Assessment of chemical storage and warehousing facilities

Introduction

This Guideline will assist a relevant authority (as defined by the *Development Act 1993*) to undertake an environmental assessment of proposals for a chemical storage or warehousing facility.

The information contained in this Guideline is in lieu of the advice that was given by the Environment Protection Authority in responses to referred development applications prior to removal of the activity from Schedule 21 of the *Development Act 1993*.

Where a proposed development falls within the definition of chemical works set out in Schedule 22 of the *Development Regulations 2008*, the proposal must be referred to the Environment Protection Authority under Schedule 8(2)(11) of the same *Regulations.* Development at such a scale may also require licensing under the *Environment Protection Act 1993*.

Assessing environmental issues

The potential adverse impacts of chemical storage or warehousing facilities are associated not only with the storage, mixing, and transfer of agricultural or industrial chemicals on site (which may take the form of bulk dry powder/granules/pellets, liquids or gases), but may also include a range of other on-site activities such as mechanical workshops, conveyor systems, wash-bays, and parts cleaning facilities.

Air quality and noise

Air and noise issues associated with chemical storage or warehousing facilities are likely to include:

- dust from storage or mixing of bulk dry powder/granules/pellets, movement and loading/unloading of vehicles
- odour and mist from decanting liquids, leakage from gas cylinders and volatile materials, chemicals used in mechanical workshops and wash-bays
- noise from the movement of trucks, front-end loaders and forklifts (including reversing alarms), particularly early in the morning or late at night. Other noise sources include air conditioning, pumps, conveyor systems, hoppers and compressors.

The EPA's *Guidelines for separation distances* (2007) identifies recommended separation distances between developments that may result in noise, odour, or polluting air emissions, and sensitive land uses. A separation distance of 500 metres is recommended between a chemical storage and warehousing facility and sensitive land uses**.**

If the proposed development is within the recommended separation distance the applicant should demonstrate that a lesser distance would be appropriate. How this can be demonstrated will depend on how the activity is to be undertaken. The *Guidelines for separation distances* (2007) contains criteria in section '5 Amendments to Separation Distances' that should be addressed when a site-specific variation from the recommended separation distance is being sought. However,

some of the criteria may be overly complicated for low risk activities, and it may not be necessary for them to be addressed. For example, it may be sufficient for a dust management plan to be prepared rather than air quality modelling being undertaken.

The applicant will need to demonstrate that relevant indicative noise levels specified in Clause 5 of the *Environment Protection (Noise) Policy 2007* are not exceeded at the boundary of any nearby sensitive land uses, both during the day and at night.

The applicant will also need to demonstrate that relevant indicative noise levels specified in Clause 5 of the *Environment Protection (Noise) Policy 2007* are not exceeded at any nearby sensitive land uses, both during the day and at night. This could be achieved by providing an acoustic report prepared by a suitably qualified and experienced acoustics engineer which demonstrates that noise meets the relevant noise levels, or provides details of what is required to ensure noise levels meet the relevant noise criteria.

Landfill sites

When considering a site for a chemical storage or warehousing facility consideration needs to be given to the presence of any historic or currently operational landfills.

There are a range of inherent risks associated with landfills including adverse impact on the environment and human health due to odour, litter, vermin, dust, leachate, and landfill gas.

The EPA guideline *Environmental management of landfill facilities (municipal solid waste and commercial and industrial general waste)* (2007) recommends a minimum separation distance of 500m between development and a landfill boundary, including from historic, currently operational and future designated landfill areas, not just the active tipping face. The buffer should be maintained for the life of the landfill[1]. Maintaining a 500m separation distance will reduce the likelihood of impacts from the landfill, including the accumulation of landfill gas in structures.

A proposed chemical storage or warehousing facility within 500m of a landfill should proceed only on the basis of a landfill risk assessment undertaken by a site contamination consultant or a site contamination auditor. Any development within the buffer should be assessed and determined as suitable and compatible. The EPA Information Sheet, *Landfill gas and development near landfills – advice for planning authorities and developers* (2012) contains further information.

Site contamination

The role of the planning system in relation to site contamination is to ensure the ongoing protection and sustainable management of our environment so that communities are protected and can enjoy a clean environment. Addressing site contamination through the planning system can ensure, as far as is practically possible, that land is not developed for a more sensitive use unless/until site contamination risks have been considered and it is ensured that the land is suitable for the proposed use.

Site contamination is addressed in the planning system via a risk-management approach which allows for progressive certainty to be delivered within the lowest prudent cost and time parameters. The *Framework for managing site contamination through the South Australian Planning System* describes the staged approach for addressing site contamination through the planning system to ensure that land that is being developed for a more sensitive uses does not move from one stage in the development process to the next without clear measures being in place to ensure that site contamination either:

- has been appropriately addressed; or

[1] The life of the landfill includes the period after closure and capping, and continues for as long as the landfill has the potential to create off site impacts to the environment (particularly due to landfill gas emissions or leaching to groundwater), which may be decades after the landfill has closed.

