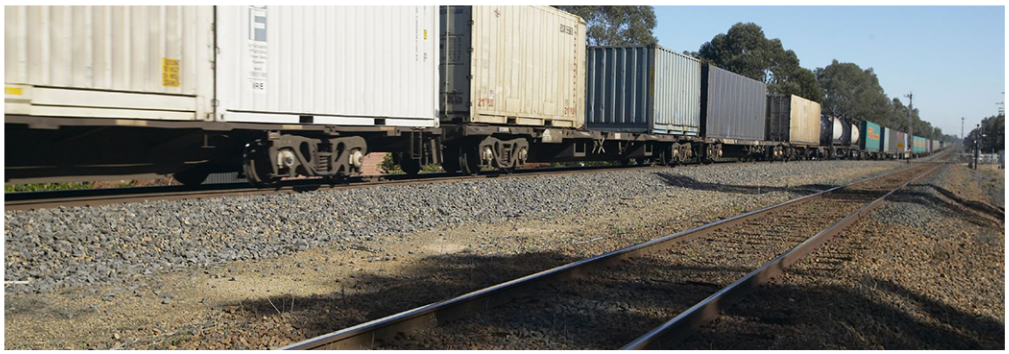

BANKSMEADOW WASTE TRANSFER TERMINAL

Preliminary Hazards and Risk Assessment

February 2014

Prepared for **Veolia Environmental Services Pty Ltd**

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BANKSMEADOW TRANSFER TERMINAL

Environmental Impact Statement

Preliminary Hazards and Risk Assessment

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Report No AA005924-HR-FINAL

Date 6 February 2014

REVISIONS

Revision	Date	Description	Prepared By	Approved By
A	16.08.13	Internal Hyder review	DD	SB
1	19.08.13	Draft Submitted for client review	DD	SB
2	28.11.13	Final Issue	DD	SB
3	06.02.14	Revision to final issue	SB	SB

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Executive Summary

Veolia Environmental Services (Australia) Pty Ltd is proposing to develop a waste transfer terminal and associated rail infrastructure at an existing industrial site in Banksmeadow, within the Local Government Areas (LGA) of Botany Bay and Randwick. The Banksmeadow Transfer Terminal (TT) (the Proposal) would involve the construction of a transfer terminal that would containerise putrescible waste for rail haulage to the Woodlawn Eco-Project site for treatment, recycling and energy recovery. The terminal would also house an area where non-putrescible waste would be consolidated into semi-trailers for transfer to resource recovery facilities for further recovery of recyclable material. The Proposal would be capable of processing up to 400,000 tonnes (t) of putrescible waste and 100,000 t of non-putrescible waste per annum.

This report has been prepared to assess the potential hazards and risks, to support the environmental assessment for State Significant Development under Part 4, Division 4.1 of the *Environmental Planning and Assessment Act 1979* for the development of the Proposal.

Key potential hazards and risks identified in the report are:

- Presence of asbestos in existing structures.
- Fire.

The following recommendations are made to address these potential risks and hazards:

An asbestos management plan will be developed for the proposal containing a risk assessment undertaken in accordance with *Model Code of Practice - How to Manage and Control Asbestos in the Workplace* (Safe Work Australia, 2011).

Where the management plan recommends the removal of asbestos from Site all works would be undertaken in accordance with the *Model Code of Practice – How to Safely Remove Asbestos* (Safe Work Australia, 2011), including the development of an asbestos removal control plan and an emergency plan.

Hazards and risks associated with construction and operation of the proposal would be managed through the implementation of management standards and/or procedures, as identified in this report.

A screening test was undertaken in accordance with *Applying SEPP 33* (DPI, 2011) to determine whether a preliminary hazard analysis (PHA) is required. The screening test concluded that the storage of diesel fuel (class C1) on-site would not trigger the need for a PHA as the fuel would be stored on the Site in a separate bunded storage area with no other flammable liquids stored in the vicinity.

A number of measures are recommended to address fire risks on the Site including:

- Preparation and implementation of an Incident Response Plan detailing the emergency response to be implemented in the event that there is a fire or explosion in the transport of the waste to the terminal, or at the terminal.
- Ensuring safe operational access and egress for emergency service personnel and workers.
- Appropriate fire alarms and fire fighting equipment to be provided on-site for an initial emergency response and would include a deluge system, fire extinguishers, hoses and reels.
- Ensuring that utility services are adequate to meet the needs of fire fighters.
- A fire hydrant system and/or foam from portable units, as well as a manually operated fire deluge system, for fires on the tipping floor.
- A designated area within the terminal building for the management of ‘hot loads’ and fire contained through a combination of dousing with fire hoses and extinguishing the fire using on-site fire hose reels. The fire water will be captured within the building bunding and leachate tank

1 INTRODUCTION

Hyder Consulting Pty Ltd has been engaged by Veolia Environmental Services (Australia) Pty Ltd (Veolia) to undertake a hazard and risk assessment of the proposed Banksmeadow Transfer Terminal, Beauchamp Road, Banksmeadow (the Proposal).

This report has been prepared to assess the potential hazards and risks to support the environmental assessment for development of the Proposal as a State Significant Development (SSD) under Part 4, Division 4.1 of the *Environmental Planning and Assessment Act 1979*.

This hazard and risk assessment is to be read in conjunction with then EIS.

1.1 SCOPE OF THIS REPORT

The scope of this report is as follows:

- Review of Site suitability for the Banksmeadow Transfer Terminal proposal.
- Identification of key legislative requirements associated with management and mitigation of potential hazards and risks.
- Identification of key potential hazards and risks associated with construction and operation of the Proposal.
- Review of key construction risks and mitigation measures to reduce risks in light of legislative requirements.
- Review of key operation hazards and risks and recommended management strategies and mitigation measures to reduce these risks in light of legislative requirements.

This report also considers key hazards and risks associated with construction of the Proposal.

2 ASSESSMENT METHODOLOGY

To determine if the Proposal is a potentially hazardous and/or offensive industry under the State Environmental Planning Policy No. 33 (SEPP 33) the application guideline *Applying SEPP 33* was applied. This required:

- The identification of dangerous goods involved in the Proposal, the quantities of these goods and the distance of the storage location relative to the Site boundary
- Determining if the Proposal will emit a polluting discharge which would cause a significant level of offence, and hence require a licence.

The method applied for this hazard and risk assessment included:

- The identification of existing hazards associated with the Site that may present a hazards during the construction phase.
- The identification of the operational activities and processes to be undertaken at the Banksmeadow TT site.
- An assessment of the possible hazards and risks associated with the activities and processes.
- Identification of the mitigation measures and management controls to manage and mitigate possible risks.

The assessment was supported by a review of similar existing Veolia facilities (Clyde Transfer Terminal and the Port Botany Resource Recovery Centre) to identify hazards, risks and mitigation measures, and the effectiveness of these in an operational context.

3 BACKGROUND

Veolia is proposing to develop the Banksmeadow Transfer Terminal (TT) and associated rail infrastructure at an existing industrial site in Banksmeadow, within the Local Government Areas (LGA) of Botany Bay and Randwick (**the Proposal**).

The Proposal involves the construction of a transfer terminal that would containerise putrescible waste for rail haulage to the Woodlawn Eco-Project site, near Goulburn, NSW, for treatment, recycling and energy recovery. The terminal would also house an area where loads of non-putrescible waste would be consolidated into semi-trailers for transfer to resource recovery facilities, such as the proposed Camellia Recycling Centre, for further recovery of recyclable material.

The Proposal would, over time, be capable of processing up to 400,000 tonnes (t) of putrescible waste and 100,000 t of non-putrescible waste per annum for transfer to various resource recovery facilities.

The Banksmeadow TT would involve the development of a new waste transfer building, as well as associated road and rail infrastructure, including:

- An access road for putrescible and non-putrescible waste trucks entering and exiting the facility from Beauchamp Road
- Incoming and outgoing weighbridges to check the waste type and weight of the waste being delivered to the facility
- An enclosed building for the unloading and handling of waste, with environmental controls such as dust suppression and odour control systems
- A hardstand area for temporary storage and manoeuvring of full and empty sealed shipping containers prior to loading on to trains
- Rail sidings for the loading of containers onto trains for rail transport to the Woodlawn Eco-Project site.

3.1 SCOPE OF THE PROPOSAL

Municipal, commercial and industrial customers from within the Sydney region would transport waste to the Banksmeadow TT, enter the facility via the Beauchamp Road Access road, and unload the waste into designated areas on the floor of the terminal building. Consolidated non-putrescible waste would be transported from the Banksmeadow TT site by trucks that would enter the Site via the McPherson Street access. Containerised putrescible waste would be transported via rail to the Crisps Creek Intermodal Facility near the Woodlawn Eco-Project site.

Putrescible waste (including mixed household waste) and non-putrescible waste. would be processed in a separate section of the terminal building. The terminal building would be enclosed, with the exception of vehicle access openings and an air extraction system that would have a single point of exhaust which would service the putrescible waste area in the northern end of the building.

3.1.1 PUTRESCIBLE WASTE

The Banksmeadow TT would be designed to receive and containerise up to 400,000 t per annum of putrescible waste for transfer via rail to the Woodlawn Eco-Project site.

