategy	<p>Manage traffic on the Site by:</p> <ul style="list-style-type: none"> • Only permitting those vehicle deemed necessary to enable work to be undertaken in the operational areas of the Site • Only allowing diesel driven vehicles into the operational areas of the Site • Employees and contractors have been inducted and have a valid driver's licenses to be able to drive into the operational areas of the Site • Provision of sufficient parking facilities on-site for employee and contractor personnel, and heavy vehicles, to ensure that operational traffic associated with Site operations and any project works do not utilise public and residential streets or public parking facilities. • Within the operational areas of the Site, vehicles will travel on designated roads where possible and be limited to a maximum speed of 10 km/hr in off-road areas, and 25 km/hr elsewhere, except cranes movements to be restricted to 15kms/hr. • Provision of appropriate signage around the Site to communicate: <ul style="list-style-type: none"> - the speed limit, - parking locations within and outside the operational areas of the site, - "no Parking" areas, - "No Access" areas - designated traffic routes within and outside the operational areas - road names or numbers within the operational areas
Legislative and Other Requirements	<ul style="list-style-type: none"> • Protection of the Environment Operations Act 1997 • NSW Workplace Health and Safety Act 2011 and NSW Workplace Health and Safety Regulation 2017 • NSW Road Safety Rules and Regulations •
Supporting Documentation	<p>The following supporting documents have been referenced in this Sub Plan:</p> <ul style="list-style-type: none"> • Kurnell Terminal Operational Environmental Management Plan (OEMP); • Ampol: <ul style="list-style-type: none"> ○ Passenger Vehicle and Driver Safety Standard – SD208048 ○ Driver and Transport Safety – SD208049 ○ Expectations and Requirements for Contractors Working on Ampol Facilities Standard – SDMKT100295 • NSW EPA EPL 837; • Development Consent – SSD 5544 (as identified in Kurnell Terminal OEMP, Appendix C); •
Regulatory Requirements	

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SSD5544	<p>C36 - The Applicant shall prepare and implement a Traffic Management Plan for the Development, to the satisfaction of the Secretary. The plan must:</p> <ul style="list-style-type: none"> (a) be prepared and implemented by a suitably qualified and experienced person; (b) be approved by the Secretary (refer to Conditions D1 and D2 for timing); (c) detail the measures that would be implemented to ensure road safety and network efficiency during construction and operation including (but not limited to): <ul style="list-style-type: none"> · installation of signage and implementation of maximum speeds limits on internal roads; and · final details of the proposed traffic control measures. · details for rationalisation of the entry and exit to the site, particularly if the weigh bridge is no longer required, to improve the management of traffic and parking for members of the general public in this area (d) include a plan showing the route to be used by heavy vehicles during construction and operation; (e) detail the access and parking arrangements for the site during construction and operation; (f) include a Driver Code of Conduct that details the traffic management measures to be implemented during construction and operation to: <ul style="list-style-type: none"> · minimise the impacts of the development on the local and regional road network; · minimise conflicts with other road users; and · ensure truck drivers use specified routes. (g) describe the measures that will be implemented to ensure: <ul style="list-style-type: none"> · the nominated heavy vehicle route is used; · drivers adhere to the code of conduct; and · compliance with the relevant conditions of this consent. (h) include a program to monitor the effectiveness of these measures; and (i) if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.
EPA EPL837:	<p>The terminal currently operates in accordance with an Environment Protection Licence (EPL) 837 issued by the NSW Environment Protection Authority (EPA). While there are no specific provisions in the License for traffic management, all work undertaken for the successful operation of the Site will comply with the conditions within EPL 837.</p>

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Operations and Activities	<p>In this context, Operation refers to the operation of the Site, Wharf and associated pipelines but does not include commissioning trials of equipment or temporary use of parts of the Site (such as during construction or maintenance activities) and the SNP. The main operations and activities at the Site, Wharf and associated pipelines comprise:</p> <ul style="list-style-type: none"> • Receipt and back load of products via the Wharf (KUR1, KUR2 and KUR3 (Sub-Berth)); • Wharf operations and maintenance; • Distribution of products from the Site through the pipelines to other Ampol facilities (Pipeline managed by the Ampol Pipelines team); • Coordinating product movements between the Terminal, Banksmeadow Terminal, Sydney Joint User Hydrant Installation (JUHI) and Sydney Newcastle Pipeline (SMP) – system is automated; • Transfer of slops via underground pipeline to the wharf for transport by ship to other locations, as needed; • Receipt of slops via underground pipeline from the Banksmeadow Terminal to the onsite storage tanks • Filling, transferring and delivering product to/from onsite storage tanks via internal pipelines; • Laboratory QA testing (NATA certified) of products on receipt and prior to release to pipeline • Inspection, monitoring and testing of all storage and product transfer equipment, including bulk storage tanks, piping systems and valves, vent systems and devices, emergency shutdown systems, control pumps, and maintenance of all storage and product transfer equipment; • Inspecting vapour lines for compliance; • Emergency Preparedness and Response; • Maintenance of pipeline Right of Ways (ROWs); • Biodiversity, vegetation and weed management; • Heritage management • Operation of a jet fuel treater; • Stormwater management and outfalls at Quibray and Botany Bay; • Oily water system capture, treatment at the Wastewater Treatment Plant and wastewater outfall pipeline through Yena Gap • Managing site security (including site entry to Wharf and Terminal and other permits); • Inventory management and data entry/processing; • Conducting and recording routine inspections and observations; • Regular community consultative meetings and responding to community complaints; • Management of road traffic and people movements on Site
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Traffic Routes to the Terminal (includes the Wharf)	<p>The Site is located within the suburb of Kurnell on the southern shore of Botany Bay and is accessed by a main arterial road and local streets. The main arterial road servicing the Site is Captain Cook Drive. The Site is located with the Sutherland Shire Council (SSC). Any project work areas outside of the Terminal (i.e. external easements and reserves) will require an SSC permit. Traffic routes specific to these locations will be determined during the application process.</p> <p>Captain Cook Drive is the major access road to the Kurnell Peninsula on the southern shore of Botany Bay from the wider Sydney road network. It connects Taren Point Road to the west (and further to the Princes Highway via The Boulevard) with Prince Charles Parade to the east and the suburb of Kurnell. It has three lanes in each direction west of Gannons Road with a median strip separating each carriageway, reducing to two lanes in each direction and divided carriageways between Gannons Road and Woolooware Road. It further decreases to an undivided carriageway with one lane in each direction east of Woolooware Road to Kurnell.</p> <p>Captain Cook Drive west of Gannons Road is classified as a State Road. To the east of Gannons Road, Captain Cook Drive is classified as a Regional Road. Captain Cook Drive provides primary vehicular access to the Site and connects Taren Point Road with the Kurnell Peninsula on the southern shore of Botany Bay. Within the vicinity of the Site, the carriageway is divided and comprises one traffic lane in each direction. A section of Captain Cook Drive between Woolooware Road and Elouera Road is being upgraded to two traffic lanes in each direction. Sutherland Shire Council states that this upgrade is scheduled for completion in 2015.</p> <p>Taren Point Road is classified as a State Road and follows a north-south alignment, in the suburb of Taren Point. Taren Point Road is aligned parallel to and east of the Princess Highway and provides an alternate route. Generally, the carriageway is divided and comprises three traffic lanes in each direction with auxiliary turning lanes.</p> <p>Solander Street is classified as a Local Road and provides vehicular access to the Site. It connects the car park with Captain Cook Drive. The carriageway comprises one traffic lane in each direction.</p> <p>Prince Charles Parade is classified as a local road on the southern shore of Botany Bay and provides vehicular access to the Wharf. There is a Contractor compound located within the Right of Way (ROW) on the other side of Prince Charles Parade. Pedestrian and vehicle access to the Wharf is restricted to those employees and contractors that are inducted and have a current <i>Maritime Security Identification Card</i> (MSIC).</p> <p>A location plan showing surrounding road network and defined access points to the Site can be found in Figure 1</p>
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Controls and Mitigation Measure for Traffic Management

Suitable equipment, facilities, training, work practices and other necessary precautions will be taken to minimise impacts to the environment and the risk of pollution from the movement of vehicles, heavy vehicles to and from the Site.

All Ampol employees and contractors will implement reasonable and practicable traffic movement measures to avoid or minimise impacts to the environment that may arise from the Project.

Aspect	Actions	Accountability	Timing
Vehicle Management	<p>Ampol will ensure that:</p> <ul style="list-style-type: none"> Only diesel driven vehicles will be allowed to enter operational areas of the site. Only currently inducted drivers with valid driver's licenses will be allowed in operational areas. all vehicles used for site activities and project work are: <ul style="list-style-type: none"> maintained in a proper and efficient condition; and operated in a proper and efficient manner All trucks carrying loose material entering or leaving the Site will have their loads covered. Trucks associated with project work will not track dirt onto the public road network. Any dirt on public roads as a result of demolition works will be promptly removed. Sufficient parking facilities will be provided on-site for employees and contractors, and heavy vehicles, to ensure that traffic associated with Site operations and project work do not utilise public and residential streets or public parking facilities. Within the Terminal, vehicles will travel on designated roads where possible and will be limited to a maximum speed of 10 km/hr in off-road areas, and 25 km/hr elsewhere. Refer to Appendix A for the Kurnell Terminal Driver Code of Conduct 	<p>Terminal Operations Manager or delegate</p> <p>Maintenance Team lead or delegates</p> <p>Project Team Lead</p> <p>Permitted Drivers</p>	<p>At all times</p> <p>At all times</p> <p>At all times</p>

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Aspect	Actions	Accountability	Timing
Communications	<ul style="list-style-type: none"> All road signage shall comply with AS 1743:2018 Road Signs – Specifications and AS1744:2015 – <i>Standard Alphabets for Road Signs</i> Signage leading to site, as well as within the operational areas will communicate: <ul style="list-style-type: none"> Location of the Security Gatehouse and Terminal Reception Location of the visitor and employee/contractor parking areas “no parking” areas on operational side of the site Permitted parking areas on operational side of the site ‘no entry” areas in operational areas Internal road names 	Terminal Operations Manager or delegate	At all times
Hours of Permitted Vehicle Activities	<ul style="list-style-type: none"> As the Site operates 24 hours per day/seven days of the week, operational vehicle movements on and off the site are permitted at any time Permitted vehicle movements will be specified Traffic Control Plans (TCPs), for projects requiring permitting by SSC or would require amendments or alterations to the existing public road system 	Terminal Operations Manager or delegate Maintenance or Project Team lead or delegates	At all times As required
Project Works in the Surrounding area	<ul style="list-style-type: none"> Specific Traffic Control Plans (TCPs), including traffic management measures which would be generated for works which require permitting by SSC or would require amendments or alterations to the existing public road system Local Authorities and Kurnell residents will be informed of Project related work which would affect the road network 	Terminal Operations Manager or delegate Project Team Lead	As required

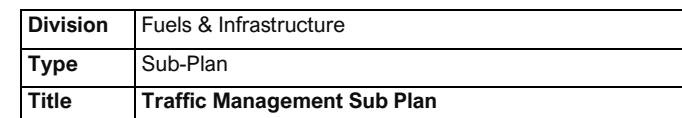
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External Community Engagement and Communications			
Aspect	Actions	Accountability	Timing
Community and Engagement	<p>One or more of the following communication and engagement methods, where appropriate, will be used to notify potentially affected persons during project works within the road reserves:</p> <ul style="list-style-type: none"> Quarterly community consultation meetings held in Kurnell with local residents and other interested parties will be undertaken to maintain on-going dialogue and assist in the alleviation of community concerns , as they arise. Use of the Ampol Public Website: Ampol Kurnell Refinery Conversion Project <ul style="list-style-type: none"> Community leaflets/newsletters Use of social media e.g. Kurnell Community Facebook page Meetings and correspondence with interested parties including the EPA and SSC Discussions with adjoining land owners/neighbours Should feedback and/or complaints about the Site's vehicle management practices be received, these will be recorded and investigated in accordance with Ampol and Site procedures. Reasonable and feasible measures will be implemented to reduce community impacts associated with vehicle movements on and off the site and in the local community road network. <p>Refer to the Ampol Environmental Community Consultation Standard SD101939 for additional details.</p>	Terminal Operations Manager or delegate	As required

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Monitoring Program			
Aspect	Actions	Accountability	Timing
Contractors Obligations	<p>All contractors are required to:</p> <ul style="list-style-type: none"> • undertake the Ampol and Terminal specific Induction before they can commence work on the Site. • Comply with the requirements of this Management Plan. • Comply with the requirements of the Work Permit/s at all times • Only use plant and equipment for which they are trained to use • Report all environmental incidents as they occur. • Attend environmental inductions or any other training as required 	Contractors	At all times
Incident and Complaints Management	<p>In line with the Ampol Incident Reporting, Recording and Investigation Requirements Standard SD 206603, the Site will follow the Ampol incident management procedures, including the response to and the investigation of each event with appropriate follow up of all actions arising from the investigation.</p>	Terminal Operations Manager or delegates	As required, for each event
	<p>A comprehensive emergency management system is implemented at the Terminal with associated response and safety equipment held on site. Refer to Kurnell Terminal OEMP Section 5.8. Ampol Crisis and Emergency Management and Section 5.9 Site Emergency Planning and Response</p>		
	<p>In the event of a vehicle incident causing environmental harm, the Kurnell Pollution Incident Response Management Plan (PIRMP) will be activated. The PIRMP is designed to manage environmental incidents which may occur on site. Refer to Kurnell Terminal OEMP Section 5.10 Pollution Incident Response Management Plan (PIRMP)</p>	Terminal Operations Manager or delegates	As required, for each event
	<p>In the case of transport incidents involving hazardous wastes that have been collected from the site, the site will notify the Ampol ERS service provider IXOM and work in conjunction with them and the Ampol Crisis Management Duty (CMT) Officer</p>	Terminal Operations Manager or delegates	As required, for each event

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Aspect	Actions	Accountability	Timing
Incident and Complaints Management <i>continued</i>	<ul style="list-style-type: none"> The Site operates a 24-hour Hotline number (1800 802 385 toll free) to receive feedback and complaints associated with the Site's operations (including the wharf). Calls are received by Security who is then responsible for activating a notification via the WHISPIR platform, to site operations on shift, the Terminal Operations Manager and others listed. All feedback and complaint records will be logged in the Site's Complaints Register, tracked in the Ampol LPS and where relevant, responded to. Responses to complaints will be made, where reasonably possible, within 48 hours of receiving the complaint. The Ampol Loss Prevention System (LPS) will be used to record and investigate all incidents and complaints made via the community hotline or any other mechanism. 	Terminal Operations Manager or delegates	As required, for each event
Performance Indicators	<p>The following performance indicators will be implemented during Site operations, as far as practicable:</p> <ul style="list-style-type: none"> No fines for Ampol vehicles (complies with road rules and SSC parking restrictions) Speed limits observed on site No petrol driven vehicles found in operational areas (inside fence line) Emergency requirements met for vehicles and drivers in operational areas 	All drivers	At all times
Non-Compliance Reporting	<ul style="list-style-type: none"> In line with the requirements of SSD5544, D4 <i>Annual Review</i>, a summary of any non-compliances against the requirements of this Management Sub-Plan that occurred during the reporting period will be included in the DPE Annual Environmental Performance report. The NSW EPA will be notified, in cases where a traffic incident causes or threatens material environmental harm to the environment, as set out in Part 5.7 of the Act. 	<p>Senior Environment Specialist, Licensed Sites</p> <p>Senior Environment Specialist, Licensed Sites</p>	<p>Annually</p> <p>As required</p>

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Aspect	Actions	Accountability	Timing
Periodic Sub-Plan Review/ Continuous Improvement	<ul style="list-style-type: none">Impacts and environmental performance of the development and effectiveness of the waste management measures described in this Sub-Plan will be monitored and reported. This will include a review of the Site specific traffic management activities.Refer to Kurnell Terminal OEMP, Chapter 6 Monitoring and Reporting.	Terminal Operations Manager or Delegate	Six Monthly and, as required
Records to be maintained in Terminal and Ampol Files	Held in the Cintellate database (LPS): <ul style="list-style-type: none">All environmental incidents associated with the Site's traffic management practices.All non-conformance and corrective actions associated with traffic management on the Site.	Terminal Operations Manager or delegates	As required

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Appendices:

1. Kurnell Terminal - Driver Code of Conduct
2. Site Location Map
3. Site Parking and Access Map

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Appendix 1. Kurnell Terminal - Driver Code of Conduct

The Kurnell Terminal **Driver Code of Conduct** sets out the minimum standards of driving conduct and behaviour we expect from you on our site. This Code of Conduct applies equally to Ampol employees and contractors, whenever and wherever you are driving on the Terminal site. It has been developed to help you, and the people you work with, to uphold the expected driving standards that will keep yourself and others safe on site.

Each of us is responsible for our own driving behaviour and we are all accountable for the choices we make. Compliance with this Code is treated very seriously by Ampol.

Key Driving Rules on Site:

- Only diesel driven vehicles essential for authorised work are allowed into the operational areas of the site (including the wharf)
- All vehicles must be roadworthy and registered
- You can only drive vehicles for which you hold a valid license
- Report all vehicle accidents immediately to your supervisor
- Wear seatbelts at all time
- Ensure all passengers in vehicle swipe in and out at boom
- Obey any directions given you to by Security and Terminal Operations staff and submit to a search of your vehicle, upon request
- Alcohol, weapons and any other prohibited substances cannot bring onto the site
- Obey all Terminal and wharf speed limit of 25kms (Mobile cranes limited to 15kms)
- Observe and comply with other speed restricted as sign posted
- Abide by any other traffic signage lead to and on the site (includes the wharf)
- Ensure all loads are firmly secured and do not exceed load limits
- Make sure all trailers are correctly coupled
- Any scrap or waste material taken off site must have approval from Terminal Operations Manager or their delegate

You MUST NOT bring any waste onto the site **Emergencies on Site:**

- You must not drive during emergencies
- If you hear the emergency siren, you must:
 - **Pull over** to the side of the road (don't obstruct emergency vehicle access though)
 - **Turn off** the engine and leave the keys in the ignition
 - **Assess the risk** to you and others before walking to the nearest Muster Point
- You must **NOT** operate any communications devices, including intrinsically safe radios, etc.
- You must **NOT** drive onto Tank Farm bund or restricted areas

Parking Rules on Site:

- when parking your vehicles on site, make sure:
 - engine is turned off
 - drivers door remains unlocked
 - keys left in the ignition
- Vehicles **MUST** be parked in accordance with designated parking signage on site
- Always park so that you can exit "**Forward First**"
- Every vehicle has blind spots so make sure you know them
- Do NOT stop or park along the road way within 20 metres before a pedestrian crossing or 10 metres after one
- Do NOT stop or park within 8 metres either side of a:
 - Fire hydrant
 - Fire box
 - Fire hose reel or
 - FOAM injection point
- Take time to walk around your vehicle before driving off, to check for object that may have been place there
- If you are reversing, consider getting a spotter to guide the vehicle into pos

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Appendix 2. Site Location Map



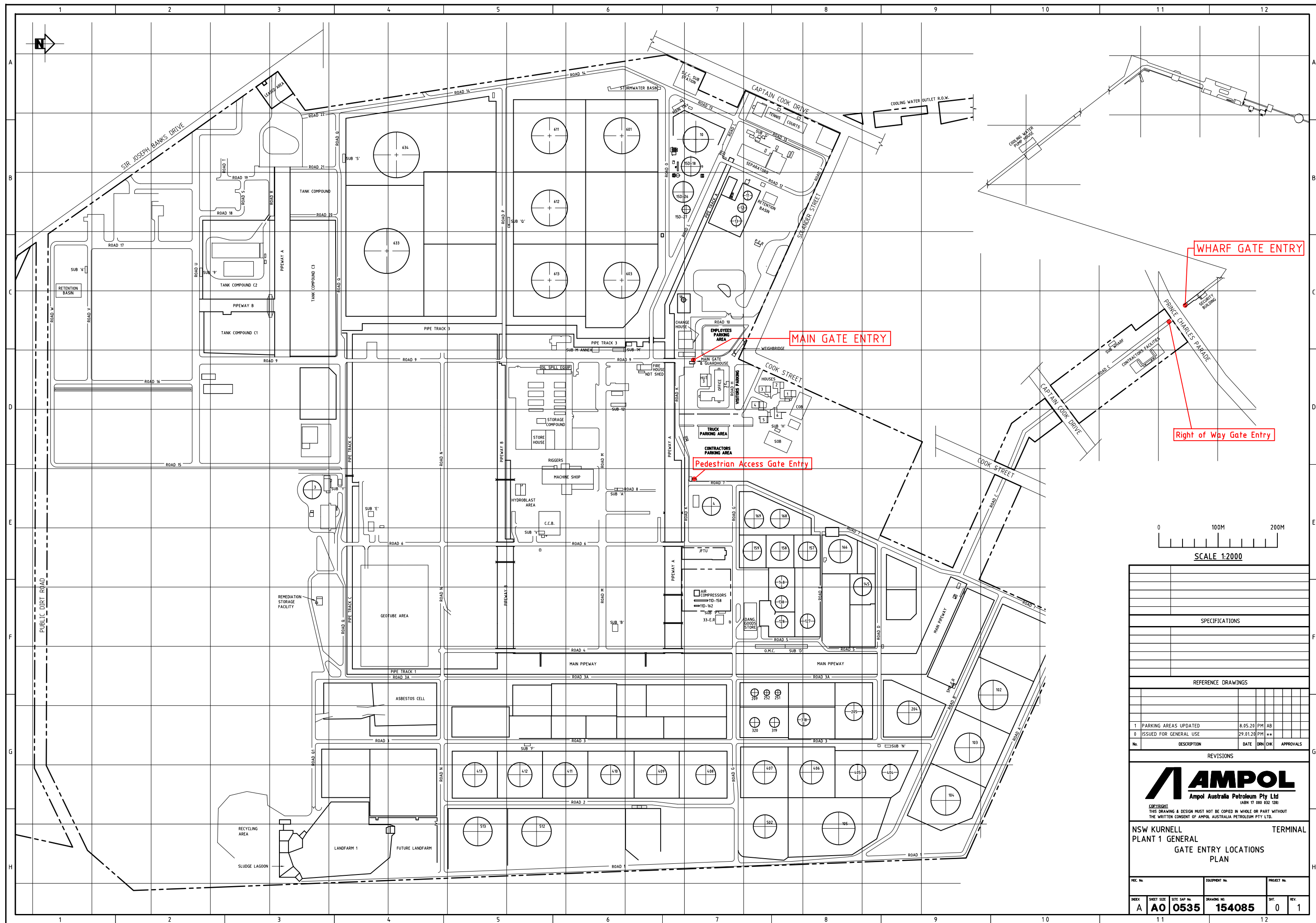
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Appendix 3. Site Parking and Access Map

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Type	Sub-Plan
Title	Biodiversity, Weed and Pest Management Sub Plan

Kurnell Terminal (KNT) - Biodiversity, Weed and Pest Management Sub-Plan (BWPMP)	
Site Location	2 Solander Street, Kurnell, NSW, 2231 (includes operational Wharf facility on Prince Charles Parade, Kurnell, NSW 2231)
Operations Hours	Operation times are 24 hours seven days a week.
Objective	<p>The objectives of the BWPMP are to:</p> <ul style="list-style-type: none"> • Minimise the potential for impacts to flora and fauna as a result of the Terminal's operations ('the Site') which includes the Right of Ways (ROW) and wharf areas; • To provide an integrated approach to the management of pests, weeds and vermin on the Site • Compliance with the Southern Shire Council pest management requirements • Compliance with the Site's Environment Protection Licence 837 (EPL 837), as applicable to the use of chemicals, such as pesticides and herbicides, etc. • Compliance with Conditions of Consent (CoC) and associated Management and Mitigation Measures (MMMs). • Compliance with relevant regulatory requirements (identified in the Kurnell Terminal OEMP, Appendix D) • Manage community expectations regards protecting the Marton Park Woodlands and Wetlands, as well as other remanent native bushland for which the Site is responsible for (custodian) <p>To address these objectives, the BWPMP documents:</p> <ul style="list-style-type: none"> • The management measures, actions and associated performance indicators, that will be implemented throughout the life of the Site • Maintain the implemented monitoring program; and • Establish key management roles and responsibilities and reporting requirements.

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Management Strategy	<p>Manage the biodiversity of the Site and local sensitives receptors by:</p> <ul style="list-style-type: none"> Ensuring suitably qualified personnel are engaged to carry out the necessary pest (included vermin) and weed removal/mitigation activities, in line with the Pesticides Act 1999 and Pesticides Regulation 2017 Suitable equipment, facilities, training, work practices and other necessary precautions will be taken to minimise impacts to the environment and the risk of pollution. All Ampol and Contractors personnel will implement reasonable and practicable measures to avoid or minimise impacts to the environment that may arise from the Site operations.
Legislative and Other Requirements	<ul style="list-style-type: none"> Protection of the Environment Operations Act 1997 Environment al Planning & Assessment Act 1979 Native Vegetation Act 1993 Environment Protection Biodiversity Conservation Act 1999 (EPBC Act) Biodiversity Conservation Act 2016 Office of Environmental Heritage (OEH) Threatened Species Conservation (TSC) Act 1995 National Parks and Wildlife Act 1974 Noxious Weeds Act 1993 Pesticides Act 1999 Pesticides Regulation 2017 Local Environment Plan 2015 (LEP 2015)– Sutherland Shire
Supporting Documentation	<p>The following supporting documents have been referenced in this Sub Plan:</p> <ul style="list-style-type: none"> Kurnell Terminal Operational Environmental Management Plan (OEMP); Ampol insert relevant procedure/standard/etc NSW EPA EPL 837; Development Consent – SSD 5544 (as identified in Kurnell Terminal OEMP, Appendix C);

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Regulatory Requirements	
SSD5544	<p><u>Consent Condition – C43:</u> The Applicant shall:</p> <ul style="list-style-type: none"> (a) implement suitable measures to manage pests, vermin and declared noxious weeds on site; (b) measures to be taken to prevent the spread of any identified noxious/exotic weeds off site; and (c) inspect the site on a regular basis to ensure that these measures are working effectively, and that pests, vermin or noxious weeds are not present on site in sufficient numbers to pose an environmental hazard, or cause the loss of amenity in surrounding area. <p>Note: For the purposes of this condition, noxious weeds are those species subject to an order declared under the Noxious Weed Act 1993.</p> <p><u>Consent Condition – C44:</u> To ensure that the measures implemented to protect Marton Park Wetland from sedimentation, erosion and possible contaminants related to the stormwater drainage upgrade works approved by Sutherland Shire Council (DA 13/0195) are successful, monitoring of Marton park Wetland must be undertaken after completion of the stormwater upgrade works, until otherwise agreed with Council, to ensure there are no detrimental impacts on the wetland. Ampol is to prepare a monitoring plan and submit it to Council for approval prior to completion of stormwater drainage upgrade works.</p>
EPA EPL837	<p><u>General Requirements:</u> <u>L1</u> Pollution of Waters *L1.1: Except as may be expressly provided in any other condition of this Licence, the licensee must comply with Section 120 of the Protection of the Environment Operations Act 1997. * In relations to the application of pesticides and herbicides</p> <p>PRP U18: Threatened Species Management Plan (Completed) To assess the risk of harm to threatened species, populations and EEC's from actual or potential pollution from the premises and to identify management options to minimise any potential harm.</p>

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Operations and Activities

In this context, Operation refers to the operation of the Site, Wharf and associated pipelines but does not include commissioning trials of equipment or temporary use of parts of the Site (such as during construction or maintenance activities) and the SNP. The main operations and activities at the Site, Wharf and associated pipelines comprise:

- Receipt and back load of products via the Wharf (KUR1, KUR2 and KUR3 (Sub-Berth);
- Wharf operations and maintenance;
- Distribution of products from the Site through the pipelines to other Ampol facilities (Pipeline managed by the Ampol Pipelines team);
- Coordinating product movements between the Terminal, Banksmeadow Terminal, Sydney Joint User Hydrant Installation (JUHI) and Sydney Newcastle Pipeline (SMP) – system is automated;
- Transfer of slops via underground pipeline to the wharf for transport by ship to other locations, as needed;
- Receipt of slops via underground pipeline from the Banksmeadow Terminal to the onsite storage tanks
- Filling, transferring and delivering product to/from onsite storage tanks via internal pipelines;
- Laboratory QA testing (NATA certified) of products on receipt and prior to release to pipeline
- Inspection, monitoring and testing of all storage and product transfer equipment, including bulk storage tanks, piping systems and valves, vent systems and devices, emergency shutdown systems, control pumps, and maintenance of all storage and product transfer equipment;
- Inspecting vapour lines for compliance;
- Emergency Preparedness and Response;
- Maintenance of pipeline Right of Ways (ROWs);
- Vegetation and weed management;
- Heritage management
- Operation of a jet fuel treater;
- Stormwater management and outfalls at Quibray and Botany Bay;
- Oily water system capture, treatment at the Wastewater Treatment Plant and wastewater outfall pipeline through Yena Gap

