Fuel burning

Guideline

Assessment of fuel burning works or facilities

Introduction

This Guideline will assist a relevant authority (as defined by the *Development Act 1993*) to undertake an environmental assessment of proposals for fuel burning.

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 fuel burning 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

Environmental issues are associated not only with fuel burning (generally using natural gas, but also liquid petroleum gas, black coal (anthracite) brown coal, wood or diesel), but also with a range of processes that might be associated with fuel burning include flaring of gas (eg gas generated from landfill sites), incineration of odorous or dangerous materials in an afterburner, surface coating processes where the drying process results in emissions to air eg enamelling (odour), and baking or drying of a material that results in emissions of dust or any pollutants to air.

Air quality and noise

Air and noise issues associated with fuel burning facilities will depend on the nature of the fuel to be burned and the production or manufacturing process facilitated by fuel burning but may include:

- sulphur dioxide, nitrogen oxides, ash and other particulates, and odour from burning solid and liquid material
- noise from activities associated with fuel burning including vehicle movements and equipment such as hoppers, grinders, shredders, incinerators, and mechanical ventilation systems.

The EPA's *Guidelines for separation distances* (2007) identifies the recommended separation distances required between developments that may result in noise, odour, or polluting air emissions, and sensitive land uses. A separation distance of 300 metres is recommended between a fuel burning development 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 an odour management plan to be prepared rather than odour 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 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 fuel burning 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 fuel burning 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
- 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.

[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.

Waste management

Where the fuel burning activity is dependent on solid fuel (coal, logs) the primary waste product generated on site will be ash. Liquid wastes, slurries and sludges that result from the fuel burning or related production activity can contain a variety of particles including dirt, metals, scale, and salt.

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 must be contained and / or treated before transport off-site by an EPA-licensed transporter
    - solid toxic wastes must be removed from the site regularly by an appropriately EPA-licensed transporter.

Wastewater management

Wastewater is likely to come from clean-up of spills, storage areas, 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 stored on site pending removal by an EPA-licensed transporter.

Water quality

There are a number of pollutants found at fuel burning facilities that 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 is critical to minimising the potential to contaminate stormwater.

Storage of fuels, oils and chemicals

Solid fuel and fuel oil should be stored in an impervious area that includes an area dedicated to loading/unloading, and which is bunded to contain spills that might contaminate surface water or ground water resources.

Above ground liquid fuel storage systems

If liquid fuels are to be stored in above ground storage tanks then those storage tanks need to be appropriately bunded and, where practicable and economically viable, roofed.

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

Underground petroleum storage systems

Leakage from underground petroleum storage systems is a significant issue that can have impacts on soil and groundwater as well as safety implications.

To prevent leaks the underground liquid fuel storage systems (including tanks and piping) should be designed and installed to meet the requirements of Australian Standard AS 4897-2008 *The design, installation and operation of*

underground petroleum storage systems. AS 4897-2008 describes equipment requirements to ensure tanks and piping are non-corrodible, requirements for cathodic protection where steel tanks and piping are proposed, and requirements for secondary containment for tanks and piping where they are proposed.

AS 4897-2008 also describes requirements for leak monitoring systems in order to detect leaks from any portion of the tank or piping and include requirements for systems such as automatic tank gauging, statistical inventory analysis, interstitial monitoring, link leak detection for pressure piping, and groundwater monitoring.

Other relevant Australian Standards include:

- AS 1940-2004 *The storage and handling of flammable and combustible liquids*
- AS 1692-2006 *Steel tanks for flammable and combustible liquids*
- AS 4977-2008 *Petroleum products - pipeline, road tanker compartment and underground tank identification*
- AS 4976–2008 *Removal and disposal of underground petroleum storage tanks*.

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:

Environment Protection Authority	Telephone:	(08) 8204 2004
GPO Box 2607	Facsimile:	(08) 8124 4670
Adelaide SA 5001	Freecall (country):	1800 623 445
	Website:	<www.epa.sa.gov.au>
	Email:	<epainfo@epa.sa.gov.au>