Once the waste has been deposited on the floor of the enclosed building, it would be pushed by a front end loader to one of two chutes that feed the waste compactors. A scale with an electric

display would inform the front end loader operator when the compactor is approaching the maximum capacity of 31.5 t, which is constrained by road transport requirements between the Crisps Creek Intermodal Facility and the Woodlawn Eco-Project site.

Once the correct weight is loaded, the compactor would compress the waste into a consolidated bale that is inserted into specially designed shipping containers, which have seals to prevent the release of any leachate and carbon filters to prevent the release of odour from the waste during transport. Once the waste has been inserted into the container, any residual waste is removed from around the container door, and the container is sealed.

The container would then be moved outside the terminal building where a container handler would lift it and transport it either directly to a waiting train, or to a container storage area, ready for transport on the next available train. The compacting and filling process would take approximately 20 minutes per container. It is proposed that two compactors would operate at the Banksmeadow TT, allowing for regular maintenance of the compactors as part of the continued operation of the facility.

The specially constructed shipping containers would be railed, using Asciano's rail siding, and ARTC's and John Holland's rail network, to the Crisps Creek Intermodal Facility near the Woodlawn Eco-Project site. From there the waste would be trucked approximately 8 km to the Woodlawn Eco-Project site. When the train returns to Sydney with the empty containers ready for re-loading, any surplus empty waste containers would be stored at the Banksmeadow TT site in the container storage area.

The Proposal would have the capacity to containerise approximately189 t of putrescible waste per hour and would be open to receive waste 24 hours a day, seven days a week. The timing of the train operations will be dependent on availability of train pathways on the main railway line.

3.1.2 NON-PUTRESCIBLE WASTE

The Banksmeadow TT would be designed to receive up to 100,000 t of non-putrescible waste, which will be consolidated into semi-trailers within the transfer building for transfer to resource recovery facilities, such as the proposed Camellia Recycling Centre, for recovery of recyclables prior to re-processing.

Segregated loads of green waste, timber, concrete and scrap metal would be directed to specific storage bays. Mixed non-putrescible waste would be deposited on the floor of the terminal building. A front end loader will push mixed non-putrescible material to the edge of tipping floor, where an excavator with a grapple arm will be used to load material into an open-top walking floor trailer.

Up to 16 laden semi-trailers per day will exit the Banksmeadow TT via McPherson Street or Beauchamp Road, and transfer material to the appropriate recycling or reprocessing facility, depending on material type.

3.2 SITE DESCRIPTION & LOCAL ENVIRONMENT

The Site is located largely within the City of Botany Bay LGA, however the proposed entry at the intersection between Beauchamp Road and Perry Street is located in the Randwick LGA.

The Proposal site is situated in the suburb of Banksmeadow, on the western side of Beauchamp Road, and the northern side of McPherson Street. It includes part of the land owned by Asciano at 14 Beauchamp Road, as well as land owned by Keith Engineering at 34-36 McPherson Street.

The Site is Zoned IN1 – General Industrial under the State Environmental Planning Policy (Port Botany and Port Kembla) 2013 (SEPP (Port Botany).

3.2.1 FORMER DEVELOPMENT CONTROL PLAN NO.30

The Site was located within the Botany/ Randwick Industrial Area and was subject to the Botany Bay Development Control Plan (DCP) No. 30 (February 2003), which has been superseded by the Botany Bay Development Control Plan 2013. The Proposal site is no longer identified as within the Botany/Randwick Industrial Area under the DCP 2013, as it is subject to the SEPP (Port Botany).

The purpose of the DCP No. 30 was to ensure that hazard risks identified within the Botany/ Randwick Industrial Area Land Use Safety Study are addressed within the development assessment process. The DCP No. 30 required special assessment of development in defined as ‘No Residential Intensification’, ‘Consultation Region’ or land adjacent to/ or within the vicinity of ‘Dangerous Goods Routes’ within the Botany/ Randwick Industrial Area Land Use Safety Study.

Figure 3-1 shows the ‘Consultation Region’ and dangerous good routes identified in the Land Use Safety Study. Vehicles accessing the Site would predominantly access the Site from Beauchamp Road and McPherson Street approaching the site from the south, along Foreshore Drive. It has been estimated that approximately 20% of trucks accessing the Site would use the ‘dangerous goods route’ of Denison Street (Hyder, 2013). However, as the Proposal is not defined as ‘residential intensification’ or ‘sensitive use intensification’ assessment under the former DCP No. 30 would not have been triggered. The Land Use Safety Study is discussed below.

A Traffic and Transport Impact Assessment (Hyder, 2013) has been prepared for the Proposal that describes the traffic implications of the Proposal.

Figure 3-1 DCP 30 Dangerous Goods Routes

3.2.1.1 Botany/ Randwick Industrial Area Land Use Safety Study

The location of the Botany/ Randwick industrial area, and in particular the Orica mercury cell chlorine plant and chlorine liquefaction facilities, within the vicinity of residential areas, has required that safety studies into the accumulative risk of industrial activity be undertaken to quantify and measure hazard risk associated with industrial activities within the LGA.

The latest study – Botany/ Randwick Industrial Area Land Use Safety Study (2001) – found a significant improvement in the cumulative risk areas that result from the industrial operations located within the Botany/ Randwick industrial area. The recommendations arising from the study were:

a Future developments in the Botany/ Randwick industrial area should be subject to early risk assessment and comprehensive environmental impact processes to conclusively demonstrate they will not contribute to risk impacts outside the industrial area that are inappropriate for surrounding land uses.

b Effective land use safety planning should be implemented to allow future developments in the area, and to reconcile any potential land use planning conflicts.

c A process of regular reviews and updates for Site safety management systems should be undertaken.

d Emergency plans and procedures, and fire prevention and protection systems should be kept up-to-date.

e Industrial facilities should adopt community right-to-know principles to ensure the community is adequately informed about activities, associated risks and safety management measures adopted within the Botany/ Randwick industrial area.

This study addresses the first of these recommendations.

One of the key issues evident from the study was the variation in the scope and quality of safety management systems in the Botany/ Randwick industrial area, in particular incident/ near miss reporting and follow-up and emergency planning within and between sites.

3.2.2 PROXIMITY TO SENSITIVE RECEPTORS

The nearest residential area is located approximately 250 m from the Site boundary along Beauchamp Road. Additionally, three industrially zoned properties located on Perry Street, potentially being used for residential purposes have been identified (Nos 20, 22 and 24 Perry Street). These are located approximately 120-150m east-south-east from the main site entrance. The Matraville residential area is also located near the Proposal site, approximately 350 m from the site boundary).
Other sensitive receptors in the adjacent community include:

- Matraville Public School (880 m NE)
- St Angnes' School (930 m E)
- Matraville Soldiers Settlement Public School (1.1 km E)
- Banksmeadow Public School (1.2 km NW)
- Eastgardens Shopping Centre (1.3 km N)
- Marist College Pagewood (1.5 km NE).