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Operations and Activities <i>continued</i>	<ul style="list-style-type: none"> Managing site security (including site entry to Wharf and Terminal and other permits); Inventory management and data entry/processing; Conducting and recording routine inspections and observations; Regular community consultative meetings and responding to community complaints; Management of road traffic and people movements on Site;
Biodiversity Context	<p><u>Sensitive Receptors:</u></p> <p>The Kurnell Terminal is located on the Kurnell Peninsula, south of Botany Bay. The Site falls within the Sydney Metro Catchment Management Authority (SMCMA). The Site is located within the Sydney Basin bioregion as defined in the Interim Biogeographic Regionalisation for Australia. The original vegetation has been extensively cleared on the Kurnell Peninsula. The Site is located on land that was originally a low lying sandy / swampy area. Prior to the construction of the refinery, the Site was levelled and filled by excavating and spreading local sand dunes across the Site, and supplementing with a significant quantity of sediment from Botany Bay.</p> <p>As a result of these works and the continued operation of the Site over 50 years, the Site has been substantially modified and is of negligible habitat value except for common native and introduced species. There is limited connectivity across the Site; however given that the Kamay Botany Bay National Park surrounds a large portion of the Site, some dispersal across the Site could occur.</p> <p>Only remnant patches of vegetation remain in some of the areas of more significant ecological value. No threatened flora or fauna were found during the EIS inspections conducted on URS within the Site. The Site is adjacent to residential areas and other sensitive environmental receptors. Potential off-site receptors include (refer to Appendix 1 - Location Map):</p> <ul style="list-style-type: none"> Botany Bay; Oyster farming in Quibray Bay and Botany Bay; Towra Point Nature Reserve (RAMSAR wetland); Towra Point Aquatic Reserve; Marton Park Wetland; Kamay Botany Bay National Park; and nearby residential areas (i.e. Kurnell Village including residences, public places and schools)

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Biodiversity Context <i>continued</i>	<p><u>Threatened Biota:</u></p> <p>A number of threatened species, populations and/or ecological communities are predicted or known to occur within 5 km of the Site. Many of these species are considered unlikely to occur within the Site, due to a lack of suitable habitat. The results of the habitat suitability assessments as part of the EIS (refer to Appendix I <i>Ecology Impact Assessment</i> on the Ampol Public Website) indicate that two threatened fauna species, one threatened flora species, one threatened ecological community and one Ramsar wetland listed under the TSC and/or EPBC Act have been recorded or are considered as likely to occur within, or be relevant to the Site, and which had the potential to be impacted by the Conversion project (now concluded). They are:</p> <ol style="list-style-type: none"> 1. Green and Golden Bell Frog <i>Litoria aurea</i>; 2. Wallum Froglet <i>Crinia tinnula</i>; 3. Coast Groundsel <i>Senecio spathulatus</i>; 4. Coastal Flats Swamp Mahogany Forest <i>Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner</i>; and 5. Towra Point Nature Reserve Ramsar Site. <p>The threatened biota considered to have a medium to high likelihood of occurrence is presented in Appendix 2.</p>
	<p><u>Critical Habitat:</u></p> <p>Habitat critical to the survival of an endangered or critically endangered species, population or ecological community can be identified under the Threatened Species Conservation (TSC) Act and listed on the Register of Critical Habitat kept by the OEH. The Site does not contain declared critical habitat as listed under the TSC Act or the OEH Register of Critical Habitat.</p>

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Biodiversity Context <i>continued</i>	<p><u>Noxious Weeds:</u></p> <p>Three noxious weeds, listed by NSW Department of Primary Industry (DPI) for the Sutherland Shire Council under the <i>Noxious Weed Act 1993</i> (NW Act) were recorded in the Site by Biosis, including:</p> <ul style="list-style-type: none"> • Bitou Bush - <i>Chrysanthemoides monilifera</i> subsp. <i>rotunda</i>; • Castor Oil Plant - <i>Ricinus communis</i>; and • Lantana - <i>Lantana camara</i>. <p>These weeds are all listed as <u>Class 4 noxious weeds</u> by NSW DPI. The requirements for the control of Class 4 noxious weeds, under the NW Act include:</p> <ul style="list-style-type: none"> • 'the growth of the plant must be managed in a manner that reduces its numbers, spread and incidence and continuously inhibits its reproduction'; and • 'the plant must not be sold propagated or knowingly distributed'. <p>The latter requirement is not relevant to this Site.</p> <p><u>Feral Animals and Pests:</u></p> <p>The <u>European rabbit</u> (<i>Oryctolagus cuniculus</i>) is an introduced pest animal that causes significant harm to the natural environment by preventing the growth of vegetation through browsing, and erosion issues caused by excavating their extensive burrows. It is endemic in the Kurnell area. The Sutherland Shire Council employ an integrated approach to rabbit management that includes the National Parks & Wildlife Service, other councils and bodies and private landowners. The rabbit's ability to reproduce frequently and in high numbers, makes it a very difficult animal to control. Strict SSC controls and approvals are needed for baiting programs.</p> <p>There are also frequent sightings of rats and feral cats on the Site and in the Kurnell community.</p>
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Controls and Mitigation Measure for Management of the Local Biodiversity and Weeds/Vermin

The Site is located on land that was originally a low lying sandy / swampy area. Prior to the construction of the refinery, the Site was levelled and filled by excavating and spreading local sand dunes across the Site, and supplementing with a significant quantity of sediment from Botany Bay.

As a result of these works, and the continued operation of the Site over 50 years (including substantially modified during conversion and demolition phases), the Site is of negligible habitat value except for common native and introduced species. Having said that, there are a number of requirements for the maintenance of the biodiversity value of the on-site and off-site receptors, threatened biota and critical habitat. This included the control of invasive weeds, vermin and other pests known in the area.

In addition to the general requirements detailed in the Kurnell Terminal OEMP, the following mitigation measures will be implemented as part of Site operations.

General Maintenance and Remediation Works

Aspect	Actions	Accountability	Timing
Potential Impacts on Threatened Biota	<p>Excavations and trenches:</p> <ul style="list-style-type: none"> Maintenance workers will be provided with identification sheets relating to the threatened fauna species predicted to occur on the Site. A fauna identification sheet is presented in Appendix 2. This information is especially relevant when undertaking excavation work. When open trenching/digging/excavating, exclusion fencing will be established prior to works commencing and inspected daily. Trenches will be backfilled daily or covered overnight or other measures to prevent and/or mitigate fauna entrapment where possible. Trenches/holes will be inspected daily prior to commencing works. Injured frogs that become trapped within trenches will be assessed by a veterinarian or qualified zoologist. Uninjured frogs will be captured and released as near as possible to the location found, in suitable habitat to the south of the Site. Stop work procedures will apply during the works on the chance encounter of any threatened frogs (to avoid death or injury to frogs). If threatened frogs such as Green and Golden Bell Frog or Wallum Froglet are identified during excavation works, active searching will be undertaken by a qualified zoologist experienced in the identification and management of these species. 	<p>Maintenance Team lead or delegates</p> <p>and</p> <p>Remediation Project Lead or delegate</p>	<p>As required</p> <p>As required</p>

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Aspect	Actions	Accountability	Timing
Removal of perching and nesting habitats for large birds	<ul style="list-style-type: none"> If practical, maintenance works on tall structures (e.g. Terminal Office Building roof) on Site will be completed outside of the known nesting periods the threatened bird species (July to September for Osprey and June to January for White-bellied Sea-eagle). If not practical then tall structures will be inspected for active nests prior to commencing the demolition works. Stop work procedures will apply during the maintenance works on the identification of threatened nesting birds, including the Pied Oystercatcher, Little Tern, Osprey or White-bellied Sea-eagle (to avoid disturbed nesting threatened birds). If nesting birds are encountered, a qualified zoologist will be consulted and appropriate actions will be implemented, prior to maintenance works recommencing. 	<p>Maintenance Team lead or delegates</p> <p>and</p> <p>Remediation Project Lead or delegate</p>	<p>As required</p> <p>As required</p>
Spread of invasive noxious weeds	<ul style="list-style-type: none"> Stockpiles and disturbed areas will be managed in accordance with the Soil and Water Management Plan and monitored to help prevent spread of noxious weeds as per NSW DPI specifications for Sutherland Shire LGA. Where practical, soils will be re-used in the area from which they were excavated and not moved around the Terminal to minimise the spread of noxious weeds. In those cases where maintenance work is carried out in unsealed areas of the Site, vehicles, plant and equipment, where required, will be washed down to prevent the spread of root-rot fungus (<i>Phytophthora cinnamomi</i>) and noxious weeds. Noxious weed information sheets will be provided to maintenance contractors to help identification of relevant noxious weeds on Site. Maintenance contractors will be encouraged to report any sightings of noxious weeds to their Ampol Maintenance Team representative. 	<p>Maintenance Team lead or delegates</p> <p>and</p> <p>Remediation Project Lead or delegate</p>	<p>As required</p> <p>As required</p>

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Weed Management			
Aspect	Actions	Accountability	Timing
Spread of noxious weed infestations <i>continued</i>	<u>Pesticide Use – Training Requirements:</u> <ul style="list-style-type: none"> All personnel undertaking routine noxious weed management activities on Site will be appropriately trained in pesticide use, in accordance with the requirements of the Pesticides Regulation 2017 - Clauses 19(8) and 31(2). This includes: <ul style="list-style-type: none"> Complete the initial accreditation training in the Agriculture, Horticulture and Conservation and Land Management Training Packages – Unit Codes AHCCHM304 and AHCCHM307 For those personnel working under the supervision and a fully qualified person (as above) Unit Code AHCCHM201 will be accepted Maintain competency in the use of pesticides by renewing training every 5 years (approved short course) or participate in a EPA – approved quality assurance or stewardship program A certificate of Attainment or equivalent, issued by a Registered Training Authority (RTO) will need to be submitted before a permit to apply pesticides on Site will be approved 	Personnel undertaking routine pesticide application	Prior to Permit
Pesticide Application	<p>Pre-approved personnel can <u>only use Approved</u> Herbicides on Kurnell Terminal (included Right of Ways land):</p> <ul style="list-style-type: none"> The use of herbicides in areas where frogs have been identified will be avoided wherever practicable. Where not practicable, 'frog-friendly' and 'wetland-friendly' glyphosate based herbicides, including, but not limited to the following will be used for the control of noxious weeds: <ul style="list-style-type: none"> Glyphocycle 360 Frog Friendly - Weed Control®; Sickle 540®; Roundup Biactive® (360); and WEEDMASTER® Duo Dual Salt Technology Herbicide <p>Note: of particular important in or near Marton Park Wetland and other wetlands at southern end of site</p>	Personnel undertaking routine pesticide application	At all times

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Aspect	Actions	Accountability	Timing
Pesticide Use - Record Keeping	<p>All people who use pesticides as part of their job must record their pesticide use. Keeping records can help track the effectiveness of pesticides; reduce health, trade and environmental impacts by providing vital information if an incident occurs; and defend the pesticide user by demonstrating they used pesticides responsibly.</p> <p>The record must be:</p> <ul style="list-style-type: none"> made within 48 hours of using the pesticide kept for 3 years after application of the pesticide <p>Details must include:</p> <ul style="list-style-type: none"> Name, address and contact telephone numbers of the person who applied the pesticide When the Pesticide was applied i.e. the date started and date stopped as well as application time Record the full product name of the pesticide that you used Where the pesticide was used – name the situation e.g. sprayed specific weed growth at Weather conditions: wind speed and direction (best when wind is light and blowing away from sensitive receptors rainfall, temperature and any other significant changes in conditions that increase chances of off -target movement of the pesticide How much was applied i.e. total amount you made up and used; rate of application (how much was applied) and area covered by the application How you applied the pesticide e.g. mister, fogger, backpack, wiper ground rig, truck or tractor mounted boom or boom sprayer, etc. 	Approved Persons applying pesticide treatment/s	Within 48 hours of application/s

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Aspect	Actions	Accountability	Timing
Pesticide Use - Record Keeping <i>continued</i>	<ul style="list-style-type: none"> - If more than one area treated as part of the same job, record the sequence in which the areas were treated. The use of a site/location map with marked off areas numbered 1, 2, 3, 4, etc. - Owner of the land/area being treated <p>The contractor can use an NSW EPA supplied Record Book or an equivalent system, as long as the record sheet contains the above information in full.</p> <p>A complete copy of <u>each record</u> is to be supplied to Ampol after each application, as an attachment to the M7 work sheet</p>	Approved Persons applying pesticide treatment/s	Within 48 hours of application/s
Other Biodiversity and Weed Management Requirements			
Monitoring Program			
Aspect	Actions	Accountability	Timing
Community and Engagement	<ul style="list-style-type: none"> • Quarterly community consultation meetings held in Kurnell with local residents and other interested parties will be undertaken to maintain on-going dialogue and assist in the alleviation of community concerns, as they arise. • Should feedback and/or complaints about the Site's biodiversity and/or weed management practices be received, these will be recorded in the Site's Complaints Register and investigated in accordance with Ampol and Site procedures. • Reasonable and feasible measures will be implemented to reduce impacts from the Site operations. <p>Refer to Kurnell Terminal OEMP Section 5.6 Community Complaints and the Ampol <i>Environmental Community Consultation Standard</i> SD101939 for additional details.</p>	<p>Terminal Operations Manager or delegates</p> <p>Maintenance Team Lead or delegate</p>	<p>Quarterly and, as required</p> <p>As required</p>

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Monitoring Program			
Aspect	Actions	Accountability	Timing
Contractors Obligations	<p>All contractors are required to:</p> <ul style="list-style-type: none"> • undertake the Ampol and Terminal specific Induction before they can commence work on the Site. • Comply with the requirements of this Management Plan. • Comply with the requirements of the Work Permit/s at all times • Only use plant and equipment for which they are trained to use • Report all environmental incidents as they occur. • Attend environmental inductions or any other training as required 	Contractors	At all times
Incident and Complaints Management	<ul style="list-style-type: none"> • In line with the Ampol Incident Reporting, Recording and Investigation Requirements Standard SD 206603, the Site will continue to follow the Ampol incident management procedures, including the response to and investigation of each event, with appropriate follow up of all actions arising from the investigation. • A comprehensive emergency management system is implemented at the Terminal with associated response and safety equipment held on site on site. • In the event of an incident causing real or potential environmental harm, the Kurnell Pollution Incident Response Management Plan (PIRMP) will be activated. The PIRMP is designed to manage environmental incidents which may occur on site. • In the case of incidents involving the application of pesticides with community impacts, the site will notify the Ampol ERS service provider IXOM and work in conjunction with them and the Ampol Crisis Management Duty (CMT) Officer 	Terminal Operations Manager or delegates	As required, for each event

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Aspect	Actions	Accountability	Timing
Incident and Complaints Management <i>continued</i>	<ul style="list-style-type: none"> The Site operates a 24-hour hotline number (1800 802 385 toll free) to receive feedback and complaints associated with the operations (including the wharf). Calls are received by Security who is then responsible for activating a notification via the WHISPIR platform, to site operations on shift, the Terminal Operations Manager and others listed. Any feedback and complaint records will be logged in the Site's Complaints Register, tracked in the Ampol LPS and where relevant, responded to. Responses to complaints will be made, where reasonably possible, within 48 hours of receiving the complaint The Ampol Loss Prevention System (LPS) will be used to record and investigate all incidents and complaints made via the community hotline or any other mechanism. 	Terminal Operations Manager or delegates Terminal Operations Manager or delegates Terminal Operations Manager or delegates	As required, for each event As required, for each event As required, for each event
Performance Indicators	The following performance indicators will be implemented during Site operations, as far as practicable: <ul style="list-style-type: none"> Limited removal of native vegetation, wherever possible Limit work on tall buildings/structures being used for nesting by the Osprey or White-bellied Sea-eagle. No disturbance of nesting shorebirds Minimise potential disturbance to frog populations Pesticide use records are completed within prescribed timeline and contain ALL necessary information 	Terminal Operations Manager or delegates	As required

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Aspect	Actions	Accountability	Timing
Non-Compliance Reporting	<ul style="list-style-type: none"> In line with the requirements of SSD5544, D4 <i>Annual Review</i>, a summary of any non-compliances against the requirements of this Management Sub-Plan reported to have occurred during the reporting period will be included in the annual report. The NSW EPA will be notified, in cases where an air emission or odour causes or threatens to cause material harm to the environment, as set out in Part 5.7 of the Act 	Senior Environment Specialist, Licensed Sites	Annually
Periodic Sub-Plan Review/ Continuous Improvement	<ul style="list-style-type: none"> Impacts and environmental performance of the development and effectiveness of the biodiversity and weed management measures described in this Sub-Plan will be monitored and reported. This will include a review of the specific pesticide application records held with M7 record. Refer to Kurnell Terminal OEMP, Chapter 6 Monitoring and Reporting 	Terminal Operations Manager or Delegate and Senior Environment Specialist, Licensed Sites or delegate	Six Monthly and, as required
Records to be maintained in Terminal and Ampol Files	<p>Held in Cintellate (LPS):</p> <ul style="list-style-type: none"> All environmental incidents associated with the Site's biodiversity and weed and vermin/pest management practices All non-conformance and corrective actions. <p>Held in SAP:</p> <ul style="list-style-type: none"> M7 and all Pesticide Application Records 	<p>Terminal Operations Manager or delegates</p> <p>Maintenance Team lead or delegates</p>	<p>As required</p> <p>As required</p>

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Appendix 1. Location Map



Appendix 2. Threatened Biota Considered to Have Potential to Occur on Site

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Project Area Relationship
<i>Litoria aurea</i>	Green and Golden Bell Frog	Endangered	Vulnerable	This species has the potential to be found throughout the Project Area on occasion during dispersal, however it is more likely to be found within the eastern boundary vegetation patch and the north-east vegetation area based on their proximity to the adjacent Kamay Botany Bay National Park where historical records exist (refer to Figure 19-1).
<i>Crinia tinnula</i>	Wallum Froglet	Vulnerable	Not listed	This species has the potential to be found within the Site on occasion during dispersal however, is more likely to be found within the eastern boundary vegetation patch and the north-east vegetation area based on their proximity to the adjacent Kamay Botany Bay National Park where historical records exist (refer to Figure 19-1).
<i>Ninox strenua</i>	Powerful Owl	Vulnerable	Not listed	The Powerful Owl may forage across the Site; however the primary areas which are likely to support prey species occur within the three vegetated patches shown on Figure 19-1 .
<i>Tyto longimembris</i>	Grass Owl	Vulnerable	Not listed	No breeding or preferred foraging resources occur within the Site. Given that this species was recorded approximately 1.5 km south of the Site within Kamay Botany Bay National Park as recently as 2010, it is possible that this species will move through the Site to forage, particularly the eastern and north-eastern vegetation patches shown on Figure 19-1 .
<i>Calamanthus fuliginosus</i>	Striated Fieldwren	Endangered	Not listed	No breeding or preferred foraging habitat occurs within the Site. The closest records are from approximately 5 km east dating from 2002 (Bird Life Australia data). Although unlikely, if individuals from this population were to enter the Site, their presence would most likely be associated with the three vegetation patches within the Site.

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Project Area Relationship
<i>Epthianura albifrons</i>	White-fronted Chat	Vulnerable	Not listed	No breeding or preferred foraging habitat occurs within the Site. The closest records are approximately 500m south within Kamay Botany Bay National Park, however the most recent of these records dates from 1988. More recent records occur within Towra Point Nature Reserve 5 km east of the Site. Although unlikely, if individuals from this population were to enter the Site, their presence would most likely be associated with the three vegetation patches within the Site.
<i>Pandion cristatus</i>	Osprey	Vulnerable	Not listed	The Osprey was recorded in 2011, 5 km to the east of the Site. No foraging or breeding sites occur within the Site. However the Site contains tall infrastructure suitable as perching habitat for large birds such as the Osprey.
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	Vulnerable	Not listed	The Eastern Bentwing-bat was recorded in 2010, less than 1 km north of the Site. A reservoir of water occurs at Chisholm Drive at the western extent of the Site near Captain Cook Drive. This reservoir had sheer exposed sides and does not provide roosting opportunities for microbats. Although the Site does not provide preferred foraging habitat, the Eastern Bentwing-bat may forage within the Site on occasion within the three vegetated areas.
<i>Myotis macropus</i>	Southern Myotis	Vulnerable	Not listed	The Southern Myotis was recorded in 2009 less than 1 km south west of the Site. A reservoir of water occurs at Chisholm Drive at the western extent of the Site near Captain Cook Drive. This reservoir had sheer exposed sides and does not provide roosting opportunities. Although it is unlikely to support an abundance of prey, the Southern Myotis may forage over this water body on occasion.
<i>Senecio spathulatus</i>	Coast Groundsel	Endangered	Not listed	Although <i>S. spathulatus</i> has been recorded within the Site recently, the accuracy of the record is ~1km and given the lack of suitable habitat it is considered likely that the record was located in the adjacent Kamay Botany Bay National Park.

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Project Area Relationship
<i>Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner (SSFCF)</i>	Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner (SSFCF)	Endangered Ecological Community	Not listed	Although a threatened ecological community equating to the SSFCF has been previously mapped at three separate patches within the Site, ground truthing of these areas identified one as being un-vegetated and the remaining two not consistent with the final determination of the community. Outside of these areas, no potential habitat for SSFCF was identified within the Site.

Notes:

The Site was considered unlikely to support any marine or freshwater threatened species given the lack of suitable habitat resources.

No NSW or Commonwealth listed Threatened Ecological Communities (TEC) were found within the Site.

No potential habitat for SSFCF was identified within the Site *Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner (SSFCF)*

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Appendix 3 - Fauna and Flora Identification Sheet

Threatened fauna species

Green and Golden Bell Frog



Wallum Froglet



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Appendix 3. - Fauna and Flora Identification Sheet *(continued)*

Threatened Birds Species

Pied Oystercatcher



Little Tern



Osprey or White-bellied Sea Eagle



Appendix 3. - Fauna and Flora Identification Sheet *(continued)*

Threatened Flora

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Botany Bay Bearded Orchid



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Division	Fuels & Infrastructure
Type	Plan
Title	KNT Biosecurity Incident Response Management Plan

Ampol Kurnell Terminal (KNT) – Biosecurity Incident Response Management Plan

Site Location	<p>Ampol Kurnell Terminal operates and maintains the Kurnell Terminal located on the Kurnell Peninsula, Botany Bay. The Terminal include the land based facilities (product tanks, inlet and outward product pipelines) needed to receipt, store and transfer finished petroleum products, as well as a jetty structure known as the Kurnell Wharf.</p> <p>The Kurnell Wharf, along with the associated shipping berths, form the Kurnell port and berth facility.</p> <p>The Kurnell Wharf is located to the west of the southern Kurnell Peninsula Headland and extends approximately 1 km into Botany Bay off Silver beach. It is the sole first point of entry (FPOE) for the Terminal's finished petroleum product imports. The Wharf is also used as a distribution point for some refined products, which are either shipped interstate or overseas. This area is used exclusively by Ampol for berthing and accessing of tanker ships to allow unloading and loading to take place.</p> <p>The Precinct Name is <i>Ampol Kurnell</i> . There are three berths in this precinct – KUR1 and KUR2 are positioned at the fixed berth at the Kurnell Wharf, with KUR3 (a sub-berth) located in the middle of Botany Bay, adjacent to the Botany Bay shipping lane.</p>
Operations Hours	<p>The Terminal (includes the Wharf) operation times are 24 hours seven days a week.</p> <p>The supply (tanker ship) shipping schedule is managed by Ampol Supply Operations and is based on a “product demand and supply pull” process.</p>
Biosecurity Incident Definition	<p>A biosecurity incident is defined as an unintentional, unforeseen or uncontrolled exposure to exotic pests and diseases. First points of entry (FPOE) locations, such as Kurnell Terminal wharf, present a high risk to the Australian agricultural industries, human health and our unique environment as an island state.</p>

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Biosecurity Incident Management Strategy	<p>To mitigate or reduce the biosecurity risk (including consideration of likelihood and consequence) associated with tanker ship discharge/transfers of petroleum product inwards via the allocated Kurnell Terminal wharf or sub-berth to on-site Terminal storage tanks whilst ensuring we:</p> <ul style="list-style-type: none">• manage the biosecurity risks associated with tanker ships and its cargo (bulk petroleum fuels)• respond to and report biosecurity or human biosecurity incidents to the Port Botany Harbour Master and DAWR Biosecurity Officers• support the Harbour Master and DAWR Biosecurity Officers to safely and effectively assess, inspect and treat goods under biosecurity control• management the environment around the port of entry to reduce its receptivity to pests and diseases of biosecurity concerns• management of biosecurity waste appropriately – refer to the <u>Contain</u> section and the Kurnell Terminal Shipping procedures
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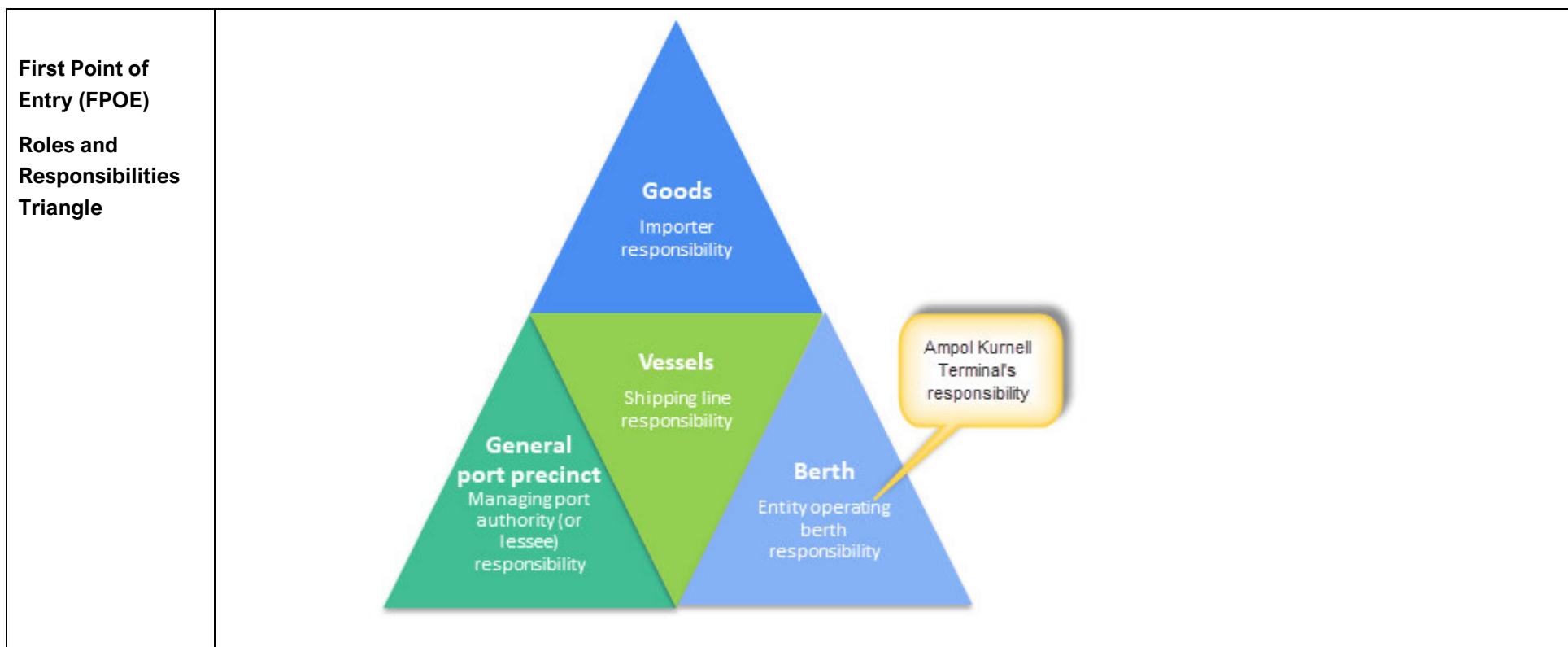


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Regulatory Framework and Requirements	<p><i>Australian Commonwealth Gov't Biosecurity Act 2015:</i></p> <p style="padding-left: 40px;"><i>Part 3 - First point of entry and biosecurity entry points, Division 3 Subsection 229 (1) Determination of ports that are first points of entry for vessels or goods that are subject to biosecurity control</i></p> <p><i>Biosecurity Regulation 2016, Section 58</i> provides for the control of biosecurity risks introduced by first point of entry operations, such as Ports</p> <p>Under section 58 of the Biosecurity Regulation 2016, a first point of entry port must have:</p> <ul style="list-style-type: none"> • appropriate procedures in place for managing the level of biosecurity risk (including waste management) associated with port operations • adequate facilities and amenities available at the port for biosecurity officers and human biosecurity officers to perform functions or exercise powers under the <i>Biosecurity Act 2015</i> • appropriate procedures in place for <ul style="list-style-type: none"> – ensuring that each person who carries out operations at the port can identify biosecurity risks associated with those operations – informing biosecurity officers and human biosecurity officers of any identified biosecurity risks associated with port operations – managing any other factors that may affect the level of biosecurity risk associated with port operations. <p>As only bulk petroleum fuels are unloaded at the Kurnell Terminal Wharf, this facility is classified as a low biosecurity risk.</p>
Supporting Documentation	<p>The following supporting documents have been reviewed and referenced during the preparation of this Plan:</p> <ul style="list-style-type: none"> • Kurnell Terminal Operational Environmental Management Plan (OEMP) • DAWR: Biosecurity Incident Response Procedure (BIRP) Guide • DAWR First Point of Entry Determination for Port of Botany Bay • Commonwealth Department of Agriculture Water and Environment (DAWE) – First Point of Entry Standards (Port) – Guide to Meeting Section 58 of Biosecurity Regulation 2016 V4.0