- will be appropriately addressed at or before occupation of development.

The *Framework for managing site contamination through the South Australian Planning System* should be consulted to determine the process for assessing site contamination.

Waste management

In addition to empty storage containers and packaging, waste generated on chemical storage and warehouse development sites is likely to include general litter, by-products of any vehicle maintenance (including petroleum products, coolants, degreasing agents, sediment, rubber particles, detergents), and other hazardous materials.

The development should include:

- provision for implementation of the waste management hierarchy (avoidance, minimisation, reuse, recycling, recovery, treatment, disposal) as identified in the *Environment Protection (Waste to Resources) Policy 2010*.
- dedicated covered areas for all non-toxic solid waste materials
- dedicated covered and bunded areas for all toxic waste materials
    - liquid wastes should be contained and / or treated before transport off-site by an EPA-licensed transporter
    - solid toxic wastes should be removed from the site regularly by an EPA-licensed transporter.

  The EPA's guideline, *Bunding and Spill Management* (2012), contains further information on design, capacity, operation and maintenance of bunds.

Wastewater management

Wastewater generated at chemical storage and warehousing facilities is likely to come from storage and handling areas, clean-up of spills, vehicle wash down bays, and cleaning of equipment.

The *Water Industry Act 2012* prohibits the discharge of certain substances into the sewerage system and establishes a requirement for industries to have approval to discharge certain substances to sewer. In the event that approval to discharge to sewer is not forthcoming or there is no available sewer, the waste water should be contained in approved blind tanks and be removed by a waste transporter licensed by the Environment Protection Authority to carry such material to an appropriate waste facility.

Water quality

All chemicals stored in chemical storage and warehousing facilities have potential to contaminate stormwater. Under the *Environment Protection (Water Quality) Policy 2003* contaminated stormwater is defined as 'wastewater' and should be managed as such.

Design of the storage and goods handling areas are critical to minimising the potential to contaminate stormwater.

Storage and handling of goods

Contamination of stormwater by goods that are stored and handled at the site can be prevented by methods including:

- dedicated bunded and, where practicable and economically viable, roofed compound areas for storage of all chemicals, petroleum and degreasing products, and gas cylinders
- an impervious floor within a dedicated loading/unloading area, which is bunded to contain spills, for the loading/unloading of all chemical products

- spill containment devices such as a blind tank of an appropriate size and that is fitted with a high level alarm system, which is emptied as required by an EPA-licensed waste contractor; or
- a Class 1 full retention separator with high level visible and audible alarms through which stormwater from high risk areas should be directed before entering the stormwater system.
- a Class 1 retention by pass separator equipped with coalescer unit and high level visible and audible alarms through which stormwater from low risk areas should be directed before entering the stormwater system.

Water sensitive urban design

Water sensitive urban design is an approach to urban planning and design that seeks to integrate the management of the total water cycle to minimise the impacts of development, protect water quality, make more efficient use of water, reduce the cost of water infrastructure, and address flooding.

Further information on water sensitive urban design can be found at:

https://www.sa.gov.au/topics/housing-property-and-land/building-and-development/land-supply-and-planning-system/water-sensitive-urban-design
http://www.watersensitivesa.com
http://www.environment.sa.gov.au/files/sharedassets/public/water/water-sensitive-urban-design-policy-gen.pdf.

Construction management

Construction activities undertaken as part of a development can detrimentally affect the environment and community health. Air emissions, noise, site contamination, stormwater, and waste need to be managed to prevent impacts on nearby land uses and the natural environment.

The relevant authority may require a construction environmental management plan from the proponent. A construction environmental management plan describes how activities undertaken during the construction phase of development will be managed to avoid or mitigate negative environmental impacts on site and how the environmental management requirements will be implemented.

For further information on the impacts of construction activities and preparing a construction environmental management plan refer to the EPA's guideline, *Construction environmental management plans*.

Disclaimer

This publication is a guide only and does not necessarily provide adequate information in relation to every situation. This publication seeks to explain your possible obligations in a helpful and accessible way. In doing so, however, some detail may not be captured. It is important, therefore, that you seek information from the EPA itself regarding your possible obligations and, where appropriate, that you seek your own legal advice.

Further information

Legislation

Legislation may be viewed on the Internet at: <www.legislation.sa.gov.au>

Copies of legislation are available for purchase from:

Service SA Government Legislation Outlet	Telephone:	13 23 24
Adelaide Service SA Centre	Facsimile:	(08) 8204 1909
108 North Terrace	Website:	<shop.service.sa.gov.au>
Adelaide SA 5000		

For general information please contact:

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