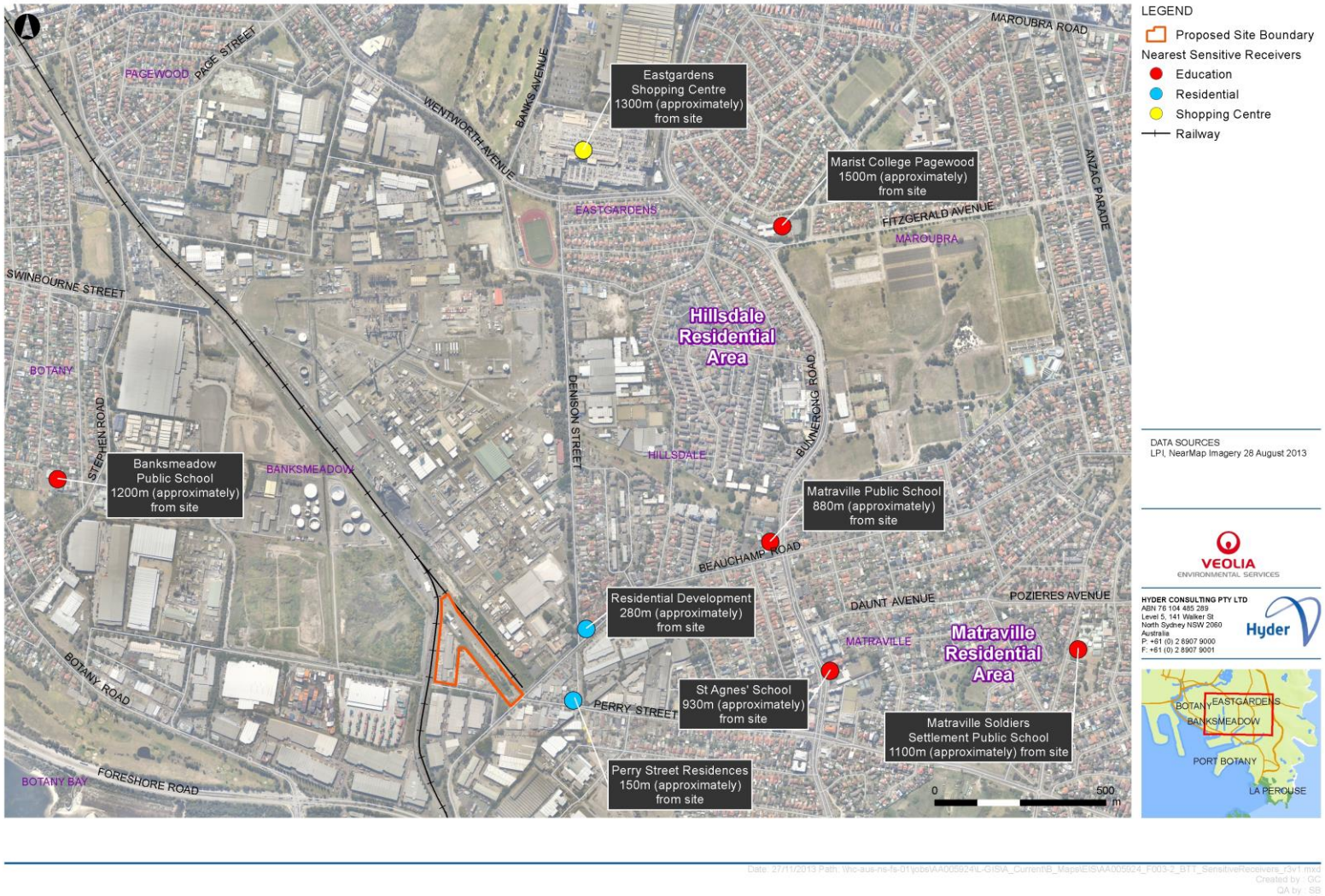

Figure 3-2 Nearest sensitive receptors to Banksmeadow TT

3.2.3 WIND FREQUENCY DATA

Wind frequency data was collated from the Bureau of Meteorology (BOM). The nearest wind station to the Proposal site is located at Sydney Airport, approximately 4.5 km west of the Site.

Observations were taken from 1939 to 2010 at 9 am and 3 pm. Records indicate that the wind at 9 am was predominately from the north west with average wind speeds of 14.2 km per hour. Any emissions from the Proposal site would be directed towards Port Botany during the morning period. At 3 pm winds are predominately from the south or north east, with average wind speeds of 21.6 km per hour. During the afternoon / evening emissions from the Site would be directed towards the Botany Industrial Park or the Discovery Business Park and Botany Golf Corse. Emissions from the Proposal site are generally directed away from the residential areas of Botany Bay and Randwick LGAs.

Figure 3-3 shows the wind rose for Sydney airport, developed from observations between 1939 to 2004.

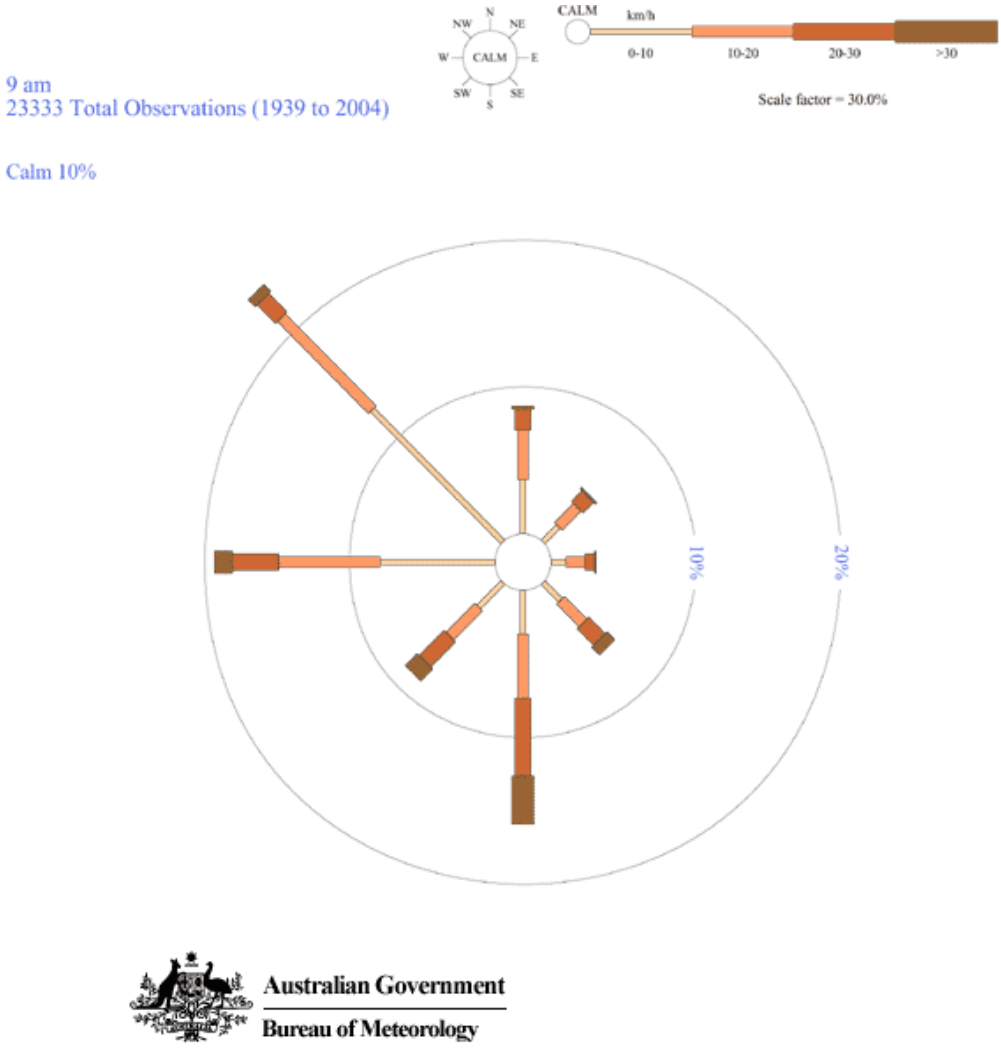

Figure 3-3 Wind speed and direction rose, Sydney Airport (BOM, 2013)

4 LEGISLATIVE TRIGGERS AND REQUIREMENTS

Risks to health and safety during construction and operation of the Proposal comprise the following:

- The presence of asbestos on the Banksmeadow TT site.
- The potential for the transport to, and storage of, hazardous materials to the Banksmeadow TT site.
- Fire risk.

The following sections summarise the regulatory requirements that must be considered when addressing these risks.

4.1 WORK HEALTH AND SAFETY ACT 2011

The *Work Health and Safety Act 2011* (WHS Act) aims to protect the health, safety and welfare of people at work. The Act sets out general requirements for health, safety and welfare, which must be met at all places of work in New South Wales. The objectives of the WHS Act are to provide a balanced and nationally consistent framework to secure the health and safety of workers and workplaces by:

- Protecting workers and other persons against harm to their health, safety and welfare through the elimination or minimisation of risks arising from work or from specified types of substances or plant.
- Providing for fair and effective workplace representation, consultation, co-operation and issue resolution in relation to work health and safety.
- Encouraging unions and employer organisations to take a constructive role in promoting improvements in work health and safety practices, and assisting persons conducting businesses or undertakings and workers to achieve a healthier and safer working environment.
- Promoting the provision of advice, information, education and training in relation to work health and safety.
- Securing compliance with the WHS Act through effective and appropriate compliance and enforcement measures.
- Ensuring appropriate scrutiny and review of actions taken by persons exercising powers and performing functions under the WHS Act.
- Providing a framework for continuous improvement and progressively higher standards of work health and safety.
- Maintaining and strengthening the national harmonisation of laws relating to work health and safety and to facilitate a consistent national approach to work health and safety in this jurisdiction.

The WHS Act allows for the formulation of industry codes of practice to provide practical guidance to employers and others who have duties under the act. While these codes are not legally binding, failure to show compliance with the code in the event of injury at a workplace may count against an employer during prosecution. All works for the Proposal must be undertaken in accordance with the WHS Act.

4.1.1 WHS REGULATION 2011

The Work Health and Safety (WHS) Regulations 2011 was made under the *Work Health and Safety (WHS) Act 2011* and commenced on January 2012. The WHS Regulations provide further clarification on the obligations for managing health and safety within the workplace. Key elements of the regulation are outlined below.

- **Chapter 2 – representation and participation:** provides additional details on the representation and participation arrangements under parts 5 and 7 of the WHS Act, including the establishment of workgroups, election and training entitlements of health and safety representatives, and matters relating to entry permit holders.
- **Chapter 3 – General risk and workplace management**: has generic risk management provisions including hazard identification and risk control measures. This approach to risk management is intended to focus on allowing the duty holder to identify the risk and if the risk cannot be eliminated, go straight to controls, where the control measures are well known or obvious. Risks must be managed, so far as reasonably practicable in accordance with the risk management hierarchy (elimination, substitution, isolation, administrative controls and personal protective equipment) or the measures prescribed under Chapter 4 of the WHS Regulations.
- **Chapter 4 – Hazardous work**: contains specific requirements for the elimination or control of risks arising from several different hazards:
    - Noise.
    - Hazardous manual tasks.
    - Confined spaces.
    - Falls.
    - High risk work.
    - Demolition work.
    - Electrical work.
    - Diving work.
- **Chapter 5 – Plant and structures**: sets out duties in relation to the design, manufacture, import, supply, management or control, and installation or commissioning, of plant and structures. The WHS Regulations also prescribe specific control measures for powered mobile plant, tractors, industrial lift trucks, registered mobile and tower cranes and lifts.
- **Chapter 6 – Construction work**: sets out the definitions of 'construction work' and 'high risk construction work' and requires a principal contractor be nominated for large construction projects, such as the Proposal. There is a requirement for the principal contractor to prepare a Work Health and Safety Management Plan for the coordination of health and safety activities at the Site. High risk construction work includes:
    - Work where there is a risk of a fall from two metres.
    - All demolition work.
    - Work that involves, or is likely to involve, the disturbance of asbestos.
- **Chapter 7 – Hazardous chemicals**: includes provisions for hazardous chemicals including lead and dangerous goods. Key areas covered in Chapter 7 include:
    - Determining whether a substance is hazardous.