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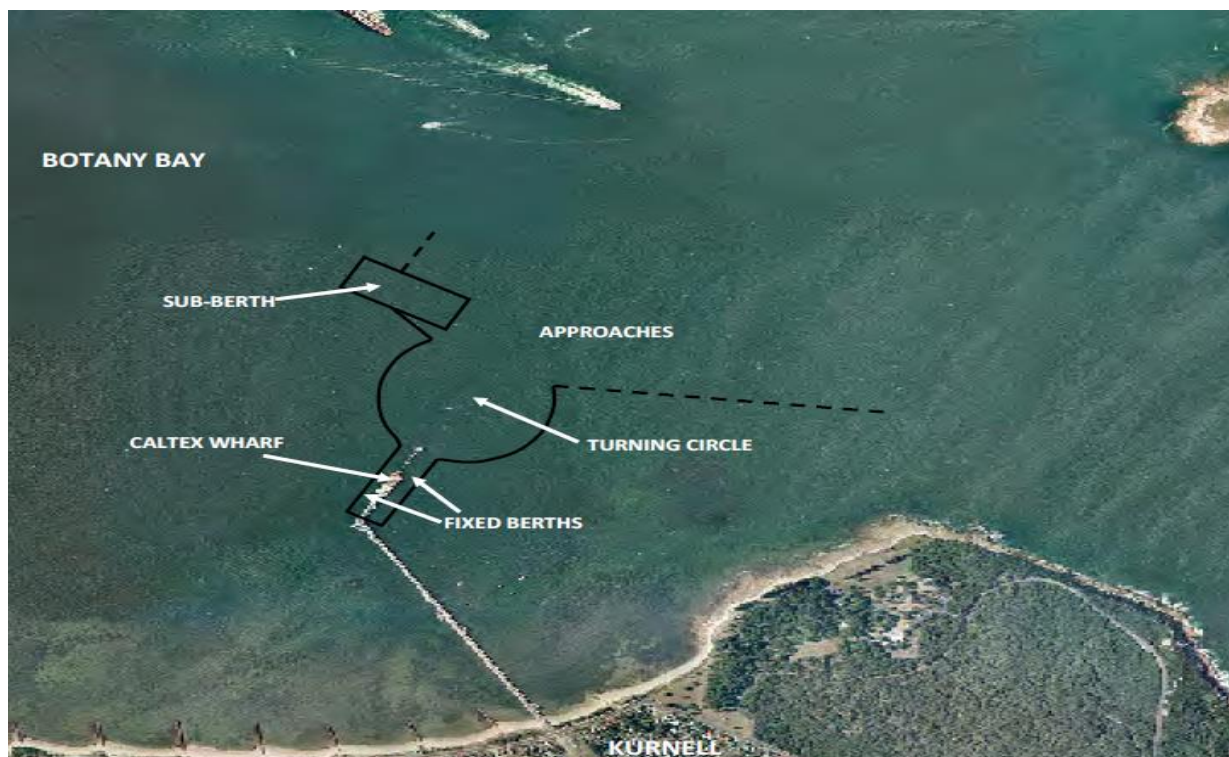
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Wharf Operations and Activities	<p>The main operations and activities undertaken by the Ampol Kurnell Terminal designated Shore Officer (SO) at the Wharf comprise:</p> <ul style="list-style-type: none">• Receipt of chartered tank ship/s several times per month• Obtaining product samples for QA testing• Discharge of Jet A1, gasoline and diesel products with the use of unloading/loading arms located in the breasting area at the fixed berths (KUR1 & KUR2). Submarine pipeline and flexible discharge lines used at the sub-berth (KUR3). Product is then transfer via Kurnell Terminal owned pipelines to on-site storage tanks• Engaging with ship captain and crew regarding berthing requirements and product discharge• Conducting and recording routine inspections and observations during product discharge• Communicating with the Kurnell Terminal Operations Coordinators with regards to product discharge activities and other operational matters. <p>Petroleum product/s are discharged via the unloading arms at berths KUR1 and KUR2 on the fixed berth on the wharf and via the sub-berth (KUR3). Product is then transferred via the pipeline to on-site tanks at the Terminal. As such, there is no requirement for a laydown area for goods (palletised or container). Although it is unlikely for petroleum product/s (as bulk fuels) to harbour exotic pests and diseases, the chartered vessel could.</p> <p>Refer to the Ampol Kurnell Terminal Operational Environmental Management Plan (OEMP) for additional details of the land based Terminal site operations and activities.</p>
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Wharf Location



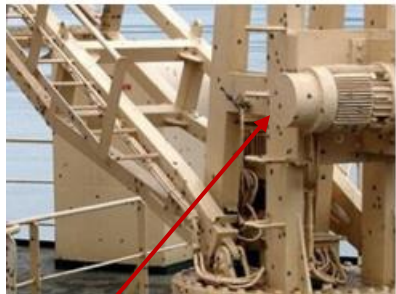
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Biosecurity Incident – Controls and Mitigation Measures			
Aspect	Actions	Accountability	Timing
Biosecurity Awareness <i>Hitchhikers:</i> <i>Brown Marmorated Stink Moth</i>  <i>Asian Gypsy Moth</i> 	<p>Risks associated with international vessels may include rabies, foot and mouth disease, or avian flu which could be introduced by infected animals or in food purchased overseas or from trading with overseas vessels. International vessels can bring in unwanted pests and disease through avenues such as:</p> <ul style="list-style-type: none"> • Human health disease concerns from crews • Exotic insects on the deck or marine pests on the hull (biofouling) or in ballast water • Galleys could have stored product pests or disease fruit and vegetables • Waste from the vessel (that is dry stores, cooked and uncooked meat, vegetable scraps and eggs) if not stored securely, can become a breeding ground for exotic pests and diseases • Souvenirs with plant and animal content could contain exotic insects • Plant and items with feathers and seeds that can carry disease organisms or plant pests • Animals including ship pets, hitch hikers or imported animals carrying disease 	<p>Ampol Kurnell Terminal Shore Officers - supported by Kurnell Operations Specialist (Marine)</p>	<p>Immediately they become aware</p>

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<p>Biosecurity Awareness:</p> <p>continued</p>  <p>Asian Gypsy Moth - Tanker vessel structures</p>	<p>The following must be reported to the DAWR Biosecurity Officers and Port of Botany Bay Harbour Master notified:</p> <ul style="list-style-type: none"> • Ship crew member/s that appear to be unwell during interactions with SO • Sighting of a rat or other ‘hitchhikers’ on the ship, stringers lines or Kurnell wharf and fixed berth locations • Discovery of an ant’s nest on the ship or in the vicinity of the Wharf and fixed berth locations • Sighting of “hitchhikers” when on board and in the vicinity of the Wharf and berths • Pooling of water on wharf with evidence of insect infestation • Suspicion material in the rim of STATIS drums <p>If possible, take photos of any suspicious infestations or pest sighted to show to the Biosecurity officers.</p> <p><i>Notes:</i></p> <ol style="list-style-type: none"> 1. <i>Once the product discharge is completed, the fixed berth loading arms are drained and capped ensure the lines are not contaminated. As such, they are unlikely to harbour pests. The KUR3 sub-berth hoses are capped and remain at the sub-berth location.</i> 2. <i>As the tanker ship only carries bulk fuels, nil palletised goods or containers are unloaded from the vessel</i> 	<p>Ampol Kurnell Terminal Shore Officers-supported by Kurnell Operations Specialist (Marine)</p>	<p>Immediately they become aware</p>
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Isolation	<p>As only bulk petroleum fuels are unloaded at the Wharf, Ampol is considered to be a low FPOE biosecurity risk. In this context, the primary role of the designated SO is to report all suspected biosecurity risk/s as soon as they are identified to the DAWR Biosecurity Officers, as well as the Port of Botany Bay Harbour Master. This will assist the Biosecurity Officers and Harbour Master in their efforts to identify, isolation and report suspected or detected biosecurity risks such as animals, insects, soils and/or plant matter.</p> <p>As such, the SO will immediately:</p> <ul style="list-style-type: none"> Isolate risks found at the berth (such as ants' nests, bee hives) using barriers to prevent any movement through the area Segregate all equipment away from the suspected biosecurity risk – pending further action by the DAWR Biosecurity officers and Harbour Master If available, display a “Biosecurity Area – Keep Out / Do Not Enter” sign to indicate the biosecurity isolation area <p><i>Notes:</i> <i>As nil palletised goods or containers are unloaded, there is no requirement to provide a hard stand area at the fixed berths.</i></p> <p><i>Ampol is required to have their own a “Biosecurity Area – Keep Out / Do Not Enter” sign on hand to support the efforts of the Botany Bay Harbour Master and the DAWR Biosecurity Officers. This sign will be kept with the other safety and environment warning signs in the Maintenance Team office on the Kurnell Wharf.</i></p>	Ampol Kurnell Terminal Shore Officers- supported by Kurnell Operations Specialist (Marine)	Immediately they become aware
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<p>Contain</p>  	<p>The SO will support the DAWR Biosecurity Officers and the Port of Botany Bay Harbour Master in their efforts to contain all biosecurity risks, only where safe to do so by:</p> <ul style="list-style-type: none"> • Reporting the biosecurity risk immediately when such an event occurs – refer to the Report section for contact details • Use knockdown spray such as “<i>Mortein</i>” or “<i>Raid</i>” to contain the spread of flying or mobile insects e.g. moths, lady bugs, stink bugs, etc. • Ants, bees and wasps can be very dangerous so do not disturb them. Take a photo and record the location: <ul style="list-style-type: none"> • If detected, do not move them but take measures to isolate them • If possible, collect a specimen to assist with identification • Request that all doors/hatches be closed on the ship to restrict movement • Any suspect materials collected must be bagged and contained in the Biosecurity bins located on the breasting area of the Wharf <p><i>Notes:</i></p> <ol style="list-style-type: none"> 1. Cans of “<i>Mortein</i>” or “<i>Raid</i>” will be stored in the safety/environment equipment container, located in the Maintenance Team office on the Kurnell Wharf 2. All biosecurity waste will be handled by Redham Waste Services 3. Potential product spills could occur during disconnection of the loading arm/s and the draining of same. Product spillages will be managed as environmental events and all absorbent materials will be collected and disposed of as “trackable wastes”, in line with the existing Kurnell Terminal waste management system. 	<p>Ampol Kurnell Terminal Shore Officers- supported by Kurnell Operations Specialist (Marine)</p>	<p>Immediately they become aware</p>
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<p>Treatment</p> <p><i>Biosecurity Waste receptacles</i></p>  	<p>The role of the designated Ampol Kurnell Terminal SO and the Ampol Kurnell Terminal Operations Specialist (Marine) is to report all potential biosecurity threats from exotic pests and diseases.</p> <p>The SO will support the DAWR Biosecurity officers and the Port of Botany Bay Harbour Master in their efforts to contain all biosecurity risks, only where safe to do so by:</p> <ul style="list-style-type: none"> • Use of a knockdown spray such as <i>Raid</i> or <i>Morten</i> to contain the spread of flying or mobile insects e.g. moths, lady bugs, stink bugs <p>Treatment of infestations, hitchhikers, etc, will be undertaken by approved treatment providers, at the direction of the DAWR Biosecurity Officers.</p> <p>Biosecurity Waste:</p> <p>Designated waste bins are positioned on the breasting area of the Wharf and available for vessels to place loose wastes considered to be a potential biosecurity hazard. Wastes such as:</p> <ul style="list-style-type: none"> • Galley wastes such as dry stores, cooked and uncooked meat, left over vegetable and scraps, eggs, etc • personal waste items from crew members <p>Notes:</p> <ol style="list-style-type: none"> 1. <i>NIL</i> ignitable or flammable materials (and their containers), batteries, fuel sources such as oils and rags are allowed in the Biosecurity waste bins 2. REDLAM Waste Services have DAWR approval (#N1513) to transport and treat (autoclave) biosecurity wastes 	<p>Ampol Kurnell Terminal Shore Officers- supported by Operations Specialist (Marine)</p> <p>REDLAM Waste Services</p>	<p>Immediately they become aware</p> <p>Upon request via MARS</p>
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Report	<p>All Ampol Kurnell Terminal Shore Officers, Operations Specialist (Marine) and the Ampol Kurnell Terminal Operations Manager must become familiar with the reporting requirements for biosecurity risks and incidents at the Kurnell Wharf.</p> <p>Biosecurity risks and incidents must be reported to the DAWR Biosecurity Officers via the following:</p> <p>DAWR Biosecurity Officers:</p> <ul style="list-style-type: none"> • See.Secure.Report -Hotline number: 1800 798 636 • Report a Biosecurity Concern online form - email either: Kurnell .seaports@agriculture.gov.au alternately: http://www.agriculture.gov.au/pests-diseases-weeds/report <p>then inform the:</p> <p>Port Botany Harbour Master:</p> <ul style="list-style-type: none"> • Contact the Sydney Vessel Traffic Service (VTS) via: <ul style="list-style-type: none"> ○ VHF radio on VHF 12 or on +61 2 9296 4003 	Ampol Kurnell Terminal Shore Officers-supported by Operations Specialist (Marine)	Immediately they become aware
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Division	Fuels & Infrastructure
Type	Plan
Title	KNT Biosecurity Incident Response Management Plan

Training Requirements	<p>All Ampol Kurnell Terminal Shore Officers, Ampol Kurnell Terminal Operations Specialists and the Ampol Kurnell Terminal Operations Manager will be required to complete the following DAWR Biosecurity Awareness Training modules:</p> <ol style="list-style-type: none"> 1. Complete the Seaports Biosecurity Awareness eLearning package via the following link: http://www.agriculture.gov.au/Documents/seaports-biosecurity-elearning/index.html 2. View the Cargo Pest Awareness Video via the following link: http://www.agriculture.gov.au/import/before/pests 	<p>Ampol Kurnell Terminal Shore Officer</p> <p>Ampol Terminal Operations Specialists</p> <p>Ampol Kurnell Terminal Operations Manager</p>	<p>As part of implementation of the approved Plan</p>
Training Records	<p>The Ampol Learning Management System (LMS) will be used to record completion of each training package.</p> <p><i>Notes:</i></p> <ol style="list-style-type: none"> 1. <i>As this is a new Plan, all current Ampol Kurnell Terminal Shore Officer's will be required to complete the two Biosecurity training packages listed above</i> 2. <i>This mandatory training has been included in the Ampol Shore Officer Learning Profile</i> 	<p>Ampol Kurnell Terminal Shore Officer</p> <p>Ampol Terminal Operations Specialists</p> <p>Ampol Kurnell Terminal Operations Manager</p>	<p>As part of the initially training to become Shore Officer.</p> <p>Thereafter 5 yearly as a refresher</p>

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Plan Implementation	<p>The Ampol Kurnell Terminal Operations Manager shall be responsible for the implementation of this Biosecurity Incident Response Plan. Effective implementation will be measured by completion of the following:</p> <ul style="list-style-type: none"> • The DAWR Biosecurity Awareness Training modules are added to the Training Profile for the Ampol designation Shore Officer role • The Biosecurity training detailed in “Training Requirements” above have been undertaken and signed off in the Ampol LMS system. • All additional equipment needed to support this plan have been made available at the Wharf Maintenance Office i.e. can of “<i>Mortein</i>” or “<i>Raid</i>” and a “Biosecurity Area – Keep Out / Do Not Enter” sign • All Kurnell Terminal operational staff are instructed in the content of this Plan - as part of a signed off Toolbox session • Toolbox session will include the reporting requirements for biosecurity risks and incidents at the Kurnell Wharf • Emergency contact numbers are posted in the Wharf Control Room for the Port Botany Harbour Master and DAWR Biosecurity Officers, as per details listed in previous <u>Reporting</u> section 	<p>Ampol Kurnell Terminal Operations Manager</p> <p>Ampol Kurnell Terminal Operations staff (includes Operations Specialists and SO)</p>	As part of implementation of the approved Plan
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Division	Fuels and Infrastructure
Type	Plan
Title	Operational Environmental Management Plan Kurnell Terminal

Appendix K: Asbestos Contaminated Soil (ACS) Containment Cell - Long Term Environment Management Plan

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Division	Fuels and Infrastructure
Type	Plan
Title	Asbestos Contaminated Soil (ACS) Containment Cell Long Term Environment Management Plan

Division: : Fuels & Infrastructure

Asbestos Contaminated Soil (ACS) Containment Cell Long Term Environmental Management Plan (LTEMP)

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Reporting Information

Document: Asbestos Contaminated Soil (ACS) Containment Cell Long Term Environmental Management Plan

Date: 22 February 2021

Prepared by Chris Arends

Reviewed by Scott Robinson
Jonathan Ho

Revision History

Revision No.	Date of Revision	Description of Revision	PM Signature
A	29 th November 2019	Draft	
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D	22 February 2021	Final	
E	10 September 2021	Final (Format change only)	

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1. Introduction

Ampol Australia Pty Ltd ABN 46 004 610 459 (Ampol) has prepared this containment cell long term environmental management plan (CCLTEMP) for management of asbestos contaminated soils (ACS) sourced from all areas identified as the 'pipeways' and placed into a purpose built containment cell. All works were located within the Ampol Kurnell Terminal, located at Solander Street Kurnell, NSW (the 'Site'). The location of the containment cell is provided in Appendix A1. The source areas from where the ACS was excavated in the pipeways are provided in Appendix A2.

1.1 Background

Ampol has converted the former petroleum refinery in Kurnell (the Site) to a finished fuel terminal facility (the Project). The objective of the Project was to ensure that Ampol's operations within Australia remain viable and can provide a safe, reliable and sustainable supply of petroleum fuels to NSW and the ACT. As such the Project allowed the Site to continue to be utilised as a terminal where finished products are received by ship and stored in tanks before leaving the Site by pipeline to other terminals.

ACS contained within the pipeways section of the property was previously managed in situ under an exemption from Safe Work NSW. Although remediation has been conducted within the pipeways potential residual ACS may remain which will be managed by the Operational Environmental Management Plan (OEMP). In order to mitigate the ongoing health and safety risks for those working in the impacted areas, reduce related operational constraints, and remove the Exemption from the pipeways, Ampol sought a Modification to its Development Consent SSD 5544 (MOD 2) for the construction of an on-site containment cell for ACS. The subsequent Conditions of Consent included a requirement for the preparation of a Containment Cell Long Term Environmental Management Plan (CCLTEMP) to be implemented following closure of the containment cell. Consent Condition C53 requires that the CCLTEMP is to be endorsed by the appointed NSW EPA accredited Site Auditor. Details of the consent for the containment cell are included within the Development Consent SSD 5544 (MOD 2).

1.2 Objectives and Overview

The objectives of this CCLTEMP are to:

- Identify potential environmental impacts associated with the ongoing management of the closed containment cell, and
- detail the procedures in place to ensure the waste within the containment cell remains contained and does not present a risk to human health and the environment following closure.

This CCLTEMP details the ongoing environmental management of the containment cell, including:

- Maintenance of the capping and drainage.
- Groundwater monitoring (including groundwater quality and levels).

The CCLTEMP also includes physical details of the pipeways source area including:

- Location of the marker layer across the entire pipeways area.
- Depth of excavations and the marker layer.

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A requirement of this CCLTEMP is to conduct and document six monthly inspections of the containment cell to ensure that the integrity of the capping layer is maintained, and infrastructure associated with leachate from the containment cell is monitored. (refer Appendix I for the Checklist). If disturbance of the surface capping layer is observed or contaminated groundwater associated the leachate system is identified during 6 monthly inspections, then action is to be taken in accordance with the corrective action outlined in Section 5.7 below

The CCLTEMP objectives will be achieved through the management commitment, strategies, and monitoring programs outlined in this CCLTEMP. In accordance with Consent Condition C53 under SSD 5544 and Section 10.6 of the Remediation Action Plan (AECOM 2018), this CCLTEMP has been prepared in consultation with the NSW Environment Protection Authority (EPA) prior to the closure of the containment cell and to the satisfaction of the Site Auditor. The CCLTEMP will be attached to the Section 10.7 Planning Certificate for the land as it will be an annex of the Site Audit Statement.

1.3 CCLTEMP Duration

This CCLTEMP has been developed for implementation over the entire existence of the cell. To ensure an instrument is in place for ongoing implementation of the CCLTEMP it will be attached to the Section 10.7 certificate for the site.

1.4 Scope

This CCLTEMP has been prepared in consultation with the NSW EPA in the form of review of the document, prior to the closure of the containment cell. This is in accordance with Conditions C53 and C54 of Schedule 2 of the Conditions of Consent for SSD 5544 which are outlined in Table 1 -

Table 1 - SSD 5544 Conditions of Consent addressed in this Management Plan

Condition	Requirement	Reference Section
Sch. 2 C53	Prior to the completion of the construction aspects associated with the ACS management works, the Applicant in consultation with the EPA, shall prepare a LTEMP for the containment cell, to the satisfaction of the Site Auditor. A copy of the Site Audit Report and Site Audit Statement shall be provided to the EPA and Secretary, which demonstrates the appropriateness of the LTEMP.	Appendix D Regulatory Consultation
C54	Upon completion of the construction aspects associated with the ACS management works (which includes closure of the containment cell), the Applicant shall:	-
a)	implement the approved LTEMP and manage the containment cell in accordance with the approved LTEMP	This LTEMP
b)	ensure the containment cell is listed on the relevant planning certificate for the land, issued under Section 10.7 certificate of the EP&A Act, for the site.	

This CCLTEMP is a sub-plan to the Site's Operational Environmental Management Plan (OEMP). The Site's OEMP will be updated to include on-going management and monitoring of the closed containment cell. This CCLTEMP may also be read in conjunction with the Containment Cell Detailed

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Design Report (AECOM, 2017) for an in-depth discussion on the design of the containment cell and the Containment Cell Closure Report (AECOM 2020). The ACS was constructed in accordance with the Containment Cell Detailed Design Report (AECOM, 2017) with no material changes made during construction of the cell.

1.5 Consultation

The CCLTEMP addresses the requirements outlined by the DPE in the Post Approval Lodgement Checklist. The CCLTEMP will be attached to the Section 10.7 for the land. No other consultation with external agencies has been required for this CCLTEMP.

As required under the SSD 5544, the CCLTEMP was prepared in consultation with the NSW EPA. A record of consultation has been provided in Appendix D. In addition, the CCLTEMP was reviewed by an EPA approved Site Auditor. A copy of which is also provided in Appendix D.

1.6 Legislation and Guidance

1.6.1 Environment Protection Licence

The terminal currently operates in accordance with an Environment Protection Licence (EPL 837) issued by the EPA. EPL 837 contains numerous operational conditions and Pollution Reduction Programs (PRPs). All work undertaken as part of the ACS Management Works will comply with the conditions within EPL 837.

1.6.2 Development Consent

As previously stated, Development Consent was initially received for the Project on the 7 January 2014. Approval for the ACS Management Works (MOD 2) was received on the 27 October 2017. All work undertaken as part of the ACS Management Works will comply with the relevant conditions of Development Consent SSD 5544 as modified.

1.6.3 Guidance Documents

The following documents have been used to develop the CCLTEMP:

- Australian and New Zealand Guidelines for Fresh and Marine Water Quality Guideline (ANZG 2018). Australian and New Zealand Environment Conservation Council and Agriculture Resource Management Council of Australia and New Zealand.
- Department of the Environment, 2014, Environmental Management Plan Guidelines, Australian Government.
- DIPNR, 2004, Guideline for the Preparation of Environmental Management Plans, Department of Infrastructure, Planning, and Natural Resources.
- NSW EPA, 2019, Draft for consultation, Contaminated land guidelines, Consultants reporting on contaminated land, New South Wales Environment Protection Agency.
- NSW EPA, October 2017, Management of Contaminated Sites, Guidelines for the NSW Site Auditor Scheme (3rd edition).
- National Environment Protection Council (NEPC) 2013, National Environment Protection (Assessment of Contaminated Land) Measure (NEPM) 1999, as amended 2013, Schedule B1, Guideline on Investigation Levels for Soil and Groundwater.

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- National Environment Protection Council (NEPC) 2013, National Environment Protection (Assessment of Contaminated Land) Measure (NEPM) 1999, as amended 2013, Schedule B2, Guideline on Site Investigation.
- Safe Work Australia, 2016, Code of Practice, How to Manage Asbestos in the Workplace
- WA DOH, 2019, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Site in Western Australia, Western Australia Department of Health (WA DOH).
- Where guidelines listed above are revised, superseded, or retired, the LTEMP will be updated to reflect these changes.

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2. Implementation

2.1 Induction

Ampol has a Site induction program that all contractors and employees are required to complete prior to undertaking any work.

2.2 Roles and Responsibilities

Table 2 provides a summary of the responsibilities for the implementation and management of the CCLTEMP. These responsibilities do not replace any other regulatory responsibilities of the parties in relation to works at the site:

Table 2 Roles and Responsibilities

Responsible Entity	Obligations
Owner/Ampol Australia	<ul style="list-style-type: none"> - Ensure all parties clearly understand the CCLTEMP requirements and ensure that compliance with the CCLTEMP is a condition of any works undertaken by any contractor/site worker. - Ensure that all licences, clearances, permits and approvals are in place in the appropriate manner. - Management of the works in accordance with all statutory requirements, best practice guidelines and the requirements of the CCLTEMP. - Suspension of site work in a specific area or areas should the environment or health and safety of personnel or the community potentially be at risk. - Update the CCLTEMP if they become aware that the site conditions have changed and inform any other parties of the changes. - Update the CCLTEMP if there is a change in land use and/or environmental management requirements. - Temporary suspension of site work if the environment or health and safety of personnel or the community is at risk; and - Suspension of individuals from the Site where disregard for the CCLTEMP has been identified.
Appointed Sub contractor/site workers/	<ul style="list-style-type: none"> - Comply with the CCLTEMP for site works including relevant legislation and guidance (Work Health and Safety Act 2011 or relevant legislation current at the time of the works). - Inform Ampol if conditions change or observed significantly from those documented in the CCLTEMP. - Temporary suspension of site work if the environment or health and safety of personnel or the community is at risk; and - Suspension of individuals from the Site where disregard for the CCLTEMP has been identified.



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2.3 Training

All personnel will have the experience and necessary training to carry out their required tasks, including in the use of equipment and the implementation of this CCLTEMP. Staff required to work with hazardous/flammable/contaminated materials would be trained in safe use and handling and would be provided with all relevant safety equipment. Ampol or its representative and the Contractor will each maintain a Training Register that records all environmental training completed by its personnel, including records of attendance at awareness training and toolbox talks, as well as competency assessments.

Ampol will include an update on the management of the ACS containment cell in the DPE Annual Review required under SSD 5544 Condition D4.

2.4 Corrective Action

Corrective actions will be implemented in the event that monitoring is undertaken in accordance with this plan and identifies that the ACS has potentially caused environmental impacts. Dependent on the cause of the impact corrective actions will be implemented to mitigate and remove the impact. Table 8 includes a summary of potential corrective actions which may be implemented for the capping layer of the containment cell and groundwater.

2.5 Review of the CCLTEMP

This EMP may require revision to reflect relevant changes in the condition or use of the Site and/or changes in environmental management requirements. Any changes to the LTEMP should be made by a certified contaminated land consultant (as accredited by a certification scheme recognised by the NSW EPA). The CCLTEMP may also require revision on the basis of:

- Any changes in Council policies relating to the management of contaminated land;
- Any changes in regulatory requirements and guideline documents listed in this EMP; and
- Any change to a more sensitive land use.

It is noted that any changes made to this LTEMP must not result in any increase in the potential for unacceptable risks from the ACS soil to human health or the environment.

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3. Overview of the Containment Cell

3.1 Containment Cell Location

The ACS containment cell is an above ground containment cell located in the south eastern part of the Site close to the other waste management activities. The extent of the containment cell is 80 metres in the east-west direction and 114 metres north-south, with an airspace volume design capacity of 22,000 m³. Underlying the ACS is a base layer comprising 7000 m³ of sand. The cells has been capped with VENM, gravel and topsoil. The containment cell is located within the area which previously contained tanks 224 and 225, and the majority of the bunded area for tanks 333, 334 and 335, refer to Figure A1, Appendix A.

Approximately 17,282 m³ ACS was used to fill the containment cell with the highest classification of waste to be contained within the containment cell being Special Hazardous Waste. The NSW EPA in their letter dated 16 May 2017 recommended the placement of ACS classified as hazardous waste in the on-site containment cell without pre-treatment, subject to appropriate conditions. The containment cell has been designed in general accordance with the requirements for a restricted landfill cell as per the Guidelines for Solid Waste Landfills (EPA, 2016). Refer to the Containment Cell Final Report (AECOM, 2020) (required under SSD 5544, Condition C52) for additional information on the final design and construction of the containment cell.