- The preparation of Material Safety Data Sheets (MSDS).
- The provision of information through labelling.
- The provision of health surveillance for employees exposed to hazardous materials.
- The keeping of certain records.

- **Chapter 8 – Asbestos:** contains provisions relating to asbestos. This chapter includes requirements for the control of exposure to asbestos as well as requirements for persons who have management or control of a workplace to manage asbestos. This duty includes requirements relating to the identification of asbestos, recording the location of asbestos in a register, and planning for the management of asbestos.

  This chapter also includes provisions for the licensing of asbestos removalists and asbestos assessors. Asbestos assessors will typically be occupational hygienists and only asbestos assessors will be able to conduct air monitoring and issue clearance certificates where friable asbestos is being removed.

4.2 CODE OF PRACTICE FOR THE STORAGE AND HANDLING OF DANGEROUS GOODS (2005)

The WorkCover Authority of NSW *Code of Practice for the Storage and Handling of Dangerous Goods (DG Code Of Practice) 2005* provides practical guidance to occupiers of premises on the safe storing and handling of dangerous goods, so that all persons (including members of the public) are not exposed to risks to their health and safety arising from dangerous goods at the occupier's premises.

The code of practice applies to workplaces regardless of quantities stored, handled or used, however, the code provides for a risk-based approach and not all chapters must be adhered to if not applicable. The code of practice comprises the following chapters:

- **Chapter 2:** focuses on implementing safety by planning and applying risk management principles to the use of dangerous goods, including the storage and handling of containers.
- **Chapter 3:** focuses on the identification of dangerous goods and obtaining and providing information on those goods through a material safety data sheet (MSDS).
- **Chapter 4:** establishes the requirements for workplaces where small amounts of dangerous goods are stored and handled.
- **Chapter 5:** is applicable only to retail outlets, including sales of consumer packages and situations where customers provide a container for refilling.
- **Chapter 6:** is applicable to premises where the dangerous goods stored or handled are above the "placard quantities" shown in Appendix 2 of this code of practice.
- **Chapter 7:** is applicable to premises where the dangerous goods stored or handled are above the "placard quantities" shown in Appendix 2 of this code of practice. In general, the code notes that risks are proportional to the overall quantity of dangerous goods stored or handled.
- **Chapter 8:** establishes the protocol for determining control measures and applying the hierarchy of control (i.e. elimination, substitution, isolation, engineering controls, administrative controls and personal protective equipment).
- **Chapter 9:** provides general examples of risks and typical controls, which may or may not be applicable for the dangerous goods handled or stored at a particular premises.

The applicability of the controls should be determined through the risk assessment undertaken in Chapter 7.

- **Chapter 10:** provides controls for specific types of dangerous goods including, aerosols, gas cylinders and flammable liquids.
- **Chapter 11:** provides for controls during transfer, including transfer within a premises.
- **Chapter 12:** provides for the establishment of “fire protection system” includes fire detection, fire suppression and fire fighting equipment, which may be fixed or portable.
- **Chapter 13:** is applicable to transit and temporary storage of dangerous goods in quantities above the placard quantities of Appendix 2.
- **Chapter 14:** provides for the preparation of an emergency plan to minimise the effects of any incident or serious incident that may occur and involve the dangerous goods.
- **Chapter 15:** sets out the requirements for placarding and signage as required by clauses 174ZJ to 174ZM of the OH&S Regulation.
- **Chapter 16:** describes additional requirements for premises where dangerous goods are stored and handled in relatively large quantities, above the “Manifest quantities” in Appendix 2 and notification of premises to WorkCover.
- **Chapter 17:** sets out training requirements, which should be identified in the risk assessment stage and developed in consultation with employees.

Volumes of goods that are classified under the DG Code of Practice that would be stored on the Banksmeadow TT site are set out in Section 6.

4.3 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) is the principle legislation guiding planning decisions in New South Wales. Part 3 of the EP&A Act allows for the formulation of State Environmental Planning Policies (SEPPs) in order to provide protection to the environment or community or control development. Two SEPPs are relevant to the hazards and risks discussed in this report and are expanded on below.

4.4 STATE PLANNING POLICY 33 - HAZARDOUS AND OFFENSIVE DEVELOPMENT (SEPP 33)

The aim of SEPP 33 is to allow for the assessment of the environmental and safety performance of hazardous and offensive or potentially hazardous and offensive. SEPP 33 sets out to:

- Amend the definitions of hazardous and offensive industries where used in environmental planning instruments.
- Render ineffective a provision of any environmental planning instrument that prohibits development for the purpose of a storage facility on the ground that the facility is hazardous or offensive if it is not a hazardous or offensive storage establishment as defined in the Policy.
- Ensure that in determining whether a development is a hazardous or offensive industry, any measures proposed to be employed to reduce the impact of the development are taken into account.

- Ensure that in considering any application to carry out potentially hazardous or offensive development, the consent authority has sufficient information to assess whether the development is hazardous or offensive and to impose conditions to reduce or minimise any adverse impact.

Under SEPP 33 potentially hazardous and potentially offensive industries have the following definitions:

'Potentially hazardous industry' is defined as development for the purposes of any industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would pose a significant risk in relation to the locality:

- To human health, life or property; or
- To the biophysical environment, and includes a hazardous industry and a hazardous storage establishment.

'Potentially offensive industry' means a development for the purposes of an industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would emit a polluting discharge (including for example, noise) in a manner which would have a significant adverse impact in the locality or on the existing or likely future development on other land, and includes an offensive industry and an offensive storage establishment.

4.4.1 APPLYING SEPP 33

The objective of *Applying SEPP 33* (DoPI, 2011) is to provide advice on implementing SEPP 33 by:

- Clarifying the type of development to which the policy applies, particularly in respect to storage establishments.
- Establishing a risk screening process with screening thresholds and provides a discussion of factors that can cause a development to be potentially hazardous, even when screening thresholds are not exceeded.
- Listing all screening thresholds and specifies separate screening thresholds for residential/sensitive land uses and other less sensitive uses, where appropriate.

A number of Hazardous Industry Planning Advisory Papers (HIPAPS) and other guidelines have been published progressively by the Department of Planning and Infrastructure to assist stakeholders in implementing the process. The HIPAPs potentially applicable to the Proposal are listed below.

4.4.2 HIPAP NO. 6 - GUIDELINES FOR HAZARD ANALYSIS

In assessing development proposals (for new facilities and substantial modifications to existing ones) and existing plants, the emphasis is on preventing or minimising major hazardous incidents on-site, such as fire and explosion or the release of significant quantities of toxic or biologically harmful chemicals, that could result in significant off-site effects.

The assessment of the suitability of a site to accommodate an existing or proposed development of a potentially hazardous nature must be based on consideration of:

- The nature and quantities of hazardous materials stored and processed on the Site.

- The type of plant and equipment in use.
- The adequacy of proposed technical, operational and organisational safeguards.
- The surrounding land uses or likely future land uses.
- The interactions of these factors.

This information is incorporated into the hazard analysis. The objective of hazard analysis is to develop a comprehensive understanding of the hazards and risks associated with an operation or facility and of the adequacy of safeguards. Without such analysis it is difficult to be confident that design and operation can be carried out with an adequate level of safety.

HIPAP No. 6 provides guidance on the general approach recommended for hazard analysis and details the requirements for reports to be submitted to government authorities.

4.4.3 HIPAP NO. 10 - LAND USE SAFETY PLANNING

Land use safety planning is essentially a mechanism for dealing with actual or potential conflicts between sources of risk, such as potentially hazardous industrial developments, and surrounding land uses. These guidelines focus on the land use safety implications of industrial hazards, in particular those arising from loss of containment of hazardous materials leading to fires, explosions and toxic releases.

They provide advice to planning authorities and other stakeholders in relation to strategic land use safety planning and development assessment and control. They also discuss risk criteria for land use safety planning and cover emergency planning in the context of land use safety.

4.4.4 HIPAP NO. 4 – RISK CRITERIA FOR LAND USE SAFETY PLANNING

HIPAP No. 4 suggest risk assessment criteria to be considered when assessing the land use safety implications of industrial development of a potentially hazardous nature. The guideline can also be used to assess risk to proposed developments located within the vicinity of potentially hazardous facilities. Individual risk criteria are suggested for fatality, injury and property damage. In the case of fatality, the criteria differentiate between the various types of land use, acknowledging the need to protect the more vulnerable members of the community. As the Banksmeadow TT site is located within an industrially zoned precinct and does not front onto any residentially zoned land, the applicable criteria for land use safety planning are those for industrial land use.

4.5 PROTECTION OF THE ENVIRONMENT OPERATIONS ACT 1997

The *Protection of the Environment Operations Act* 1997 (POEO Act) is the key piece of environmental protection legislation administered by the Environment Protection Authority (EPA). The principle objectives of the POEO Act are to:

- Protect, restore and enhance the quality of the environment, while having regard to the principles of ecologically sustainable development (ESD).
- Provide increased opportunities for public involvement and participation in environment protection.
- Reduce risks to human health and prevent the degradation of the environment.

- Assist in the achievement of the objectives of the *Waste Avoidance and Resource Recovery Act* 2001.

Under the POEO Act, activities that will or are likely to cause pollution are identified as scheduled activities and require an environmental protection licence (EPL). EPLs are issued and administered by the EPA.

Table 4-1 Applicable scheduled activities under the POEO Act

Clause	Activity	Trigger
41	Waste processing (non-thermal treatment)	Having on-site at any time more than 2,500 tonnes, or 2,500 cubic metres, whichever is the lesser, of general waste
		Processing more than 30,000 tonnes per year, of general waste.
42	Waste storage	Receiving more than 30,000 tonnes per year of waste from off-site.
33	Railway systems activities*	The installation or on-site upgrading of track, including the construction or significant alteration of any ancillary works.

Under the POEO Act, licensees must prepare, implement and test pollution-incident management plans (PIRMP) for each of their licensed activities, according to the requirements set out in part 5.7A of the POEO Act and the Protection of the Environment Operations (General) Regulation 2009.

Pollution Incident Response Management Plans (PIRMP) would be prepared for construction and operation of the terminal in accordance with the requirements of Part 5.7A of the POEO Act and the Protection of the Environment Operations (General) Regulation 2009. The PIRMPs would document the following:

- A description of the likelihood of hazards at the Site
- Pre-emptive actions to be taken to minimise or prevent any risk of harm to human health or the environment
- An inventory of pollutants kept on the Site
- A description and inventory of safety and environmental equipment stored on-site to control pollution incidents
- Contact details for the EPA, Ministry of Health, Work Cover, NSW Fire and Rescue, and Botany Bay City Council for immediate notification in the event of an incident that threatens environmental harm
- Details of the mechanisms that will be used for providing early warnings and regular updates to the owners and occupiers of premises who may be affected by an incident occurring on the premises
- A detailed map showing the location of the premises, the surrounding area that is likely to be affected by a pollution incident, the location of potential pollutants on the premises, the location of any stormwater drains on the premises, and the discharge locations of the stormwater drains to the nearest watercourse or water body
- A description of the actions that will be taken by the Veolia immediately after a pollution incident to reduce or control any pollution

- Details on the nature and objectives of any staff training program on implementing the PIRMP.

5 CONSTRUCTION RISK ASSESSMENT

Hazards associated with construction of the Banksmeadow TT will be managed through the Hazard and Operability Study (HAZOP), which will be undertaken as part of the detailed design. Construction will be undertaken in accordance with the *Work Health and Safety (WHS) Act 2011*.

One issue that will require management on the site is the presence of asbestos in the existing buildings and structures.

5.1 ASBESTOS SURVEY

An asbestos survey and qualitative risk assessment was undertaken on the buildings at the Site in 2002 (Hibbs & Associates, 2002) when the Site was occupied by Keith Engineering Pty Ltd. The principal asbestos material types identified and their general locations in the building are:

- Corrugated asbestos cement (AC) sheet clad roof of:
  - Engineering Factory No. 36.
  - Engineering Store No. 34.
  - Engineering Factory No. 34.
- Corrugated AC sheet clad wall sections of:
  - Engineering Factory No. 36.
  - Engineering Store No. 34.
  - Engineering Factory No. 34.
- AC guttering and downpipes associated with the above buildings.
- Flat AC sheet lined walls at various locations in the above buildings and the garage.
- Asbestos containing floor tiles in the SE offices of the Engineering Factory No. 36.
- Asbestos containing backing boards at various locations in:
  - Engineering Factory No. 36.
  - Engineering Store No. 34.
  - The garage.
- Suspected asbestos rope seals associated with the windows between the roof sections of:
  - Engineering Store No. 34
  - Engineering Factory No. 34.

Figure 5-4 Location of buildings containing asbestos (from Hibbs & Associates, 2002)

The survey found that the asbestos containing materials were in a stable condition and do not present significant asbestos-related health risk if left in place and maintained. The study recommended that materials remaining in-situ be labelled in accordance with the requirements of Worksafe Australia *Model Code of Practice – How to Manage and Control Asbestos in the Workplace* (Safe Work Australia, 2011).

It has subsequently been observed that asbestos on-site has been labelled, in accordance with the Code of Practice. It has also been observed that the asbestos guttering on the Site has begun to deteriorate and no longer appears to be in a stable condition.

5.2 ASBESTOS MANAGEMENT

Demolition of the structures identified above, should be undertaken in accordance with the *Model Code of Practice – How to Manage and Control Asbestos in the Workplace (Safe Work Australia, 2011)*.

A detailed Site investigation has been undertaken for the Proposal site that identified areas of the Site where asbestos was present in the soil. Excavation or disturbance of those areas of the Banksmeadow TT site where the potential for asbestos to be present within the soil has been identified should also be managed in accordance with the code of practice. Further details on the risk of asbestos in the soil and appropriate management controls are presented in the Remedial Action Plan for the Site (Douglas Partners, 2013).

Prior to commencement of construction, a risk assessment must be undertaken by a competent person of the Proposal site prior to removal of any asbestos material from the Site. In accordance with the *Model Code of Practice – How to Manage and Control Asbestos in the Workplace* (Safe Work Australia, 2011), the assessment must comprise review and summation of all available information for the Proposal site, including the:

- Asbestos risk assessment/risk register.
- Asbestos management plan.
- Implementation of the asbestos management plan to date.
- A confirmation of controls to be implemented where construction works will impact on asbestos materials.

5.3 CONCLUSIONS AND RECOMMENDATIONS

5.3.1 ASBESTOS MANAGEMENT

An asbestos management plan will be developed for the Banksmeadow proposal containing a risk assessment undertaken in accordance with the *Model Code of Practice – Storage and Handling of Dangerous Goods* (Safe Work Australia, 2005)

During demolition of the existing structures on the Proposal site and removal of asbestos from the Site, all works will be undertaken in accordance with the *Model Code of Practice – How to Manage and Control Asbestos in the Workplace* (Safe Work Australia, 2011), including the development of an asbestos removal control plan and an emergency plan. Veolia would engage a contractor who is adequately qualified and competent to ensure appropriate management of asbestos as outlined in the *Model Code of Practice – Storage and Handling of Dangerous Goods* (Safe Work Australia, 2005).

6 OPERATIONAL RISK ASSESSMENT

6.1 BOTANY INDUSTRIAL PARK

The Proposal site is located immediately adjacent to the Botany Industrial Park (BIP), which was previously owned in its entirety by Orica (the former ICI Australia), was subdivided in 1998. The following three companies now share the majority of the Site and make up the BIP:

- Orica Australia Pty Ltd: now operates the ChlorAlkali Plant, Groundwater Treatment Plant and manages site legacy issues, including theHCB Waste Repackaging Plant.
- Huntsman Corporation Australia Pty Ltd: operates the Surfactants Plant.
- Qenos Pty Ltd: operates the Site Utilities, Olefines, Alkathene and Alkatuff Plants.

All three companies have completed notifications as Major Hazard Facilities to NSW WorkCover. As a requirement of the Major Hazard Facilities listing, the BIP was required to prepare a Safety Report that presents the technical, management and operational information covering the hazards and risks associated with operation of a major hazard facility.

The proximity of the BIP to the Banksmeadow TT site means that the criteria established in HIPAP No. 4 should be considered in determining the suitability of the Site for the proposed use. Table 2 of HIPAP No. 4 prescribes an Individual Fatality Risk Criterion of 50 per million per year. A quantitative risk assessment has been prepared for the BIP by Sherpa Consulting (2012), which identifies the following fatality risk posed by the BIP to the Proposal site:

- 1 individual fatalities per million per year within the vicinity of the railway sidings
- 0.5 individual fatalities per million per year within the vicinity of the transfer terminal building.

It is therefore concluded that the Banksmeadow TT Proposal is compliant with the criteria for land use safety planning and is an appropriate use of the Site.

6.2 OPERATIONAL RISK

An Operational Environmental Management Plan (OEMP), and supporting specific management plans, will be developed to minimise the likelihood of an incident occurring during operation of the Banksmeadow TT.

As part of the OEMP a Pollution Incident Response Management Plan (PIRMP) will be prepared to meet the requirements of the POEO Act, with the aim of:

- Identifying threats to the environment and/or public health that could arise in relation to the operation of the transfer terminal including the delivery and packing of waste
- Develop fire management procedures, and in particular the management of fire water so the potential risk of surface water pollution is minimised
- Develop a communications strategy for alerting relevant agencies and the potentially affected community in the event of the disruption to operations leading to significant pollution.

In the event of an emergency or incident, the general management strategy that will be adopted to minimise the risk to the public and all personnel in the event of an emergency would include:

- Providing adequate resources including staffing and fire-fighting equipment
- Ensuring that all relevant employees are familiar with the PIRMP

- Training of staff so that a high level of preparedness is maintained by all people who could be involved in an emergency
- Periodic review and update of emergency procedures for the Site.