Table 3 Results Summary of the Maximum Concentrations reported in the Cell.

Analyte	Highest Concentration (mg/kg)	Sample ID	Sample Date
TPH C6-C9	4,320	B014_0.4-0.5	24 Oct 2013
TPH C10-C36	148,450	A013.5_0.0-0.2	16 Mar 2016
TRH F1 (mg/kg)	19	A007.5_0.0-0.2	16 Mar 2016
TRH F2	18,100	A007.5_0.0-0.2	16 Mar 2016
Benzene	0.6	B014_0.4-0.5	24 Oct 2013
Toluene	7.2	B001_0.0-0.2	21 Oct 2013
Ethylbenzene	3.8	B001_0.0-0.2	21 Oct 2013
Total Xylene	66.1	B001_0.0-0.2	21 Oct 2013
PAHs	3000.5	A011_0.0-0.	19 Oct 2013
B(a)p	51.2	A010_0.0-0.2	19 Oct 2013
Arsenic	22	B015_0.0-0.2	18 Oct 2013
Lead	393	B009.5_0.0-0.2	14 Mar 2016
Mercury	61.7	B009.5_0.0-0.2	14 Mar 2016



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3.2 Containment Cell Design

3.2.1 Leachate Barrier System

A composite liner system was installed at the base of the containment cell. The leachate barrier system from top to bottom consists of:

1. Filter geotextile placed above the drainage layer to reduce the ingress of fines from the overlying waste.
2. 300 mm thick gravel primary leachate collection layer containing collection pipework.
3. Protection geotextile to protect the flexible membrane liner from damage by construction equipment and overlying materials.
4. Composite primary barrier liner comprising an upper geomembrane liner and lower geosynthetic clay liner.
5. A conductive geofabric has been placed under the primary geosynthetic clay liner to facilitate leak detection testing of the primary geomembrane liner during construction.
6. Secondary leachate collection layer comprising a geonet drainage/leak detection layer.
7. Secondary composite barrier comprising an upper geomembrane liner and lower geosynthetic clay liner.
8. Compacted sub-base 200 mm thick to provide a firm, stable, smooth surface of high strength on which to install the liner.

These components provide the following functions and reference the item numbers above:

- Primary base liner – items 3, 4 & 5
- Secondary base liner – items 7 & 8
- Leak detection system – item 6
- Leachate collection system – items 1 & 2

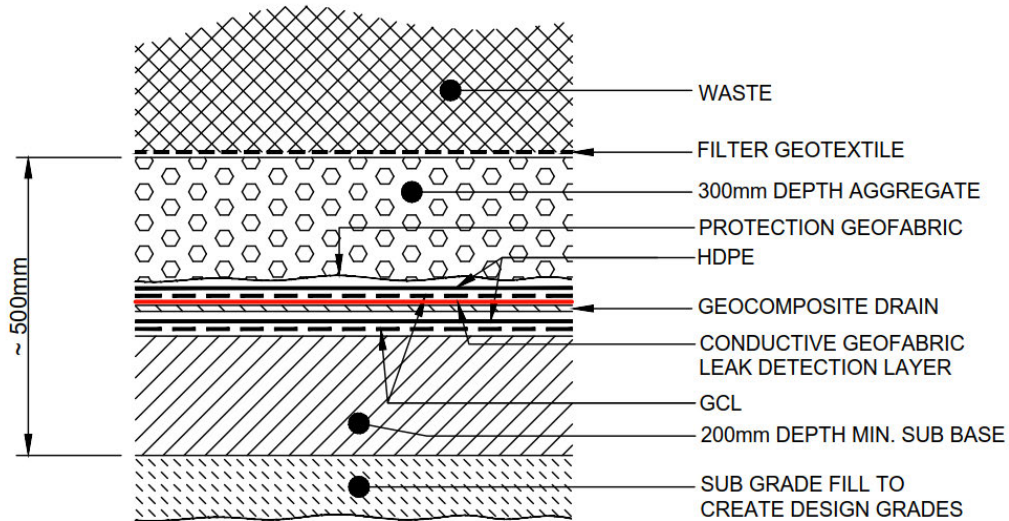
A Technical Specification was prepared for the purposes of obtaining Auditor and Regulator approvals and as a reference for the construction to ensure the liners are installed in accordance with the approved design. The leachate barrier system is illustrated in Figure 1 below.

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Figure 1 Leachate Barrier System

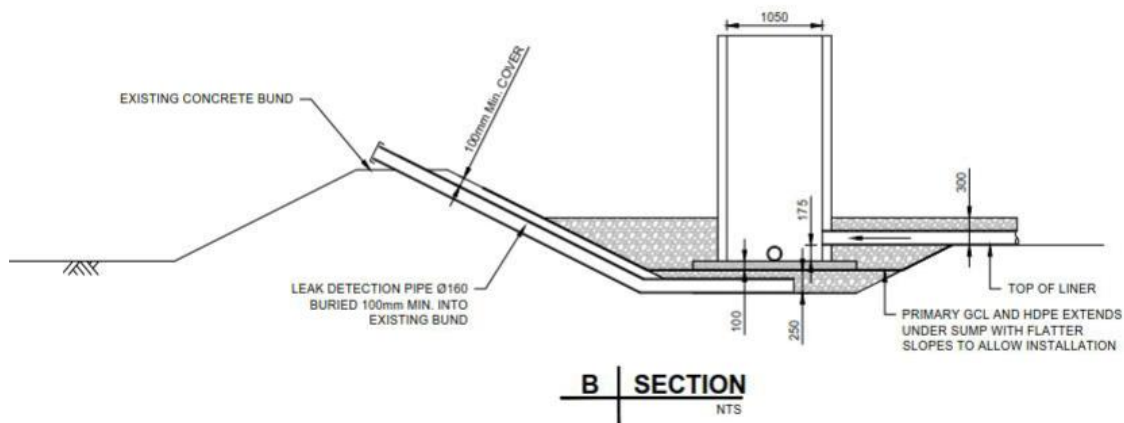


Leachate is stored in a leachate storage tank. The leachate storage tank is connected to the Site's Oily Water Sewer System (OWSS) and is treated at the Site's Wastewater Treatment Plant (WWTP) prior to discharge off site in accordance with EPL 837.

3.2.2 Leak Detection

The purpose of the leak detection layer sampling is to detect the presence of liquid in the leak detection layer and to determine if this liquid is leachate, potentially caused by a malfunction of the upper primary liner, as seen below in Figure 2.

Figure 2 Sectional view of the Leak Detection System



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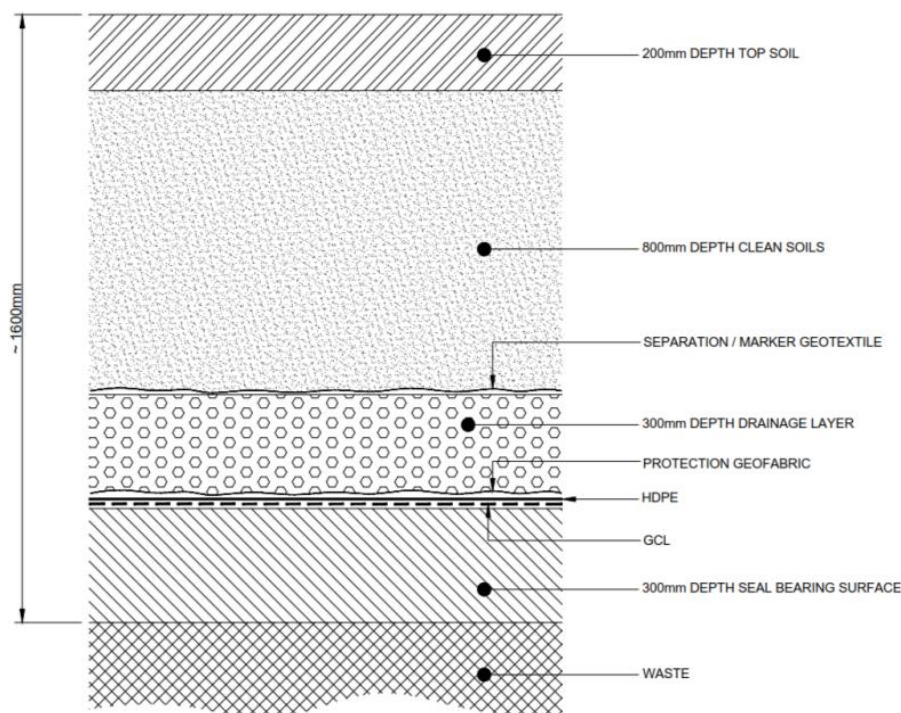
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3.2.3 Capping Layer

The containment cell capping layer was designed in general accordance with the requirements of a restricted landfill cell as per the Solid Waste Landfill Guidelines (EPA, 2016). The cap design includes layers which were characterised as VENM, by multiple consultants and sourced from multiple sites across the Sydney metropolitan area. The material used was generally described as clay, silty clay and sandstone. The VENM documents are provided in the Containment Cell Final Report (AECOM, 2020) prepared for the cell. Above the VENM lies two geosynthetic layers including a geosynthetic clay liner, a HDPE, and a separation geotextile, which have been used as a marker layer to signify the presence of asbestos below (as illustrated in Figure 3).

A Technical Specification was prepared for the purposes of obtaining Auditor and Regulator approvals and as a reference for the construction to ensure the capping is installed in accordance with the approved design. The final as built drawing is provided in **Appendix B**.

Figure 3 Containment Cell Capping Layer



3.3 Containment Cell Land-use Restrictions

It is envisaged that whilst Ampol occupies the land no construction or alternate use of the cell will be undertaken. In the event that the site does change ownership the following restrictions will continue to apply whilst the cell is in place.

- No construction works are to be undertaken on the cell.
- No construction works are to be undertaken within 5 m from the boundary of the cell.
- No excavation on or within 5 m from the cell, except where these are for required maintenance works and are completed in accordance with the requirements of this CCLTEMP.
- Only approved vegetation is to be maintained on the top of the cell.

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4. Management and Mitigation Measures for Environmental Contamination

This section outlines the measures that will be implemented to manage and mitigate the potential environmental impacts of the closed containment cell.

4.1 Potential Environmental Impacts

Potential impacts to the environment from the closed containment cell have been identified and summarised in Table 4.

Table 4 Summary of potential environmental impacts from the ongoing management of the containment cell

Environmental Aspect	Potential Environmental Impacts
Groundwater contamination	<ul style="list-style-type: none"> Failure of the leachate barrier system and potential contamination of groundwater.
Sediment and Erosion Control	<ul style="list-style-type: none"> Erosion of the capping layer resulting in sediment laden runoff into stormwater runoff. Dust, and human health exposure to contaminated ACS soils in the event of a breach of the capping layer
Cell Breach	<ul style="list-style-type: none"> potential environmental impacts beyond the cell from migration of contaminated soil/leachate from the breach area.
Vegetation and weeds	<ul style="list-style-type: none"> Spread of existing noxious weed infestations Discharge of stormwater run-off, sediment laden water.

4.2 Groundwater

Groundwater under the containment cell is inferred to flow in a north-westerly direction. To minimise the potential impacts to groundwater from the containment cell the following management and mitigation measures have been implemented:

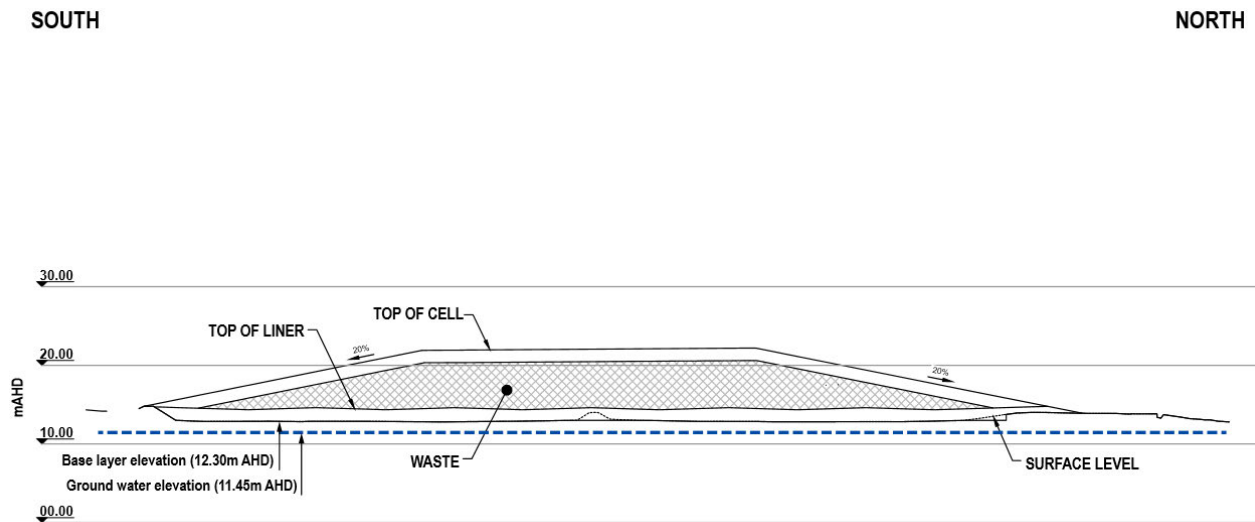
- The containment cell was designed and constructed as an aboveground containment cell to limit interaction with groundwater. The average groundwater elevation within the nearest groundwater monitoring wells on the eastern side of the cell is 11.45 m AHD (PMW60 and PMW61). The elevation of the base of the containment cell at the lowest point on the eastern end is 12.30 m AHD presenting a height difference of 0.85 m between the cell base layer and groundwater.
- The containment cell has been constructed in general accordance with the requirements of the NSW Solid Waste Landfill Guidelines, which includes the design of a leak detection liner which in the event that the primary liner fails the secondary liner will act as a secondary control measure.
- Two sentinel groundwater monitoring bores (PMW60 and PMW61) (refer to Figure 5 in Section 5.1) were installed to the west and north of the containment cell to intercept any potential contamination potentially sourced from the contents of the containment cell.

Figure 4 below presents a schematic cross section of the cell with the relative level of groundwater on the site relative to the elevation of the base of the containment cell.

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Figure 4 Groundwater Elevation Schematic



4.3 Leachate

Leachate from the closed containment cell is directed to the leachate collection tank (refer to Appendix C). The following management and mitigation measures will be implemented to minimise the potential impacts from leachate:

- The leachate tank is located within a bund.
- The leachate tank is connected to the Site's OWSS and is treated at the WWTP prior to discharge off-site.
- The leachate tank has a manual isolation valve.
- The leak detection sumps outlet to the leachate storage tank.

4.4 Erosion and Sediment Control

Stormwater runoff from the containment cell cap will be managed as clean stormwater runoff and directed off-site, as shown in Appendix C. The following management and mitigation measures will be implemented to reduce the potential for erosion and sediment impacts:

- The containment cell has been constructed at a maximum gradient of 20% in accordance with the NSW Landfill Guidelines.
- The containment cell cap profile has been designed and built with drainage lines that direct to the east side of the containment cell into a swale. The swale drains into a rock groin to slow water flow prior to discharge off-site.
- Vegetation cover will be maintained to reduce erosion impacts including dust.

4.5 Vegetation and Weeds

The containment cell cap will be vegetated with grass species that will provide rapid and sustainable establishment, stabilise the surface, protect the cap from erosion, sustain high evapotranspiration rates, extend roots into all areas of the cap for moisture removal, ensure growth and coverage through all seasons, survive sub-optimal seasons (such as droughts), and be resilient. The vegetation of the containment cell will be maintained to reduce the potential impacts from dust and erosion.

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The list of vegetation were selected based on their tolerance to pH and salinity and comprised of *Dicanthium sericeum*, *Chloris truncata*, *Bothriochloa macra*, *Digitaria brownie*, *Austrostipa scabra*, *Cymbopogon refractus*, *Aristida ramosa*, *Sporobolus creba*, *Themeda australis* and *Panicum decompositum*. These species were identified as the most appropriate for the area and its environment.

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5. Monitoring Requirements

5.1 Containment Cell Monitoring Records.

All monitoring is to be recorded electronically by the Kurnell maintenance team. The maintenance team will conduct the inspections and record the comments on the Ampol Kurnell SAP maintenance system. The minimum monitoring requirements will adhere to the example checklist provided in Appendix I and be kept for the duration of the existence of the cell.

5.2 Groundwater

Prior to filling the containment cell with ACS, a Baseline Groundwater Monitoring Event (GME) (AECOM, 2019) was undertaken in January 2018. The Baseline GME comprised installation of four groundwater monitoring wells, (AECOMM1 to AECOMM4). Monitoring wells AECOMM1 and AECOMM 2 were installed within the cell and AECOMM 3 and AECOMM4 were installed down hydraulic gradient from the cell. Monitoring wells AECOMM3 and AECOMM4 were subsequently renamed PMW60 and PMW61 respectively and form part of the Quarterly monitoring conducted under the EPL licence as EPL28 (PMW60) and EPL29 (PMW61).

Following the Baseline GME, quarterly monitoring for the two sentinel monitoring wells (PMW60 and PMW61, **Figure 5** below) was undertaken during construction, filling, and closure of the containment cell from January 2018 to January 2020. Note that monitoring wells AECOMMW1 was decommissioned in accordance with the Minimum Construction Requirements for Water Bores in Australia, 3rd edition, 2012. AECOMMW2 was also proposed to be decommissioned but was not located and assumed to be destroyed. The location of monitoring wells sampled is provided in **Figure 5** below.

Ongoing quarterly groundwater monitoring will be undertaken of the two sentinel monitoring wells (EPL 28 and EPL29) as part of the Ampol Environmental Protection Licence (EPL), Licence 837 to provide ongoing demonstration that the containment cell liner is operating effectively.

5.3 Baseline GME

The Baseline GME objective was to establish a baseline for groundwater conditions in the proposed area for the cell. The results of the Baseline GME identified existing contamination at PM61 (northern sentinel well), as shown in Table 5 below. All results from monitoring well PM60 reported concentrations below the laboratory LORs. These results were compared to the existing groundwater criteria for the site (ASC NEPM 2013, Schedule B1, Guideline on Investigation Levels for Soil and Groundwater) as part of the quarterly monitoring program and are based on the sites historical use as a petrochemical refinery.

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Table 5 Results Summary for Baseline GME for Sentinel Wells

Well ID	TRH F1 (µg/L)	TRH F2 (µg/L)	Benzene (µg/L)	Naphthalene (µg/L)	Lead (mg/L)	Mercury (mg/L)
EPL28	<20	<100	<1	<1	<0.001	<0.0001
EPL29	33,600	5,060	582	430	<0.001	<0.0001

Note: The well IDs have changed overtime as follows

- AECOMM3 → PMW60 → EPL28
- AECOMM4 → PMW61 → EPL29

As the objective of the Baseline GME was to establish a baseline for groundwater in the area prior to operation of the containment cell, it is noted that this location already had impacts prior to containment cell construction and operation from upgradient ASTs. The impacts identified in groundwater at AECOMMW4 are likely related to the identified soil impacts sourced from historical upgradient sources and potentially in the future from contaminants contained within the cell, and originating from the pipelines.

The results of the baseline groundwater monitoring event are provided in Appendix G. Figure 5 below provides a schematic plan of monitoring well locations plan in relation to the cell. The full Site figure is provided in Appendix A as Figure A3.

Figure 5 Schematic Location Plans for Monitoring Wells EPL28 (28) and EPL29 (29). The left side shows the whole Kurnell site and the right side is zoomed in to the Containment Cell with the two monitoring wells on the north-west (28) and north (29). The blue arrow is the general direction of groundwater flow at the Containment Cell.



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5.3.1 Groundwater Monitoring Plan

As noted in Section 5.1 above, groundwater monitoring will be conducted from EPL numbers (EPL28 and EPL 29) quarterly to provide ongoing demonstration that the containment cell liner is operating effectively. The methodology for monitoring of these bores will occur in accordance with the existing groundwater monitoring programs for the Site which is summarised as follows:

- The wells are to be sampled using hydrosleeve, thereby minimising the potential for cross contamination.
- Collection of the following groundwater geochemical parameters during sampling: water quality: temperature, electrical conductivity, redox potential, dissolved oxygen and pH.
- Collection of QAQC samples Field intra-laboratory samples at a rate of 1 in every 10 primary samples, field inter-laboratory samples at a rate of 1 in 20 primary samples.¹
- Collection for blank samples including a trip blank and a rinsate blank every day.

The two sentinel monitoring wells will be monitored for the COPC referenced in the Ampol Environmental Protection Licence (EPL), Licence 837 for the asbestos cell and include:

- Benzene
- Ethylbenzene
- Lead (Pb)
- Mercury (Hg)
- Naphthalene
- Per- and polyfluoroalkyl substances (PFAS)
- pH
- Polycyclic aromatic hydrocarbons (PAHs)
- Standing Water Levels (SWL)
- Toluene
- Total recoverable hydrocarbons (TRH)
- Total Phenolics. And
- Xylene.

Any change in dissolved phase concentrations at the sentinel wells does not necessarily mean there is a leak or compromise in the containment cell as seasonal variation and site activities may influence the condition of the groundwater at these locations. Rather, notable changes in concentrations at these sentinel wells will trigger a requirement to assess the containment cell to for evidence of a leak in the leachate collection system, along with an assessment of other activities may be occurring in the area and areas up-gradient of the well locations. Historical monitoring data from the Baseline GME and subsequent quarterly GMEs will be used to assess potential contamination that may be an indicator of leaks in the containment cell liners.

5.3.1 Groundwater Triggers

Any change in dissolved phase concentrations at the sentinel wells does not necessarily mean there is a leak or compromise in the containment cell as seasonal variation and site activities may influence the condition of the groundwater at these locations. Rather, notable changes in concentrations at these sentinel wells will trigger a requirement to assess the containment cell to for evidence of a leak in the leachate collection system, along with an assessment of other activities may be occurring in the area and areas up-gradient of the well locations. Historical monitoring data

¹ QA samples, dups, blanks etc may be part of a larger sample batch inclusive of other wells at the site

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from the Baseline GME and subsequent quarterly GMEs will be used to assess potential contamination that may be an indicator of leaks in the containment cell liners.

Table 6 Trigger Values Sentinel Wells EPL28 and EPL29

Analyte	Mean of Results 2018 – 2020 EPL 29	One Standard Deviation from the mean Results 2018 - 2020	Trigger Value EPL 29 – Mean + 2 standard deviations from the mean	Trigger Value EPL 28 ANZG, 2018. Australian and New Zealand Governments. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. August 2018
TRH F1 (µg/L)	44,550	12,828	72,206	*3,700
TRH F2 (µg/L)	1,201	1019	3,239	*640
Benzene (µg/L)	2111	1,002	4,115	950
Toluene (µg/L)	14,000	3,930	21,860	180
Ethylbenzene (µg/L)	6,700	2,195	11,090	80
Total Xylene (µg/L)	33,687	10,357	54,401	75
Naphthalene (µg/L)	496	639	1,774	16
Lead (µg/L)	2.0	0.44	2.1	2.1
Mercury (µg/L)	0.4	<0.1	>0.1	>0.1
*PFOS (µg/L)	0.14	*NA	NA	NA
*PFOA (µg/L)	0.88	N/A	*10	**10
*Sum of PFOS and PFHxS (µg/L)	0.145	N/A	*2.0	**2.0

“-“ = Neither well exceeds guideline or LOR.

NA = Not Applicable.

*= Californian Water Boards: Update to Environmental Screening Levels (ESLs), January 24 2019 - Aquatic Habitat Goal Levels, Salt Water Ecotox.

**= PFAS National Environmental Management Plan Version 2.0 Human health guideline values developed by health regulators,– Recreational water quality guideline value, January 2020 (sourced from the PFAS National Environmental Management Plan Version 2.0 – January 2020).

ANZG, 2018. Australian and New Zealand Governments. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. August 2018.

m-xylene trigger value - used as the conservative indicator for total xylenes.

Baseline trigger levels from sampling in September 2020 for PFAS recorded concentrations exceeding the NEMP 2020 guidelines as follows:

- Monitoring wells EPL28 and EPL29 exceeded the Marine 95 and/or 99% trigger levels for PFOS, and
- Monitoring well EPL29 exceeded the Health drinking levels for PFAS, PFOA, sum of PFAS and Sum of PFHxS and PFOS.

Based on the site's ongoing use as a terminal, and potential risk to surrounding receptors, including Botany Bay, the NEMP 2020 Health Recreational Waters criteria has been selected as the most appropriate and conservative regulatory guideline for PFAS at the site.

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If the adopted trigger level values are exceeded* then the following will be undertaken:

- A visual inspection of the containment cell will be undertaken to assess its integrity, including inspection of the leachate collection tank and pumps.
- Rainfall data will be reviewed to assess potential climatic effects on the monitoring data.
- The sentinel wells may be re-sampled.
- Identification of other potential sources of the impact will be investigated, noting the historical contaminant concentrations in AECOMMW4 and that the sentinel wells may be influenced by other activities other than the containment cell.
- Assessment of changes in groundwater levels and changes in groundwater flow direction, and
- If required additional sentinel groundwater wells may be installed.

*If leachate/leachate detection monitoring results indicate that leachate quality is less impacted than groundwater from sentinel wells EPL28 and EPL29, action items relating to the containment cell would not be relevant

Table 7 below presents the highest concentrations recorded historically for all analytes tested including PFAS. Table 1 Appendix G presents the historical groundwater monitoring results for sentinel wells EPL28 and EPL29 with the exception of PFAS results. Table 2, Appendix G presents the results of baseline results for PFAS during monitoring conducted in September 2020.

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Table 7 Trigger Values Sentinel Wells EPL28 and EPL29

Analyte	Highest Concentration	ANZG (2018) Marine water 95% toxicant DGVs Waters/*NEMP 2020 (PFAS)	Well Exceeding Guideline Value	Sample Date
TRH F1 (µg/L)	59,000	NG	EPL29	Jan 2018- Aug 2020
TRH F2 (µg/L)	2,500	NG	EPL29	Jan 2018- Aug 2020
Benzene (µg/L)	3,700	700	EPL29	Jan 2018- Aug 2020
Toluene (µg/L)	18,100	NG	EPL29	Jan 2018- Aug 2020
Ethylbenzene (µg/L)	9,200	NG	EPL29	Jan 2018- Aug 2020
Total Xylene (µg/L)	43,000	NG	EPL29	Jan 2018- Aug 2020
Naphthalene (µg/L)	2,000	NG	EPL29	Jan 2018- Aug 2020
Lead (µg/L)	9.0	4.4	EPL29	Jan 2018- Aug 2020
Mercury (µg/L)	0.4	0.4	No wells exceeded	Jan 2018- Aug 2020
*PFOS (µg/L)	0.14	*NA	EPL29	Sept 2020
*PFOA (µg/L)	0.88	*10	EPL29	Sept 2020-
*Sum of PFOS and PFHxS (µg/L)	0.145	*2.0	EPL29	Sept 2020

Notes:

“-“ = Neither well exceeds guideline or LOR.

NG = No Guideline.

*= PFAS National Environmental Management Plan Version 2.0 Human health guideline values developed by health regulators,– Recreational water quality guideline value, January 2020 (sourced from the PFAS National Environmental Management Plan Version 2.0 – January 2020).

5.4 Leachate Monitoring

The leachate tank and associated collection pumps will be inspected six monthly to check the system is operating effectively and maintained appropriately. Where liquid is present in the leachate collection tank, a sample will be collected and analysed for COPCs. Additional sampling of the leachate collection tank should be undertaken:

- After periods of heavy rain or if any identified malfunction of the system.
- If there is a notable increase in concentrations of COPCs, when compared with recent and or historical concentrations sourced from the cell, in the two sentinel groundwater monitoring wells.
- If petroleum hydrocarbon sheen and/or odours appears in the sentinel wells and/or
- If liquid is observed in the leak detection system.

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Ampol will undertake monitoring of the leachate via sampling at the leachate collection tank during quarterly groundwater monitoring if the leachate is observed to contain noticeable petroleum hydrocarbon sheen and odours, or if required as part of Ampol internal processes.

5.5 Leak Detection Monitoring

Leak detection monitoring should be undertaken of the leak detection pipe by an appropriately experienced person to determine if liquid is present in the leak detection sump. If liquid is present within the sump, the level of liquid should be noted. A sample of the liquid should be collected using a water sampling device, for example a peristaltic pump. The samples should be collected by an appropriately experienced person in accordance with standard industry practice, and submitted for laboratory analysis to a National Association of Testing Authorities (NATA) accredited laboratory.