Emergency response and incident management protocols for the construction and operation of Banksmeadow proposal would be developed in accordance to the standard *AS 3745 – 2002 Planning for Emergencies in Facilities* (2010) and the *Model Code of Practice – Managing the Work Environment at Facilities* (Safe Work Australia, 2011).

The OEMP would be planned collaboratively with the construction contractor and Site operator and in consultation with the NSW police force, NSW Fire Brigade and the Ambulance Service of NSW. Emergency response and incident management protocols will cover the following types of emergency or incident:

- Workplace health and safety
- On-site spills or leaks
- Off-site discharges
- Hazardous materials/dangerous goods
- Flooding
- Fire
- Derailment
- Container fall
- Road incidents.

6.3 HAZARD IDENTIFICATION

As defined under Veolia's National Integrated Management System, A **hazard** is anything or situation with a potential for causing damage to people, property or the biophysical environment. **Hazard identification** was undertaken based on a review of the proposed activities at the transfer terminal. The process was undertaken referencing similar studies undertaken for Veolia's waste transfer station operations, and operational experience at the Clyde Transfer Terminal and the Port Botany Resource Recovery Centre.

In identifying hazards, operational and organisational safeguards designed to prevent or mitigate the effects of hazardous incidents have also been taken into consideration.

The following potential hazards to the environment and/or public health have been identified in relation to the operation of the Proposal:

- Spills – liquid/solid (e.g. bursting hydraulic oils and potential loss of putrescible loads).
- Fire/ explosion – electrical, chemical, etc.
- Disruption of operations.
- Non-conforming waste - dangerous goods/hazardous substances.
- Health and respiratory pollution – dust,
- Traffic – interaction between heavy vehicles and pedestrians.
- Traffic – hot waste loads.
- Structural damage.
- Electrical faults.

- Equipment failure.

These are discussed in detail below with a summary of potential hazards presented in Table 6-4.

6.3.1 SPILLS

In the event that there is a liquid or solid spill in the transport of the waste to the terminal, or at the terminal itself, the emergency response, outlined in the Emergency Procedure Flowchart provided in Appendix A will be followed, in accordance to *AS 3745 – 2002 Planning for Emergencies in Facilities* (2010).

6.3.2 FIRE OR EXPLOSION

There are three potential scenarios by which the Banksmeadow TT may be impacted by fire:

1 Fire from adjacent sites.

2 Fire in the waste trucks entering the Site caused by hot material brought in with the waste, or possibly through spontaneous combustion of volatile material in the waste.

3 Fire initiated on-site (e.g. from a vehicle accident, equipment, or by discarded matches or naked flames).

All fires will be treated as an emergency and the extinguishment of fires takes precedence over normal operations. The Incident Response Plan will detail the emergency response to be implemented in the event that there is a fire or explosion in the transport of the waste to the Terminal, or at the Terminal itself in accordance to the Appendix A, Fire and Smoke Emergencies, .of the *AS 3745: 2010 standard.*

Appropriate fire alarms and fire fighting equipment will be provided on-site for an initial emergency response and will include a deluge system, fire extinguishers, hoses and reels.

Fires that occur in transfer vehicles are more difficult to deal with since the contents cannot be discharged quickly, particularly if the fire occurs on route to the terminal. In the event a driver becomes aware they are carrying a hot load en route to the Banksmeadow TT, the driver will immediately contact Banksmeadow TT. In response, the Banksmeadow TT manager or nominee will:

- Determine and advise the driver of the nominated point with the shortest travelling time.
- Inform the relevant client that the waste has come from.
- Contact the NSW Fire Brigade, where necessary.

On arrival at the Banksmeadow TT site, the driver will be directed to the ‘hot load’ area within the terminal building. The ‘hot load area’ is an area that will be designated for the management of ‘hot loads’ and fire, contained through a combination of dousing with fire hoses and discharging the contents and totally extinguishing the fire using on-site fire hose reels. The procedure for management of hot loads will be included in the PIRMP and operators and drivers accessing the terminal will be inducted into the process.

Any fires on the tipping floor will be extinguished with a fire hydrant system provided and/or foam from portable units, depending on the severity of the fire. In addition, a manually operated fire deluge system will be available. The source of water will be an on-site tank filled with rainwater and topped up as required from mains water.

Equipment will be checked in accordance with the equipment maintenance specification and replaced as necessary.

Water used in responding to fire (firewater) has the potential to be a pollutant, should it enter the stormwater system. Any water that falls on external areas of the terminal will be treated as stormwater and directed to the stormwater system and ultimately discharged in accordance with the Site stormwater management plan.

Firewater captured within the terminal building will be treated as leachate and will drain to the leachate holding tank. When the leachate holding tank reaches capacity it will overflow into the compaction pit, which will also act as a collection and storage area for the firewater. Both these collection tanks are self-bunding, thereby preventing leachate from escaping from the Site. Any firewater collected in both the leachate holding tank and the compactor pit, will be pumped out and transferred off site for appropriate disposal or injected into the compacted waste as per normal site operations.

6.3.3 DISRUPTION OF OPERATIONS

Disruption of operations may be as a result of power or other utility failure, structural damage or delivery of unauthorised waste. Details regarding the operational contingency measures for any such disruptions to the Site will be provided in the Business Continuity Plan for the Site, which will outline operational contingencies.

In the event that a disruption to operations causing the closure of the facility cannot be avoided, the Site Manager and/or Environmental Management Representative (EMR) shall be informed and co-ordinate the redirection of waste vehicles to other suitable receiving facilities, until such time that operation can recommence.

6.3.4 HEALTH AND RESPIRATORY IMPACTS

Airborne emissions associated with the Site that may impact the local environment and raise potential health concerns, such as asthma and allergies, in the local community. Potential emissions from the Site include:

- Vehicle exhaust: exhaust fumes consisting of lead, carbon monoxide, hydrocarbons and nitrogen oxide from increased traffic to and from the transfer terminal.
- Dusts: resulting from bulk material handling and vehicle/ equipment movements.
- Microbial: primarily includes moulds, microbial spores and pollen within the waste.
- Gases/ odours: from the decomposition of putrescible waste and mostly comprises methane and carbon dioxide.

The health risk assessment undertaken for the Clyde Transfer Terminal (Noel Arnold & Associates, 2010) concluded that the health risk to the neighbouring population as a result of exposures to airborne emissions from the proposed Clyde Transfer Terminal would be negligible.

All operations and activities occurring at the Proposal site will be carried out in a manner that will minimise the emission of dust from the premises. Trucks entering and leaving the Site that are carrying loads will be covered at all times, except during loading and unloading. A Dust Suppression System will be operated as required to minimise the potential for particulates to become airborne.

Waste delivered to the Site will be unloaded in a section of the building, as directed by the weighbridge operator. For putrescible waste, this enables waste to be loaded into the compactors on a first in / first out basis. If a load is identified as offensive (odorous or dusty) it will be prioritised for compaction and loading into the sealed containers and recorded using an Incident Management System, which forms part of the Veolia Environmental Services' (VES)

National Integrated Management Systems (NIMS). This will enable odour issues with regular deliveries to be identified and prioritised for quick processing.

An Odour Control System will be operational whenever waste is contained on the floor within the terminal building, however, it should be noted that this report does not cover odour impacts as these are not considered health related.

Dust emissions within the non-putrescible portion of the terminal building would be controlled by the dust suppression system. Should putrescible waste be identified in the non-putrescible waste stream this would be recorded on the in accordance with the Incidence Management System and the Waste Management Plan, and transferred to the putrescible area of the terminal.

6.3.5 DANGEROUS GOODS STORAGE AND TRANSPORT

6.3.5.1 Non-conforming waste

Although the specific transport and use of dangerous/ hazardous goods to the Proposal site is low, there is the potential for dangerous goods to be to be mixed in the waste stream.

Any general solid waste (putrescible) and/or general solid waste (non-putrescible) received for storage or recovery or processing at the premises will be assessed and classified in accordance with the *Waste Classification Guidelines Part 1: Classifying Waste* (DECC, 2008).

Waste will be screened in accordance with the Procedure for Screening and Recording of Waste Received, which forms part of Veolia's NIMS. Unacceptable waste may be detected and intercepted during the unloading of waste within the terminal building by either the weighbridge operator (via CCTV) and/or the loader driver. Procedures will be developed for the screening and recording of the waste received and for rejecting unacceptable waste materials. This information will be covered as part of the induction program for the Site.

6.3.5.2 Hazardous material on-site

Hazardous materials associated with vehicle maintenance will be stored and used onsite. The hazardous materials likely to be used onsite, and the estimated quantities, are presented in Table 6-2.