Through comparison of the liquid sample from the leak detection sump and the monitoring results for the leachate within the leachate collection tank it can be determined if the liquid within the leachate detection sump is leachate or water (for example condensation or rain water). The actions for the detection of water are:

- If the liquid is water, it may be pumped out and 6 monthly monitoring of the pipe/sump continues as normal.
- If the liquid is not water, ie sediment, it will need to be tested and appropriately disposed either to a NSW EPA liquid waste facility, or treated to a standard that would enable it to be pumped or removed out as above.
- If liquid is present within the leachate detection sump, monitoring of the levels should continue to determine if the quantity of liquid within the sump is increasing (and the rate of increase) or remaining steady.
- If the liquid level is not changing, then monitoring frequency can be reduced to 6 monthly.
- If the liquid level is increasing, then further investigations will need to be undertaken to determine the reason for the rate of increase.

5.6 Erosion and Sediment Monitoring

To assess the continued integrity and performance of the final cap, post-closure monitoring will include the following components:

- A minimum of 6 monthly visual inspections for deterioration of the cap's condition including erosion, cracking, dead or stressed vegetation, ponding, differential settlement, slope instability, damage to any pipes or drains and other works installed on the final capping.
- Repair and/or replacement of portions of the final capping if found to be damaged.
- The stormwater controls (swale and rock groin) will be inspected monthly and cleaned as required.

5.7 Vegetation and Weed Monitoring

The vegetation cover density has been planted on a 15 cm grid. The containment cell will be inspected 6 monthly to ensure this density is maintained, and for weeds and other vegetation which could potentially damage the capping layer of the containment cell. If weeds are identified they will be managed in accordance with the OEMP.

5.8 Summary of Monitoring Requirements

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Table 8 below presents the frequency of monitoring and inspections of items associated with the cell as well as reporting timeframes. Reporting is to be completed in accordance with the *Consultants reporting on contaminated land, Contaminated Land Guidelines* (NSW EPA, April 2020).

Table 8 Monitoring Program Schedule

Monitoring	Frequency	Reporting	Report Timing
Groundwater	3 Monthly	Groundwater monitoring report	To be submitted 6 weeks after final analytical results are received.
Leachate	6 monthly	Leachate Monitoring Summary Letter	To be submitted 3 weeks after final analytical results are received
Erosion and Sediment	6 monthly	6 monthly digitised checklist	To be inserted into the Ampol digitised checklist 1 week after the inspection has taken place.
Vegetation and Weed	6 monthly	6 monthly digitised checklist	To be inserted into the Ampol digitised checklist 1 week after the inspection has taken place.

5.9 Contingency Measures

Unexpected conditions on the Site may be observed or reported during routine maintenance works or during six monthly inspections. In response to these unexpected conditions, the conditions should be reported to Ampol and the following proposed action is to be taken. The contingency measures listed in Table 9 below should be initially considered.

Table 9 Contingency Measures

Anticipated Problem	Corrective Action	Action Timeframe
Excessive dust on or surrounding the containment cell during routine or required works (vegetation maintenance/mowing).	Use water sprays or cease dust-generating activities until better dust control can be achieved.	Immediately on observation or notification.
Suspected ACM: <i>Note that this can only occur if the capping is disturbed/damaged and the lining broken</i>	Stop works and assess. Controlled wetting and/or covering may be employed to reduce asbestos dust emission by suitably trained personnel. Consult with geotechnical consultant to undertake remediation of any damage to the	Implement any required OHS controls as soon as possible. Commence assessment and rectification works within 2 weeks (i.e. signage and/or covers).

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Anticipated Problem	Corrective Action	Action Timeframe
	capping layer by wind and rain (i.e. scouring by wind and rain into the capping layer or damage to vegetation on the cap).	
Potentially impacted soil/ groundwater encountered (not previously identified), Eg. chemicals that have not previously been assessed such as PFAS.	<p>Report the incident to Ampol to discuss best course of action including engagement of a suitably qualified environmental and/or geotechnical consultant to oversee the works.</p> <p>Indications of impact may be visual (e.g. staining), olfactory (i.e. odorous), or the presence of fibro sheet fragments.</p> <p>Undertake works in accordance with the required site-specific health, safety, and environment plan, incorporating Safe Work Method Statements for each activity proposed.</p> <p>Replace capping materials following completion of works and dispose of waste off-site to an appropriately licensed facility in accordance with the <i>Waste Classification Guidelines</i> (NSW EPA, 2014).</p>	Implement any required OHS controls as soon as possible. Commence assessment and rectification works within 2 weeks (i.e. signage and/or covers).
Weather Event: Heavy storm/tornado (1:100 flood, wind greater than 100 km per hour).	<p>Anticipate potential impact of weather on containment cell, leachate system and stormwater system. Apply measures to protect equipment (leachate) extra bunding surrounding stormwater system.</p> <p>Consult with geotechnical consultant to undertake remediation of any damage to the capping layer by wind and rain (i.e. scouring by wind and rain into the capping layer or damage to vegetation on the cap).</p> <p>Excessive water in stormwater system, with potential contamination in stormwater –</p>	Implement any required OHS controls as soon as possible. Commence assessment and rectification works within 2 weeks (i.e. signage and/or covers).

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Anticipated Problem	Corrective Action	Action Timeframe
	<p>Consult with environmental consultant on remedial options.</p> <p>Replace all materials removed during the above weather events with the following for each specific capping layer</p> <ol style="list-style-type: none"> 1. Seal bearing layer – clean clay 2. Aggregate: blue metal. 3. Clean soil: VENM 4. Topsoil: organic soil. <p>Following completion of works and dispose of waste off-site to an appropriately licensed facility in accordance with the <i>Waste Classification Guidelines</i> (NSW EPA, 2014).</p>	

All activities/tasks that require the engagement of contractors should be undertaken in accordance with current regulatory requirements, Work Health and Safety Act 2011 (or relevant legislation current at the time of the proposed works). The LTEMP will refer to revisions of those guidelines and or regulations whenever applicable.

If conditions encountered differ from those anticipated, Ampol should be notified. Occurrence of worker discomfort should be immediately reported, works discontinued and the Site conditions assessed by a suitably qualified contractor/consultant which may include an occupational hygienist.

6. References

- AECOM (2016) ACS Management Project Containment Cell Concept Design
- AECOM (2017) Kurnell Asbestos Contaminated Soil Management Project, Containment Cell Detail Design
- AECOM (2018) Kurnell ASC Containment Cell Construction Quality Assurance Report.
- AECOM (2018) Construction Quality Assurance Plan Kurnell Asbestos Contaminated Soil Management Project
- AECOM (2018) ACS Modification works - Remedial Action Plan Ampol Kurnell Terminal
- NSW EPA (2016) Solid Waste Landfill Guidelines.

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Appendix A Site Plans

A1 Containment Cell Location Plan

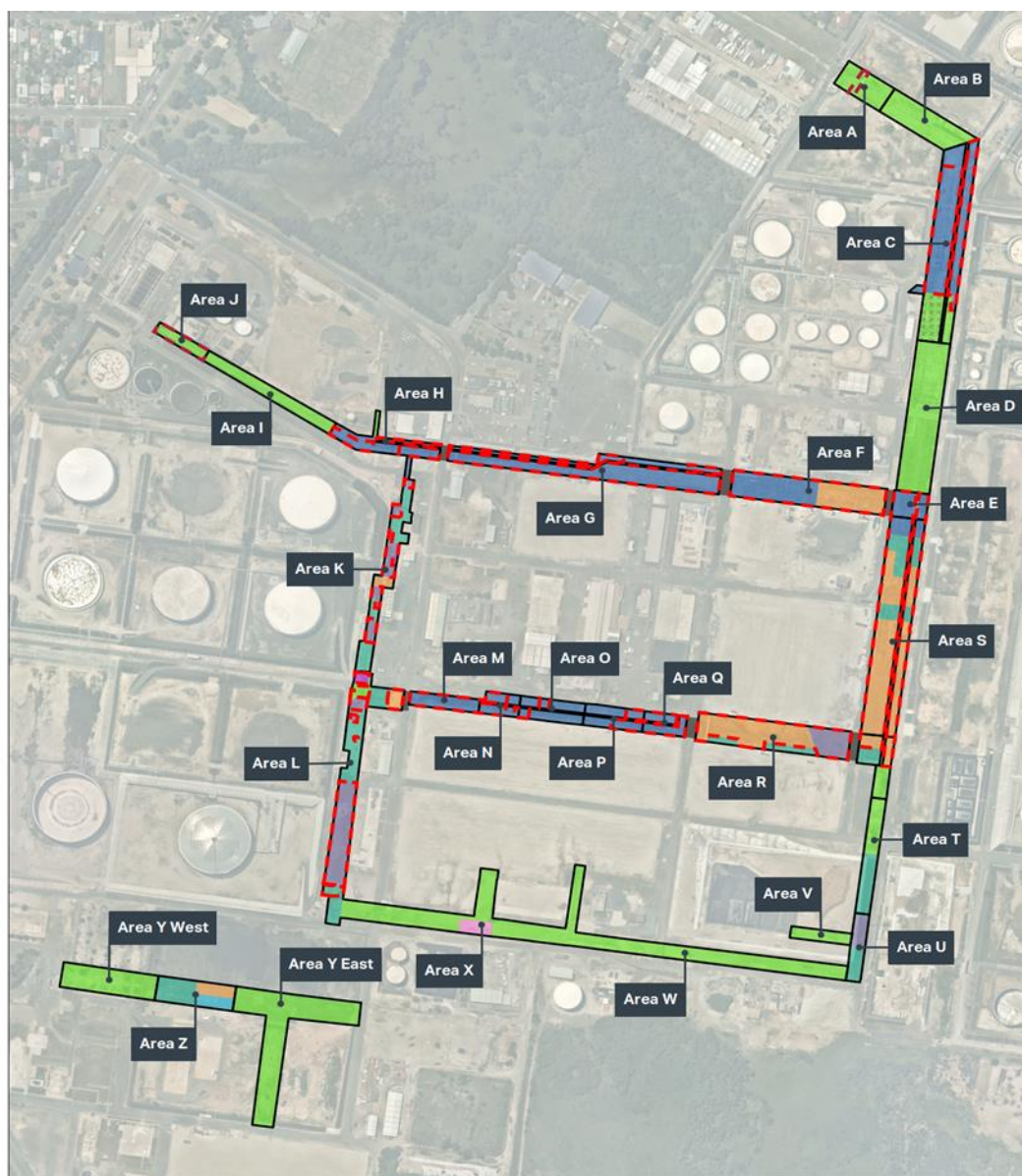


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A2 Pipeways Source Area Location Plan



KURNELL ACS PROJECT - OVERVIEW

AECOM



Legend

 Pipeway extent	 Excavated to 0.15m	 Excavated to 0.5m
 Tiltex	 Excavated to 0.2m	 Left in-situ
 Geofabric	 Excavated to 0.25m	 Left in-situ and covered with geofabric and backfill
 Road	 Excavated to 0.3m	 Asbestos patch
	 Excavated to 0.4m	 Concrete pad

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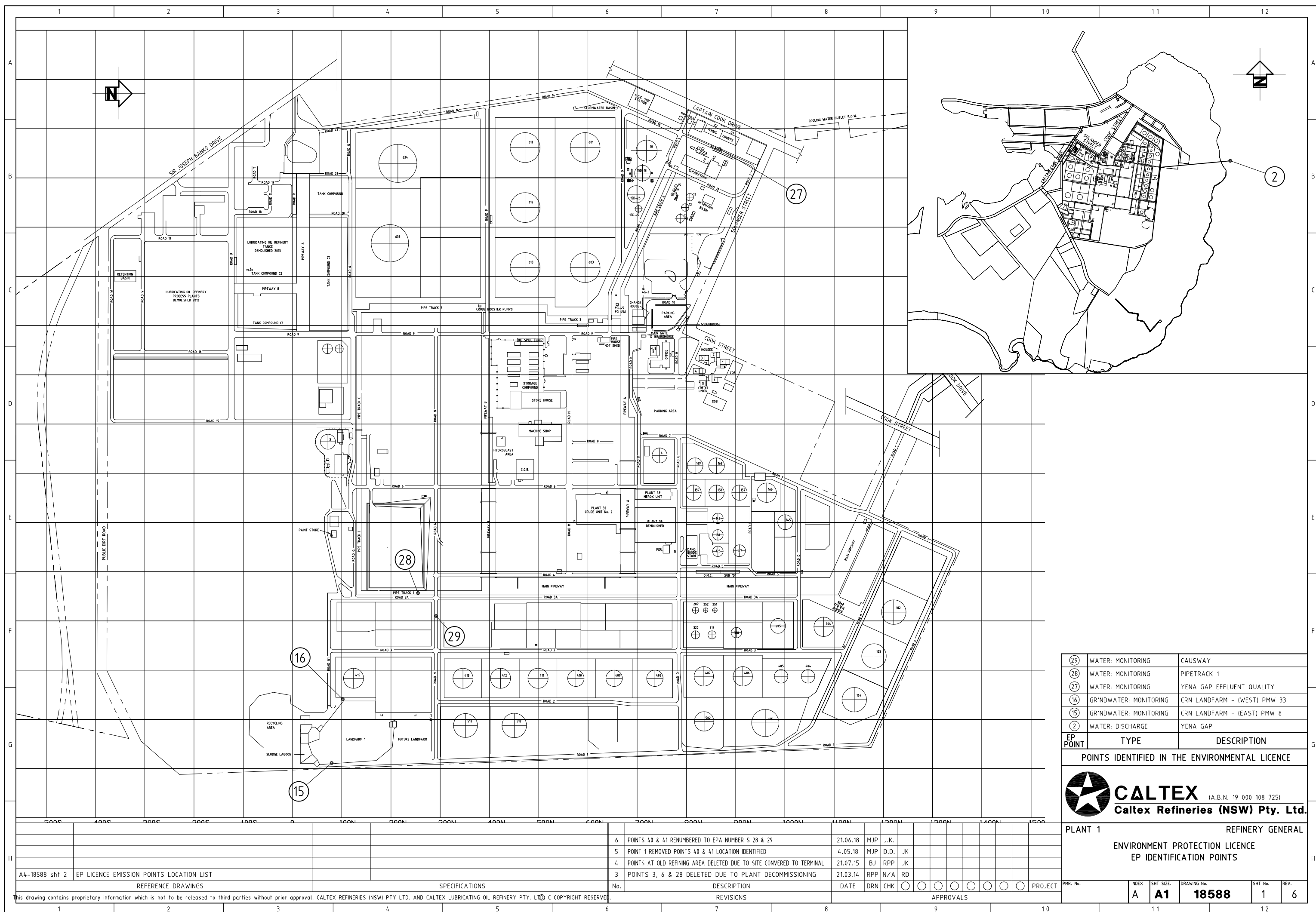
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A3 Baseline Groundwater Monitoring Well Location Plan

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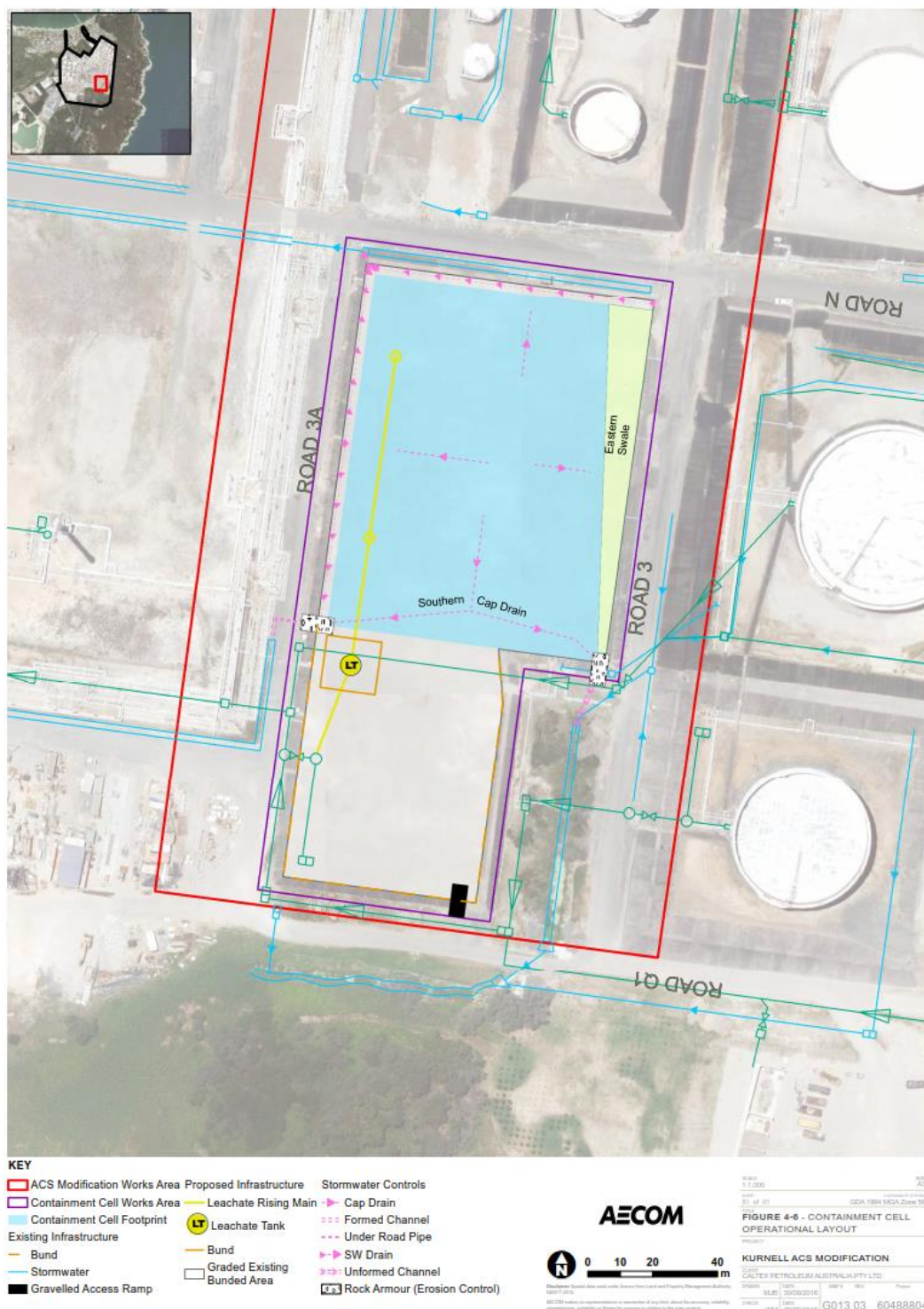
Appendix B Containment Cell “As built” Plan

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This drawing is confidential and shall only be used for the purposes of this project. The mission of this life block confirms the design and drafting of this project have been narrated and checked in accordance with the AECOM quality assurance system to ISO 9001:2000.

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Appendix C Containment Cell Drainage Plan



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Appendix D Records of NSW EPA Consultation

Comment #	NSW EPA Comment	AECOM Response
1	1. Section 1.2 of the LTEMP identifies the objectives and ongoing environmental management of the cell. Item A12 in Section 11.3 of Attachment B (Management and Mitigation Measures) of the Project Approval (SSD 5544 MOD 2) states "A Containment Cell Long Term Environmental Management Plan (CCLTEMP) would be prepared in consultation with the EPA prior to the closure of the containment cell. The CCLTEMP would detail the ongoing environmental management of containment cell, including maintenance of the capping and drainage, groundwater monitoring (including groundwater quality and levels), and land use restrictions that will apply to the containment cell". The plan does not appear to address any land use restrictions that may apply to the containment cell area. The plan should ensure that all relevant management measures and conditions of the Project Approval are addressed.	Refer to Section 3.5 for Containment Cell Land Use Restrictions
2	Section 4.2 provides information on the height difference between the lowest point of the cell base layer and the average groundwater elevation. Figure 3 in the LTEMP provides a schematic cross section of the containment cell. The plan should show the ground surface level and average groundwater level in relation to the contained materials so that the containment cell design, risks associated with contained materials can be fully understood and to help facilitate any future repairs if required.	Refer to Figure 4 which presents a cross section of the cell with groundwater elevation compared with the base of the cell.
3	Section 5.4 identifies when leachate sampling should occur at the leachate collection tank. The plan may also need to consider undertaking leachate sampling during the following scenarios a) if there is a notable increase in concentrations at the two sentinel groundwater monitoring wells; b) if the sentinel well samples are observed to contain petroleum hydrocarbon sheen and/or odours; c) if a liquid sample is collected from the leak detection sump and submitted for analysis.	Refer to Section 5.4 where these additional checks have been included
4	Table 7 (Monitoring program schedule) does not include the proposed six monthly leak detection monitoring as identified in Section 5.5. It also reports a frequency for leachate monitoring as six monthly while Section 5.4 indicates inspections and sampling of the leachate collection system will be undertaken quarterly. The monitoring program schedule should be consistent and should include all required monitoring (including monitoring frequencies) to minimise/prevent any potential environmental impact associated with the ongoing management of the closed containment cell.	All monitoring has been converted to 6 monthly monitoring throughout the document with the exception of groundwater monitoring which is required to be conducted quarterly.
5	Table 8 (Contingency measures) does not include an action timeframe for the anticipated problem of "Weather Event: Heavy storm/tornado". All appropriate timeframes should be clearly identified in the plan.	Included 2 weeks within the Weather Event Response time.

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Appendix E Equipment Installed and Maintenance Requirements

Equipment Register

- Two of – 25mm air driven diaphragm pumps (Blagdon type 1A-AA-BB-BBS)
- Two of – compressed air regulator/oiler/filter set
- Two of – Air switch 3/2 Norgren V62c4d7A-XA090
- Two of – air activated level switch float type vertical mounted FPV 01 146.
- Two of - Foot valves are a standard brass foot valve series 1510
- One of – 20kL poly tank
- One of – 100mm ball valve
- One of – 50mm gate valve
- One of - Level indicator is from Control Components

Maintenance Requirements

General inspection of the cell looking for weeds and incorrect vegetation e.g. trees, weeds, etc.

Frequency – 6 monthly or after an extreme weather event.

Actions:

- Gardener to inspect and action weed or tree removal activities.
- Gardener to check for any subsidence, or drainage issues with the external layer.

Responsibility – Terminal Maintenance, Gardening contract.

General operation of the cell pump,

Frequency - 6 monthly

Actions:

- Open hatch on pump wells, and lift the level switch and define operation of the pump, and release
- Check tank level, must be between one third to half full,
- Check well lids for structural integrity, rust.
- Check lubrication, filter is operational on compressed air supply, repair/replenish if required.
- If pump operation fails replace with spare pump and repair pump.

Responsibility – Terminal Maintenance

Water sampling, (to be added to ground water testing contractor),

Frequency - 3 monthly.

Actions:

- Water sample from the two ground water wells as per testing requirements
- Water sampling from the leachate tank
- Water sampling for the two well detection points.
- Send results to Ampol Environmental department for analysis.

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Responsibility - Ampol Environmental department.

Expected life for the equipment is 20 years from 2017. Replacement or repair of items may be required.

Limitations.

- No excavation works allowed
- No vehicles with more than two axles or above 5T allowed on the cell area.

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Appendix F Containment Cell Survey Drawing

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REVISION TABLE		DATE
VER. BY	AMENDMENTS	

NOTATIONS:
THESE DIMENSIONS ARE FOR INFORMATION ONLY AND DO NOT REPRESENT THE BOUNDARIES HAVE
BEEN RECONSTRUCTED FROM THE ORIGINAL RECORD DRAWING.

DATUM INFORMATION:
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PM 11.2 E 832424.50 N 623428.26
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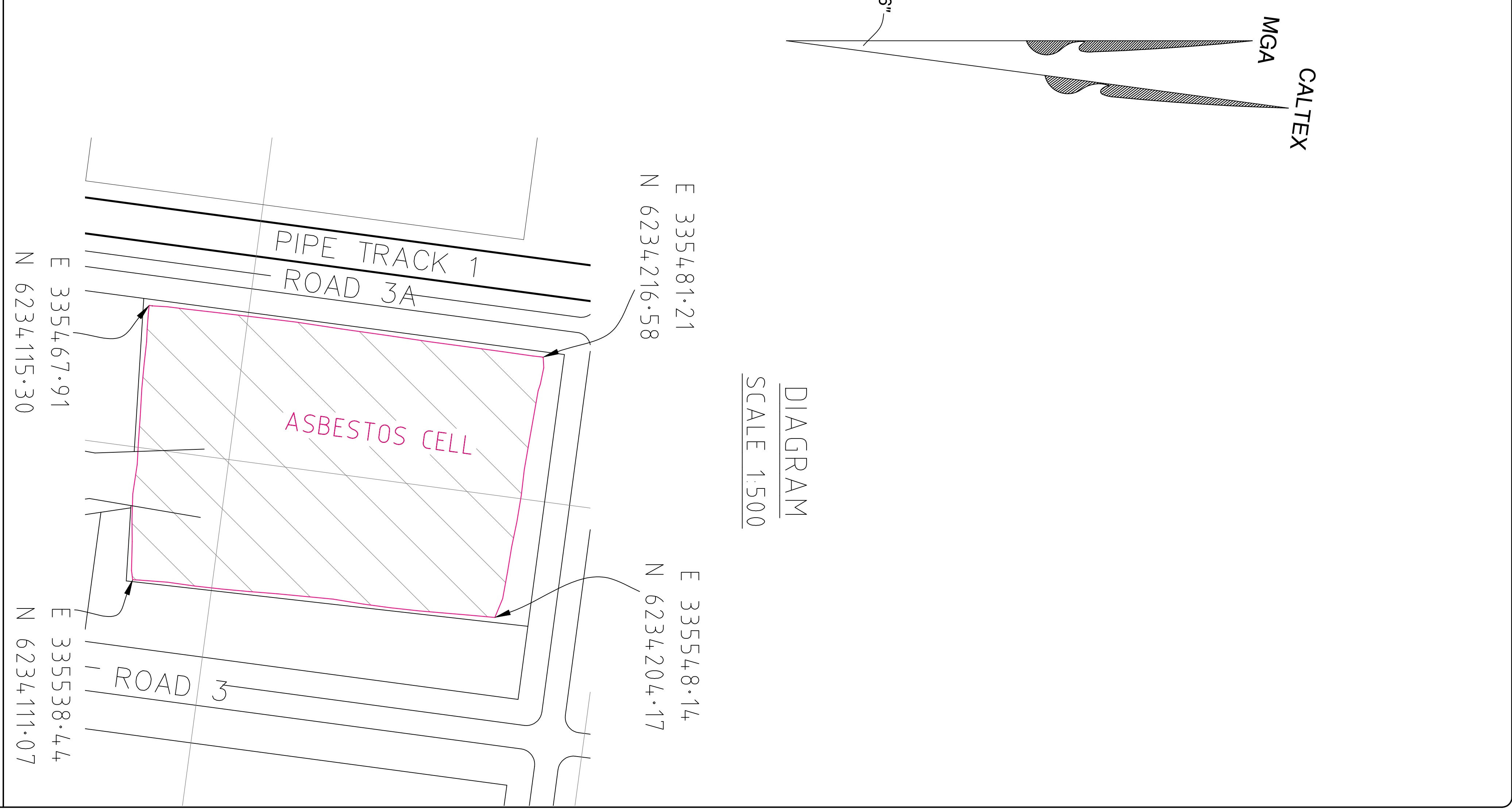
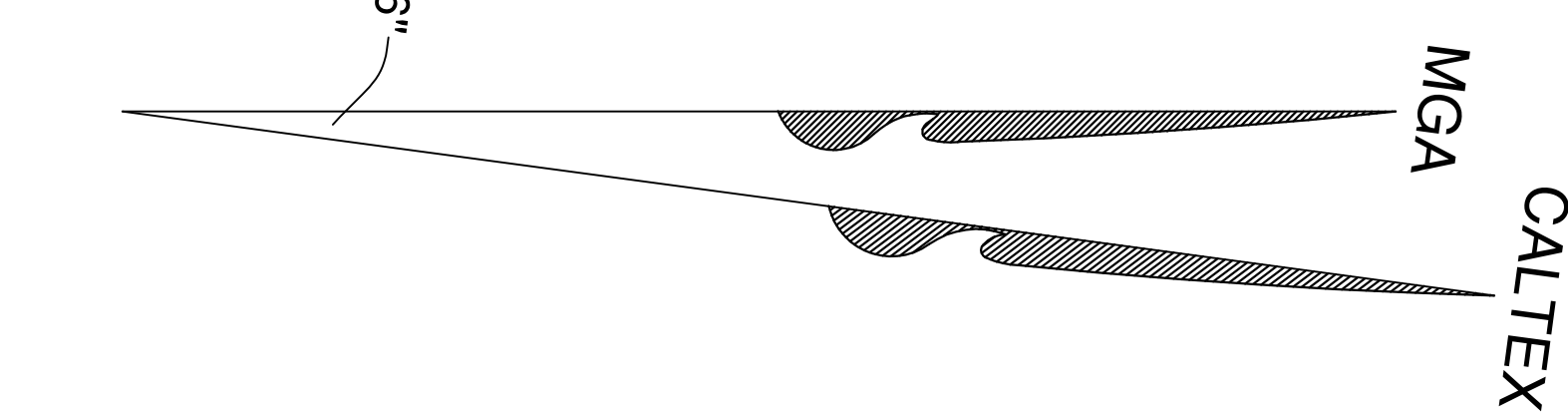
ORIGINAL SURVEY DETAILS:
SURVEY DATE: 1/1/2019
DRAWING: 04/04/19
CHECKED BY: J. HARTLEY
SCALE: 1:2500
SHEET SIZE: A0
DATE: 1/1/2019
DRAWING: 04/04/19
CHECKED BY: J. HARTLEY

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CLIENT:
CALTEx AUSTRALIA
TITLE DETAILS:
DOT 25 IN TO P. 776328
SURVEY REFERENCE: 1807014
SHEET 1 OF 1

PLAN SHOWING LOCATION OF
ASBESTOS CELL AND
PROPERTY BOUNDARIES
CALTEx KURNELL TERMINAL





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Appendix G Historical Groundwater Results – Sentinel Wells

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				TRH							BTEXN							PAH												Metals											
				C6 - C10 Fraction	C6-C10 Fraction minus BTEX (F1)	C10-C16 Fraction	C10-C16 Fraction minus Naphthalene (F2)	C16-C34 Fraction	C34-C40 Fraction	C10-C40 Fraction (sum)	Benzene	Toluene	Ethylbenzene	m & p-Xylene	o-Xylene	Total Xylene	Naphthalene	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Anthracene	Phenanthrene	Pyrene	Fluoranthene	Benz(a)anthracene	Chrysene	Benz(e)pyrene	Benz(k)fluoranthene	Indeno(1,2,3-cd)pyrene	Benz(g,h,i)perylene	Dibenzo(a,h)anthracene	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury	
LOR				20	20	100	100	100	100	100	1	2	2	2	2	1.0	5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5	1.0	1.0	1.0	1.0	1.0	0.001	0.0001	0.001	0.001	0.001	0.001	0.001	0.005	0.0001	
Units				ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Sample Location	Date Sampled	Sample ID	Sample Type																																						
AECOMMW3	11/01/2018	AECOMMW3_180111	N	< 20	< 20	< 100	< 100	< 100	< 100	< 100	< 1	< 2	< 2	< 2	< 2	< 1.0	< 5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.002	< 0.0001	< 0.001	0.003	< 0.001	0.038	0.066	< 0.0001		
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SPAMW10R	11/01/2018	SPAMW10R_180111	N	1060	1060	370	330	390	< 100	760	< 1	< 2	< 2	< 2	< 2	23.1	44	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.006	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.0001			
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RPD: PMW20/QC200				82	88	15	21	37	nc	11	nc	nc	nc	28	nc	28	35	16	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	15	nc	nc	nc	nc	nc	nc	nc		
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PMW26	11/01/2018	QC100_180111	FD	< 20	< 20	< 100	< 100	< 100	< 100	< 100	< 1	< 2	< 2	< 2	< 2	< 2	< 1.0	< 5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.009	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.0001			
RPD: PMW26/QC100				nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0	nc	nc	nc	nc	nc	nc	nc		
PMW27	11/01/2018	PMW27_180111	N	< 20	< 20	< 100	< 100	< 100	< 100	< 100	< 1	< 2	< 2	< 2	< 2	< 2	< 1.0	< 5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.002	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.0001			
PMW37	11/01/2018	PMW37_180111	N	< 20	< 20	150	150	280	< 100	430	< 1	< 2	< 2	< 2	< 2	< 2	< 1.0	< 5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.008	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	0.006	< 0.0001			
PP01	16/01/2018	PP01_160118	N	700	700	1980	1450	110	< 100	2090	< 1	< 2	< 2	< 2	< 2	< 2	319	526	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.0001			
PP02	16/01/2018	PP02_160118	N	30700	9720	870	660	< 100	< 100	870	10000	3000	927	6430	620	7050	85.8	213	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.040	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.008	0.0002		
PP02	16/01/2018	QC101_160118	FD	29300	6400	540	300	< 100	< 100	540	12400	2590	926	6380	601	6980	79.2	238	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.039	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	0.0002		
RPD: PP02/QC101				5	41	47	75	nc	nc	47	21	15	0	1	3	1	8	11	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	3	nc	nc	nc	nc	nc	nc	0		
PP03	16/01/2018	PP03_160118	N	< 20	< 20	< 100	< 100	< 100	< 100	< 100	< 1	< 2	< 2	< 2	< 2	< 2	< 1.0	< 5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.002	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.005	< 0.0001		
PP09	16/01/2018	PP09_160118	N	40	40	160	160	< 100	< 100	160	< 1	< 2	3	< 2	< 2	< 2	< 1.0	< 5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.0001			
PP10	16/01/2018	PP10_160118	N	< 20	< 20	< 100	< 100	< 100	< 100	< 100	< 1	< 2	< 2	< 2	< 2	< 2	< 1.0	< 5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.002	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.0001		

Notes
LOR: Limit of Reporting
Sample Type: N - Primary, FD - Duplicate, FT - Triplicate
mg/l: milligrams per litre
ug/l: micrograms per litre
RPD: relative percent difference
nc: not calculated, result(s) < LOR

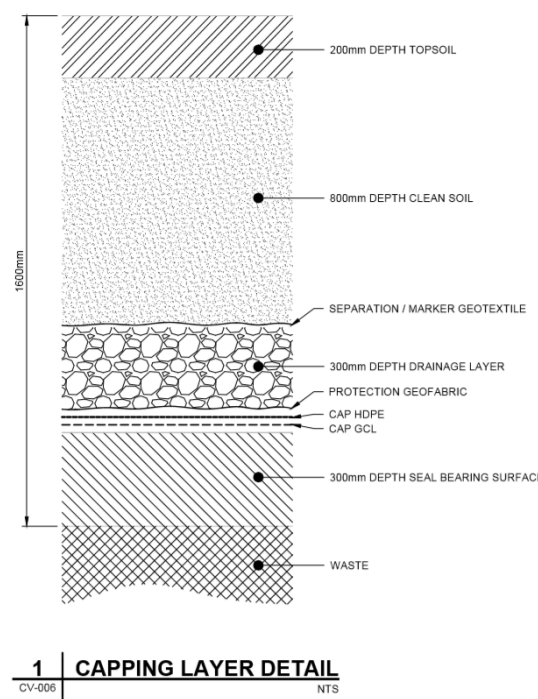
Division	Fuels and Infrastructure
Type	Plan
Title	Asbestos Contaminated Soil (ACS) Containment Cell Long Term Environment Management Plan

Appendix H Cell Maintenance and Repair Requirements

The following description provides an outline of the repair works required where the capping layers are disturbed. The repair works for each layer has been described and each section should be applied as required depending on the depth and extent of the disturbance on the various layers.

Irrespective of the extent of disturbance the damage to all layers should be photographed, the extent and depths measured and/or surveyed as required for future reference and to inform the repair works.

The cap profile has been copied below for reference from the construction drawings.



Vegetation

Where the vegetated surface has been damaged or where the grass has died back, the vegetation should be re-established using the same grass species as was established at construction. Grasses can be hand seeded where small areas of disturbance has occurred or if the area is large it can be hydroseeded.

Following seeding it should be watered bi-weekly for a period of 3 to 4 weeks or until the grass has been established.

Soil Layers

Where mixing of soil types has occurred, the disturbed soils shall be discarded and not used for repair works. Further soils should be sourced and replaced in accordance with the material specification and placement methods described in the construction Technical Specification. Where the disturbed soils can be separated, for instance where only the uppermost topsoil layer has been disturbed, the soils can be replaced in accordance with the construction Technical Specification.

Electronically Controlled Document. Refer to online document for current version.

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Division	Fuels and Infrastructure
Type	Plan
Title	Asbestos Contaminated Soil (ACS) Containment Cell Long Term Environment Management Plan

Aggregate Drainage Layer

Where the aggregate drainage layer has been disturbed the presence of soil in the remaining aggregate shall be determined by visual inspection including removal of the upper layers of remaining aggregate if required. Soil in the aggregate layer may create blockage to water flow and outlets and should be removed if at all practicable without creating further damage.

If the disturbed aggregate has been mixed with soils it should be discarded and not used for repair works. Where required further aggregate should be sourced and replaced in accordance with the material specification and placement methods described in the construction Technical Specification.

Geosynthetics

The extent and type of damage to the disturbed geosynthetic layers should be carefully inspected by a suitably qualified CQA Officer with specific knowledge of geosynthetics installation and repair to determine which materials require repair and/or replacement. The disturbance should be measured and recorded in detail for future reference and to guide the repair work. A work methodology should be prepared for the repairs and materials testing and approved by Ampol, the Auditor and/or relevant authority as required.

Geosynthetic materials to repair the damage should be sourced to the same specification as described in the construction Technical Specification. The full extent of any damaged material shall be removed and replaced and no damaged material shall remain in place unless approved by the CQA Officer. All replacement shall be welded, overlapped and reinstated in accordance with the construction Technical Specification.

The repair works shall be overseen by a suitably qualified CQA Officer as described in the Technical Specification. A detailed repair log and works description shall be maintained during the repairs and an as built report prepared.

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Division	Fuels and Infrastructure
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Appendix I Example Survey Checklist

Containment Cell Survey Example Checklist –Use Digitised Version under Kurnell SAP.

Date Completed: _____

Person Completing the Survey: _____

Site Manager Signature: _____

Area of Potential Concern	Issues Observed (attached picture if possible)	Action Required	Action Closure DateAct
Erosion, Sediment, and Vegetation			
Is there any erosion of the vegetation cover designed to maintain and reduce erosion impacts including dust and run-off scouring?			
Is there evidence of sediment leaving site? Refer to Section 4.4 above.			
Is there visual change or damage to any areas or layers of the capping on the Containment Cell.			
Are there any other identified changes to the containment cell that may create a risk to onsite workers from the cell?			
Leachate System Checklist			

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Division	Fuels and Infrastructure
Type	Plan
Title	Asbestos Contaminated Soil (ACS) Containment Cell Long Term Environment Management Plan

The Containment Cell capping profile has been designed and built with drainage lines directed to the east side of the containment cell into a swale. Are there integrity issues with the rock groin and/or swale that may affect the safe discharge of surface run-off water?			
Are there any elevated readings (>25 ppm) of volatile organic compounds (VOCs) using a photoionization detector (PID) and lower explosive limit (LEL) from the leachate?			
Is the Leachate System equipment maintained in accordance with the Equipment Maintenance register (Appendix I)			
Is sampling of the leachate required based on visual observations of impacts or the results of the annual groundwater monitoring of the sentinel wells?			
Leak Detection			
Undertake monitoring of the leak detection pipe as described in section 5 to determine if liquid is present in the leak detection sump. If liquid is present within the sump, the level of liquid should be noted and sampling undertaken			

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Division	Fuels and Infrastructure
Type	Plan
Title	Asbestos Contaminated Soil (ACS) Containment Cell Long Term Environment Management Plan

Ground Disturbance Works on or Around the Containment Cell			
All persons entering and/or undertaking works that involve the disturbance of petroleum hydrocarbon and asbestos impacted soils must always wear PPE (e.g., coveralls, gloves, safety footwear, and respiratory protective equipment). PPE must be determined by the risk assessment.			
All works that involve the disturbance of petroleum hydrocarbon and potentially asbestos impacted soils must be undertaken by contractors who hold the appropriate licenses. If works associated with the removal of asbestos or asbestos containing material (ACM) are required, works should be undertaken and/or supervised by a Class B licensed asbestos removalist if more than 10 m ² of non-friable asbestos is involved or a Class A licensed asbestos removalist for any friable asbestos contaminated soil.			

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Division	Fuels and Infrastructure
Type	Plan
Title	Operational Environmental Management Plan Kurnell Terminal

Appendix L: SSD 5544 Consolidated Consent Conditions - (Includes MODS 1-6)

Electronically Controlled Document. Refer to online document for current version.			
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Legacy ID: SD207187

Consolidated Consent

As delegate of the Minister for Planning and Infrastructure under delegation from the Minister dated 14 September 2011, the Planning Assessment Commission of New South Wales (the Commission) approves the development application referred to in Schedule A, subject to the conditions specified in Schedules A to D.

These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts including economic and social impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the development.

MODIFICATIONS

MOD 1 2015 – Demolition of Redundant Refinery Infrastructure

MOD 2 2017 – ACS Management Works

MOD 3 2017 – Tank 101 Demolition Works

MOD 4 2018 – Extension of Demolition Works Period

MOD 5 2019 – ASC Containment Cell and CWO Pipeline

MOD 6 2020 – Extension of ACS Management Works Period

Sydney

2013

SCHEDULE A

Application No:

SSD 5544

Applicant:

Caltex Refineries (NSW) Pty Ltd

Consent Authority:

Minister for Planning & Infrastructure

Land:

Caltex Terminal – 2 Solander Street, Kurnell

Lot 56, DP 908	Lot 79, DP 8135	Lot D, DP 361103
Lot 57, DP 908	Part Lot 122, DP 8135	Part Lot F, DP 361103
Lot 62, DP 908	Part Lot 123, DP 8135	Lot G, DP 361103
Part Lot 11, DP 7632	Part Lot 124, DP 8135	Lot J, DP 362655
Part Lot 12, DP 7632	Part Lot 125, DP 8135	Lot K, DP 362655
Lot 189, DP 7632	Lot 48, DP 9564	Lot H, DP 362655
Lot 190, DP 7632	Lot 77, DP 9564	Lot 570, DP 752064
Lot 43, DP 8135	Lot 78, DP 9564	Lot 24, DP 776328
Lot 44, DP 8135	Lot 81, DP 9564	Lot 1, DP 1044690
Lot 45, DP 8135	Part Lot 1, DP 215818	Lot 25, DP 776328
Lot 46, DP 8135	Part Lot 2, DP 215818	Lot 283, DP 752064
Part Lot 77, DP 8135	Lot 1, DP 215819	Lot 1, DP 132055
Lot 78, DP 8135	Lot B, DP 338897	

Continental Carbon Pipeline – Lot 2, DP 215818

Silver Beach – Lot 3, DP 1665618

Kurnell Wharf – Lot 456, DP 1413279

Development:

Conversion of the existing Kurnell Refinery to a finished product import and distribution terminal.

MOD 6 2020 – Extension of ACS Management Works Period

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DEFINITIONS

Applicant	Caltex Refineries (NSW) Pty Ltd, or its successor
ACS	Asbestos Contaminated Soils
ACS management works	Asbestos Contaminated Soils management works as described in section 1.4 of the <i>Response to Submissions - ACS Management Works</i> prepared by Aecom Australia Pty Ltd, dated June 2017, and as modified by MOD 5 and MOD 6
BCA	Building Code of Australia
Blue Book Volume 1	<i>Managing Urban Stormwater: Soils and Construction Volume 1 4th Edition (Landcom 2004)</i>
Construction	The carrying out of works including minor excavation works, conversion works, the erection of other infrastructure and/or commissioning works covered by this consent
Council	Sutherland Shire Council
CQAP	Construction Quality Assurance Plan, titled Containment Cell Construction Works Construction Quality Assurance Plan – Kurnell Asbestos Contaminated Soil Management Project, Revision Draft, prepared by AECOM Services Pty Ltd, dated March 2017
Day	The period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays
Department	Department of Planning and Environment
Demolition	The demolition, excavation and removal of redundant refinery processing units, tanks, pipeways/pipelines and other infrastructure, covered by this consent, including the ACS management works
Development	The development described in the EIS and RTS and depicted in Appendix A, being for the conversion of the existing Kurnell Refinery to a finished product import and distribution terminal, as modified by the conditions of this consent
Eastern ROW	Eastern Right of Way, which contains various pipelines that run between Kurnell Wharf and the Caltex Terminal
EIS	Environmental Impact Statement titled <i>Kurnell Refinery Conversion</i> , prepared by URS Australia Pty Ltd, dated May 2013, as modified by the Response to Submissions report.
EMP	Environment Management Plan
ENM	Excavated Natural Materials
EPA	Environment Protection Authority
EP&A Act	<i>Environmental Planning & Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning & Assessment Regulation 2000</i>
EPL	Environmental Protection Licence
EFRT	External Floating Roof Tank
Evening	The period from 6pm to 10pm
Feasible	Feasible relates to engineering considerations and what is practical to build
Heritage	Encompasses both Aboriginal and historic heritage including sites that predate European settlement, and a shared history since European settlement
Heritage Item	An item as defined under the <i>Heritage Act 1977</i> , and assessed as being of local, State and/ or National heritage significance, and/or an Aboriginal Object or Aboriginal Place as defined under the <i>National Parks and Wildlife Act 1974</i>
Heritage Management Strategy	Heritage Management Strategy titled <i>Caltex Kurnell Refinery Demolition: Heritage Impact Statement</i> , prepared by Australian

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	Museum Consulting for URS Australia Pty Ltd, dated February 2014, version 3
HRA	Hazard Risk Analysis titled Hazard and Risk Analysis of the proposed Caltex Kurnell Refinery Demolition Works (HRA), prepared by Planager Pty Ltd dated November 2014 and enclosed in Appendix B of the SEE
Incident	An incident causing or threatening material harm to the environment, and/or an exceedance of the limits or performance criteria in this consent
Land	In general, the definition of land is consistent with the definition in the EP&A Act
LGA	Local government area
Material harm to the environment	Harm to the environment is material if it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial
Minister	Minister for Planning, (or delegate)
Mitigation	Activities associated with reducing the impacts of the Project
MOD 1	Modification application to SSD 5544 for demolition works, as described in the SEE and as generally depicted in Appendix A, being the demolition and removal of redundant tanks, pipelines and infrastructure
MOD 2	Modification application to SSD 5544 for the ACS Management Works, as described in the <i>Statement of Environmental Effects ACS Management Project</i> , prepared by Aecom Australia Pty Ltd, dated October 2016, as modified by the Response to Submissions prepared by Aecom Australia Pty Ltd, dated January 2017
MOD 3	Modification application to SSD 5544 for the Tank 101 demolition works, as described in the <i>Statement of Environmental Effects Tank 101 Demolition Works</i> , prepared by AECOM Services Pty Ltd, dated August 2017, as modified by the letter dated 3 October 2017 from AECOM Services Pty Ltd
MOD 4	Modification application to SSD 5544 for the extension of the demolition works period, as described in <i>Section 4.55(1A) Modification – Extension of Time for SSD 5544 MOD 1 Demolition Works</i> , prepared by AECOM Australia Pty Ltd, dated 15 June 2018
MOD 5	Modification application to SSD 5544 for amendments to the ACS management works and CWO Pipeline removal works, as described in the <i>Modification Report Kurnell Refinery Conversion Project SSD 5544 Modification 5</i> , prepared by AECOM Australia Pty Ltd, dated 11 February 2019, as modified by the letter dated 20 March 2019 from AECOM Services Pty Ltd
MOD 6	Modification application to SSD 5544 for the extension of the ACS management works period, as described in the <i>Modification Report Kurnell Refinery Conversion Project SSD 5544 Modification 6</i> , prepared by AECOM Australia Pty Ltd, dated 14 November 2019
Negligible	Small and unimportant, such as to be not worth considering
NEPM	National Environment Protection (Assessment of Site Contamination) Measure established by the National Environment Protection Council 2013
Night	The period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays
NOW	NSW Office of Water in the Department of Primary Industries
OEH	Office of Environment and Heritage
Operation	Means the operation of the Development once the construction works have been fully completed and the Site has reached its end state terminal operations, but does not include commissioning trials

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	of equipment or temporary use of parts of the Development during construction.
Planning Secretary	The Secretary of the Department of Planning and Environment, or nominee
PHA	Preliminary Hazard Analysis
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Privately-owned Land	Land not owned by the Proponent or where a private agreement does not exist between the Proponent and the land owner
RAP	Remedial Action Plan titled Draft – ACS – Modification Works – Remediation Action Plan, Revision 1, prepared by Aecom dated June 2017
Refined Product	Gasoline (Unleaded Petrol, Premium Unleaded Petrol, and Super Premium Unleaded Petrol), Diesel, Jet Fuel and Fuel Oil.
Reasonable	Reasonable relates to the application of judgment in arriving at a decision, taking into account: mitigation benefits, costs of mitigation versus benefits provided, community views, and the nature and extent of potential improvements.
RMS	Roads and Maritime Services
RTS	Response to Submissions report with the title “Response to Submissions - Kurnell Refinery Conversion” prepared by URS Australia Pty Ltd and dated September 2013.
SEE	Statement of Environmental Effects titled Kurnell Refinery Demolition, prepared by URS Australia Pty Ltd, dated November 2014, as modified by the Response to Submission report titled Kurnell Refinery Demolition Response to Submissions prepared by URS Australia, dated March 2015
Sensitive Receiver	Residence, education institution (e.g. school, university, TAFE college), health care facility (e.g. nursing home, hospital), religious facility (e.g. church) and children’s day care facility.
Site	The land listed in Schedule A, and as depicted in Appendix A
Site Auditor	As defined in the <i>Contaminated Land Management Act 1997</i>
Site Audit Report	As defined in the <i>Contaminated Land Management Act 1997</i>
Site Audit Statement	As defined in the <i>Contaminated Land Management Act 1997</i>
Western ROW	Western Right of Way, which contains the Cooling Water Outlet Pipeline that runs between the Caltex Terminal and Botany Bay.
VENM	Virgin Excavated natural materials
VOC	Volatile organic compounds

SCHEDULE B

ADMINISTRATIVE CONDITIONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

- B1. The Applicant **must** implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the construction or operation of the development.

TERMS OF CONSENT

- B2. The Applicant **must** carry out the Development **generally** in accordance with the:
- (a) EIS;
 - (b) RTS;
 - (c) site layout plans and drawings in the EIS (see Appendix A);
 - (d) **MOD 1;**
 - (e) **MOD 2;**
 - (f) **MOD 3;**
 - (g) **MOD 4;**
 - (h) **MOD 5; and**
 - (i) **MOD 6.**
- B3. If there is any inconsistency between the above documents, the most recent document **must** prevail to the extent of the inconsistency. However, the conditions of this Consent **must** prevail to the extent of any inconsistency.
- B4. The Applicant **must** comply with any reasonable requirement(s) of the **Planning Secretary** arising from the Department's assessment of:
- (a) any reports, plans or correspondence that are submitted in accordance with this consent; and
 - (b) the implementation of any actions or measures contained within these reports, plans or correspondence.
- B5. Subject to confidentiality, the Applicant **must** make all documents required under this consent available for public inspection on request.

LIMITS OF CONSENT

- B6. The Applicant **must** not store in excess of 925 megalitres (ML) of refined product on the Site at any one time, unless otherwise agreed to in writing by the **Planning Secretary**.
- B7. The construction works associated with the Development **must** not extend beyond five (5) years from the date of approval.

B7A. The demolition works associated with the development must not extend beyond 10 June 2019.

B7B. Notwithstanding Condition B7A, the ACS Management Works must not extend beyond 31 March 2020.

LAPSE OF CONSENT

- B8. This consent **must** lapse five years from the date of this consent unless any part of the Project is physically commenced (within the meaning of section 95 of the EP&A Act) on or before that day, in accordance with any consent or development consent, on the Land to which the consent relates.

SURRENDER OF EXISTING DEVELOPMENT CONSENTS

- ~~B9. Within six (6) months of ceasing refining operations, or as otherwise agreed in writing by the Director-General, the Applicant must surrender all existing development consents for the site listed in Appendix B in accordance with Clause 97 of the EP&A Regulation.~~

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- B10. Within six (6) months of the issue of a Compliance Certificate or Occupation Certificate for the following development consents, or as otherwise agreed in writing by the [Planning Secretary](#), the Applicant **must** surrender the following consents in accordance with Clause 97 of the EP&A Regulation.
- (a) DA 13/0195 – Stormwater Drainage Upgrade; and
 - (b) DA 12/0238 – Construction of a switch room.
- B11. Nothing in this consent alters or modifies the following development consents:
- (a) SSD 5353 – Port and Berthing Works;
 - (b) DA 13/0335 – Construction and operation of a Bio-Pile Pilot Trial to treat Hydrocarbon impacted soils;
 - (c) DA 09/840 – Jet Fuel Remediation;
 - (d) DA 11/1090 – Remediation of Limestone Pits; and,
 - (e) MP 11/0004 – Caltex Jet Fuel Pipeline Upgrade Project.

STATUTORY REQUIREMENTS

- B12. The Applicant **must** ensure that all licences, permits and approval/consents are obtained as required by law and maintained as required throughout the life of the Development. No condition of this consent removes the obligation for the Applicant to obtain, renew or comply with such licences, permits or approval/consents.

AMENDED ENVIRONMENT PROTECTION LICENCE (EPL) REQUIREMENT

- B13. Prior to the commencement of construction, the Applicant must apply to the EPA to vary the Environment Protection Licence (EPL) for the Kurnell Refinery (Licence No. 837) to permit the Development.

B13A. The Applicant **must apply to the EPA to vary the EPL if additional scheduled activities are required to be undertaken as result of the demolition works.**

STRUCTURAL ADEQUACY

- B14. The Applicant **must** ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures are constructed in accordance with the relevant requirements of the BCA.

Notes: Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works.

DEMOLITION

B15. Deleted

OPERATION OF PLANT AND EQUIPMENT

- B16. The Applicant **must** ensure that all plant and equipment used for the Development is:
- (a) maintained in a proper and efficient condition; and
 - (b) operated in a proper and efficient manner.

COOLING WATER OUTLET PIPELINE REMOVAL

B16A. The cooling water outlet pipeline must be removed from beneath Silver Beach north of Prince Charles Parade and up to 20 metres seaward from the low tide mark in Botany Bay as shown in Appendix A of this consent.

PROTECTION OF PUBLIC INFRASTRUCTURE

- B17. Prior to the commencement of construction, the Applicant **must**:
- (a) prepare a dilapidation report of the public infrastructure in the vicinity of the site (including roads, gutters and footpaths); and
 - (b) submit a copy of this report to the [Planning Secretary](#) and Council.

B17A. Prior to the commencement of demolition works, the Applicant **must:**

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- (a) prepare a dilapidation report of the public infrastructure in the vicinity of the site (including roads, gutters and footpaths); and
- (b) submit a copy of this report to the Planning Secretary and Council.

B18. The Applicant **must**:

- (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the development; and
- (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.

STAGED SUBMISSION OF PLANS OR PROGRAMS

B19. With the approval of the Planning Secretary, the Applicant may:

- (a) submit any strategy, plan or program required by this consent on a progressive basis; and/or
- (b) combine any strategy, plan or program required by this consent.

Notes:

- If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program **must** clearly describe the specific stage to which the strategy, plan or program applies, the relationship of this stage to any future stages and the trigger for updating the strategy, plan or program.
- There must be a clear relationship between the strategy, plan or program that are to be combined.

DISPUTE RESOLUTION

B20. In the event that a dispute arises between the Applicant and Council or a public authority other than the Department, in relation to a specification or requirement applicable under this consent, the matter must be referred by either party to the Planning Secretary, or if not resolved, to the Minister, whose determination of the dispute **must** be final and binding to all parties. For the purpose of this condition, 'public authority' has the same meaning as provided under Section 4 of the Act.

COMPLIANCE

- B21. The Applicant **must** ensure that employees, contractors and sub-contractors are aware of, and comply with, the conditions of this consent relevant to their respective activities.
- B22. The Applicant **must** be responsible for environmental impacts resulting from the actions of all persons that it invites onto the site, including contractors, sub-contractors and visitors.

SCHEDULE C

ENVIRONMENTAL PERFORMANCE AND MANAGEMENT

HAZARDS AND RISKS

Terms of Approval

C1. The Applicant **must**:

- (a) carry out the Development in accordance with the PHA;
- (b) implement all control measures proposed in the PHA;
- (c) implement all actions proposed by Caltex in response to the recommendations from the Buncefield incident investigation report (Kurnell Buncefield Review - Final, submitted to the Department May 2013).
- (d) implement all proposed actions listed in Caltex's response to the Department's requests for additional information and clarifications (Caltex Response to D&I Queries of Caltex Submitted QRA – August 2013).

C1A. The Applicant **must** implement the recommendations in section 6 of the document titled Hazard and Risk Analysis of the proposed Caltex Kurnell Refinery Demolition Works (HRA), prepared by Planager Pty Ltd and enclosed in Appendix B of the SEE.

Demolition

C1B. The Applicant **must** ensure that relevant demolition work associated with the development is carried out in accordance with Australian Standard AS 2601:2001: The Demolition of Structures, or its latest version and the requirements of the Work Health and Safety Regulation 2011.

C1C. The Applicant **must** ensure that major demolition works as defined under the Work Health and Safety Regulation 2011 are undertaken by licensed demolition experts.

Commissioning

C2. The Applicant must commission the Development in accordance with Table 1 below:

Table 1: Development Commissioning

System Description	Estimated Commencement of Commissioning	Estimated Commencement of Operation of System
Jet	1 March 2014	1 June 2014
Diesel	1 April 2014	1 July 2014
Gasoline	1 May 2014	1 August 2014
Slop	1 May 2014	1 August 2014

Pre-construction

C3. At least one month prior to the commencement of construction of the Development (except for construction of those preliminary works that are outside the scope of the hazard studies), or within such further period as the Planning Secretary may agree, the Applicant must prepare, in consultation with WorkCover NSW, and submit for the approval of the Planning Secretary, the studies set out under subsections (a) to (d) (the pre-construction studies) of this Condition. Construction, other than for preliminary works, must not commence until approval has been given by the Planning Secretary and, with respect to the Fire Safety Study, approval has also been given by Fire and Rescue NSW.