Table 6-2 Chemicals likely to be stored onsite and estimated quantities

Chemical/ material	Use	Maximum quantity to be stored onsite (estimated)	Dangerous Goods Class	Storage location & distance from boundary
Instant hand sanitizer	Personal sanitation for staff	1.2 L	3(III)	Administration building / 5 m
Anti-Freeze Anti-Boil Coolant	Front end loader, excavator and container handler	20 L	N/A	Maintenance area / 30 m
Agrosheild Universal	Sheilding gas for use during machinery repairs	80 kg	2.2	Maintenance area / 30 m
Compressed oxygen	For use during welding for machinery repairs	80 kg	2.2	Maintenance area / 30 m

Chemical/ material	Use	Maximum quantity to be stored onsite (estimated)	Dangerous Goods Class	Storage location & distance from boundary
Acetylene	For use during welding for machinery repairs	40 kg	2.1	Maintenance area / 30 m
Diesel fuel	Front end loader, excavator and container handler	30,000 L	C1: Combustible liquids*	Maintenance area / 30 m

** Note that C1 combustible liquids are not a dangerous good under UN (United Nations) classification. They are defined as dangerous goods under workplace legislation.*

6.3.5.3 Risk Screening

As described in *Applying SEPP 33* (DoPI, 2011) the first stage of determining the SEPP 33 procedural requirements, and in particular to determine if a PHA is required is to undertake the screening tests, such as dangerous goods quantity/ distance thresholds. Hazardous materials are substances falling within the classification of the Australian Code for Transportation of Dangerous Goods by Road and Rail (Dangerous Goods Code).

Industries or projects determined to be hazardous or potentially hazardous require the preparation of a Preliminary Hazard Analysis (PHA) in accordance with clause 12 of SEPP 33.

A range of information is required to effectively apply the risk screening method described in *Applying SEPP 33* in order to determine if the development is potentially hazardous, including:

- Details of all dangerous goods and otherwise hazardous materials involved in the proposed development - include raw materials, intermediates, and products.
- Dangerous goods classifications (including all subsidiary classes) for all Dangerous Goods held on-site.
- Quantities of dangerous goods and otherwise hazardous materials involved in the proposed development.
- Hazardous materials and their quantities.
- Distance from the boundary for each hazardous substance.
- Weekly and annual number of deliveries (and the quantities) of dangerous goods and otherwise hazardous materials to and from the facility.
- Site layout plan showing proposed development and any existing development on-site.
- Local layout plan showing immediate neighbours and their activities.
- A locality plan showing the nearest residential property.

Table 6-3 shows the screening thresholds established in Applying SEPP 33 and the quantity of dangerous goods that would be stored onsite.

Table 6-3 Quantities of dangerous goods assessed against screening thresholds

Chemical/ material	Maximum quantity to be stored on-site (estimated)	Dangerous Goods Class	Storage location & distance from boundary	Screening threshold /Potentially hazardous region
Instant hand sanitizer	1.2 L	3(III)	Administration building / 5 m	5,000 kg

Chemical/ material	Maximum quantity to be stored on-site (estimated)	Dangerous Goods Class	Storage location & distance from boundary	Screening threshold /Potentially hazardous region
Agrosheild Universal	80 kg	2.2 - Non-flammable, non-toxic gases	Maintenance area / 30 m	None prescribed
Compressed oxygen	80 kg	2.2 - Non-flammable, non-toxic gases	Maintenance area / 30 m	None prescribed
Acetylene	40 kg	2.1 - Flammable gases	Maintenance area / 30 m	100 kg
Diesel fuel	30,000 L	C1: Combustible liquids	30 m	None prescribed.

The volumes of chemicals proposed to be stored on-site for machinery and vehicle maintenance are well below the screening thresholds for their quantities that would trigger the requirement for a PHA. The gases would be stored in the designated maintenance area of the Proposal site in accordance with *Australian Standard 4332-1995 The storage and handling of gases in cylinders* and *Australian Standard 4289-1995 Oxygen and acetylene gas reticulation systems*. The hand sanitiser would be stored in the administration building of the Proposal site for use by employees and staff.

As a C1- Combustible liquid the 20,000 L of diesel fuel is not considered to be potentially hazardous when stored in a separate bund or within a storage area where there are no other flammable materials stored. A self-bunded diesel tank compliant with *AS = 1940-2004 The storage and handling of flammable and combustible liquids* would be used for the storage of the diesel. C1 combustible liquids are not classified as dangerous goods for road and rail transport.

The risk screening therefore concludes that a preliminary hazard analysis is not required.

Methods of release

The proposed operations on the Site were reviewed with reference to similar operations to identify hazards. Consideration was given to the location of activities involving dangerous goods. These were identified to be:

- Transportation of fuel off- and on-site via fuel tanker.
- Fire originating off- and on-site
- Vehicle collision with the diesel storage tank.

Potential **on-site** methods of release are shown in Table 6-4. The standards and guidelines that would advise facility design and operating procedures to mitigate risks and hazards associated with the Proposal are also noted.

The other cause that may lead to release is fire. The design and installation of on-site fire hydrants and the manually operated fire deluge system will be in compliance with AS 2419.1-2005 *Fire hydrant installations - System design, installation and commissioning*.

Off-site methods of release include rail and road transport of goods to and from the transfer terminal. All material entering the Banksmeadow TT site will be by truck, while material leaving the Site will either be packed in shipping containers and transported to Woodlawn Eco-Project

site or packed in semi-trailers for transfer to resource recovery facilities (e.g. Camellia Recycling Centre).

6.3.6 CONTROLS AND MANAGEMENT

6.3.6.1 Hierarchy of controls

In identifying *hazard* mitigation and management measures the following hierarchy of controls (which range from most effective to least effective) were considered:

1 **Elimination** is a permanent solution and should be attempted in the first instance. The hazard is eliminated altogether. For example, the elimination of a hazardous process or substance.

2 **Substitution** involves replacing the hazard by one that presents a lower risk. This could involve the substitution of a toxic substance with a less toxic substance.

3 **Engineering** controls involve some structural change to the work environment or work process to place a barrier to, or interrupt the transmission path between, the worker and the hazard, or the environment and the hazard. This may include machine guards, isolation or enclosure of hazards, the use of extraction ventilation, bunding and manual handling devices.

4 **Isolation**: This involves the separation of persons or environment from the hazard by means or relocation of the hazard to a remote location, or by segregating the hazard to prevent personal exposure.

5 **Administrative** (procedural) controls reduce or eliminate exposure to a hazard by adherence to procedures or instructions. Documentation should emphasise all the steps to be taken and the controls to be used in carrying out a task safely & with environmental awareness. Successful administrative controls are dependent on appropriate human behaviour. Examples include safe working procedures and permits to work, training/inductions.

6 **Personal Protective Equipment** (PPE)/Environmental Control Equipment (ECE) are worn/used by people as a barrier between themselves/the environment and the hazard. The success of this control is dependent on the protective equipment being chosen correctly, as well as fitted correctly and worn at all times when required.

This hierarchy starts with the most preferable approach to managing hazards. The type of control that each management standard or guideline represents is presented in Table 6-4, based on existing hazard registers for Veolia's Clyde Transfer Terminal and Port Botany Resource Recovery Centre.

6.3.6.2 Management standards and guidelines

As stated, an Operational Environmental Management Plan (OEMP), and supporting specific management plans, will be developed to minimise the likelihood of an incident occurring. The operational procedures to manage the risks associated with activities on the Site will be generally consistent with existing management plans for Veolia's Clyde Transfer Terminal and Port Botany Resource Recovery Facility and include the following key documents:

- Operational Environmental Management Plan (OEMP)

- Incident Response Plan (IRP)
- Emergency Response Plan (ERP)
- Screening and Recording of Waste Procedure
- Minimising Odour Procedure & Odour Management Plan (OMP)
- Operation of the Odour Control System
- Business Continuity Plan
- Dust Management Plan (DMP)
- Vermin and Pest Control Plan.

As discussed in Section 4.5, a PIRMP would be prepared for the facility to meet the requirements of the POEO Act and POEO (General) Regulations. This PIRMP would outline the protocol to immediately notify the following agencies in the event of an emergency or incident which is determined to have caused or threatened material harm to the environment:

- EPA.
- Fire & Rescue.
- NSW Health Department - Public Health Unit.
- WorkCover NSW.
- Botany Bay City Council.
- Randwick City Council.

Table 6-4 Hazard scenarios and consequences associated with the activities and facilities

Hazards/ Aspect	Risk	*Impact*	Management standards and guidelines	Hierarchy of control
Truck unloading of waste onto floor of designated area: Unsecure/ unstable/ overloaded loads	Falling objects, loss of control, vehicle accident; impact on other vehicles/plant/pedestrians	*Physical and property damage*	Operational procedure (OEMP)	Administrative
			Operators licensed and competent	Administrative
	Fire from release of hot loads	*Physical and property damage*	Operational procedure – Incident Response Plan and Emergency Response Plan.	Administrative
			AS 1815: Maintenance of Fire Suppression System and Equipment AS 2419.1-2005 Fire hydrant installations - System design, installation and commissioning.	Engineering
Use of front end loader to move waste to the compactor	Vehicle accident; impact on other vehicles/plant/pedestrians	*Physical and property damage*	Operational procedure (OEMP)	Administrative
			Operators licensed and competent	Administrative
Movement of containers from terminal building to container storage area Uncontrolled container caused by operator error	Impact with another container, container handler or train/ truck, damage to container seals, release of leachate	*Physical and property damage*	Operational procedure (OEMP)	Administrative
			Operators licensed and competent	Administrative
Stacking of containers Unstable container load, container handler failure, and/or operator error, lower containers misaligned.	Impact with equipment; impact on other containers /pedestrians	*Physical and property damage*	Operational procedure (OEMP)	Administrative
			Operators licensed and competent	Administrative
			AS 1851-2012 Routine service of fire protection systems and equipment	Engineering
Train loading via container handler	Impact injury, impact with other containers during operation, impact with equipment, fire	*Physical and property damage*	Operational procedure (OEMP)	Administrative
			Operators licensed and competent	Administrative