- (a) Construction Safety Study

A Construction Safety Study, consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 7, 'Construction Safety'. For developments in which the construction period exceeds six (6) months, the commissioning portion of the Construction Safety Study may be submitted two months prior to the commencement of commissioning.

- (b) Fire Safety Study

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A Fire Safety Study for the Development. This study must cover the relevant aspects of the Department of Planning's Hazardous Industry Planning Advisory Paper No. 2, 'Fire Safety Study Guidelines' and the New South Wales Government's 'Best Practice Guidelines for Contaminated Water Retention and Treatment Systems'. The study must also be submitted for approval to Fire and Rescue NSW.

(c) Hazard and Operability Study/s

A Hazard and Operability Study/s for the Development, chaired by an independent qualified person. The study/s must be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 8, 'HAZOP Guidelines'.

The study report/s must be accompanied by a program for the implementation of all recommendations made in the report. If the Applicant intends to defer the implementation of a recommendation, reasons must be documented.

(d) Final Hazard Analysis

A Final Hazard Analysis of the Development, consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 6, 'Hazard Analysis'.

The FHA must re-evaluate and confirm all relevant data and assumptions from the Preliminary Hazard Analysis.

Pre-Demolition

C3A. At least one month prior to the commencement of demolition works (except for those preliminary works that are outside the scope of the hazard studies), or within such further period as the Planning Secretary may agree, the Applicant must prepare and submit for the approval of Planning Secretary the studies set out under subsections (a) to (b). Demolition, other than of preliminary works, must not commence until approval has been given by the Planning Secretary.

(a) FIRE WATER SYSTEM REVIEW

A review of the Firewater System to detail which parts of the system will be removed and/or retained. This review must include a list of measures that will be implemented to ensure that the firefighting capabilities of the Caltex Terminal will not be compromised during or as a result of the demolition works.

(b) DEMOLITION SAFETY STUDY

The study must report on the status of implementation of the recommendations outlined in the HRA for the demolition works, enclosed as Appendix B of the SEE. The study must include examples of the hazards control plans developed for high risk activities and task based risk assessments of the process safety related hazards.

C3B. Prior to commencement of the Tank 101 demolition works described in MOD 3, the Applicant must update the Demolition Safety Study prepared by Caltex (approved 11 December 2016), required under Condition C3A(b) to include a demolition management plan for the Tank 101 demolition works. The demolition management plan for the Tank 101 demolition works must be prepared in consultation with the Department.

Pre-commissioning

C4. The Applicant must develop, in consultation with WorkCover NSW, and implement the plans and systems set out under subsections (a) to (b) of this Condition. No later than two months prior to the refinery process units shutting down, or within such further period as the Planning Secretary may agree, the Applicant must submit, for the approval of the Planning Secretary, documentation describing those plans and systems.

(a) Emergency Plan

A comprehensive Emergency Plan and detailed emergency procedures for the Development. This plan must include consideration of the safety of all people outside of the Development who may be at risk from the Development. The plan must be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 1, 'Emergency Planning'.

(b) Safety Management System

A document setting out a comprehensive Safety Management System, covering all on-site operations and associated transport activities involving hazardous materials. The document must clearly specify all

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safety related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to the procedures. Records **must** be kept on-site and **must** be available for inspection by the **Planning Secretary** upon request. The Safety Management System **must** be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 9, 'Safety Management'.

An inspection, testing and preventive maintenance program should be developed, implemented and maintained to ensure the reliability and availability of the key safety critical equipment is, at a minimum, consistent with the data estimated in the PHA.

- C4A. No later than one month prior to the commencement of the demolition works, or within such a further period as the Planning Secretary may agree, the Applicant must submit for the approval of the Planning Secretary an updated Emergency Plan and detailed emergency procedures. The plan must be in accordance with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 1, 'Industry Emergency Planning Guidelines' and must provide information of the emergency arrangements during the demolition works.
- C4B. Prior to commencement of the Tank 101 demolition works described in MOD 3, the Applicant must update and implement the Emergency Plan required under Condition C4(a) to incorporate the Tank 101 demolition works. The plan must include information of the emergency arrangements during the tank demolition works and a copy of the plan must be submitted to the Planning Secretary.
- C5. Prior to the commencement of commissioning the first asset within each system (see Condition C2), the Applicant must submit a Pre-Commissioning Plan and Pre-Startup Safety Review Checklists to the Planning Secretary.

Pre-Startup

C6. Pre-Startup Compliance Report

One month prior to the commencement of operation of the first asset in each of the four systems (see Condition C2), the Applicant must submit to the Planning Secretary, a report detailing compliance with Conditions C3, C4 and C5 of this consent. The report must be prepared in consultation with WorkCover NSW, and must include:

- (a) dates of study/plan/system submission, approval, commencement of construction and commissioning;
- (b) actions taken or proposed, to implement the recommendations and safety-related control measures in the studies/plans/systems; and
- (c) responses to each requirement imposed by the Planning Secretary under Condition C7 of this consent.

Note: Compliance with Condition C4 may not be achievable until after such time as the documentation describing the plans and systems required under that condition have been developed. A subsequent report may therefore be required to be prepared and submitted after the documentation required by Condition C4 has been developed.

Post-Startup

C7. Post-Startup Compliance Report

Three months after the refinery process units shut down, the Applicant must submit to the Director- General, a report that has been prepared in consultation with WorkCover NSW verifying that:

- (a) the Emergency Plan required under Condition C4(a) is effectively in place and that at least one emergency exercise has been conducted; and
- (b) the Safety Management System required under Condition C4(b) has been fully implemented and that records required by the system are being kept.

The report must be prepared in consultation with WorkCover NSW.

C7A. Fire Safety Study Review

One month prior to the completion of demolition works, or within such further period as the Planning Secretary may agree, the Applicant must submit for the approval of the Planning Secretary, a revised Fire Safety Study for the Caltex Terminal. This study must cover the relevant aspects of the Department's Hazardous Industry Planning Advisory Paper No. 2, 'Fire Safety Study Guidelines' and the New South Wales Government's 'Best Practice Guidelines for Contaminated Water Retention and Treatment Systems'. The study must also be submitted to NSW Fire and Rescue for approval.

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Ongoing

C8. Hazard Audit

Twelve months after all four systems being fully operational and every three years thereafter, or at such intervals as the **Planning Secretary** may agree, the Applicant **must** carry out a comprehensive Hazard Audit of the Development and within one month of each audit submit a report to the **Planning Secretary**.

The audits **must** be carried out at the Applicant's expense by a qualified person or team, independent of the Development, approved by the **Planning Secretary** prior to commencement of each audit. Hazard Audits **must** be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 5, 'Hazard Audit Guidelines' (HIPAP No. 5).

The audit reports **must**, in addition to the requirements provided in HIPAP No 5:

- (a) verify implementation of all actions proposed by Caltex in response to the recommendations from the Buncefield incident investigation report (*Kurnell Buncefield Review - Final*, submitted to the Department May 2013).
- (b) verify implementation of all actions listed in Caltex's response to the Department's requests for additional information and clarifications (*Caltex Response to DP&I Queries of Caltex Submitted QRA – August 2013*).
- (c) confirm that the throughput and storage quantities of potentially hazardous materials are consistent with the PHA.
- (d) verify that an inspection, testing and preventative maintenance program has been developed, implemented and maintained to ensure the reliability and availability of the key safety critical equipment.
- (e) verify implementation of any measures arising from the reports submitted in respect of Conditions C2 to C5 of this consent.

The audit report must be accompanied by a program for the implementation of all recommendations made in the audit report. If the Applicant intends to defer the implementation of a recommendation, reasons must be documented.

C9. Further Requirements

The Applicant **must** comply with all reasonable requirements of the **Planning Secretary** in respect of the implementation of any measures arising from the reports submitted in respect of Conditions C1 to C8 of this consent inclusive, within such time as the **Planning Secretary** may agree.

Fire Risk Management During Demolition

C9A. The Applicant **must**:

- (a) ensure the emergency procedures detailed in condition C4A, address and mitigate, as far as reasonably practical, the consequences of potential fire and hazmat incidents during demolition works and the potential health risks to firefighters undertaking emergency operations in relation to foreseeable fire/hazmat scenarios;
- (b) ensure two copies of the emergency procedures detailed in condition (a) above are located at the demolition areas;
- (c) ensure appropriate first aid firefighting equipment is provided on site;
- (d) ensure that plant operators and demolition contractors are trained to undertake first aid firefighting in the event of an incident; and
- (e) ensure that comprehensive and specific risk control measures are developed and implemented for Scenario 5 detailed in Table 3, Section 4 of the HAZDEM. The control measures developed must incorporate comprehensive training of demolition contractors in regard to the requirements for the control of ignition sources at the site.

SOIL AND WATER

Discharge of Water

- C10. The Development **must** comply with section 120 of the *Protection of the Environment Operations Act 1997*, which prohibits the pollution of waters, except as expressly provided in an EPL.

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Erosion and Sediment Control

C11. During the construction and demolition works associated with the Development, the Applicant must implement suitable erosion and sediment control measures on-site, in accordance with the relevant requirements in the latest version of the Managing Urban Stormwater: Soils and Construction Guideline and the relevant Management and Mitigation measures contained within Appendix C of this consent.

Imported Soil

C11A. The Applicant must:

- (a) ensure that only VENM or any other material approved in writing by the EPA is used as fill in the Eastern ROW and Western ROW;
- (b) ensure that the material used as backfill for Silver Beach is of similar grain size and colour characteristics;
- (c) be permitted to use only VENM or any other material that meets all of the conditions of a Resource Recovery Order issued by the EPA under the Protection of the Environment Operations (Waste) Regulation 2014 for use in the Caltex Terminal.
- (d) ensure that any VENM or other materials used by the Applicant are fit for purpose and are only used as specified by the relevant Resource Recovery Exemption issued by the EPA.
- (e) keep accurate records of the volume and type of fill to be used; and
- (f) make these records available to the Department upon request.

C11B. During demolition works, the Applicant must implement suitable erosion and sediment control measures for managing temporary stockpiles, in accordance with the relevant requirements in the latest version of the Managing Urban Stormwater: Soils and Construction – Volume 1 and the relevant Management and Mitigation measures contained within Appendix C of this consent.

Water Management Plan

C12. The Applicant must prepare and implement a Water Management Plan for construction works and site operations to the satisfaction of the Planning Secretary. The plan(s) must:

- (a) be prepared in consultation with the EPA;
- (b) be approved by the Planning Secretary (refer to Conditions D1 and D2 for timing);
- (c) In addition to the standard requirements for management plans (see Condition D3), this plan must include a Surface Water Management Plan, that:
 - includes a description of the water management system on site, including the:
 - stormwater system; and,
 - oily water / wastewater system.
 - includes plans for the above two components of the systems; and
 - demonstrates compliance with any requirements of the EPL and/or the EPA.

C12A. The Applicant must update and implement the Soil and Water Management Plan for the demolition works to the satisfaction of the Planning Secretary. This plan is to update the plan approved under condition C12 and must also:

- (a) be submitted to the Planning Secretary for approval (See condition D1A for timing);
- (b) include a description of soil and water issues associated with the demolition works;
- (c) include measures for managing soils that are excavated and stockpiled on site including erosion and sediment control measures for stockpiles and disturbed areas;
- (d) include details of water management and monitoring requirements during demolition works; and
- (e) include procedures for corrective action in the event that potential contaminants of concern are identified in the groundwater from the quarterly groundwater monitoring program.

Groundwater

C13. In the event that groundwater is intersected during construction and demolition works the Applicant must:

- (a) obtain the necessary water licences or approvals from NOW;
- (b) develop a Groundwater Management Plan for the testing, dewatering, storage, movement and treatment of any groundwater in consultation with the NOW, to the satisfaction of the Planning Secretary.

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Acid Sulphate Soils (ASS) Management Plan

- C14. If Acid Sulfate Soils (ASS) are encountered during construction **demolition works**, the Applicant **must** take steps to prevent further oxidation of exposed ASS, and will cease all excavation work until an ASS Management Plan is prepared for the Development to the satisfaction of the **Planning Secretary**. This Plan must:
- (a) be prepared in consultation with the EPA and Council by a suitably qualified and experienced expert;
 - (b) be approved by the **Planning Secretary** prior to the continuation of any excavation works;
 - (c) outline the investigations that have been undertaken to test for the presence of ASS in accordance with the NSW State Government's *Acid Sulphate Soils Manual* (ASSMAC 1998);
 - (d) detail the protocols to be put in place and followed;
 - (e) detail how the ASS will be tested, handled and stockpiled;
 - (f) detail measures to prevent erosion and sedimentation of ASS; and, if necessary
 - (g) outline how the ASS will be disposed of off-site (e.g. at a licensed facility).

Contamination Management

- C15. The Applicant **must** prepare and implement a Contamination Management Plan for the construction works. The Plan **must**:
- (a) be prepared in consultation with the EPA and NSW Health;
 - (b) be to the satisfaction of the **Planning Secretary** (refer to Condition D1 for timing);
 - (c) outline measures for managing potentially contaminated soil and groundwater, including soil testing, classification, handling, storing and disposal;
 - (d) detail the measures that will be employed to prevent erosion and sedimentation of contaminated soil;
 - (e) detail measures for periodically testing surface water run-off that may accumulate during excavation works for elevated levels of contamination, with any water that is found to have elevated levels of contaminants being disposed of via the on-site Wastewater Treatment Plant.
 - (f) detail measures for managing asbestos encountered during works, including disturbances of soil and release of asbestos into the air;
 - (g) outline how all contaminated soil and associated waste material would be managed in accordance with the *Protection of the Environment Operations Act 1997* and associated regulations and characterised in accordance with the EPA's *Waste Classification Guidelines*;
 - (h) detail how the storage, disposal and transport of asbestos waste would be undertaken in accordance with the *Protection of the Environment Operations (Waste) Regulations*; and
 - (i) assess any likely impact on existing remediation projects and, if any impacts are identified, provide details as to the measures that **must** be taken to reduce or avoid that impact.
- C15A. The Applicant **must** update and implement the Contamination Management Plan for the demolition works to the satisfaction of the **Planning Secretary**. This plan is to update the plan approved under condition C15 and **must** also:
- (a) be submitted to the **Planning Secretary** for approval (See condition D1A for timing);
 - (b) detail measures for the identification and monitoring of potentially contaminated soils and groundwater including the use of excavation visual and olfactory indicators; and
 - (c) include measures for managing potentially contaminated soils and groundwater during ground disturbance and excavation works;

Asbestos Management

- C15B. The Applicant **must** ensure that any asbestos encountered during the demolition works is monitored, handled, transported and disposed of by appropriately qualified and licensed contractors in accordance with the requirements of WorkCover and relevant guidelines, including:
- (a) *Work Health and Safety Regulation 2011*;
 - (b) *Model Code of Practice – How to Manage and Control Asbestos in the Workplace, 2011 Safe Work Australia*;
 - (c) *Model Code of Practice – How to Safely Remove Asbestos, 2011 Safe Work Australia*; and
 - (d) *Protection of the Environment Operations (Waste) Regulation 2005*.

NOISE AND VIBRATION

Construction Noise Limits

C16. The Applicant **must** ensure that the construction noise generated by the Development does not exceed the criteria defined in Table 2 below.

Table 2: Construction Noise Criteria(dB(A))

Location	Day	Evening
	LAeq (15 min)	LAeq (15min)
R2-30D Cook Street	46	40
At any other residence or other noise sensitive receiver	50	45

Notes:

- To identify a residential receiver location, refer to Appendix F of the EIS.
- Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.

Operational Noise Limits

C17. The Applicant **must** ensure that the operational noise generated by the Development does not exceed the Criteria for residential receivers are summarised in Table 3 below:

Table 3: Operational Noise Limits dB(A)

Location	Day	Evening	Night	
	LAeq (15 min)	LAeq (15 min)	LAeq (15 min)	L _{Amax}
At any private residential receiver	60	50	50	55

Notes:

- To identify a residential receiver location, refer to Appendix F of the EIS.
- Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.
- These criteria have been developed for this specific Development, however it is recognised that the site is zoned for heavy industrial purposes and that ultimately the amenity of the area should be controlled by the criteria contained in Table 2.1 of the Industrial Noise Policy.

Hours of Construction and Operation

C18. With the exception of works identified in conditions C19 and C20, the Applicant **must** comply with the hours detailed in Table 4.

Table 4: Construction, Demolition & Operation Hours

Activity	Day	Time
Construction	Monday – Sunday	7:00am to 10:00pm
Demolition	Monday – Sunday	7:00am to 10:00pm
Operation	Monday – Sunday	24 hours

C19. High noise generating construction and demolition works, including the pipeline removal works within the Eastern and Western Right of Ways, and the Tank 101 demolition works described in MOD 3, **must** be confined to less sensitive times of the day, and **must** not be undertaken on Sundays or public holidays or outside of the hours 7:00am and 6:00pm Monday to Saturday.

C20. Construction works outside of the work hours identified in condition C18 above may be undertaken in the following circumstances:

- (a) works that are inaudible at nearest sensitive land receivers;
- (b) works that are consistent with Caltex's existing maintenance procedures and are in accordance with the existing EPL;
- (c) works agreed to in writing by the EPA or the Department;
- (d) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or
- (e) where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm.

Operating Conditions

C21. The Applicant **must**:

- (a) implement all reasonable and feasible noise management and mitigation measures to prevent and minimise operational, low frequency and traffic noise generated by the proposal;
- (b) minimise the noise impacts of the development during adverse meteorological conditions when noise criteria do not apply;
- (c) maintain the effectiveness of any noise suppression equipment on plant at all times and ensure defective plant that may generate offensive noise is not used operationally until fully repaired; and
- (d) regularly assess noise monitoring data and relocate, modify and/or stop operations to ensure compliance with the relevant conditions of this consent.

Noise Management Plan

C22. The Applicant **must** prepare and implement a Noise Management Plan for construction works and site operations. The plan(s) **must**:

- (a) be prepared and implemented by a suitably qualified and experienced person, in consultation with the EPA;
- (b) be approved by the **Planning Secretary** (refer to Conditions D1 and D2 for timing);
- (c) describe the measures that will be implemented to minimise noise from the construction and operation of the development including:
 - all reasonable and feasible measures being employed on site;
 - maintain equipment to ensure that it is in good order;
 - traffic noise is effectively managed; and
 - the noise impacts of the development are minimised during any meteorological conditions when the noise criteria in this consent do not apply;
 - identification of high noise generating construction activities, including proposed times when these works will be carried out (including respite periods if required) and mitigation measures to minimise adverse impacts from these activities;
 - compliance with the relevant conditions of this consent.
- (d) includes a noise monitoring program that:
 - **must** be carried out until otherwise agreed to in writing by the **Planning Secretary**;
 - is capable of evaluating the performance of the Development; and,
 - includes a protocol for determining exceedances of the relevant conditions of this consent and responding to complaints.

C22A. The Applicant must update and implement the Noise Management Plan for the demolition works to the satisfaction of the Planning Secretary. This plan is to update the plan approved under condition C22 and must also:

- (a) be approved by the Planning Secretary (refer to conditions D1A and D2 for timing);**
- (b) outline the procedures for the notification of all potentially affected persons at least one week prior to and during high noise generating works;**
- (c) implement reasonable and feasible noise and vibration management and mitigation measures during the demolition activities within the Caltex Terminal;**
- (d) implement reasonable and feasible noise and vibration monitoring and management measures during removal of the pipelines from the Eastern and Western ROW to minimise noise and vibration impacts generated by the pipeline removal works; and**
- (e) include strategies for monitoring vibration impacts on buildings with medium to high heritage significance proposed to be retained within the Caltex Terminal.**

Construction Vibration

C23. The Applicant **must** aim to achieve the following construction **and demolition** vibration goals:

- (a) for structural damage, the vibration limits set out in the *German Standard DIN 4150-3: Structural Vibration - effects of vibration on structures*; and
- (b) for human exposure, the acceptable vibration values set out in the *Environmental Noise Management Assessing Vibration: A Technical Guideline* (Department of Environment and Conservation, 2006).

AIR QUALITY MANAGEMENT

Dust Generation During Construction

C24. The Applicant **must** carry out all reasonable and feasible measures to minimise dust generated during construction **and demolition works**.

C25. During Construction **and demolition works**, the Applicant **must** ensure that:

- (a) all trucks entering or leaving the site have their loads covered;
- (b) trucks associated with the Development do not track dirt onto the public road network; and
- (c) any dirt on public roads as a result of the development is promptly removed.

Offensive Odour

C26. The Applicant **must** not cause or permit the emission of offensive odours from the site, as defined under Section 129 of the POEO Act.

Operating Conditions

C27. The Applicant **must**:

- (a) implement all reasonable and feasible dust and odour mitigation measures to prevent and minimise odour and dust emissions from operations;
- (b) prevent and minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events;
- (c) minimise any visible off-site air pollution; and
- (d) minimise surface disturbance of the site, other than as permitted under this consent.

Air Quality Management Plan

C28. The Applicant **must** prepare and implement an Air Quality Management Plan for the proposed construction works. The plan **must**:

- (a) be prepared and implemented by a suitably qualified and experienced expert in consultation with the EPA and NSW Health;
- (b) be approved by the **Planning Secretary** prior (refer to Condition D1 for timing);
- (c) describe the measures that would be implemented on site to ensure:
 - i. the control of air quality and odour impacts of the Development;
 - ii. that these controls remain effective over time;
 - iii. that all reasonable and feasible air quality management practice is employed;
 - iv. the air quality impacts are minimised during adverse meteorological conditions and extraordinary events; and
 - v. compliance with the relevant conditions of this consent.
- (d) describes the air quality & odour management system;
- (e) includes an air quality monitoring program that:
 - i. is capable of evaluating the performance of the proposal;
 - ii. includes a protocol for determining any exceedances of the relevant conditions of consent and responding to complaints;
 - iii. adequately supports the air quality management system; and
 - iv. evaluates and reports on the effectiveness of the air quality management system.

C28A. The Applicant must update and implement the Air Quality Management Plan for the demolition works to the satisfaction of the Planning Secretary. This plan is to update the plan approved under condition C28 and must also:

- (a) be approved by the Planning Secretary (refer to conditions D1a and D2 for timing);
- (b) outline procedures for VOC, odour and dust deposition monitoring and suppression methods during excavation works and where potential hydrocarbon contamination is present; and
- (c) include dust suppression measures and procedures for dust monitoring during operation of the concrete crusher.

Air Quality Verification

C29. The Applicant must carry out an air quality verification study for the development. The study must:

- (a) be prepared by a suitably qualified expert;
- (b) be completed within 24 months of the commencement of operations, or as otherwise agreed to by the Planning Secretary;
- (c) be based on the average of emissions over a continuous 12 month period after commencement of operations, taking into account the throughput and type of fuel;
- (d) include a validation of the accuracy of the modelling predictions in the EIS;
- (e) verify that compliance with any limits or conditions in the EPL are achieved;
- (f) verify, using reasonable means, the effectiveness of any emission control measures that have been implemented to minimise air quality impacts; and
- (g) demonstrate compliance with the relevant regulatory criteria.

HERITAGE MANAGEMENT

Archival Record

C30. The Applicant must commission an appropriately qualified heritage expert to undertake an archival photographic recording of the existing fabric and operation of the Kurnell Refinery while the plant is still operational and during the decommissioning process. The recording should include a range of media and must be undertaken in accordance with the current Heritage Council Guidelines on Photographic Recording of Heritage Items Using Film or Digital Capture (2006).

The archival recording must be submitted to the Heritage Council of NSW, Sutherland Shire Library and the NSW State Library within 12 months of the closure of the refinery and prior to the removal or demolition of any existing elements.

Heritage Management Strategy

C31. The Applicant must prepare and implement a Heritage Management Strategy for the Australian Oil Refinery site prior to shut-down of the refinery plant. The Strategy must:

- (a) be prepared by a suitably qualified person in consultation with Council and the Heritage Council of NSW;
- (b) be submitted to the Planning Secretary for approval at least 2 months prior to the shut-down of the refinery plant;
- (c) review the heritage significance of the Australian Oil Refinery site; and
- (d) set out a framework to minimise or mitigate the loss of heritage value during the decommissioning process, and for the ongoing management of the Site's heritage during present and future works.

C31A. The Applicant must:

- (a) continue to implement the Heritage Management Strategy prior to and during the demolition works; and
- (b) implement the recommendations stated in Chapter 4 and 5 of the document titled: *Caltex Kurnell Refinery Demolition: Heritage Impact Statement by Australian Museum Consulting for URS Australia Pty Ltd, October 2014.*

Other Heritage Management and Mitigation Measures

C32. The Applicant must, prior to shut-down of the refinery:

- (a) form an in-house team to manage documentation and interpretation of the history of the refinery, including the production of a colour book;

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- (b) liaise with the Mitchell Library to prepare a photographic record of the site and people associated with the refinery for inclusion in the library's archives; and
- (c) engage a professional photographer to prepare a photographic exhibition of the refinery. The location(s) and duration of the exhibition must be to the satisfaction of Council and the NSW Heritage Council.

C32A. Within two months of its scheduled demolition, the Applicant must undertake a final review of the adaptive reuse capabilities of highly significant buildings which are proposed to be demolished as per the recommendations of the Heritage Management Strategy.

C32B. Within two months of its scheduled demolition, the Applicant must complete appropriate archival records of items to be demolished as per the recommendations of the Heritage Management Strategy and other initiatives supported by the Heritage Division of the OEH.

~~C32C. The Applicant must implement the recommendations in section 5.2 of the document titled *Caltex Kurnell Refinery Demolition: Heritage Impact Assessment*, prepared by Australian Museum Consulting and enclosed in Appendix F of the SEE, for the pipeline removal works on Silver Beach to the satisfaction of Council.~~

Potential for Discovery of Aboriginal and Non-Aboriginal Heritage Objects

C33. If during the course of construction and demolition the Applicant becomes aware of any previously unidentified heritage object(s), all work likely to affect the object(s) must cease immediately and the Heritage Council of New South Wales must be notified immediately in accordance with section 146 of the *Heritage Act 1977*. Relevant works must not recommence until written authorisation from the Heritage Council of NSW is received by the Applicant.

C34. If during the course of construction and demolition the Applicant becomes aware of any previously unidentified Aboriginal object(s), all work likely to affect the object(s) must cease immediately and the OEH informed in accordance with section 89A of the *National Parks and Wildlife Act 1974*. Relevant works must not recommence until written authorisation from OEH is received by the Applicant.

ENERGY EFFICIENCY AND GREENHOUSE GAS EMISSIONS

Managing Energy Efficiency & Greenhouse Gas Emissions

C35. The Applicant must implement all reasonable and feasible measures to minimise:

- (a) energy use; and
- (b) greenhouse gas emissions;

throughout the life of the development, to the satisfaction of the Planning Secretary.

TRANSPORT AND ACCESS

Traffic Management Plan

C36. The Applicant must prepare and implement a Traffic Management Plan for construction and operations, to the satisfaction of the Planning Secretary. The plan must:

- (a) be prepared in consultation with Council and implemented by a suitably qualified and experienced person;
- (b) be approved by the Planning Secretary (Refer to Conditions D1 and D2 for timing);
- (c) detail the measures that would be implemented to ensure road safety and network efficiency during construction and operation including (but not limited to):
 - installation of signage and implementation of maximum speeds limits on internal roads; and
 - final details of the proposed traffic control measures;
 - details for the rationalisation of the entry and exit to the Site, particularly if the weigh station is no longer required, to improve the management of traffic and parking for members of the general public in this area;
- (d) include a plan showing the route to be used by heavy vehicles during construction and operation;
- (e) detail the access and parking arrangements for the site during construction and operation;
- (f) include a Driver Code of Conduct that details the traffic management measures to be implemented during construction and operation to:
 - minimise the impacts of the development on the local and regional road network;
 - minimise conflicts with other road users; and

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- ensure truck drivers use specified routes.
- (g) describe the measures that will be implemented to ensure:
 - the nominated heavy vehicle route is used;
 - drivers adhere to the code of conduct; and
 - compliance with the relevant conditions of this consent.
- (h) include a program to monitor the effectiveness of these measures; and
- (i) if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.

C36A. The Applicant **must** update and implement the Traffic Management Plan for the demolition works to the satisfaction of the **Planning Secretary**. This plan is to update the plan approved under condition C36 and **must** also:

- (a) be prepared in consultation with Council;
- (b) be approved by the **Planning Secretary** (refer to conditions D1A for timing);
- (c) include the designated routes for demolition traffic to the demolition areas within the site;
- (d) include details of traffic management arrangements for the cooling water outlet and intake pipeline removal works within the road reserves; and
- (e) outline the procedures for the notification of all potentially affected persons prior to and during the pipeline removal works within the road reserves.

C36B. The Applicant **must** ensure that the pipeline removal works along the road reserves on Captain Cook Drive, Prince Charles Parade and Cook Street are undertaken in consultation with Council and do not take place during public events or public holidays in Kurnell.

Car Parking

C37. The Applicant **must** provide sufficient parking facilities on-site for construction, **demolition** and operational personnel, and heavy vehicles, to ensure that construction, **demolition** and operational traffic associated with the Development do not utilise public and residential streets or public parking facilities for parking.

C37A. Within 18 months after commencement of the demolition works, the Applicant **must**:

- (a) complete a review, in consultation with Council, of the Cook Street approach to the Caltex Terminal site considering issues relating to signage, car parking arrangements, vehicle flows and the future of the weighbridge; and
- (b) include a timetable of implementation of the findings of this review.

Note: The implementations of the findings of this review may require further approval under the EP&A Act.

WASTE MANAGEMENT

Waste Management On-Site

C38. The Applicant **must**

- (a) minimise the waste generated on site; and
- (b) ensure that the waste generated by the development is appropriately stored, handled and disposed of, to the satisfaction of the **Planning Secretary**.

C39. The Applicant **must** ensure that any waste generated on the site during construction **and demolition** is classified in accordance with the EPA's Waste Classification Guidelines and disposed of to a facility that may lawfully accept the waste.

C39A. The Applicant **must** ensure that all hazardous materials identified in the structures to be demolished are removed prior to demolition where it is safe and practical to do so.

C39B. The Applicant **must** ensure that the reuse of any materials (including soil, scrap metal or building materials) on site must be fit for purpose and must not result in any adverse impacts to the environment.

C39C. Where it is safe and practical to do so, the Applicant should as far as practicable sort all waste materials generated during demolition works to maximise opportunities for the beneficial reuse and recycling of such waste materials.

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Waste Management Plan

- C40. The Applicant **must** prepare and implement a Waste Management Plan for the construction works and site operations to the satisfaction of the **Planning Secretary**. This Plan **must**:
- (a) be prepared in consultation with the EPA;
 - (b) be approved by the **Planning Secretary** (refer to timing in Conditions D1 and D2);
 - (c) detail the type and quantity of waste to be generated by construction and operational phases of the development;
 - (d) detail the materials to be reused or recycled, either on or off site; and
 - (e) detail the procedures for handling, storage, collection of recycling and disposal of waste.

Demolition Waste and Resource Management Plan

- C40A. The Applicant **must** prepare and implement a Demolition Waste and Resource Management Plan for the demolition works to the satisfaction of the **Planning Secretary**. This plan is to update the plan approved under condition C40 and **must** also:
- (a) be prepared in consultation with the EPA;
 - (b) be approved by the **Planning Secretary** (refer to condition D1a for timing);
 - (c) outline the measures for the removal, storage and disposal of all waste materials generated during the demolition works; and
 - (d) outline the waste reuse and recovery strategy for the demolition works.

Waste Received from Off-Site

- C41. The Applicant **must** not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence under the *Protection of the Environment Operations Act 1997*, if such a licence is required in relation to that waste.
- C41A. The Applicant **must** ensure that the removal of the cooling water outlet pipeline 20 metres seaward from the low tide mark in Botany Bay is carried out in a manner that minimises the potential for disturbance and/or spread of *Caulerpa taxifolia*.

BIODIVERSITY & ECOLOGY

Biodiversity Management Plan

- C42. The Applicant **must** prepare and implement a Biodiversity Management Plan for the development to the satisfaction of the **Planning Secretary**. This plan **must**:
- (a) be prepared in consultation with the Council;
 - (b) be approved by the **Planning Secretary** (Refer to Conditions D1 and D2 for timing);
 - (c) include measures to be taken to minimise impacts on flora and fauna;
 - (d) include a program with timeframes for implementation of the relevant recommendations contained in the Ecology Impact Assessment in Appendix I of the EIS, and the Management and Mitigation Measures contained in Chapter 19 of the EIS to minimise impacts on flora and fauna and maintain the biodiversity value of the site and surrounding environment.

Pest, Vermin & Noxious Weed Management

- C43. The Applicant **must**:
- (a) implement suitable measures to manage pests, vermin and declared noxious weeds on site;
 - (b) measures to be taken to prevent the spread of any identified noxious/exotic weeds off site; and
 - (c) inspect the site on a regular basis to ensure that these measures are working effectively, and that pests, vermin or noxious weeds are not present on site in sufficient numbers to pose an environmental hazard, or cause the loss of amenity in surrounding area.

Note: For the purposes of this condition, noxious weeds are those species subject to an order declared under the Noxious Weed Act 1993.

C43A. The Applicant **must** update and implement the Biodiversity and Weed Management Plan for the demolition works to the satisfaction of the **Planning Secretary**. This plan is to consolidate the plans approved under conditions C42 and C43 and **must** also:

- (a) be prepared in consultation with the OEH;
- (b) be approved by the **Planning Secretary** (Refer to condition D1A for timing); and
- (c) include details of pre-clearing inspections and frog exclusion measures to be undertaken prior to excavation along the Continental Carbon Pipeway Right of Way.

Continental Carbon Pipeline

C43B. Within three months after the removal of the Continental Carbon Pipeline, the Applicant **must** prepare a strategy, in consultation with the OEH, for the active management of the former pipeline route including a program for weed management and removal as outlined in Management and Mitigation Measure K6 in Appendix C of this consent. The Applicant **must** have commenced implementation of this strategy six months after the removal of the Continental Carbon Pipeline.

Cooling Water Outlet Management Plan

C43C. The Applicant **must** prepare and implement a Cooling Water Outlet Management Plan for the demolition works. The plan must:

- (a) be prepared in consultation with Council;
- (b) be approved by the **Planning Secretary** (see condition D1A for timing);
- (c) include details of the timing and excavation program for pipeline removal, demolition methods, details of stockpiling, removal or reuse of excavated materials and the use of imported soils; and
- ~~(d) outline the measures to be taken to minimise potential marine ecology impacts including measures to:~~
 - ~~• minimise sediment plumes particularly during backfilling activities;~~
 - ~~• minimise the potential for hydrocarbon contamination from the pipeline;~~
 - ~~• minimise disturbance and impact on any seagrass communities; and~~
 - ~~• maintain machinery and equipment; and~~
 - ~~• exclude people and animals from the works both landward and seaward;~~
- (e) include details of the odour suppression measures during the pipeline removal works.
- ~~(f) include details of the works on Silver Beach including:~~
 - ~~• measures to minimise impacts to the affected sand dunes on Silver Beach including dune erosion and damage to vegetation; and~~
 - ~~• strategies for stabilising and restoring the affected sand dunes including exclusion measures and revegetation strategies.~~

Protection of Marton Park Wetland

C44. To ensure that the measures implemented to protect Marton Park Wetland from sedimentation, erosion and possible contaminants related to the stormwater drainage upgrade works approved by Sutherland Shire Council (DA 13/0195), are successful, monitoring of Marton Park Wetland must be undertaken after completion of the stormwater upgrade works, until otherwise agreed with Council, to ensure there are no detrimental impacts on the wetland. Caltex is to prepare a monitoring plan and submit it to Council for approval prior to completion of stormwater drainage upgrade works.

VISUAL

Lighting

C45. The Applicant **must** ensure that the lighting associated with the development:

- (a) complies with the latest version of AS 4282(INT) – *Control of Obtrusive Effects of Outdoor Lighting*; and
- (b) is mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.

Signage and Fencing

C46. The Applicant **must** not install any advertising signs on site without the written Consent of the **Planning Secretary**.

SITE SECURITY

Site Security

C47. The Applicant **must** ensure that:

- (a) site fencing and security gates are installed to the satisfaction of the **Planning Secretary**; and
- (b) the security gates on site are locked whenever the site is unattended.

ACS MANAGEMENT WORKS

Site Auditor

C48. Prior to commencement of the ACS management works, the Applicant **must** provide evidence that an EPA accredited Site Auditor has been appointed to review and approve the RAP and long-term environmental management plan (LTEMP) (see Conditions C54 and C55, respectively).

Remedial Action Plan

C49. Prior to commencement of the ACS management works, the Applicant **must** ensure the RAP is reviewed and approved by the Site Auditor. The Site Auditor **must** be satisfied the design and construction methods outlined in the CQAP will achieve a level of containment which meets the remedial objectives described in the RAP.

A copy of the Site Audit Report, Site Audit Statement **must** be provided to the EPA and Planning Secretary, which demonstrates the appropriateness of the RAP.

Note: The Site Auditor should consider the Construction Quality Assurance Procedures in relation to the Environmental Guidelines: Solid Waste Landfills (EPA, 2nd Edition, 2016)

Containment Cell

C50. Prior to commencement of the ACS management works, the Applicant **must** prepare a Containment Cell Management Plan (CCMP) for the ACS management works. The plan **must** be prepared in accordance with Condition D3 and **must**:

- (a) be prepared by a suitably qualified and experienced person(s), in consultation with the EPA;
- (b) be approved by the **Planning Secretary**;
- (c) describe details of the cell construction and filling activities including soil acceptance criteria for the containment cell;
- (d) describe the measures that will be implemented to ensure the control of soil, surface water, groundwater, air quality and noise impacts associated with the ACS management works;
- (e) include a register to detail the type and volume of material excavated and disposed of as part of the ACS management works; and
- (f) include details of dust, asbestos, waste and groundwater monitoring requirements.

C51. The Applicant **must** only place ACS sourced from within the site in the containment cell.

C52. Upon completion of the construction aspects associated with the ACS management works (which includes closure of the containment cell), the Applicant **must** prepare a Containment Cell Final Report. The report **must**:

- (a) be submitted to the EPA;
- (b) confirm the containment cell has been constructed in accordance with the CQAP; and
- (c) include a summary of the waste classification data (including characterisation and tracking) and monitoring data required under Condition C50 (e) and (f).

Long Term Environmental Management Plan

- C53. Prior to the completion of the construction aspects associated with the ACS management works, the Applicant in consultation with the EPA, must prepare a LTEMP for the containment cell, to the satisfaction of the Site Auditor. A copy of the Site Audit Report and Site Audit Statement must be provided to the EPA and Planning Secretary, which demonstrates the appropriateness of the LTEMP.
- C54. Upon completion of the construction aspects associated with the ACS management works (which includes closure of the containment cell) closure of the containment cell, the Applicant must:
- (a) implement the approved LTEMP and manage the containment cell in accordance with the approved LTEMP; and
 - (b) ensure the containment cell is listed on the relevant planning certificate for the land, issued under Section 149(5) of the EP&A Act, for the site.

Pipeway Validation

- C55. Upon completion of the construction aspects associated with the ACS management works, the Applicant must prepare a Validation Report of the pipeways. The report must:
- (a) be submitted to the EPA and the Planning Secretary for review;
 - (b) be prepared in accordance with the RAP and the *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites* (OEH 2011);
 - (c) include details of the following:
 - (i) sampling and analysis plan and sampling methodology; and
 - (ii) results of any validation sampling, compared to relevant guidelines/criteria.

SCHEDULE D

ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

ENVIRONMENTAL MANAGEMENT

Construction Environment Management Plan

D1. The Applicant must prepare and implement a Construction Environmental Management Plan for the Development to the satisfaction of the Planning Secretary. The Plan must:

- (a) be prepared in consultation with Sutherland Shire Council and the EPA;
- (b) be submitted to the Planning Secretary for approval no later than four (4) weeks prior to the commencement of construction, or within such period otherwise agreed by the Planning Secretary;
- (c) identify the statutory Consents that apply to the Development;
- (d) consolidate all relevant management plans and monitoring programs required in the conditions of this Consent;
- (e) outline all environmental management practices and procedures to be followed during construction and demolition works associated with the Development;
- (f) describe all activities to be undertaken on the site during construction of the Development, including a clear indication of construction stages;
- (g) incorporate all relevant management and mitigation measures contained in the EIS and RTS;
- (h) detail how the environmental performance of the construction works will be monitored, and what actions will be taken to address identified adverse environmental impacts. In particular, the following environmental performance issues must be addressed in the Plan:
 - (i) Human Health and Ecological Risk management - which must be mitigated and managed in accordance with Section 6.2 of the *"Human Health and Ecological Qualitative Risk Assessment"* report prepared by URS, dated 28 February 2013 and the relevant Management and Mitigation Measures contained in Appendix C of this consent;
 - (ii) Biodiversity management (See Condition 42);
 - (iii) Pest, Vermin & Noxious Weed management (See Condition C43);
 - (iv) Soils and Erosion management (See Condition C11);
 - (v) Contamination management (See Condition C15);
 - (vi) Noise and Vibration management (See Condition C22);
 - (vii) Air Quality management (See Condition C28);
 - (viii) Stormwater and Wastewater management (See Condition C12);
 - (ix) Traffic management (See Condition C36);
 - (x) Heritage management (Aboriginal and non-Aboriginal) (See Condition 33 & 34);
 - (xi) Waste and Resource management (See Condition C40);
 - (xii) Groundwater management, including measures which are consistent with the relevant Management and Mitigation Measures contained in Appendix C of this consent;;
 - (xiii) Acid Sulfate Soils management – if required (See Condition C14);
 - (xiv) Emergency (including spill) management;
 - (xv) means for assessing (and where identified) for managing interactions and cumulative impacts from the concurrent construction of other development works in the area should these coincide with the Development (e.g. the Caltex Ports and Berthing upgrade, remediation projects);
- (i) describe the roles and responsibilities for all relevant employees involved in construction and demolition works associated with the Development;
- (j) include arrangements for community consultation, including consultation with the NSW Department of Education and local schools at key stages of the development that may affect school operations, to identify issues and mitigate impacts throughout the course of the Development.
- (k) Include a complaints handling procedure during construction and demolition and operation; and,
- (l) include appropriate procedures to allow the regular review of the requirements of each plan to ensure that they are effective and allow for adaptive management to address contingencies that may arise over the life of the development.

The approval of a Construction Environmental Management Plan does not relieve the Applicant of any requirement associated with this development consent. If there is an inconsistency with an approved Construction Environmental Management Plan and the conditions of this development consent, the requirements of this development consent prevail.

Construction of the Development must not commence until written Consent of this plan has been received from the Planning Secretary.

Demolition Environmental Management Plan

D1A. The Applicant **must** prepare and implement a Demolition Environmental Management Plan for the demolition works to the satisfaction of the **Planning Secretary**. This plan must:

- (a) be prepared in consultation with Council, EPA and NSW Health;
- (b) be submitted to the **Planning Secretary** for approval no later than four (4) weeks prior to the commencement of the demolition works, or within such period otherwise agreed by the **Planning Secretary**;
- (c) identify the statutory approvals and consents that apply to the development;
- (d) consolidate all relevant management plans and monitoring programs required in the conditions of this Consent;
- (e) outline all environmental management practices and procedures to be followed during demolition works associated with the development;
- (f) describe all activities to be undertaken on the site during demolition works associated with the development, including a clear indication of demolition stages;
- (g) incorporate all relevant management and mitigation measures contained in the SEE;
- (h) detail how the environmental performance of the demolition works will be monitored, and what actions will be taken to address potentially adverse environmental impacts. In particular, the following environmental performance issues **must** be addressed in the Plan:
 - i. Biodiversity and weed management (See Condition C43A);
 - ii. Soils and water management (See Condition C12A);
 - iii. Contamination management (See Condition C15A);
 - iv. Noise and vibration management (See Condition C22A);
 - v. Air quality management (See Condition C28A);
 - vi. Stormwater and wastewater management (See Condition C12A);
 - vii. Traffic management (See Condition C36A);
 - viii. Demolition waste and resource management (See Condition C40A);
 - ix. Groundwater management, including measures which are consistent with the relevant Management and Mitigation Measures contained in Appendix C of this consent;
 - x. Acid sulfate soils management (See Condition C14);
 - xi. Heritage management strategy (See Condition C31);
 - xii. Cooling water outlet management (see Condition C42B);
 - xiii. pipeline removal works on Kurnell Wharf, including details of the timing and program of works, demolition and removal techniques, and the measures to manage traffic and access to the wharf.
 - xiv. means for assessing (and where identified) for managing interactions and cumulative impacts from the concurrent construction of other development works within the site should these coincide with the Development (e.g. the Caltex Ports and Berthing upgrade, remediation projects);
 - xv. describe the roles and responsibilities for all relevant employees involved in the demolition works associated with the Development;
- (i) include details of a community notification protocol to notify potentially affected persons (including the local community and surrounding industries) of works which are likely to cause significant adverse impacts to the environment;
- (j) include a complaints handling procedure; and
- (k) include appropriate procedures to allow the regular review of the requirements of each plan to ensure that they are effective and allow for adaptive management to address issues that may arise over the life of the development.

The approval of a Demolition Environmental Management Plan does not relieve the Applicant of any requirement associated with this development consent. If there is an inconsistency with an approved Demolition Environmental Management Plan and the conditions of this development consent, the requirements of this development consent prevail.

Demolition works **must** not commence until written approval of this plan has been received from the **Planning Secretary**.

Operational Environmental Management Plan

- D2. The Applicant **must** prepare and implement an Operational Environmental Management Plan for the project to the satisfaction of the **Planning Secretary**. This Plan must:
- (a) be approved by the **Planning Secretary** prior to the commencement of operations;
 - (b) provide the strategic framework for environmental management of the Development;
 - (c) identify the statutory approvals that apply to the Development;
 - (d) include a copy of all relevant management plans and monitoring programs relevant under this consent, including:
 - (i) Water Management Plan (See Condition C12);
 - (ii) Noise Management Plan (See Condition C22);
 - (iii) Traffic Management Plan (See Condition C36);
 - (iv) Waste Management Plan (See Condition C40);
 - (v) Biodiversity Management Plan (See Condition 42); and,
 - (vi) Pest, Vermin & Noxious Weed Management (See Condition C43).
 - (e) outline all environmental management practices and procedures to be followed during operation;
 - (f) describe all activities to be undertaken on the site during operation;
 - (g) detail how the environmental performance of the operation of the project will be monitored, and what actions will be taken to address identified adverse environmental impacts;
 - (h) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project;
 - (i) describe the procedures that will be implemented to:
 - keep the local community and relevant agencies informed about the operation and environmental performance of the project;
 - receive, handle, respond to, and record complaints;
 - resolve any disputes that may arise during the course of the project;
 - respond to any non-compliance; and
 - respond to emergencies; and
 - (j) include:
 - copies of any strategies, plans and programs approved under the conditions of this consent; and
 - a clear plan depicting all the monitoring required to be carried out under the conditions of this consent.
 - (k) a copy of the Long Term Environmental Management Plan (see Condition 53) for the ACS management works.

Management Plan Requirements

- D3. The Applicant **must** ensure that the Management Plans required under this consent are prepared in accordance with any relevant guidelines, and include:
- (a) detailed baseline data;
 - (b) a description of:
 - the relevant statutory requirements (including any relevant approval, licence or lease conditions);
 - any relevant limits or performance measures/criteria; and
 - the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;
 - (c) a description of the measures that will be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;
 - (d) a program to monitor and report on the:
 - impacts and environmental performance of the development; and
 - effectiveness of any management measures (see (c) above);
 - (e) a contingency plan to manage any unpredicted impacts and their consequences;
 - (f) a program to investigate and implement ways to improve the environmental performance of the development over time;
 - (g) a protocol for managing and reporting any:
 - incidents;
 - complaints;
 - non-compliances with statutory requirements; and
 - exceedances of the impact assessment criteria and/or performance criteria; and
 - (h) a protocol for periodic review of the plan.

*Note: The **Planning Secretary** may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*

Annual Review

- D4. By 31 December 2014 and annually thereafter, or as otherwise agreed in writing by the **Planning Secretary**, the Applicant **must** review the environmental performance of the Development to the satisfaction of the **Planning Secretary**. This review must:
- (a) describe the development that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year;
 - (b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against:
 - the relevant statutory requirements, limits or performance measures/criteria;
 - the monitoring results of previous years; and
 - the relevant predictions in the EIS;
 - (c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
 - (d) identify any trends in the monitoring data over the life of the Development;
 - (e) identify any discrepancies between the predicted and actual impacts of the Development, and analyse the potential cause of any significant discrepancies; and
 - (f) describe what measures will be implemented over the current calendar year to improve the environmental performance of the Development.

Revision of Strategies, Plans & Programs

- D5. Within three months of:

- (a) an approval of a modification;
- (b) a submission of an incident report under Condition D6;
- (c) an approval of an Annual Review under Condition D4; or
- (d) a completion of an audit under Condition D7.

the Applicant must review, and if necessary revise, the strategies, plans, and programs required under this consent to the satisfaction of the **Planning Secretary**.

Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the development.

REPORTING

Incident Reporting

- D6. The Applicant **must** notify the **Planning Secretary** and any other relevant agencies of any incident or potential incident with actual or potential significant off-site impacts on people or the biophysical environment associated with the development as soon as practicable after the Applicant becomes aware of the incident. Within 7 days of the date of this incident, the Applicant **must** provide the **Planning Secretary** and any relevant agencies with a detailed report on the incident.

INDEPENDENT ENVIRONMENTAL AUDIT

- D7. Within a year of the date of this consent, and every 3 years thereafter, unless the **Planning Secretary** directs otherwise, the Applicant **must** commission and pay the full cost of an Independent Environmental Audit of the development. This audit must:
- (a) be conducted by suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the **Planning Secretary**;
 - (b) include consultation with the relevant agencies;
 - (c) assess the environmental performance of the development and whether it is complying with the relevant requirements in this consent and any relevant EPL and/or Water License (including any assessment, plan or program required under these approvals);
 - (d) review the adequacy of any approved strategy, plan or program required under these approvals; and

- (e) recommend measures or actions to improve the environmental performance of the development, and/or any assessment, plan or program required under these approvals.

Note: This audit team must be led by a suitably qualified auditor and include experts in any fields specified by the Planning Secretary.

- D8. Within 3 months of commissioning this audit, or as otherwise agreed by the Planning Secretary, the Applicant **must** submit a copy of the audit report to the Planning Secretary, together with its response to any recommendations contained in the audit report.

ACCESS TO INFORMATION

- D9. The Applicant **must**, to the satisfaction of the Planning Secretary:

- (a) make the following information publicly available on its website:
- the EIS;
 - MOD 1 and its accompanying documents;
 - MOD 2 and its accompanying documents;
 - MOD 3 and its accompanying documents;
 - MOD 4 and its accompanying documents;
 - MOD 5 and its accompanying documents;
 - MOD 6 and its accompanying documents;
 - current statutory approvals for the Development;
 - approved strategies, plans or programs;
 - a summary of the monitoring results of the Development, which have been reported in accordance with the various plans and programs approved under the conditions of this consent;
 - a complaints register, updated on a quarterly basis;
 - copies of any annual reviews (over the last 5 years);
 - any independent environmental audit, and the Applicant's response to the recommendations in any audit; and
 - any other matter required by the Planning Secretary; and
- (b) keep this information up-to-date,

Note: This requirement does not require any confidential information to be made available to the public.

APPENDIX A - PLANS



Figure 1: The Site and Development Area.

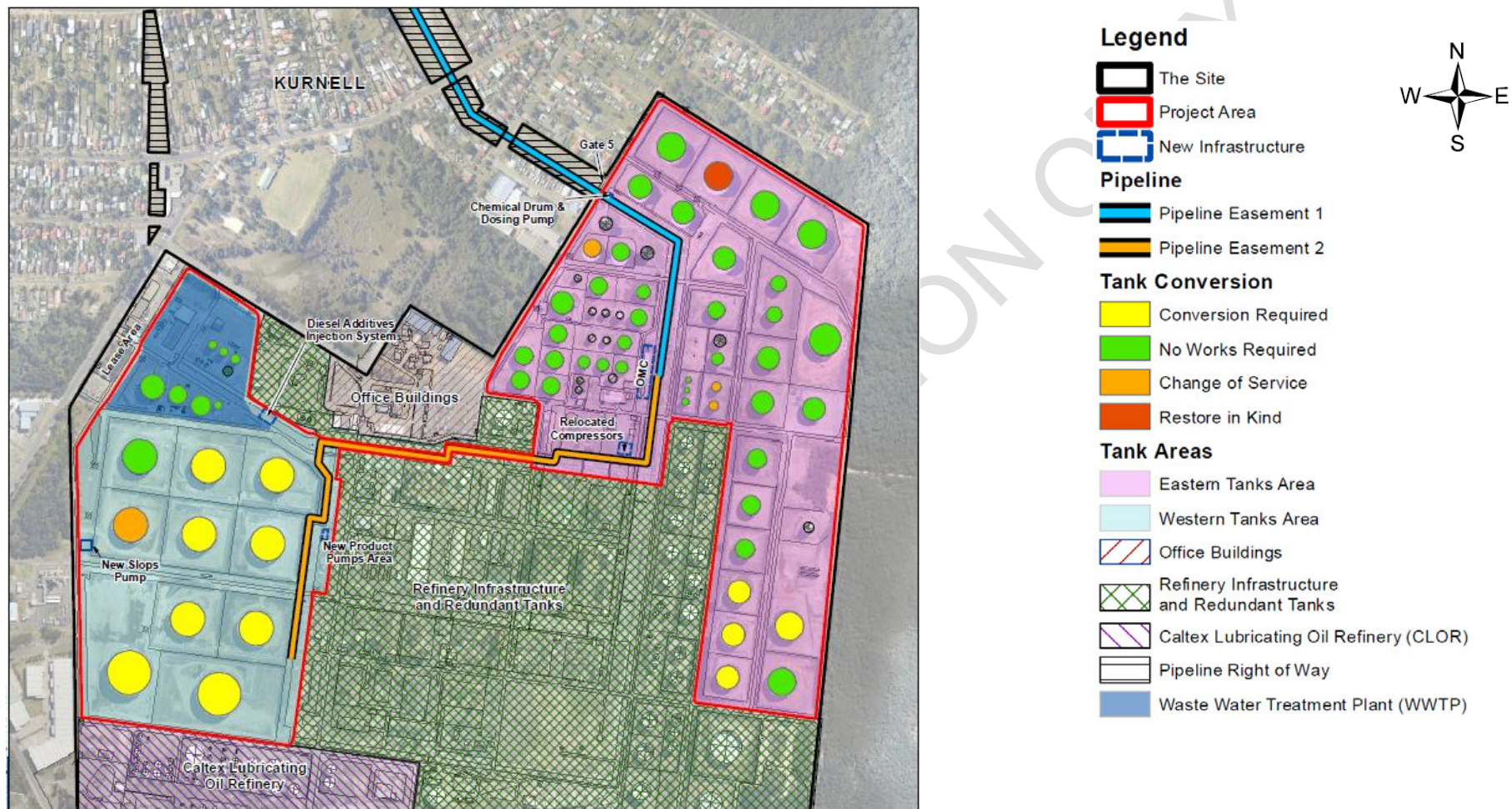


Figure 2 – Proposed Development

Proposed Demolition Works



Figure 3: Proposed demolition works

MOD 6 2020 – Extension of ACS Management Works Period

**APPENDIX B-
CONSENTS TO BE SURRENDERED**

DA #	Description
DA13/0727	Demolition of Transfer Pump House
DA12/0111	Demolition of CLOR Satellite Control Building
DA12/0635	Construction of Boundary Fence
DA12/0880	Replacement of an existing Motor Control Centre
DA11/1135	Remediation of Service Station
DA10/0999	Modification to existing Jet Fuel Facilities
DA10/0690	Demolition of existing structures and construction of new temporary contractor facilities
DA10/0272	New Substation Building
DA09/0835	Erection of two (2) new two (2) storey buildings and one (1) single storey building and relocation of an existing building to be used for office and amenities.
MA10/0171	Modification to approved consent
MA10/0007	Modification to DA09/0840
DA09/0480	Extend operating hours of existing lab
MA 07/0310	Amendment to Development consent
P3A 06/0160	Crude Storage Tank
MA 06/0429	Amendment to DA06/0873
DA06/0873	Diesel Storage Tank
DA06/0917	Construction of an LPG Odorant Hut
DA06/1490	Electricity Substation
DA05/0241	Bitumen Storage Tank
DA05/1443	Ancillary Development to Carbon Black Plant
DA04/0554	Decommissioning and Dismantling of the Stand-by Flare
DA30_2_2004	Clean Fuels Project
MOD-120-8-2005-i	Clean Fuels MOD 1
MOD-112-9-2006-i	Clean Fuels MOD 2
MOD 30-2-2004-i	Clean Fuels MOD 3
MOD 30-2-2004-i	Clean Fuels MOD 4
DA02/2151	Furnace Replacement
DA01/2696	Replacement Electrical Substation
DA01/2482	Demolition of Redundant Plant
DA01/2019	Stormwater Pipeline
DA 99/1816	Storage Tanks — Ampol
DA 99/0452	Extensions to existing switch room
DA 99/0266	Advertising
DA 98/0053	Secondary water treatment facilities
DA 94/1497	Provision of a new fire water system
DA 93/849	Installation of facilities for the production, storage and tanker loading of propylene rich Liquid Petroleum Gas (LPG) material
DA 91/0088	Addition to shop
DA 139/79	Construction of two storage tanks

**APPENDIX C -
Consolidated Management and Mitigation Measures**

FOR INFORMATION ONLY

MOD 6 2020 – Extension of ACS Management Works Period