Hazards/ Aspect	Risk	*Impact*	Management standards and guidelines	Hierarchy of control
Unstable container load, misalignment with wagon due to wagon movement			AS 1851-2012 Routine service of fire protection systems and equipment Fire hydrants Incident Response Plan and Spill Response Procedure.	Engineering
Truck loading with grapple arm Unstable truck load	Impact injury, impact with equipment, fire	*Physical and property damage*	Operational procedure (OEMP)	Administrative
			Operators licensed and competent	Administrative
Diesel fuel (class C1): storage and refuelling Vehicle impact with storage tank, fire, storage tank failure, spills	Fire, release of dangerous goods, skin contact/ inhalation	*Physical and property damage*	AS1940:2004 The storage and handling of flammable and combustible liquids	Administrative
			Storage in a separate bund or within a storage area where there are no flammable materials stored.	Engineering
			Operational procedure (OEMP)	Administrative
			Appropriate PPE supplied and worn	PPE/ECE
Non-conforming waste	Spills, exposure to hazardous substances	*Physical harm*	Operational procedure (OEMP)	Administrative
Dust generated from operating equipment, vehicle movements and bulk material handling	Respiratory health impacts (e.g. asthma), eye and skin irritation	*Physical harm*	Enclosed terminal building Air conditioned cabs for equipment operating within terminal building Sealed roads and regular cleaning Covered loads Dust Suppression System	Engineering
			PPE – eye protection and dust masks	PPE/ECE
Vehicle exhaust generated from movement of trucks and front	Respiratory health impacts (e.g. asthma), eye and skin irritation	*Physical harm* There is no evidence that air	Vehicles maintenance to reduce particulate discharge.	Administrative

Hazards/ Aspect	Risk	*Impact*	Management standards and guidelines	Hierarchy of control
end loader in the enclosed terminal building		pollution (including petrol and diesel exhaust) can cause respiratory disease.	Odour Ventilation System. Dust Suppression System Air conditioned cabs for equipment	Engineering
Microbial due to decomposition of putrescible waste Involves the formation of moulds and other microbial spores that can become airborne when disturbed. The speed of decomposition depends on: the surface area; aeration and moisture.	Respiratory health impacts (eg asthma) Microbial contaminants including pollen and microbial spores are a common trigger of asthma.	*Physical harm*	Enclosed terminal building. Air conditioned cabs for equipment	Engineering
			Minimise residency time to reduce mould formation in the refuse.	Administrative
Gases/ odours due to the decomposition of putrescible wastes generate gases, typically methane (CH_4) and carbon dioxide (CO_2) (comprises 99%).	Respiratory health impacts	*Physical harm*	Enclosed terminal building Air conditioned cabs for equipment	Engineering
			Odour Control System	Engineering
			OEMP- Minimising Odour Procedure Transfer Terminal Odour Management Operation and Maintenance Manual for Odour Ventilation System.	Administrative
			Complaint management system	Administrative

Hazards/ Aspect	Risk	*Impact*	Management standards and guidelines	Hierarchy of control
Vehicle and machinery maintenance Fire	Fire or release of chemicals from vehicle maintenance.	*Physical harm* *Property damage*	AS 4332-2004 The storage and handling of gases in cylinders AS 4289-1995 Oxygen and acetylene gas reticulation systems AS 1851-2012 Routine service of fire protection systems and equipment	Engineering

7 REFERENCES

AS 2419.1-2005 *Fire hydrant installations - System design, installation and commissioning.*

AS 1940-2004 *The storage and handling of flammable and combustible liquids*.

AS 4289-1995 *Oxygen and acetylene gas reticulation systems*

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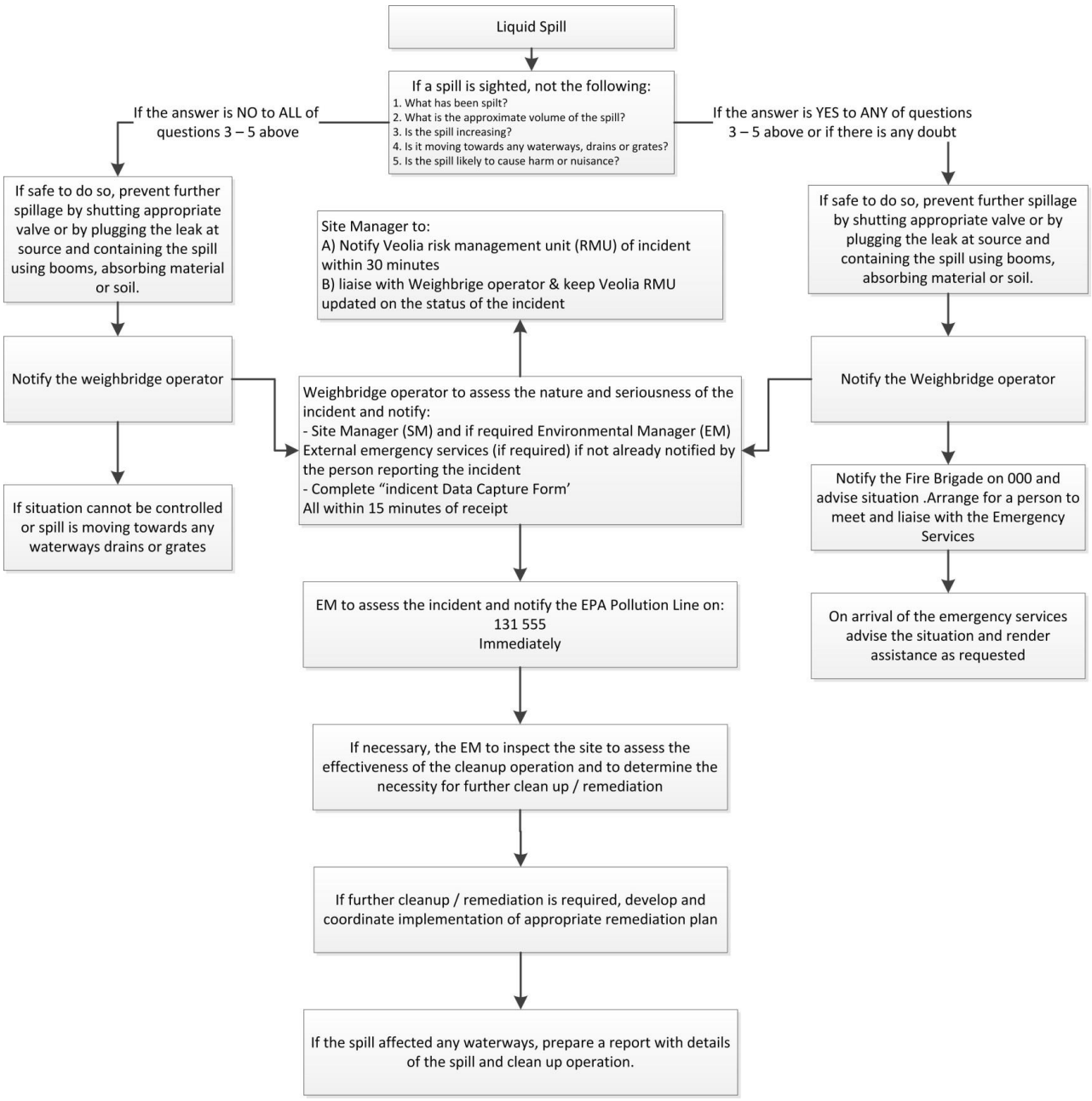
APPENDIX A

SPILLS RESPONSE


Liquid Spill
If a spill is sighted, not the following:
1. What has been spilt?
2. What is the approximate volume of the spill?
3. Is the spill increasing?
4. Is it moving towards any waterways, drains or grates?
5. Is the spill likely to cause harm or nuisance?
If the answer is NO to ALL of questions 3 – 5 above
If the answer is YES to ANY of questions 3 – 5 above or if there is any doubt
If safe to do so, prevent further spillage by shutting appropriate valve or by plugging the leak at source and containing the spill using booms, absorbing material or soil.
Notify the weighbridge operator
If situation cannot be controlled or spill is moving towards any waterways drains or grates
Site Manager to:
A) Notify Veolia risk management unit (RMU) of incident within 30 minutes
B) liaise with Weighbrige operator & keep Veolia RMU updated on the status of the incident
Weighbridge operator to assess the nature and seriousness of the incident and notify:
- Site Manager (SM) and if required Environmental Manager (EM)
External emergency services (if required) if not already notified by the person reporting the incident
- Complete "indicent Data Capture Form'
All within 15 minutes of receipt
EM to assess the incident and notify the EPA Pollution Line on:
131 555
Immediately
If necessary, the EM to inspect the site to assess the effectiveness of the cleanup operation and to determine the necessity for further clean up / remediation
If further cleanup / remediation is required, develop and coordinate implementation of appropriate remediation plan
If the spill affected any waterways, prepare a report with details of the spill and clean up operation.
If safe to do so, prevent further spillage by shutting appropriate valve or by plugging the leak at source and containing the spill using booms, absorbing material or soil.
Notify the Weighbridge operator
Notify the Fire Brigade on 000 and advise situation .Arrange for a person to meet and liaise with the Emergency Services
On arrival of the emergency services advise the situation and render assistance as requested